

THE PREMENSTRUAL SYNDROME AND SELF-REPORT.

A thesis
submitted in partial fulfilment
of the requirements for the Degree
of
Master of Arts in Psychology
in the
University of Canterbury
by
Prudence Margaret Fanselow

University of Canterbury

1987

TABLE OF CONTENTS

	Page
ABSTRACT	I
ACKNOWLEDGEMENTS	II
LIST OF TABLES	III
SECTION ONE - LITERATURE REVIEW	1
CHAPTER ONE - THE PREMENSTRUAL SYNDROME	1
1-1 INTRODUCTION/GENERAL OVERVIEW	1
1-1-1 History	3
1-1-2 Prevalence	5
1-2 DEFINITION/DEFINITIONAL PROBLEMS	9
1-2-1 Symptoms	12
1-2-2 Symptom Intensity	14
1-2-3 Phase and Duration of Symptoms	15
1-2-4 Symptomatic Baseline	16
1-2-5 Methods of Measurement	17

1-4 ETIOLOGICAL THEORIES/INTRODUCTION	18
1-4-1 Constitutional	20
1-4-2 Environmental	27
1-5 METHODOLOGICAL ISSUES	34
1-5-1 Subject selection and description	35
1-5-2 The measurement of affective changes	36
1-5-3 Determination of cyclicity	37
CHAPTER TWO - SELF-REPORT	39
2-1 INTRODUCTION	39
2-1-1 Definition	40
2-1-2 History	41
2-1-3 Applications	43
2-2 ISSUES	47
2-2-1 Introduction	47
2-2-2 Reactivity	49
2-2-3 Accuracy	54
2-2-4 Response Biases	55
2-2-5 Reliability	59
2-2-6 Validity	61

SECTION TWO - THE STUDY	71
CHAPTER THREE - OVERVIEW OF THE EXPERIMENT	71
3-1 INTRODUCTION AND AIMS	71
3-1-1 Measurement of Mood	71
3-1-2 Relationship Between S-R and Ratings	74
3-1-3 Aims of the Experiment	75
3-2 METHOD	76
3-2-1 Subject Identification	76
3-2-2 Measures	86
3-2-3 Statistical Analysis	88
3-3 RESULTS	89
3-4 DISCUSSION	99
REFERENCES	105
APPENDICES	132

ABSTRACT

This study reviews the literature on the premenstrual syndrome specifically prevalence, definitional issues, etiological assumptions, and methodological issues. The conclusion is reached that the area requires the input of further well-controlled research.

The technique of self-report is also reviewed with particular emphasis on applications, methodological advantages and limitations. The particular relevance of self-report to the study of the premenstrual syndrome is addressed as is the validity of self-report in the area.

The first aim was to collect sufficient daily mood data from target subjects to determine correlations with their menstrual cycle. Secondly, data was collected from significant-other observers and cyclicity was measured. Lastly, the relationship between target-rated and observer-rated mood was analysed for commonly occurring cyclicity. The statistical technique involved was Spectral Analysis.

Thirteen subjects and observers were involved and results showed clear evidence of PMS in three subjects confirmed by observer recordings. Lack of coherence in cyclicity between target mood and observer rated mood was shown.

It was concluded that 1) some of these women may not have been suffering from PMS and that 2) lack of coherence between target and observer on mood ratings was due to the 'private' nature of mood or to poor observation.

ACKNOWLEDGEMENTS

I am very grateful to Dr Steve Hudson, who supervised this work, for giving so much of his time and for his encouragement and optimism.

This thesis could not have been done without the subjects and their family members and friends who took part. Their co-operation and commitment was very much appreciated. Contact with these women would not have been possible without the helpful assistance of Dr Helen McGill.

Thanks go also to Jayne, Laurel, Brett and Charles who offered support and helped with the typing.

I am very much indebted to Charles for making it possible for me to spend time on this project and to John for never complaining.

LIST OF TABLES

III

<u>Table</u>	<u>Page</u>
1-1 Prevalence of premenstrual Syndrome	7
1-2 Common Symptoms of the Premenstrual Syndrome	13
2-1 Landmarks in the Development of S-R Inventories	43
3-1 PAF Scores and Symptom Severity on Good and Bad Months	90
3-2 Number of Data Points, Bandwidth, Mean Spectral Density, and Significant Cyclicity Within Spectral Density Estimates for Each Subject	90

SECTION ONE - LITERATURE REVIEW

CHAPTER ONE - THE PREMENSTRUAL SYNDROME

1-1 INTRODUCTION/GENERAL OVERVIEW

A significant number of women experience a premenstrual appearance or worsening of a group of symptoms to the degree of sometimes disabling (Abraham, 1981). When related to the menstrual cycle, the experience of severe somatic, mood and behavioural change is called the Premenstrual Syndrome (from here on referred to as PMS). Psychological changes accompanying the menstrual cycle are phenomenologically significant to many women and are thus an appropriate topic for psychological research (Parlee, 1973).

Following a brief discussion of the historical and prevalence aspects of PMS the purpose of this chapter is firstly to provide a summary of some of the more useful definitions in the field, present a description of symptoms, discuss some of the most significant theories on etiology, and summarise the difficulties of assessment.

The term premenstrual tension was applied to the syndrome by Frank (1931) and since that time has been called by many names depending on symptomatology and presumed etiology (Abraham, 1981). A recent example is the diagnostic category 'Periluteal Phase Dysphoric Disorder' (Diagnostic and Statistical Manual-III Revised).

The issue of precise definition of PMS and it's symptomatology remains unresolved and the question of exactly

what requires measurement during the various menstrual phases is controversial. It is vital that researchers clearly define PMS and the nature, intensity, and time of occurrence of symptoms in relation to menstruation. Measurement and definition of cycle phase is also important: a wide variety of these abound in the literature (Parlee, 1983). Any useful operational definition must differentiate the appearance of symptoms premenstrually from the exacerbation of symptoms which are present throughout the menstrual cycle (Rubinow et al, 1984).

It has been widely accepted that a significant proportion of otherwise normal women experience negative emotions in the premenstrual phase of the cycle (Sutherland and Stewart, 1965; Clare, 1977; Slade, 1984). However, due to the difficulties of diagnosis, conflict has persisted in the literature concerning the syndrome's existence, whether it is one syndrome or several, and whether the origin is psychic, somatic or both.

A large number of papers have been written on the subject of PMS over the last 10-12 years and a great deal of information has been collected but no clear singular cause has been found possibly because multiple factors are implicated (Day & Taylor, 1980). Van Keep and Utian (1981) suggested that PMS has remained an enigma despite a variety of theories and in 1985 Clare asserted that there appears to be no single, underlying causative factor and that, etiologically, the disorder remains a mystery. An important contributing factor to this is that the reports are, in general, methodologically flawed and do not succeed in discriminating between recollection and experience of menstrually-related symptoms

(Rubinow & Roy-Byrne, 1984).

No clear-cut correlations have been found between hormonal substrates or pre-existing psychological factors and degree of premenstrual suffering (Clare, 1985). The variety of approaches based on various etiological assumptions have led some investigators to look for different subtypes which may also explain the different responses to treatments (e.g.s., Cullberg, 1972; Dalton, 1984).

Errors in design have been a common fault of research into the subject and it is largely for this reason that PMS remains controversial and poorly understood (Osborn, 1981). Advances in endocrinology have precipitated a more scientific evaluation of PMS in recent years which have revealed the complexity of the underlying neuroendocrinological framework of the menstrual cycle (Clare, 1985).

Continuing scientific research is still required and further consideration of evidence for cyclic changes in populations other than women with PMS is needed (Slade, 1984).

1-1-1 History

Changes in women's feelings, behaviour and social interactions in relation to the menstrual cycle have been observed for centuries. These physical and psychological changes during the period just prior to onset of menstruation have been described in reports and reflected in social customs since the time of the Hippocratic physicians (Rubinow, 1985). In these early times medical observers were aware of the influence of the menstrual cycle on mood and behaviour but myth and superstition played a significant role

(Delaney, Lupton & Toth, 1976; Weideger, 1976).

The nineteenth century witnessed the first descriptions of actual cases of menstrually related depressions and manias (Rubinow et al, 1985). Mentions have also been made outside of the medical literature (e.g., French historical literature) concerning the relationship between the menstrual cycle and mood and behavioural fluctuations (Clare, 1985).

Modern research in the area of menstrually related psychological disorders is generally traced to the more scientific inquiry of the early 1900's. It was at this point that PMS became regarded as a psychological phenomenon tied in some way to the hormonal fluctuations of women (Green & Green, 1984). Frank (1931) described 15 women who developed a premenstrual tension in the 7-10 days preceding onset of menstruation with a disappearance of symptoms soon after beginning of bleeding. He is generally credited with the first systematic description of the condition but his paper (1931) is vague regarding a precise definition. Frank formally identified premenstrual symptoms as a medical syndrome explained by faulty ovarian and renal function. Israel (1938) described a longer premenstrual period when he claimed that women with "premenstrual tension" suffered "a cyclic alteration of personality" during the 10-14 days prior to menstruation. The symptoms were presumed to be caused by unopposed estrogen activity and improved with progesterone supplementation.

Karen Horney (1931) attributed PMS to repressed sexual drive and power. Women were denying the wish to be pregnant and so tension was experienced premenstrually. Benedek and

Rubenstein (1939) frequently reported premenstrual depression in their psychoanalytic patients. They reported systematic fluctuations in mental and sexual activity and feelings closely associated with menstrual cycle phase. They observed that ego defenses were weakest during the late luteal phase increasing the likelihood that impulses would achieve direct behavioural expression.

Other psychoanalysts have suggested that the perception of menstruation may intensify a woman's pre-existing conscious and unconscious conflicts about pregnancy, childbearing, uncleanliness, lack of control of bodily functions, masturbation, aggression and penis envy (Deutsch, 1944).

Since the 1930's much has been written about the syndrome (or syndromes) regarding etiology, phenomenology and treatment. However, despite the wealth of information, the imprecision with regard to historical attempts at definition is still present today.

1-1-2 Prevalence

The physical, mood and behavioural changes occurring premenstrually are very prevalent and sometimes severe enough to warrant treatment (Halbreich & Endicott, 1982). More and more women now visit their physicians with the complaint, sometimes innaccurate, of PMS (Clare, 1985). Given the diagnostic difficulties in the area it is not surprising to find major discrepancies in the estimates of prevalence. Sutherland and Stewart (1965) found 97% of their healthy sample to be suffering some degree of premenstrual

discomfort. They used a general definition with a loose timing requirement and by restricting symptoms to swelling, irritability and depression they were able to reduce occurrence to 38.7%. This left 58% of their young subjects claiming some discomfort which was, in the authors view, of insufficient severity to be classified.

Reid and Yen (1981) indicated that the general consensus based on questionnaire data is that 40%-90% of the female population will admit to recurrent premenstrual symptoms and that 20%-40% report some degree of temporary mental or physical incapacitation. Hallman (1986) found, in a survey of a random selection of 1,852 women, a prevalence of 72.8%. 7.5% of these sufferers felt they needed to see a physician. This group differed from the others in that oral contraceptives had no effect on their PMS and they reported a greater number of depressive symptoms. The author concluded that severe PMS of a predominantly depressive nature is probably a manifestation of an underlying depressive disorder. The existence of mature adult women who suffer severe emotional symptoms in the premenstruum but are well at other times (Osmun, Steiner & Haskett, 1983) and the documentation of dissimilarities between endocrine profiles in PMS and depression (Steiner et. al., 1984) set up an alternative hypothesis.

There is a danger that PMS which, in most cases, may be a phenomenon of normal and healthy women could wrongly become a 'medical' issue (The Lancet, 1983). The existence of severe, debilitating PMS is relatively rare and it may be that those women suffering severe, disabling premenstrual symptoms represent one end of a continuum of severity of the

condition.

Some results suggest that more women label their complaints as being due to a 'premenstrual syndrome' than do investigators (Dalton, 1980; Haskett et al, 1980). Dalton (1980) claims that it tends to be assumed that social circumstances and pressures are a result of, rather than contributing factors to, the premenstrual complaint. Koeske and Koeske (1975) claimed negative experiences are likely to be attributed to biological status whereas positive experiences are mentally more often related to other variables. Haskett et al (1980) studied women who claimed they had severe premenstrual symptoms. Only 20% of these women met the criteria for inclusion in the study which specified moderate to severe symptoms premenstrually, significant or complete relief from these symptoms with the onset of menses, no hormonal or other medication and being willing to attend for interviews. PMS prevalence varies depending on the particular definition, sampling procedure and method used. Many examples exist in the literature (Table 1-1).

TABLE 1-1
PREVALENCE OF PREMENSTRUAL SYNDROME

<u>Authors</u>	<u>Year</u>	<u>Group</u>	<u>Prevalence (%)</u>
Bickers & Wood	1951	Factory workers (U. S. A)	36
Rees	1953	'Normal' women (U. K)	20
Morton et al	1953	Female prisoners (U. S. A)	51
Lamb et al	1953	Student nurses (U. K)	73
Pennington	1957	'Normal' women (U. S. A)	95
Appleby	1960	General practice patients	29
Kessel & Coppen	1963	GP practices (U. K)	25
Sutherland & Stewart	1965	Hospital personnel and students (U. K)	33
Herschberg	1966	Gynaecology patients (France)	32
Moos et al	1969	University personnel (U. S. A)	32

Wetzel et al	1975	Students (U. S. A)	40
Clare	1977	GP practices (U. K)	75
van Keep and Haspels	1979	National probability sample (The Netherlands)	47
Clare	1981	GP attenders (UK)	77

In 1985 Kinch & Robinson reported the syndrome to be experienced mildly in 70% to 90% of the female population, to produce some degree of temporary mental or physical incapacitation in 20% to 40% and, in approximately 5%, to be severely incapacitating. For every case receiving treatment there exist many untreated cases in the general population differing from the treated cases only in that they are milder, of shorter duration or occurring in individuals who resist contact with the medical profession (Copeland, 1980). Taylor (1979) states that the great majority of women have premenstrual symptoms of a greater or lesser severity and hypothesised that some women have a low threshold for premenstrual symptoms which may be inherent or socially or attitudinally determined. Prevalence may vary from one country to another (Janiger et al, 1972) and may be affected by many diverse factors: increasing with age up to menopause, with number of children, exposure to stress, high salt/carbohydrate diet, living with male partner, history of toxemia and lack of outdoor exercise.

There will be as many classifications or definitions of a case as there are purposes for study (Copeland, 1980). It is clear that prevalence depends on definition but there are some claims of consistency when mild symptomatology is excluded (Coppen & Kessel, 1963; Abraham, 1981; Kinch & Robinson, 1985). The main reason for devising reliable means

of recognising 'cases' of definable psychological and psychosomatic disorders is to allow stricter and more comparable tests of validity (Copeland, 1980).

In their discussion of presence of psychiatric illness, Wing et al (1980) suggest that 'current' prevalence (whether a syndrome is present today, this week or this month) is likely to be more valid than prevalence data collected over a period when the subject's memory is unduly stretched (Wing et al, 1980). Even one year prevalence will include a substantial proportion of 'cases' that have cleared up by the time of examination and these self-reports often cannot be confirmed by other measures (Wing et al, 1980).

Some authors see the prevalence figure as futile. Estimates of prevalence of premenstrual symptoms may be useless for most purposes given the broad and not always consistent use of the term 'PMS' and its constituent symptoms. If researchers wish to communicate with each other a usable definition must be provided.

1-2 DEFINITION/DEFINITIONAL PROBLEMS

Much more attention needs to be given to definition and methodology of PMS if we are to avoid useless expansion of published work. Authors still disagree about the definition of the syndrome let alone its etiology or treatment.

Frank (1931) gave a comprehensive formulation of what is now called PMS. He described it as a specific and severe syndrome of "indescribable tension and irritability" accompanied by a "desire to find relief by foolish and ill-considered actions"

present from 7-10 days preceeding menstruation and relieved by the onset of menses.

Israel (1938) reported that women with premenstrual tension suffered, in the premenstrual fortnight, "a cyclic alteration of personality, unreasonable emotional outbursts, headache and nymphomania". Subsequent authors have varied the list of clinical features in their description of the syndrome but have noted a similar temporal relationship to the onset of the menses. Dalton (1964) more broadly defined PMS as a cluster of symptoms, both psychological and physical, which appear sporadically in relation to phases of the menstrual cycle.

No commonly agreed on definition exists (Abraham, 1983), no biochemical correlates have been systematically identified (True et. al., 1985), and no treatment consistently demonstrated to be more effective than placebo in well-designed double-blind studies. It is interesting that PMS is still today so vaguely defined; this makes the various studies difficult to compare. The use of different definitions of the syndrome, the failure to specify the definitions used, and the lack of standardised diagnostic criteria may result in difficulties in the comparison of research findings.

It is important to differentiate between a definition that incorporates assumptions about etiology and an operational definition that provides descriptive information regarding the selection of a sample of women to be studied (Rubinow et al, 1985). Rubinow, Hoban, Roy-Byrne, Grover & Post (1985) suggest a preliminary operational definition for PMS:

"... a cyclic disorder with symptoms that

are of sufficient severity so as to interfere with some aspect of living and that occur with a consistent and predictable relationship to menstruation"(p. 470).

Given any definition of PMS the experiencing of the symptoms varies considerably from woman to woman and even from cycle to cycle. This raises difficulties for women and their doctors in recognising particular problems as being part of the syndrome.

PMS must be differentiated from dysmenorrhea and menstrual distress which are distinct and separate problems (Dalton, 1984). In PMS symptoms recur during the premenstruum and are absent during the post-menstrual phase, menstrual distress refers to symptoms similar to PMS but not of a cyclical nature or confined to the premenstruum, and dysmenorrhea includes lower abdominal cramp (spreading to lower back and upper thighs), headache, nausea and diarrhea (True et. al., 1985). The distinction has some empirical justification even though some symptoms (i.e., headache) do not easily fit into either category (Parlee, 1973). Abraham (1981) recommends dysmenorrhea to be excluded from studies investigating PMS. For operational purposes, attention must be directed towards the following considerations (Rubinow, 1985). The type of symptoms involved, the intensity or severity of these symptoms, when in the menstrual cycle these symptoms occur and their duration, the symptomatic baseline upon which symptoms occur, and the methods that relate these symptoms to the menstrual cycle. These will be dealt with in order.

1-2-1 The Symptoms

The tremendous diversity of symptoms in the literature combined with the inconsistency of their reported frequency reflects the diversity of author's interests and the lack of comparability of the various methodologies (Coppen & Kessel, 1963; Sutherland & Stewart, 1965; Moos, 1968).

Over 200 symptoms (Halbreich, Endicott & Nee, 1982), have been reported including psychological changes (irritability, depression, extreme anger, suspiciousness, impaired concentration, clumsiness, and binge eating) and physical changes (breast tenderness, abdominal bloating, peripheral swelling, headaches, backache, fatigue and weight gain) (Table 1-2). The symptom list provided in Table 1-2 is neither necessary nor sufficient for the diagnosis of PMS. The list is neither exhausts all possibilities of premenstrual symptoms nor does it suggest symptoms must be present from every category group or symptom type.

TABLE 1-2
COMMON SYMPTOMS OF THE PREMENSTRUAL SYNDROME

AFFECTIVE

sadness
anxiety
anger
irritability
labile mood

COGNITIVE

decreased concentration
indecision
paranoia
"rejection sensitivity"
suicidal ideation

PAIN

headache
breast tenderness
joint and muscle pain

NEUROVEGATIVE

insomnia
anorexia
craving for certain foods
fatigue
lethargy
agitation
libido change

AUTONOMIC

nausea
diarrhea
palpitations
sweating

CNS

clumsiness
seizures
dizziness
vertigo
paresthesia
tremors

FLUID/ELECTROLYTE

bloating
weight gain
oliguria
edema

DERMATOLOGICAL

acne
greasy hair
dry hair

BEHAVIOURAL

decreased motivation
decreased efficiency
social isolation

Note: From "Premenstrual Syndromes: Overview From A Methodologic Perspective" by D. R. Rubinow and P. Roy-Bryne, 1984, American Journal of Psychiatry, 141, p170.

Clear evidence of PMS is only possible when there exists, in the menstrual cycle, a period when these symptoms are absent. The most prominent symptoms complained of by a group of women with a symptom-free phase in the menstrual cycle were irritability, swelling, depression, painful or tender breasts, and tension and mood swings (Haskett et al, 1980). The psychological symptoms of depression, irritability, irrationality, loss of control, anger, resentment, and remorse dominate the severest cases (Kinch & Rubinow, 1985),

Attempts at condensing the list of possible symptoms to manageable proportions have included those by Moos (1968), Steiner et. al., (1980), Abraham (1980) and Halbreich et. al., (1982). Moos (1968) devised a 47-item Menstrual Distress Questionnaire with a particular focus on somatic symptoms. The lack of criteria for inclusion or exclusion limited the usefulness of the scale for the purposes of translating mood and behaviour change into diagnostic categories. Steiner et. al., (1980) developed research diagnostic criteria that failed to include somatic symptoms and excluded patients with a psychiatric history. Eight major mood and behaviour symptoms were identified, five of which were required for a diagnosis for PMS. Their narrow criteria resulted in a more homogenous group but failed to account for many PMS sufferers. Abraham (1980) divided women according to four symptom categories; anxiety and irritability, water retention, increased appetite and food cravings, and depressed affect. This was carried out on the basis of responses to a 19-item symptom questionnaire which lacked adequate construction with regard to internal consistency, reliability, redundancy and cohesiveness of subgroups (Rubinow and Roy-Byrne, 1984). A 95-item premenstrual assessment form (Halbreich, Endicott et al, 1982) was devised in an attempt to provide a broad base from which sub-syndromes may be selected and inclusion and exclusion criteria developed. The notion of bidirectionality of change in the same symptom area was made possible with the assessment form (Rubinow & Roy-Byrne, 1984).

1-2-2 Symptom Intensity

It is important to measure severity by employing a scale with sufficient sensitivity to differences in intensity which is also reliable and valid. Measures with few response options or which fail to provide both positively and negatively evaluated response options limit or distort information on PMS.

Most women experience their most severe symptoms during the three or four days immediately prior to onset of menstrual flow (True et al, 1985). The level of distress and the particular symptoms experienced may be consistent or vary from cycle to cycle. The natural history of PMS is that severity intensifies with age, parity, and following tubal ligation while during pregnancy no symptoms at all are present.

Problems which have been addressed in this area include failure to measure the severity of symptoms (Sutherland & Stewart, 1965); the use of scales and insufficient sensitivity to differences in severity, (Abraham, 1980), and clinical significance being wrongly ascribed to insubstantial changes in symptoms which may or may not be statistically significant (Taylor, 1979).

1-2-3 Symptom Phase and Duration

Definitions of premenstrual are varied including symptoms occurring during the two-week period before menstruation and disappearing at onset of bleeding (van Keep & Lehert, 1980), those that occur during the last six days of the luteal phase and first two days of menstruation (Kramp, 1968), or that

occur four days prior and four days subsequent to the onset of menstruation (Dalton, 1964). Sutherland and Stewart (1965) claimed that premenstrual symptoms must, by definition, vanish with menses onset but this is controversial. Dalton (1980) has emphasised that a minimum of seven symptom-free days per cycle is required in order to distinguish the syndrome from 1) 'mere distress', a condition in which symptoms increase during the premenstrual week but are present throughout the cycle or from 2) premenstrual exacerbation of a psychiatric condition such as 'major affective disorder'. Symptoms of dysmenorrhea begin just prior to the onset of menstruation with a usual duration of 2-3 days (True et. al., 1985).

There is some variation amongst women regarding precisely when the luteal phase symptoms are most severe (True et al, 1985). May (1976) showed 15 women from a sample of 30 had most mood symptoms premenstrually while the other 15 had most symptoms during menstruation. Symptoms which occur in the post-ovulatory period of the cycle and diminish or cease abruptly at onset of menstruation resulting in a symptom-free phase coinciding with the follicular phase of the cycle are most likely to be part of PMS.

1-2-4 The Symptomatic Baseline

It is important to observe symptom development over the entire menstrual cycle in order to assess supposed cyclicality of symptoms and to avoid associating the premenstrual exacerbation of symptoms present throughout the cycle with PMS. The Premenstrual Assessment Form of Halbreich, Endicott

et. al., (1982) focuses on the degree of change in symptoms rather than on mere intensity or symptom occurrence. Many reports state that women with PMS may have symptoms at other times in their cycles (Coppen & Kessel, 1963; Sampson & Jenner, 1977), but few studies differentiate between symptom occurrence and exacerbation. Wilcoxin, Schrader & Sherif (1976) found symptoms to be related more to stress than to menstrual cycle phase resulting in particular problems for the determination of cyclicity and provides further evidence that premenstrual symptoms are not specific to the menstrual cycle. Attempts to define an acceptable amount of variance of symptoms over the course of the menstrual cycle have been few (Parlee, 1973).

1-2-5 Methods of Measurement

According to True et al (1985) the diagnosis of PMS is based on investigation of a subject's history suggestive of the syndrome and by prospective documentation of symptoms associated with the menstrual cycle. An informal psychological evaluation is also important in order to identify the presence of any major depressive or bipolar disorder with premenstrual exacerbation (True et. al., 1985). Some of the significant methods of measurement were covered above in section 1-2-1. Many PMS studies have included women with dysmenorrhea or with menstrual distress which are distinct and separate problems (Dalton, 1984). Studies have also included those women without PMS (as a result of inadequate retrospective diagnosis) and those with irregularly expressed PMS.

SUMMARY

So far this chapter has reviewed the important historical input in the area of PMS and explained the problems of the concept of prevalence. Definition of PMS and the many parameters of a useful operational definition have been addressed along with some of the problems encountered in drawing conclusions from the literature. The etiology of PMS is unknown although many hypotheses have been proposed. Some of the most significant of these are presented in the following section.

1-4 ETIOLOGICAL THEORIES

Introduction

Several theories as to etiology have been forwarded and many research studies have been conducted each involving assumptions which raise interesting implications for the explanation and description of behaviour. Despite the amount of time that has elapsed since Frank's (1931) description of PMS we have yet to arrive at a clear understanding or agreement of the etiology of PMS. The exact nature of PMS and its relationship to the phases of the menstrual cycle remains in dispute.

It is unlikely that a single cause is responsible for the variety of symptoms constituting PMS (True et al, 1985). Findings suggest that the condition may be the final stage of multiple interacting social, psychological and biological

factors. Different hypotheses have been tested in the search for etiology including psychosocial and biochemical models (Andersch 1980; Rausch et al, 1982; Speroff, 1983) but none have constantly survived double-blind placebo-controlled trials. Despite the importance of hormonal and neuroendocrine factors in PMS the central etiological question remains: Is the premenstrual syndrome an abnormal response to an abnormal stimulus? (Hallman, 1986).

Given the elasticity of the syndrome and the fact that its definition blurs interdisciplinary boundaries it is hardly surprising that the explanations cover the field from biological to psychosocial. Clare (1985) divides etiological theories of PMS into two broad categories: constitutional and environmental. Despite the fact that this separation is arbitrary and no single cause of PMS can be isolated, the division helps to simplify the theoretical mass which has accumulated.

The nature of the precise connection between the etiological hypotheses and premenstrual mood and behaviour changes remains to be identified. It is simplistic to assume a direct causal relationship between physiological processes and complex psychological experiences and behaviours. The complex route of action linking physiological and psychological events (or mind and body) has yet to be specified (Borst, 1970).

Some authors subscribe to multiple etiologies i. e., Coppen & Kessel (1963) report PMS to be correlated with neuroticism and dysmenorrhea to be uncorrelated with neuroticism and negatively correlated with age and parity. In this way, the authors' implication of causal processes was more directly

physiological for dysmenorrhea but relying on personality traits as etiological factors in PMS.

The clinical advantage of the statistically derived symptom cluster or sub-type remains to be established, as does the usefulness of the subgroups with respect to selection of treatment modality. It is likely, however, that further use of of the above will lead to greater clarification in the literature and reduce the likelihood of overlap. The underlying assumption of most workers in PMS research is that this is a biologically based disorder. It is, however, most likely that PMS develops from a particular combination of neurobiochemical, cognitive-behavioural and sociocultural foundations which varies from one individual to the next as well as from one time to another.

Various treatment options are available for PMS. The many pharmacological treatments reflect the various etiologies of the syndrome. The most commonly recommended treatments for PMS are diet, exercise, vitamins and progesterone (True et. al., 1985). Understanding along with placebo interventions have also resulted in significant improvements. The least available and least recommended treatments are antiprostaglandins, bromocriptine and support groups (True et. al., 1985). According to True et. al., (1985) there are few controlled studies assessing the efficacy of treatment. To prevent likelihood of overlap with etiological theories treatment issues will not be discussed separately.

1-4-1 Constitutional Theories

Genetic Theories

Little research has been carried out regarding the involvement of a genetic factor in PMS however there appears in the literature some evidence of its existence. A significant relationship between mothers and daughters and between sisters with regard to age of menarche, duration of cycles and of menstrual flow, dysmenorrhea, and PMS has been found (Widholm & Kantero, 1971; Chern, Gatewood & Anderson, 1980). It is possible, however, that an explanation involving psychological and environmental factors could account for these relationships (Clare, 1985).

That PMS may have survival value for the human species is a theory which emerged from sociobiology. Rosseinsky & Hall (1974), proponents of this approach, explain that both PMS and menstruation serve as obstacles to normal sexual interaction between men and women. This has the effect of arousing sexual desire to a point which coincides with the mid follicular phase of the cycle at which the woman is maximally fertile, thus increasing the likelihood of conception. It is unlikely, given the increased freedom in sexual attitudes of the last twenty years and the availability of reliable contraceptive methods, that this view has wide application.

Hormonal and biochemical theories

Estrogen/Progesterone Theories

Definite advances have been made concerning the hormonal changes occurring over the menstrual cycle (Green & Dalton,

1953). Two hormones are particularly recognised as possible etiologic factors for PMS. These are estrogen and progesterone (Reid & Yen, 1981). Both of these hormones are known to fluctuate over the cycle. Four primary hypotheses have been suggested to be responsible for PMS: decreasing progesterone, excessive estrogen, diminishing estrogen or the estrogen/progesterone ratio (Clare, 1985).

Frank (1931) suggested PMS was due to an excess of peripheral estrogens due to decreased renal clearance and reported several cases of symptomatic improvement following ovarian irradiation. Since then, absolute levels of the hormones as well as the ratio between them have been investigated. Most studies have hypothesised a progesterone deficiency (Backstrom & Carstensen, 1974; Dalton, 1977; Brush, 1979; Munday et al, 1981; Dennerstein et al, 1984).

Decreasing levels of progesterone as menses approaches is proposed to account for the emotional symptoms of PMS and it may be that PMS could be better understood in terms of progesterone withdrawal rather than absolute progesterone deficiency (Clare, 1985). Progesterone levels are at their peak in the luteal phase and progressively decrease up until bleeding starts. Negative moods increase as progesterone levels drop to their lowest level premenstrually. Progesterone levels, measured by radioimmunoassay of blood plasma, have been shown to be reduced in some women with PMS compared with controls. Some researchers have failed to find an actual progesterone deficiency (Andersch et al, 1979; Backstrom et al, 1983) and others have found depressive symptoms to be provoked by the withdrawal of exogenous progesterone (Hamburg, 1966). Progesterone therapy (Dalton, 1964) the

expected treatment of choice, has not been shown to provide clear beneficial effect when compared with placebo (Smith, 1975; Sampson, 1979). However, few double-blind, placebo-controlled studies have been carried out.

The fact that some evidence (Dalton, 1984) shows progesterone levels to be higher in PMS sufferers than those women who do not ovulate and also that some of these anovulatory women suffer premenstrual symptoms suggests that progesterone deficiency does not provide the complete etiological theory of PMS. Women with a history of premenstrual irritability show reduced negative psychological effects when taking estrogen-dominant contraceptive pills (Cullberg, 1972) and women without a history of premenstrual irritability reported more adverse reactions with the progesterone-dominant pills. Cullberg suggested that this latter group might have been hormonally balanced before treatment or even had an endogenous progesterone dominance. He speculated that premenstrual irritability may be partly due to endogenous estrogen dominance or susceptibility to endogenous estrogen around the premenstrual phase.

Estrogen levels are high during the luteal phase but these levels are falling when premenstrual symptoms are most severe. It is not surprising therefore that estrogen withdrawal (Steiner & Carroll, 1977) has been implicated in PMS. It may be the case, however, that levels of estrogen premenstrually do not give an accurate reflection of estrogen activity in the central nervous system (Anderson & Greenwood, 1969).

It may be that the estrogen/progesterone ratio is more significant than absolute levels of the hormones (Morton,

1953). An imbalance between these hormones has been suggested to be causative of PMS (Rausch & Janowski, 1982). Israel (1938) suggested that an excess of unopposed estrogen produced PMS symptoms in women with deficient ovarian luteinization. He noticed premenstrual symptoms to worsen with estrogen and improve with progesterone and suggested a luteal progesterone deficiency to be responsible for PMS. More recently a high estrogen/progesterone ratio has been hypothesised as causal to PMS especially the symptoms of water retention (Greene & Dalton, 1953; Dalton, 1977) and progesterone to be the treatment of choice. Research supportive of the excessive estrogen hypothesis is limited and contradictory (Reid & Yen, 1981). It suggests that the premenstrual symptoms of depressed mood, pessimism, crying spells and self-deprecation can be produced by oral contraceptives high in estrogen content (Strain & Grossman, 1975). Other authors maintain that the commonly experienced symptoms of water retention, as a result of increased estrogen, is not the sole determinant of premenstrual symptoms (Halbreich et al, 1983).

The debate as to the effectiveness of progesterone treatment continues. Steiner and Carroll (1977) suggest that premenstrual anxiety and hostility may be related to a high estrogen/progesterone ratio and that premenstrual depression may be related to a low ratio. Women with high premenstrual anxiety had significantly higher premenstrual estrogen levels than healthy women (Backstrom & Carstensen, 1974). A positive correlation between estrogen/progesterone ratio and anxiety was subsequently found by Backstrom and Mattsson (1975). Estrogen levels correlated positively with irritability and

anxiety whereas progesterone levels did not (Clare, 1985). The theory of estrogen/progesterone imbalance fails to explain the finding that the ratio of estrogen to progesterone is highest in the first half of the cycle when symptoms are most infrequent (Smith, 1976).

Prolactin

Elevated prolactin levels have been implicated in PMS (Horrobin, 1971; Cole et al, 1975; Andersch et al, 1978). A few reports of premenstrually related hyperprolactinemia exist in the literature (Halbreich et al, 1976). The levels of prolactin fluctuate through the cycle, peaking at ovulation and in the mid and late luteal phases (McNeilly, Evans & Chard, 1973).

The evidence against a positive correlation between premenstrual symptoms and high levels of prolactin is stronger (True et al, 1985; Benedek-Jaszmann & Hearn-Sturtevant, 1976; Andersch et al, 1977; Andersen, Larsen, Stenstrup, Svendstrup & Nielsen, 1977). Most women with PMS do not have elevated prolactin levels (Varma, 1984) and patients with elevated prolactin levels due to disorders other than PMS do not have PMS-like symptoms (True et al, 1985).

The use of bromocriptine, a supressor of prolactin secretion has been common in studies of PMS with contradictory results (Reid & Yen, 1981; Andersch, 1983). Side effects are common with bromocriptine which has no significant effect on premenstrual symptoms except for mastodynia (True et al, 1985).

Renin-Angiotensin-Aldosterone (RAA) System

Janowsky et al (1977) suggested premenstrual mood disturbance and weight gain to be related to activation of the RAA system (Clare, 1985). Generalised fluid retention has been associated with premenstrual symptoms (Abramson & Torghele, 1961; Dalton, 1964; Janowsky, 1973). However, measures of weight fluctuations, serum sodium concentrations, abdominal girth and estimated total body water have not resulted in a pattern which offers clear positive support to this hypothesis (Andersch et al, 1978; Faratian et al, 1984). Wong and co-workers (1972) suggested that premenstrual fluid retention may more likely be a result of redistribution of fluid from the intravascular to the extravascular compartment (Clare, 1985). Reich (1962) and Gray et al (1968) showed urinary aldosterone excretion to be slightly elevated at mid cycle and to rise during the luteal phase to a peak at or soon after onset of bleeding (Clare, 1985). It is not clear why this is so and studies which have shown increased aldosterone excretion premenstrually have not been replicated (Munday, Brush & Taylor, 1977; O'Brien, Craven, Selby & Symonds, 1979). Diuretics have reduced premenstrual fluid retention but have not had a significant on other symptoms.

Other Theories

Vitamin B (or pyridoxine) deficiency (Biskind, 1943; Adams, Rose, Folkhard, Wynn, Seen & Strong, 1973; Dennerstein &

Abraham, 1982), premenstrual abnormalities in glucose metabolism (Morton, 1950; Depirro, 1982; Abraham, 1983), premenstrual changes in levels of endorphins and other peptide hormones including vasopressin (Bickers & Woods, 1951) and melanocyte stimulating hormone (Reid & Yen, 1983) have all been implicated in PMS etiology.

Other theoretical contributions in the area of PMS etiology have included alterations in prostaglandins (Wood & Jakubowicz, 1980), glucocorticoids (Rausch & Janowsky, 1982), or central monoamines (Rausch & Janowsky, 1982; Reid & Yen, 1981). None of these theories have been clearly confirmed by the evidence.

1-4-2 Social/Environmental Theories

Psychodynamic theories

The view that PMS was associated with intense unconscious conflicts concerning sexuality, pregnancy, child-bearing, aggression, and the female role was reflected in the work of Horney (1931), Benedek & Rubenstein (1939), Deutsch (1944) and Benedek (1952). Horney (1931) related repressed sexual desire and power to the experiencing of PMS. Ivey and Bardwick (1968) and Paige (1977) linked fears of body change and mutilation to the manifestation of premenstrual symptoms (Dennerstein & Abraham, 1982).

Women's discomfort with (and rejection of) the female role, aggression towards men, and self-punishment were presumed linked to menstrually related suffering (Menninger, 1939; May, 1975). Premenstrual symptoms acted as a reminder of a

womens rejection of femininity related to the poor quality of early relationships ones mothers and mothers' attitude towards menarche (Shainess, 1961). May (1976) showed, however, that one group of premenstrual sufferers had rejected the traditional psychosexual roles of women. Little evidence has been gathered to support these theories and today more attention is given to the way in which feminine stereotypes across cultures affect the experience of menstrually-related symptoms. Some problems occur with the psychoanalytic model (Hudson, 1985), for example, correlation and causality are confused; premenstrual symptoms occur prior to menstruation not during menstruation, and an adequate description of how these early life experiences and current fears are manifested in premenstrual symptomatology is not provided.

Social Learning Theories

Paulson (1961) suggested that premenstrual mood changes are learned and that sufferers of severe PMS are more likely than mild sufferers to have mothers who had negative menstrual mood symptoms. A significant positive correlation was found between negative attitudes about menstruation and experience of menstrual symptoms (Levitt & Lubin, 1967).

Expectations of negative mood and physical changes have been demonstrated in relation to the menstrual cycle (Koeske & Koeske, 1973; Parlee, 1974). Within Attribution Theory framework Koeske & Koeske (1975) presumed that negatively evaluated behaviours and subjective internal experiences are attributed to the menstrual cycle even when other factors are

adequate to account for them. Evidence for these negative attributions was provided by Ruble (1977) when she showed that women who believed they were premenstrual were more likely to report symptoms than women who believed they were mid-cycle. Premenstrual affective symptoms may therefore be socially mediated rather than directly due to physiological changes (Dennerstein & Abraham, 1982). Slade (1984) claimed that when positive emotions coincide with the premenstruum this is unlikely to be interpreted as evidence for the absence of PMS. In this way, a belief of suffering from PMS could be maintained by the experience of random rather than cyclic variations in emotions

Strong, shared cultural beliefs or stereotypes concerning the menstrual cycle influence woman's expectations and anticipations of premenstrual difficulties and suffering (Parlee, 1974; Ruble, 1977). If mood changes are expected to occur in association with the premenstrual phase women may be more vulnerable to this experience (Dennerstein & Abraham, 1982). Some women claim premenstrual symptoms on retrospective enquiry which, when rated prospectively, fail to manifest this cyclic pattern (McCance et al, 1937; May, 1976). This may be due in part to demands placed on memory. Some authors (Fortin et al, 1958; Paulson, 1961; Perkin, 1968; May, 1976) have claimed that lack of acceptance of the traditional female role has contributed to greater premenstrual distress. This has been controversial; others have found that traditionally feminine women experience greatest distress (Schneider & Schneider-Duker, 1974; Gough, 1975). Some authors have found no significant correlation in either direction (Berry & McGuire, 1972; Launus, 1979).

The Cognitive Labelling Model states that physiological changes are nonspecific in their psychological effects, but are labelled as being directly related (Koeske, 1977; Ruble, 1977). Also there exists, in the literature, instances of remarkable and positive responses to placebo (Clare, 1979; Reid, 1981) which provides suggestive evidence of a psychological component in etiology. Despite the research it is largely unknown to what extent attributions, expectations and attitudes effect the experience of menstrually related symptoms (Abplanalp et al, 1980).

Psychiatric Theories

Clare (1983), in a well designed study, found a positive correlation between PMS and psychiatric disturbance. Dalton (1974) suggested that a possible explanation for this is that PMS is so severe that a psychiatric disturbance is precipitated. Another explanation, and one supported by Clare, is that psychiatrically ill women seek treatment for symptoms that healthy women can tolerate.

Zola et. al., (1979) concluded a possible but minor interaction between PMS and psychotic decompensation by looking at psychiatric admissions. Further positive correlations have been found between 1) the psychiatric admission rate for depressives in their premenstrual phase (Abranowitz et al, 1982) and 2) between premenstrual symptoms of depression or elation and bipolar affective disturbance (McCulle et al, 1971).

A correlation has frequently been reported between PMS and neurotic personality (Morton, 1950; Rees, 1953; Williams,

1981). Coppen & Kessel (1963) found raised neuroticism scores in women suffering from PMS but reported that premenstrual symptoms in these women "cannot be dismissed simply as hypochondriacal or hysterical complaints." Slade (1984) presumes that the correlation between neuroticism and PMS may mean that the effect of the menstrual cycle on women may be less significant than commonly believed. A study (Wendestam, 1980) involving a large mixed population failed to show a greater degree of neuroticism in women with PMS.

It has been suggested that the premenstrual depressive syndrome could represent a subclinical manifestation of an affective disorder (Endicott, Halbreich, Schaet & Nee, 1981). Halbreich & Endicott (1982) report that two-thirds of women in their reproductive years who have a diagnosed 'major affective disorder', have serious premenstrual dysphoria. More recent support for this comes from Hallman's (1986) study where symptoms of depressive syndrome were present in approximately two-thirds of women who felt they required help from a physician for PMS (approximately 5% of all women). This is, however, not supported by Steiner et. al., (1984) who show hormone secretion profiles in women with severe PMS to differ from those in women with diagnosed depressive disorder.

Social Stress

It is well known that stress, for instance, can aggravate emotional and cognitive symptoms in the premenstrual period and conversely, lack of stress can result in milder experience of these symptoms (Hallman, 1986). Life events

such as death of spouse, loss of job, chronic social stress such as financial hardship, migration and low social class can be implicated in etiology of physical and mental illness (Clare, 1985).

Examination stress, accidents, attempted suicide and psychiatric admissions have all been related to the premenstrual phase of the cycle. Whether these factors are causally related to onset of bleeding or are a result of PMS is unclear. Both the onset (or delay) of bleeding and behaviour may both be affected by a common causality (i. e., stress).

There is some evidence that women experience more chronic social stress than men (Radloff & Rae, 1979) and that stress appears to suppress ovulation (Abplanalp, Haskett & Rose, 1980). Siegel, Johnson & Sarason (1979) found a significant relation between negative life changes and premenstrual distress (Clare, 1985). The study was, however, retrospective and the design failed to allow for specification of precise temporal relationships between stressors and symptoms. One study (Wilcoxon, Schrader & Sherif, 1976) found stressful events to be more closely related to mood variance than cycle phase but subsequent analysis of these results (Koeske, 1977) has doubted this conclusion.

The majority of studies in this area are based on the assumption that if there is an association between stress and the premenstruum, it is the changes associated with the premenstrual phase which cause the stress and not the other way around. Parlee (1982) raises the possibility that stress may affect menstrual cycle length. The significant

correlation found by Dalton (1977) between certain behaviours including crime, accidents, poor examination performances, hospital admission and the premenstrual and menstrual phases may, at least, in part be due to the relationship of each to the common factor of stress (Clare, 1985) or to the logical flaw inherent in Parlee's argument (i. e., the contention cannot logically be reversed to state that all women are more likely to commit crimes premenstrually).

Social supports may reduce susceptibility to illness.

Statistics show women to suffer more from psychiatric illness as compared with men and Western sex roles have been held accountable by some researchers. According to Clare (1985) intimate as well as casual interpersonal relationships provide support which can amount to protection from developing illness (Miller & Ingham, 1976). It is likely that psychological symptom intensity varies with the degree and nature of this support.

Clare (1983) found a significant relation between marital disharmony and premenstrual distress independent of psychiatric problems. Clare did not mean to imply PMS was causal to marital disharmony although this remains possible. PMS occurring in a situation of marital disharmony may serve as a reminder of the negative aspects of a relationship. These same changes may go relatively unnoticed in a well-functioning marital relationship. More research is still required in this area.

Summary

Hormonal/biochemical and psychological/environmental theories

as they apply to the etiology of PMS have been briefly reviewed. Despite intensive research few answers have been reached. Most of the theories have been based on studies lacking adequate placebo treatments or control groups. The lack of methodological comparability and experimental rigor has seriously compromised much of this research (Rubinow & Roy-Byrne, 1984). It seems unlikely that a single causal factor is responsible for PMS given the multiple physical and psychological systems implicated.

1-5 METHODOLOGICAL ISSUES

Despite the fact that public awareness of PMS has significantly increased methodological problems have resulted in research failing to provide consistent and reliable information. These problems greatly limit the usefulness of the (often unreliable, nonvalid) PMS research data. It is often difficult to learn much from the results because many theories are based on studies with methodological flaws: involving too few subjects, no control group, overgeneralisations and lack of information are some examples. On the basis of the same results different authors draw different conclusions (Green & Green, 1984). Some of the significant methodological problems are reviewed and the measures currently used to overcome these problems are addressed. Issues of symptom description, intensity and timing in relation to the menstrual cycle have already been addressed (section 1-2). The other major issues are selection and description of subjects, the types of measures

used, and determination of cyclicity by appropriate statistical analysis (Dennerstein and Abraham, 1982; Hudson, 1985).

1-5-1 Subject Selection and Description

Many authors (Barr, 1984; Dalton, 1984) have failed to provide adequate information on sample selection or subject characteristics so interpretations of results and replicability of studies is limited. Also, samples of subjects are obtained from such extreme populations (such as attending gynaecological clinics) (Benecek Jarzuan & Hearn-Stutevant, 1976) that it is unlikely that results can be generalized to any group apart from these populations. The method of subject selection is rarely provided in the literature despite criteria for inclusion being provided by some authors (Steiner, Haskett, Carroll, Hayes & Ruben, 1984).

One of the best ways to reduce effects of confusing variables is through use of control groups (Green & Green, 1985). However, there does not appear to be an ideal control group for PMS research. Many researchers have tried using women taking contraceptive pills, pregnant women, women without PMS or even men, but each of these groups are likely to be hormonally different from women with PMS who are not on the pill (Parke, 1974). Men are not a good control group due to differential socialisation occurring in society (Frieze et al, 1978). Osborn (1981) emphasised the importance of avoidance of bias by conducting studies on an experimentally blind basis.

1-5-2 The Measurement of Affective Change

Moos (1969) identified eight symptom clusters on the basis of a retrospective questionnaire of previous and worst cycles. These were: pain (dysmenorrhea), concentration, behavioural changes, autonomic reactions, water retention, negative affect, arousal and control. The cluster of negative affect symptoms was considered primarily indicative of the PMS (Moos, 1969). Specifically these symptoms were: crying, loneliness, anxiety, restlessness, irritability, mood swings, depression and tension. Examination of individual scores showed that these symptoms were not confined to the premenstrual phase alone (Dennersten & Abraham, 1982). However, pain, concentration, behavioural changes, autonomic reactions and water retention, and negative affect showed significant correlation with cycle phase. Retrospective questionnaires tend to place heavy demand on memory and are likely to lead to stereotypic responding possibly due to minimal or no deception (Parlee, 1974). Evidence supporting caution in the use of retrospectively gathered data comes from McCance, Luff and Widdowson (1937), May (1976), Abplanalp and Rose (1979), Wood, Kramen, Derry & Most, (1982), amongst others. These authors have found prospective reports to differ considerably from retrospective ones. Some of this conceptual bias is avoided with the use of longitudinal, prospective investigations particularly when these examine neutral and positive moods and behaviours as well as negative ones (Kopell et al, 1969; Paige, 1971;

Parlee, 1982). One example is the Moos questionnaire which has been criticised for its failure to tap positive mood. Retrospective reports tend to reflect higher PMS prevalence rates and more severe forms than do prospective ones (May, 1975; Parlee, 1973). It has, however, been suggested that the methods frequently employed in longitudinal prospective research limit the kinds of interpretations that can be made, require considerable cooperation from subjects and produce a large amount of data meaning that sample size must be kept small (less than 25). Subjects are rarely naive with respect to the purposes of the experiment (Ruble, 1977; Campos & Thurow, 1978; Slade, 1984) and awareness of cycle phase may influence symptom reporting (Ruble, 1977). There has been a tendency to group subjects together and average results for various points in the cycle resulting in lost information (Parlee, 1982). Long term retrospective studies may be more likely to elicit the subjects beliefs about cycle changes than actual ratings of experience (Slade, 1984). Despite these limitations further prospective studies are required. Slade (1984) conducted a prospective study of menstrual symptoms with women unaware of the purposes of the study. Results were gained from 46% of the sample and showed premenstrual and menstrual increases in fluid retention and pain, but no changes in emotion or concentration that could be relevant to the menstrual cycle. She suggests that negative moods fluctuate throughout the cycle and PMS may be due to inappropriate labelling of symptoms when they coincide with the premenstruum.

1-5-3 Determination of Cyclicity

Historically, the definition of cyclicity has simply been a matter of reporting a temporal association between symptomatology and the menstrual cycle (Hudson, 1985). This technique is inadequate as it fails to determine premenstrual phase, symptomatic baseline and number of cycle required to eliminate chance fluctuations.

Many definitions of duration of premenstrual phase exist in the literature some of which have been discussed in section 1-2-3. Little agreement exists between authors but it seems reasonable for purposes of experimental clarity to assume that symptoms lying outside a period ten days prior to and 2-3 days following bleeding onset are not likely to be 'premenstrual' (Hudson, 1985).

Most of the symptoms of PMS (as opposed to those associated with dysmenorrhea) occur independently of the menstrual cycle (Lancet Edit, 1981) so it appears necessary to gather data over a sufficient number of cycles to attempt to reduce error in definition of menstrual related cyclicity (Steiner et al, 1980). It is possible however, that chance associations between symptoms and cycle phase will exist.

According to Hudson (1985) a useful and promising method designed to establish cyclicity is derived from time series analysis specifically, analysis in the frequency domain (spectral analysis) Gottman (1981).

CHAPTER TWO - SELF-REPORT

2-1 INTRODUCTION

Self-report (from here on referred to as S-R) has become increasingly popular as a method of investigation in psychology. This relates to other trends in in the field of behaviour therapy (Kazdin, 1974; Nelson, 1977): the emphasis on empirically verifiable results; the search for alternatives to the use of trained and experienced observers; increasing emphasis on self-control programmes; increasing interest in the manipulation of covert events or private behaviours; and increased awareness of the fact that the subject has access to the entire population of his/her own behaviour which an observer may only sample.

The dimensions of S-R have included a focus on three major areas (Goldfreid, 1982): specific behavioural interactions, perceptions of environmental situations, and subjective reports of emotional response. It is the latter area which is of primary interest in the present study. S-R may entail the recording of one or more discrete target behaviours; that is, overt acts, subjective experiences or physiological responses (Bradley & Prokop, 1982). Some procedures also permit the recording of environmental or internal stimuli (cognitions) that precede, accompany, or follow the target behaviour(s) of interest (Bradley & Prokop, 1982).

The purpose of this chapter is firstly to review some of the definitions of S-R, to briefly describe some of the

foundations and beginnings of the technique, and to summarise the significant areas of application.

2-1-1 Definition

S-R provides information about both the therapist and the client which can be essential for accurate problem diagnosis and continuing assessment (Mahoney, 1977; Zimmerman & Levitt, 1975). The technique involves observing, recording, and reporting on aspects of one's behaviour or functioning and providing the therapist or investigator with the results (McFall, 1977). An individual is required to discriminate occurrences of his/her own behaviour and maintain a record of these occurrences (Nelson, 1977).

S-R may serve two important functions as an assessment device; 1) identification of behaviours and events, and 2) provision of data to serve as a dependent variable in clinical cases or research projects (Nelson, 1977). The use of S-R methods for assessment purposes is consistent with the increasingly common practice among behavioural assessors of enlisting the aid of their clients as active collaborators in the data collection process (McFall, 1977).

S-R has a place in the study of subjective, emotional or personality variables as well as behaviour.

Where enquiry into an individual's feeling state, subjective experience or mood is attempted the unit of interest is not behaviour but emotions, thoughts and intrapsychic experience. It is clear why subjective experiences like emotions can usefully be assessed by self-observation procedures. The

nature of this experience is such that the isolation of discrete events is of limited usefulness and interest is directed toward context or flavour providing the setting for discrete actions and behaviours. This does not mean that intrapsychic variables cannot constitute the focus of therapy or assessment. In fact, with increasing interest in evaluating quality of life, internal experience is viewed not merely as an intervening variable but as an end in itself (Campbell, 1976; Larson & Csikszentmihalyi, 1983).

2-1-2 History

Most approaches to psychological-behavioural assessment have been controversial, however, none more so than the strategy of self-report (Hersen & Bellack, 1977). Historically, in clinical psychology, three general approaches to personality assessment have been employed: observation, personality projection, and self-description or self-report. In behavioural analysis the technique is used to identify maladaptive behaviours and to assess treatment strategies; in personality research S-R has been integral in the search for personality types, traits and predictions of behaviour. According to Bellack and Hersen (1977) S-R's based on introspection were viewed by nineteenth century structuralists (Titchener) and functionalists (W. James) as the primary vehicle for understanding psychological functioning (Chaplin & Krawiec, 1960). John B. Watson had rejected introspection as unscientific and considered S-R to be inexact and to be used only for expediency (Chaplin &

Krawiec, 1960).

Early psychoanalysts made use of S-R data from retrospection and free association (Bellack & Hersen, 1977). These reports were presumed to be reliable (i.e., replicable), but were criticised as invalid in the sense that they were symbolic distortions of actual function and experience (Bellack & Hersen, 1977). Despite this, psychoanalysts made effective use of the material with the aid of interpretation (Bellack & Hersen, 1977). The projective testing movement was also based on the premise that the subject would provide reliable data, but could not overtly report on or explain his/her actual experience (Bellack & Hersen, 1977).

Bellack & Hersen (1977) state that in the period 1930 to 1960 a different viewpoint flourished promulgated by "trait theorists" who generally subscribed to the belief in the existence of broad enduring personality structures or traits. An individual's trait pattern could be assessed by identifying his thoughts, attitudes and feelings in any of a variety of situations. The most convenient way to gather these data was presumed to be standardised paper and pencil instruments i.e., personality inventories, scales or questionnaires. Hundreds of such devices were constructed to assess specific traits, clusters of traits or the total personality (Cautela & Upper, 1976; Bellack & Hersen, 1977). There is consensus that the landmark was Wordworth's Personal Data Sheet (1914), basically a standardisation of the psychiatric interview designed for the screening of neurotics from military service in World War I (Gynther & Green, 1982; Derogatis & Melisaratos, 1983). Subsequent personality inventories have marked the progressive transition towards

the use of S-R measures for behaviour therapy and assessment (Upper & Cautela, 1976) (see Table 2-1).

TABLE 2-1

Landmarks in the Development of S-R Inventories

<u>Inventory</u>	<u>Date</u>	<u>Author(s)</u>
Humm-Wadsworth Temperament Schedule	1935	Humm, Wadsworth
Minnesota Multi-Phasic Personality Inventory	1940	Hathaway & McKinley
Inventory of Factors STDCR	1940	Guilford
Guilford-Zimmerman Temperament Survey	1949	Guilford & Zimmerman
Sixteen Personality Factors (16PF)	1949	Cattell
Edwards Personal Preference Schedule	1954	Edwards
California Personality Inventory (CPI)	1957	Gough
Maudsley Personality Inventory	1959	Eysenck

It was assumed that the testee could and would provide reliable and valid responses to test items however, in the more sophisticated devices, the possibility of some distortion was acknowledged (Bellack & Hersen, 1977).

Psychometric controls for such factors as response styles, social desirability, and dissimulation were incorporated.

However, the basic veracity and external validity of S-R responses were characteristically unquestioned (Bellack & Hersen, 1977). Despite the problems and shortcomings that were clearly recognised in the 1920's and 1930's the S-R inventory has flourished and is probably the dominant form of personality assessment today (Gynther & Green, 1982).

2-1-3 Applications

While behaviour therapists would prefer direct measurement of a response to reports by the client or someone else about the

behaviour in question checklists and schedules may be employed selectively to produce valuable data for research and therapy purposes (Cautela & Upper, 1976).

S-R is being more frequently utilised as a method of teaching students, clients and patients to; a) observe themselves more precisely, b) assess the effects of treatments which they apply to themselves (with or without the guidance of a counsellor or therapist) and c) provide the investigators with objective information (Thoresen & Mahoney, 1974; Zimmerman, 1975).

S-R inventories can collect useful data in two dimensions (Bellack & Hersen, 1977). The first dimension is that of motoric responding, physiological activity and cognitions and the second is in the area of subjective experience.

Historically, these two types of S-R data have been confused and many investigators have asked subjective questions in an attempt to secure objective data about behaviour (Bellack & Hersen). S-R data are obviously relevant for the diagnosis and assessment of subjective and private aspects of human behaviour. One example is in the field of sexual dysfunction where S-R's can be used for evaluation of therapy and for research purposes (Reading, 1983).

The Fear Survey Schedule (Geer, 1965) is a S-R measure of anxiety frequently used by behavioural assessors. Several attempts to use the schedule as a predictive device of subject's reactions to a behavioural avoidance task have achieved mixed results (Goldfried, 1982). This may be due to the fact that these two measures of fear are of different forms: one is primarily verbal and the other observable behaviour (Goldfried, 1982). Certain limitations restrict the

utility of the schedule one of which is that subjects are required to indicate degree of fear about situations or objects that are described in very general terms (i.e., "being criticised") also, the nature of the response is left unspecified.

The S-R Inventory of Anxiousness (Endler, Hunt, & Rosenstein, 1962) takes into account the nature of the situation as well as the components of the response (Goldfreid, 1982). The inventory is useful as a dependent measure and for investigation of cross-situational behavioural consistency (Goldfreid, 1982). Both the Fear Survey Schedule and the S-R Inventory of Anxiousness rely on subjects recollections of how they have reacted in the past to certain situations. Evidence suggests, however, that people are not good at reconstructing their experience after the fact (Yarmey, 1979; Parlee, 1982; Larson & Csikszentmihalyi, 1983).

As well as making use of retrospective reports of emotional reactivity behavioural researchers have attempted to elicit these S-R's during the time the individual is actually in certain situations (Goldfreid, 1982). Among such subjective measures are; the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, Lushene; 1970) and the Multiple Affect Adjective Checklist (MAACL) (Zuckerman and Lubin, 1965). The STAI is made up of a series of feeling statements which the subject rates on a four-point scale as to their self-descriptiveness. The MAACL assesses feelings of depression, hostility and anxiety and has been found to appropriately reflect change induced by experimental manipulation of emotion (Goldfried, 1982)

In addition to focusing on negative emotional states

researchers have also developed inventories to assess positive feelings and mood states (Goldfreid, 1982). One example is the Reinforcement Survey Schedule (Cautela & Kastenbaum, 1967) which is limited by the fact that items were not empirically derived from a pool of potentially reinforcing events or objects (Goldfreid, 1982). Another example is the Pleasant Events Schedule (MacPhillamy & Lewinsohn, 1972) which includes items selected from actual situational analysis. Goldfreid states that subjects are requested to estimate the frequency of occurrence of these events over the preceding month and how pleasant or enjoyable they were.

Therapeutically, S-R was originally used only as an adjunct to other reinforcement procedures but, today, is regularly applied as therapy in its own right and has been used successfully in the treatment of a variety of disorders (Kazdin, 1974; McFall, 1977; Nelson, 1977). Among such successfully treated disorders are smoking, eating, studying, dating, nail-biting, hair-pulling, stealing and expressing oneself (Stuart, 1967; Duncan, 1969; Roberts, 1969; McFall, 1970; Johnson & White, 1971; Jackson, 1972; Epstein & Peterson, 1973).

These reports are all carried out within an operant-reinforcement framework. Some developments in the literature suggest that self-modification can be expanded (without reliance on reinforcement and punishment) to include unobservable behaviours. Several have described S-R of behaviours which others cannot observe i.e., 'inners' (Zimmerman, 1975). Examples of self-reported 'inners' included sexual and smoking urges; feelings of anger, hate

and depression; hallucinations; and a variety of thoughts (urges to smoke, eat and express oneself; feelings of anger, fear and inadequacy; and worries, self-criticism and obsessive thoughts).

As an assessment device S-R may serve two useful functions; the initial identification of target behaviours to be modified and the provision of data to serve as a dependent measure in either clinical cases or research projects. It seems there is no limit to the possibilities for application of the technique of S-R but disagreement persists in the literature as to whether the technique is better used as an assessment or a treatment device and this is unlikely to be resolved until more research is carried out.

2-2 ISSUES

2-2-1 Introduction

There are many issues pertaining to recent use of S-R not least of which is the controversy surrounding data obtained in this way (Bellack & Hersen, 1977). At varying times and for varying groups S-R has run the gamut from being the sole source of data to being almost totally devalued (Bellack & Hersen, 1977). As this issue of controversy is raised in various ways in most of the following sections it will not be treated as a separate issue. Both assessment and treatment utility have been demonstrated using S-R. In this study it is the assessment or investigative function of S-R which is of primary interest.

As well as the many advantages of S-R the technique remains

methodologically problematic. Some of the significant issues will be covered under the headings; reactivity, accuracy, response set, reliability and validity in the present section.

The recent popularity of S-R measures is due to their being cheap and efficient methods of data collection, suitable for administration by research workers without clinical experience (Parkes, 1980; Furnham, 1983). The technique has provided psychology with a wealth of information, overcomes therapist bias, and lends objectivity and direction to any therapy (Patterson & Gullion, 1971; Knox, 1972; Maletzky, 1974). Specific advantages of S-R are; cost effectiveness, avoidance of practical/ethical problems, minimisation of unwanted effects due to presence of observers, provision of a thorough and detailed record and data whose validity may be unsurpassed by other means (Pressey, 1968; Mischel, 1968; Myers, 1983)

Despite the many advantages of S-R, researchers interested in the assessment of observable behaviour have maintained a highly critical attitude towards the method especially in the area of subjective experience (Bellack & Hersen, 1977). Subjective S-R's reflect invisible, abstract, and often hypothetical processes in contrast with the objective, overt data (their own S-R) valued by behaviour modifiers. Recent emphasis on cognitive processes and awareness of the lack of close correspondence between the three major response modes (behavioural, physiological and cognitive) has encouraged reliance on S-R (Berkovec, Weerts, & Bernstein, 1977). According to Thomas (1974) the critics of S-R tend to overlook two important factors: 1) S-R's are behaviours in

themselves and, in some cases, are the primary responses of interest and, 2) S-R's have not been shown to be any more invalid or unreliable than other types of measurement (except perhaps for some electro-mechanical devices (Cautela & Upper, 1976)).

Many practical problems apply when the client is required to participate as both the subject and object of data collection (Mahoney, 1977). Subjects may forget to fill out scales or claim they've been too busy, they may feel some items are an invasion of privacy or be concerned about confidentiality of the information they provide. Subjects may worry that their problematic behaviours may be seen by the therapist and by significant others as symptoms of a psychiatric illness and they may even express concern about receiving a psychiatric diagnosis (McFall, 1977).

Rigorous statistical and scaling techniques have been devised for analysis of individual's S-R but the initial value of these self-assessments has been held in question (Campbell & Fiske, 1959; Mischel, 1968; Bellack & Hersen, 1977; Cautela & Upper, 1977). These issues will be covered in more depth below.

2-2-2 Reactivity

Reactivity is the occurrence of behaviour change initiated by the procedure of S-R (Nelson, 1977); the extent to which the observers actually interfere with or influence the phenomena they are attempting to assess (Goldfreid, 1982). The concept of reactivity is relevant to the present study by way of constituting an external variable whose effects must be

controlled for as far as possible. It is a potential problem for research projects interested in measurement and not aimed at effecting change.

In studying this phenomenon authors have come up with differing results (Goldfreid, 1982). Purcell and Brady (1966) monitored subject's verbal behaviour with a miniature transmitter for one hour per day. It is unclear whether subjects became more 'natural' in the presence of the transmitter after ten days of monitoring as the criteria for this were number of references made to the transmitter, amount of talking done, and impressionistic reports from the subjects themselves (Goldfreid, 1982).

Moos (1968) studied the impact on a group of psychiatric patients of wearing a radio transmitter and concluded that the effect of wearing the transmitter was small and more likely to occur in the more disturbed patients. It is important to note that these patients knew they were being observed and it is not known exactly how this knowledge affected results (Goldfreid, 1982). Johnson and Bolstad (1975) found no difference between tape-recorded family interactions with or without observers present.

S-R may be used as a therapeutic technique because of its reactive effects causing positive or desirable behaviours to increase and negative or undesirable behaviours to decrease. This is due in part to the valence (positive or negative evaluation) of S-R instructions (McFall, 1970; Johnson & White, 1971; Nelson, 1977). An example of this is, when individuals count the number of times they were successful in stemming the impulse to smoke (positively evaluated behaviour) they are more likely to decrease their smoking

behaviour than if they monitor the number of cigarettes smoked (negatively evaluated behaviour). Experimenter or researcher instructions induce valence or expectations of change. Even more generally, when the individual's awareness is raised regarding specific aspects of their behaviour there is a clear effect on the frequency of this behaviour (Kazdin, 1974).

Reactivity is also affected by the timing of the S-R response in relation to occurrence of the target behaviour (Nelson, 1977). It has been suggested (Kanfer, 1970) that self-reporting before rather than after the occurrence of an undesirable behaviour would produce greater reactivity because the S-R interrupts a behaviour chain and provides an alternative to the target behaviour.

Nelson (1977) has suggested other factors which influence reactivity including the nature of the S-R device (obtrusive devices may produce greater reactivity than less obvious ones). The number of behaviours concurrently recorded also influences reactivity. Reactive effects tend to be greater when only one behaviour is recorded (Hayes & Cavior, 1978). The type of recording schedule influences reactivity also (continuous schedules seem to produce greater reactivity) (Nelson, 1977). Frederiksen, Epstein & Kosevsky (1975) reported that continuous recording of each cigarette as it was smoked produced greater reactivity than nightly or weekly recording.

It seems S-R is most likely be reactive in a positive direction when: 1) Change-motivated subjects continuously monitor a limited number of discrete, positively evaluated target behaviours, 2) Goals and standards are made available

and feedback on performance is provided and, 3) The act of recording is closely related in time to the target behaviours.

An explanation of the reactive effects of S-R (Nelson, 1977) is that the activity necessarily produces an alteration or disruption of the individual's usual behaviour sequence. Similarly, in situations where a person's behaviour is being externally observed, the alteration of the stimulus situation may contribute to observee reactivity (Zegiob, Arnold & Forehand, 1975). The behaviour generated in the presence of any discriminative stimulus depends on past learning and perceived consequences attributed to observation. This affects occurrence and direction of behaviour change (Nelson, 1977).

When S-R is used as a therapeutic strategy it is desirable for reactivity to be maximised. Some studies, however, have demonstrated that S-R alone is ineffective in bringing about behaviour change (Mahoney, 1971; Jackson, 1972). Mahoney (1977) recommends that therapists do not rely solely on the reactive aspects of S-R for their therapeutic gains.

As mentioned previously, reactivity constitutes a potential disadvantage when S-R is utilised in assessment. The act of observing and recording one's own behaviour may exert an unintended and unwanted influence on that behaviour (McFall, 1977). To the extent that S-R methods are reactive the representativeness of the sample and generality of the conclusion is reduced.

When S-R is used in assessment to collect data the goal is to minimise reactivity since behaviour change would interfere with results (Nelson, 1977). It is the contention of Mahoney

(1977) that S-R is better used as an assessment device or as an adjunct to other therapeutic techniques. He suggests that the reactive effects of S-R are variable (across individuals and target behaviours), short-lived, and usually attributable to more complex variables than simple mechanical recording. Reactive effects of S-R, in the collection of day-to-day data in clinical cases, need consideration aimed at controlling for them. These reactive effects may still occur however. Evidence suggests that if we ensure that: 1) the S-R device is as unobtrusive as possible, 2) the subject has a period in which he/she can get used to the method of recording, 3) expectancies of change are reduced by telling subjects no change is expected, 4) the recording device contains possibilities for a range of both positive and negative responses, 5) feedback about performance is not provided other than encouragement to continue recording and, 6) data is not observed during the study to avoid inadvertent reinforcement for desired results or trends; then we will minimise reactivity.

Far more research in this area is needed before we have an adequate understanding of the reactive effects of S-R and a number of methodological problems require resolution prior to any definitive statement being made. The use of adequate controls and objective methods other than S-R by the individual need to be employed (Maletsky, 1974). Instructions provided to the subject, layout of the questionnaire, use of data from other sources (significant others, physiological measures) are all possibilities. Rather than asking "Is S-R reactive?" a more productive question may be "What effects occur as a function of what S-R procedures, under what

conditions, in what behaviours, and with which subjects?"
(McFall, 1977).

2-2-3 Accuracy

The particular operational definition of accuracy varies from study to study. A usual method is comparing S-R's with reports given by acquaintances (Bem & Allen, 1974; Kazdin, 1977; Nelson, 1977). There are several ways accuracy may be increased (Nelson, 1977): someone else in the environment may initial each self-recording, the subject may be reinforced for accurate data, the subject may record each instance of the target behaviour, the subject should be provided with adequate training and a suitable recording procedure, and recording should be fitted into the subject's schedule to avoid it conflicting with other activities.

It has been said that a criterion level of accuracy must be reached before reactivity occurs (Peterson et al, 1975). Some procedures enhance accuracy without simultaneously increasing reactivity and some procedures which enhance accuracy also increase reactivity. Mahoney et al (1973), and Frederiksen et al (1975), demonstrated continuous recording schedules to produce both good accuracy and reactivity. Accuracy may also be enhanced by self-directed attention, or under conditions conducive to self-focus,

"...assessments of various aspects of the self, including attitudes, cognitions, and affective and somatic states, usually are more accurate when they are made by a

respondent whose attention is

self-directed" (Gibbons, 1983) p. 517.

Self-awareness promotes accuracy by : a) focusing subject's attention more carefully on those aspects of the self made relevant by the instrument, and
b) increasing the subject's motivation to report accurately on those self-dimensions. People bring with them to the test situation a desire to self-evaluate and to tell the truth: self-focus increases their motivation in both of these directions (Gibbons, 1983). Safin (1975) and Gibbons (1983) concluded that accuracy depended on whether the individual was oriented toward self-evaluation and also on success in the activity.

Accuracy may be enhanced by; providing subjects with a range (across positive and negative) of options for responding, providing instructions for subjects which disguise experimenters expectations, subject's expectations for change should not be encouraged, subjects being aware that their behaviour is being monitored by someone else in their environment (Nelson, 1977), provision of reinforcement for accurate data, recording each instance of the behaviour, provision of adequate instructions and provision of a simple and convenient recording procedure and schedule.

2-2-4 Response Biases

Some subjects are "bad" respondents and the data they provide can be said to suffer a lack of reliability. Some genuinely have difficulty responding to questions on personality scales that pertain to behavioural domains because they have

difficulty identifying specific aspects of their behavior that are consistent across situations (Gibbons, 1983). Most people tend to demonstrate a reasonable amount of consistency on some behavioural domains but little or none on others. According to Bem & Allen (1974) the motivation to maintain consistency among behaviours and attitudes varies considerably from one person to the next and from one behaviour to the next.

Parkes (1980) demonstrated that certain personality types i. e., those high on social desirability and defensiveness would be motivated to report less distress than those not scoring so high on these dimensions. Goldberg (1982) noted the problems of the unreliable informant, the defensive subject and the over-emphatic or histrionic subject as well as various response sets (agreement, social desirability and positional bias). That bias influences S-R or the rating of others has been well documented in research studies. The assessors inability to appraise correctly, lack of adequate and accurate information about the assessee, and rater-ratee interaction adversely affect accuracy of assessment.

There seems to be two basic problems attributable to the respondent; one is that the individual may not maintain a standard of behavioural consistency (his/her S-R's are as random as his/her behaviour) and, secondly, that the scale and the respondent may be mismatched. The scale may be assessing a self-component that the person either does not consider to be important or on which he/she does not behave (suffer) consistently (Gibbons, 1983). Alternatively, the person may see him/herself as being consistent on a certain trait but may not think the particular behaviour being

examined is relevant to the general trait in question. In each of the above examples the person is not likely to have specific aspects of the self in the form of relevant previous behaviour on which to focus. It may be that the individual is unable to discern a consistent pattern or identify salient behaviour/emotions over a time period (Scheier, Carver & Gibbons, 1979). S-R studies have been criticised for leading to stereotypic responding (Parlee, 1974) and this has been shown to increase with progression of the study (Nowlis & Green, 1964).

Other response biases include social desirability, acquiescence and extreme responding. Social desirability results from different aspects of response having different degrees of attractiveness (Nowlis, 1965). Subjects tend to be less influenced by social desirability effects when instructions require them to attend to shorter duration mood-state as compared to enduring traits. Acquiescence is the propensity to always answer "yes" to schedule questions. Evidence of acquiescence varies from study to study (Herron, Bernstein, & Rosen, 1968; Johnson, 1970; Johnston & Hackman, 1977). One method of controlling for the effects of acquiescence is to avoid following a set pattern or order in questionnaire items (to alternate poles on bipolar scales to minimise serial effects. Extreme responding, or the extent to which subjects check the extreme rather than the central options has also been found to vary from scale to scale (Johnston & Hackman, 1977). The incorporation of a variety of lists with negative and positive options in alternating positions compensates for this effect (Warr & Krapper, 1967). Many inventories are efficient means of data collection but

are open to response biases (Furnham & Henderson, 1983). Various attempts have been made to assess their susceptibility; 1) A measure such as a Lie scale is included in the questionnaire itself to detect unreliable subjects who may be faking well or ill, 2) The questionnaire is correlated with other measures of social desirability or defensiveness and, 3) Subjects are requested to fake good or bad to all the questions and the results are compared with a control group who responded honestly. There may exist further internal and external factors which induce a great deal of unwanted variance in S-R. S-R of emotion is highly subjective and susceptible to faking and it seems questions may be raised about the individual's willingness to accurately disclose information relating to the self. Even if an individual is in the best position to make assessments about him or her self, it is likely that he/she may not like to disclose that accurately (Chatterji & Mukerjee, 1983).

Strategies for overcoming some of these problems are emphasising honesty and reducing face validity so subjects are not as aware of what is being measured. If a questionnaire has high face validity it is more likely that the subjects can identify what the questions are actually attempting to assess. High face validity, therefore, tends to be positively correlated with the response bias of faking good or bad. A note of caution however; if a subject cannot clearly see or understand that a self-dimension is being assessed then he/she would not, under any circumstances, be able to respond accurately.

The fact that S-R is able to reflect phenomena in terms of the experiencing person him or herself and that the technique

is cost effective outweigh any potential disadvantages of response bias (Conte, 1983). In some fields the use of S-R is unavoidable and, indeed, the method of choice, so it is necessary to continue to improve its quality and explore new ways of achieving this goal.

2-2-5 Reliability

Reliability of S-R is the extent to which the data is replicable and has invariably been a controversial issue (Bellack & Hersen, 1977). For quite different reasons both dynamic-analytic theory and the modern behavioural approach share the view that the overt content of S-R's does not provide an accurate picture of behaviour or its determinants. One example of a S-R information gathering device is the retrospective interview which possesses many advantages in the clinical trial context. It ensures comprehension of questions and complete reporting thereby avoiding problems attributable to different literacy levels and it reduces compliance problems. However, it is apparent that theoretical and practical advantages of such a device require empirical substantiation.

Reading (1983), in his article on male sexuality, suggested that ratings of pleasure may show a low temporal stability and may consequently be less well suited to retrospective reports over extended time intervals. It has been shown that records made from memory are generally less reliable than those made at the time of observation (Yarmey, 1979).

The use of retrospective S-R's may offer practical advantages in terms of economy of data collection but these advantages

may be offset by a lack of precision of reporting particularly with respect to subjective reports i.e., sexual difficulties (Reading, 1983).

Continuous reporting and retrospective reports have different properties and potential advantages (Reading, 1983). While he concludes that neither can be taken as an absolute criterion of actual behaviour implicit preference was given to diary card data as more representative owing to its close temporal proximity to the events being reported.

The reliability of subjective responses is not easy to assess. S-R's have not been shown to be more unreliable than other types of measurement except perhaps for some well calibrated electro-mechanical devices (Cautela & Upper, 1976). Recording devices designed to measure physiological correlates of subject's responses (i.e., electro-encephalo-gram) are often invasive and labour intensive. The result being that the behaviour of interest is changed by the recording process and becomes artificial and unnatural. Questionnaires are easier to set up and can be run on a larger scale.

Reliability of S-R's has been investigated through a number of studies; some deal with assessment of abilities, skill and knowledge whereas others are related to performance variables and personality traits. Conclusions from these S-R studies have rated reliability across the range from very high to very low.

Chatterji and Mukergee (1975) investigated the hypothesis that self-reporting would have poor reliability as well as poor validity and this was supported. They used examiners assessments as base points against which to classify S-R's.

Richard and Alexander (1962) concluded that evaluation of individuals in a group by one or more individuals in that group, though made by untrained observers, are good predictors of relative success or failure in a selection process.

It is possible to influence reliability of an observer's ratings by manipulating expectancies about what is supposed to happen (Goldfried p 86). This is controversial and different results have emerged. S-R of relaxation practice was compared with a relaxation assessment device which subjects were unaware of (Hoelscher et al, 1984). Results showed that subjects overestimated their actual practice by an average overestimation of 126%. It has been difficult to tell whether the lack of relationship between amount of self-reported relaxation practice and positive clinical outcome reflects a true weak relationship or merely unreliability of S-R measures. Hoelscher et al's results document actual noncompliance and unreliability of S-R for relaxation.

Information gathering on PMS relies heavily on S-R measures. The reliability of such measures is therefore a matter of considerable practical importance. Following standard psychometric practice, reliability is defined as the proportion of variance in the observed score which is due to the true score and is usually measured by the extent of agreement between observers or raters.

2-2-6 Validity

Validity refers to the extent to which the questionnaires

succeed in measuring what they set out to measure i.e., the extent of agreement between S-R and another criterion. There has been relatively little research carried out in this area and a need has arisen for additional validity studies and more normative data relating to S-R methods. Validity of S-R responses has characteristically gone unquestioned (Bellack & Hersen, 1977). Research encounters problems inherent in the repeated assessment of subjective states as there are limited opportunities for direct validation of this data. In other areas, attempts to correlate S-R symptoms with physiological changes in the laboratory have yielded moderate to high measures (Reading, 1983).

Crandall (1973) suggested that ratings by others may be useful in validating or even supplementing S-R measures. Ratings by others are phenomenologically distinct from S-R and will only agree with S-R's if the external observer knows the subject well, observes a wide range of behaviours and is making judgements of the same specific characteristics as the subject (Marsh et al, 1985). Marsh et al (1985) found self-other agreement to be quite high (mean $r=0.58$), demonstrating that significant others are able to accurately infer multidimensional self-concepts of someone they know well. The authors suspected that self-other agreement in their study was stronger than found elsewhere because: subjects in their study were older; both subjects and significant others made their responses on the same well-developed instrument, and; self-other agreement was for specific characteristics rather than broad, ambiguous traits or an overall concept of the self. Also, significant others in the Marsh et al study knew the subjects better, and in a

wider range of contexts, than is the case in most research. Campbell and Fiske (1959) argue that multiple indicators of the same construct should be substantially correlated (convergence), but that indicators of different traits should be less correlated (divergence). If correlation between two measures of the same construct are substantial then there is support for convergent validity.

In clinical research concern is with effecting changes in behaviour that are clinically significant or actually make a difference in the client's life; so too in the area of investigative research. Interest is directed towards aspects of behaviour that are noticed, or can be verified, by other individuals in the subject's environment: the criterion for external validity.

One method of determining the validity of intervention effects is that of subjective evaluation (Kazdin, 1977). The client's behaviour is evaluated by individuals who are likely to have contact with him/her to determine whether the change made during treatment is important. A practical compromise to trained observers is behavioural observations carried out by individuals typically present in the subject's naturalistic environment such as friends, spouses, parents, teachers, nurses and other significant individuals (Kazdin, 1977). The advantage is obtaining information from individuals who have occasion to view the subject over relatively long periods of time, in a wide variety of situations and with minimal likelihood of reactivity.

In research, as well as treatment, the same technique may be employed to validate subject's reports of physical or emotional changes. The principle criterion used to establish

the validity of S-R's in clinical trials investigating sexual function has been the correspondence between husband and wife accounts (Reading, 1983). Concordance has been found to be variable and reflects a number of causes including the method of data collection employed.

The essential feature is to identify the subject's peers i.e., those individuals who are similar to the client in certain pre-chosen respects, who know the subject or client well enough to observe changes, and who differ in performance of the target behaviour.

McCrae & Costa (1983) pointed out that as long as only S-R's are available it is impossible to determine the validity of the resulting data. Chatterji and Mukergee (1983) investigated the validity of S-R against two different criterion viz., the examiner's assessment and the assessment by peers in highly competitive selection situations. Results showed: a) a strong tendency to over-estimation in self-appraisal, b) unpredictability of S-R against the two validation criteria and, c) moderating effects from certain psychological and biological factors on younger, less qualified subjects.

In the ideal validation assessment of data subject's S-R's would be compared with their true PMS scores. Although we have no way of knowing true scores we can approximate them with ratings made by knowledgeable observers and spouse ratings have been shown to be useful measures of personality (Edwards & Klockars, 1981; McCrae, 1982). In order to conclude that a high husband-wife consensus exists it is necessary to demonstrate both a high correlation and comparable (not significantly different) mean levels

(Reading, 1983).

The practice of relying on partners reports as corroborative evidence has been questioned since the assumption of independence may not be valid. Ratings, of course, are not free of artifact i. e., halo effects, and it is possible that the spouses rating may lead to an overly favourable/unfavourable rating of his/her partner. Although both S-R's and ratings may contain error or bias they do not share the same biases. The artifacts of social desirability, acquiescence, extreme responding or shared stereotypes are never found in common between S-R's and ratings (McCrae, 1982). There is no reason to suspect that the social desirability rating of the subject would influence his or her spouses ratings. The only variance common to the two sources would be real trait variance and this alone could account for the correlation between them.

In a study comparing observer reports, S-R's and a behaviour checklist in the assessment of acute pain and anxiety in children and adolescents LeBaron & Zeltzer (1984) concluded that clinical research on pain and anxiety should incorporate both S-R and observer data. Their objective was to obtain separate ratings for pain and anxiety from both subjects and observers to determine whether behaviours that occurred during the cycle were correlated with subject's own ratings. A difficulty in interpretation of data based only on observer reports is that pain and anxiety constitute a complex, multidimensional experience that is not adequately represented by observable behaviours alone (Hilgard & LeBaron, 1982).

Some of the psychometric advantages of S-R's versus an

observational approach have been described by McReynolds (1968). He feels that choosing one method over another because it is 'better' or 'more valid' is to ignore the questions "Better for what?" and "More valid for what purpose?"

There is an extreme lack of data on the validity of S-R measures intended to assess mood or emotional states (Parlee, 1982). One exception to this is the attempt to relate psychophysiological variables to the S-R of mood (Bell, 1973; Bell et al, 1975). The present study accepts recommendations to try to assess emotional and sensory components separately using both observational and s-r data (Winer, 1982; LeBaron & Zeltzer, 1984).

The use of S-R is predicated on the assumptions that respondents will be truthful in response to obvious, direct questions and that S-R data are valid.

Conte (1983) claims that, while it is known that response biases such as social desirability may affect an individual's responses, there is sufficient evidence that, when questions are direct and response alternatives are clearly specified, results are meaningful. Reasonably good correlations exist between objective and subjective measures in a sleep research area (Saletu 1975; Leathwood & Chauffard 1983).

Subjective evaluation consists of judgements about qualitative and quantitative aspects of behaviour. The behaviour of interest is observed by individuals who interact with the client or who are in a special position (e.g. through expertise) to judge that behaviour. This method has been used frequently in applied behaviour analysis to validate treatment effects. Social validation helps bridge

experimentation and clinical work and research and practice.

Individuals in the natural environment frequently are responsible for identifying problem behaviour and making referrals to professionals for treatment. Thus, their evaluation of behaviour is relevant for deciding the treatment focus. Also, their evaluation of behaviour is relevant for assessing degree of change from normal levels. There is a potential problem in relying upon the opinions of non-professionals for determining treatment or research focus. Many behaviours may be responses that are significant to the individuals who interact with the subject but not necessarily to the subjects themselves.

The opinions of non-professionals may be valuable for evaluating extent of change but should not be viewed uncritically as prescriptive guidelines. The focus of treatment maybe dictated by research considerations beyond the purview of most non-professionals and based on empirically-established relationships.

Global subjective evaluation by important individuals in the subject's environment may indicate a qualitative change in behaviour. The question can still be raised - are these changes clinically significant?

"It is not necessarily the case that a difference that can be perceived in behavior by raters making global judgements is an important change."

(Kazdin 1977, pg 443).

Global ratings reflect differences, perhaps JND's, but are not based upon quantitative units that necessarily define

adequate functioning. There is no guarantee that the degree of change is important. A way to ensure important change is to take recordings continuously over time.

According to McFall (1977) too much confidence in the validity of subject's perceptual processes is evident in two explanatory models proposed to account for S-R effects (Kanfer & Phillips, 1970; Kazdin, 1974b). Even under the best conditions human subjects tend to be faulty observers. It is likely that several mechanisms are responsible for S-R effects. It may be that one of the mechanisms underlying S-R effects is essentially perceptual in nature; that is, the monitoring process may cause changes in subject's perceptions of events which, in turn, may effect changes in their responses to these perceived events. Almost any change in perceptual set would be accompanied by an altered response set. From this perspective the tendency for S-R to cause behavioural changes would simply be a function of the extent to which the act of recording resulted in new perceptual sets that were discrepant from those held by the subject prior to recording.

Suggestions for improving the reliability and validity of observational data include the following:

- 1) Training of observers including samples of behaviour and settings resembling those in which data collection will occur.
- 2) Conditions for assessing observer agreement should be maintained to assure consistent levels of agreement (continuous overt monitoring and randomised covert monitoring generate the most stable levels of agreement).
- 3) Avoidance of communicating experimental hypotheses to the

subjects and avoidance of reinforcement for data supporting these hypotheses.

Since being observed may, in itself, change the behaviour of the subject, observation should be conducted as unobtrusively as possible.

Further issues requiring attention include: 1) the optimum assessment interval, 2) accuracy of respondents reports and, 3) the reactive effects of employing the measures themselves (Reading, 1983).

External validity is the extent to which the S-R data accord with other, presumed more accurate, indicators of behaviour i.e., others reports, physiological parameters, etc.

(O'Malley, 1983). In the area of alcohol use Rachal et al (1980) concluded from several studies using various observation and proxy reports that, self-reports are sufficiently valid to warrant reliance on them as a primary source of data in social science research.

Unfortunately, in research, no adequate lie detector has been developed. In the absence of such a test researchers have relied on multiple ways of improving validity. The strategies, although adequate for measuring the viability of constructs and theories, often fail to establish the extent to which data accurately reflect the reality (Myers, 1983).

SUMMARY

The definition of S-R, the origins of the method in psychology and some of the many possible applications were reviewed in the first part of this chapter. This was followed by an account of the methodological issues in the area and

some suggestions for overcoming those that constitute limitations for data derived from S-R. It is clear that there is room for more research.

SECTION TWO - THE STUDY

CHAPTER - THREE

3-1 INTRODUCTION AND AIMS

3-1-1 Measurement of Mood

It has become increasingly popular in recent years to investigate mood and physiological activity with the aid of S-R (Mackay, 1980). It has often been the case that the covariation between mood and physical variables has been of primary interest (Roth et al, 1976) and important in clinical diagnosis (Wing, Cooper and Sartorius, 1974).

In the 1920's and 1930's studies investigating the relationship between electrophysiological indicants of emotion and subjective reports often found a discrepancy between the two. This resulted in some investigators condemning S-R's as inaccurate, invalid and unsatisfactory (Syz, 1926).

In more recent years it has been shown that individuals emotions are influenced by somatic activity (Valins, 1970) and the way emotions are described by individuals is determined by cognitive factors (Schacter and Singer, 1962; Lazarus, 1966).

Moods differ from emotions in that they have a less specific effect on behaviour and are longer lasting and integrative (Mackay, 1980). Some determinants of mood include withholding of reinforcement, environmental deprivation, emotional

stimulation and intra-organic events (including illness, biochemical changes), (Ruckmick, 1936; McNair and Lorr, 1964 and Meddis, 1969). Mood can be influenced in both a positive and negative direction and has been described as a "multidimensional set of temporary, reversible dispositions (Nowlis, 1963) which has obvious implications for the measurement of mood (Mackay, 1980).

Mood may be inferred from observation of overt behavioural acts (facial expressions and verbal responses) (Mahl, 1959) or from direct mood status reports from the subject (Mackay, 1980). The latter S-R's (discussed above in chapter 2) are considered to be more accurate descriptors of mood than observer ratings or physiological measures (Wessman and Ricks, 1966; Aitken and Zeally, 1970; Mackay, 1980).

As mentioned above (Chapter 2) many objections regarding the use of S-R measures have been raised: Lazarus (1966) claims that different linguistic habits, vocabulary, or memory cause difficulties involving semantics both within and among individuals, Mandler (1962) suggests that verbal language is not sufficiently fine-grained to allow for accurate representation of subjective experience, Mackay (1980) claims that willingness by the subject to offer a genuine record of mood may vary and reporting may be distorted due to the effect of response biases such as social desirability (see Section 2-2-4) and self deception.

Many of the problems associated with S-R are common to other systems of measurement; others are unique to S-R. The problems are mainly empirical and relate to how much detail is required by the investigator and how much error can be tolerated (Mackay, 1980); they can be removed, minimised or

used as sources of information in their own right (Mackay, 1980).

The notion of bipolarity of mood is crucial to study in this area (Mackay, 1980) and evidence both for and against it exists. Meddis (1969), Meddis (1972) and Svensson (1977) found evidence of mood being bipolar.

The visual analogue scale (VAS) provides a frequently used alternative to adjective check lists and assume bipolarity of mood. The subject is required to place a mark on a horizontal line in estimation of the intensity of a feeling. The line is anchored at each end with a word (usually opposite in meaning) representing extremes of a mood continuum e.g. calm, excited.

Problems concerning unequalled category widths and failure to account for nuances of feeling are at least partly overcome by this system (Aitken, 1969; Zeally and Aitken, 1969). Other advantages include ease of understanding, speed in filling out and scoring, minimum motivation required and facility for very fine discriminations (the subject is not restricted by arbitrary categories) (Freyd, 1923). Rubinow (1984) suggests the technique is especially useful in 1) the measurement of bipolar symptoms common in PMS; 2) the measurement of change over time within an individual; and 3) determining the relationship of symptoms to menstrual cycle phase. Joyce (1968) suggested the property of response set to be reduced by VAS's.

As VAS's have been shown to be sensitive to pharmacological interventions (Bond and Lader, 1974) and effects of sleep loss (Herbert, Johns and Dore, 1976) it is likely, also that they have sensitivity to the wide hormonal fluctuations

occurring over the menstrual cycle in women suffering severe PMS. The scales have offered reliable and valid indications of emotional state (Maxwell, 1978; Hall, 1980) and provide data which can be easily used in a variety of statistical techniques (Maxwell, 1978).

The existence of syndrome as defined should be prospectively confirmed prior to onset of treatment. The failure to meet this requirement has most compromised the literature on PMS, for despite numerous demonstrations that retrospective ratings are inaccurate and tend to overestimate the symptoms, most studies have not prospectively confirmed diagnosis based solely on retrospective assessment (Rubinow, 1984).

3-1-2 The Relationship between S-R and Observer Ratings

Few studies on the joint analysis between S-R's and observer ratings exist (McCrae & Costa, 1982). Both of these traditional methods of personality assessment are liable to distortion but, as already mentioned in Section 2-2-4 the artifacts that may influence S-R's (acquiescence, extreme responding, defensiveness) are independent of the artifacts which may contaminate ratings (halo effects, stereotypes). Agreement between the two measures amounts to powerful evidence of consensual validation (McCrae & Costa, 1982). It has been suggested that complete correspondence between factors in S-R's and ratings should not be expected (Golding, 1977). Personality as presented to others may differ from personality as experienced.

Joint analyses of S-R's and ratings can provide support for any of three positions: 1) they may show the same factors

across both measures, 2) they may show no joint factors, 3) they may show mixed results (McCrae & Costa, 1982). These authors suggested that correspondence between the two sources can be increased by employing the same instrument for both and that an optimal strategy would be to have both the target individual and the raters complete parallel questionnaires. Choosing appropriate raters is important. Raters who have had longer acquaintances with the target subjects give consistently better ratings, judged against the external criterion of S-R's. McCrae & Costa, (1982) suggest a single rater may give excellent descriptions of personality if he or she were someone with long and intimate knowledge of the individual; such as a husband or wife. This hypothesis has been confirmed by other research (Edwards & Klockars, 1981; Plomin, 1974).

3-1-3 Aims of the Experiment

In view of the above, this study aimed to recruit a homogenous sample of PMS sufferers and assess them with the retrospective Premenstrual Assessment Form and two VAS severity scales, and to prospectively collect mood symptom data over a sufficiently long period to enable the use of Spectral Analysis.

Specifically the aims were: -

- 1) To determine whether prospective daily self-ratings on a VAS could effectively confirm or disprove histories of menstrually related mood changes.
- 2) To compare prospectively collected self-report mood records with those simultaneous records collected from

significant-other observers.

3-2 METHOD

3-2-1 Subject Identification

Thirteen women were finally involved in this study. They were all of European origin, aged 24-45 years (mean, 32.7 years; sd., 4.) and all rated their PMS as moderate to severe. One woman had suffered a kidney transplant and one woman was diabetic however, as both these problems post-dated their PMS, were of a stable and chronic nature and under adequate control it was decided to include these women. All other subjects were in good health.

Those with a current psychiatric disorder or currently undergoing traumatic life experiences were not accepted. All had a history of regular menstrual cycles and only one woman was taking any form of hormonal preparation. None had been pregnant within eighteen months of the beginning of the study and four of the thirteen subjects had no children. Of those who had children, five women had two children and four women had one child.

Sixty-four women were contacted by letter (Appendix 1) regarding possible participation in the study, seventeen made contact and nine were accepted. Of those not accepted reasons given were; inconvenience due to distance (this affected both the author and the subject), pregnancy, plans to move house, and lack of availability of any person in the subject's environment who could record observations of the subject's symptoms. Six extra subjects were recruited by word of mouth.

Due to difficulty in achieving adequate sample size it was decided to include one woman on the contraceptive pill and two women of twenty-four years of age (one year outside the range originally decided upon of 25-45 years). For the purposes of this study inclusion of these women does not constitute a problem. Fifteen women took part in the study but lack of sufficient daily records from two women (subjects 4 and 11) reduced the final sample to thirteen.

For each woman involved in the study records regarding her menstrual cycle symptoms were also gathered from a person in her environment who knew her well. These 'observers' were; in eight cases, husbands, in two cases flatmates, in one case a close friend, in one case the subject's father and in one case the daughter of the subject. In the case of the flatmates (subjects 7 and 9) subject and observer, respectively, acted as subject and observer for each other.

Individual Subject Descriptions From Initial Interview

Subject 1, 35 years of age at the time of the study, began menstruating at age 12. Her cycles were regular and have a current length of 26 days. She described her current state of health as variable due to tiredness, headaches and other body aches but was taking no regular medication. Both her two children were born by caesarian section following almost a ten year period of using the contraceptive pill. She was 1.68 metres (m) in height and weighed 75 kilograms (kgs). This is 123% ideal body weight (NZ Calorie Counter, 1984). She rated her diet as adequate and varied and she

exercised strenuously approximately once a week with less strenuous exercise more often.

Her stress level was rated by her as varying between moderate and severe and her sleep was broken due to having young children. She had suffered from PMS since the birth of her youngest child 21 months prior to the study beginning and she rarely experiences cycles without it (three times in the last 21 months). Symptoms last 6-8 days beginning in the week following ovulation and subsiding one week prior to menstruation. She finds some relief with vitamin B6, exercise attention to diet, efamol, a hot bath and reduced pressure but results have been inconsistent. Observer's recordings were taken by her husband.

Results on the Millon Clinical Multiaxial Inventory (Millon, 1977) (Appendix 4a) showed significant peaks (above 85) on basic personality scales representing histrionic and passive-aggressive traits and clinical symptom peaks on anxiety and depression.

Subject 2 (36 years of age) reached menarche at 12 years. Cycles were regular were a regular 28 days in length. Her health was described as good and she was taking no regular medication. She felt the contraceptive pill did not suit her and used an intra-uterine contraceptive device (IUCD). She had two children (both were difficult deliveries followed by anaesthetic) and she was 1.75m in height weighing 58kgs; 107% of ideal body weight.

Diet was varied and intake fluctuated with some binge eating and smoking. She had some trouble sleeping and exercised strenuously three times per week. She was employed for thirty hours a week and rated her stress level as moderate. History

of suffering PMS was 4-5 years in length and she estimated two symptom-free cycles in the previous few years. Symptom duration varied from 4-10 days with symptoms subsiding one or two days prior to onset of bleeding. Some relief was gained through exercise, attention to diet, vitamin B6, occasional diuretics and increased preparedness. Observer's recording were taken by her husband. MCMI results showed a basic personality pattern elevated on narcissistic and antisocial traits. Clinical syndrome scales were within normal limits.

Subject 3 was thirty years of age at the time of the study and reached menarche at 13 years. Cycles were regularly and are 28 days in length. Her health was described as good and she was taking no medication. She began the contraceptive pill at age 15 years for painful periods and continued on 'the pill' for ten years. She was using a diaphragm for contraception at the time of the study and had two children one born by breech delivery and had had one 'missed abortion'. She was 1.57m tall and weighed 47.5kgs, 87% of ideal. Her diet was varied and she had regular meals with occasional bingeing. She had no difficulty sleeping and had minimal strenuous exercise.

Stress was rated as severe but decreasing and she began suffering from PMS 18 months prior the study with a six month symptom-free period after the first six months. Symptoms last about ten days beginning six days prior to menstruation. Some relief was derived from vitamin B6, exercise, migraine tablets, attention to diet, "getting a break" and receiving support. The observer for subject three was her husband. MCMI results were within normal limits.

Subject 5 (41 years) of age began menstruating at 11 years. Her cycles had always been regular apart from two and a half years prior to a kidney transplant when menstruation stopped. At the time of the study cycles were 28 days in length.

Health was described as poor and she required regular medication (steroids, immuno-suppressants, and blood pressure tablets). Medical history showed four operations, three of them major. Her height was 1.64m and she weighed 105kgs (182% ideal body weight). Diet was described as very good, containing a wide variety of food types and a regular meal pattern.

She described some difficulty getting to sleep but this was not a major problem. Stress level was described as severe and she has suffered PMS since menarche. Occasional cycles were described as symptom-free but if this happens the subsequent cycle is worse. Symptom duration varies but onset is usually ten days prior to bleeding and finishing on the second day of bleeding. Subject 5's external rater was her husband. MCMI results showed a personality pattern elevated on passive aggressive traits with elevated anxiety and depression on the clinical scales.

Subject 6 (33 years of age) began menstruating at 13 years and had always experienced regular cycles of 30 plus or minus 3 days (were 28 days at the time of the study). Her state of health was described as good. She was, however, diabetic and required regular insulin medication. She had one child followed by a period of three years on the contraceptive pill, the IUCD for two years and then her husband had a vasectomy.

She was 1.70m in height and weighed 57.5kgs (93% of ideal). Her daily meal pattern was erratic and diet was not balanced by her own account. She experienced some problems getting adequate sleep and her stress level was rated by her as severe. Subject 6 was unsure of the exact duration of her suffering PMS but estimated onset about eleven years prior to the study. Symptoms begin up to 10 days before menstruation and finish between the first and third day of the cycle. No cycles were experienced as symptom-free. No relief from symptoms had been found by any means and she felt the best management strategy was to remove herself from contact with others. Her daughter was her observer. MCMI results showed significant personality pattern traits of schizoid, avoidant and passive-aggressive with clinical scales within normal limits.

Subject 7 (23 years) old reached menarche at 14 years.

Cycles were regular (21-24 days in length) and were 23 days at the time of the study. Her state of health was described as good despite being tired and she was on no medication. This subject had no children and took the contraceptive pill for 3-4 months at seventeen years of age. She was using no contraceptive method at the time of the study. She was 1.73m tall and weighed 70.5kgs (113% ideal). She was vegetarian and described a regular meal pattern with good variety and she described no problems with sleep. Stress was rated as moderate. Symptoms of PMS had been experienced for seven-eight years and one-two cycles per year are experienced as symptom free. Symptoms last from three days prior to onset of menstruation and subside on the first day of bleeding. Exercise and attention to diet provide some symptom relief.

This woman was observed by her female flatmate. MCMI results were within normal limits.

Subject 8, 27 years of age, began to menstruating at 10 years. Her cycles were regular and had a length of 28-30 days. Her health was good and she takes no ongoing medication. She had an abortion five years ago and had no children. Her contraception was by diaphragm. She was 1.65m in height and weighed 59kgs (97% ideal). She described herself as careful about her diet, was vegetarian, had three meals a day and a wide variety of food. She was aware of eating more premenstrually. Her observer was a close male friend whom she saw daily.

She had regular strenuous exercise (five times every week) and rate her stress level at the time of the study between moderate and severe. She had suffered from PMS for five years and had never had a cycle completely symptom-free. Symptoms last for up to two weeks and subside on the second day of bleeding. She obtained some relief through vitamin B6 and reduction of activities. MCMI results showed elevations on histrionic and narcissistic scales. Clinical syndrome scales were within normal limits.

Subject 9, 24 years of age, reached menarche at 13 years. Cycle length varied between 21 and 34 days and was 26-29 days at the time of the study. Her health was good and she was taking no ongoing medication. This woman had no children and was not using any contraceptive method. She was 1.68m tall and weighed 57.5kgs (94% ideal). She had a varied diet and a fairly regular meal pattern. She had no problems sleeping and had daily strenuous physical exercise. Her stress level was rated by her as mild and she had suffered from symptoms of

PMS for three years. Usual PMS duration was 10 days with symptoms subsiding at bleeding onset. She obtained some relief through extra sleep, increased sugar and alcohol in her diet and exercise. Observer ratings were taken by her female flatmate. MCMI results were within normal limits.

Subject 10, 40 years old at the time of the study, was observed by her husband. Her cycles were regularly 21 days in length. Her state of health was good and she was taking no ongoing medication. She had some fertility problems prior to her one child and had a tubal ligation eight years prior to the study. She was 1.57m in height and weighed 45.5kgs (84% ideal). Diet was regular (two meals per day) and described by her as containing wide variety.

She described some problems staying asleep and engaged in no strenuous physical exercise. Her stress level was rated as mild and she had suffered PMS for two years. She had never had a symptom-free cycle. Symptoms last for 10-12 days subsiding on the first day of bleeding. MCMI results showed a personality pattern consistent with having compulsive/conforming traits and clinical scales were within normal limits.

Subject 12, whose observer ratings were provided by her father, was 33 years of age and reached menarche at 13 years. Her cycles have always been regular and were 21 days in length at the time of the study. Her state of health was good and she required no regular medication. She had no children and had no history of gynaecological problems or use of any contraceptive method. She weighed 54kgs and was 1.60m in height giving an ideal weight percentage of 98. Diet was regular and varied, she had no sleep problems and had

infrequent strenuous physical exercise. She rated her stress level as mild and had suffered from PMS since menarche but felt symptoms worsened about eight years ago. No cycles were symptom-free but one cycle in four was described as mild. Symptoms last for 10-14 days and subside on the first or second day of bleeding. Some relief was gained through reduction of activities, taking a hot bath, vitamin B6 and occasional minor pain relievers. Subject 12 showed a basic personality pattern consistent with having compulsive/conforming traits and clinical syndrome scales were within normal limits.

Subject 13, 45 years of age at the time of the study, began menstruating at age 13. Her cycles were always regular and had a length of 29 days. Her health was good and she took migraine medication as required. This woman began taking the contraceptive pill nine months prior to beginning the study. She had one child and had had one ectopic pregnancy. She was 1.60m tall and weighed 53kgs (96% ideal weight). She regularly had three meals per day and had a varied diet. She exercised strenuously approximately once a week and had no problems sleeping. Her stress level was described as mild and she had suffered from PMS for 20 years. Every third month seemed to her of milder intensity than other months but no cycles were symptom-free. Symptoms last for at least seven days and subside on the third day of bleeding. Some relief was obtained through vitamin B, extra sleep, a lighter schedule and attention to diet over the premenstrual phase. Observer ratings were taken by her husband. MCMI results showed basic personality pattern to peak on the histrionic scale with all clinical scales within normal limits.

Subject 14, aged 28 years, began menstruating at 14 years. Her cycles were originally irregular (ranging from 21 days to 3months). Cycles at the time of the study were regular (28 days). Her health was good and she was taking no ongoing medication. She was using the IUCD and had two children. Her height was 1.63m and she weighed 53kgs (94% ideal). Diet was regular and varied and she had no trouble sleeping. She exercised two-three times a week strenuously. She rated her stress level as moderate and had suffered from PMS for 10 years approximately with no symptom-free cycles. Symptoms last for ten days and subside on the third day of bleeding. Her husband provided observer ratings. She managed symptoms by withdrawing from social contact, lowering house-keeping standards and taking vitamin B. MCMI results showed a personality pattern with significant compulsive/conforming traits and all clinical syndrome scales within normal boundaries.

Subject 15, 30 years of age at the time of the study, began menstruating at 12 years. Cycles were fairly regular ranging between 21 and 35 days. At the time of the study they were 28 days in length. She was suffering from a virus at the time of the interview and had been feeling 'run down'. She was not taking any regular medication and used the diaphragm for contraception. She had one child and suffered post-natal depression after his birth two years prior to the study beginning. She described her diet as not containing much variety but 'healthy' and regular. She had no strenuous physical exercise and her sleep was broken due to having a young child.

Stress was rated as severe and she had suffered from PMS for

ten years approximately. Approximately three cycles per year are 'really bad' by her own description and no cycles are symptom-free. Symptoms last for 7-10 days and usually subside on the second or third day of bleeding. Relief was obtained through attention to diet, reduction of activities and stresses and exercise. Her husband provided external ratings. MCMI results showed a very significant elevation on basic personality scale 3 measuring dependent traits and significant clinical scale elevations on scales representing anxiety, somatoform tendencies and depression. There was some evidence of pathological borderline aspects.

3-2-2 Measures

All subjects and their observers were interviewed prior to commencing recording at which time target subjects filled out a retrospective rating scale (Premenstrual Assessment Form, Appendix 5) designed to assess severity of past symptoms and two VAS's on the Initial Interview form (Appendix 4) also assessing past symptom severity on subjectively evaluated good and bad months. Current symptoms and more detailed history were gathered with the aid of the Initial Interview form.

Prospective daily recording (Appendix 3) was carried out by both the target subjects and the observers beginning the day after the interview and continuing for a period of between two and four menstrual cycles. Daily recordings were carried out each morning by both the target and the observer relating to the preceding day. All participants were encouraged to avoid any form of collaboration regarding diary completion

and to attempt to maintain their usual pattern of communication regarding menstrual symptomatology for the duration of the study. Daily diaries were collected every few weeks.

Interview : An informal interview schedule was devised for purposes of gaining information about subject's menstrual cycle history, present cycles, medical and physical status, diet and sleep patterns, occupation, stress level and premenstrual symptoms. The schedule included two VAS (Mackay, 1980) to assess subjective difference in symptom severity on 'good' and 'bad' months. During this interview instructions were provided for both target subjects and observers and any questions regarding procedure or concerns regarding confidentiality were addressed.

The Premenstrual Assessment Form (PAF) : All target subjects filled out the PAF (Appendix 5) at initial interview. This instrument is a measure of changes occurring during the premenstrual phase. It is a retrospective device and it consists of three major sections; 1) This section is composed of questions designed to elicit general information about menstrual cycle history and gynaecological status, 2) This section consists of 95 questions regarding PMS symptomatology each offering six options for response : not applicable, not present at all or no change from usual level (1), minimal change (2), mild change (3), moderate change (4), severe change (5), and extreme change (6). Maximum possible score for this section by direct summation of scores is 570, 3) The final section consists of free space for

subjects to provide a narrative description of their experience of the differences between the premenstrual phase and the other phases of the cycle.

As section one and three showed considerable overlap in content with the interview schedule mentioned above they were omitted and only section two was used.

Daily Diary : The daily diary (Appendix 3) consisted of :

A) Eight bipolar VAS's of 100mm in length with the following anchors; full of energy/exhausted, happy/unhappy, confident/not confident, calm and relaxed/very tense, friendly/hostile, very poor concentration/very good concentration, unflappable/irritable and very good muscular co-ordination/very bad muscular co-ordination. The direction of poles was alternated for subsequent items to reduce likelihood of stereotypic responding. Maximum negative mood scored 100 and the eight scales were summed to provide a daily mood and symptom score.

B) General information regarding name, date, medication (if applicable; dose and time taken), and (for target subjects only) whether or not they were menstruating.

C) Free space and instruction to add further comments if desired.

3-2-3 Statistical Analysis

Visual analysis of graphical material may be less than desirable (Hudson, 1985). For this reason the statistical technique of time series analysis was employed in the present

study. Of particular relevance in the area of PMS research, given the need for measures of cyclicity, is the technique of analysis in the frequency domain (Spectral Analysis).

Specific advantages of this technique, in the univariate case are ease of interpretation and salience of the variance associated with various frequencies (Hudson, 1985).

For purposes of the bivariate case two additional statistics must be incorporated. They are 1) coherence, the best linear relationship between the series at each frequency, and 2) phase, which describes the temporal relationship between the series at each frequency. If the coherence is high at a particular frequency but the spectral density is low, the linear relationship is likely to be trivial. Phase can only be interpreted when the coherence reaches significance. Phase trend over a range of significant coherence can be used to examine degree of lag between the two series. A negative slope indicates the two series to be out of phase with the first series leading and a positive slope indicates the second series to be leading.

3-3 Results

Score summaries of PAF results and VAS scores from the Initial Interview are provided in table 3-1. Scores from the ninety-five items (each item with a possible range of 1-6) on the PAF are summed and this raw score is presented. Maximum possible score is 570. The VAS score correspond to subjective evaluations of severity of premenstrual symptoms on good and bad months.

TABLE 3-1

Subject No.	PAF Score	Bad Month VAS	Good Month VAS
1	365	100	33
2	352	74	20
3	164	90	6
5	430	99	45
6	138	100	29
7	266	76	5
8	443	100	56
9	230	88	5
10	198	55	20
12	368	72	50
13	228	83	27
14	270	100	47
15	330	73	14

Results from all subjects and subject-observer pairs will be presented along with spectral density analysis (Table 3-2). The raw data graphs and spectral density material is presented in appendices 6, 7 and 8.

TABLE 3-2

NUMBER OF DATA POINTS (T), BANDWIDTH (BW), MEAN SPECTRAL DENSITY AND SIGNIFICANT CYCLICITY WITHIN SPECTRA DENSITY ESTIMATES BY SUBJECTS (S)

S:	SEGMENT	T	BW	MEANSP DENS.	SUM OF: PEAK	PERIOD RANGE PEAK	DF	CHI SQ	SIG
1	Mood/S	93	.0737	11275	200400	23-95 47.	70	248.9	.001
					371452	4-12 6	210	460.6	.001
	Menst	93	.0737	0.166	5.77	9.5-95 18	140	486	.001
	Mood/Obs	93	.0737	9696	28402	4-5.6 5	98	41	NS
2	Mood/S	95	.0526	40412	373500	6-12 8.3	80	92	NS
	Menst	95	.0526	.139	3.826	12-47 19	70	275	.001
	Mood/Obs	95	.0737	23623	107770	19-95 36.6	70	63.8	NS
					549960	5-16 7.7	196	326	.001
3	Mood/S	105	.0667	5874	128590	21-105 35	70	306	.001
					28300	10-15 12.5	56	67	NS
	Menst	105	.0667	.086	3.53	66-105	224	575	.001

					13			
	Mood/Obs	105 .0667	16544	147600	21-105	70	125	.001
					35			
				195580	9.5-17	84	166	.001
					12.5			
5	Mood/S	106 .0648	28426	459890	11-107	140	226	.001
					20			
				449510	5-9.8	154	221	.001
					6.8			
	Menst	106 .0648	.136	5.8084	9-107	168	597	.001
					27			
	Mood/Obs	106 .0648	19209	135310	6.7-9	70	98	.025
					7.7			
6	Mood/S	87 .0795	46920	480240	5.9-8	70	143	.001
					7			
	Menst	87 .0795	.167	5.7744	11-87	112	484	.001
					25			
	Mood/Obs	87 .0795	23189	833550	11-88	112	503	.001
					29.3			
7	Mood/S	82 .0833	15913	226150	12-84	98	199	.001
					28			
				243808	4.2-8	154	214	.001
					6			
	Menst	82 .0833	.151	4.361	11-84	112	404	.001
					28			
	Mood/Obs	82 .0833	19664	132420	17-84	70	94	.05
					28			
				289301	5-9.3	126	205	.001
					6.5			
8	Mood/S	96 .0729	25799	788490	16-96	84	427	.001
					32			
				111080	7-12	84	60	NS
					9.5			
	Menst	96 .0729	.100	3.343	9-71	154	468	.001
					24			
	Mood/Obs	96 .729	9483	76607	6.9-12	98	113	NS
					8.7			
9	Mood/S	82 .0833	23976	281340	10.5-84	112	164	.01
					17			
				77444	4-4.9	70	45	NS
					4.4			
	Menst	82 .0833	.129	4.445	7.6-84	154	482	.001
					28			
	Mood/Obs	82 .0833	15869	102740	21-84	56	90.6	.001
					42			
				102930	9-17	70	91	.05
					14			
				175960	4.7-7	140	155	.01
					5			
10	Mood/S	96 .0729	1973	23355	8.7-19	98	166	.001
					14			
	Menst	96 .0729	.222	7.5211	14-96	98	474	.001
					24			
	Mood/Obs	96 .0729	9102	207400	16-96	84	319	.001
					32			
				62879	7.4-10	670	97	.025
					9.6			
12	Mood/S	101 .0686	49457	1816600	17-102	84	514	.001
					34			
				75690	4.2-5.1	70	21	NS

	Menst	101	.0686	.137	5.545	10-102	140	566	.001
						4.6			
	Mood/Ob101		.0686	18726	999720	17-102	84	747	.001
						26			
					62680	4.9-6	70	47	NS
						34			
13	Mood/S	93	.0526	11415	154920	31.6-95	30	127	.001
						5.4			
					76115	9.5-16	50	66.7	.01
						47			
					36686	6.8-8.6	40	321	NS
						12			
					67050	5.3-6.3	40	58.7	.05
						7.3			
	Menst	93	.0526	.148	1.9096	24-95	40	129	.001
						5.6			
					2.452	11-16	40	166	.001
						32			
					.443	6.3-7.3	30	29	NS
						13.5			
	Mood/Obs93		.0526	9711	56058	12-24	50	52.7	NS
						6.8			
					70605	7.3-10.5	50	72.7	.025
						14			
					59880	5.6-6.8	40	61.6	.025
						8			
14	Mood/S	94	.0526	18485	425866	9.5-95	100	229	.001
						5.9			
						32			
					27457	-	40	14	NS
					180030	-	80	96.7	NS
	Menst	94	.0526	.161	3.3713	19-95	50	209	.001
						32			
	Mood/Obs94		.0526	16222	1086230	24-95	40	669	.001
						47			
					219000	12-19	40	135	.001
						16			
					84107	-	40	51.85	NS
15	Mood/S	86	.0568	21827	582100	12.6-87	70	267	.001
						29			
	Menst	86	.0568	.153	5.305	9.8-88	90	347	.001
						29			
	Mood/Obs86		.0795	17409	482965	8.8-88	140	277	.001
						29			
					130991	-	126	75.2	NS

Data Summary

Subject 1

Results for target 1 show significant cyclicity both in the range expected of the menstrual cycle and what appears to be weekly. There is also significant cyclicity in the menstrual

series again in the frequency range expected for the menstrual cycle. There was, however, no significant coherence between the mood (self) and the menstrual series. This suggests that, while cyclicity is evident in the mood data it is over a longer period than that expected of the menstrual cycle and probably unrelated to it. The mood (observer) series showed no evidence of cyclicity.

Subject 2

Results for subject 2 show no significant cyclicity at any frequency. Therefore coherence between mood and menstrual data is uninterpretable. Observer results show significant evidence of cyclicity at a period of 7.7 days which may fit a weekly pattern. The positive slope in phase data indicates target subject to be leading by approximately .5 of a day. However, due to poor coherence this is of doubtful validity.

Subject 3

Mood data for subject 3 shows significant cycling at a period of 35 days. Coherence between mood (self) and menstrual data is greater than .6 making phase data uninterpretable.

Observer mood series shows clear evidence of significant cyclicity of both monthly and weekly frequencies. Coherence between subject 3 and observer 3 reaches .662 and is significant. Phase slope is negative indicating observer-lead by approximately 1.5 days.

Subject 5

Mood (self) series shows evidence of significant mood cyclicity of both a 20 day and a 6.8 day length (monthly and

weekly approximately). Significant cyclicity in menstrual data is also evident at a 27 day length. Coherence between the mood (self) and the menstrual series is sub-critical and, therefore, phase cannot be interpreted. Observer results show cycling at a length of 7.7 days reaching significance at the .025 level. Coherence is, however, not reached between self-reported mood and observer-rated mood even at that frequency.

Subject 6

There is significant cyclicity in self reported mood at a weekly cycle only and, for the menstruation series the expected cycle of about a 25 day period is evident. Given the lack of cyclicity at similar frequencies between the target's mood rating and menstruation, the lack of coherence is not surprising. The mood-observer series shows significant cyclicity at menstrual cycle frequency but, as predicted, the lack of menstrual cycle frequency in the target's data results in poor coherence.

Subject 7

Cyclicity, at a frequency expected of the menstrual cycle is evident in self (mood) along with a cycle of a weekly length. Menstrual data also shows cycling of the expected frequency but reaches a sub-critical level for coherence. For the observer mood data, evidence of significant cyclicity exists at frequencies of monthly and weekly length and significant coherence is reached over both these cycles. Interpretation of the phase relationship suggests lag for the monthly cycle is about 1.5 days with target leading. In the weekly cycle

phase slope indicates 1 day lag with the observer leading.

Subject 8

There is evidence here of cycling at the expected length for the menstrual cycle (32 days). Menstrual series data also shows the expected frequency of cycling (24 days). Coherence between both these data series reaches above the critical level at the 32 day frequency. Phase slope suggest delay is insignificant; perhaps .5 of a day at most with menstrual cycle leading. The mood-observer series shows no definitive evidence of cycling of target's mood therefore no further analysis is warranted. There is clear suggestion of PMS in this data.

Subject 9

Significant cyclicity is evident in self-rated mood of the frequency expected of the menstrual cycle. This is also true of the menstrual series. However, level of coherence reached is sub-critical so phase data is not interpreted. Observer ratings of target's mood show significant evidence of cycling at frequencies expected of the menstrual cycle and also of a fortnightly length. Significant coherence peaks at both frequencies indicate correspondence with the broader peak in the mood (self) series. Phase interpretation suggests two different mood cycles; 1) 42 days approximately showing 1 day lag with self leading and, 2) a faster period (14 days approximately) with a negative slope indicating a small observer lead.

Subject 10

Significant fortnightly cycling is evident in the mood (self) series and the menstrual series shows expected frequency of cycling. There is no significant coherence between the two due to there being no overlap. Mood (observer) data shows significant cycling at a menstrual cycle frequency as well as weekly cycling with no coherence between self-rated mood. Therefore, there is no linear relationship between the two and phase cannot be interpreted.

Subject 12

Expected menstrual cycle frequency is evident in the mood (self) series as it is also in the menstrual series. Coherence is significant over this range and phase shows a 2 day lag with mood leading. Observer results also show clear evidence of cycling at menstrual cycle frequency and significant coherence with the mood (self) series. Phase interpretation suggests a .5 day lag with target leading. This data shows clear evidence of PMS.

Subject 13

Cycles at frequencies of 47 and 12 days are evident and significant in the mood (self) series. The menstrual series shows significant cyclicity at frequencies of 32 days and 13.5 days and no coherence with self-rated data. The observer (mood) series shows significant weekly cycling. Coherence is significant with a phase interpretation of a 3 day lag with target leading.

Subject 14

Cycling of menstrual cycle frequency is evident mood (self)

series and also in the menstrual series. Coherence is significant and phase indicates a .5 of a day delay with mood leading. The observer (mood) series shows; 1) extended frequency cyclicity at 47 days which is significant and, 2) a 16 day cycle which is also significant. Coherence is sub-critical so phase cannot be interpreted.

Subject 15

Mood (self) series shows significant cycle frequency at 29 days. The menstrual series shows significant cycle frequency at the same length and significant coherence exists over the appropriate range. Phase delay is approximately 1 day with menstrual series lead. Observer series shows significant cycling at a 29 day frequency also with significant coherence with mood (self) series. Interpretation of phase suggests a 1 day lag with observer-lead.

Summary

Of the thirteen subjects nine target subjects showed evidence of significant mood cycling of a length equivalent to that of the menstrual cycle. However, in only four cases (subjects 8, 12, 14 and 15) was there strong menstrually-related coherence.

Evidence of good coherence between target subjects and observers occurred in six of the thirteen pairs (subjects 3, 7, 9, 12, 13, and 15) but this was significantly related to the menstrual cycle in only two cases (subjects 12 and 15). Significant weekly cycles were apparent in three target subjects (5, 6, and 7) and in five observers (3, 5, 7, 10, and

13). Significant coherence between targets and observers over cycles of this length occurred twice (subjects 5 and 7). As far as phase relationships were concerned, leads by the observer of approximately one day occurred in four cases (subjects 3, 7, 9 and 15) and leads by the target of approximately one day occurred in three cases (subjects 7, 9 and 12) and by three days in the case of target subject 13.

3-4 Discussion

3-4-1 Interpretation of Results

Spectral analysis was applied to prospectively gathered mood data from the target subjects and their observers. Results showed clear evidence of menstrually-related mood cyclicality in four of the thirteen subjects giving supportive evidence of PMS in these women. Nine target subjects showed cyclicality of menstrual cycle length (i.e. appropriate cyclicality) in their reported mood series, but in five of these subjects there was a lack of coherence when these series were compared, in a bivariate fashion, with menstrual bleeding. It is possible that, had the two series (self-rating and menstrual) been aligned, and the target subjects had all begun recording at menstrual day 0 (bleeding onset), that the number of subjects with significant levels of coherence between mood series and menstrual bleeding would have been improved (to nine of thirteen subjects).

For these nine subjects confirmatory cyclicities exist in the observer's series seven of nine times. In the two cases where confirmatory cyclicities were absent, no cyclicality existed in one (observer one) and in the other cyclicality was of a weekly length (observer five). Patterns of mood cyclicality evident in the seven confirmatory observers data are also weekly in two cases (observers three and seven) and fortnightly in two cases (observers nine and fourteen).

Cycles of odd lengths (i.e., 14 days) could be fortnightly influences on mood and/or behaviour, but it is more likely

that they are harmonics or side lobes bouncing (or being reflected) off a less than regular sine/cosine shaped wave which is generated by the data series. For example, a square wave with a period of one week ($f = .13$) will give a spectral density plot with a frequency peak at .13 with smaller peaks (or harmonics) on either side. It is possible that the weekly cycles are also harmonics but this is much less likely given the plausible psychological explanation offered above.

Significant cycling varied in frequency from weekly to almost bimonthly. It is not clear why this is so.

Cycles of approximately one week in duration were not uncommon in the observers scales occurring (to significance) in six of the thirteen subjects with cycles of fortnightly length in two observers scales. Target subjects showed weekly cyclicities five of thirteen times and in two of thirteen subjects these cycles were of fortnightly length. This may be due to the effect of the working week influencing mood and communication between couples. Cycles of a length longer than the menstrual cycle occurred twice; the reason for this is also unclear.

One problem may be that for some subjects there existed in the data only two complete cycles. This may have seriously comprised the ability of spectral analysis to adequately detect cyclicity.

The frequently occurring lag of approximately one day in recording with either the target or the observer leading may have been due to many factors. One possibility is that the couples became a day out in their recording. It is possible that this could have occurred through confusion over dating the diaries (for the preceding day).

The mixed results indicate that it may be necessary to conceptualise mood on two different levels; as it is observed and as it is experienced. The lack of coherence in cycle frequencies between targets and observers may have been due to the lack of sufficient data, the fact that targets began recording at various points in the cycle, the fact the target's mood was private from observers, that observers mood was also fluctuating, or that targets and subjects spent only a limited time together.

3-4-2 Methodological Limitations

Methodological limitations include: -

- 1) The fact that target and observer subjects began recording at various points in the menstrual cycle. Results may have shown clearer evidence of menstrually-related cyclicity if all subjects had begun recording on the same cycle day (menstrual cycle day 0).
- 2) It is not clear to what degree the mood and personality of the observer affected results. The observers own fluctuating moods may have had a variable influence on recording, on the quality of the relationship and on the target subject's mood. Where there is significant cyclicity in the observer series but not in the self-mood series, for example subject six (not merely a lack of coherence between self-mood and menstruation) then a likely hypothesis is that the observer ratings give more information on the observer than they do about the target.
- 3) To what extent the length, nature and quality of the relationship between target and observer effected the

findings is also unclear. McCrae & Costa (1982) suggest length and intimacy of the relationship has a positive influence on coherence between target and observer ratings. Related to this is the considerable variation in the degree of enmeshedness of the pairs. These ranged from spouses and mates to just good friends. However, there was no clear relationship between these parameters and the results in the present study.

4) Another limitation applies to the fact that not all subject-observer pairs were spouses. It is unclear to what extent the different types of relationships in the present study influenced outcome.

5) Instructions to separate (as far as possible) the symptoms of dysmenorrhea from mood changes were not specifically provided and it is therefore unclear how much dysmenorrhea effected target's mood symptoms.

6) Much of the possible coherence may be lost due to subjects being required to rate mood over an entire day rather than over a more discrete time interval during which both persons are together.

7) Mood descriptor words on the daily rating scales may not have held maximum possible meaning for subjects and subjects may have been forced to rate mood under labels not clearly meaningful to them. The way semantic understanding of mood descriptor words varies from individual to individual is a subject worth investigation.

8) Insufficient numbers of cycles have limited the potential of the analysis to adequately discriminate and identify menstrually-related cyclicities.

9) The actual amount of discussion occurring between the

observer and the target was very difficult to quantify and it was likely that naturalistic levels of communication between pairs varied from couple to couple and may have enhanced reactivity. While this is true, if any marked effect had existed a higher degree of relationship between target-observer pairs would have been expected than was in fact the case.

In summary, the complained of changes in target's mood premenstrually were not generally supported by observer ratings. Some of the reasons why this may be the case have been discussed. The fact the target's mood may not have been obvious to an external observer could be due to:-

- a) That there were in fact no premenstrual mood changes. As many as 30% - 40% of women complaining of PMS on retrospective ratings, fail to show confirmatory mood shifts when tracked prospectively (Hudson, 1985). Also some women only experience PMS in occasional cycles, meaning that this study may have included some symptom-free cycles.
- b) Observers fail to notice mood shifts due to lack of awareness, their own mood shifts or physical absence.
- c) Mood changes in some women are very private and well disguised so are inaccessible to observation by others but are nevertheless valid.

3-4-3 Suggestions for Future Research

In addition to the suggestions mentioned above future research could usefully be directed towards:-

- 1) The analysis of prospectively gathered mood data over a shorter time period i.e., less than one day. Mood can

fluctuate rapidly and many changes can occur over a few hours. Fine detail and perhaps significant correlations between target and observer are lost due to attempts to isolate out salient mood over twenty-four hours rather than perhaps over a one hour period.

2) The private nature of mood requires further investigation and how this relates to mood-observability. Also premenstrually-related mood is not specific to menstrual phase alone and occurs throughout the month in a wide variety of situations. Future research might address some of these issues.

REFERENCES

- Ablanalp, J. M., Haskett, R. F., & Rose, R. M. (1980). The Premenstrual Syndrome. In E. J. Sachar (ed). Advances in Psychoneuroendocrinology, 3(2), p327-347. Psychiatric Clinic North America.
- Ablanalp, J. M. (1983) Premenstrual syndrome: A selective review. Women and Health, 8 (2-3), 107-123.
- Abraham, G. E. (1981). Premenstrual tension. J. M. Leventhal & D. P. Goldstein (Eds). Current Problems in Obstetrics and Gynecology. pp 3-39.
- Abraham, G. E. (1983). Nutritional factors in the etiology of the premenstrual tension syndromes. Journal of Reproductive Medicine, 28, 446-464.
- Abraham, G. E. (1983). Premenstrual Tension. Journal of Reproductive Medicine, 28, 433-434.
- Abramson, M., & Torghelle, J. R. (1961). Weight, temperature changes and psychosomatic symptomatology in relation to the menstrual cycle. American Journal of Obstetrics and Gynecology, 81, 223-232.
- Abranowitz, E. S. , Baker, A. H., & Fleischer, S. S. (1982) . Onset of depressive psychiatric crisis in the menstrual cycle. American Journal of Psychiatry, 139, 475-478.
- Adams, P. W. , Rose, D. P. , Folkard, J. , Wynn, V. , Seed, M. , & Strong R. (1973) . Effects of pyridoxine hydrochloride (vitamin B6) upon depression associated with oral contraception. Lancet, 1, 897-904.

- Adams, P. W. , Wynn, V. , & Seed, M. (1974). Vitamin B6, depression and oral contraceptives. Lancet, 2, 516-517.
- Aitken, R. C. B. (1969). Measurement of feeling using visual analogue scales. Proceedings of the Royal Society of Medicine, 62, 989-993.
- Aitken, R. C. B. & Zealley, A. K. (1970). Measurement of moods. British Journal of Hospital Medicine, 4, 215-225.
- Allport, G. W. (1924). The study of the undivided personality. Journal of Abnormal and Social Psychology. 19, 132-141.
- Altman, M., Knowles, E. & Bull H. D. (1941). A psychosomatic study of the sex cycle in women. Psychosomatic Medicine, 3, 199-224.
- Andersch, B. (1980). Epidemiological, hormonal and water balance studies in premenstrual tension. Goteborg: University of Goteborg. Dissertation.
- Andersch, B., Abrahamson, L., Wendestam, C., Ohman, R., Hahn, L. (1979). Hormone profile in premenstrual tension: effects of bromocriptine and diuretics. Clinical Endocrinology, 11, 657.
- Andersch, B. (1983). Bromocriptine and premenstrual symptoms; a survey of double blind trials. Obstetric and Gynecological Survey, 38, 643-646.
- Andersch, B., Hahn, L., & Isaksson, B. (1978). Bodywater and weight in patients with premenstrual tension. British Journal of Obstetrics and Gynaecology, 85, 546-550.

- Anderson, C. H., & Greenward, G. S. (1969). Autobiographic analysis of estradiol uptake in the brain and pituitary of the female role. Endocrinology, 85, 1160-1165.
- Appleby, B. P. (1960). A study of premenstrual tension in general practice. British Medical Journal, 1, 391-393.
- Backstrom, T., Carstensen, H. (1974). Estrogen and progesterone in plasma in relation to premenstrual tension. Journal of Steroidal Biochemistry, 5, 257-260.
- Backstrom, T., Mattsson, B. (1975). Correlations of symptoms in premenstrual tension estrogen and progesterone concentrations in blood plasma. Neuropsychology, 1, 80-86.
- Backstrom, T., Sanders, D., Leask, R., Davidson, D., Warner, P., Bancroft, J. (1983). Mood, sexuality, hormones and the menstrual cycle.(ii). Hormone levels and their relationship to the premenstrual syndrome. Psychosomatic Medicine, 45, 503-507.
- Bell, B., Christie, M. J. & Venables, P. H. (1975). Psychophysiology of the menstrual cycle. P. H. Venables & M. J. Christie, (Eds.), Research in Psychophysiology. New York: Wiley.
- Bellack, A. S. & Hersen, M. (1977). Self-report inventories in behavioural assessment. In J. D. Cones & R. D. Hawkins (Eds.) Behavioural Assessment : New Directions in Clinical Psychology. (pp 52-76). New York: Brunner/Mazel.
- Bem, D. & Allen, A. (1974). On predicting some of the people

some of the time. The search for cross-situational consistencies in behaviour. Psychological Review, 81, 506-520.

Benedek, T. (1952). Studies in psychosomatic medicine: psychosexual functions in women. New York: Roland Press.

Benedek, T., Jaszmann, L. J. & Hearn-Sturtevant M. D. (1976). Lancet, 1, 1095.

Benedek, T. & Rubenstein B. B. (1939). The correlations between ovarian activity and 40 dynamic processes. (i). The ovulation phase. (ii) The menstrual phase. Psychosomatic Medicine, 1, (a) 245-270. (b) 461-485.

Bickers, W. & Wood, M. (1951). Premenstrual tension: rational treatment. Texas Rep. Biological Medicine, 9, 406-419.

Billig, H. E. & Spaulding C. A. (1947). Hyperinsulism of menses. Industrial Medicine, 16, 336.

Biskind, M. S. (1943). Nutritional deficiency in the etiology of menorrhagia, metrorrhagia, cystic mastitis and premenstrual tension: treatment with vitamin B complex. Journal of Endocrinological Metabolism, 3, 227.

Biskind, M. S., Biskind, G. R., Birland, C. H. (1944). Nutritional deficiency in the etiology of menorrhagia, metrorrhagia, cystic mastitis and premenstrual tension. Surgical Gynaecological Obstetrics, 78, 49-57.

Borst, C. V. (Ed.) (1970). The Mind / Brain Identity Theory. New York: McMillan.

Bradley, L. A., Prokop, C. K. (1982). Research methods in contemporary medical psychology. P.C. Kendall & J.N.

- Butcher, (Eds.). Handbook of Research Methods in Clinical Psychology. (pp 591-650). New York: Wiley.
- Cantela J. R. & Upper, D. (1976). The behavioural inventory; the use of self report measures in behavioral analysis and theory. In M. Hersen & A.S. Bellack (Eds) Behavioral assessment; A Practical Handbook. (pp 77-109). New York: Pergamon Press.
- Cantela, J. R. & Kastenbaum, R. A. (1967). A reinforcement survey schedule for use in therapy, training and research. Psychological Reports, 20, 1115-1130.
- Chaplin, J. P. & Krawiec, T.S. (1960) Systems and Theories of Psychology. New York: Holt, Rinehart & Winston.
- Chatterji, S. & Mukerjee, M. (1983). Accuracy of self assessment and its relation with some psychological and biographical factors. New Zealand Journal of Psychology, 12, 28-35.
- Chern, M.M., Gatewood, L.C., & Anderson V. E. (1980). The inheritance of menstrual traits. In J.A. Dan, E.A. Graham, E.P. Beacher, (Eds), The Menstrual Cycle, New York: Springer.
- Christensen, A., Sullaway, M. & King C.E. (1983). Systematic error in behavioral reports of dyadic interaction: egocentric bias and content effects. Behavioral Assessment, 5, 129-140.
- Clare, A.W. (1977). Psychological profiles of women complaining of premenstrual symptoms. Current Medical Research Opinion, 4, (4), 23.
- Clare, A.W. (1983). Psychiatric and social aspects of premenstrual complaints. Psychological Medicine,

- monograph supplement 4. Cambridge, England. Cambridge
- Clare, A.W. (1985). Premenstrual syndrome: single or multiple causes ? Canadian Journal of Psychiatry, 30, 474-482.
- Conte, H.R. (1983). Development and use of self report techniques for assessing sexual functioning: a review and critique. Archives of Sexual Behavior, 12, (6), 555-575.
- Coppen, A. & Keesel, N. (1963). Menstruation and Personality. British Journal of Psychiatry, 109, 711-721.
- Crandall, R. (1973). The measurement of self esteem and related constructs. In J. Robinson and P. Shaver (Eds) Measures of Social Psychological Attitudes, (pp 45-158) Ann Arbor, MI: Institute for Social Research.
- Cullberg, J. C. (1972). Mood changes and menstrual symptoms with different gestagen-estrogen combinations. Acta Psychiatrica Scandinavia, 236, 1-86.
- Dalton, K. (1954). Discussions on the premenstrual syndrome. Proceedings of the Royal Society of Medicine, 48, 339-346.
- Dalton, K. (1964). The premenstrual syndrome. Springfield, IL: C.C. Thomas.
- Dalton, K. (1977). The Premenstrual Syndrome and Progesterone Therapy. London: Heinemann.
- Dalton, K. (1984). The premenstrual syndrome and progesterone therapy. 2nd edition; Chicago Yearbook of Medical Publishers.
- Day, J. B., Taylor, R. W. (1980). Aetiology of premenstrual

- syndrome. In P. A. Van Keep & W. H. Utian (Eds), The Premenstrual Syndrome. (pp 1-29). M. T. P. Press Ltd.
- Delaney, J., Lupton, M. J. & Toth, E. (1976). The Curse: A Cultural History of Menstruation (first edition). New York: Dutton.
- Dennerstein, L., Spencer-Gardner, C., Burrows, G. (1980). Premenstrual syndrome: a holistic approach. In P. A. Van Keep & W. H. Utian (Eds) The Premenstrual Syndrome. (pp 43-49). M. T. P. Press Ltd.
- Dennerstein, L., Spencer-Gardner, C., Brown, J., Smith, M. A., Burrows, G. D. (1984). Premenstrual tension-hormonal profiles. Journal of Psychosomatic Obstetric Gynaecology, 3, 37-51.
- Depirro, R., Fusco, A., Bertoli, A. et al (1982). Insulin receptors during the menstrual cycle in normal women. Journal of Clinical Endocrinological metabolism. 47, 1387-1389.
- Deutsch, H. (1944). The psychology of women. New York: Grune and Stratten.
- Duncan, A. D. (1969). Self application of behavior modification techniques by teenagers. Adolescence, 16, 541-546.
- Edwards, A. L. & Klockars, A. J. Significant others and self evaluation; relationships between perceived and actual evaluators. Personality and Social Psychology Bulletin. 7, 244-251.
- Endicott, J., Halbreich, U., Schact, S., Nee, J. (1981). Premenstrual changes and affective disorders. Psychosomatic Medicine, 6, 519-529.
- Ender, N. S., Hunt, J. McV., & Rosenstein, A. J. (1962). An

- s-r inventory of anxiousness. Psychological Monographs, 76, (17), No. 536.
- Epstein, L. H. & Peterson, G. L. (1973). The control of undesired behavior by self imposed contingencies. Behavior Therapy, 4, 91-95
- Faratian, B., Casper, A., O'Brien, P.M.S., et al (1984). Premenstrual syndrome: weight, abdominal swelling and perceived body image. American Journal of Obstetric Gynecology, 150, 200-204.
- Fiske, D. (1971). Measuring the Concept of Personality. Chicago: Aldine.
- Frank, R. H. T. (1931). The hormonal causes of premenstrual tension. Archives of Neurological Psychiatry, 26, 1053.
- Freyd, M. (1923). The graphic rating scale. Journal of Educational Psychology, 11, 83-102.
- Frieze, I. H., Parsons, J.E., Johnson, P.B., Ruble, D.H., & Zellman, G.L. (1978) Women and Sex Roles: A Sociological Perspective. New York: Norton.
- Furnham, A. (1983). Response bias in self-report measures of general health. Personality and Individual Difference, 4, (5) 519-525.
- Geer, J. H. (1965). The development of a scale to measure fear. Behaviour Research and Therapy, 13, 45-53.
- Gibbons, F. X. (1983). Self attention and self report. The "verdicality" hypothesis. Journal of Personality, 51, (3), 517-542.
- Goldberg, D. (1972). The Detection of Psychiatric Illness by Questionnaire. Oxford University Press.
- Goldfried, M. R. (1982). Behavioral assessment; an overview

- in A.S. Bellack, M. Hersen & A.E. Kazdin, (Eds),
International Handbook of Behavior Modification and
 Therapy. (pp 81-107). New York: Plenum Press.
- Gottman, J. M. (1981). Time-series analysis : a
 comprehensive introduction for social scientists.
 New York : Cambridge University Press.
- Gottschalk, C. A., Kaplan, S. M., Gleser, G. C. & Winget C.M.
 (1962). Variations in magnitude of emotions: a method
 applied to anxiety and hostility during phases of the
 menstrual cycle. Psychosomatic Medicine, 24,
 300-311.
- Grant, C. & Pryse - Davies, J. (1968). Effects of oral
 contraceptives on depressive mood change and on
 endometrial monoamine oxidase and phosphates.
British Medical Journal, 1, 777-780.
- Gray, L. A. (1941). the use of progesterone in nervous
 tension states. Southern Medical Journal, 34,
 1004.
- Green, V. A. & Green, D. M. (1984). Premenstrual syndrome:
 etiology symptoms, methodological issues and treatment;
 a review. Psychological Documents, 15, (2), 23.
- Greene, R. (1954). Discussion on the premenstrual syndrome.
Proceedings of the Royal Society of Medicine,
48, 337-338.
- Greene, R. & Dalton, K. (1953). The premenstrual syndrome.
British Medical Journal, 1, 1007-1013.
- Greenhill, J. P. & Freed, S. C. (1940). The mechanism and
 treatment of premenstrual distress with ammonium
 chloride. Endocrinology, 26, 529.
- Gynther, M. D. & Green, S. B. (1982). Methodological

- problems in research with self-report inventories. In P. C. Kendall & J. N. Butcher, (Eds) Handbook of Research Methods in Clinical Psychology, (pp 355-386). New York: Wiley and Sons.
- Halbreich, U., Ben-David, M., Assael, M. et al (1976). Serum-prolactin in women with premenstrual syndrome. Lancet, 2, 654-655.
- Halbreich, U. & Endicott, J. (1982). Future directions in the study of premenstrual changes. Psychopharmacol Bulletin, 18, 121-123.
- Halbreich, U., Endicott, J., Schact, S. & Nee, J. (1982). The diversity of premenstrual changes as reflected in the premenstrual measurement form. Acta Psychiatrica Scandinavica, 65, 46-65.
- Halbreich, U. & Endicott, J. (1983). The relationship of dysphoric premenstrual change to depressive disorders. In: Proceedings of the 9th International Congress of Psychosomatics and Obstetrics / Gynaecology, Dublin.
- Halbreich, U., Endicott, J. & Nee, J. (1983). Premenstrual depression changes; value of differentiation. Archives of General Psychiatry, 40, 535-542.
- Halbreich, U., Endicott, J., & Lesser, J. (1985). The Clinical Diagnosis and Classification of Premenstrual Changes. Canadian Journal of Psychiatry, 30.
- Hartshorne, H. & May, M. A. (1928). Studies in Deceit. New York: Macmillan.
- Horrobin, D. F. (1983). The role of essential fatty acids and prostaglandins in the premenstrual syndrome.

- Journal of Reproductive Medicine, 28, 465-468.
- Hallman, J (1986). The premenstrual syndrome-an equivalent of depression? Acta Psychiatria Scandinavica, 73, 403-411.
- Hamburg, D. (1966). Effects of progesterone on behaviour. Association for Research of Nervous Mental Disease. 43, 252-256.
- Hargrove, J. J. & Abraham G. E. (1982). The incidence of premenstrual tension in a gynaecological clinic. Journal of Reproductive Medicine, 27, 721-724.
- Haskett, R. F., Steiner, M., Osmun, J. N. & Carroll, B. J. (1980). Severe premenstrual tension: delineation of the syndrome. Biological Psychiatry, 15, 121.
- Hayes, M. H. S. & Patterson, D. G. (1933). Experimental development of the graphic rating method. Psychological Bulletin, 18, 98-99.
- Hershberg, A. D. (1966). Donnees statistiques sur l'etilogie et les traitements des mastopathies premenstruelles. C. R. Society France, Gynecologie, (5).
- Hilgard, E. R. (1961). Pain as a puzzle for psychology and physiology. American Psychologist, 24, 103-114.
- Hilgard, J. R. & Le Baron, S. (1984). Hypnotherapy of pain in children with cancer. Cos Altos, CA: Kaufmann.
- Hill, C. T., Peplan, L. A., & Rubin, Z. (1983). Contraceptive use by college dating couples. A comparison of mens and womens reports. Population and Environment, 6, (1), 60-69.
- Hoelscher, T. J., Lichstein, K. L. & Rosenthal, T. L. (1984) Objective versus subjective assessment of relaxation compliance among anxious individuals. Behaviour,

- Research and Therapy, 22, (2), 187-193.
- Horney, K. (1931). Die premenstruelle verstimmungen. In H. Kelman (Ed) Feminine Psychology, pp 99-106. New York: W.W. Norton.
- Hudson, S. M. (1985). Cyclicity and premenstrual symptomatology. PhD Thesis, University of Canterbury.
- Israel, S. L. (1938). Journal of American Medical Association, 110, 1721.
- Jackson, B. 1972. Treatment of depression by self reinforcement. Behaviour Therapy, 3, 298-307.
- Jamner, L. D. & Schwartz, G.E. (1986). Self deception predicts self report and endurance of pain. Psychosomatic Medicine, 48, (3-4), 211-223.
- Janiger, O., Riffenburg, R., Kersh, R. (1972). Cross cultural study of premenstrual symptoms. Psychosomatics, 13, 226.
- Janowsky, D. S., Berens, S. C., Davis, J. M. (1973). Correl between mood, weight and electrolytes during the menstrual cycle: a renin- angiotensin aldosterone hypothesis of premenstrual tension. Psychosomatic Medicine, 35, 143-154.
- Johnson, S. M. & White, G. (1971). Self observation as an agent of behaviour change. Behaviour Therapy, 2, 488-497.
- Joyce, C. R. B. (Ed) (1968). Psychopharmacology; dimensions and perspectives. Tavistock Publications, London.
- Kanfer, F. H. & Phillips, J. S. (1970). Learning Foundations of Behaviour Therapy. New York: Wiley.
- Kazdin, A. E. (1974). Reactive self monitoring. The effects

- of response desirability, goal setting and feedback. Journal of Consulting and Clinical Psychology, 42, 704-716.
- Kazdin, A. E. (1977). Assessing the clinical or implied importance of behaviour change through social validation. Behaviour Modification, 1, (4), 427-451.
- Kazdin, A. E. (1974 (b)). Self monitoring and behaviour change. In M. J. Mahoney & C. E. Thorensen (Eds) Self Control: Power to the Person. Monterey, California. Brooks / Cole.
- Kerr, G. D. (1977). Current Medical Research and Opinion, 4, suppl 4, 29.
- Kessel, N. & Coppen, A. (1963). The prevalence of common menstrual symptoms. Lancet, 2, 61.
- Keye, W. R. Medical treatment of Premenstrual Syndrome. Canadian Journal of Psychiatry, Vol; 30, November 1985.
- Kinch, R. A. & Robinson, G. E. (1985). Symposium: premenstrual syndrome: current knowledge and new directions. Canadian Journal of Psychiatry, 30, (7), 467-468.
- Klaiber, E. L., Broverman, D. M., Vogel, W., Kobayashi, Y. & Moriarty, D. (1972). Effects of estrogen therapy on plasma MAO activity and EEG driving responses of depressed women. American Journal of Psychiatry, 128, 1492-1498.
- Koeske, R. K. & Koeske G. F. (1975). An attributional approach to mood and the menstrual cycle. Journal of Personal and Social Psychology, 31, 473-478.

- Koeske, R. K. D. (1977). The interaction of social, cognitive and physiological factors in premenstrual emotionality. Unpublished doctoral dissertation. Carnegie - Mellon University.
- Kopell, B. S., Lunde, D. T., Clayton, R. B. & Moos, R. H. (1969). Variations in some measures of arousal during the menstrual cycle. Journal of Nervous and Mental Diseases, 148, 180-187.
- Knox, D. A. (1972). A Behavioural Approach to Marriage Happiness Counselling, Champaign, Illinois. Research Press.
- La Piene, R. T. (1934). Attitudes and actions. Social Forces, 13, 230-237.
- Lamb, W. M., Ulett, G. H., Masters, W. H. & Robinson, D. W. (1953). Premenstrual tension: EEG, hormonal and Psychiatric evaluation. American Journal of Psychiatry, 109, 840-848.
- Larson, R. & Csikszentmihalyi, M. (1983). The experience sampling method. New Directions for Methodology of Social and Behavioural Science, No. 15, 41-56.
- Leathwood, P. D. & Chaufford, F. (1983). Quantifying the effects of mild sedatives. Journal of Psychiatric Research, 17, (2), 115-122.
- LeBaron, S. & Zeltzer, L. (1984). Assessment of acute pain and anxiety in children and adolescents by self reports, observer reports and a behaviour checklist. Journal of Consulting and Clinical Psychology, 52, (5), 729-738.
- Leonard, K., Dunn, N. J. & Jacob, T. (1983). Drinking problems of alcoholics: correspondence between self and

- spouse reports. Addictive Behaviours, 8,
369-373.
- Lipinski, D. P., Black, J. L., Nelson, R. O. & Ciminero, A.
(1975). The influence of motivational variables on the
reactivity and reliability of self recording.
Journal of Consulting and Clinical Psychology,
42, 110-123.
- MacKay, C. J. (1980). The Measurement of Mood and Psycho-
Physiological Activity Using Self - Report Techniques.
in : Martin, I. and Venables, P.H. (eds.).
Techniques in Psychophysiology. pp 501 - 553.
John Wiley and Sons : Chichester, New York, Brisbane,
Toronto.
- MacKinnon, P.C.B, & MacKinnon, I.L. (1956). Hazards of the
Menstrual Cycle. British Medical Journal. 1
555.
- MacPhillany, D.J., & Lewinsohn, P.M. (1972). Measuring
Reinforcing Events. Proceedings of the 80th
Annual Convention. American Psychological
Association.
- Mahoney, M. J. (1977). Some Applied Issues in Self-
Monitoring. in : J. D. Cone and R.P. Hawkins (eds.)
Behavioural Assessment : New Directions in Clinical
Psychology (pp 241 - 254). New York.
Brunner/Mazell.
- Maletzky, B. (1974). Behaviour Recording as Treatment : A
Brief Note. Behaviour Therapy 5, 107 - 111.
- Mandell A, & Mandell M. P. (1967) Suicide and the Menstrual
Cycle. Journal of the American Medical Association.

9 792 - 793.

- Marsh, H. W., Barnes, J., & Hocevar, C. (1985) Self - Other Agreement on Multi - Dimensional Self - Concept Ratings : Factor Analysis and Multitrait - Multimethod Analysis. Journal of Personality and Social Psychology. 45 (5) 1360 - 1377.
- May, R.R. (1976). Mood Shifts and the Menstrual Cycle. Journal of Psychosomatic Research. 20 125 - 130.
- McCance, R. A., Luff, M. C., & Widdowson, E. E. (1937). Physical and Emotional Periodicity in Women. Journal of Hygiene. 37, 571 - 605.
- McCrae, R. R. (1982). Consensual Validation of Personality Traits : Evidence from Self-Reports and Ratings. Journal of Personality and Social Psychology. 43, 293 - 303.
- McCulle, J. N., Reich, T., & Wetzel, R. D. (1971). Pre - Menstrual Symptoms as an Indicator of Bi-Polar Affective Disorder. British Journal of Psychiatry. 119, 527 - 528.
- McFall, R. M. (1970). Effect of Self - Monitoring on Normal Smoking Behaviour. Journal of Consulting and Clinical Psychology. 35, 135 - 142.
- McFall, R. M. (1977). Parameters of Self-Monitoring. In : Stewart, R. B. (ed.) Behavioural Self - Management : Strategies, Techniques and Outcomes. pp 196 - 214. New York. Brunner/Mazell.
- McKenzie, J. (1983). The Accuracy of Telephone Call Data Collected by Diary Methods. Journal of Marketing Research. 20, 417 - 427.

- McNair, D. M., & Lorr, M. (1964). An Analysis of Mood in Neurotics. Journal of Abnormal and Social Psychology. 69, 620 - 627.
- McReynolds, P. (1968). The Assessment of Anxiety : A Survey of Available Techniques. In : McReynolds, P. Advances in Psychological Assessment. Vol.1. pp 244 - 264. Palo Alto, CA. Science and Behaviour Books.
- Meddis, R. (1969). The Analysis of Mood Ratings. Doctoral Dissertation. University of London. Unpublished.
- Moos, R. (1968). The Development of a Menstrual Distress Questionnaire. Psychosomatic Medicine. 30, 853.
- Moos, R. H., Kopell, B. S., Melger, F. T., Yalom, I. D., Lunde, D. T., Clayton, R. B., & Hamburg, D. A. (1969). Fluctuations in Symptoms and Moods During the Menstrual Cycle. Journal of Psychosomatic Research. 13, 37 - 44.
- Moos, R. H. (1969). Assessment of Psychological Concomitances of Oral Contraceptives. In : Salhanick, H. A. et.al. (eds.) Metabolic Effect of Gonadal Hormones and Contraceptive Steroids. New York. Plenum Press.
- Moos, R. H., & Liedermann, D. B., (1978). Towards a Menstrual Cycle Typology. Journal of Psychosomatic Research. 22, 31 - 40.
- Morton, J. H., (1950). Pre - Menstrual Tension. American Journal of Obstetrics and Gynecology. 60, 343 - 352.
- Morton, J. H., Additon, H., Addison, R. G., Hunt, L., & Sullivan, J. J. (1953). A Clinical Study of Pre-Menstrual

- Tension. American Journal of Obstetrics and Gynecology. 65, 1182 - 1191.
- Morton, J. H. (1953). Symposium on Pre - Menstrual Tension. International Record of Medecine. 166 463.
- Mukherjee, C. (1954). Pre - Menstrual Tension : A Critical Study of the Syndrome. Journal of the Indian Medical Association. 24, 82.
- Munday, M. (1977). Current Medical Research and Opinions. 4, supplement 4, 16.
- Munday, M. R., Brush, M. G., Taylor, R. W. (1981). Correlations Between Progesterone, Estradiol and Aldasterone Levels in the Pre - Menstrual Syndrome. Clinical Endocrinology. 14 (1).
- Nelson, R. O., Lipinski, D. P., & Black, J. L. (1976). The Relative Reactivity of External Observations and Self - Monitoring. Behaviour Therapy. 1, 314 - 321.
- Nelson, R. O. (1977). Methodological Issues in Assessment via Self - Monitoring. In : Cone, J. P. and Hawkins R. P. (eds.) Behavioural Assessment : New Directions in Clinical Psychology. New York. Brunner/Mazell.
- Nunnally, J. C. (1978). An Overview of Psychological Measurement. In : Wolman, B. B. (ed.) Clinical Diagnosis of Mental Disorders : A Handbook. pp 97 - 146. New York. Plenum Press.
- O'Brien, P. M. S., Craven, D., Selby, C. (1979). Treatment of Pre - Menstrual Syndrome with Spironolactone. British Journal of Obstetrics and Gynaecology. 86, 142 - 147.
- O'Brien, P. M. (1982). The Pre - Menstrual Syndrome : A Review of the Present Status of Therapy. Drugs

24, 140 - 151.

O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1983).

Reliability and Consistency ion Self-Reports of Drug Use. International Journal of the Addictions.

18 (6), 805 - 824.

Osborn, M. (1981). Physical and Psychological Determinants of Pre - Menstrual Tension : Research Issues and a Proposed Methodology. Journal of Psychosomatic Research.

5, 363 - 367.

Osmun, J. N., Steiner, M., & Haskett, R. F. (1981). Psychosocial aspects of severe pre-menstrual tension.

International Journal of Women's Studies, 6

(1), 65 - 70.

Paige, K. E. (1971). Effects of oral contraceptives an affective fluctuations associated with the menstrual cycle. Psychosomatic Medicine, 33, 515-537.

Paige, K. E. (1977). Sexual pollution: Reproductive sex taboos in American society. Journal of Social Issues, 33, 144-165.

Parkes, K. (1980). Social desirability, defensiveness, and self-report psychiatric inventory scores.

Psychological Medicine, 10, 735-742.

Parlee, M. B. (1973). The premenstrual syndrome.

Psychological Bulletin, 80 (6), 454-465.

Parlee, M. B. (1974). Stereotypic beliefs about menstruation: A methodological note on the Moos Menstrual Distress Questionnaire and some new data.

Psychosomatic Medicine, 36, 229-240.

Parlee, M. B. (1982). Changes in moods and activation levels during the menstrual cycle in experimentally naive

- subjects. The Psychology of Women Quarterly, 7 (2), 119-131.
- Patterson, G. R. & Gullion, M. E. (1971). Living with children. Champaign, Illinois: Research Press.
- Pennington, V. M. (1957). Meprobamate (Miltown) in premenstrual tension, Journal of American Medical Association, 164, 638-640.
- Persky, H., Strauss, D., Lief, H. I., Miller, W. R., & O'Brien, C. P. (1981). Effect of the research process on human sexual behaviour. Journal of Psychiatric Research, 16, 41-52.
- Rachal, J. V., Guess, L. L., Hubbard, R. L., Maisto, S. A., Cavaaugh, E. R., Waddell, R., & Benrud, C. H. (1980). Adolescent Drinking Behaviour, Vol. 1. Research Triangle Institute.
- Rausch, J. L., Janowsky, D. S., Risch, C., Judd, L. J., & Huey, L. Y. (1982). Hormonal and neurotransmitter hypotheses of premenstrual tension. Psychopharmacological Bulletin 18, 26-34.
- Rausch, J. L., Janowski, D. S. (1982). Premenstrual tension : Etiology. In : R. Friedman (ed). Behaviour and the Menstrual Cycle. New York. Marcel Dekker.
- Reading, A. E. (1983). A comparison of the accuracy and reactivity of methods of monitoring male sexual behaviour. Journal of Behavioural Assessment 5 (1), 11-23.
- Rees, L. (1953). The premenstrual tension syndrome and it's treatment. British Medical Journal i. 1014-1016.
- Rees, L. (1956). Psychosomatic aspects of the premenstrual syndrome. Journal of Mental Science. 99, 62.

- Reid, R. L., & Yen, S. S. (1981). Premenstrual syndrome. American Journal of Obstetrics and Gynecology 139 (1), 85-104.
- Reid, R. L. (1983). Endogenous opioid activity and the premenstrual syndrome. Lancet, 2, 786.
- Roberts, A. H. (1969). Self-control procedure in modification of smoking behaviour replication. Psychological Reports. 24, 675-676.
- Romano, J. M., & Bellack, A. S. (1980). Social validation of a component model of assertive behaviour. Journal of Consulting and Clinical Psychology. 48, 478-490
- Rosenwaksz, & Seegar-Jones, G. (1980). Menstrual pain : it's origin and pathogenesis. Journal of Reproductive Medecine. 25, 207-212.
- Rosseinsky, D. R., Hall, D. G. (1974). An evolutionary theory of premenstrual tension. Lancet. 2, 1024.
- Roth, W. T., Tinklenberg, J. R., Doyle, C. M., Horvath, T. V., & Kopell, B. S. (1976). Mood states and 24-hour cardiac monitoring. Journal of Psychosomatic Research. 20, 179-186.
- Rubinow, D. R., Hoban, C., Roy-Byrne, P., Grover, G. N., & Post, R. M. (1985). Premenstrual syndromes: Past and future research strategies. Canadian Journal of Psychiatry, 30, 469-473.
- Rubinow, D. R., Roy-Byrne, P., Hoban, M. C., Gold, P. W., & Post, R. M. (1984). Prospective assessment of menstrually related mood disorders. American Journal of Psychiatry, 141 (5), 684-686.
- Ruble, D. W. (1977). Premenstrual symptoms : A re-interpretation. Science. 197, 291-292.

Ruckmick, C. A. (1936). The systematic position of emotion.

Psychological Review, 43, 417-426.

Safin, V. F. (1975). The stability of self-appraisal and the mechanism of it's preservation. Vopresy Psikhologie

3, 62-72.

Saletu, B. (1975). Is the subjectively experienced quality of sleep related to objective sleep parameters?

Behavioural Biology, 13, 433-444.

Shainess, N. (1961). A re-evaluation of some aspects femininity through a study of menstruation : A preliminary report. Comparative Psychiatry, 2, 20-26.

Silbergald, S., Brast, N., & Nobel, E. P. (1971). The menstrual cycle : A double-blind study of symptoms, mood and behaviour and biochemical variables using Enovid and placebo. Psychosomatic Medicine, 33, 411-428.

Sjoden, P. O., Bates, S., Nyren, O. (1983). Continuous self-recording of epi-gastric pain with two rating scales : Compliance, authenticity, reliability and sensitivity. Journal of Behavioural Assessment, 5, (4).

Skilbeck, W. M., Acosta, F. X., Yamamoto, J., & Evans, L. A. (1984). Self-reported psychiatric symptoms among black, Hispanic, and white outpatients. Journal of Clinical Psychology, 40, (5), 1184-1189.

Slade, P. (1984). Premenstrual emotional changes in normal women : Fact or fiction? Journal of Psychosomatic Research, 28, (1), 1-7.

Sommer, B. (1978). Stress and menstrual distress. Journal of Human Stress, Sept. 5-10, 41-47.

Speroff, L. (1983). PMS - Looking for new answers to an old

- problem. Contemporary Obstetrics and Gynecology, August, 102-124.
- Spielberger, C. D., Gorsuch, R. L., Lushene, R. E. (1970). The state-trait anxiety inventory (STAI) test manual for form X. Palo Alto. California. Consulting Psychologists Press.
- Steiner, M., Carroll, B. J. (1977). The psychobiology of premenstrual dysphoria : Review of theories and treatment. Psychoneuroendocrinology, 2, 321-325.
- Steiner, M., Haskett, R. F., & Osmun, J. N. (1980). The treatment of premenstrual tension with lithium carbonate. Acta Psychiatrica Scandinavica, 61, 96-102.
- Steiner, M., Haskett, R. F., Carroll, B. J., Hayes, S. E. & Rubin, R. T. (1984) Circadian hormone secretion profiles in women with severe premenstrual tension syndrome. British Journal of Obstetrics and Gynaecology, 91, 466-471.
- Stuart, R. B. (1967). Behavioural control of overeating. Behavioural Research and Therapy, 5, 357-365.
- Sutherland, H., Stewart, I. (1965). A critical analysis of the premenstrual syndrome. Lancet, 1, 1180-1193.
- Sweeney, J. S. (1934). Mentrual edema. Journal of the American Medical Association, 110, 1728.
- Syz, M. C. (1926). Observations on the unreliability of subject reports of emotional reactions. British Journal of Psychology, 17, 119-126.
- Taylor, J. W. (1979). The timing of menstruation-related

- symptoms assessed by a daily symptom rating scale.
Acta Psychiat. Scandinavica, 60, 87-105.
- Taylor, R. W. (1977). Current Medical Research Opinion,
4, (4), 35.
- Teske, K., Daut, R. L., & Cleeland, C. S. (1982).
Relationships between nurses' observations and
patient's reports of pain. Pain, 16, 289-296.
- Thompson, C. (1950). Some effects of the derogatory
attitude to female sexuality. Psychiatry,
13, 349-354.
- Thoresen, C. E. & Mahoney, M. J. (1974). Behavioural
Self-Control. New York: Holt, Rinehart &
Winston.
- Thorn, G. W., Nelson, K. R., & Thorn, D. W. (1940). A study
of the mechanism of edema associated with menstruation,
Endocrinology, 26, 529.
- True, B. L., Goodner, S. M. & Burns, E. A. (1985). Review of
the etiology and treatment of premenstrual syndrome.
Drug Intelligence and Clinical Pharmacology,
19, 714-721.
- Valins, S. (1970). The perception and labelling of bodily
determinants of emotional behaviour. In P. Black
(Ed.), Physiological Correlates of Emotion, pp.
229-243.
- van Keep, P. A., & Lehert, P. (1980). The premenstrual
syndrome - an epidemiological and statistical
exercise. In P. A. van Keep and W. H. Utian (Eds.),
The Premenstrual Syndrome. M. T. P. Press Ltd.
- Varma, T. R. (1984). Hormones and electrolytes in
premenstrual syndrome. International Journal

- Obstetrics and Gynaecology, 22, 51-58.
- Weideger, P. (1976). Menstruation and Menopause. New York : A. A. Knopf.
- Wendestam, C. (1980). Mental changes in premenstrual phase. Dissertation, University of Goteborg.
- Wenzloff, N. J. & Shimp, L. (1984). Therapeutic management of primary dysmenorrhea. Drug Intelligence and Clinical Pharmacology, 18, 22-26.
- Wetzel, R. D., Reich, T., McLure, J. N. & Wald, J. A. (1975). Premenstrual affective syndrome and affective disorder. British Journal of Psychiatry, 127, 219-230.
- Widholm O. W., and Kantero, R. L. (1971). A statistical analysis of the menstrual patterns of 8000 Finnish girls and their mothers. Acta Obstetrica and Gynecologica Scandinavica, 50, suppl. 14.
- Wilcoxon, L. A., Schrader, S. L., & Sherif, C. W. (1976). Daily self-reports on activities, life events, moods and somatic changes during the menstrual cycle. Psychosomatic Medicine, 38, 399-417.
- Willems, E. (1969). Planning a rationale for naturalistic research. In E. Willems and H. Rausch (Eds.), Naturalistic Viewpoints in Psychological Research. New York : Holt, Rinehart & Winston.
- Williams, R. H. (1981). Textbook of Endocrinology. London : W. B. Saunders. 648-657.
- Winer, G. A. (1982). A review and analysis of children's fearful behaviour in dental settings. Child Development, 53, 1111-1133.
- Wing, J. K., Cooper, J. E., & Sartorius, N. (1974). The

Measurement and Classification of Psychiatric
Symptoms. Cambridge University Press, Cambridge.

Wooley, S. C., Blackwell, B., & Winget, C. A. (1978).

A learning theory model of chronic illness behaviour :
Theory, treatment and research. Psychosomatic
Medicine, 40, 379-401.

Xenakis, S. N., Hoyt, M. F., Marmar, C. R. & Horowitz, M. J.
(1983). Reliability of self-reports by therapists using
the therapist action scale. Psychotherapy : Theory,
Research and Practice, 20 (3), 314-320.

Yarmey, D. (1979). The Psychology of Eyewitness
Testimony. New York : Free Press.

Zimmerman, J. (1975). If its what's inside that counts, why
not count it? I : Self-recording of feelings and
treatment by "self-implosion". The Psychological
Record, 25, 3-16.

Zimmerman, J. and Levitt, A. E. (1975). Why not give your
client a counter : A survey of what happened when we
did. Behavior Research and Therapy, 13,
333-337.

Zola, P., Meyerson, T., Reznikoss, M., Thornton, J. &
Concool, B. M. (1979). Menstrual symptomatology and
psychiatric admission. Psychosomatic Research,
23, 241-245.

Zondek, B. & Brezinski, A. (1948). Inactivation of
estrogenic hormone by women with vitamin B
deficiency. British Journal of Obstetrics and
Gynaecology, 55, 278-280.

Zuckerman, M. and Lubin, B. (1965). Manual for the
Multiple Affect Adjective Checklist. San Diego,

California : Educational and Industrial Testing
Service.



The Family Planning Centre

301 Montreal Street,
Christchurch, N.Z.
P.O. Box 2137,
Telephone (03) 790-514

Dear

I made contact with you in February about a PMT survey. Since then Dr. Steve Hudson and Ms. Prue Fanselow have approached me about a study they want to conduct. If you and your partner are interested and can fulfil the following conditions, would you fill in the accompanying form and send it to Dr. Hudson as soon as possible.

If you are: -

- : aged between 25 and 45 years,
- : have regular periods,
- : not taking any ongoing medication,
- : continue to experience PMT symptoms,
- : have a partner, husband, workmate, flatmate who would also be willing to be involved.

Taking part will involve you and your partner keeping a daily record of your moods and symptoms (this takes less than 5 minutes each day). It is hoped that this study will continue for 3-4 months if this is convenient to the participants.

Thank you,

yours sincerely,

Helen McGill.

Dr. Helen McGill.

APPENDIX 2

Dr Steve M. Hudson,
Department of Psychology,
UNIVERSITY OF CANTERBURY.

Phone 482 009 Ext 8873

Dear Dr Hudson / Prue Fanselow,

I would like to know more about your project to study the
premenstrual syndrome. I would like to help you with this
study.

PLEASE PRINT

NAME:
Surname Christian name(s)

ADDRESS:
.....
.....
.....
.....

PHONE NUMBER: Home
Work

DATE OF BIRTH:

SIGNATURE

APPENDIX 3

Date Name

Did you take any pills or medicine yesterday?

If you did, what was the name of the medicine (or pill)?

..... and the dose

and the times taken

Below are some statements concerning your feelings. Please put a cross at the position which is closest to the way you felt yesterday.

1. How happy were you?

happy |-----| unhappy

2. How tired did you feel?

exhausted |-----| full of energy

3. How confident did you feel?

confident |-----| not confident

4. How tense or worried were you?

very tense |-----| calm & relaxed

5. How did you feel towards other people?

friendly |-----| hostile

6. How was your ability to concentrate?

very poor |-----| very good

7. How was your muscular co-ordination?

very good |-----| very bad

8. How did you feel in yourself?

irritable |-----| nothing could
upset me,
unflappable

Date Name

Below are some statements concerning your awareness of your partner's condition. Please put a cross at the position which is closest to the way you perceived your partner to be feeling yesterday. Please do this without collaboration with your partner.

1. How tired was she?

exhausted |-----| full of energy

2. How was she towards others?

friendly |-----| hostile

3. How was her ability to concentrate?

very poor |-----| very good

4. How confident did she seem?

confident |-----| not confident

5. Overall, how did she appear?

touchy, easily rattled |-----| unflappable, composed

6. How happy was she?

happy |-----| unhappy

7. How tense or worried did she appear?

very tense |-----| calm & relaxed

8. How was her muscular co-ordination?

very good |-----| very bad

Were you aware of her suffering any of the following physical symptoms? Please tick those that you were aware of yesterday.

PMS: Initial Interview

Name _____ Date _____

Address Home _____

Work _____

Phone Nos. Day _____ Evening _____

Age _____ Date of Birth _____

Menstrual Cycle History

When did your periods start?

How often did they occur?

Shortest cycle?

Longest cycle?

Did you have period pains?

Did you have mid-cycle pain (discomfort)?

How long did bleeding last?

How heavy was bleeding?

Present cycles

What length?

Period pains?

How often?

How heavy is bleeding now?

How long does bleeding persist?

Medical/Physical Information

What is your present state of health?

Any medication?

Operations: non-gynaecological
gynaecological

Contraceptive history?

Reproductive history? children (ages)

miscarriage

fertility problems

Height:

Weight:

Other:

Diet and Sleep

- a) Daily meal pattern.
- b) Food dislikes.
- c) Variability in food intake from day to day.
- d) Coffee/tea, alcohol, cigarettes, etc.
- e) Hours of sleep and characteristics of.

Occupation

- a) Number of people cared for?
- b) Paid employment?
- c) Time consuming other activities?
- d) Exercise? How often?
How strenuous?
- e) Other.

Recent changes

- a) Residence.
- b) Occupation.
- c) People lived with.
- d) Close friend.
- e) Responsibilities.
- f) Other.

Stress level MILD MODERATE SEVERE

Premenstrual tension

Duration (years)?

Any cycles without it?

If so, how often?

Symptoms - severity on bad months

absent _____ very severe

Symptoms - severity on good months

very severe _____ absent

How long does it last?

When do symptoms subside?

Have any of your family suffered PMT?

Can you/Do you do anything to relieve symptoms?

MCMI

MILLON CLINICAL MULTIAXIAL INVENTORY
By Theodore Millon

The following pages contain a list of statements that people use to describe themselves. They are printed here to help you in describing your feelings and attitudes. Try to be as honest and serious as you can in marking the statements since the results will be used to help your doctor in learning about your problems and in planning to help you.

Do not be concerned that a few of the statements will seem unusual to you; they are included to describe people with many types of problems. When you agree with a statement or decide that it describes you, fill in the **T** on the separate answer sheet to mark it **true** (●). If you disagree with the statement or decide that it does not describe you, fill in the **F** to mark it **false** (●). Try to mark every statement even if you are not sure of your choice. If you have tried your best and still cannot decide, mark the for false.

There is no time limit for completing the inventory, but it is best to work as rapidly as is comfortable for you.

Use a soft, black lead pencil and make a heavy, dark mark when filling in the circles. If you make a mistake or change your mind, please erase the mark fully and then fill in the correct circle. *Do not make any marks on this booklet.*

1. I always follow my own ideas rather than do what others expect of me.
2. All my life I have worn myself out trying to please other people.
3. Talking to other people has almost always been difficult and painful for me.
4. I believe in being strong willed and determined in everything I do.
5. In the last few weeks I begin to cry even when the slightest of things goes wrong.
6. I love to have many different social activities and like to go from one to another.
7. I am a very weak person who has to lean on others for almost everything.
8. I always feel I am not wanted in a group.
9. I often criticize people strongly if they annoy me.
10. I am content to be a follower of others.
11. I enjoy doing so many different things that I can't make up my mind what to do first.
12. I am very changeable in my likes and dislikes.
13. I have little interest in making friends.
14. I think I am a very sociable and out-going person.
15. I know I'm a superior person, so I don't care what people think.
16. People have never given me enough recognition for the things I've done.
17. I have a drinking problem that I've tried unsuccessfully to end.
18. Lately, I get butterflies in my stomach and break out in cold sweats.
19. I have always wanted to stay in the background during social activities.
20. I will often do things for no reason other than they might be fun.
21. I keep my room well organized with everything in the correct place all the time.
22. I am the sort of person who changes his opinions and attitudes from day to day.
23. There have been times when people have become annoyed with me because I talked too much or too fast for them.
24. I'll make a sharp and critical remark to someone if they deserve it.
25. I find myself quick to agree with the opinions of others.
26. I tend to burst out in tears or in anger for unknown reasons.
27. Lately, I've begun to feel lonely and empty.
28. I have a talent to be dramatic.
29. I have a hard time keeping my balance when walking.
30. I enjoy intense competition.
31. When I run into a crisis, I quickly look for someone to help me.
32. I prefer to be with people who are religious.
33. I feel weak and tired much of the time.
34. Something exciting always comes along to pull me out of a sad mood.
35. My drug habit has often gotten me into a good deal of trouble.
36. Lately, I find myself crying without any reason.
37. I have always avoided getting involved with people socially.
38. Under no circumstances do I ever let myself be tricked by people who say they need help.
39. One sure way to make a peaceful world is by improving people's morals.
40. I am a very well read person.
41. I find it hard to sympathize with people who are always unsure about things.
42. I am a very agreeable and submissive person.
43. My own "bad temper" has been a big cause of my unhappiness.
44. I have always felt a pain somewhere in my body.
45. I get very depressed now by even minor things.
46. Sometimes my mind goes so fast I can hardly keep up with it.
47. I'm so quiet and withdrawn, most people don't even know I exist.
48. I like to flirt with members of the opposite sex.
49. I am a quiet and fearful person.
50. I'm a very erratic person, changing my mind and feelings all the time.
51. I feel very tense when I think of the day's happenings.
52. Drinking alcohol on my part has never caused any real problems in my work.
53. Lately, my strength seems to be draining out of me, even in the morning.
54. I've begun to feel like a failure in recent weeks.
55. I hate to talk, even to people I know.
56. I have always had a terrible fear that I will lose the love of people I need very much.
57. There have been times when I had so much energy that I didn't need any sleep for days.
58. Lately, I have begun to feel like smashing things.
59. I have given serious thought recently to doing away with myself.
60. I am always looking to make new friends and meet new people.
61. I keep very close track of my money so I am prepared if a need comes up.

62. I was on the front cover of several magazines last year.
63. Few people like me.
64. If someone criticized me for making a mistake, I would quickly point out some of that person's mistakes.
65. I often have difficulty making decisions without seeking help from others.
66. I often let my angry feelings out and then feel terribly guilty about it.
67. Lately, I feel jumpy and under terrible strain, but I don't know why.
68. I very often lose my ability to feel any sensations in parts of my body.
69. When I am home alone I telephone one friend after another just to talk.
70. Taking so-called illegal drugs may be unwise, but in the past I found I needed them.
71. Lately, I feel tired all the time.
72. Lately, I can't seem to sleep, and wake up just as tired as when I went to bed.
73. I have a tight feeling in the pit of my stomach every few days or so.
74. I used to enjoy performing for family friends when I was younger.
75. We should respect earlier generations and not think we know better than they.
76. I feel terribly depressed and sad much of the time now.
77. I am the sort of person that others take advantage of.
78. I always try hard to please others, even when I dislike them.
79. Serious thoughts of suicide have occurred to me for many years.
80. I quickly figure out how people are trying to cause me trouble.
I have periods of so much energy that I can't sit still at all.
I can't understand it, but I seem to enjoy hurting persons I love.
A long time ago, I decided it's best to have little to do with people.
I am ready to fight to the death before I'd let anybody take away my self-determination.
Since I was a child, I have always had to watch out or people who were trying to cheat me.
When things get boring, I like to stir up some excitement.
I have an alcoholic problem that has made difficulties for me and my family.
If a person wants something done that calls for real patience, they should ask me.

89. I am probably the most creative thinker among the people I know.
90. I have not seen a car in the last ten years.
91. I feel I am not a likeable person.
92. Punishment never stopped me from doing what I wanted.
93. There are many times, when for no reason, I feel very cheerful and full of excitement.
94. It would be good for me to be married to a person who is more grownup and less immature than I am.
95. I very often say things quickly that I regret having said.
96. In recent weeks I feel worn out for no special reason.
97. I feel very guilty lately because I am not able to do things right anymore.
98. Ideas keep turning over and over in my mind and they won't go away.
99. I've become quite discouraged and sad about life recently.
100. Many people have been spying into my private life for years.
101. I have always gone for long periods when I hardly talk to anyone.
102. I hate or fear most people.
103. I speak out my opinions about things no matter what others may think.
104. Sometimes I do things so fast that others get annoyed with me.
105. My habit of abusing drugs has caused me to miss work in the past.
106. I am always willing to give in to others to avoid disagreements.
107. I am often cross and grouchy.
108. I just don't have the strength lately to fight back.
109. Lately, I have to think things over and over again for no good reason.
110. Looking back on my life, I know I have made others suffer as much as I have suffered.
111. I use my charm to get the attention of other people.
112. Though my body pains and problems are real, nobody seems to understand them.
113. When things scared me as a child, I almost always ran to my mother.
114. Lately, I've been sweating a great deal and feel very tense.
115. Sometimes I feel like I must do something to hurt myself or someone else.
116. I keep so busy doing so many things that people can't figure out what I'll be doing next.
117. I've become very jumpy in the last few weeks.

118. I keep having strange thoughts that I wish I could get rid of.
119. I have a great deal of trouble trying to control an impulse to drink to excess.
120. Most people think that I'm a worthless nothing.
121. I very often feel a lump in my throat.
122. I have succeeded over the years in drinking a minimum of alcohol.
123. I have always "tested" people to find out how much they can be trusted.
124. Even when I'm awake, I don't seem to notice people who are near me.
125. It is very easy for me to make many friends.
126. I always make sure that my work is well planned and organized.
127. I very often hear things so well that it bothers me.
128. If it weren't for the medicines I'm taking, I'd be running around with too much energy in me.
129. I don't blame anyone who takes advantage of some one who allows it.
130. I am very easily led by people.
131. I've many ideas that are ahead of the times.
132. Lately, I've been feeling sad and blue and I can't seem to snap out of it.
133. I think it is always best to seek help in what I do.
134. All my life I have felt guilty for letting down so many people.
135. I have always known what my mind tells me and I have never listened to what others say.
136. In the last few years, I have felt so guilty that I may do something terrible to myself.
137. I never sit on the sidelines when I'm at a party.
138. People tell me that I'm a very proper and moral person.
139. There have been times recently when I ran around doing so many things at once that I got worn out.
140. I have a problem using so-called illegal drugs that has led to family arguments.
141. I am very ill-at-ease with members of the opposite sex.
142. I have a way of speaking directly that often makes people angry.
143. I don't mind that people are not interested in me.
144. Frankly, I lie quite often to get out of trouble.
145. People can easily change my ideas, even if I thought my mind was made up.
146. Others have tried to do me in, but I have the will power to overcome them.

147. I often say annoying things, without thinking, that hurt someone's feelings.
148. I often make people angry by bossing them.
149. I have great respect for those in authority over me.
150. I have almost no close ties with other people.
151. People have said in the past that I became too interested and too excited about too many things.
152. I have flown across the Atlantic thirty times in the last year.
153. I believe in the saying, "early to bed and early to rise . . ."
154. I attempt to be the life of the party.
155. I could never be friendly with people who do immoral things.
156. My parents always disagreed with each other.
157. On occasion I have had as many as ten or more drinks without becoming drunk.
158. In social groups I am almost always very self-conscious and tense.
159. I think highly of rules because they are a good guide to follow.
160. Ever since I was a child, I have been losing touch with the real world.
161. I rarely feel anything strongly.
162. I have a strong need to depend on others.
163. Ideas very often run through my mind much faster than I can speak them.
164. Sneaky people often try to get the credit for things I have done or thought of.
165. I would really enjoy being in show business.
166. I have the ability to be successful in almost anything I do.
167. Lately, I have gone all to pieces.
168. I have always looked for help in everything I do.
169. There has never been any hair on either my head or my body.
170. When I am with others I like to be the center of attention.
171. I always feel like an outsider in social groups.
172. I'm the kind of person who can walk up to anyone and tell him or her off.
173. I prefer to be with people who will be protective of me.
174. I've had many periods in my life when I was so cheerful and used up so much energy that I fell into a low mood.
175. I have had difficulties in the past stopping myself from over-using drugs or alcohol.

PAF
 Have used medication/home remedies to "treat" premenstrual changes during past three cycles: 1 - No 2 - Yes (specify type, reason): _____
48

Have used medication for other reason during last three cycles: 1 - No 2 - Yes (specify type, reason, total time using): _____
49

Are you currently pregnant: 1 - No 2 - Yes (specify) _____ months.
50 51

Are you post menopausal: 1 - No 2 - Yes (how long) _____ years, _____ months.
52 53 - 54 55 - 56

Have not menstruated the past three months for some other reason: 1 - No 2 - Yes (specify reason) _____
57

Do you have any medical disorder(s) present over the past three months: 1 - No 2 - Yes (specify) _____
58

79 - 80 = 88 †

INSTRUCTIONS

Please focus on the physical, behavioral and mood changes which have taken place during your past three premenstrual periods, even if the changes did not last throughout the entire premenstrual period.*

The premenstrual period may range from one to fourteen days. Each woman should determine the duration of her premenstrual period using these factors as guides. Physical, behavioral, and mood changes are considered to be part of the premenstrual period if:

- (a) they appear or change during the premenstrual period;
- (b) they do not exist in the same form or severity immediately prior to the premenstrual period;
- (c) they disappear or return to usual state during the full flow of menses.

Think about the changes which you experience premenstrually. Then consider each item and decide whether it describes a new condition or change which usually has occurred during your last three premenstrual periods. Circle the appropriate number to indicate the severity of change from your usual self

For example, you may become anxious premenstrually OR, if you are mildly anxious most of the time, the anxiety may become more severe during the premenstrual period. Both types of change should be noted.

DEFINITIONS OF THE RATINGS OF SEVERITY OF CHANGE FROM USUAL NONPREMENSTRUAL STATE

- 1 - Not applicable, not present at all, or no change from usual level.
- 2 - Minimal change (only slightly apparent to you, others would probably not be aware of change).
- 3 - Mild Change (definitely apparent to you and perhaps to others who know you well).
- 4 - Moderate Change (clearly apparent to you and/or others who know you well).
- 5 - Severe Change (very apparent to you and/or others who know you well).
- 6 - Extreme Change (the degree of change in severity is so different from your usual state that it is very apparent to you OR even people who do not know you well might notice).

 : Duplicate on all cards

files may have special instructions which differ from these.

PAF

- 1 — Not applicable, not present at all, or no change from usual level, 2 — Minimal change,
 3 — Mild change, 4 — Moderate change, 5 — Severe change, 6 — Extreme change

Changes Present During Premenstrual Period

Usual Level of Change During Last 3 Premenstrual Periods

Have rapid changes in mood (e.g., laughing, crying, angry, happy, etc.) all within the same day.....	1	2	3	4	5	6	215
Have decreased energy or tend to fatigue easily.....	1	2	3	4	5	6	216
Have decreased ability to coordinate fine movements, poor motor coordination or clumsiness.....	1	2	3	4	5	6	217
Feel anxious or more anxious.....	1	2	3	4	5	6	218
Sleep too much or have difficulty getting up in the morning or from naps.....	1	2	3	4	5	6	219
Have a feeling of malaise (i.e., general, non-specific bad feeling or vague sense of mental or physical ill-health).....	1	2	3	4	5	6	220
Feel jittery or restless.....	1	2	3	4	5	6	221
Have loss of appetite.....	1	2	3	4	5	6	222
Have pain, tenderness, enlargement, or swelling of breasts.....	1	2	3	4	5	6	223
Have headaches or migraines.....	1	2	3	4	5	6	224
Be more easily distracted (i.e., attention shifts easily and rapidly).....	1	2	3	4	5	6	225
Tend to have accidents, fall, cut self, or break things unintentionally.....	1	2	3	4	5	6	226
Have nausea or vomiting.....	1	2	3	4	5	6	227
Show physical agitation (e.g., fidgeting, hand wringing, pacing, can't sit still).....	1	2	3	4	5	6	228
Have feelings of weakness.....	1	2	3	4	5	6	229
t you just "can't cope" or are overwhelmed by ordinary demands.....	1	2	3	4	5	6	230
ecure.....	1	2	3	4	5	6	231
lare-ups" of allergy, breathing difficulties, stuffy feeling, or watery e from the nose (specify) _____	1	2	3	4	5	6	232
ressed.....	1	2	3	4	5	6	233
riods of dizziness, faintness, vertigo, (room spinning), ringing in the ears, ss, tingling of skin, trembling, lightheadedness (specify) _____	1	2	3	4	5	6	234
"nag" or quarrel over unimportant issues.....	1	2	3	4	5	6	235
f what it would be like to do something to self, like crash the car, wish sleep and not wake up, or have thoughts of death or suicide.....	1	2	3	4	5	6	236
s desire to talk or move about (it takes an effort to do so).....	1	2	3	4	5	6	237
: more forgetful.....	1	2	3	4	5	6	238
satisfied with personal appearance.....	1	2	3	4	5	6	239

1 - Not applicable, not present at all, or no change from usual level, 2 - Minimal change,
 3 - Mild change, 4 Moderate change, 5 - Severe change, 6 - Extreme change

Changes Present During Premenstrual Period

Usual Level of Change During Last 3 Premenstrual Periods

	1	2	3	4	5	6	
Become violent with people or things (e.g., deliberately break things, hit someone)	1	2	3	4	5	6	240
Take naps during the day or have an overwhelming desire to do so.....	1	2	3	4	5	6	241
Feel sense of unreality, like in a dream, unreal, etc.....	1	2	3	4	5	6	242
Feel pounding of heart or have rapid heartbeat.....	1	2	3	4	5	6	243
Get more enjoyment or excitement out of little things.....	1	2	3	4	5	6	244
Have difficulty concentrating.....	1	2	3	4	5	6	245
Feel confused.....	1	2	3	4	5	6	246
Have lowered judgment (i.e., realize judgment was less good than usual when looking back on decisions made during premenstrual period).....	1	2	3	4	5	6	247
Feel passive, want others to make decisions, to take charge, etc.....	1	2	3	4	5	6	248
Have an increased feeling of well being.....	1	2	3	4	5	6	249
Have a lack of self control.....	1	2	3	4	5	6	250
Tend to become more childlike.....	1	2	3	4	5	6	251
Tend to feel or be tearful, weep, or cry.....	1	2	3	4	5	6	252
Feel need to urinate more frequently or have an increased amount of urine.....	1	2	3	4	5	6	253
Become constipated.....	1	2	3	4	5	6	254
Tend to be self-indulgent in use of time, spending money, eating, etc.....	1	2	3	4	5	6	255
Engage in acts of impulsive behavior.....	1	2	3	4	5	6	256
Smoke more, drink more alcohol or use "drugs of abuse" " "speed," etc.) (specify) _____	1	2	3	4	5	6	257
Feel increased stress.....	1	2	3	4	5	6	258
Pinch, pick, or scratch skin, or bite fingernails.....	1	2	3	4	5	6	259
Mood swings from high to low or low to high.....	1	2	3	4	5	6	260
Become "hysterical" if something upsets you.....	1	2	3	4	5	6	261
Feel increased sensitivity.....	1	2	3	4	5	6	262
Feel increased "sensitivity".....	1	2	3	4	5	6	263
Have bursts of "irritability" or bad temper.....	1	2	3	4	5	6	264
Feel depressed or "blue".....	1	2	3	4	5	6	265
Feel numbness in legs (weak, sore, tremble).....	1	2	3	4	5	6	266

PAF

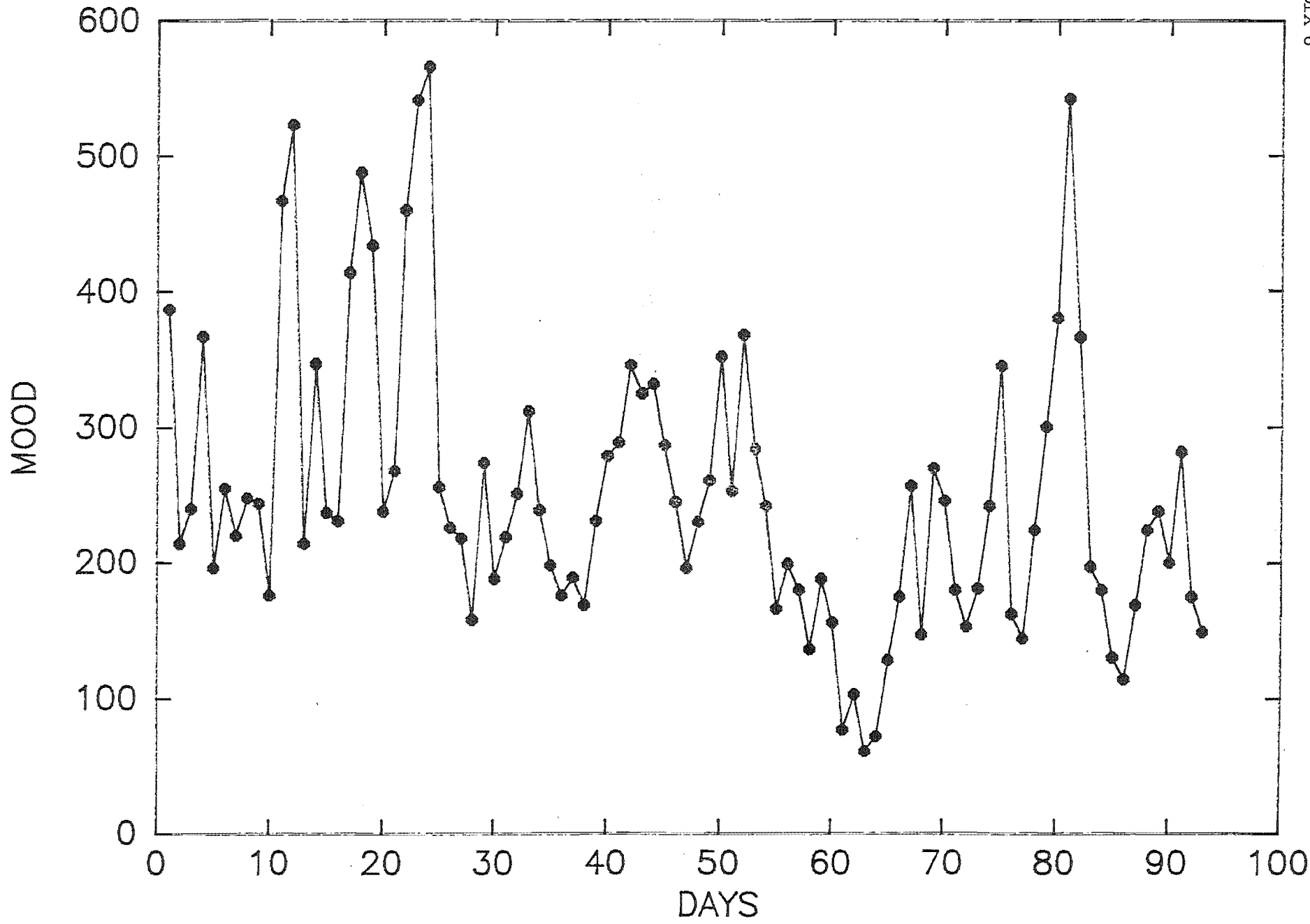
1 – Not applicable, not present at all, or no change from usual level, 2 – Minimal change
 3 – Mild change, 4 – Moderate change, 5 – Severe change, 6 – Extreme change

Changes Present During Premenstrual Periods

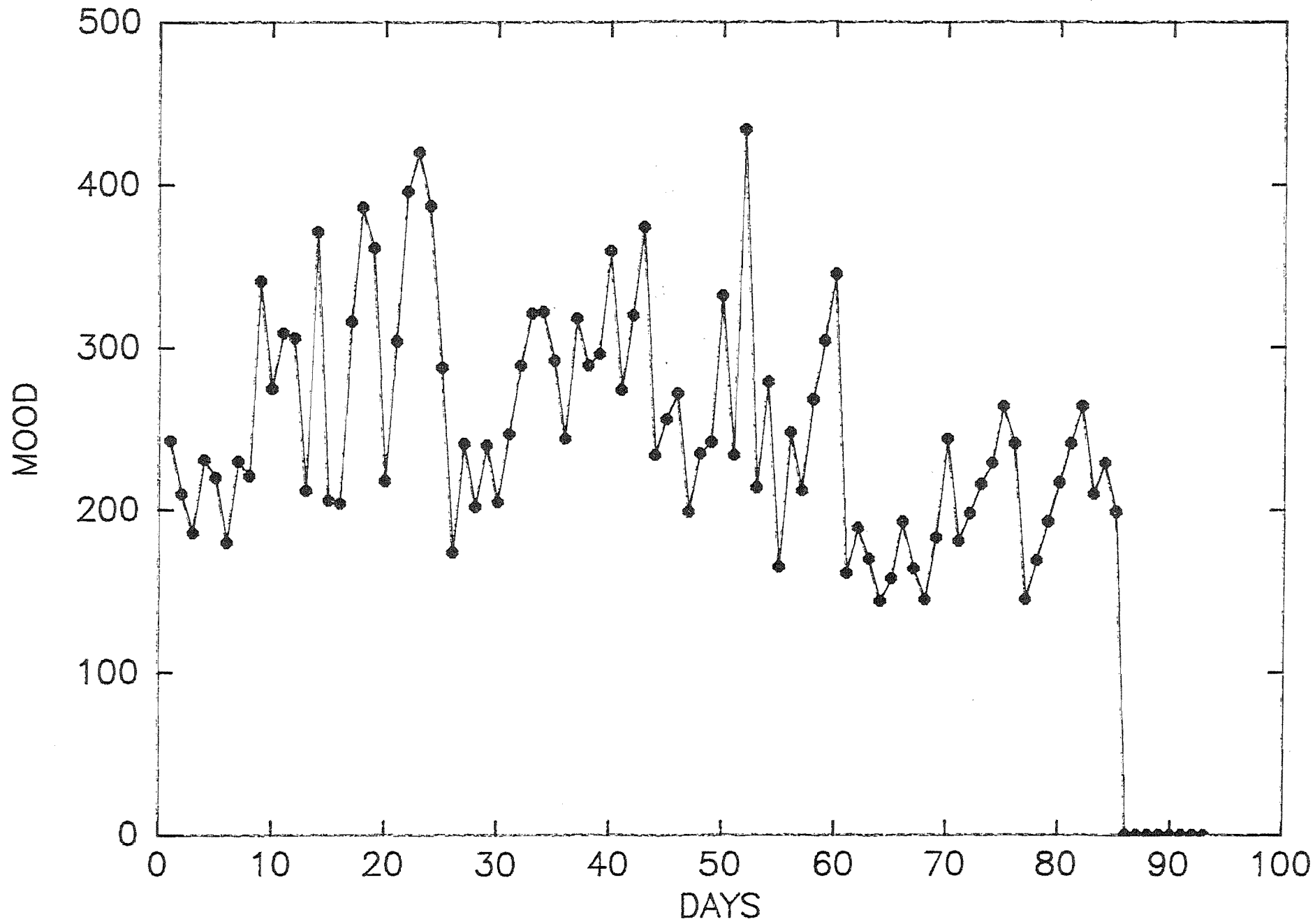
Usual Level of Change During Last 3 Premenstrual Periods

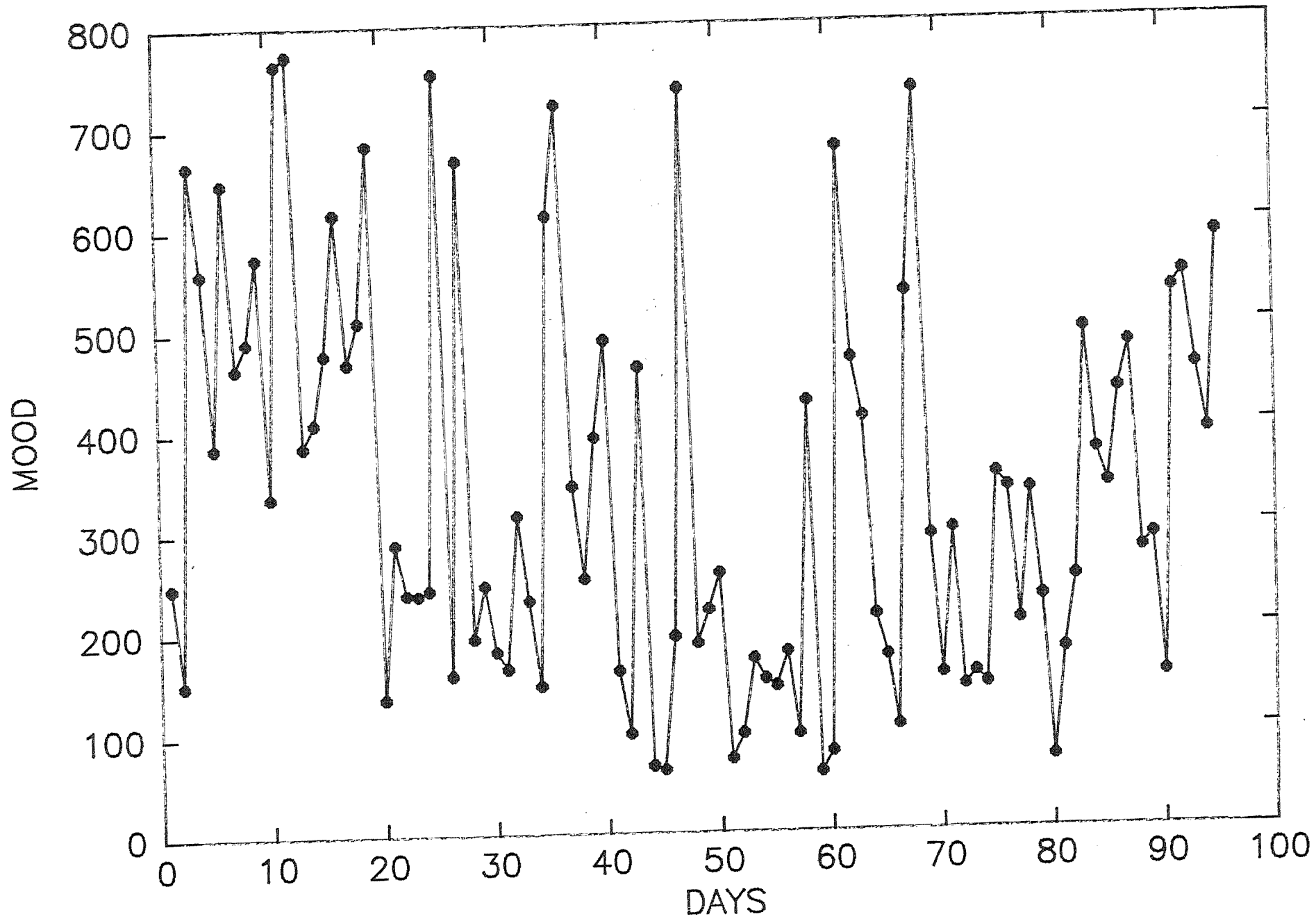
Tend to have backaches, joint and muscle pains or stiffness.....	1	2	3	4	5	6	267
Family or friends know "she is in one of her moods today".....	1	2	3	4	5	6	268
Feel "at war" on awakening or have complaints or outbursts about old irritants.	1	2	3	4	5	6	269
Act spiteful.....	1	2	3	4	5	6	270
Feel lonely.....	1	2	3	4	5	6	271
Urinate less frequently or in lesser amounts	1	2	3	4	5	6	272
Have weight gain.....	1	2	3	4	5	6	273
Tend to be intolerant or impatient or to lose the ability to respond to or understand the faults, needs or errors of others.....	1	2	3	4	5	6	274
Tend to be overtalkative.....	1	2	3	4	5	6	275
Have relatively steady abdominal heaviness, discomfort or pain.....	1	2	3	4	5	6	276
Have increased sexual activity or interest (fantasy, with self, with others).....	1	2	3	4	5	6	277
Have trouble sleeping.....	1	2	3	4	5	6	278
Check, if you wake early in the morning and can't get back to sleep.....							314
Have intermittent pain or cramps in the abdomen.....	1	2	3	4	5	6	315
Have a decrease in self-esteem (i.e., don't feel good about self or feel a failure)..	1	2	3	4	5	6	316
Tend to blame others for problems (personal, at home, work, school, etc).....	1	2	3	4	5	6	317
crease in activity, organization, efficiency, or involvement socially, at work.....	1	2	3	4	5	6	318
brood over unpleasant events.....	1	2	3	4	5	6	319
in problems such as acne, pimples, etc.....	1	2	3	4	5	6	320
dema, swelling, puffiness, or "water retention".....	1	2	3	4	5	6	321
home more.....	1	2	3	4	5	6	322
ss sexual interest or activity (fantasy, self, others).....	1	2	3	4	5	6	323
o avoid social activities.....	1	2	3	4	5	6	324
oated.....	1	2	3	4	5	6	325
owered performance, output, efficiency or ease, in work, at home, or with hobbies, etc.....	1	2	3	4	5	6	326
me at work because of premenstrual changes.....	1	2	3	4	5	6	327
o be alone.....	1	2	3	4	5	6	328

MOOD(SELF) s.1

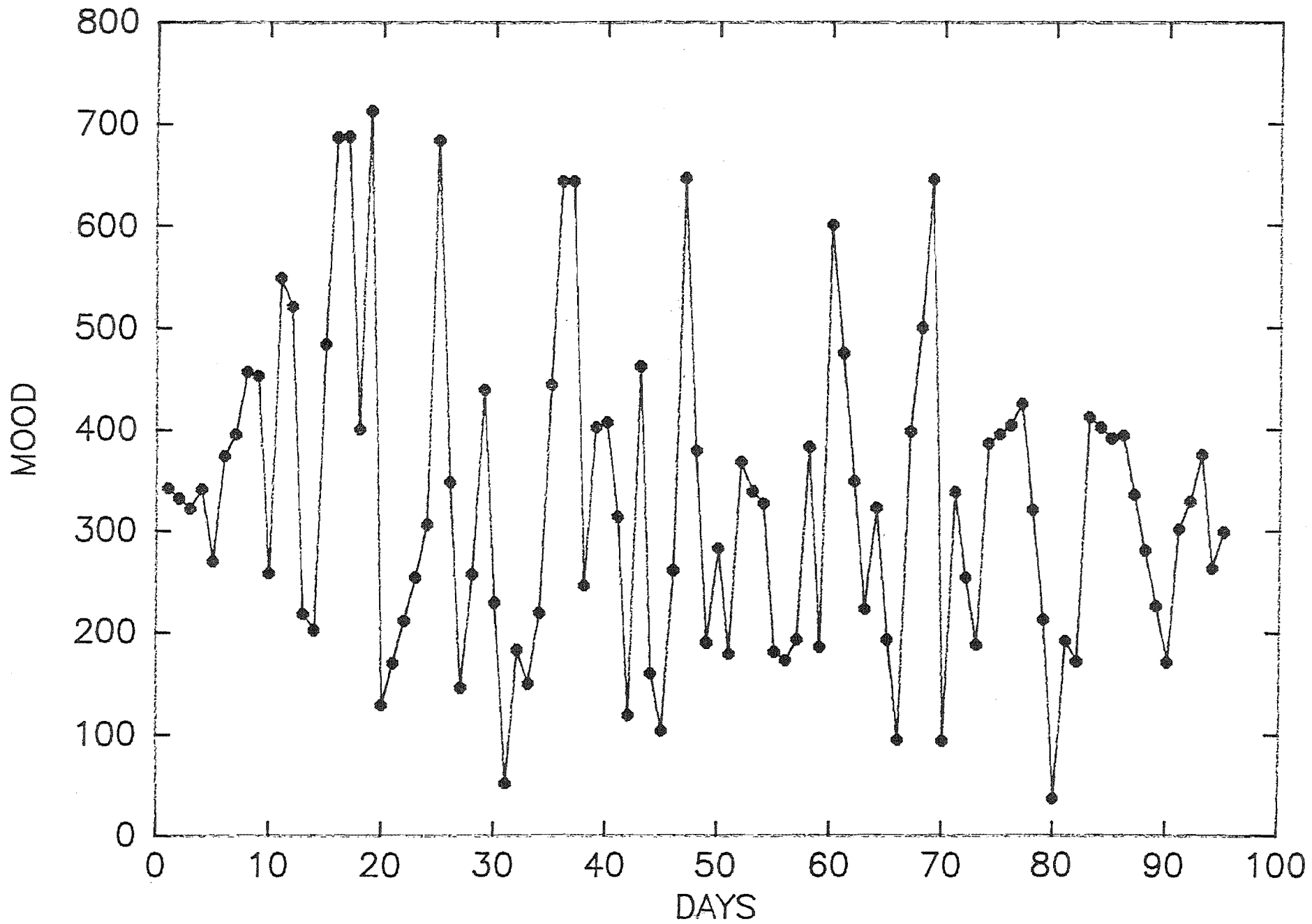


MOOD(OBS) 1.

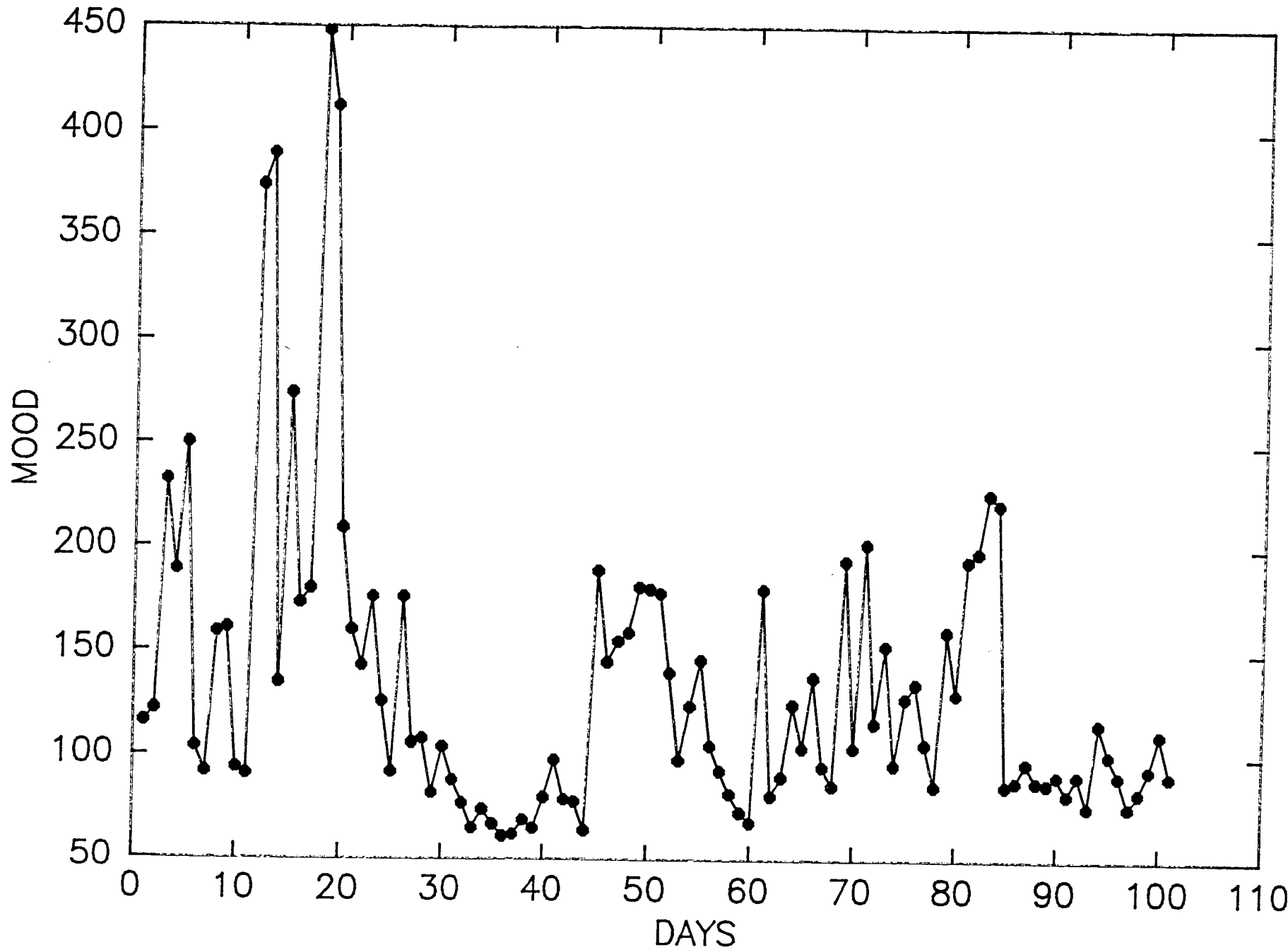




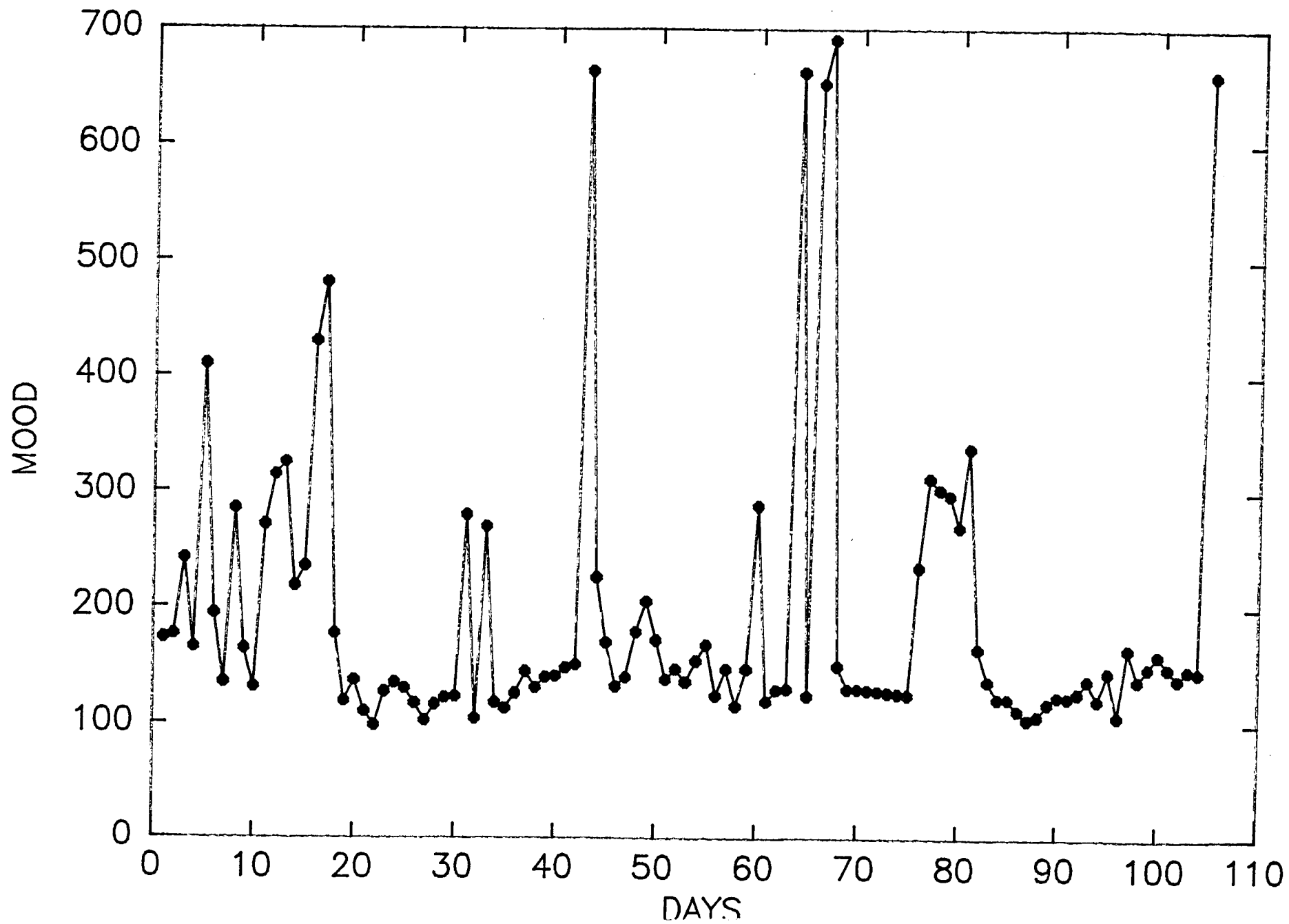
MOOD(OBS) 2.

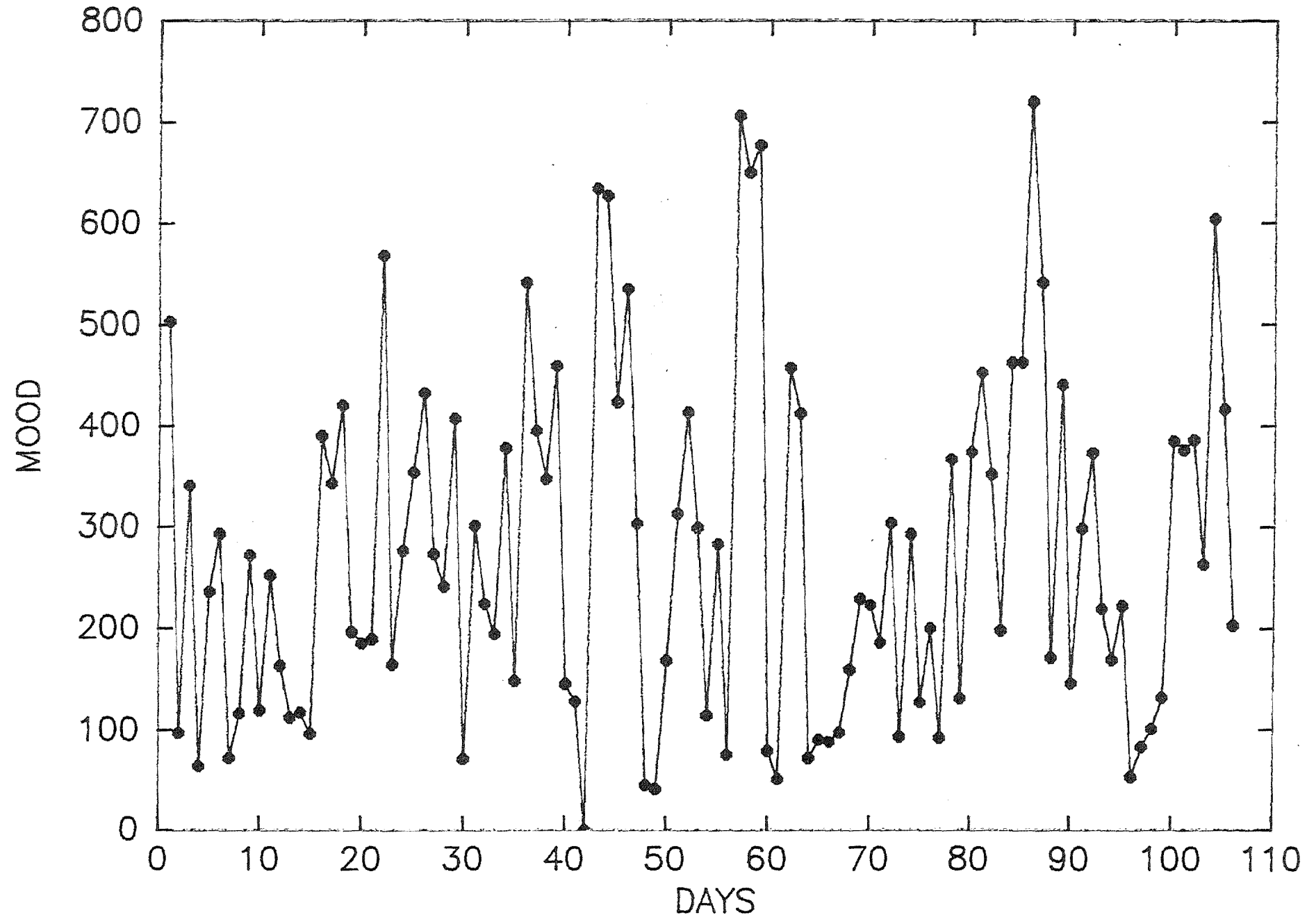


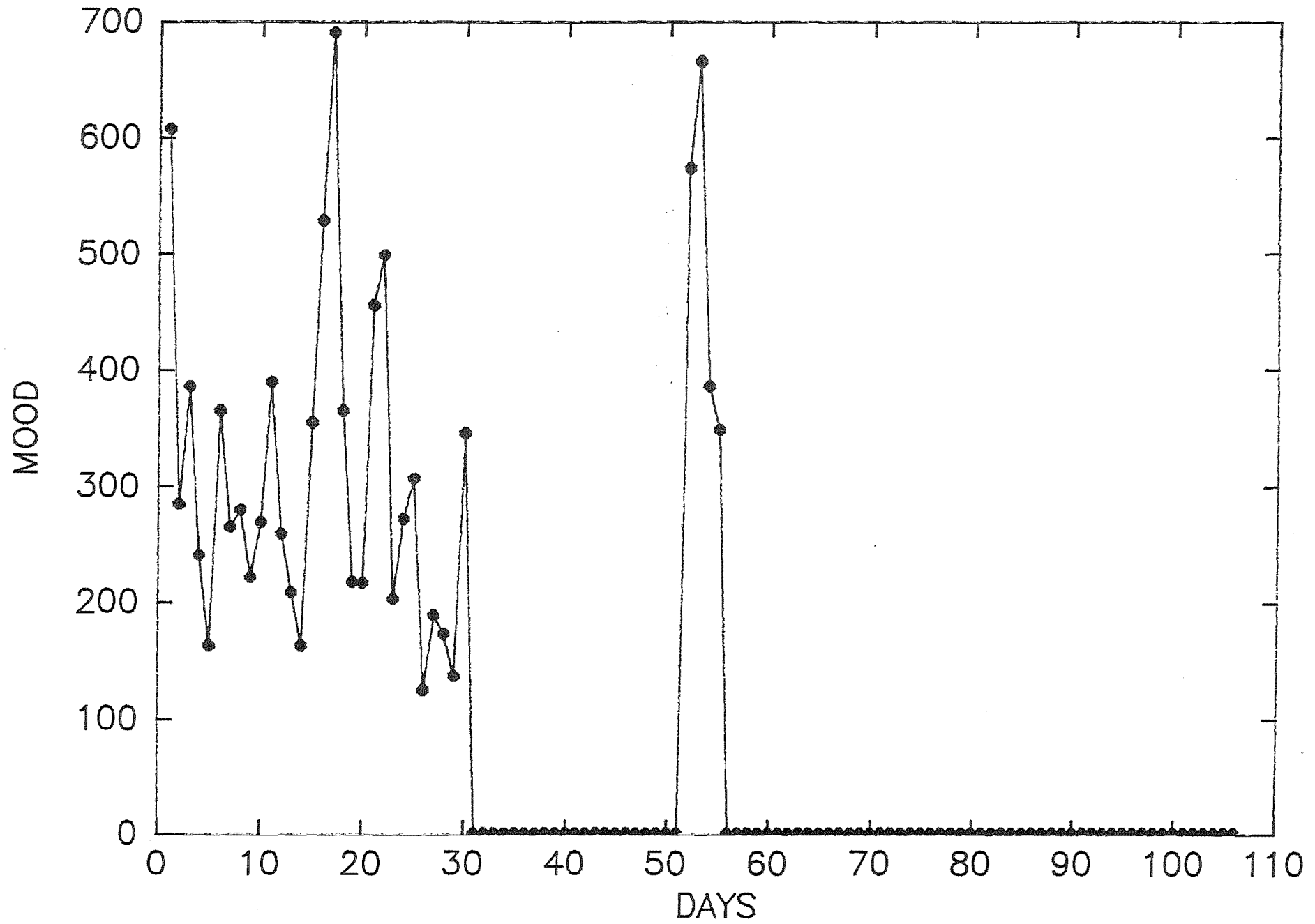
MOOD(SELF) s.3



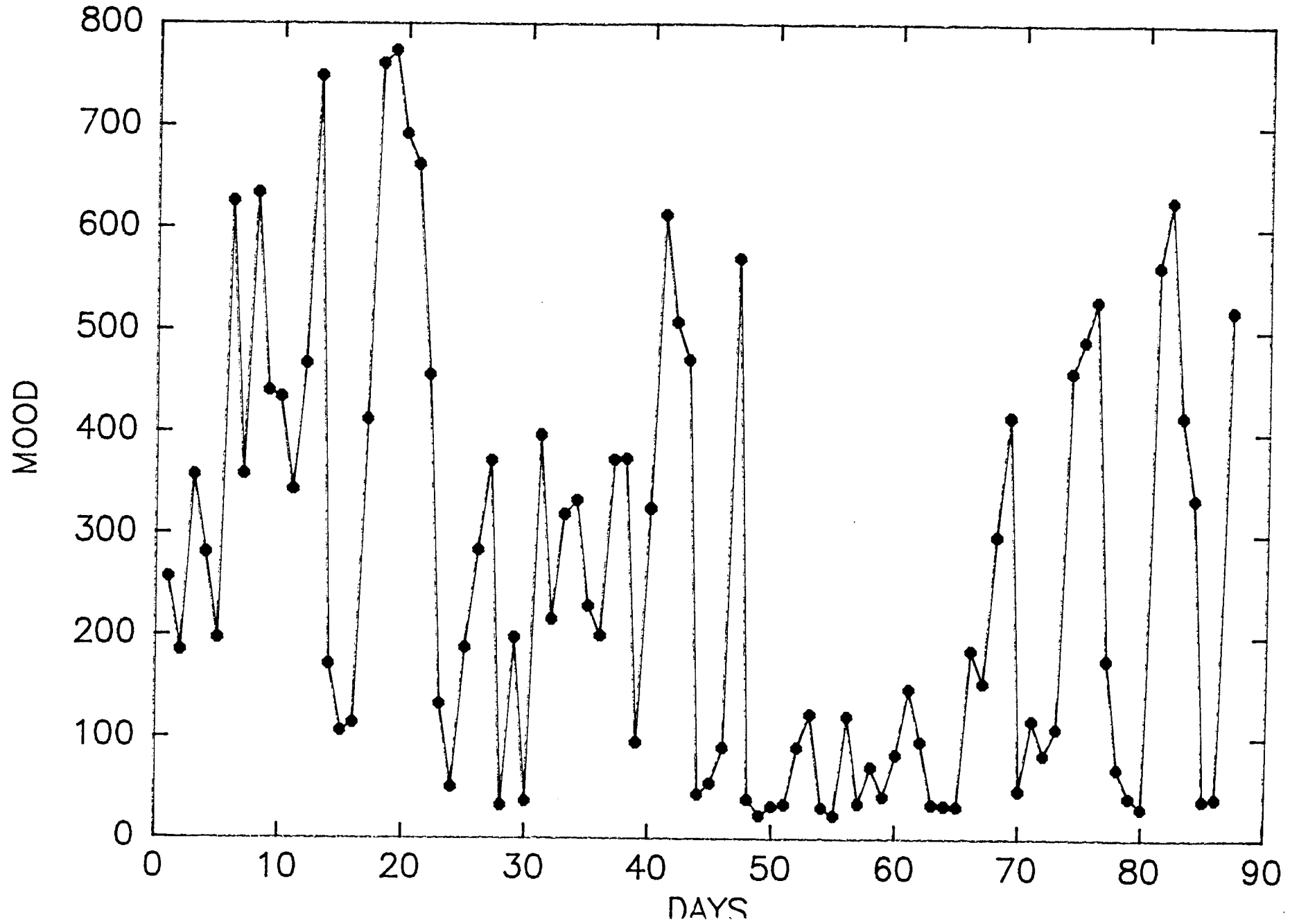
MOOD(OBS) 3.

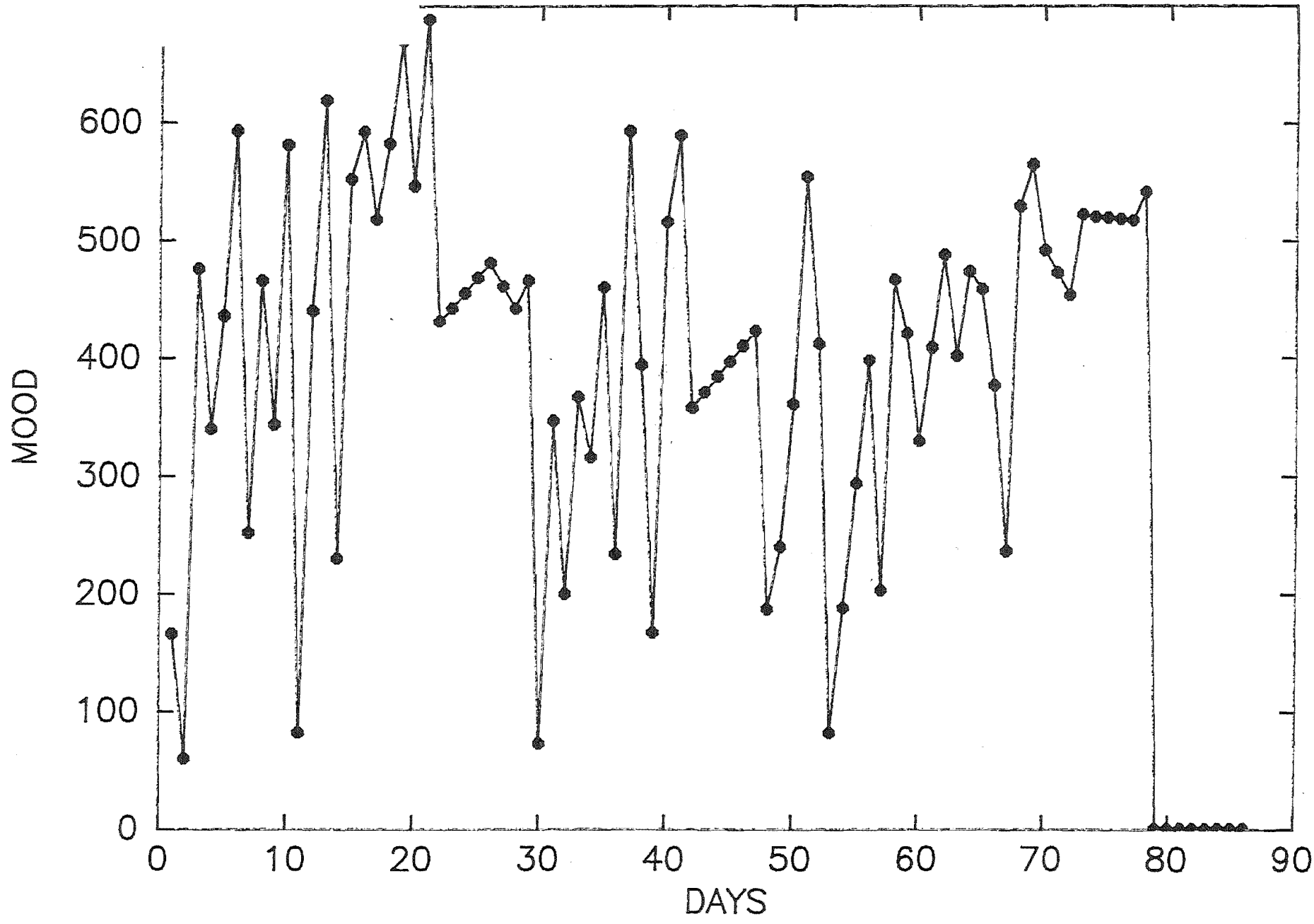


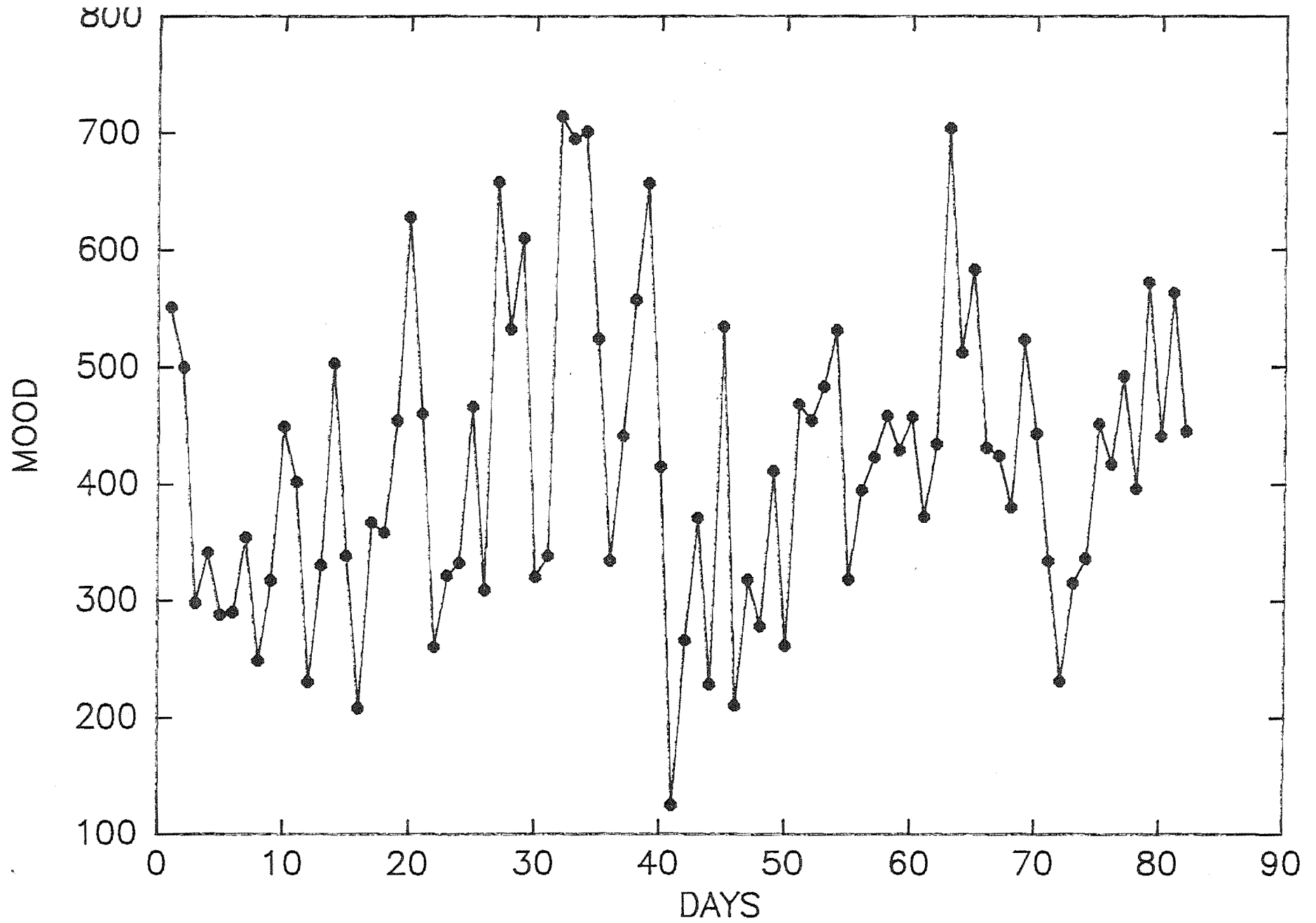


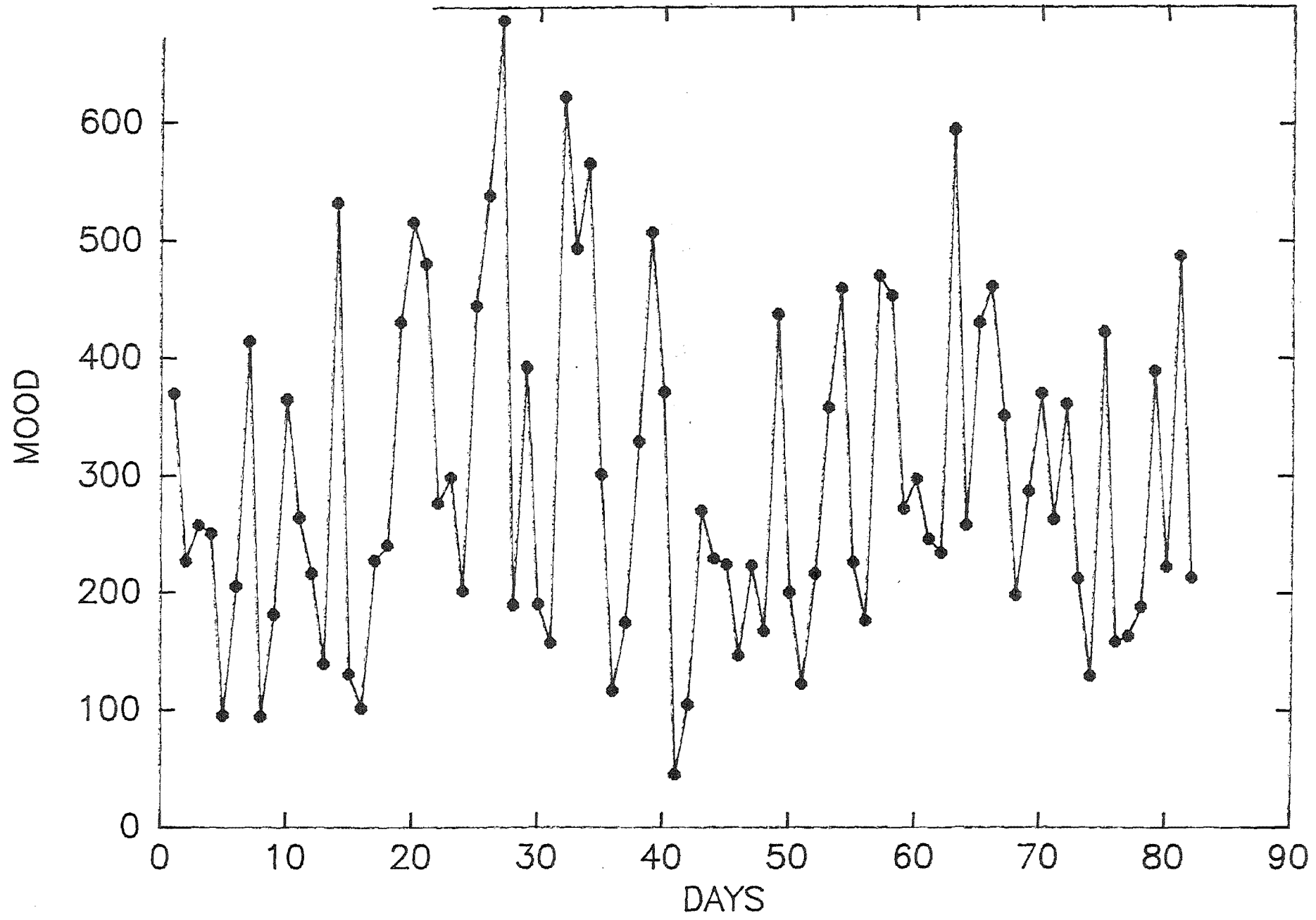


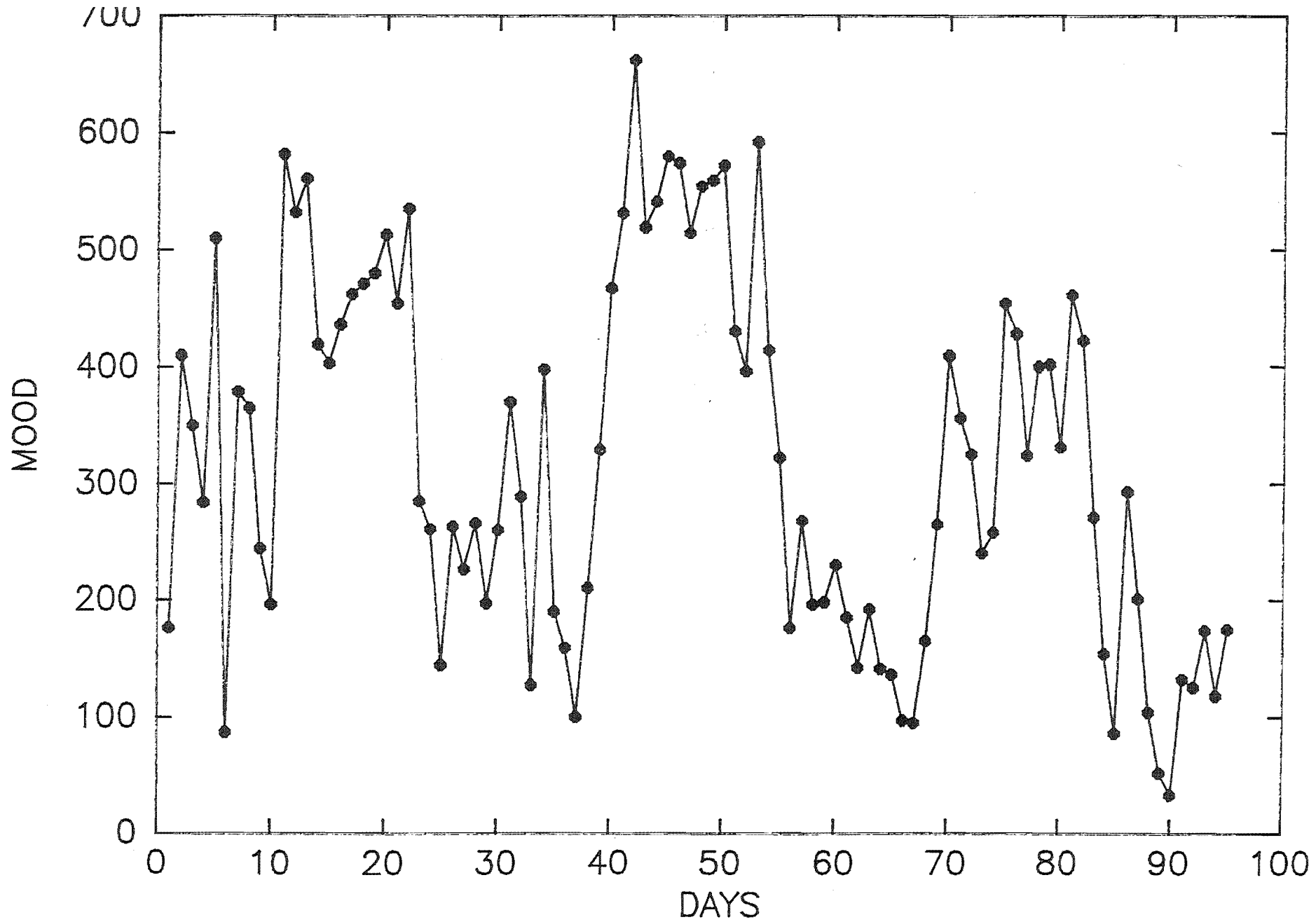
MOOD(SELF) S.6



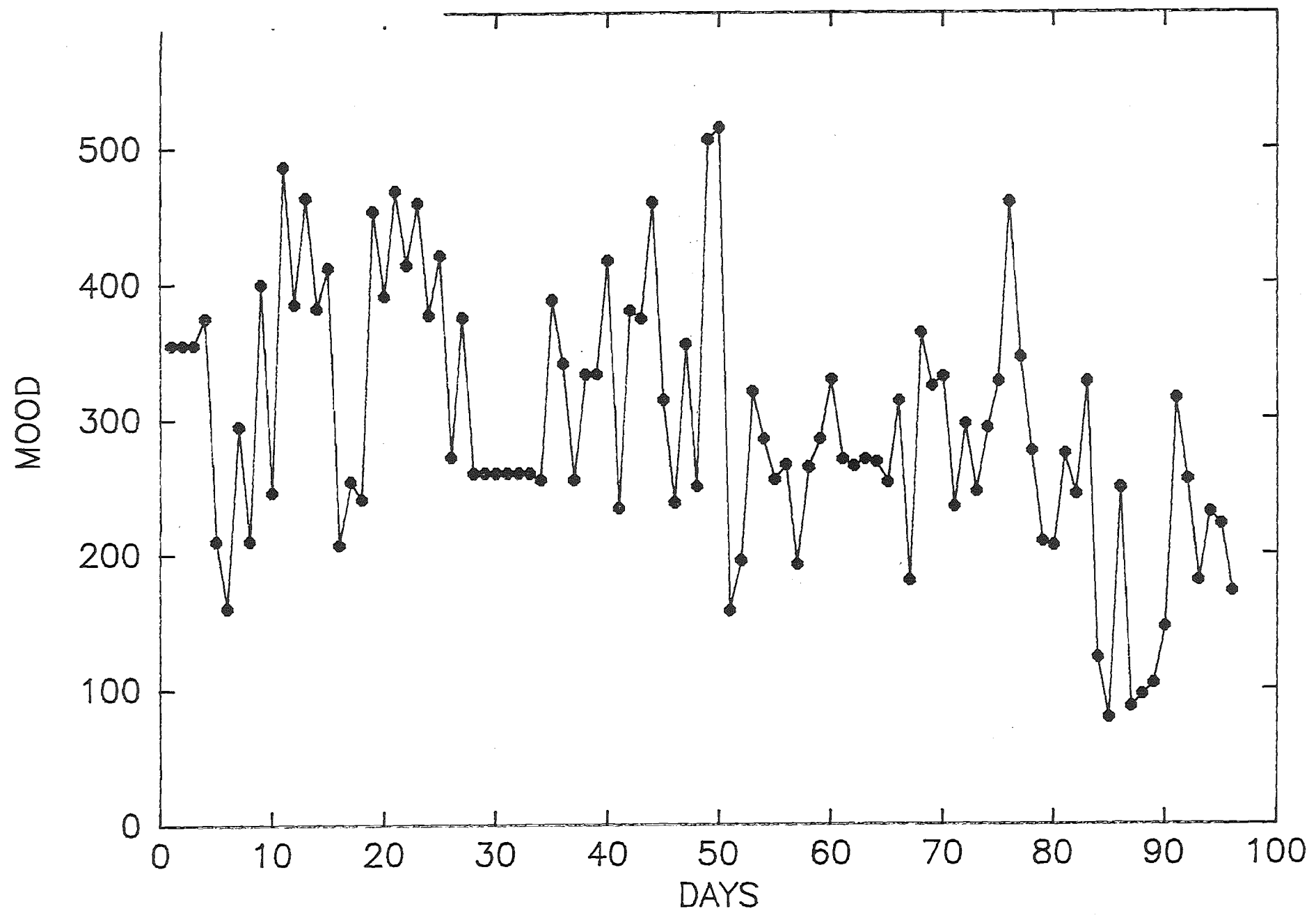




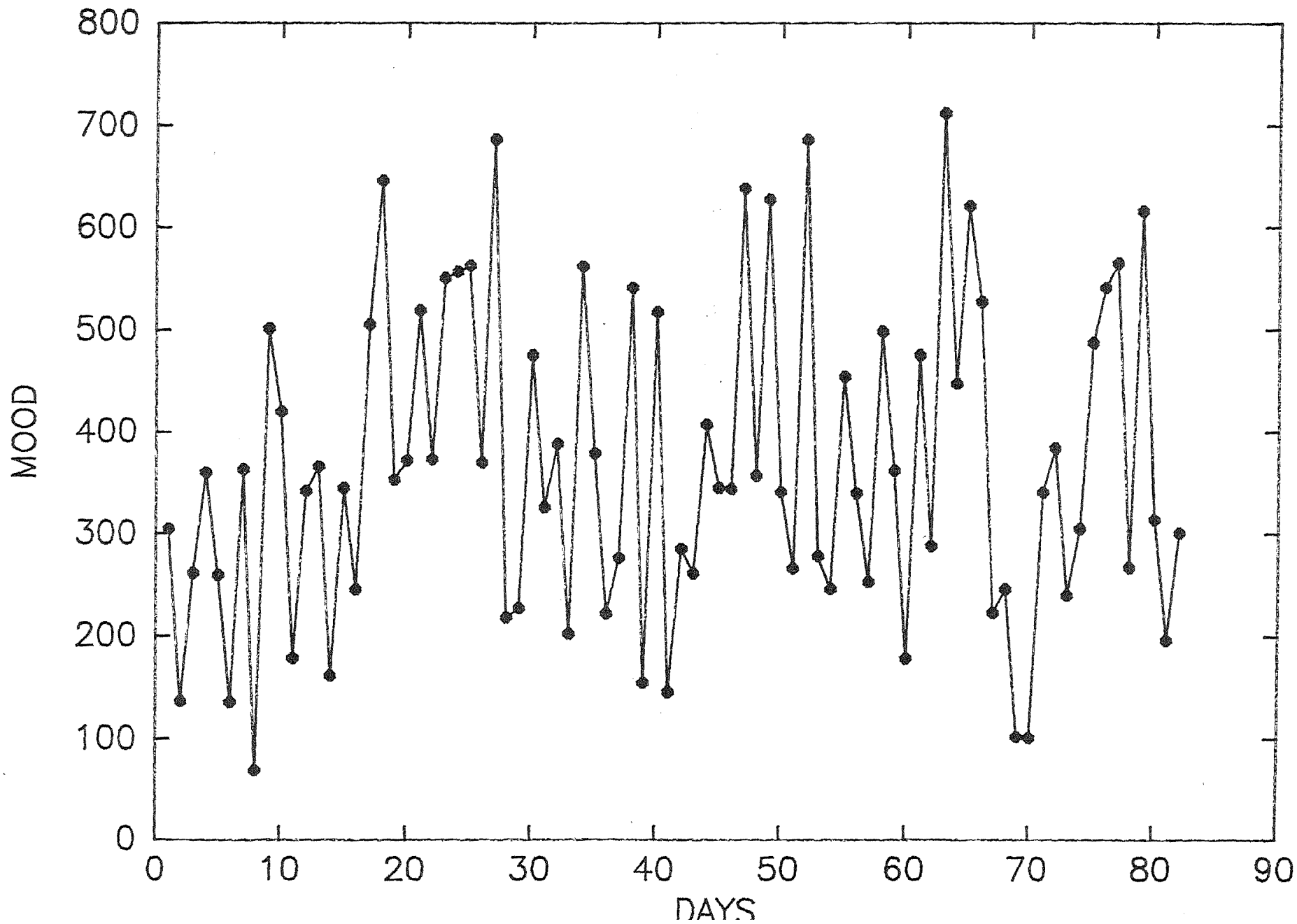




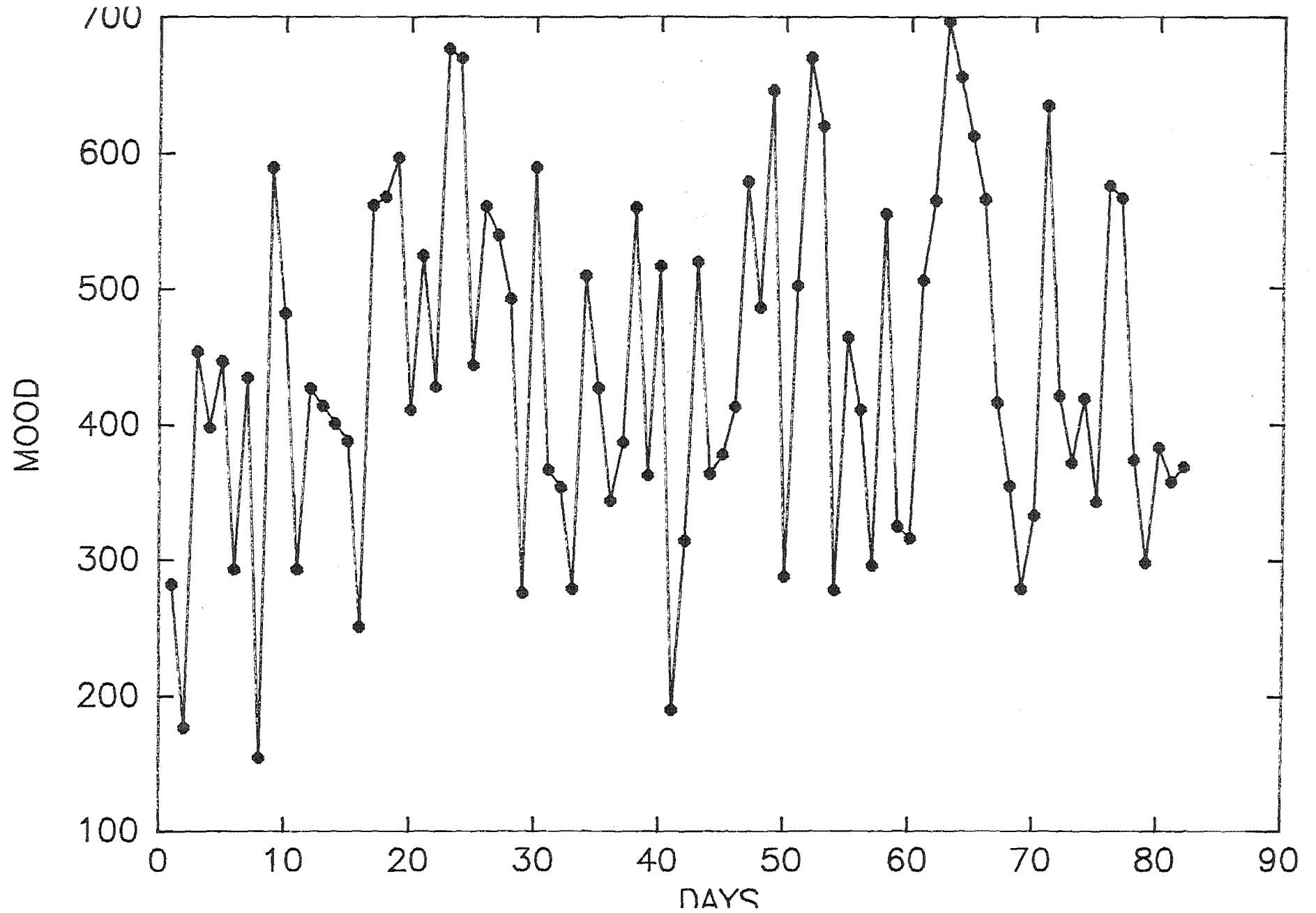
MOOD(OBS) 8.



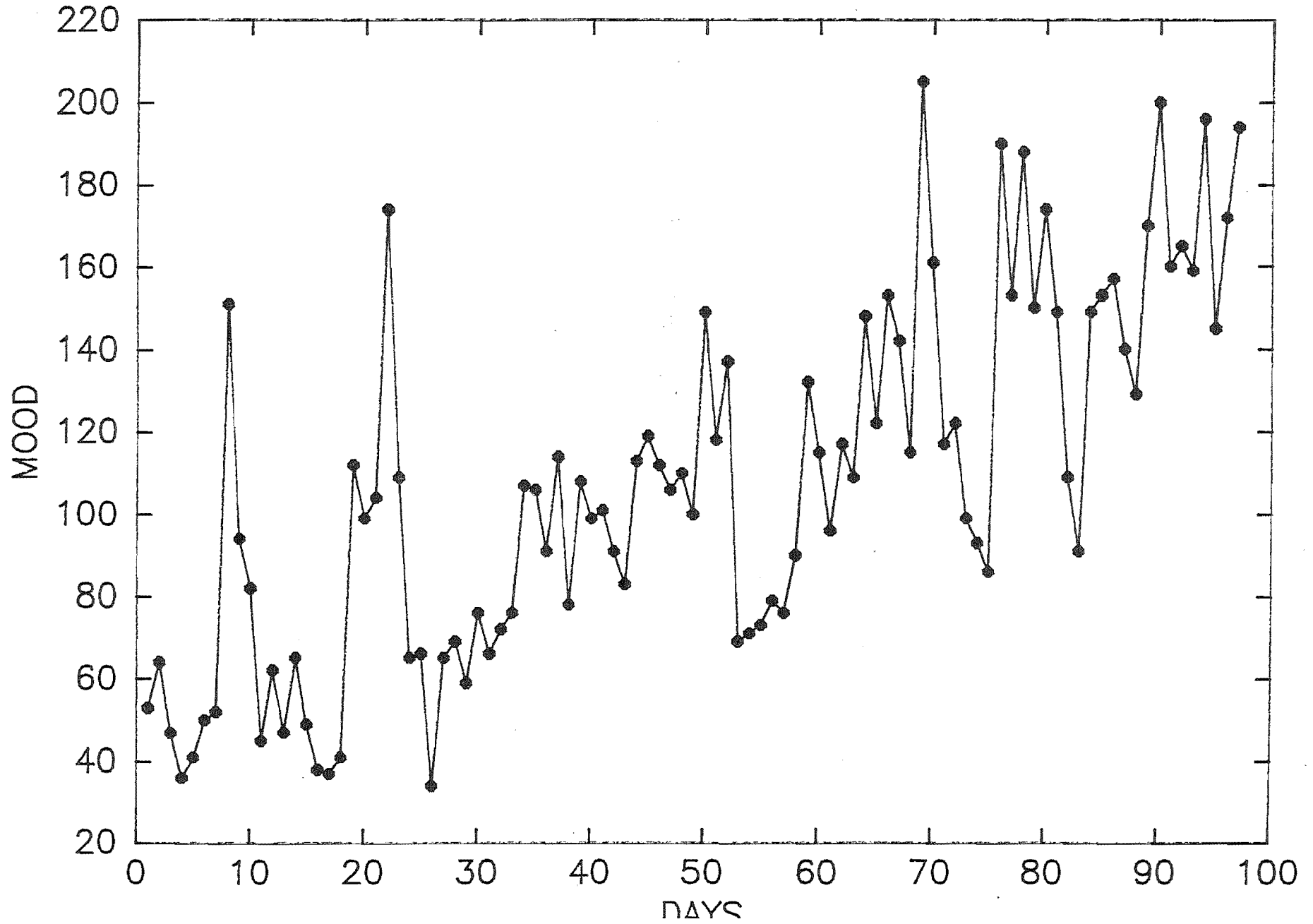
MOOD(SELF) s.9



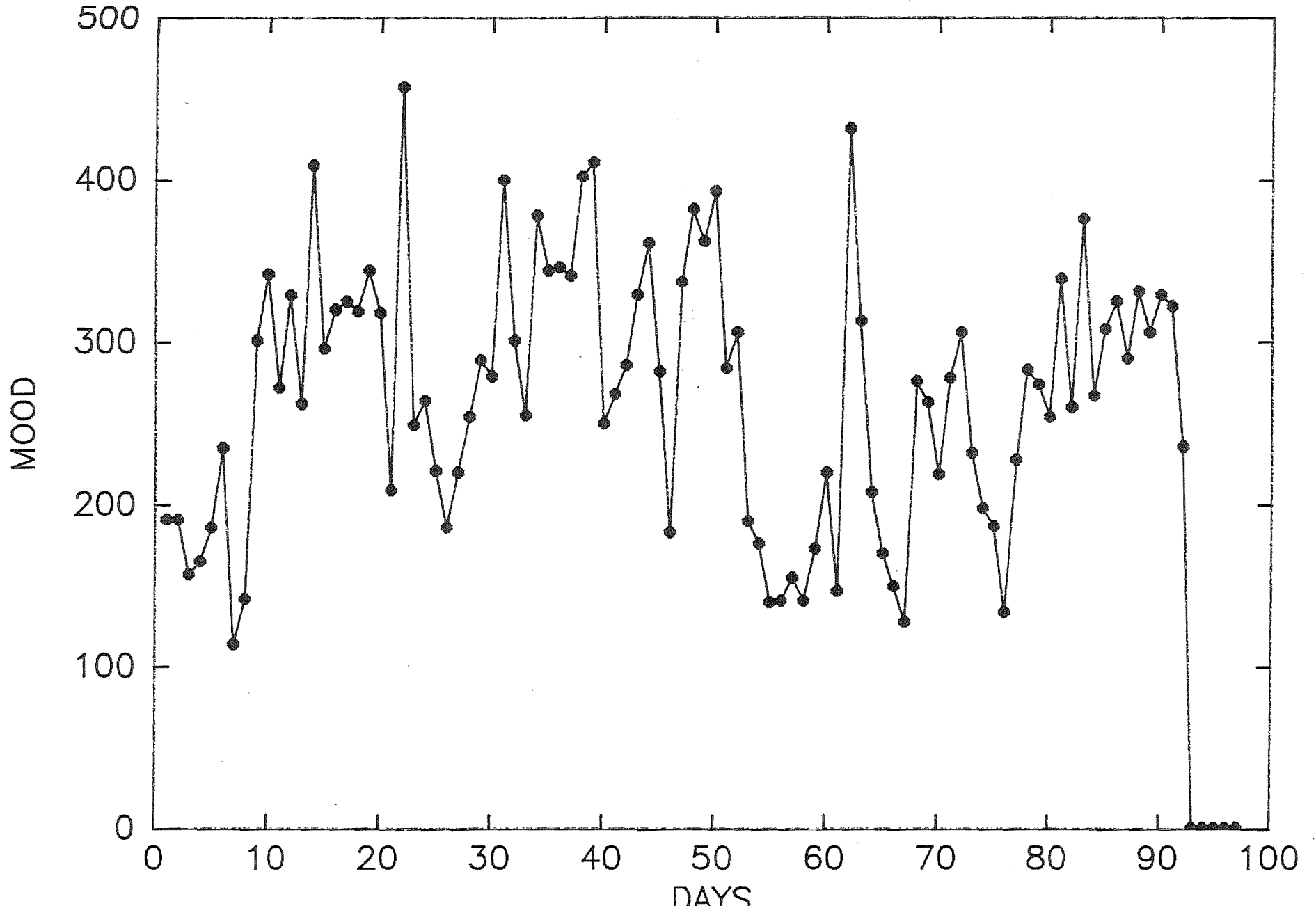
MOOD(OBS) 9.



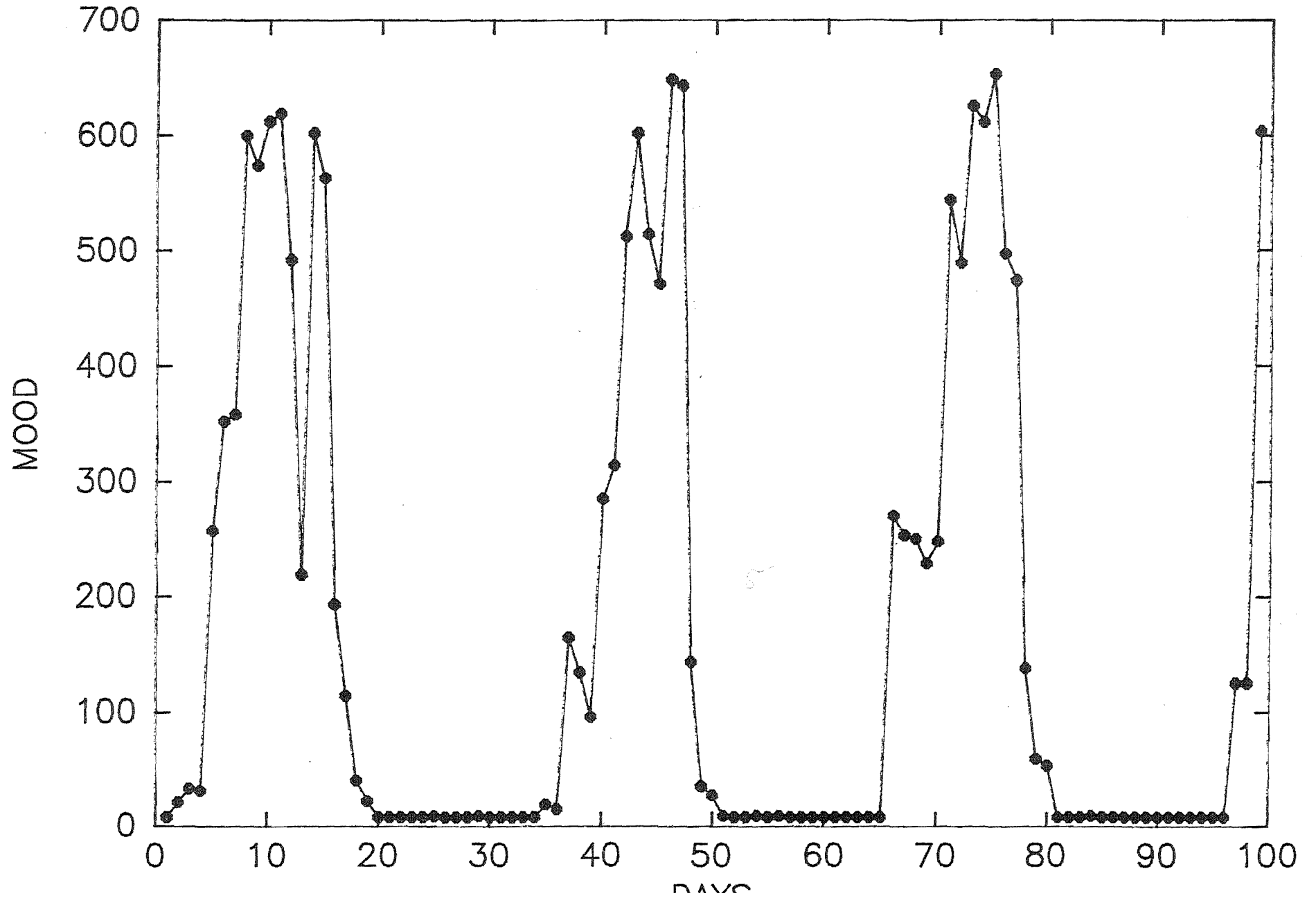
MOOD(SELF) s.10

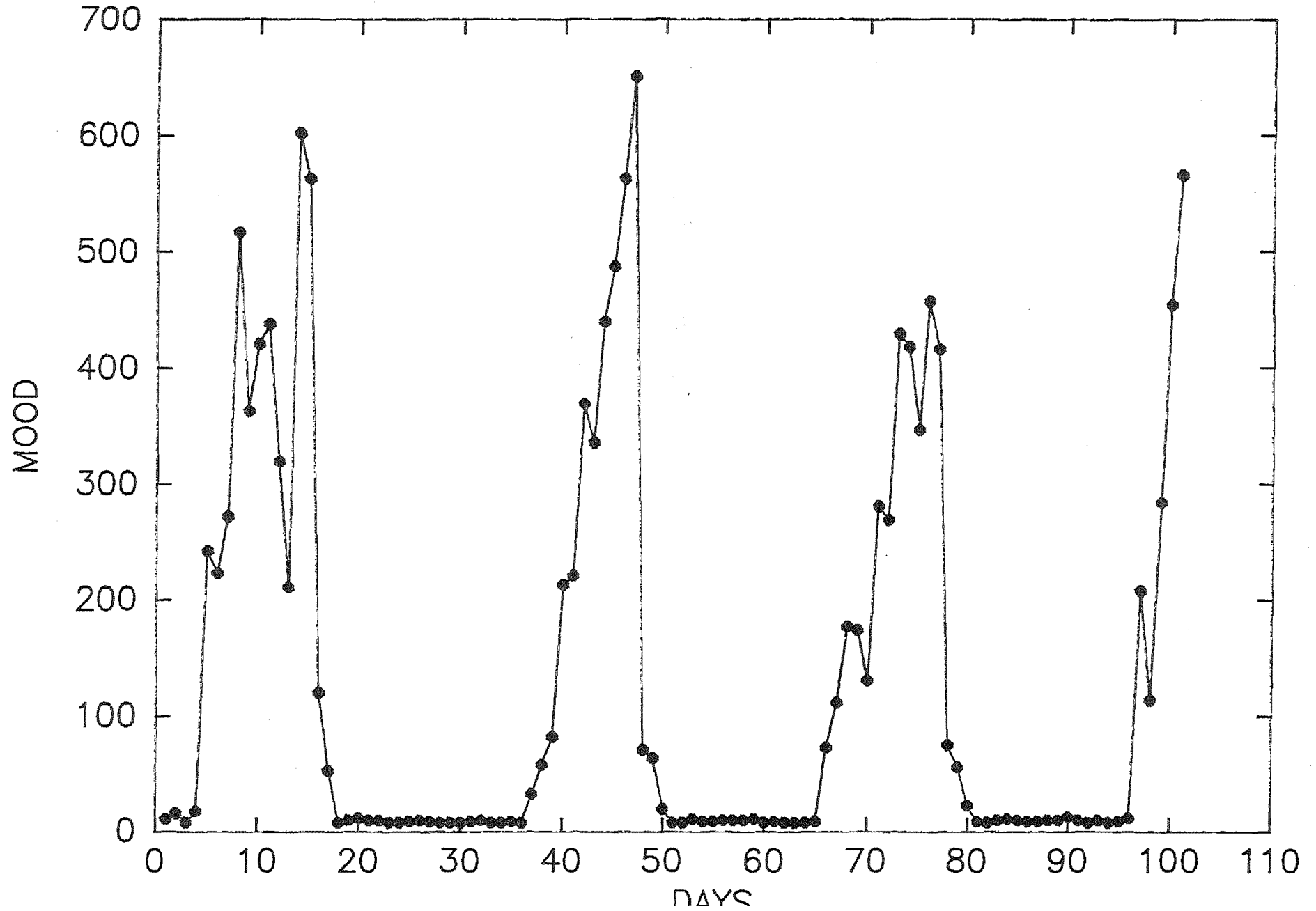


MOOD(2EFF) 2.70
MOOD(OBS) 16.

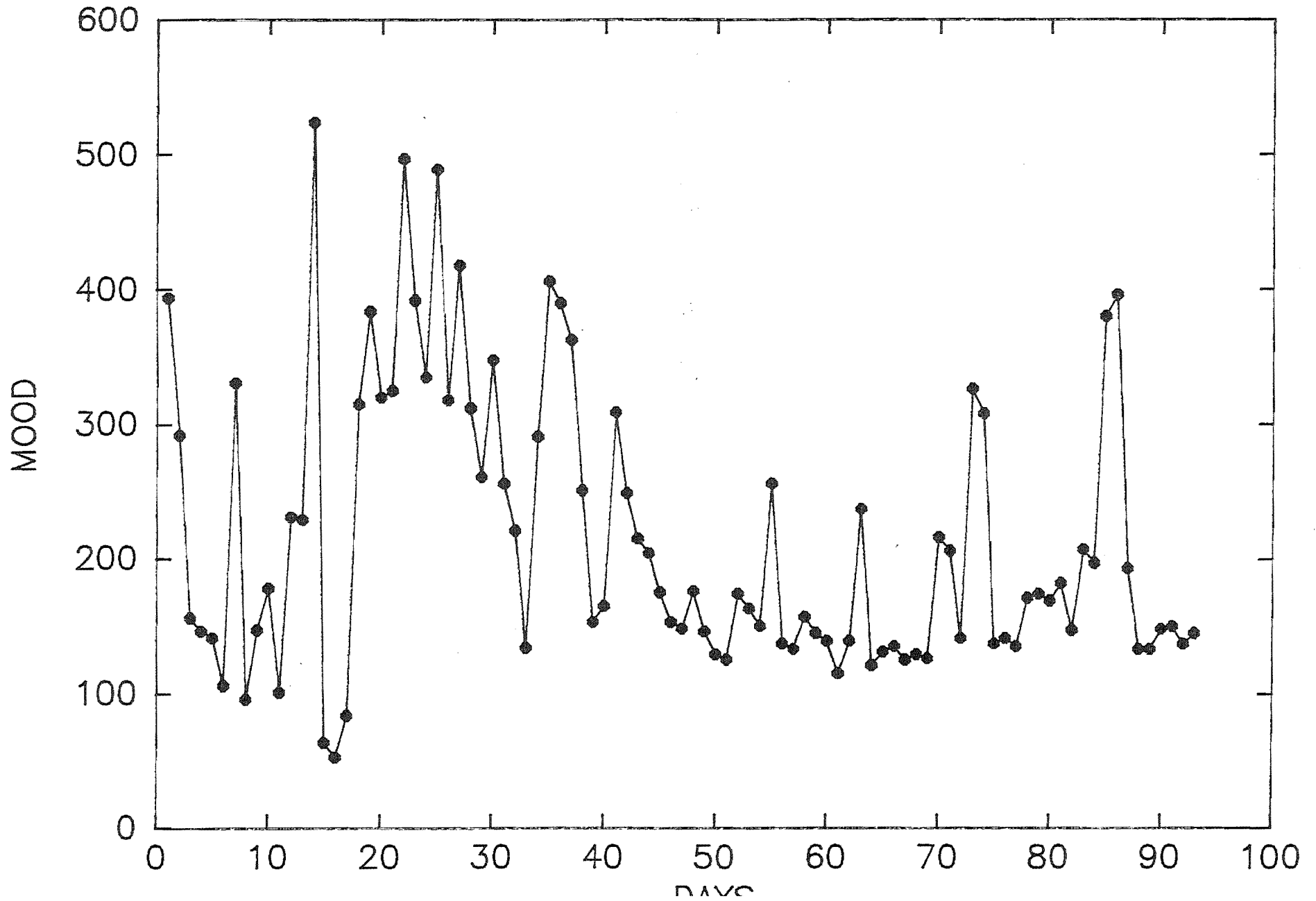


MOOD(SELF) s.12

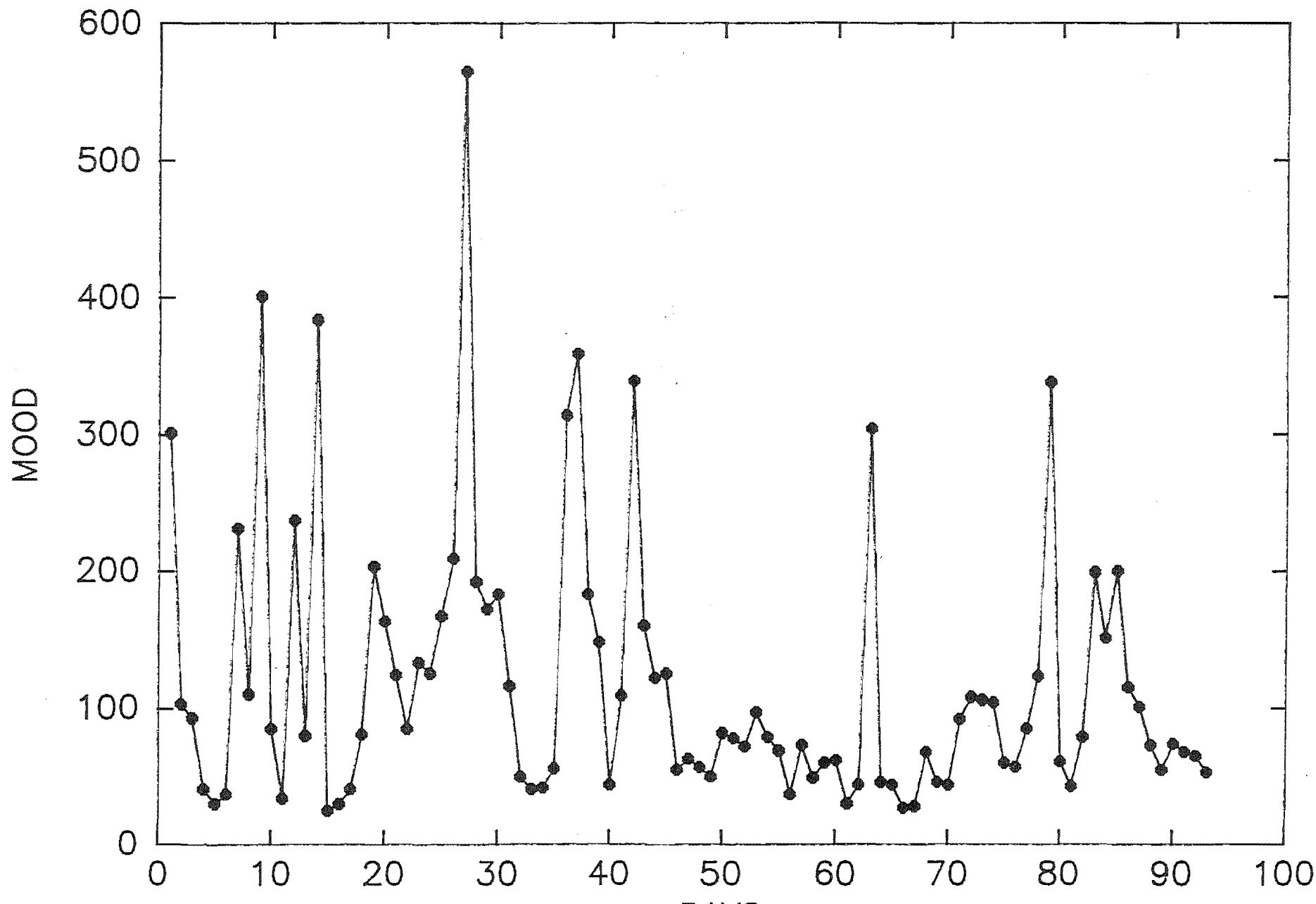


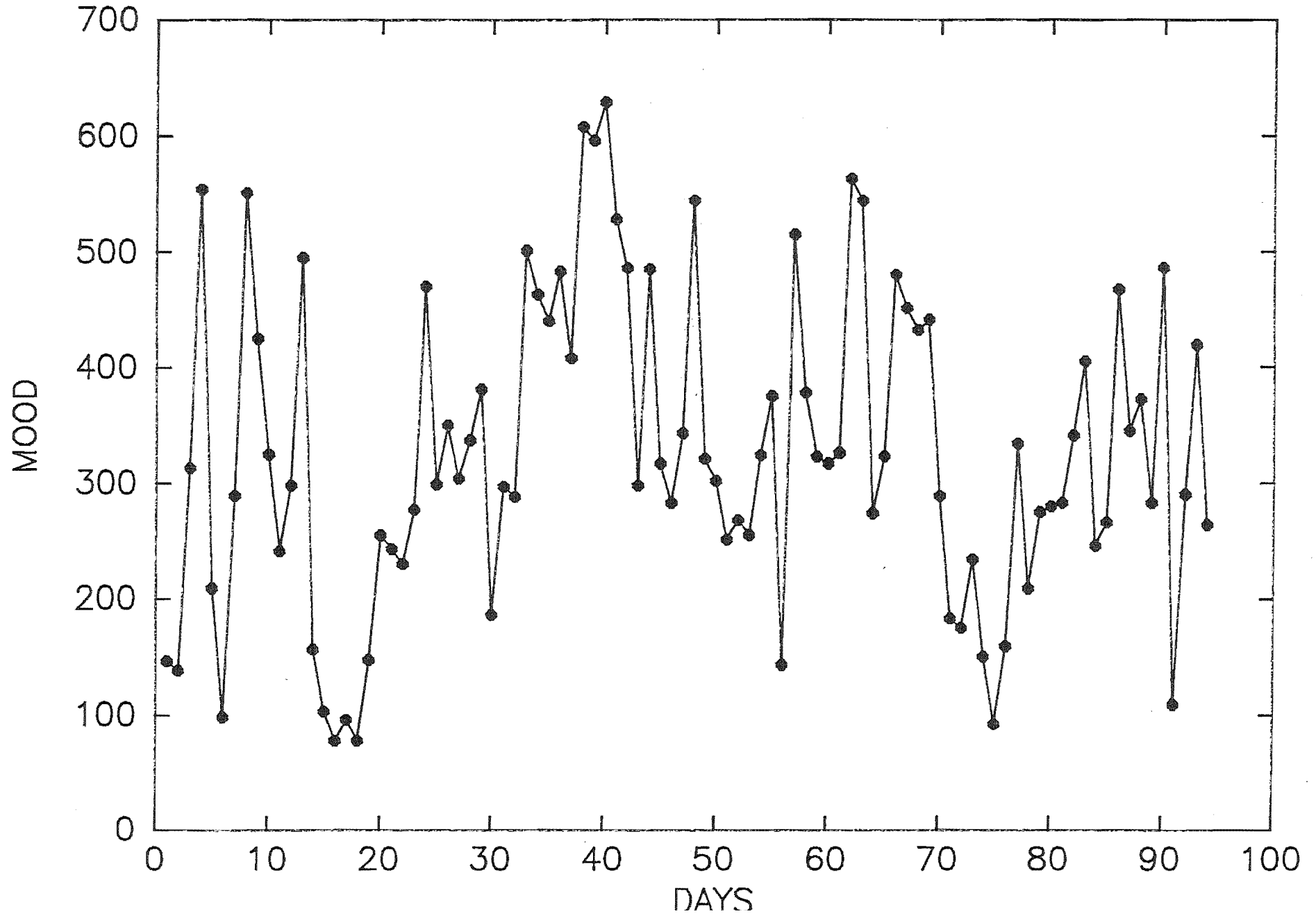


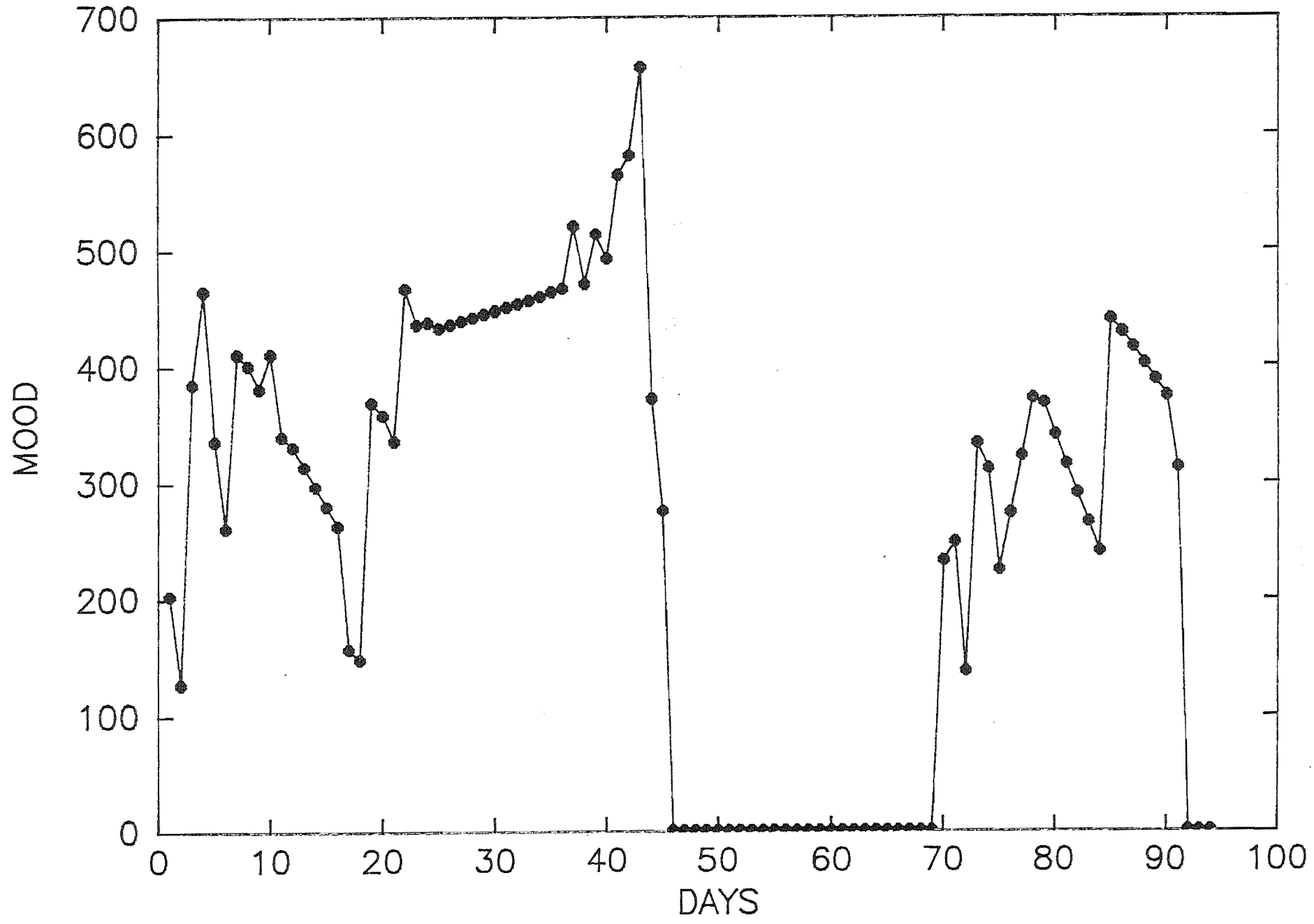
MOOD(SELF) s.13



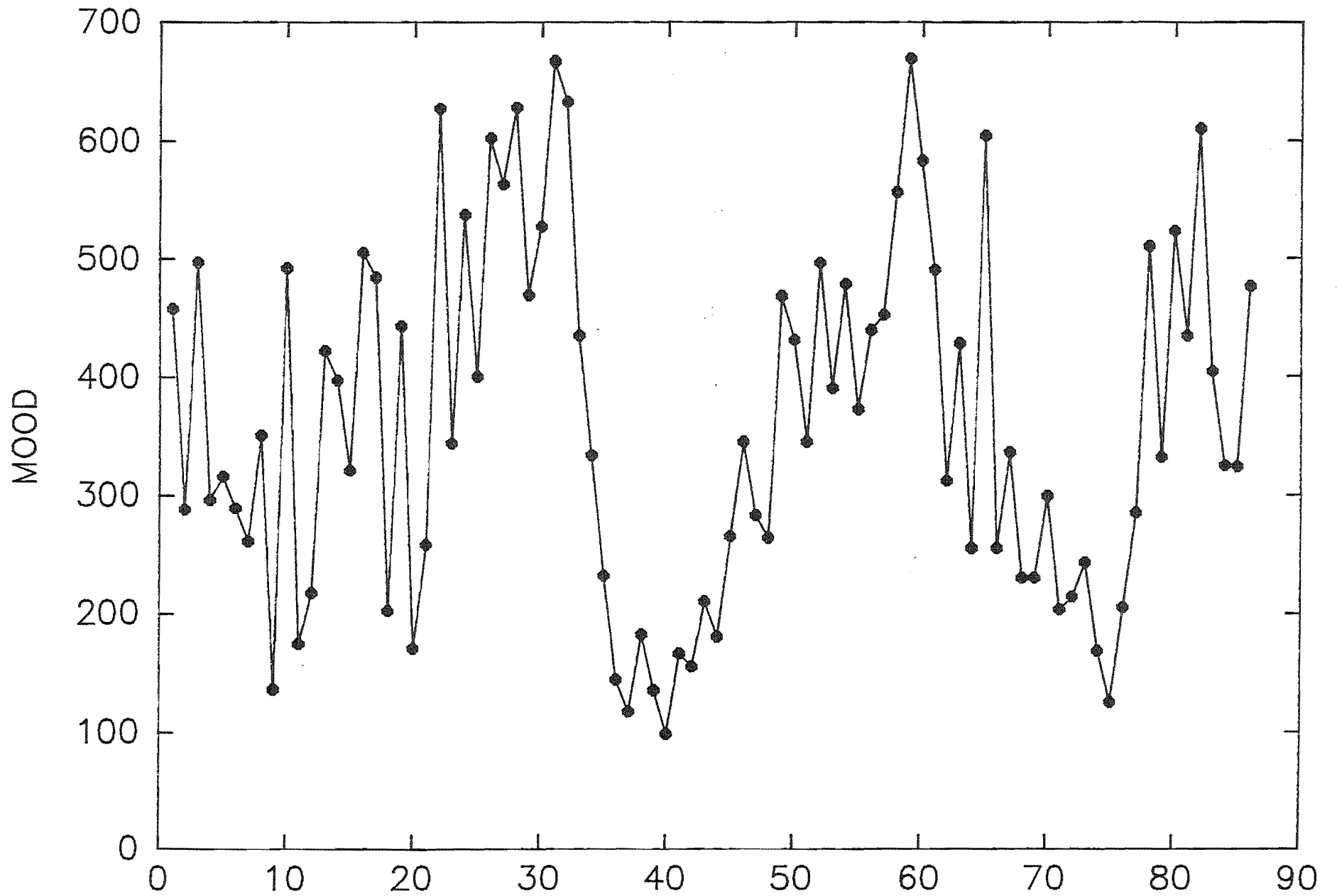
MOOD(OBS) 13.



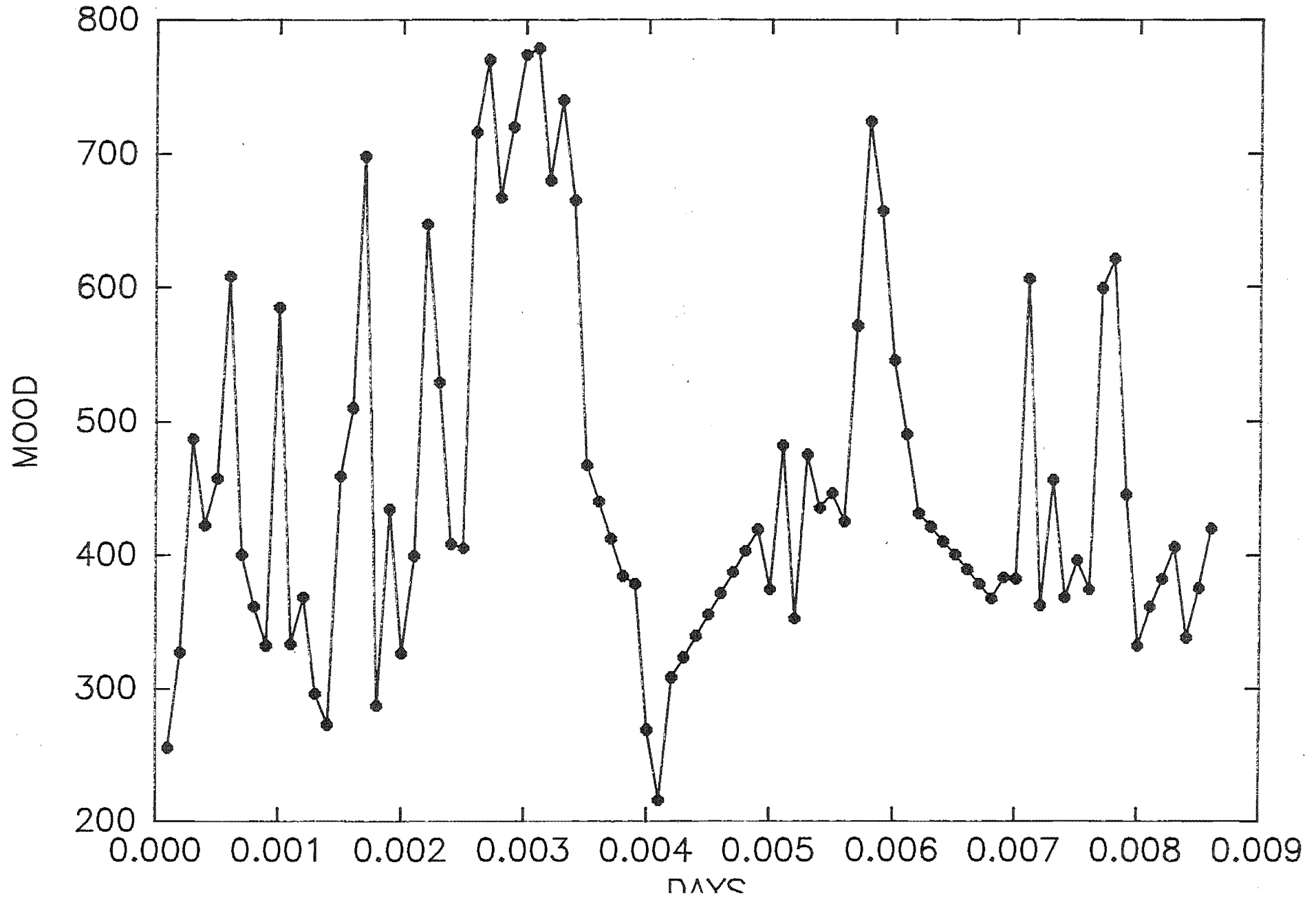




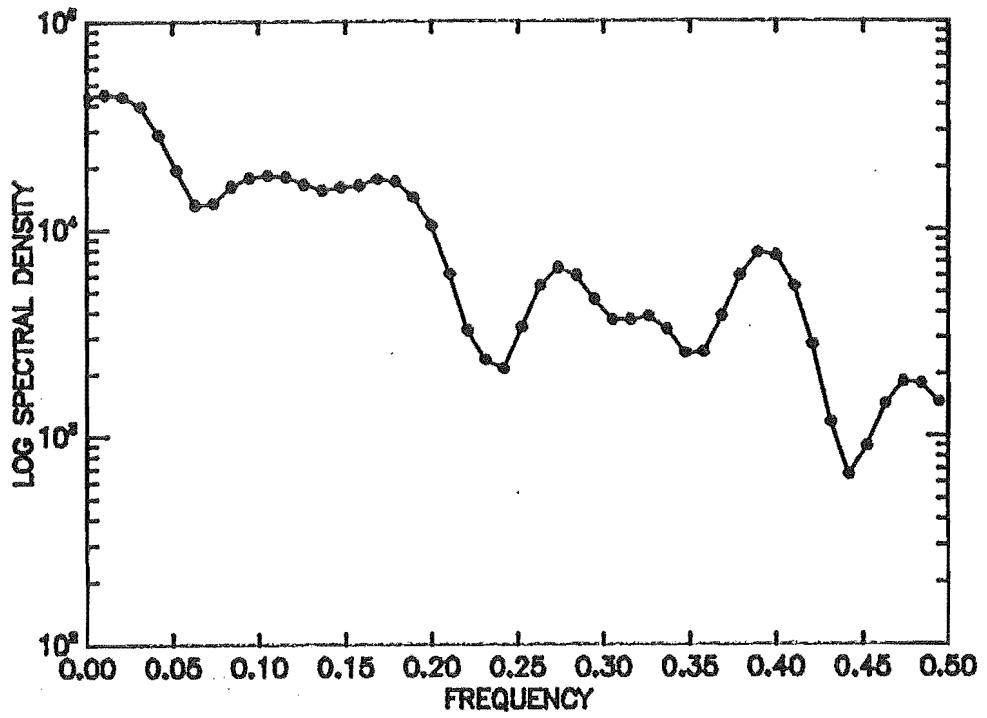
MOOD(SELF) s.15



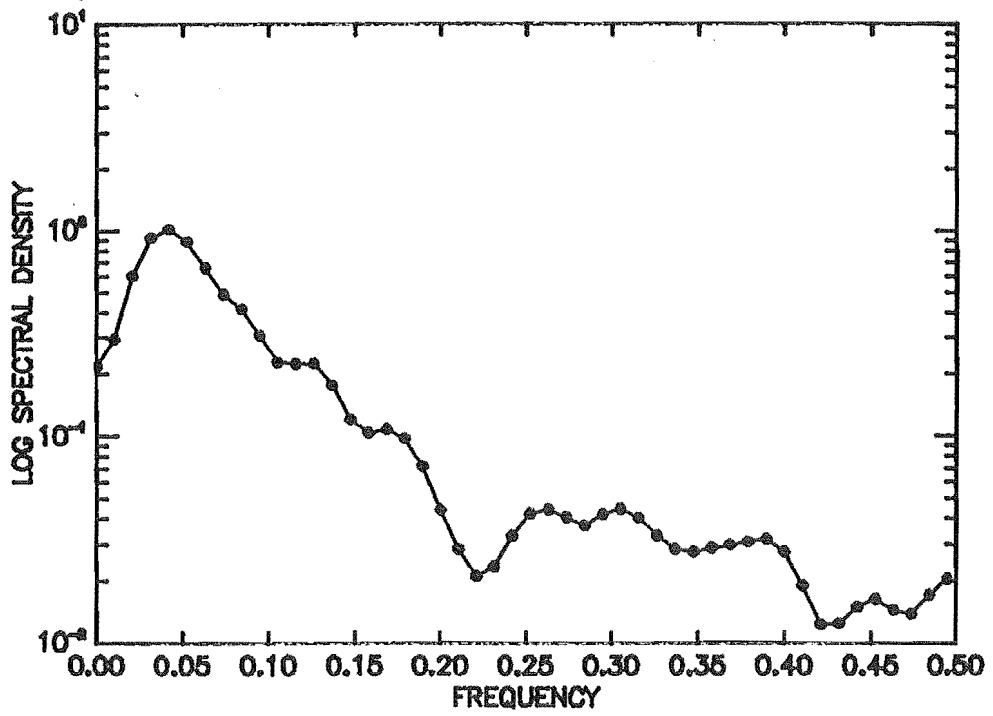
MOOD(OBS) 15.



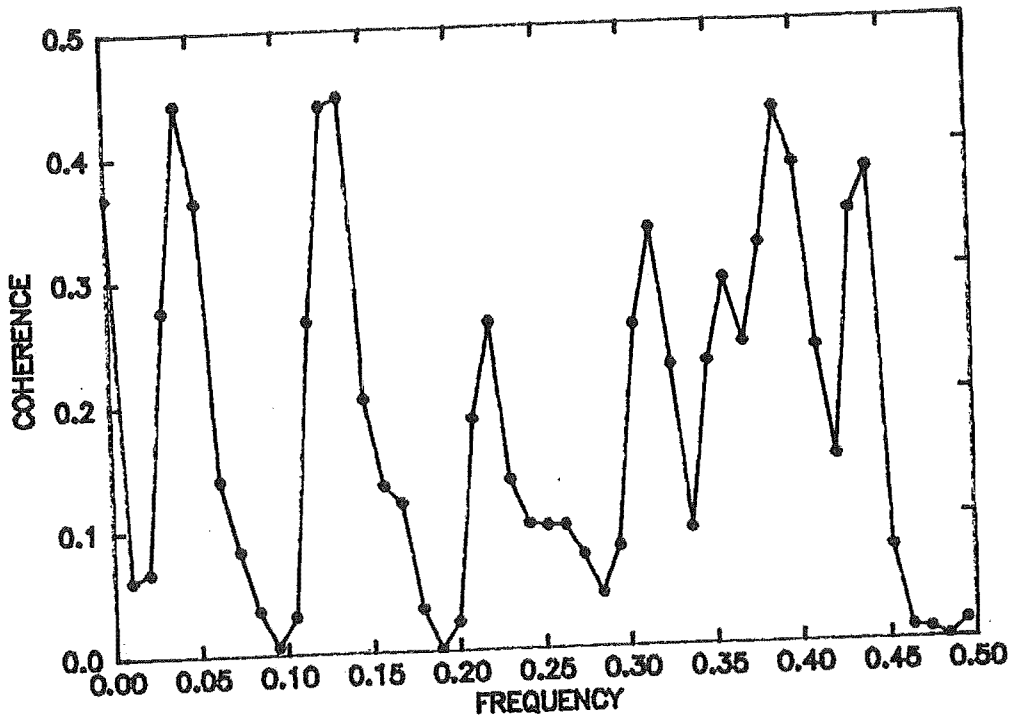
S1,MOOD(SELF)



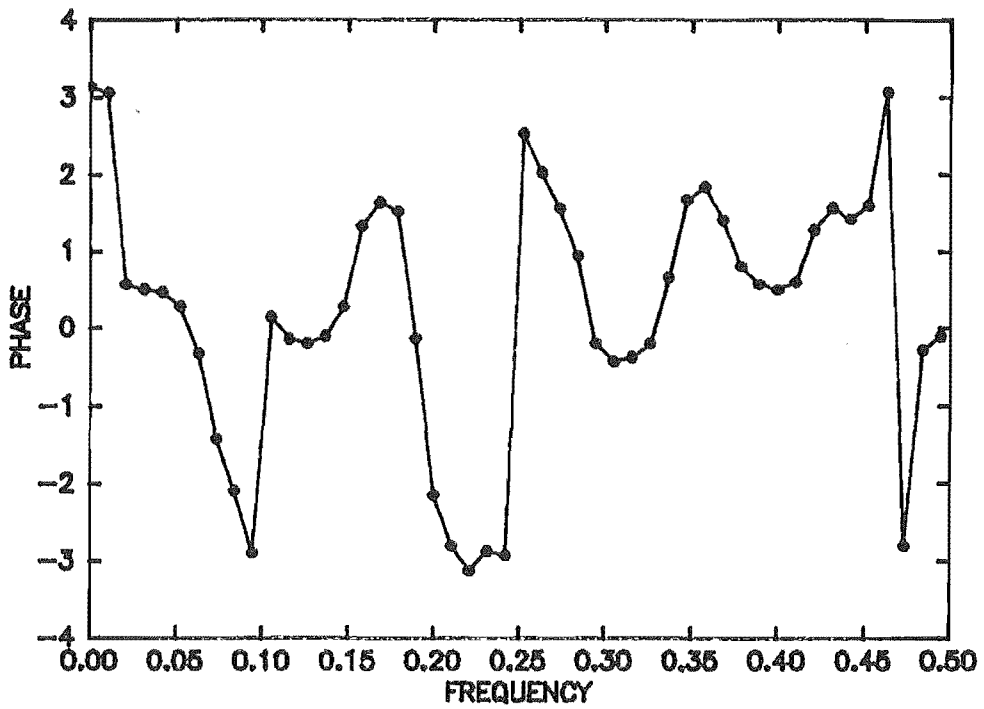
S1,MENST



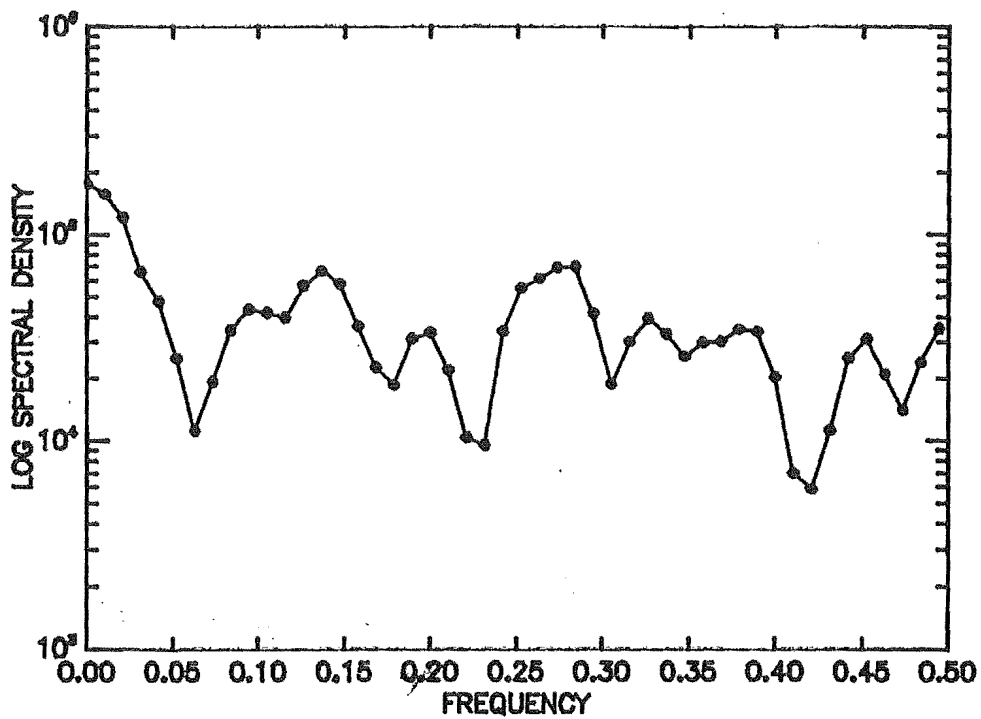
S1,MOOD/MENST



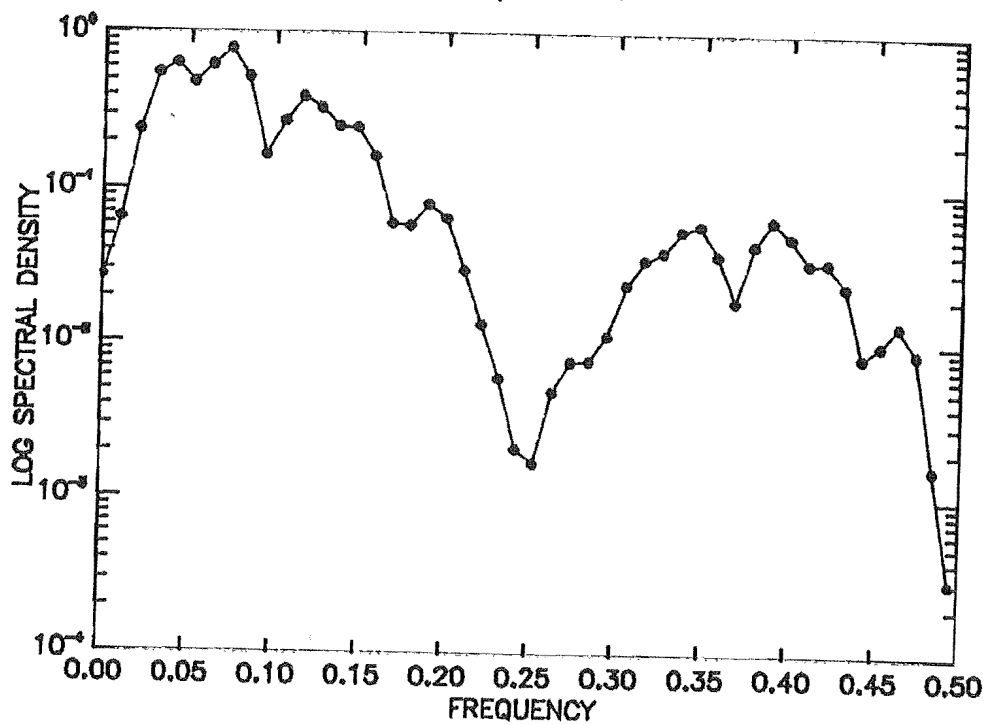
S1,MOOD/MENST



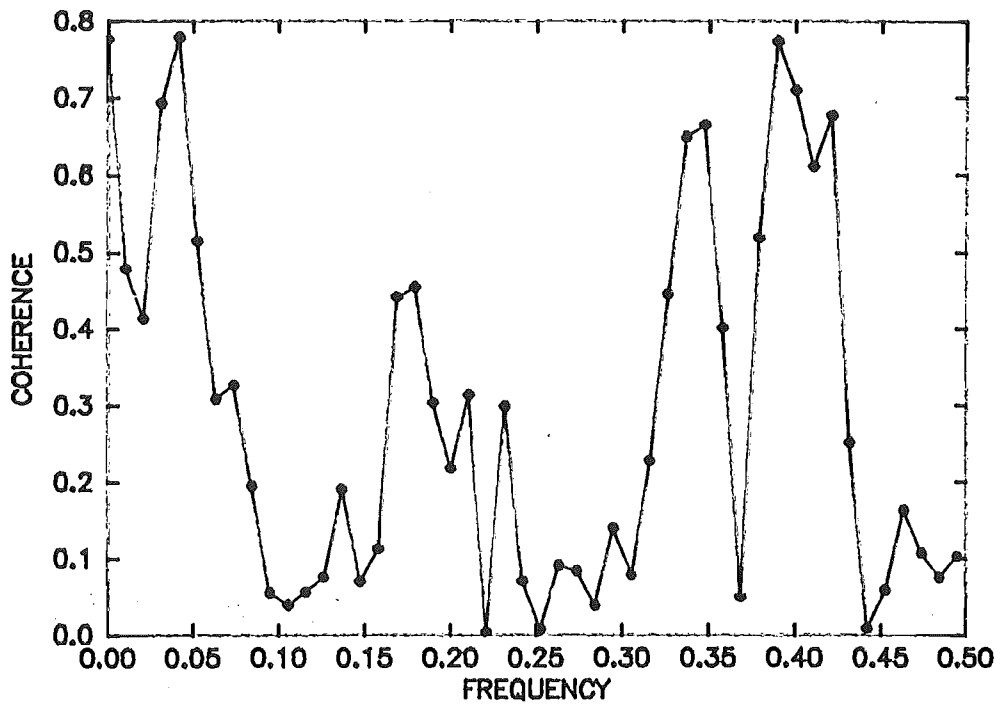
S2,MOOD(SELF)



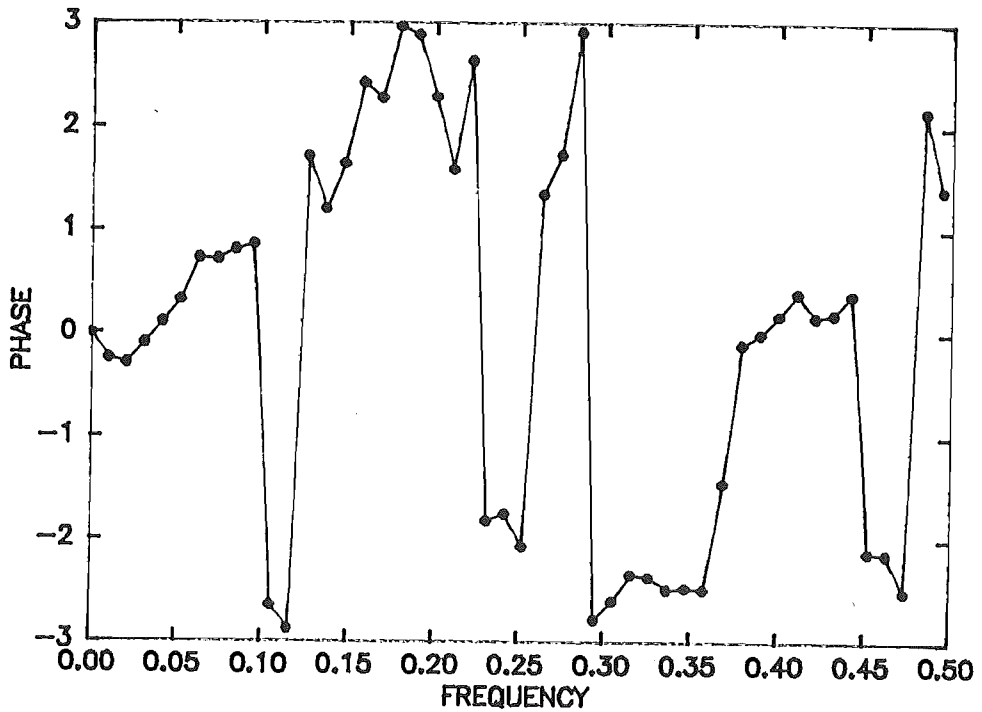
S2,MENST



S2,MOOD/MENST

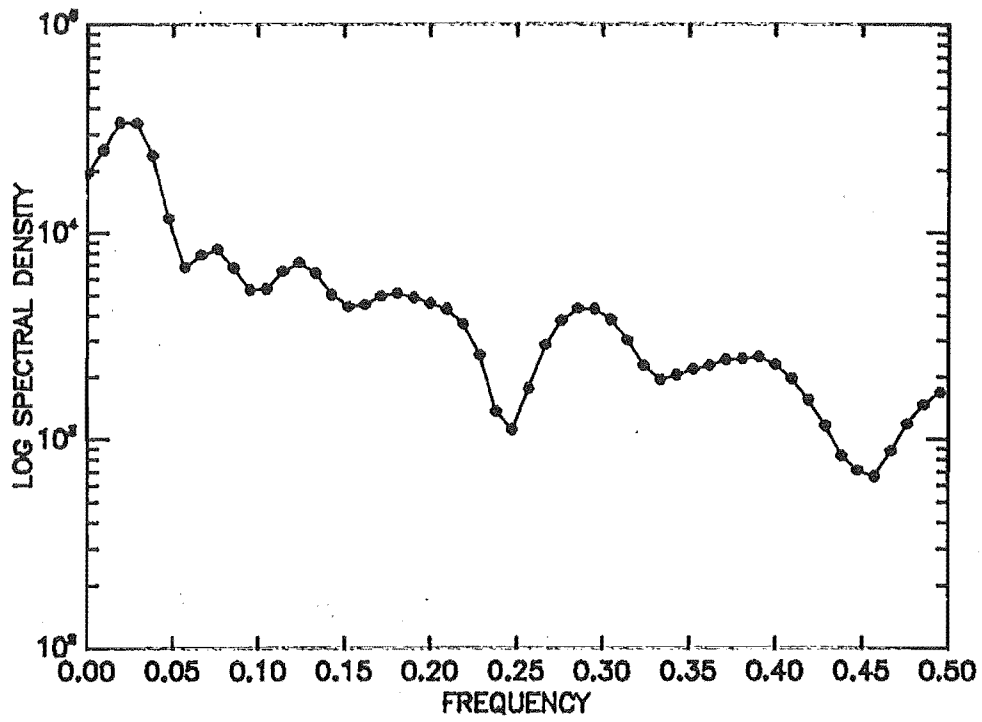


S2,MOOD/MENST

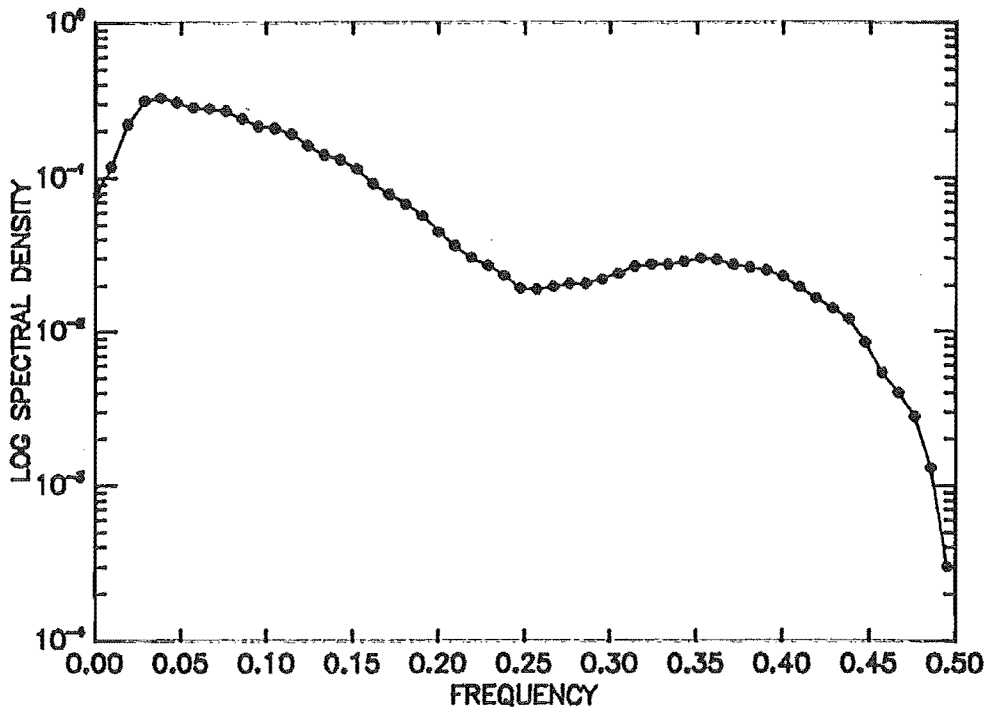


ETT

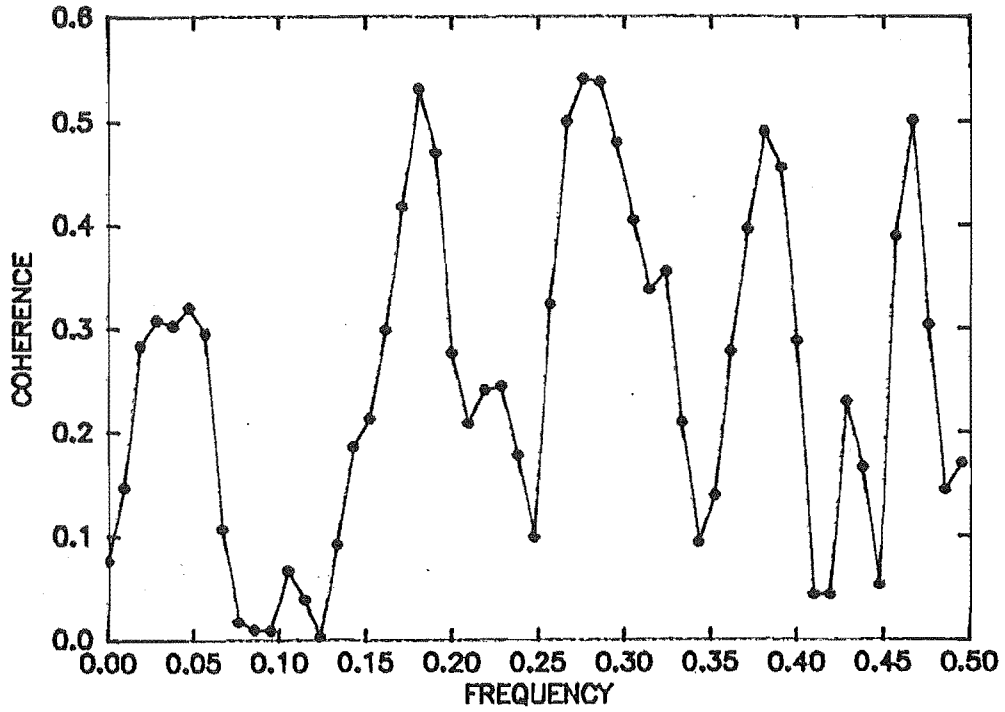
S3,MOOD(SELF)



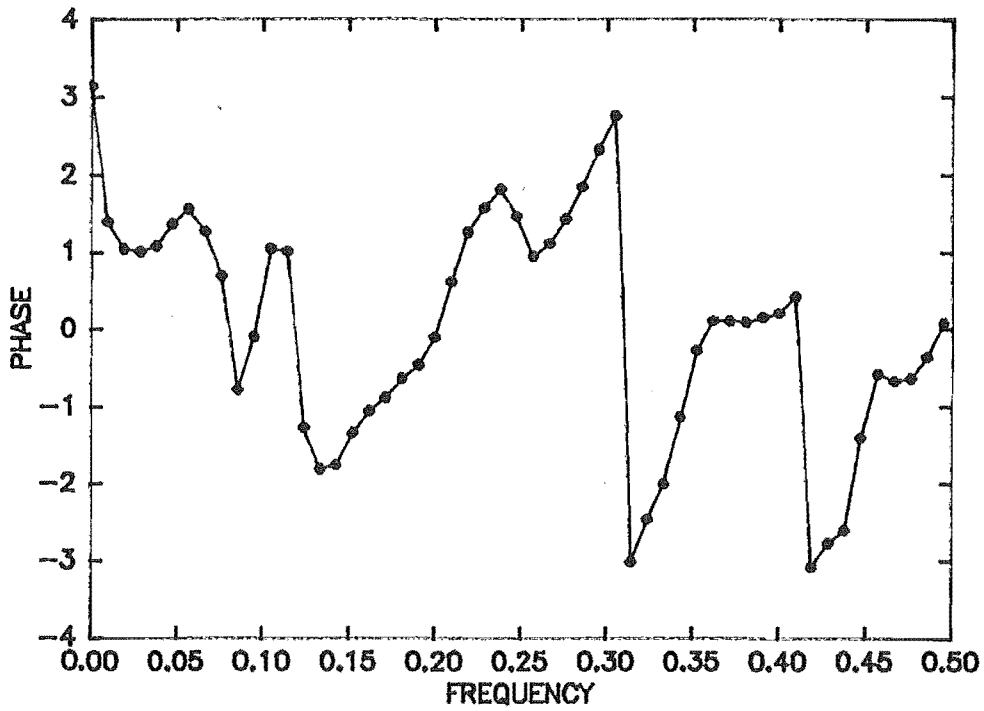
S3,MENST



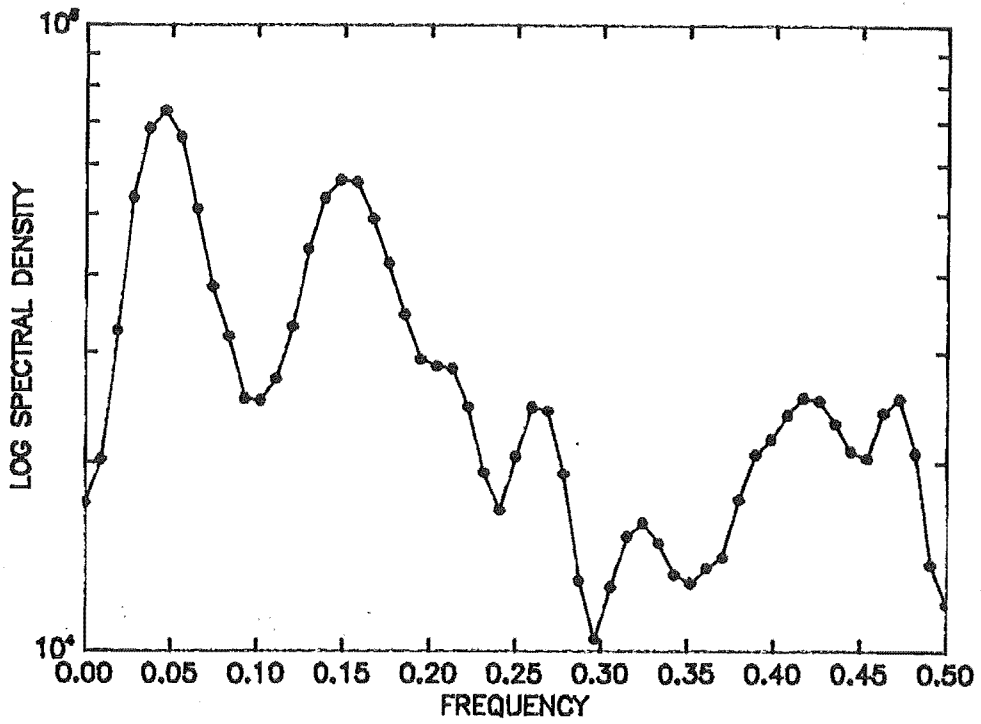
S3,MOOD/MENST



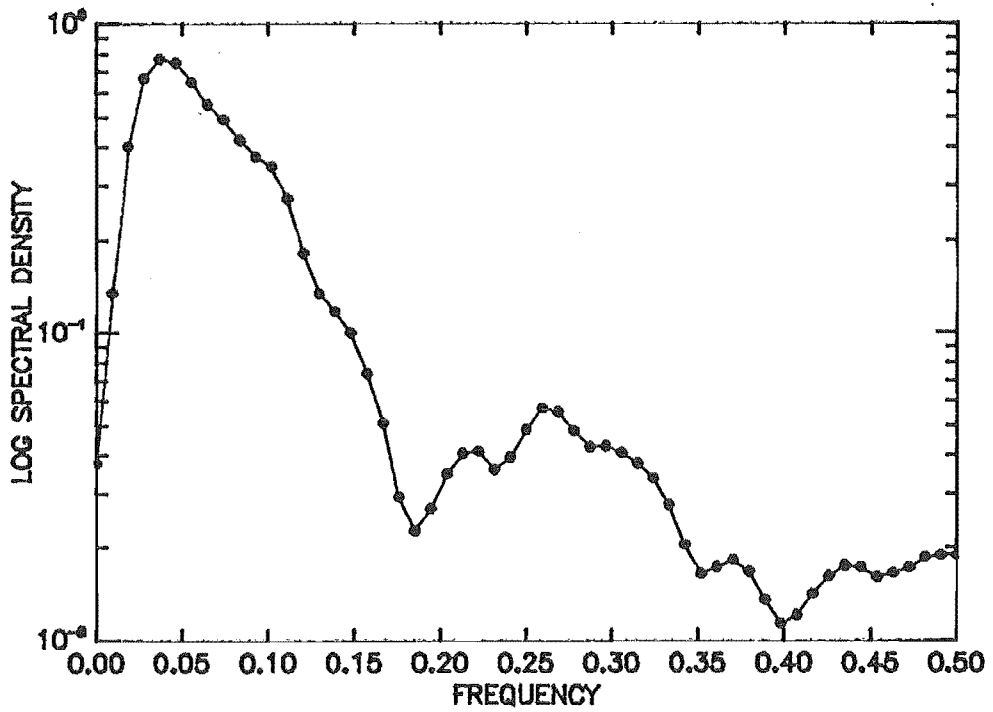
S3,MOOD/MENST



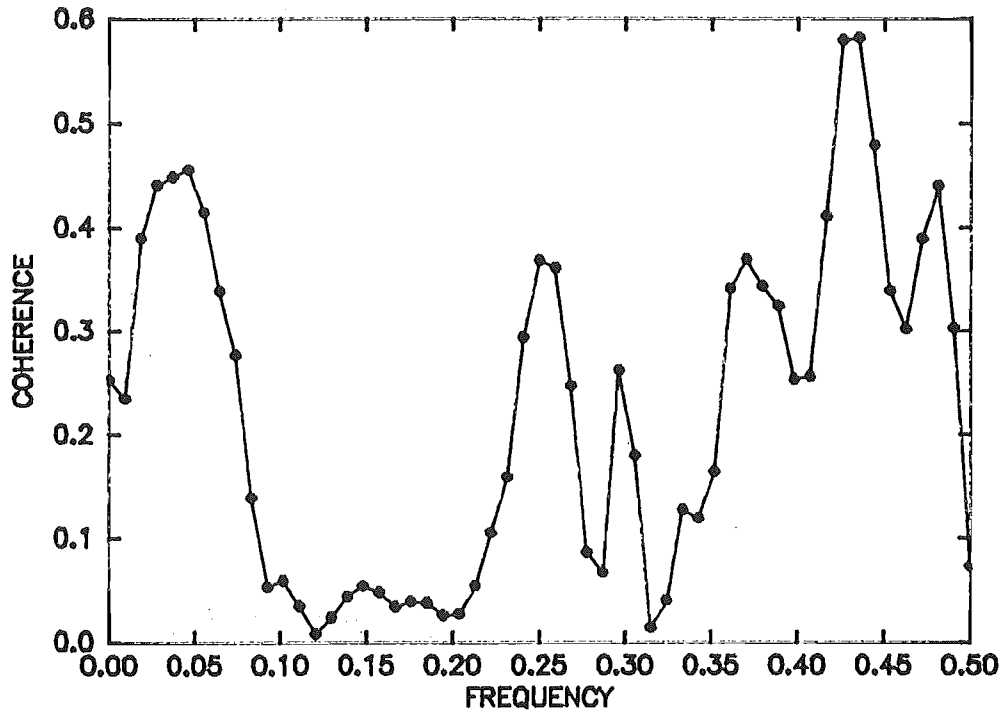
S5,MOOD(SELF)



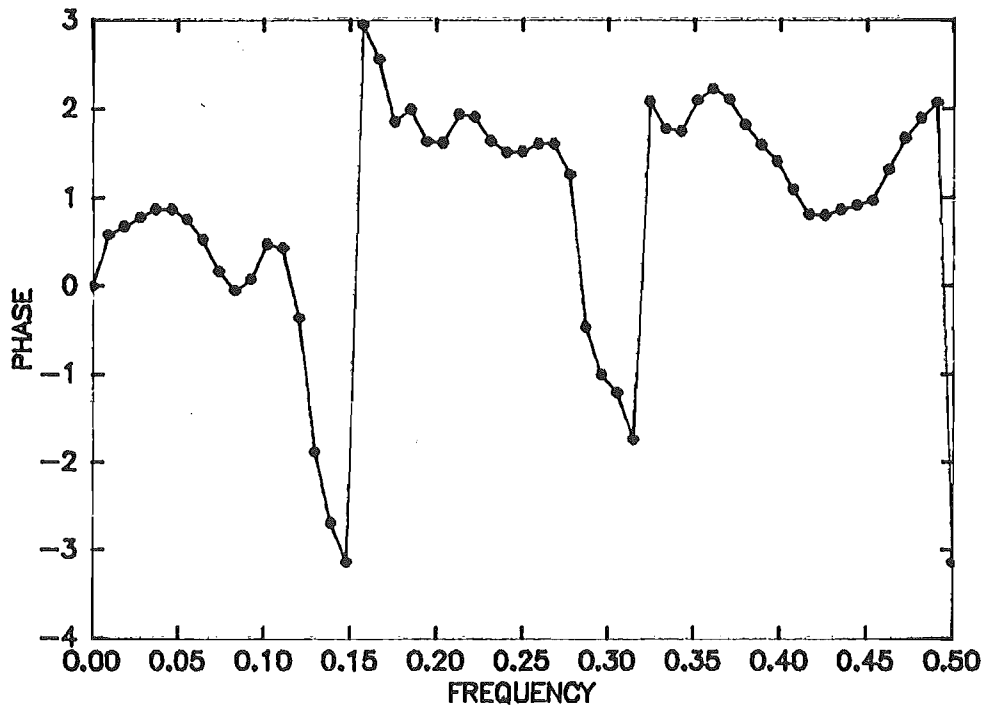
S5,MENST



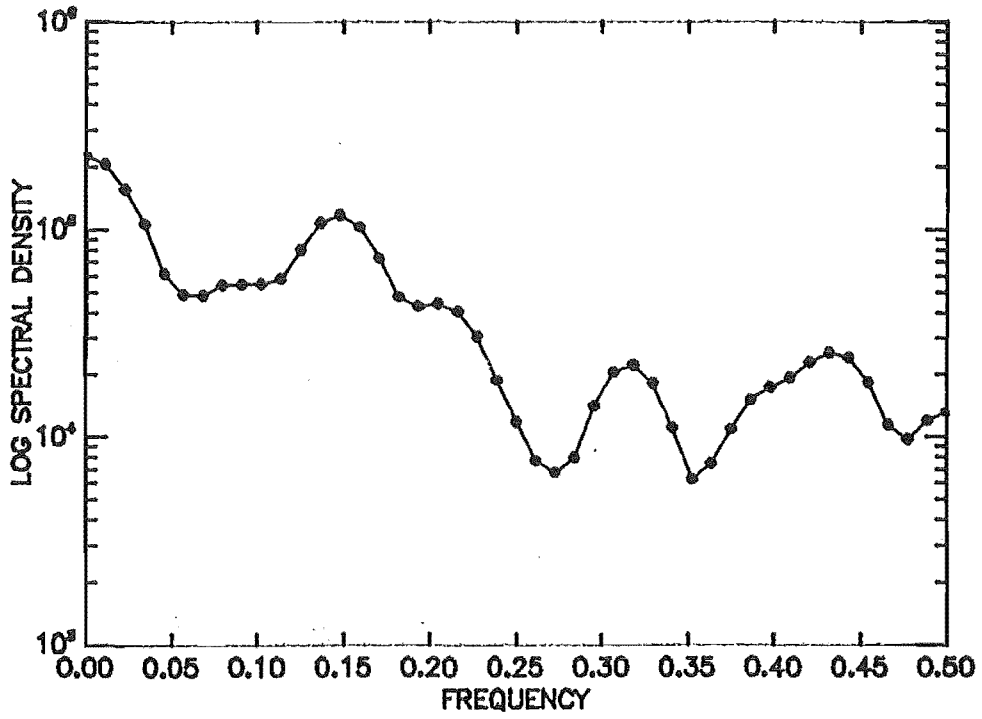
S5,MOOD/MENST



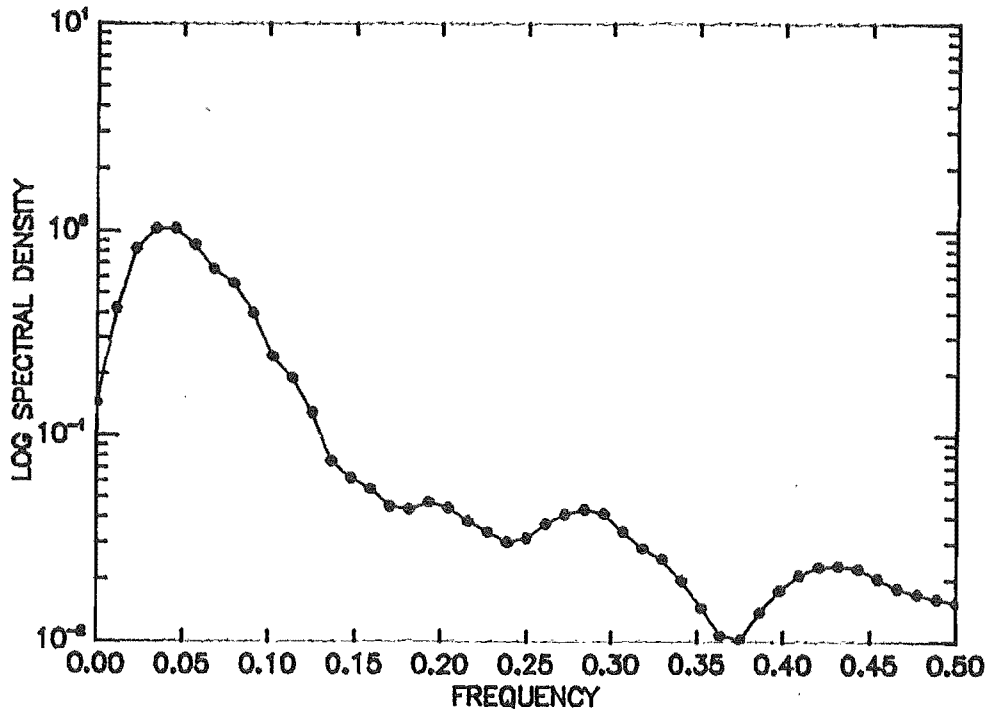
S5,MOOD/MENST



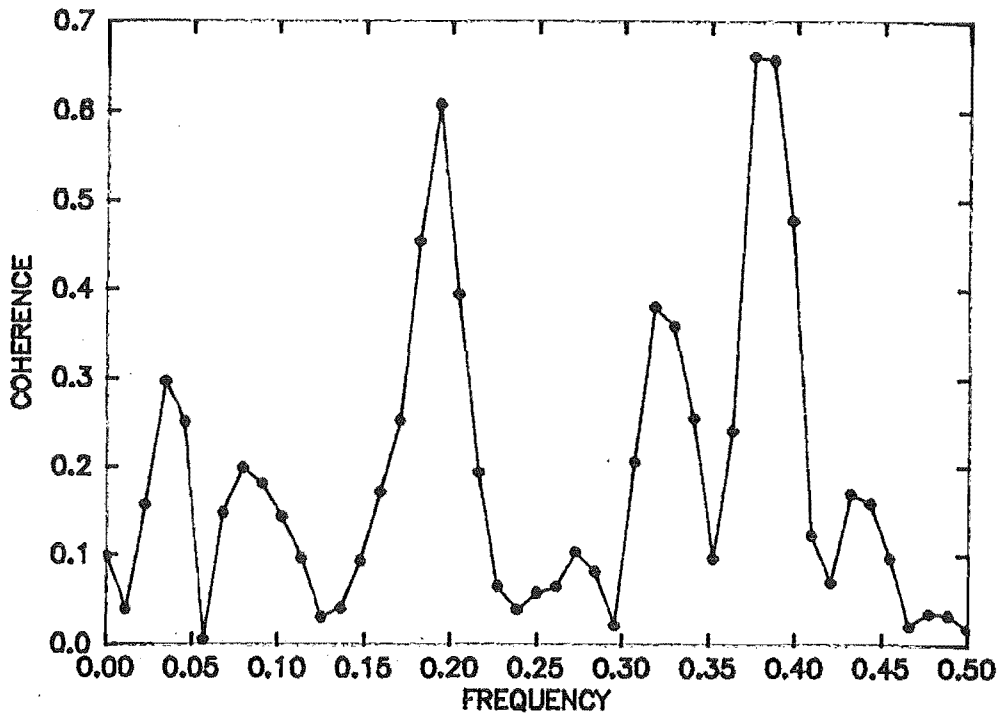
S6,MOOD(SELF)



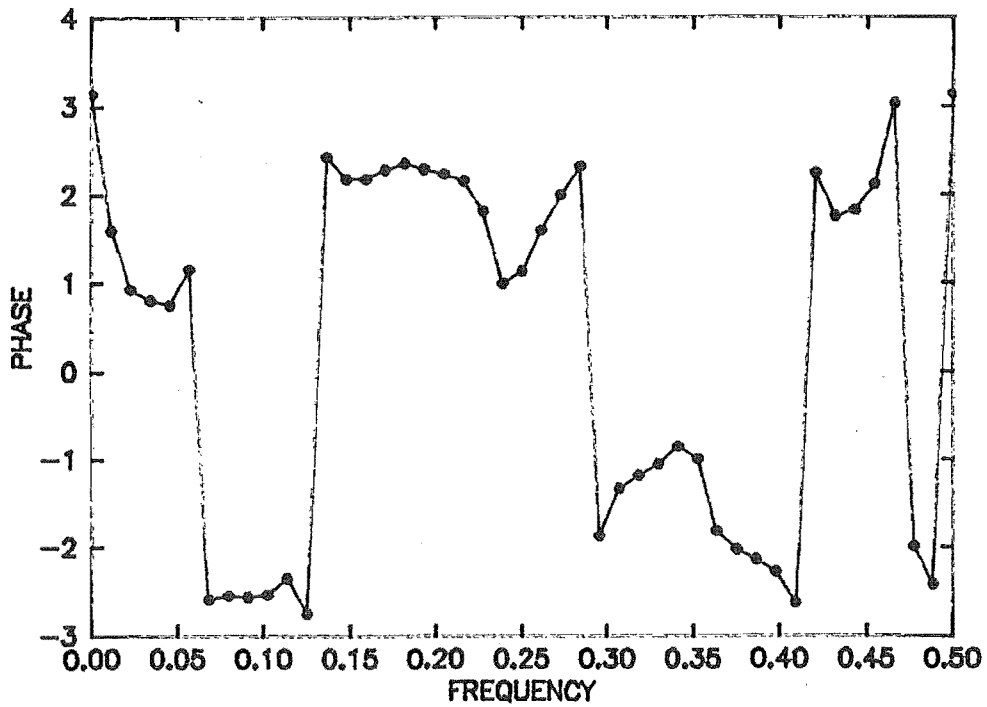
S6,MENST



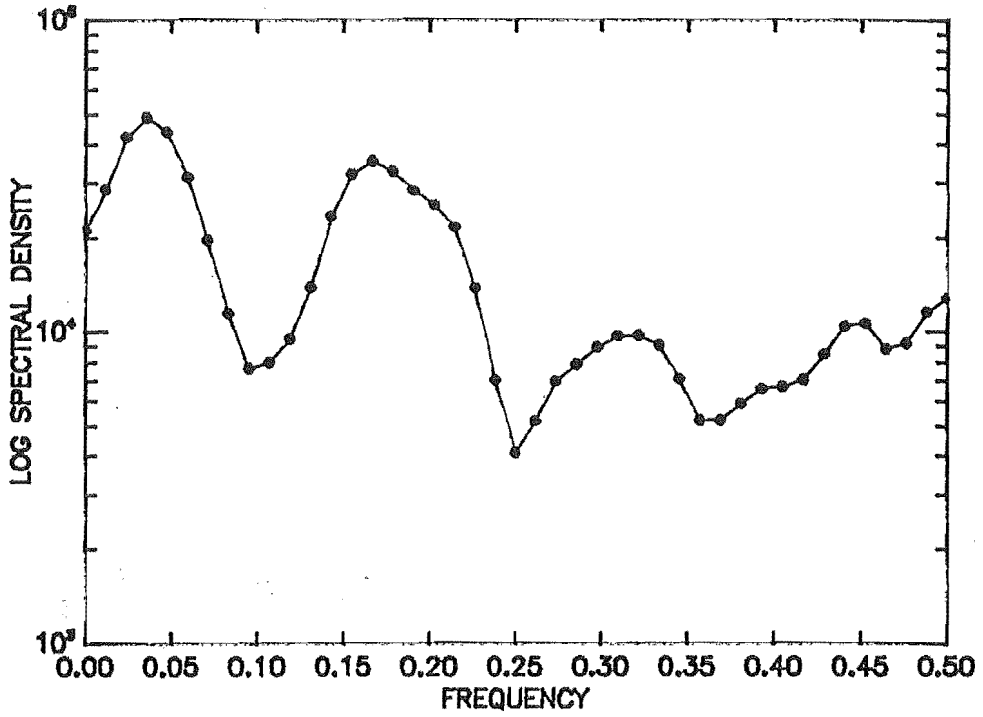
S6,MOOD/MENST



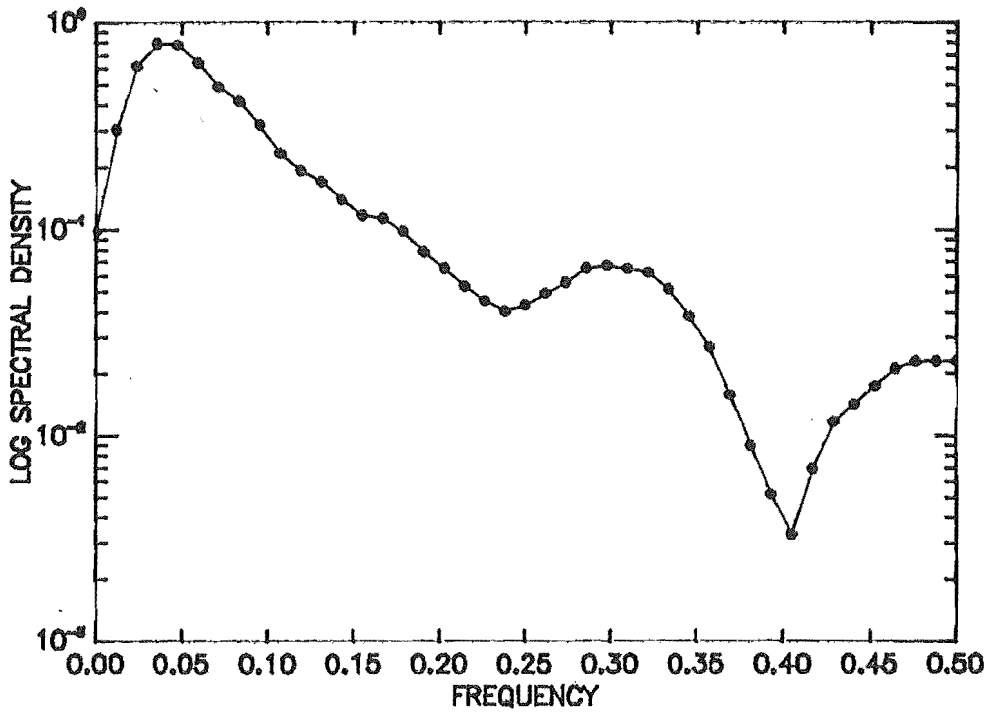
S6,MOOD/MENST



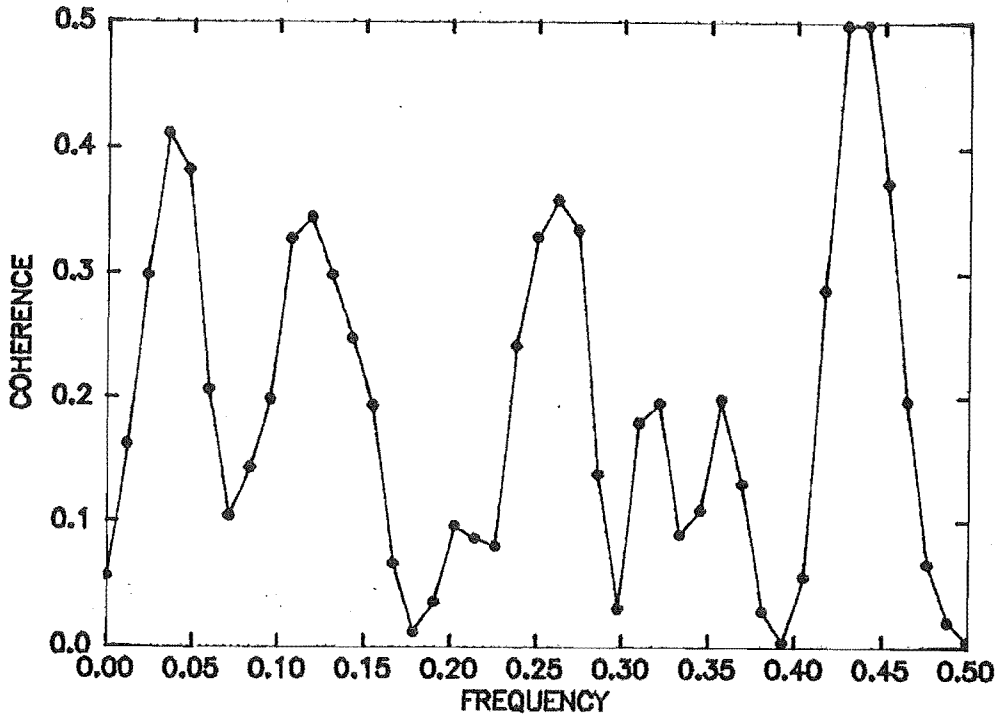
S7,MOOD(SELF)



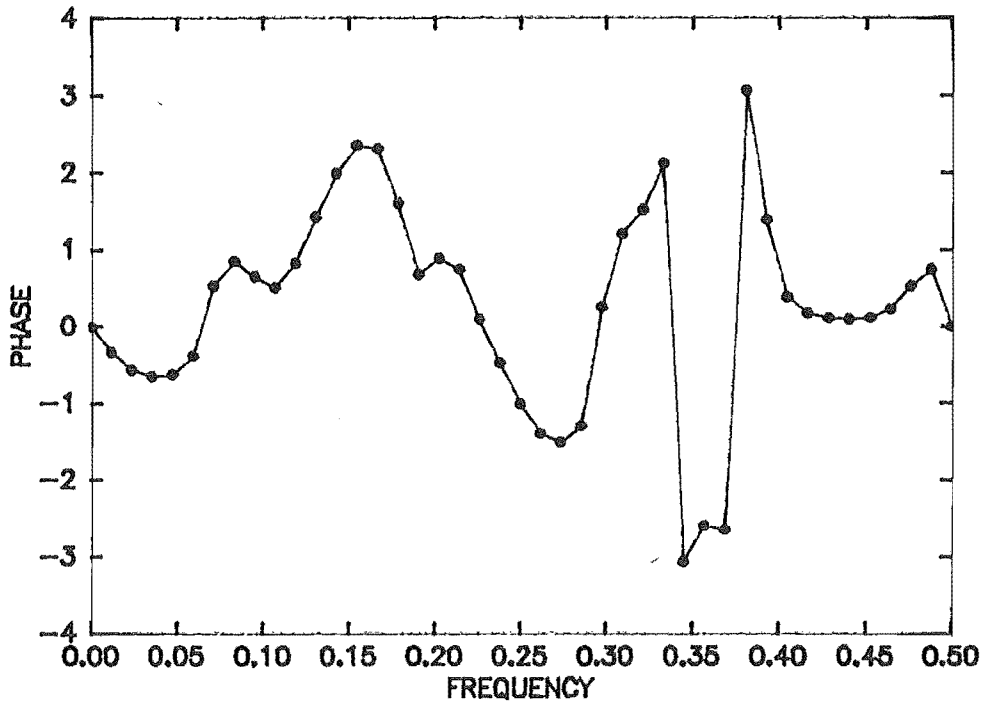
S7,MENST



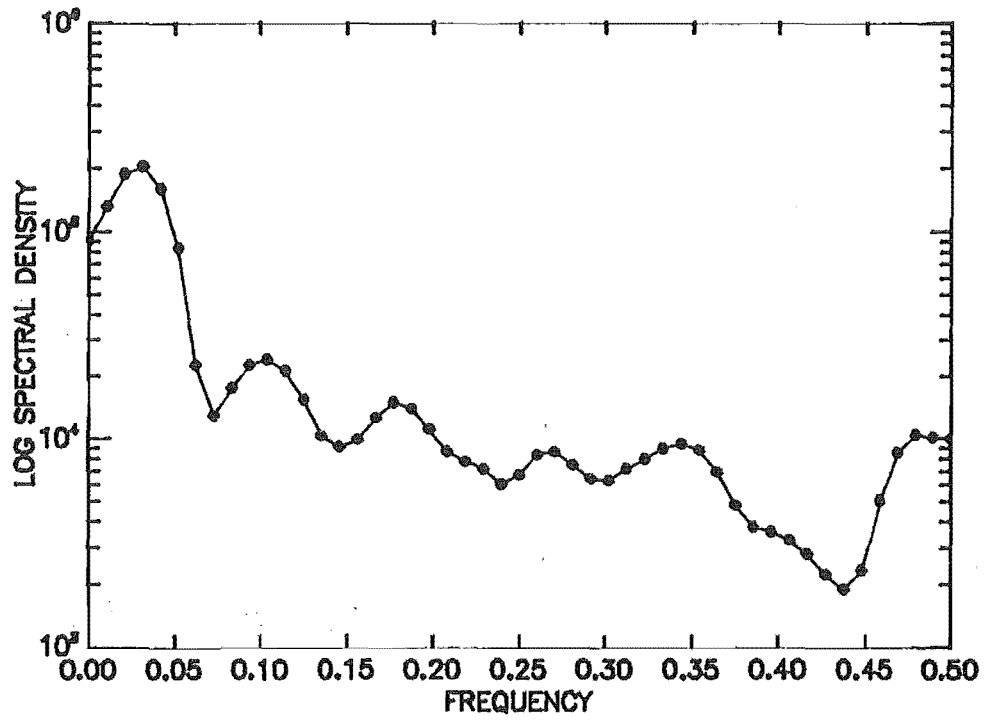
S7,MOOD/MENST



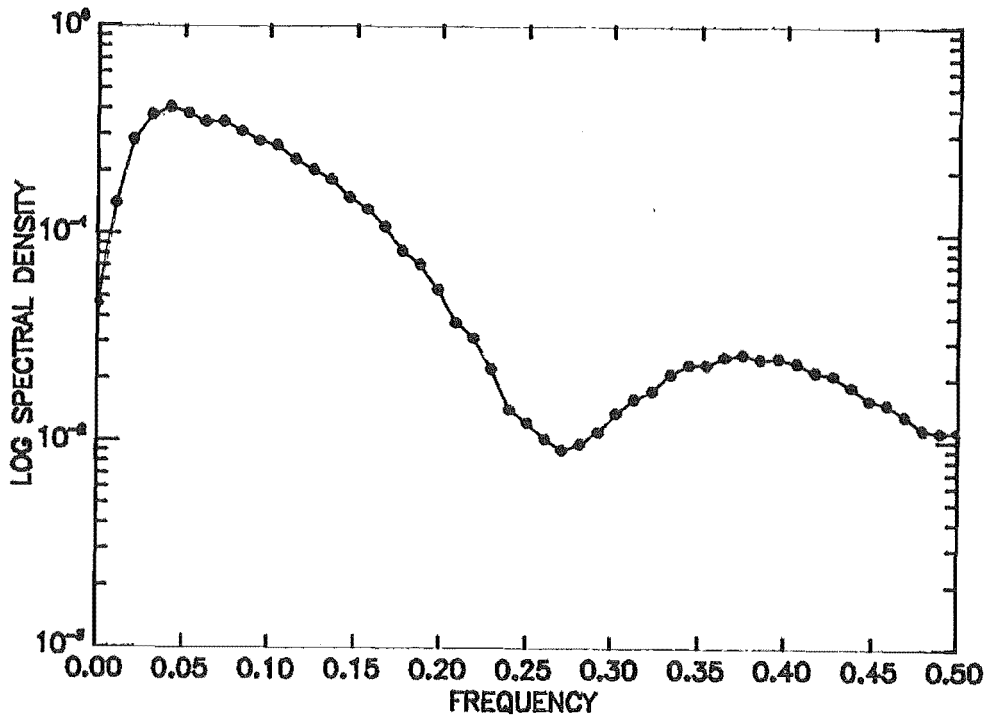
S7,MOOD/MENST



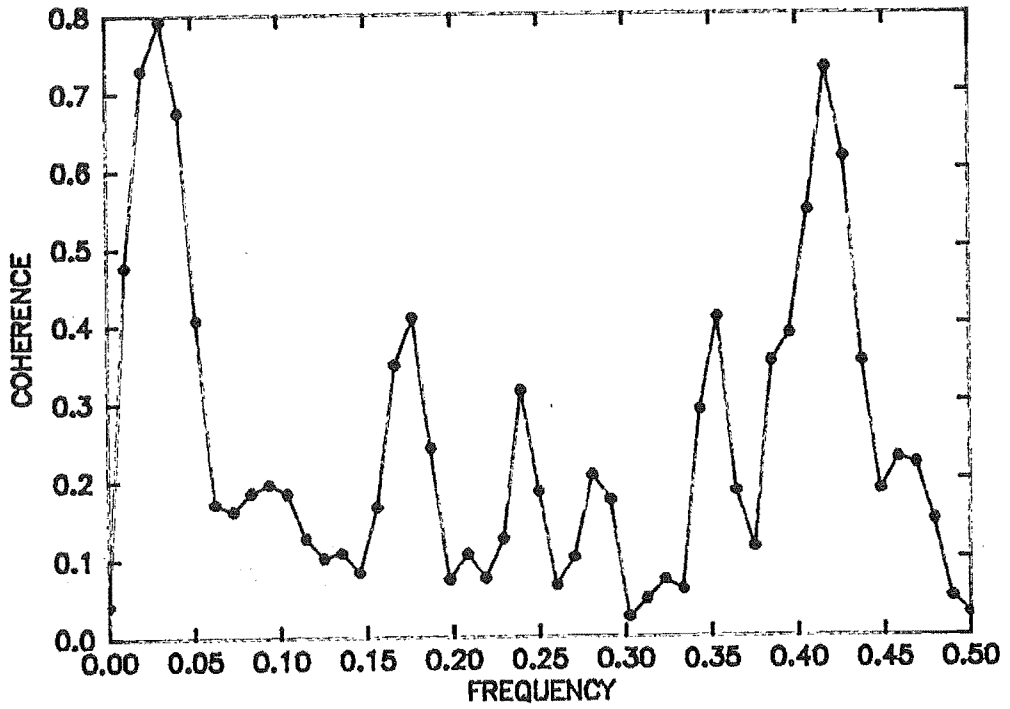
S8,MOOD(SELF)



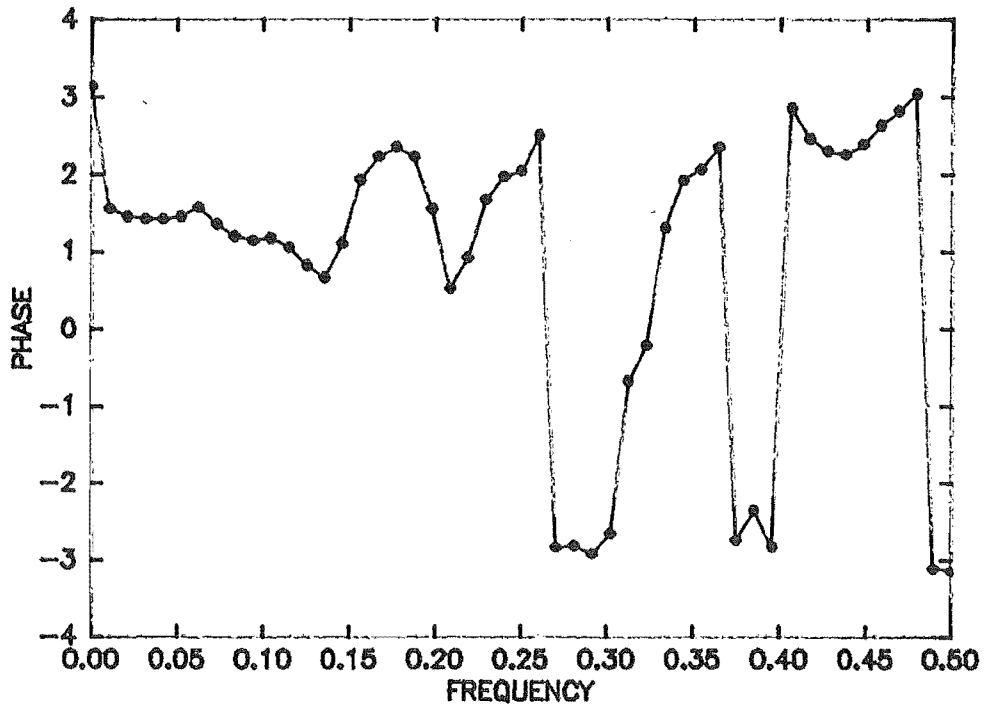
S8,MENST



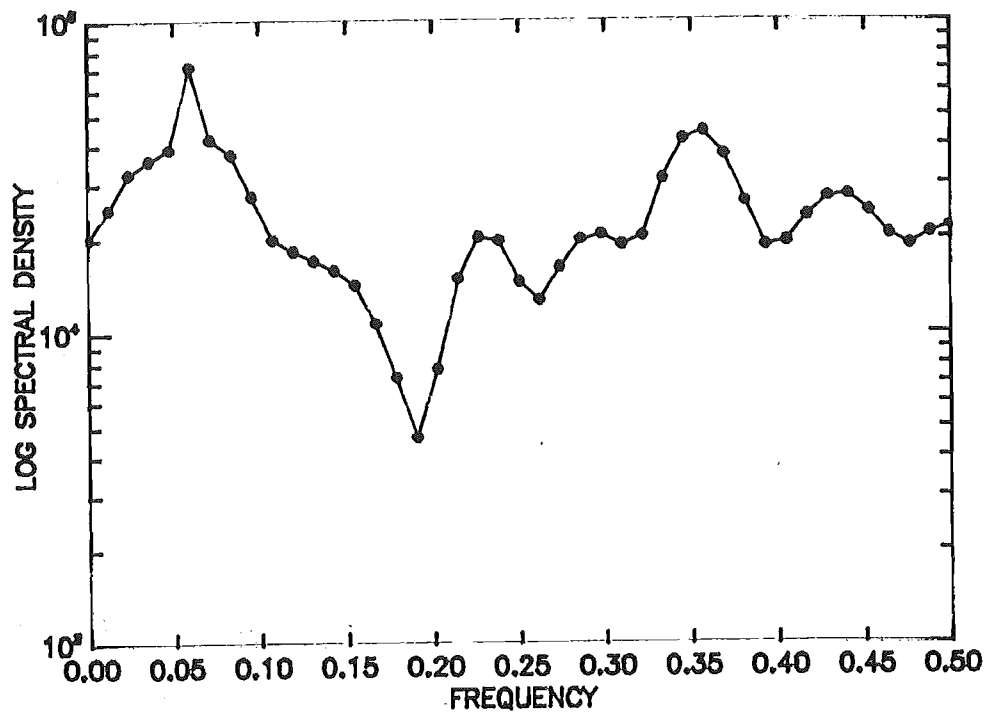
S8,MOOD/MENST



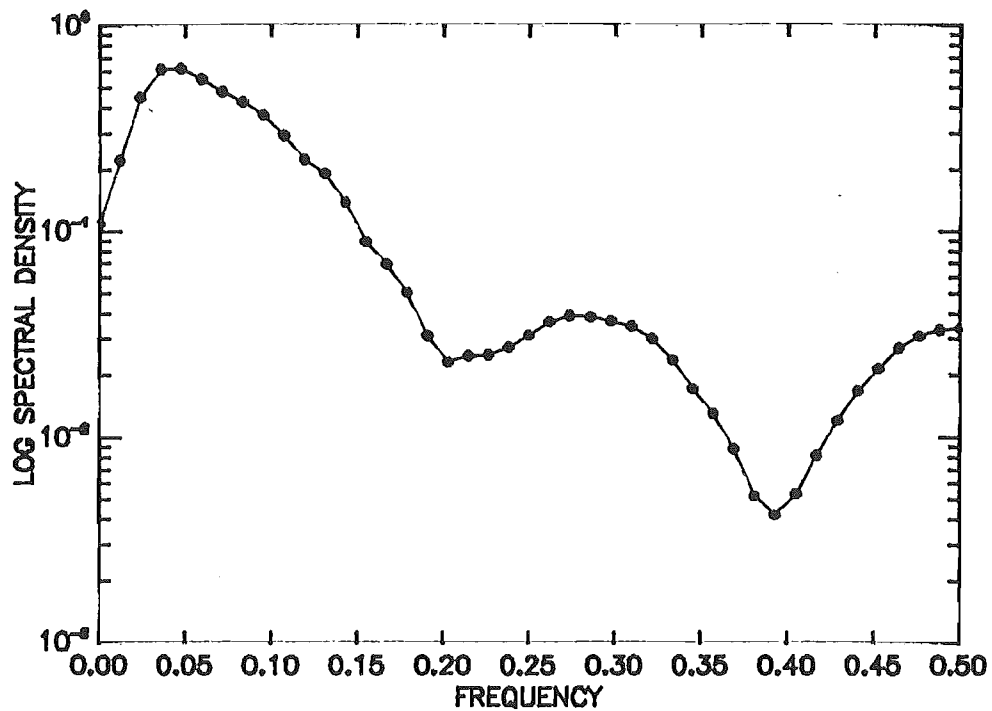
S8,MOOD/MENST



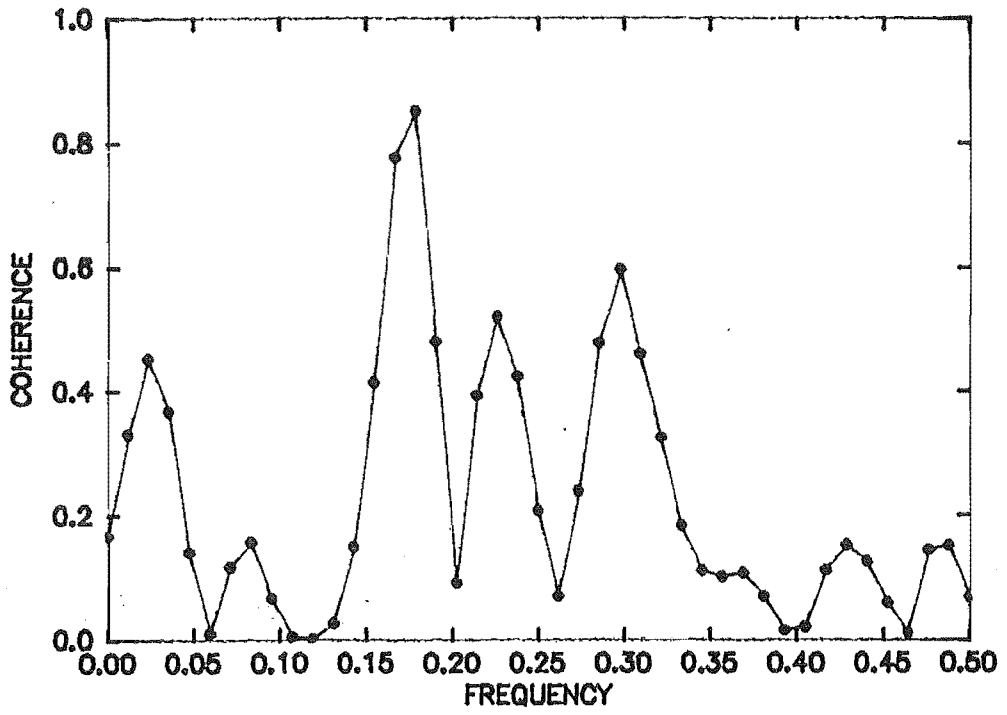
S9,MOOD(SELF)



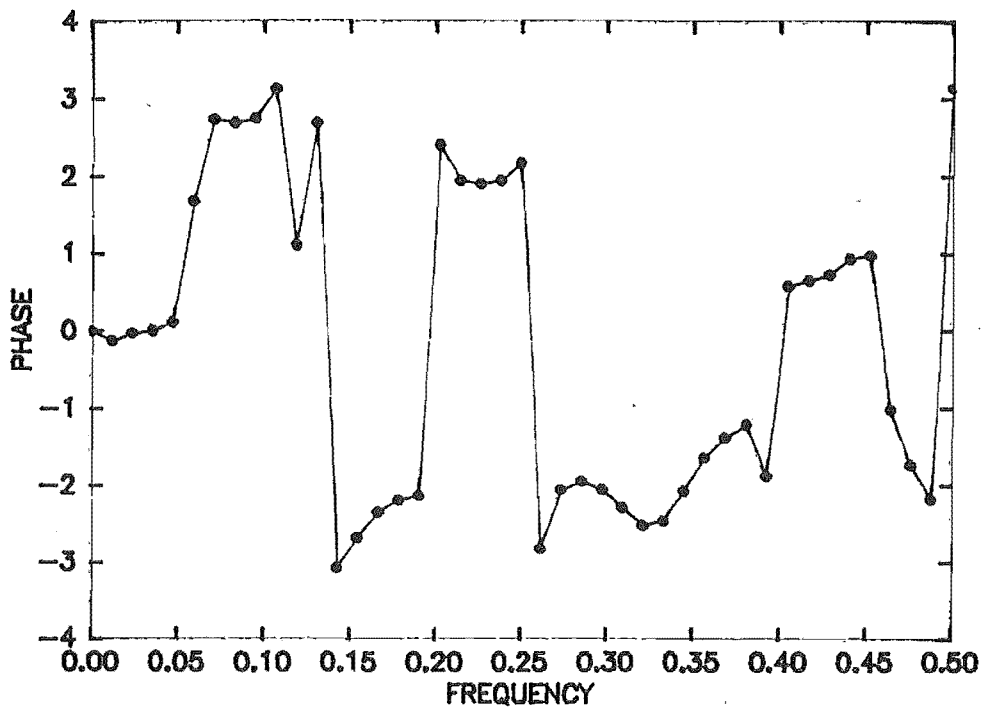
S9,MENST



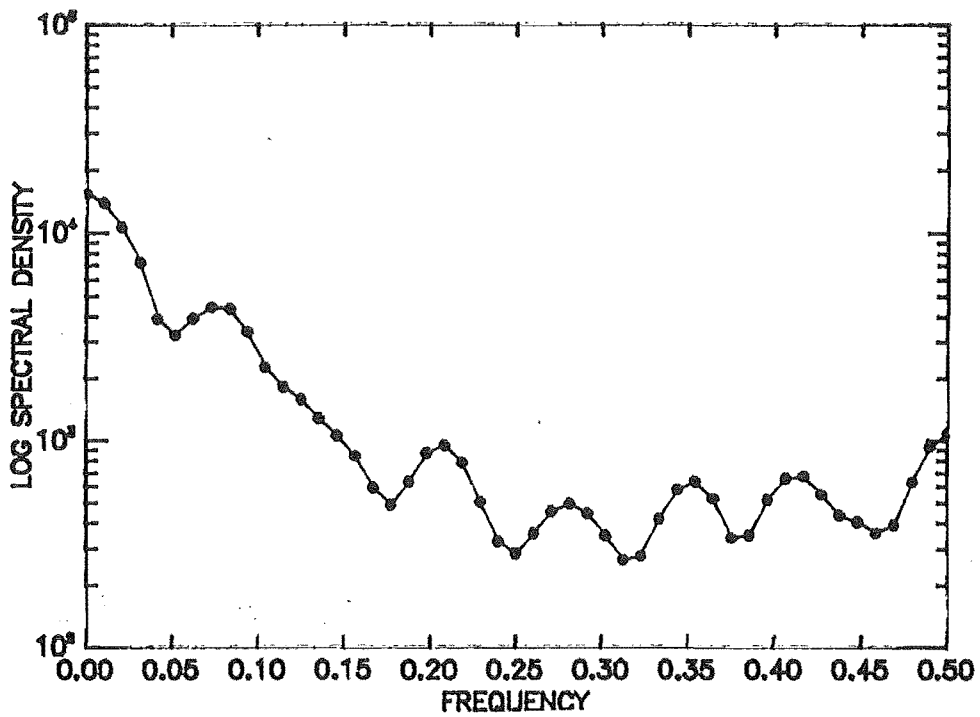
S9,MOOD/MENST



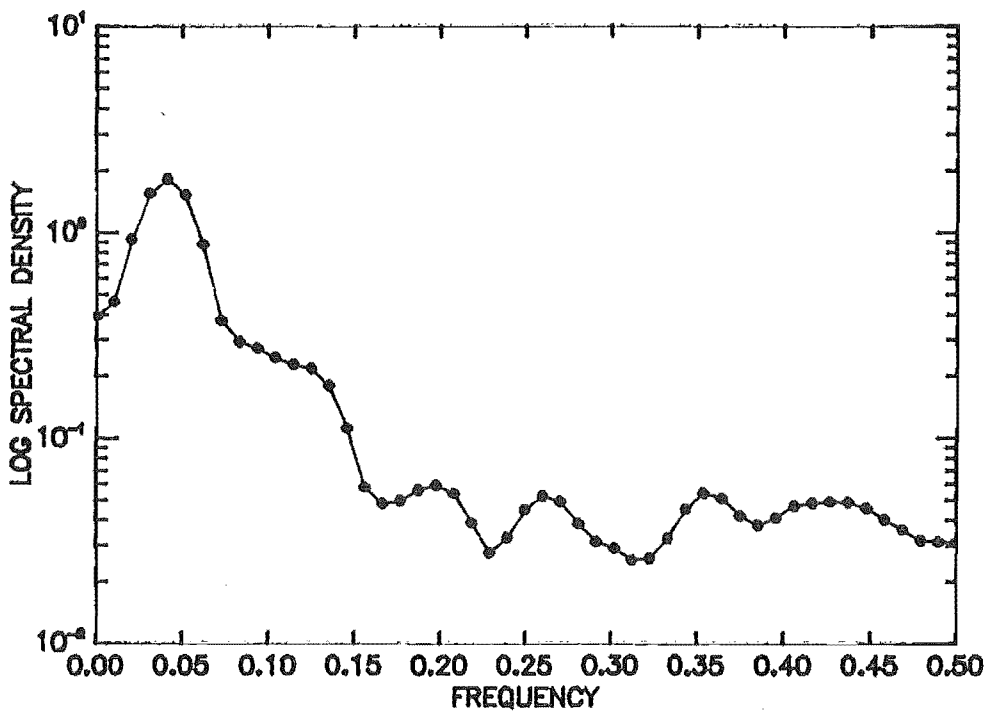
S9,MOOD/MENST



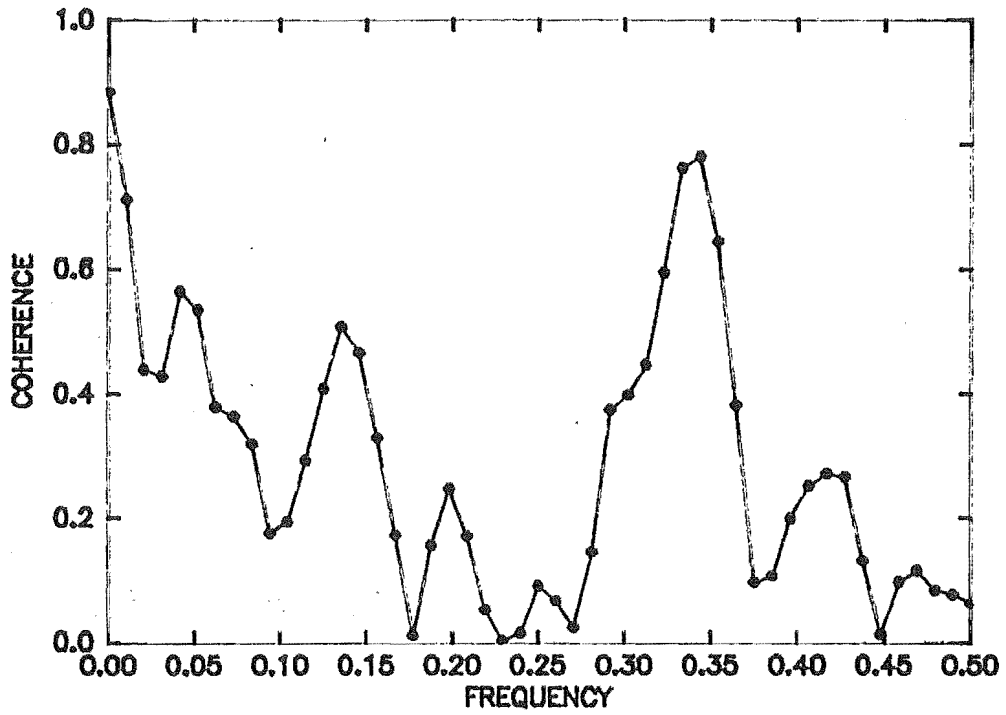
S10,MOOD(SELF)



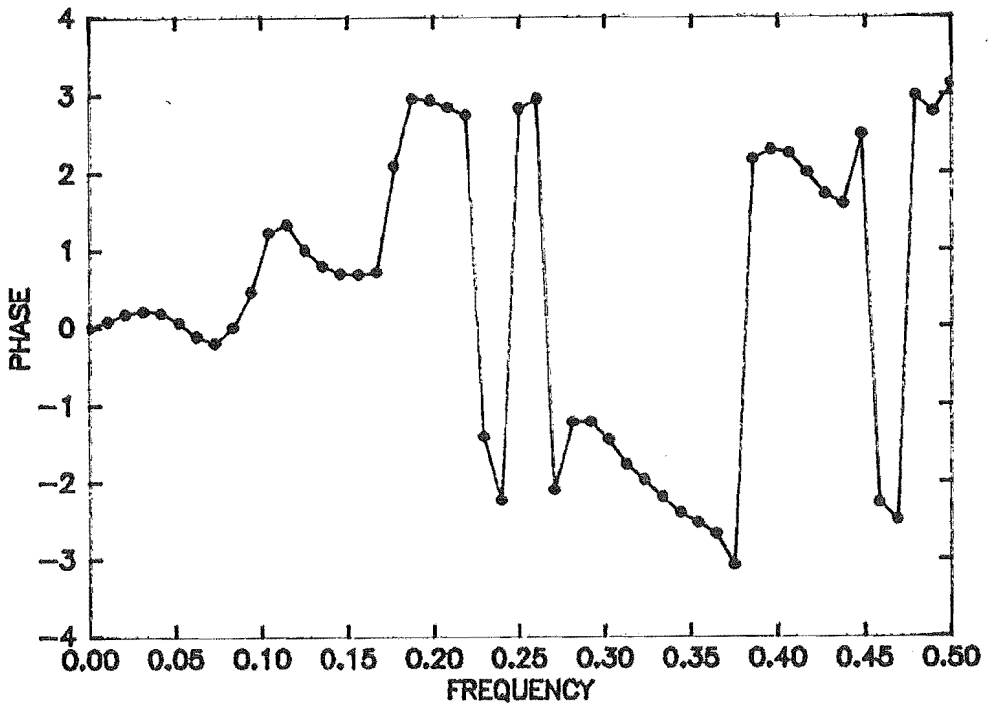
S10,MENST



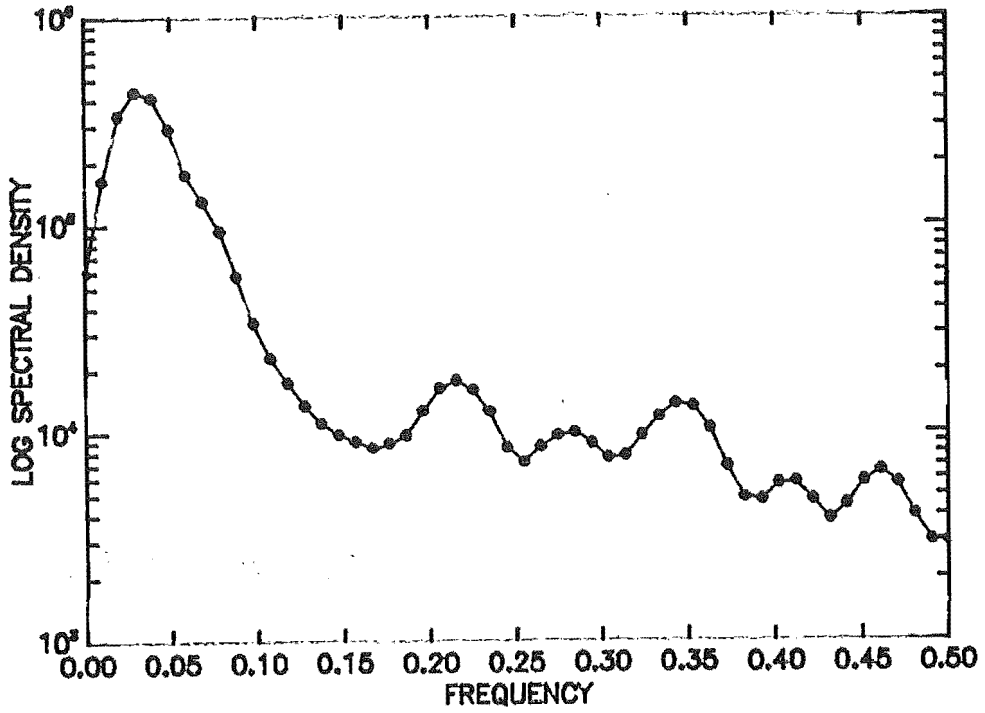
S10,MOOD/MENST



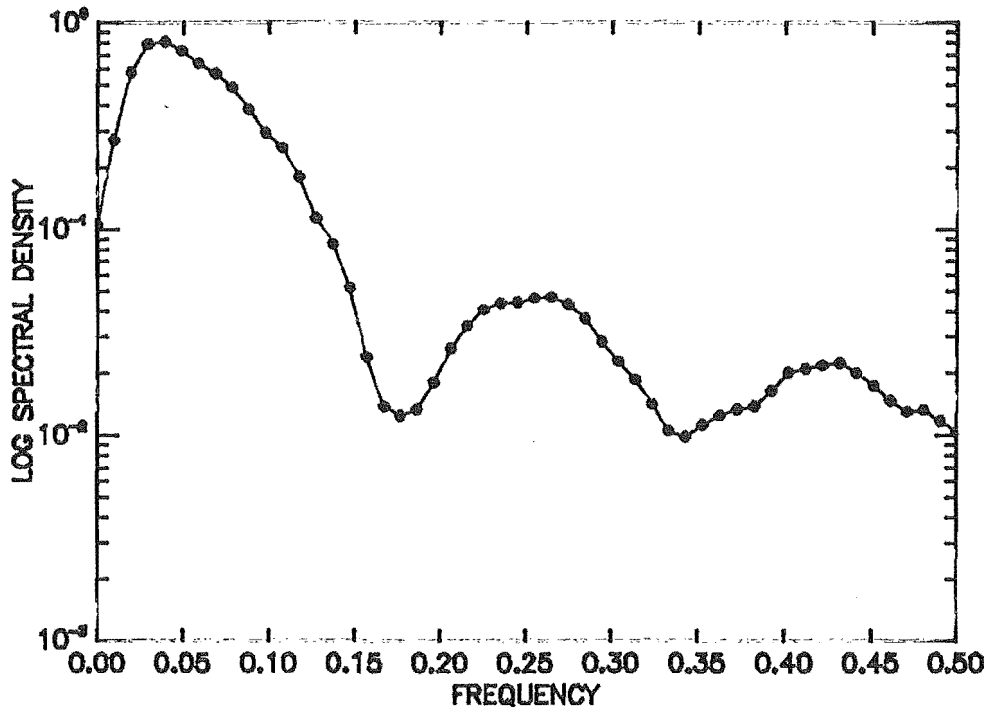
S10,MOOD/MENST



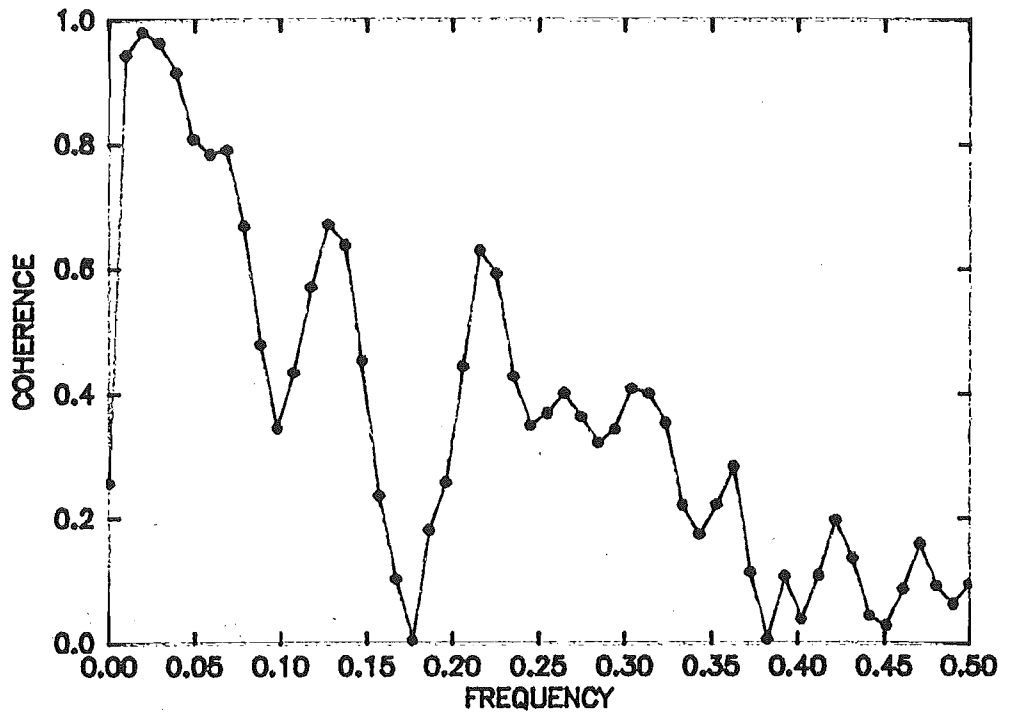
S12,MOOD(SELF)



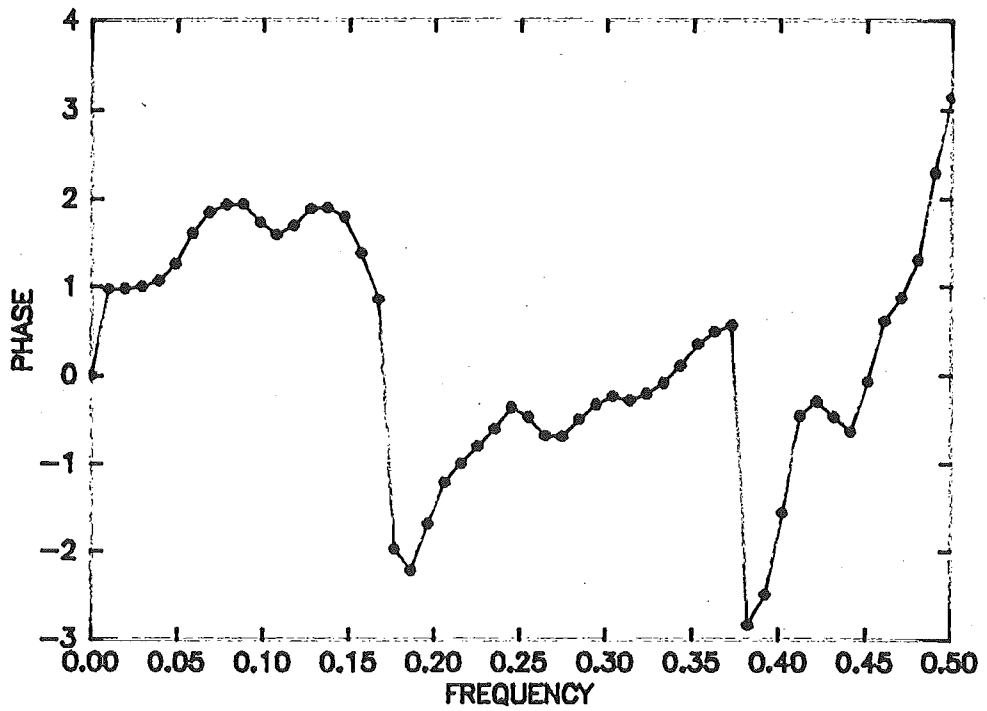
S12,MENST



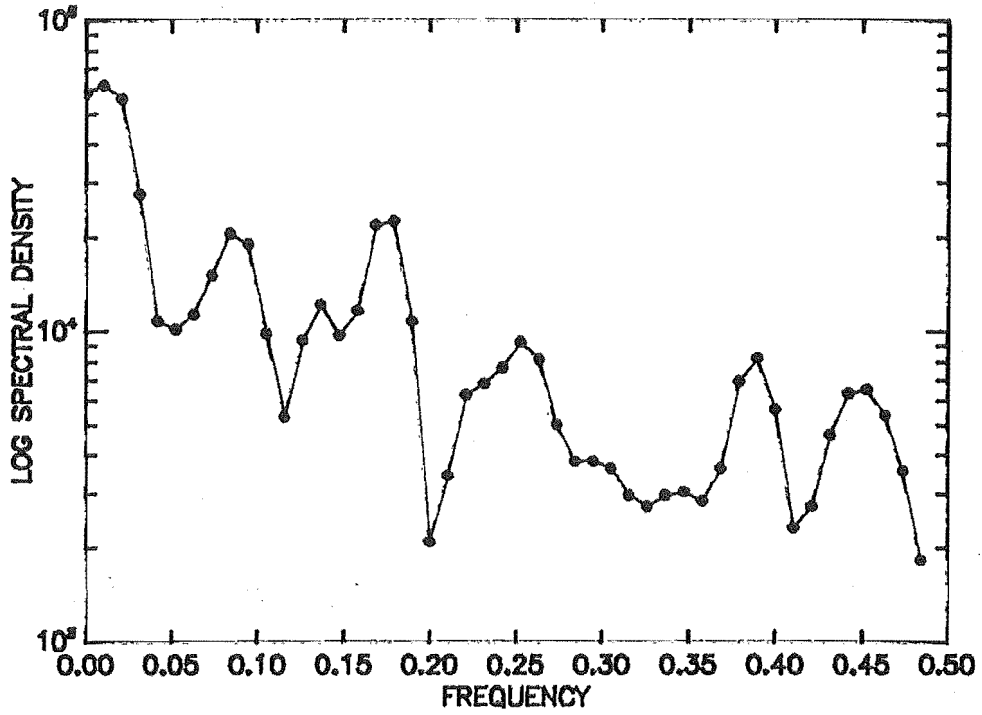
S12,MOOD/MENST



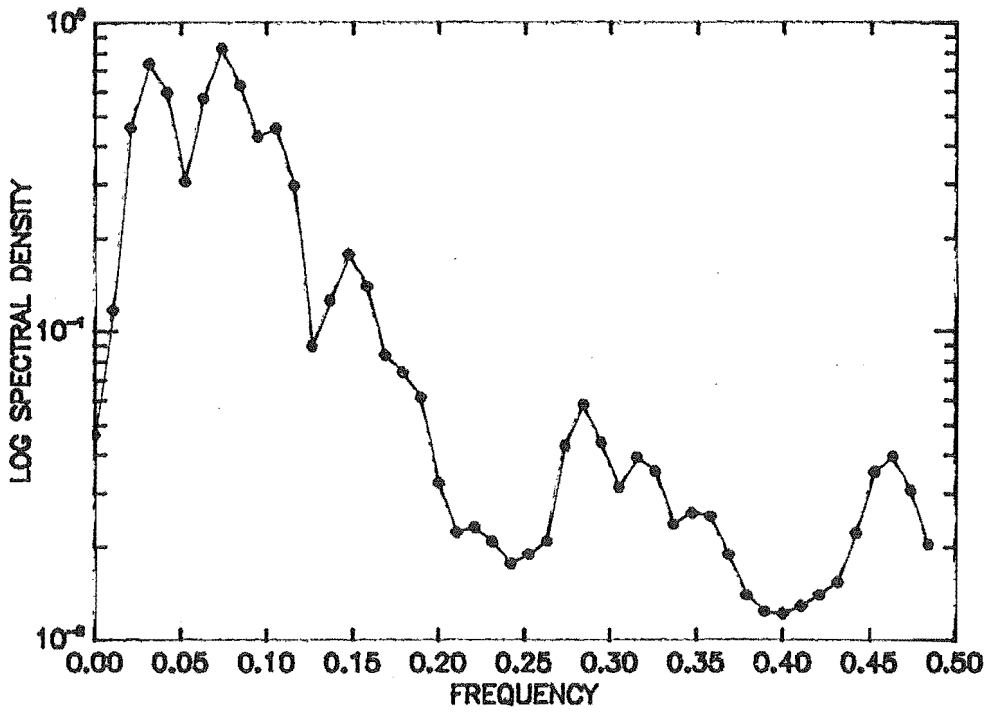
S12,MOOD/MENST



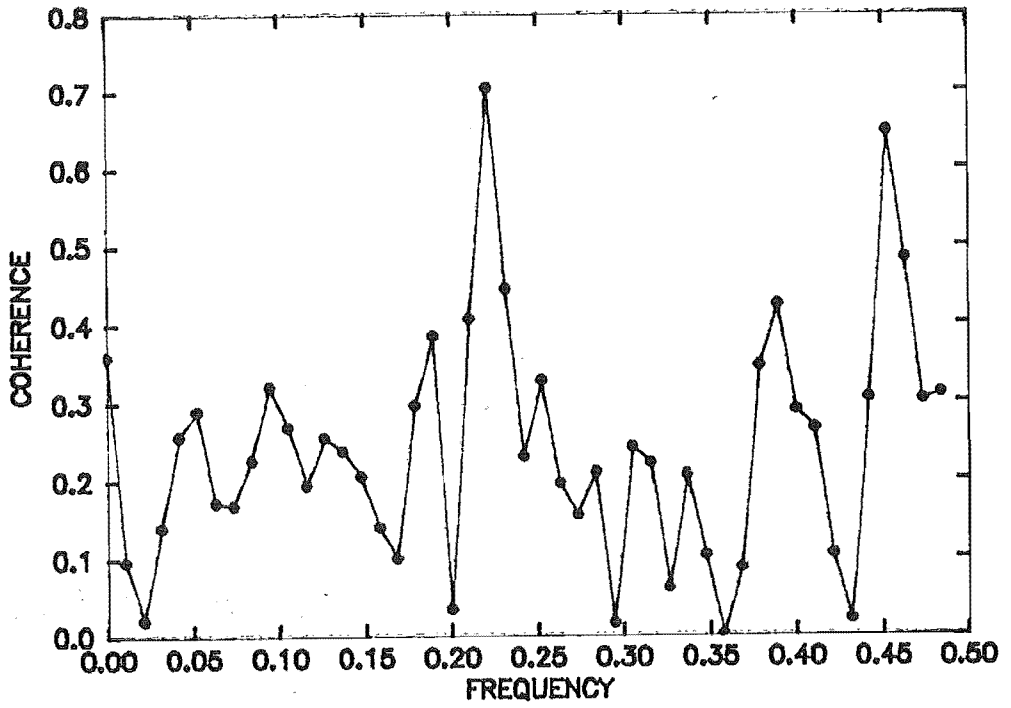
S13,MOOD(SELF)



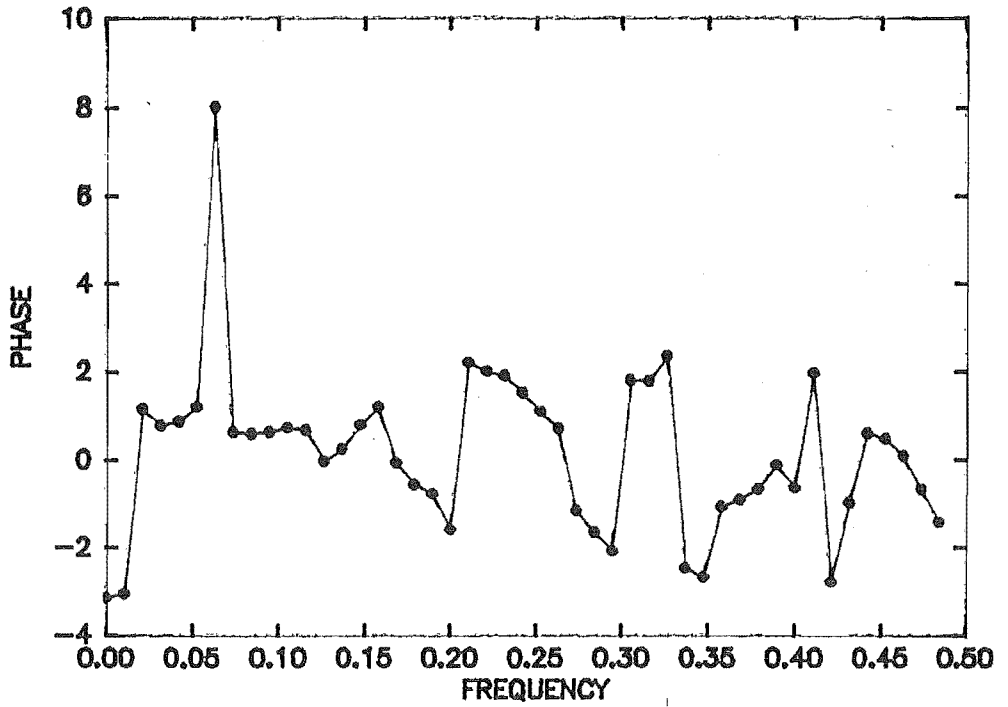
S13,MENST



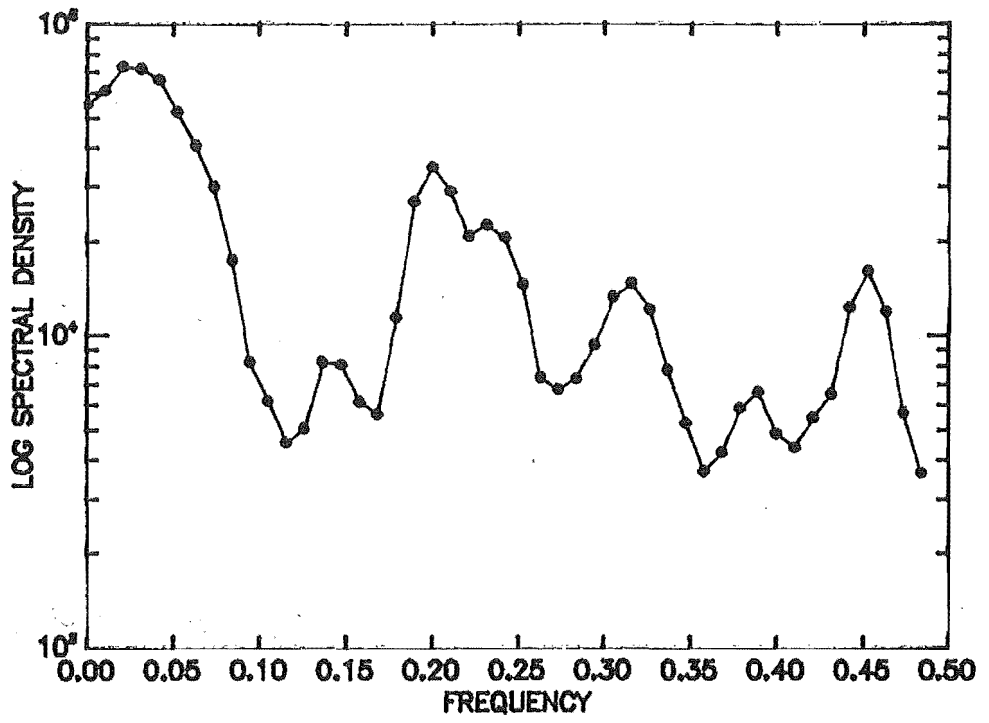
S13,MOOD/MENST



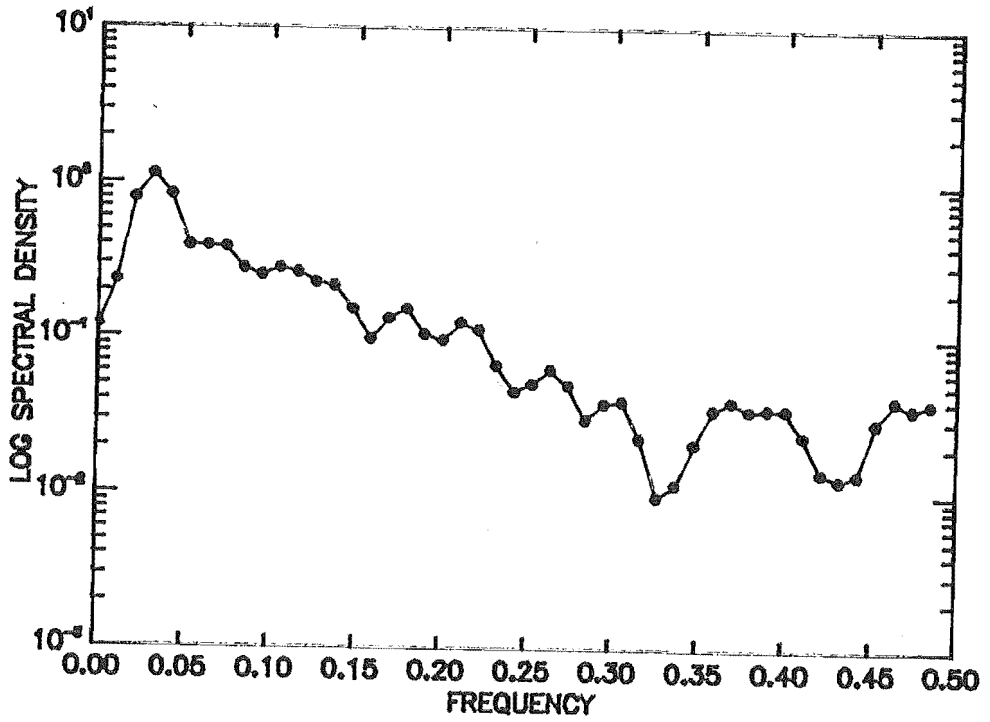
S13,MOOD/MENST



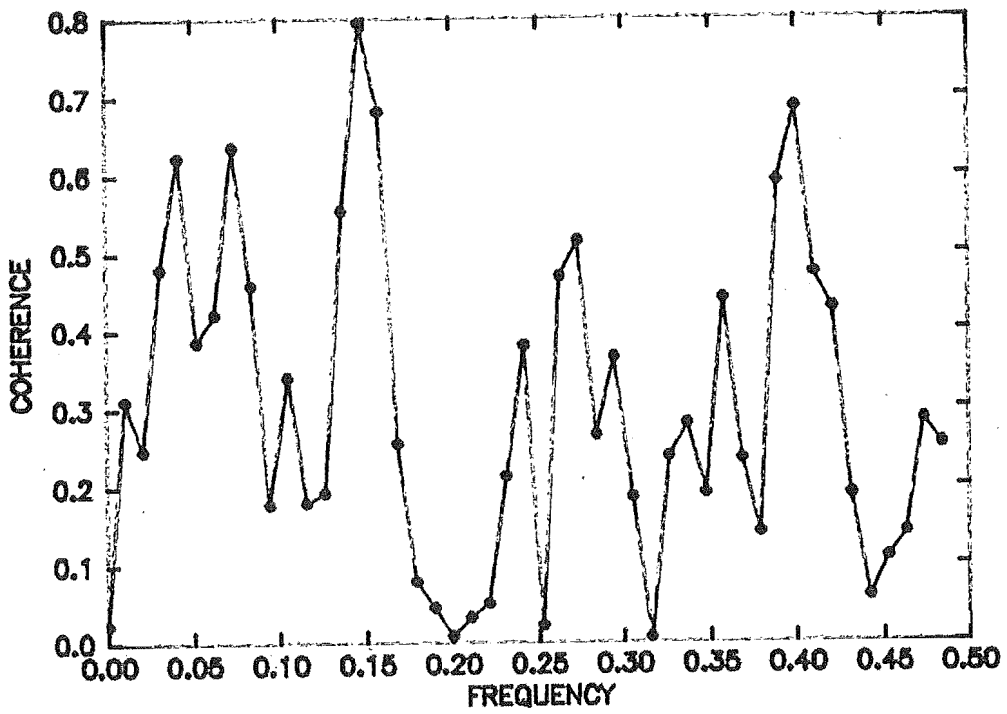
S14,MOOD(SELF)



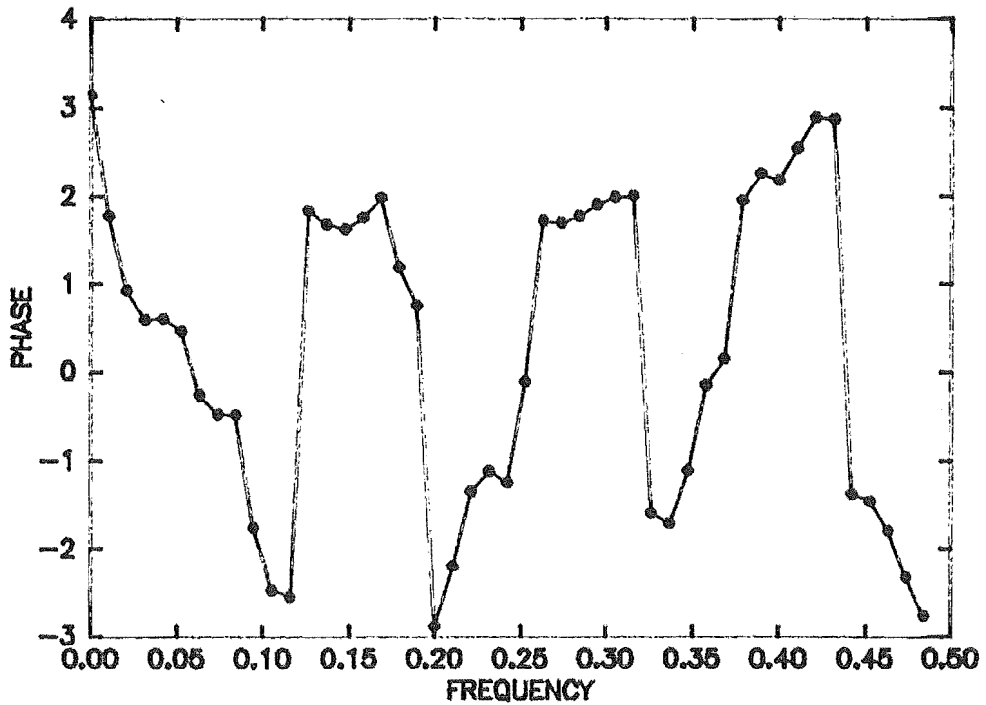
S14,MENST



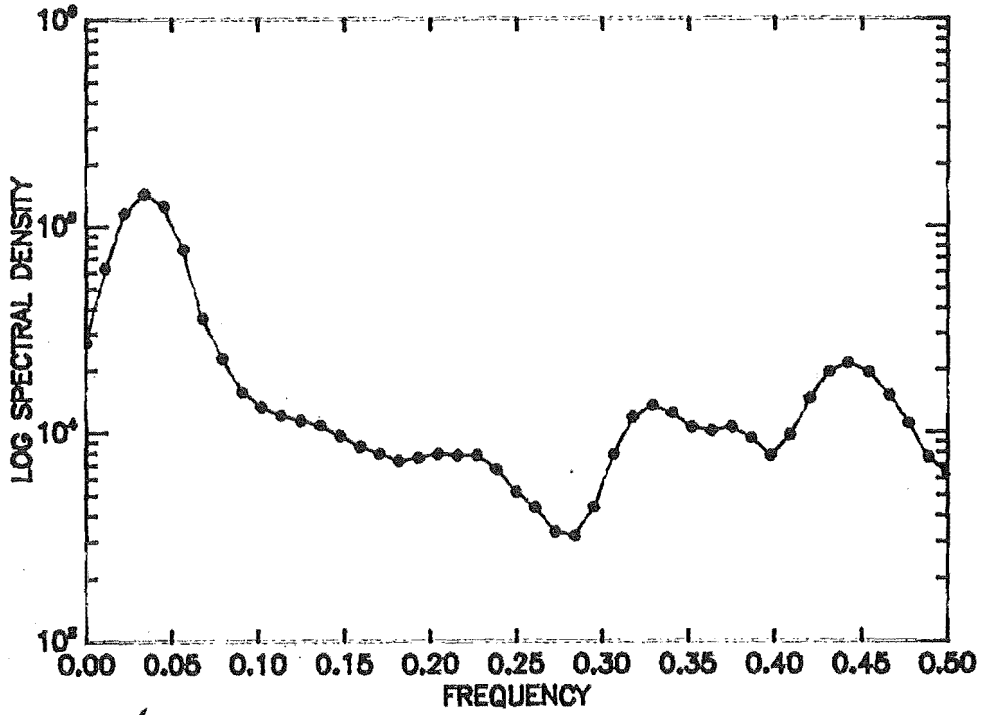
S14,MOOD/MENST



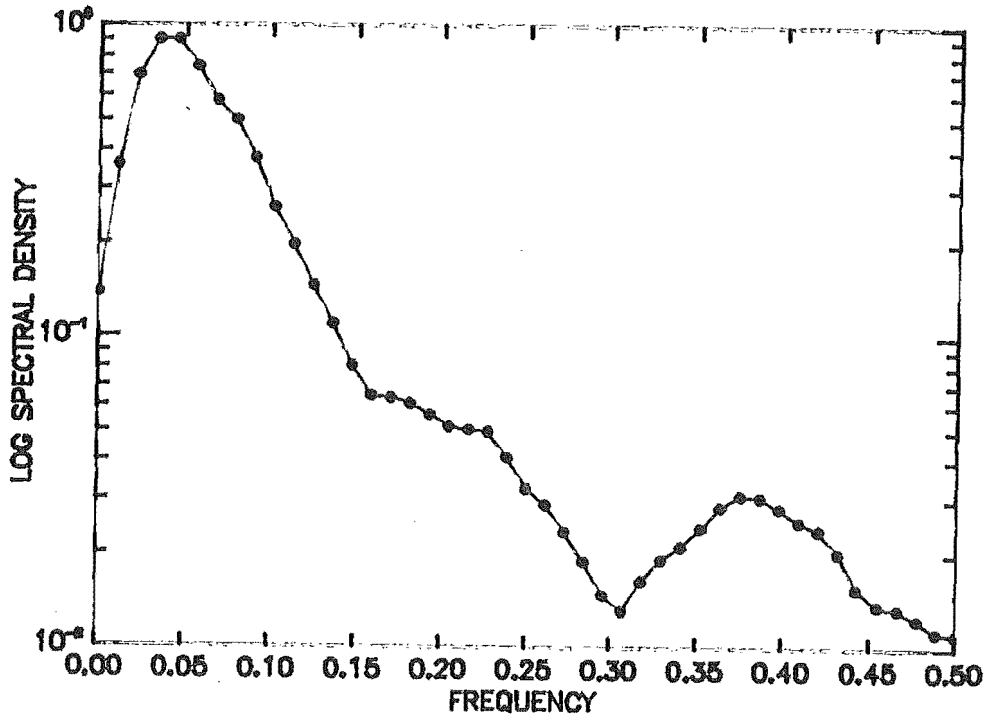
S14,MOOD/MENST



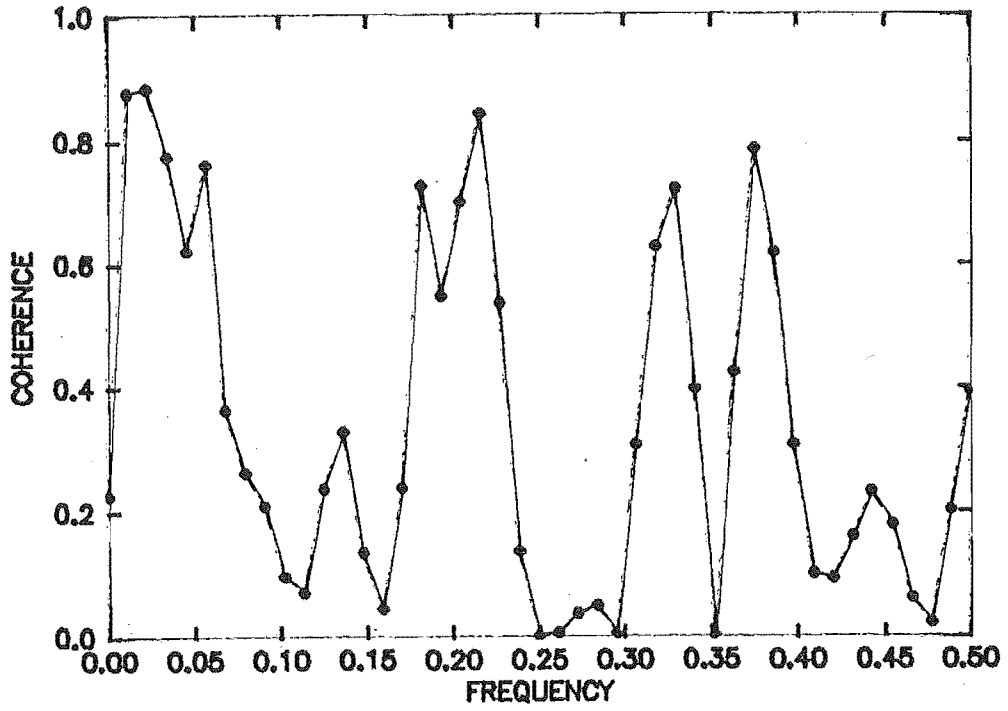
S15,MOOD(SELF)



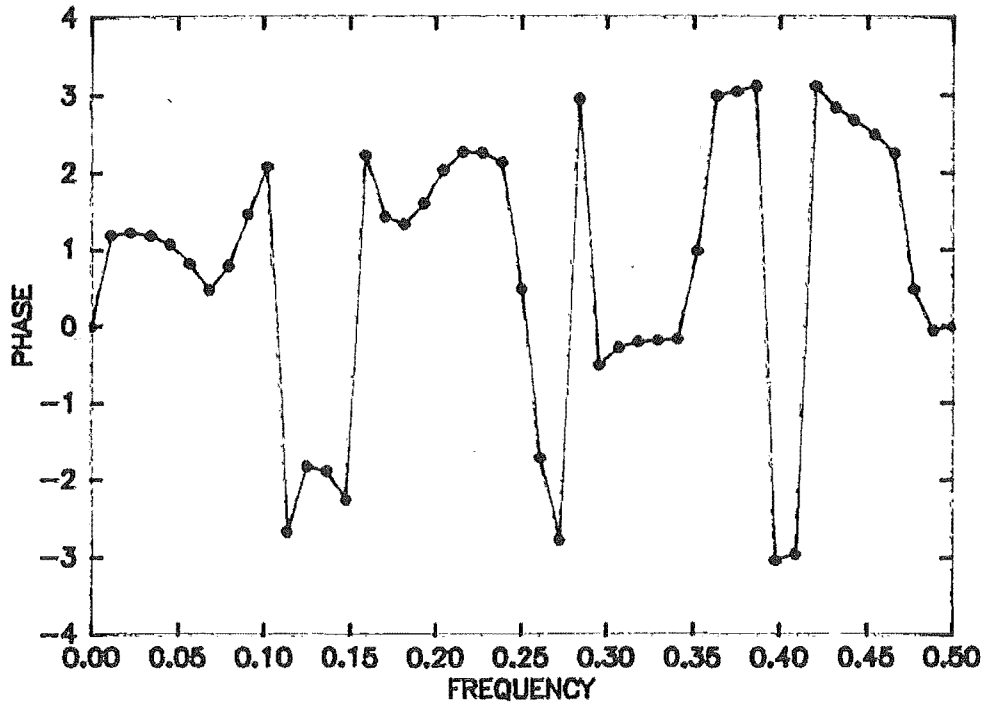
S15,MENST



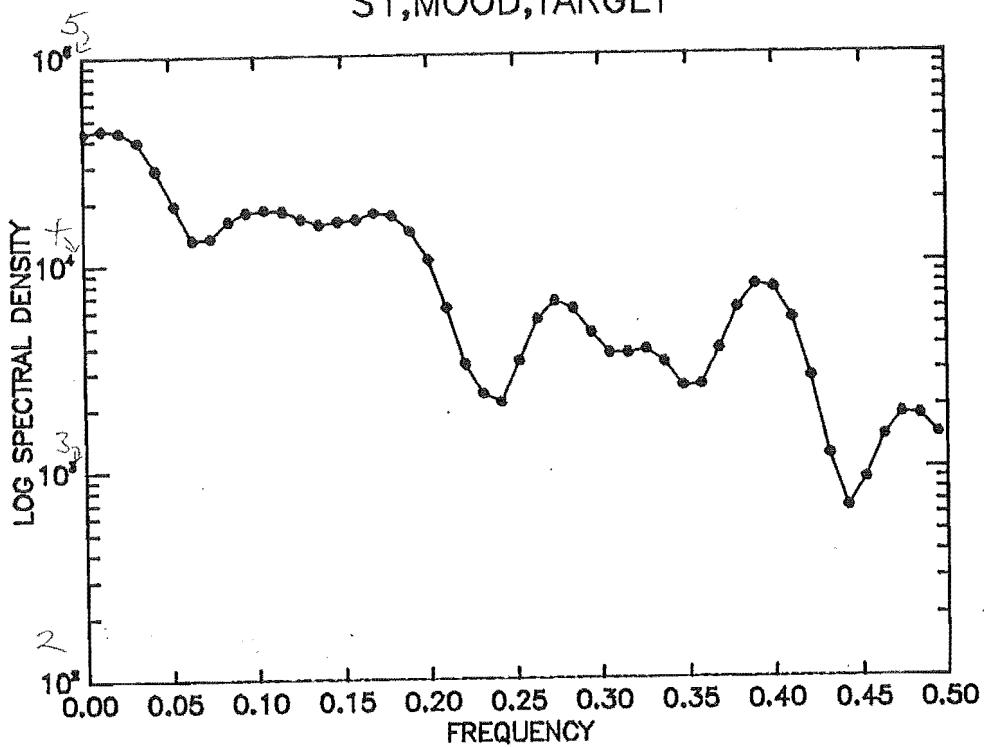
S15,MOOD/MENST



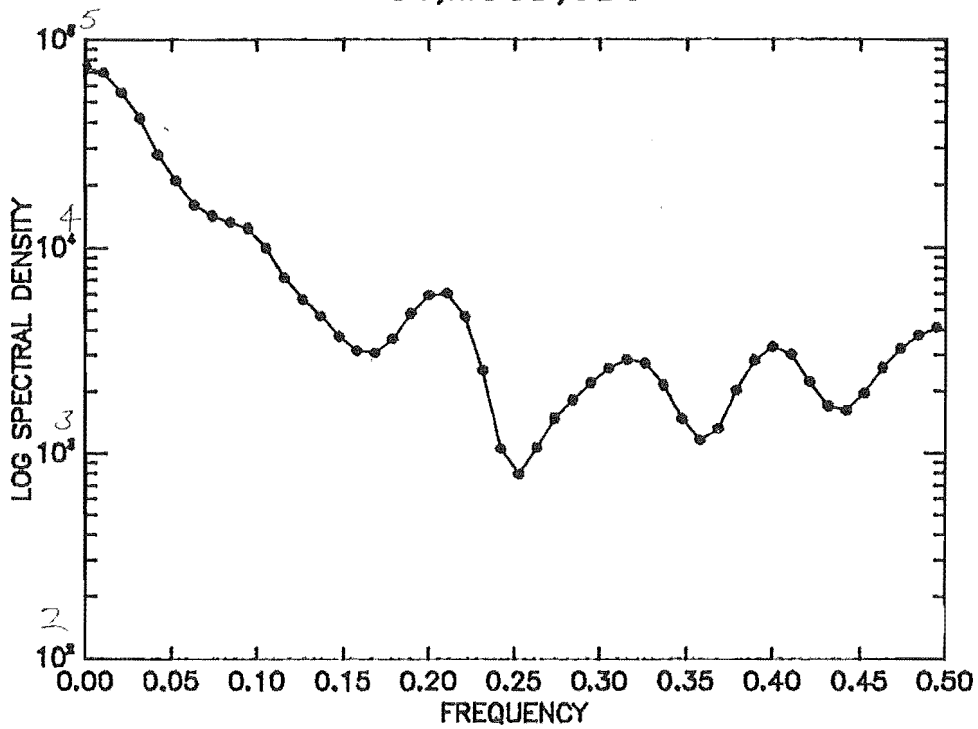
S15,MOOD/MENST



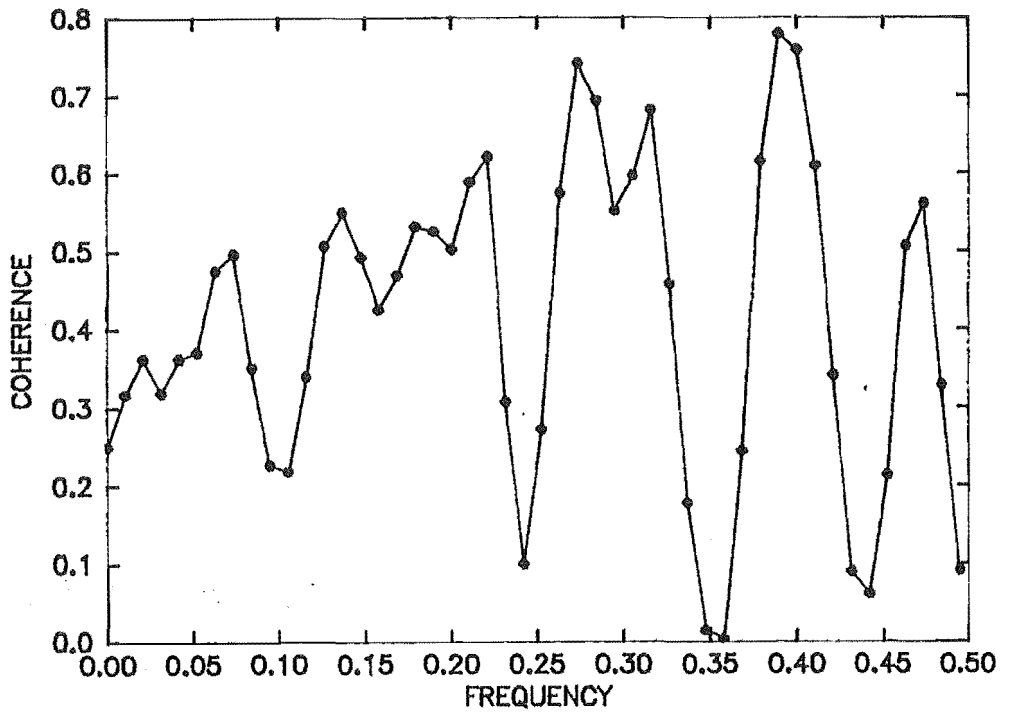
S1,MOOD,TARGET



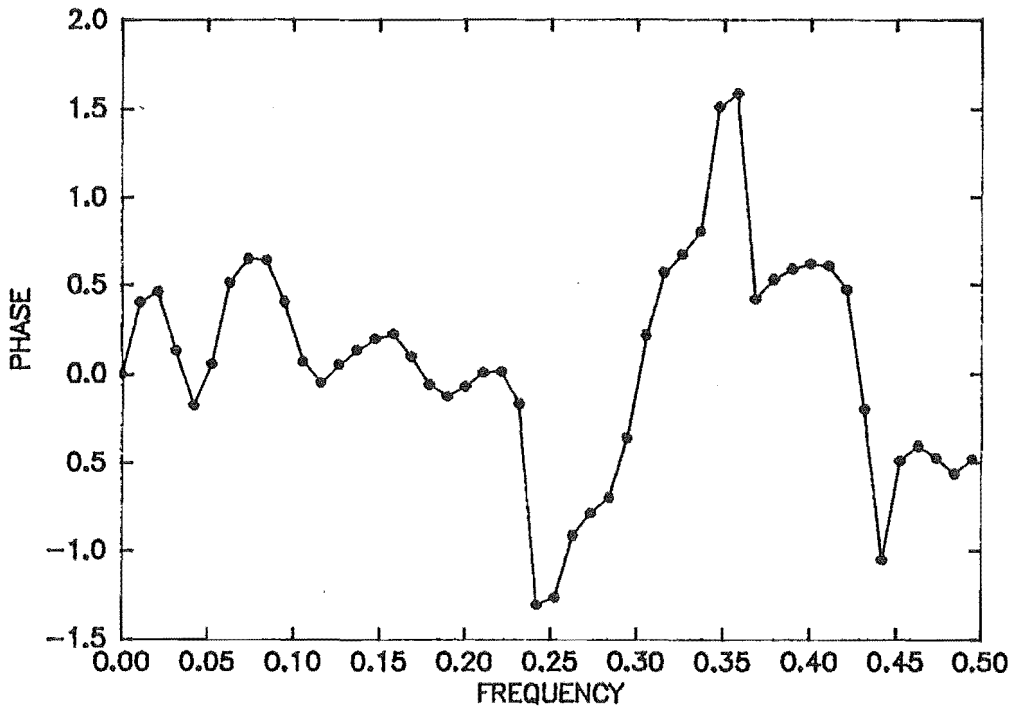
S1,MOOD,OBS



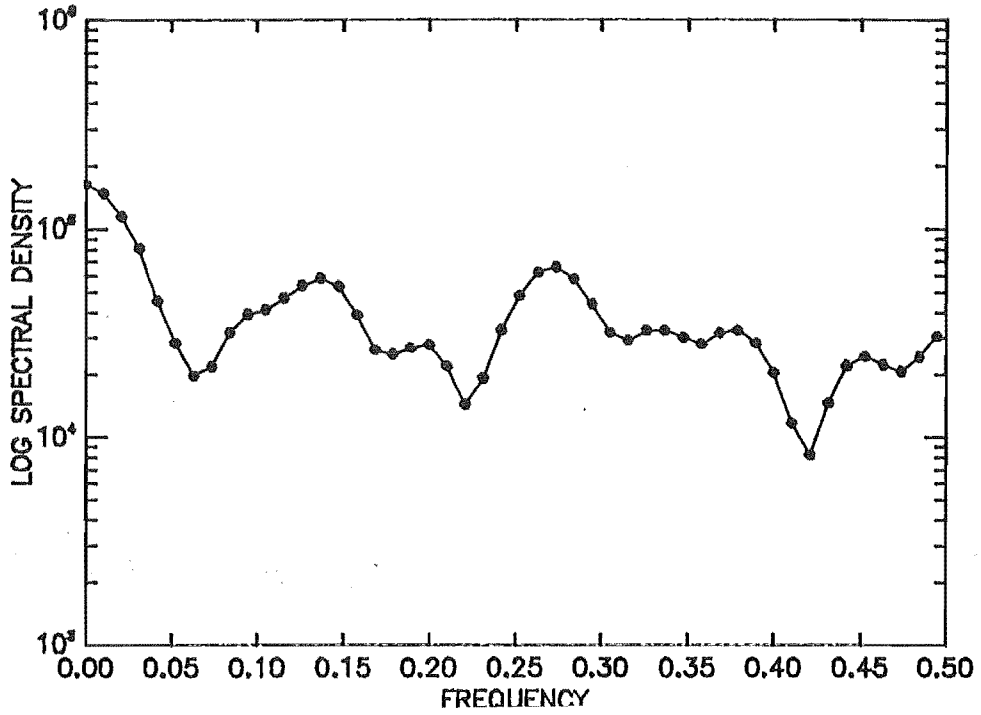
S1,MOOD



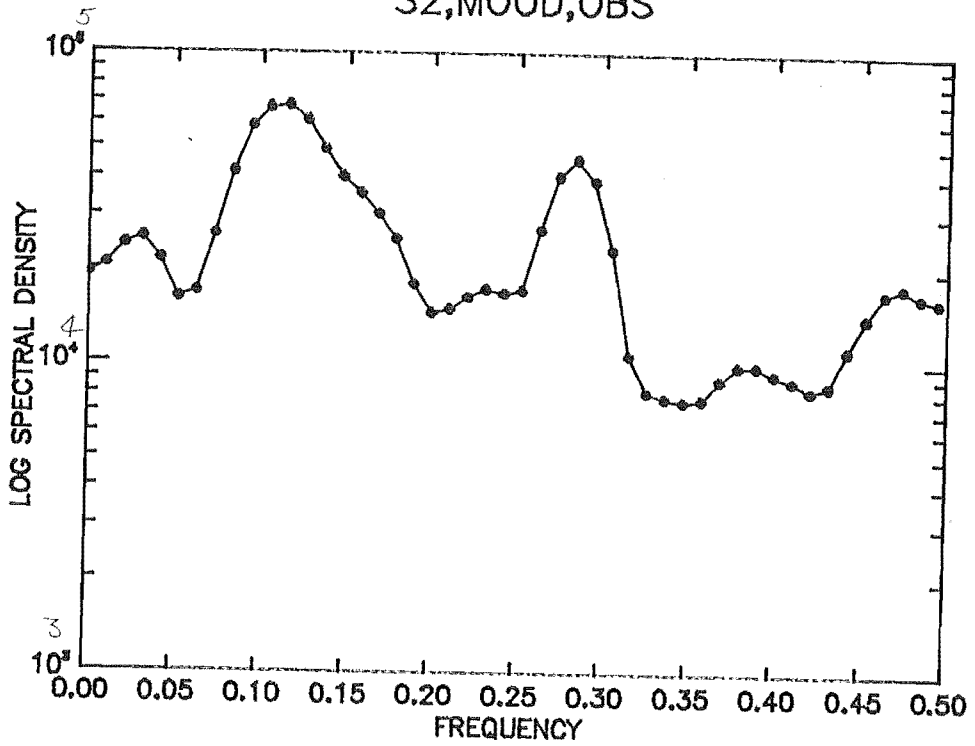
S1,MOOD



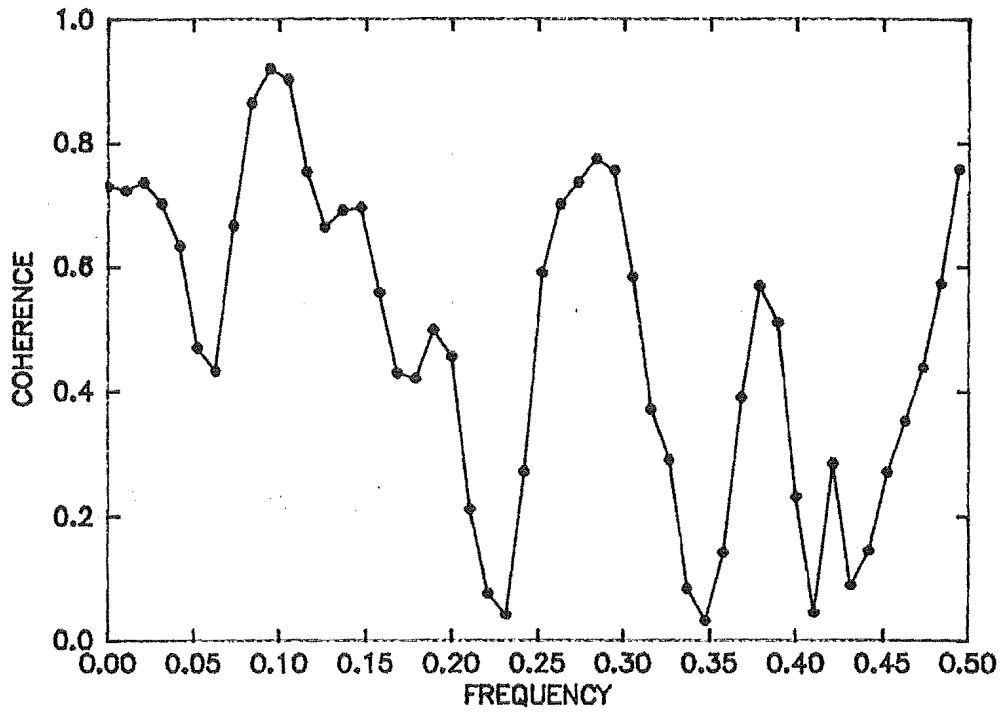
S2,MOOD,TARGET



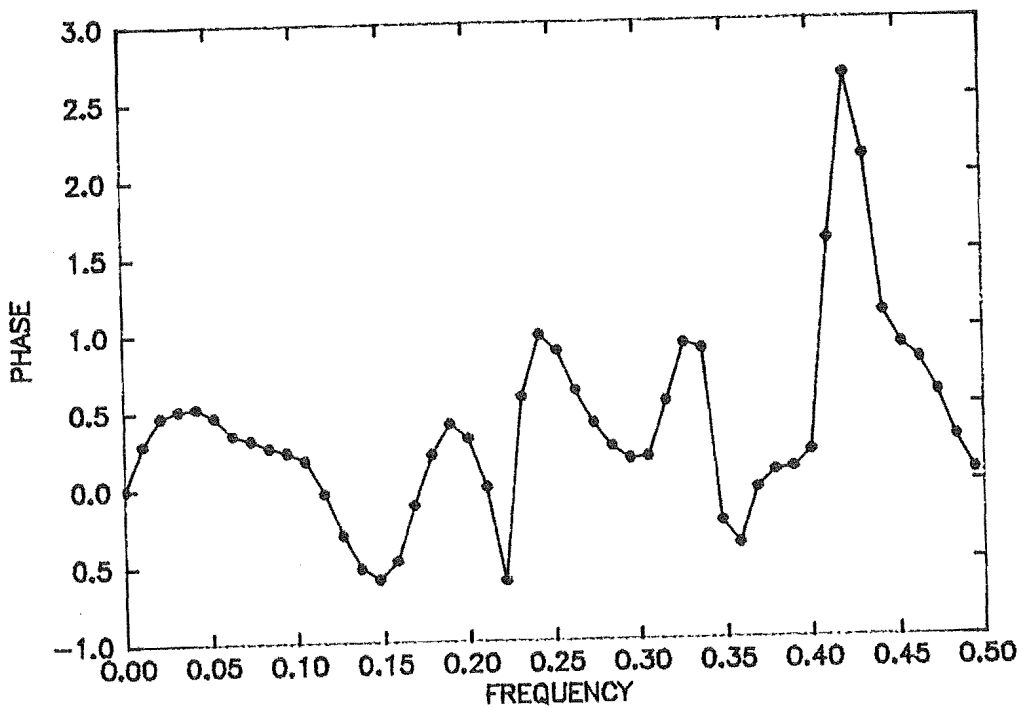
S2,MOOD,OBS



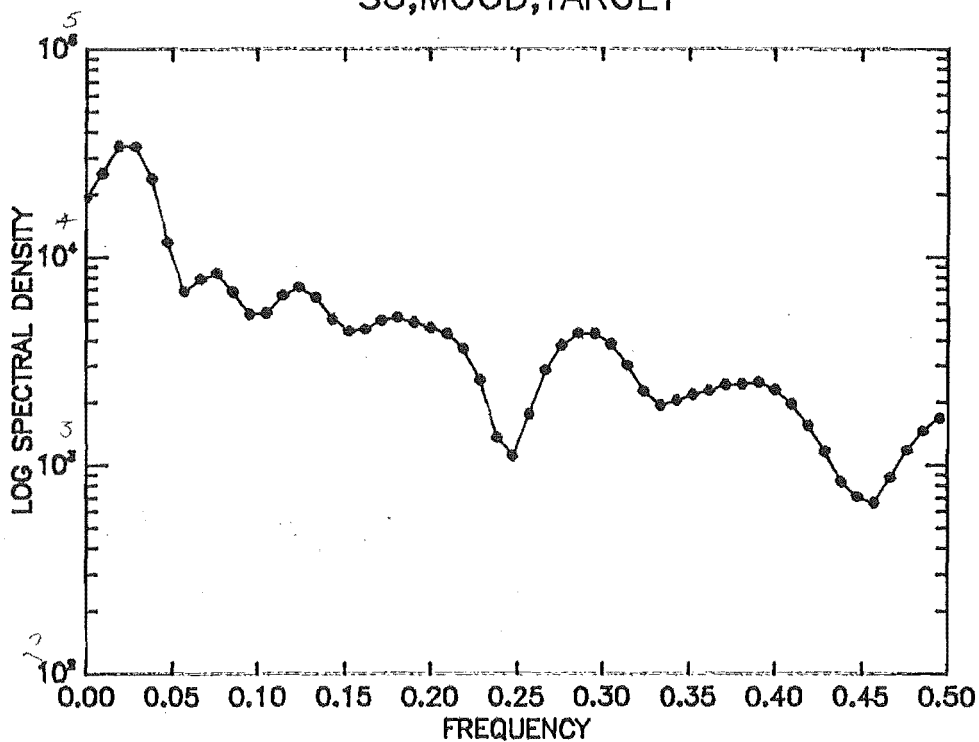
S2,MOOD



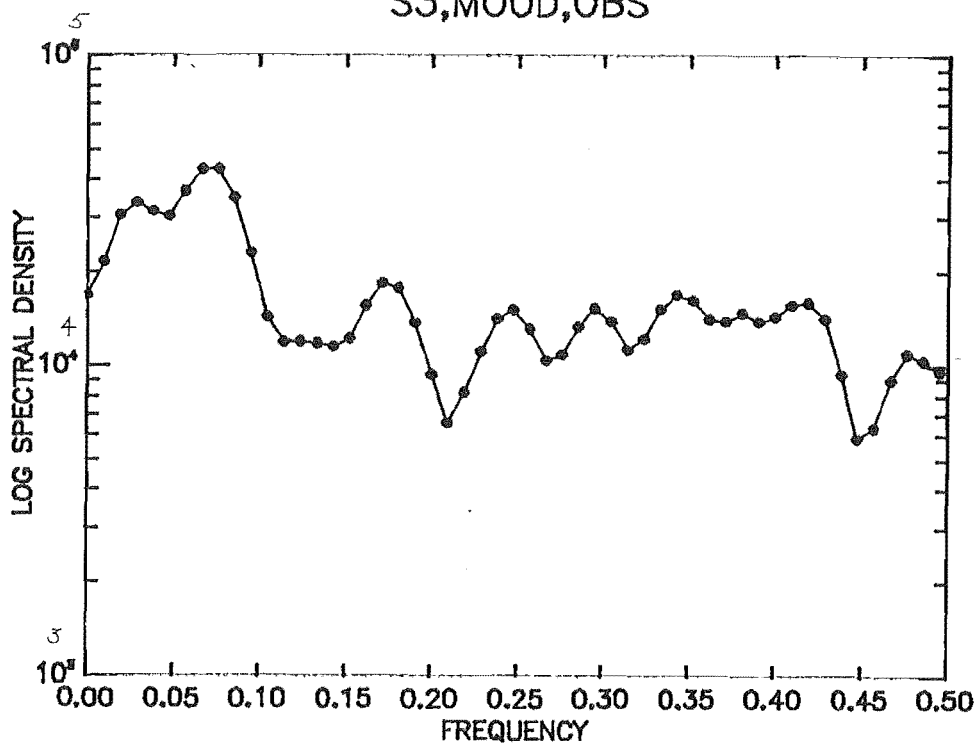
S2,MOOD



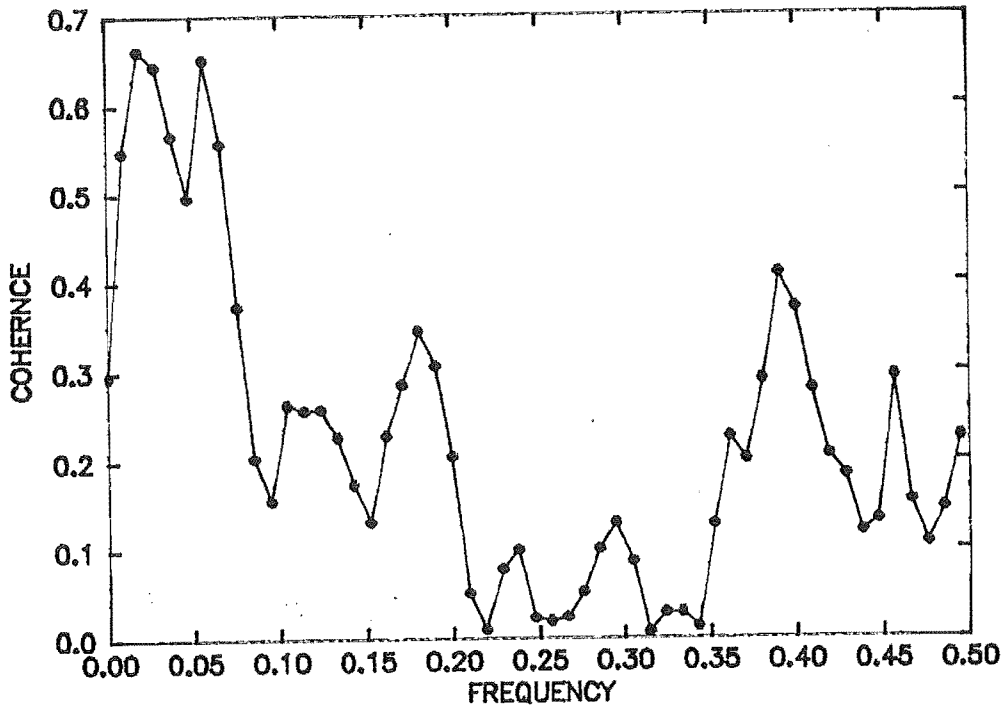
S3,MOOD,TARGET



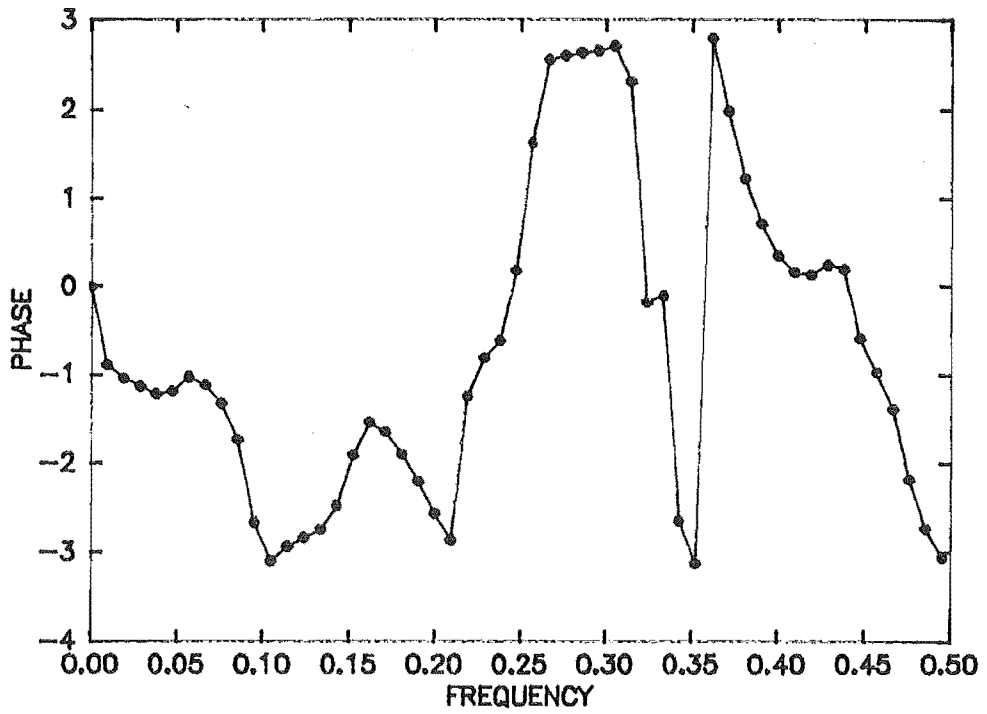
S3,MOOD,OBS



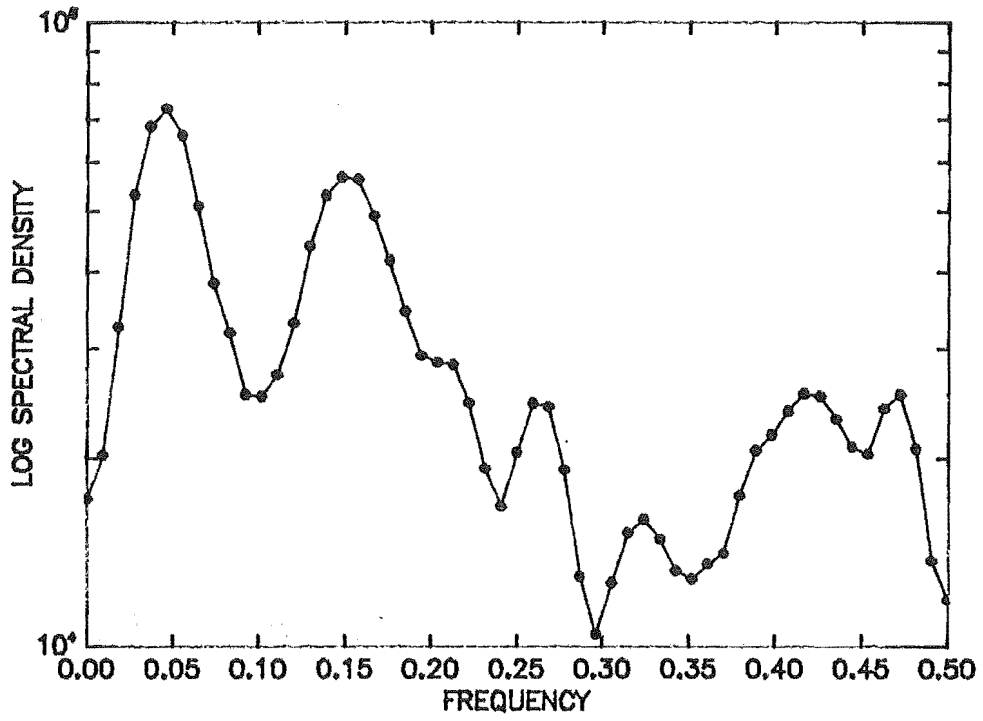
S3,MOOD



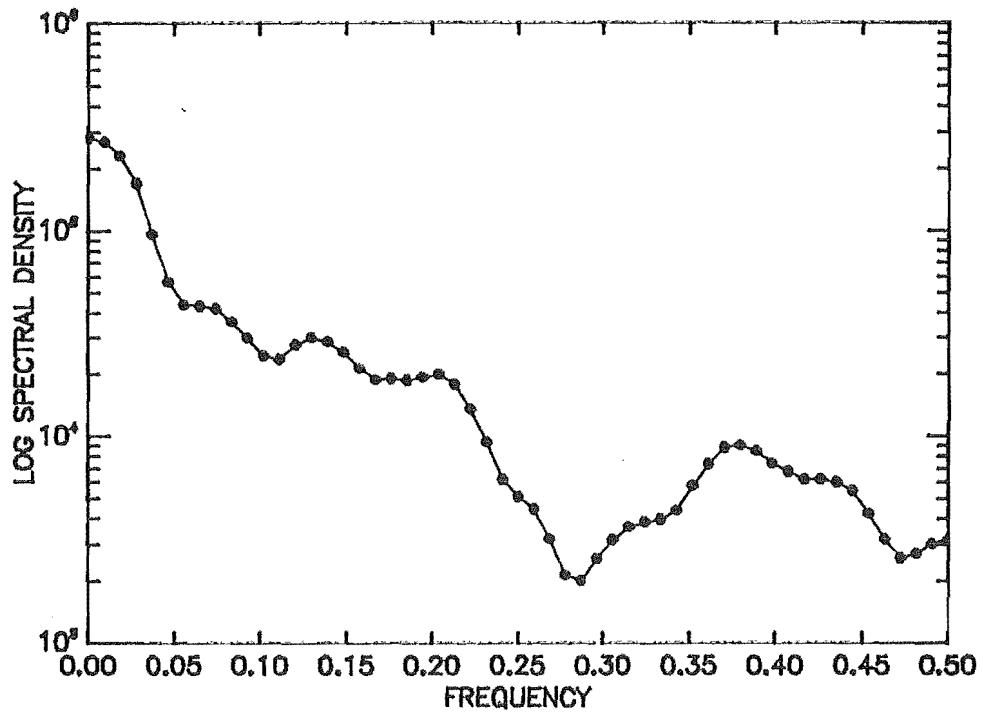
S3,MOOD



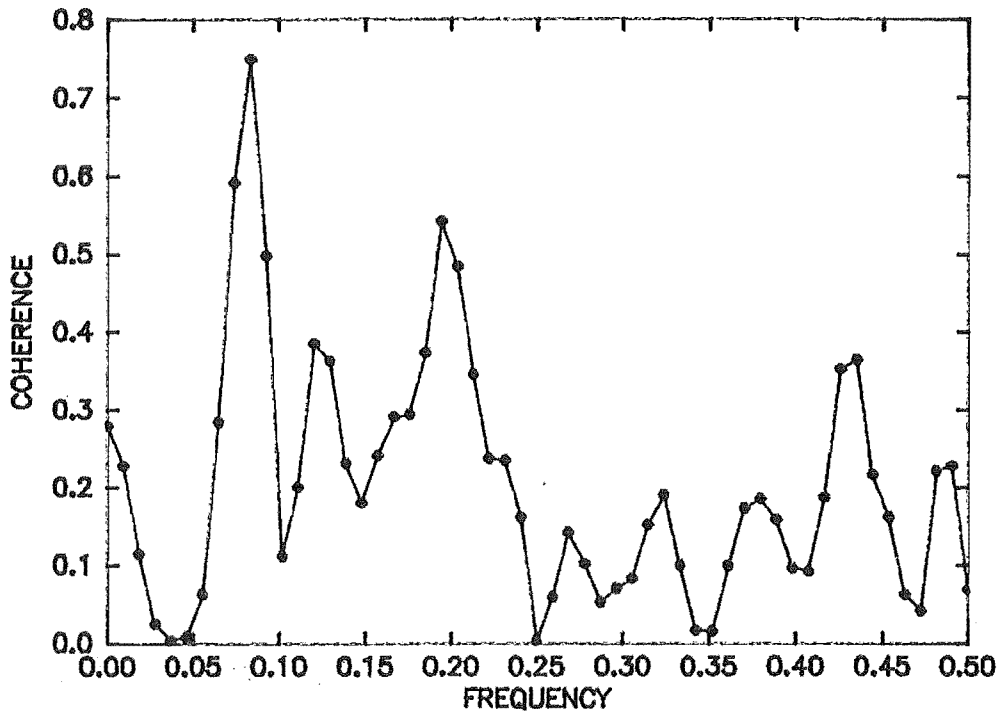
S5,MOOD,TARGET



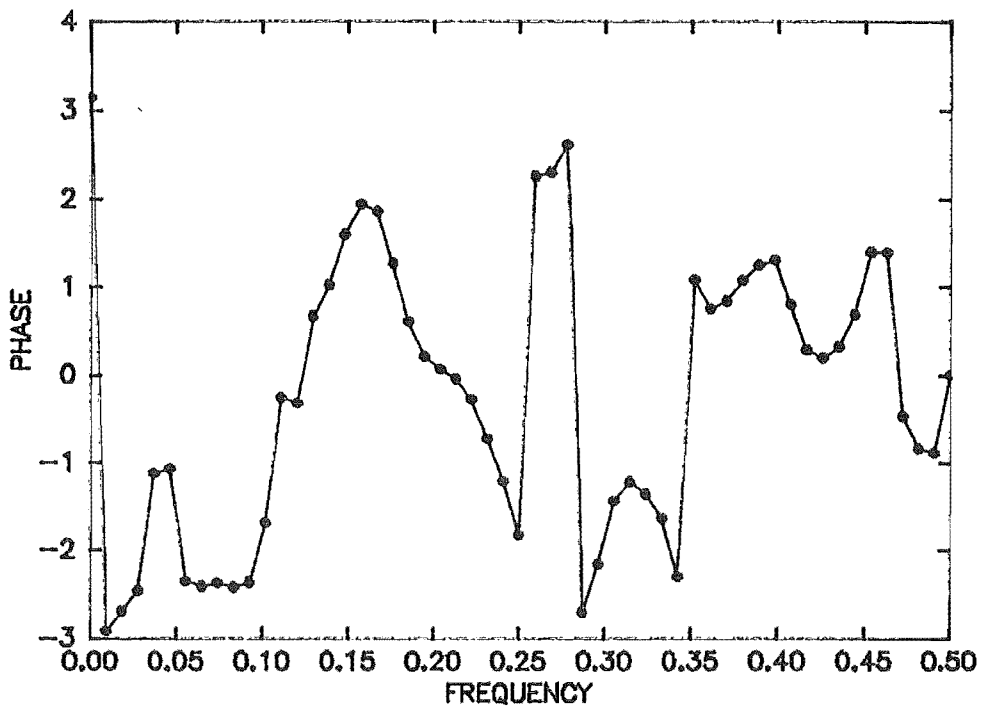
S5,MOOD,OBS



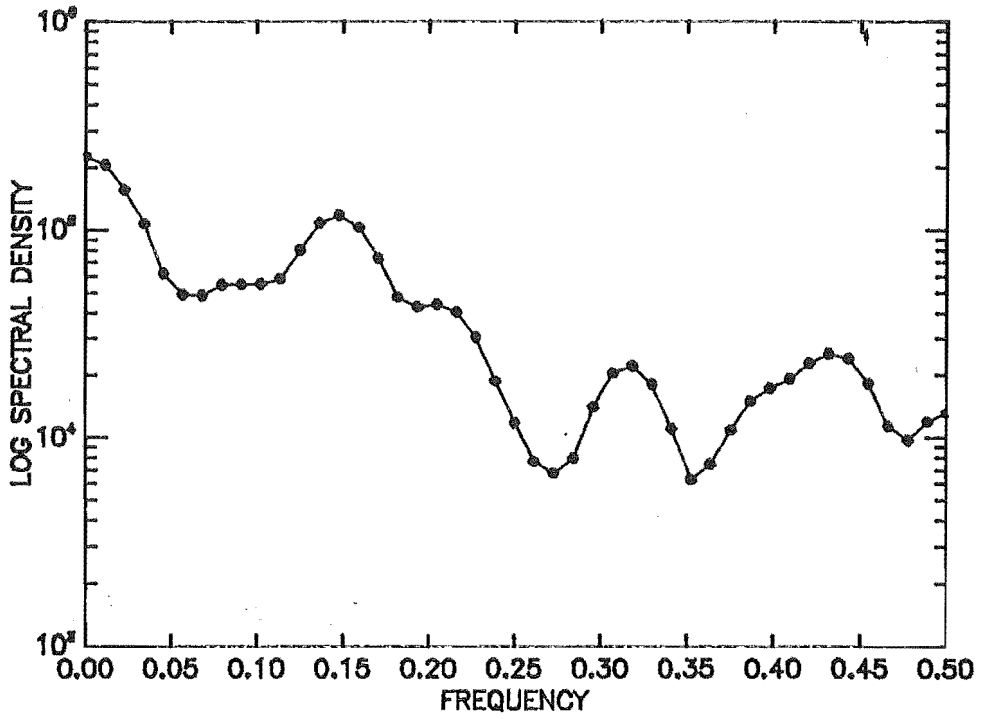
S5,MOOD



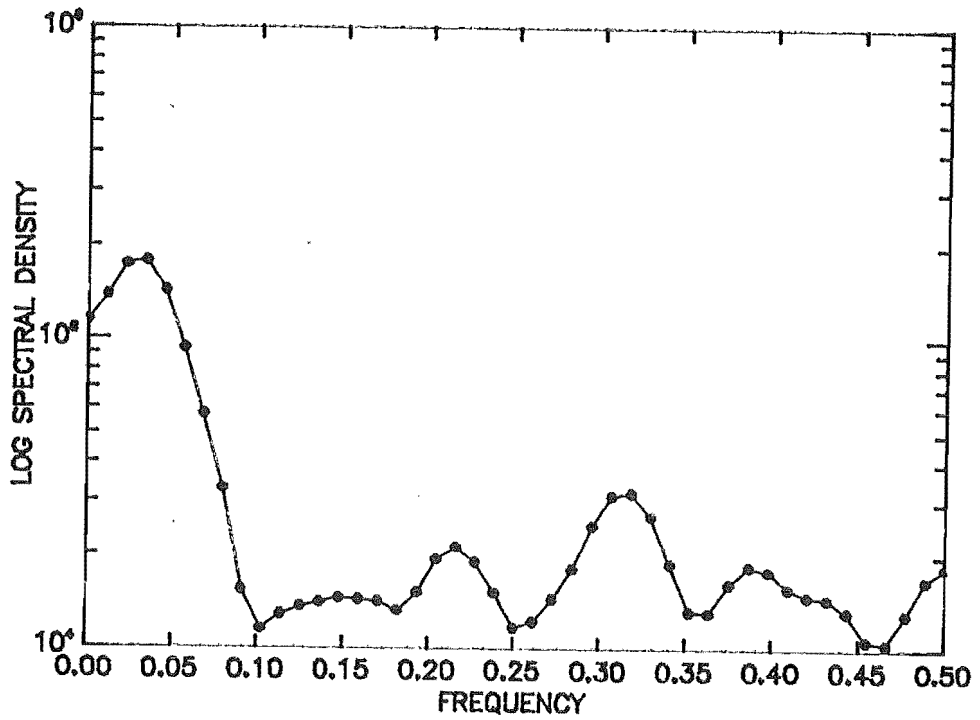
S5,MOOD



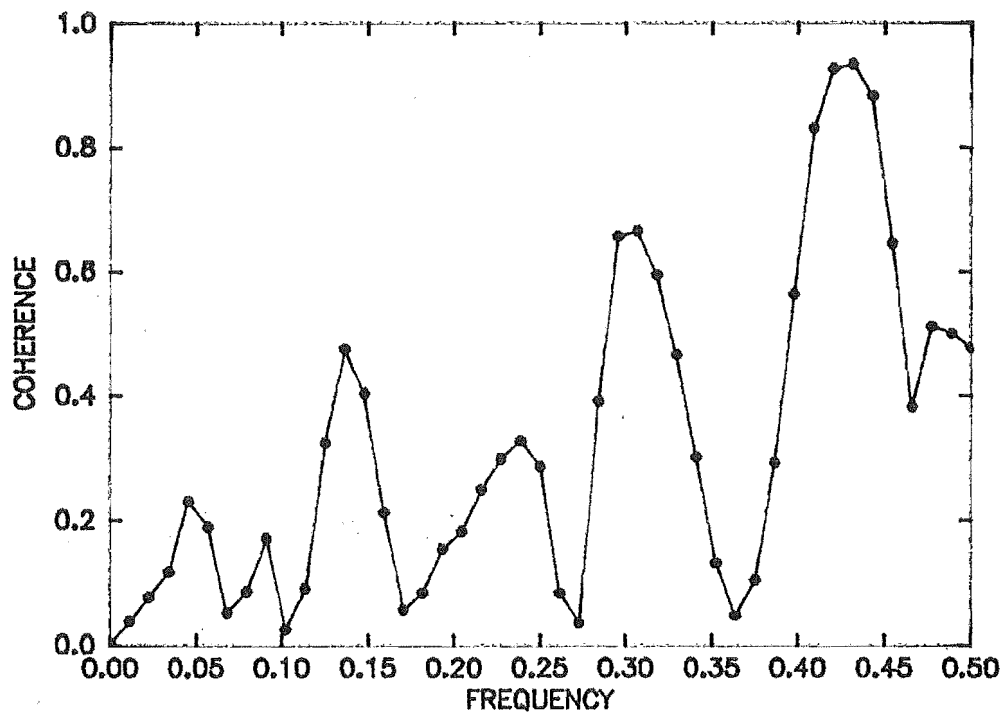
S6,MOOD,TARGET



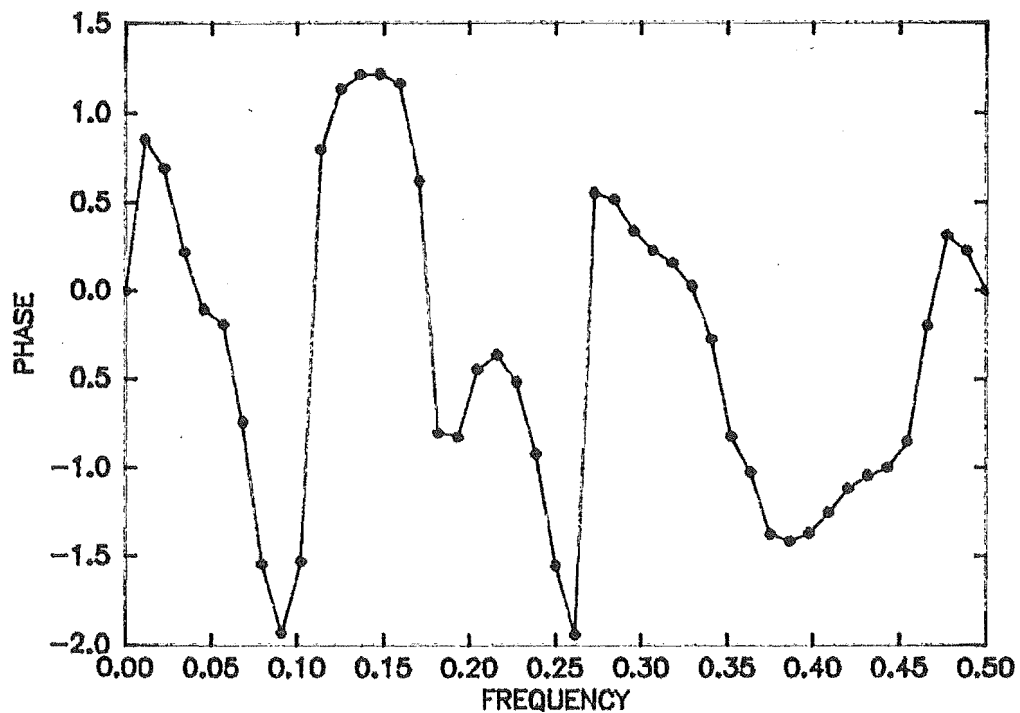
S6,MOOD,OBS



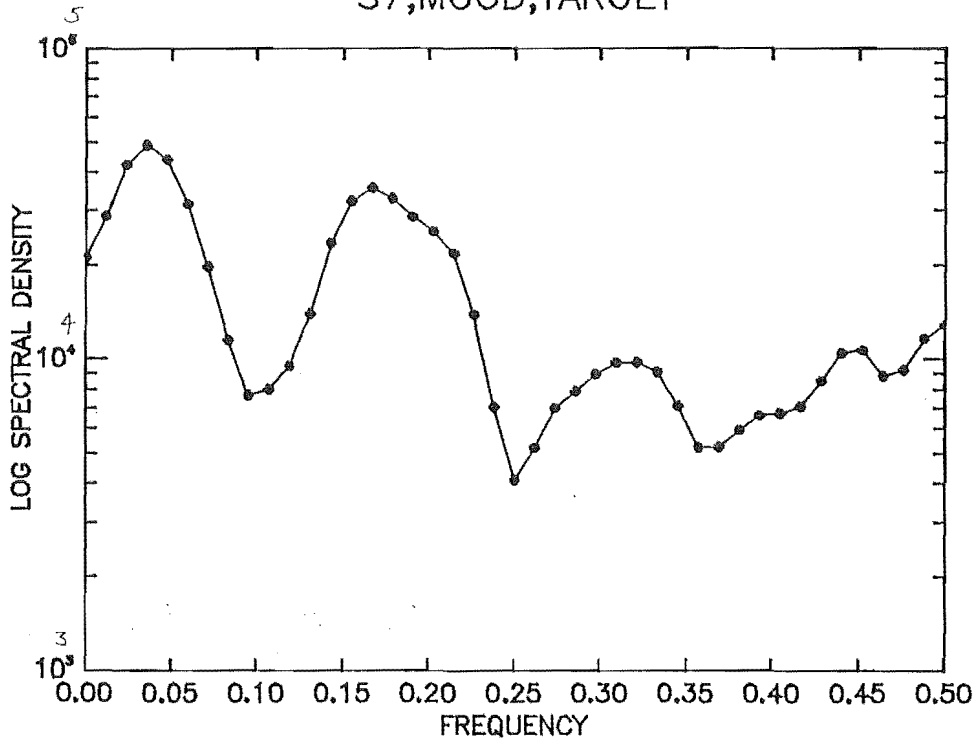
S6,MOOD



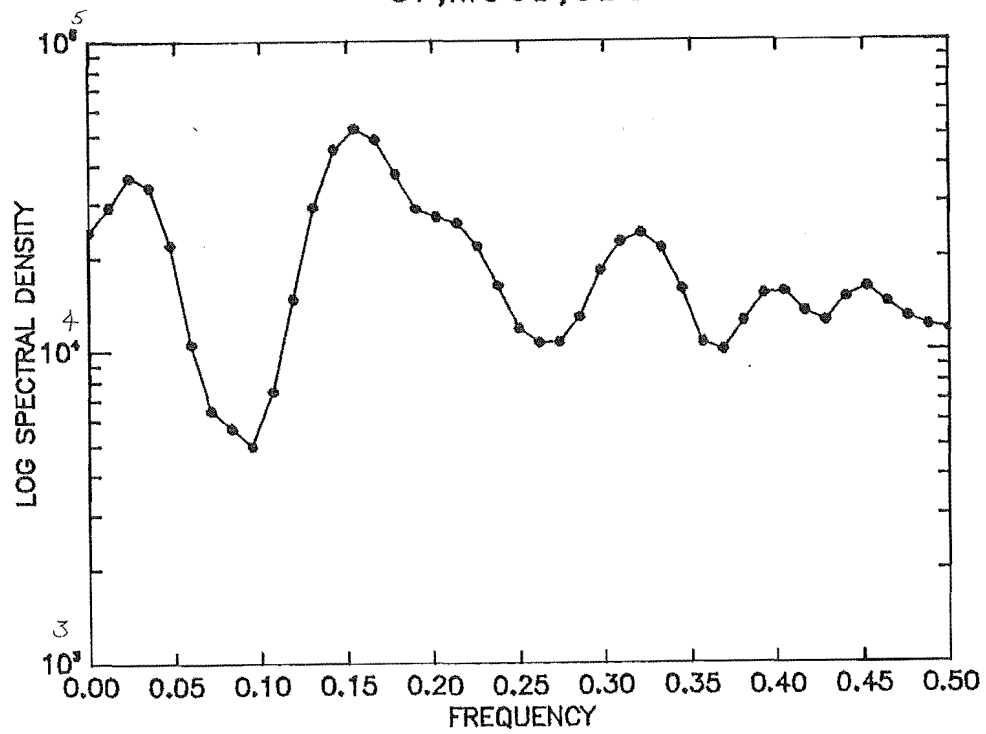
S6,MOOD



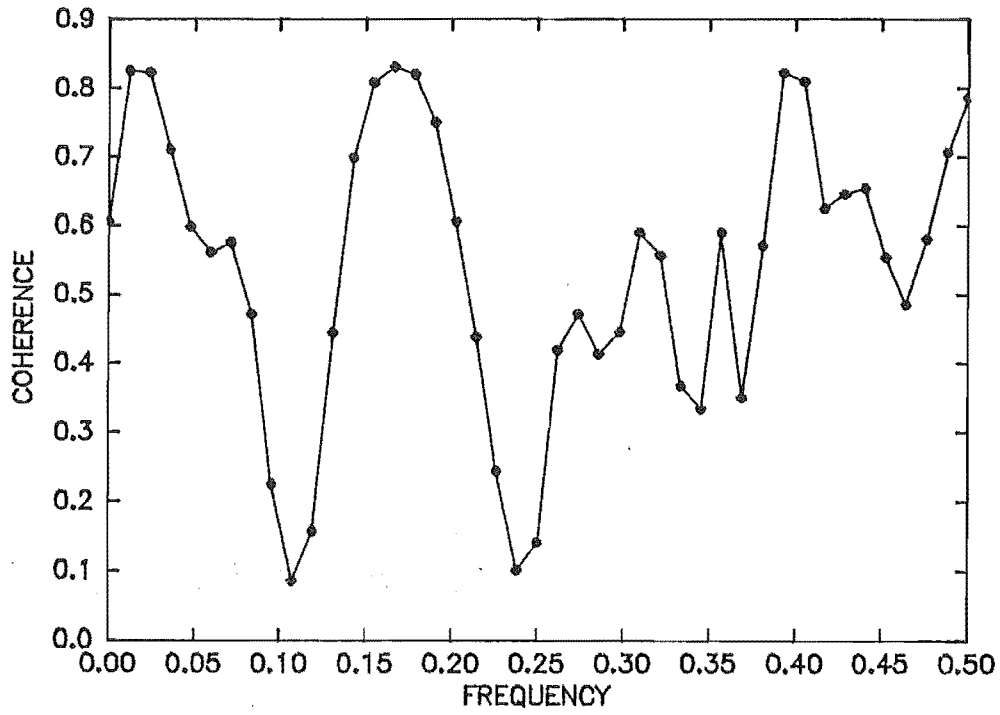
S7,MOOD,TARGET



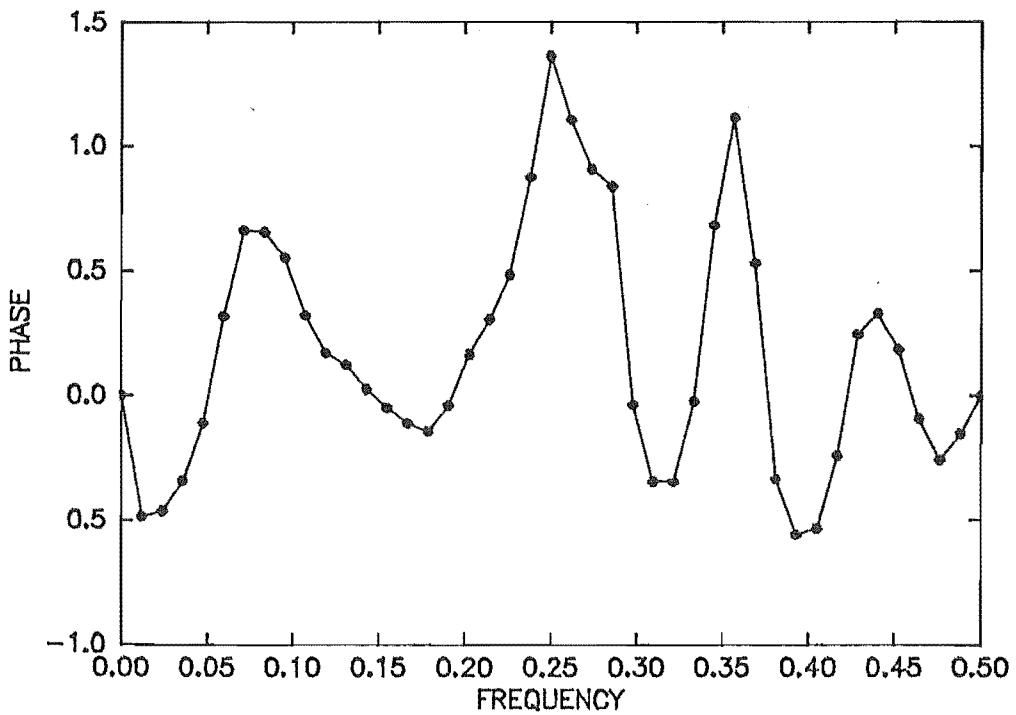
S7,MOOD,OBS



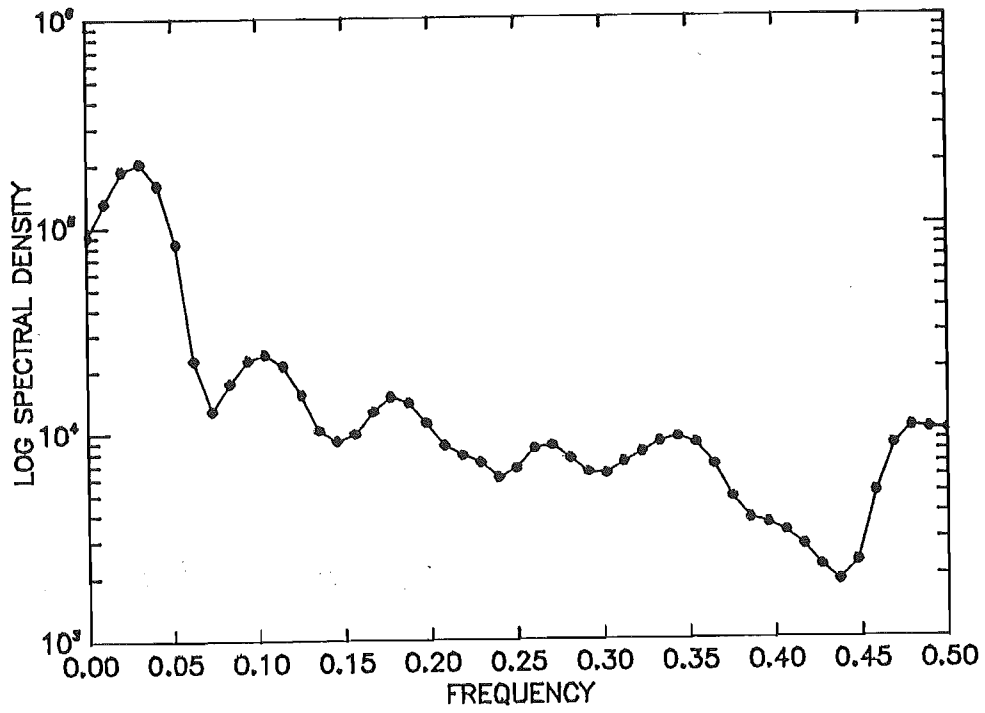
S7,MOOD



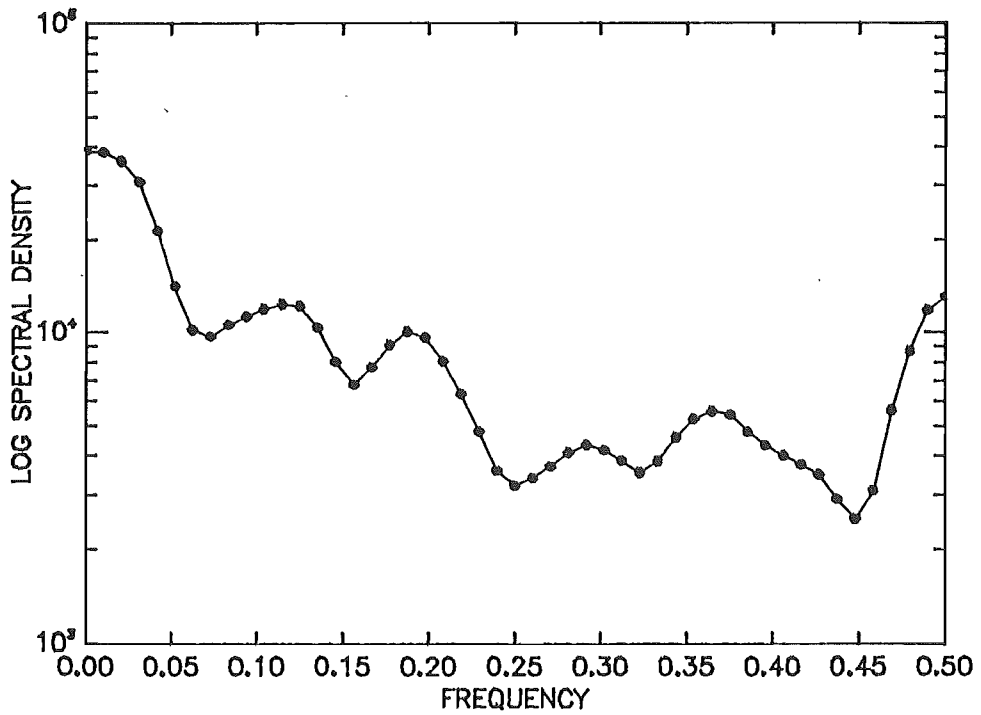
S7,MOOD



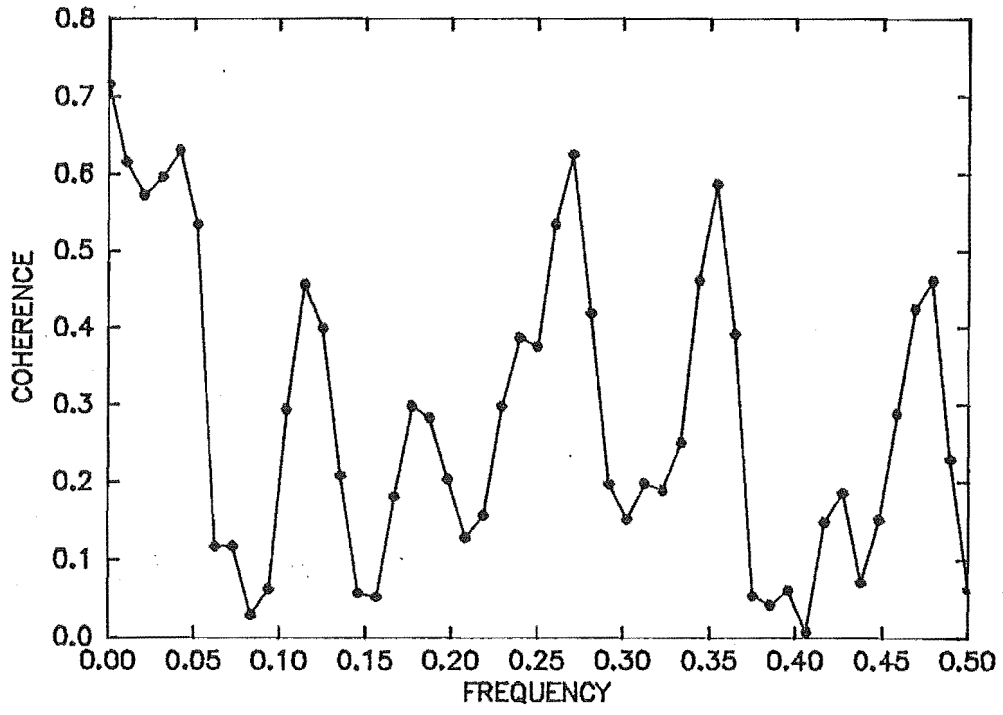
S8,MOOD,TARGET



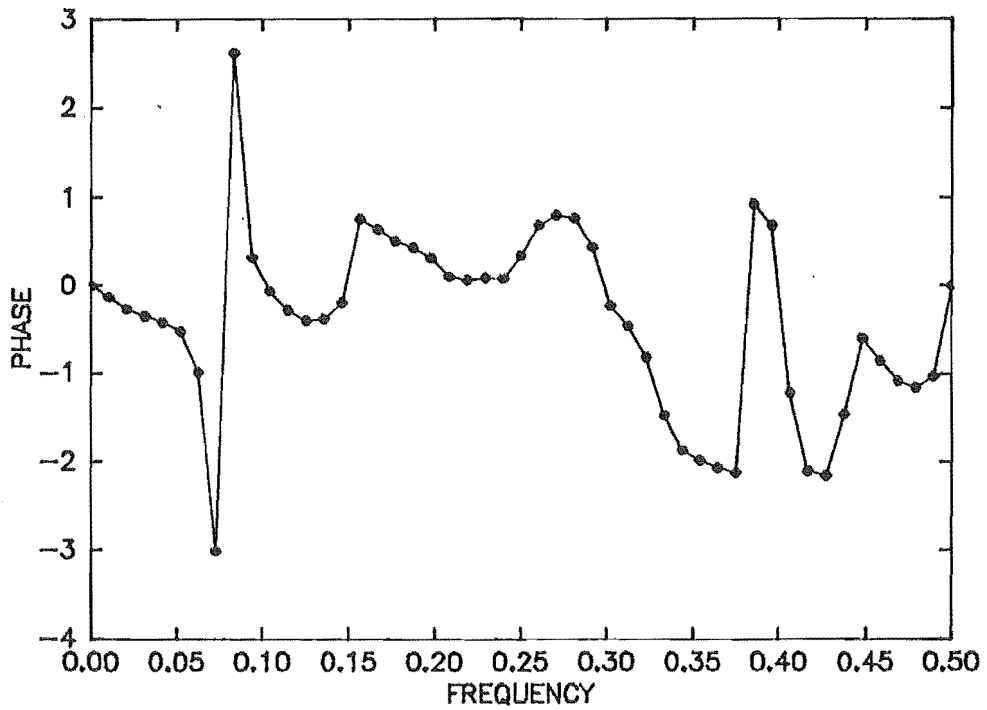
S8,MOOD,OBS



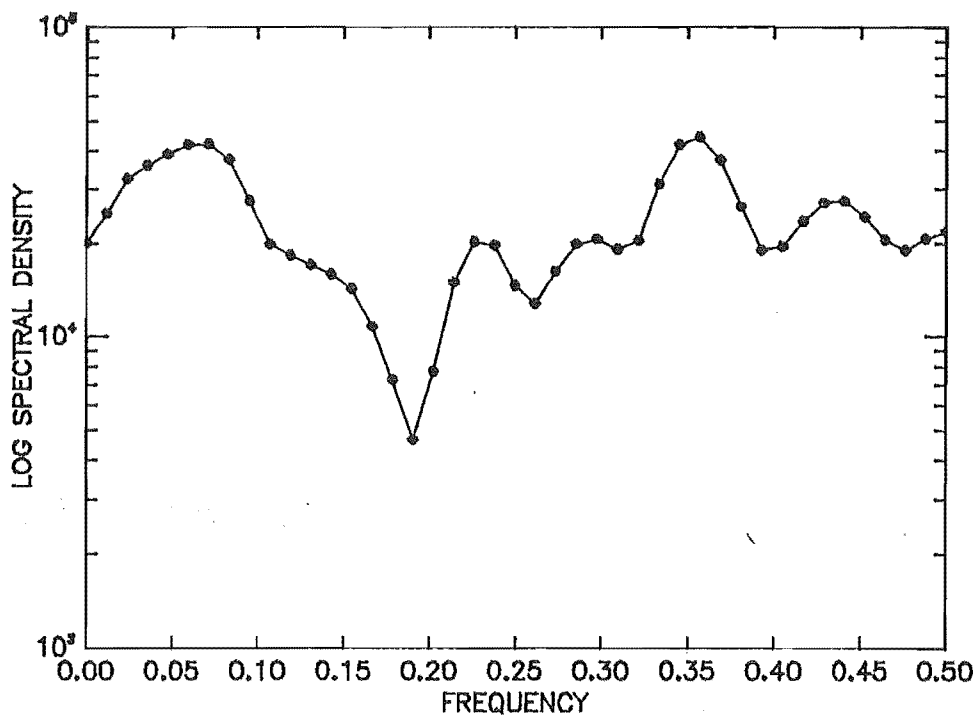
S8,MOOD



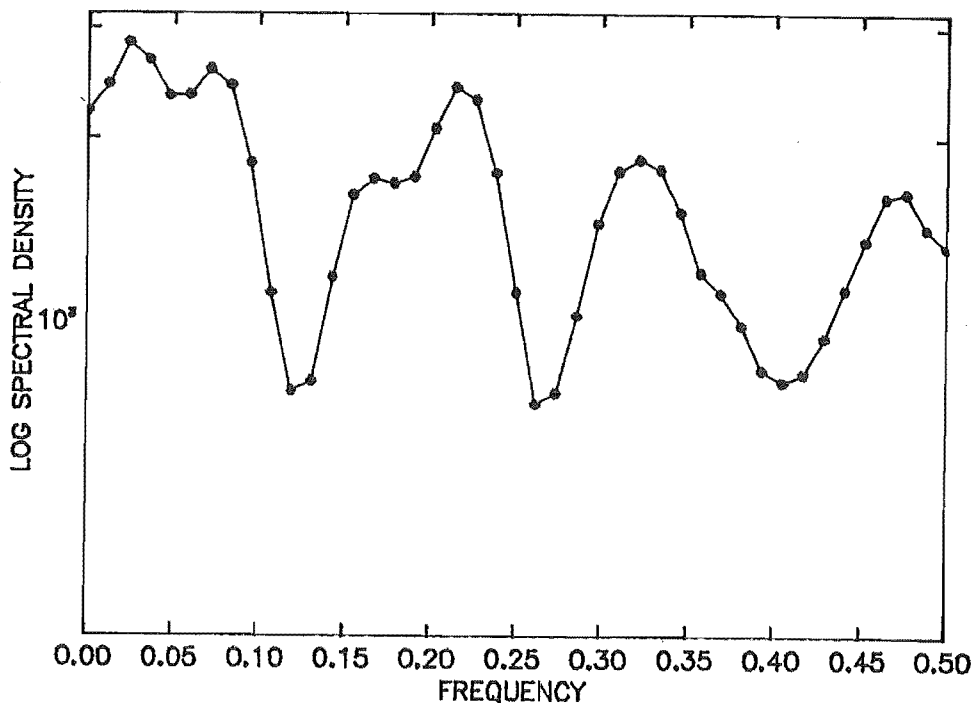
S8,MOOD



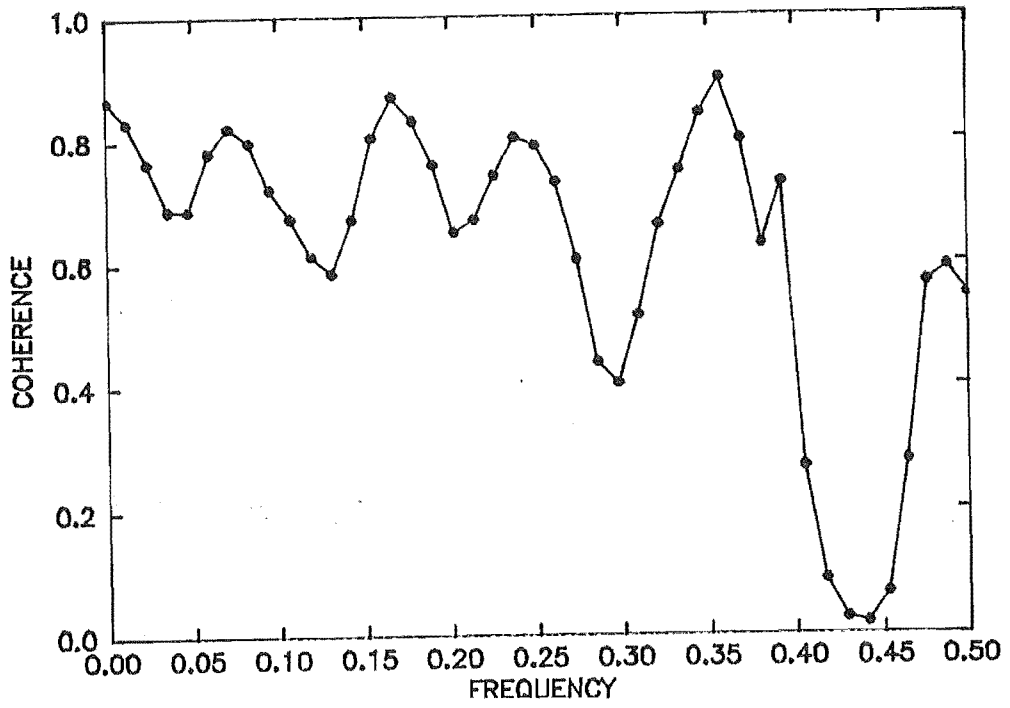
S9,MOOD,TARGET



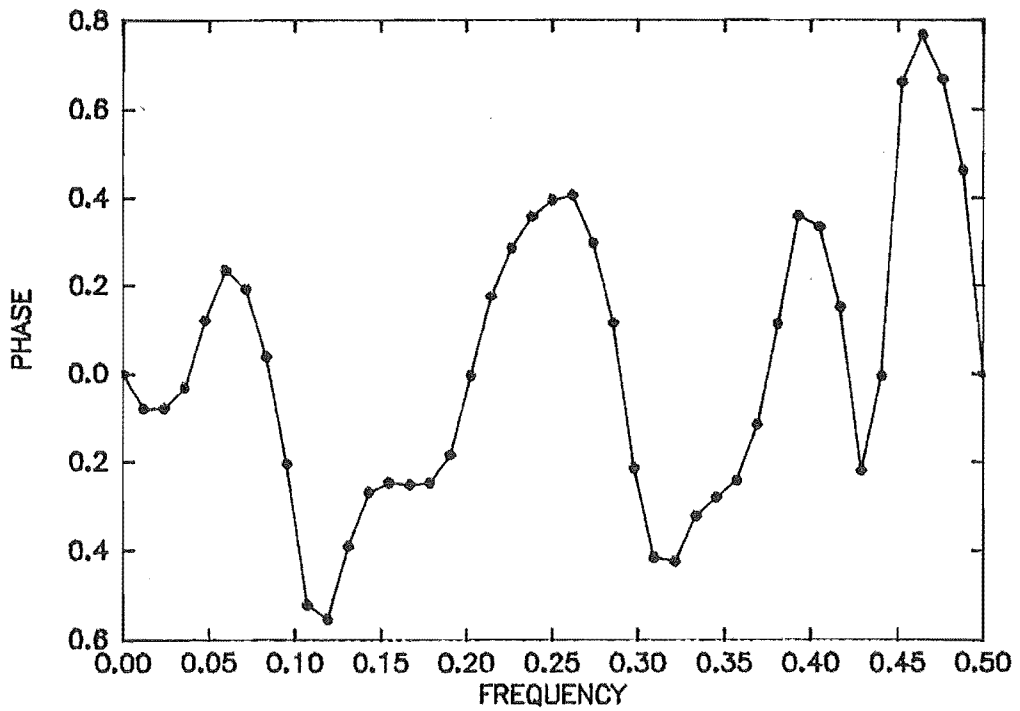
S9,MOOD,OBS



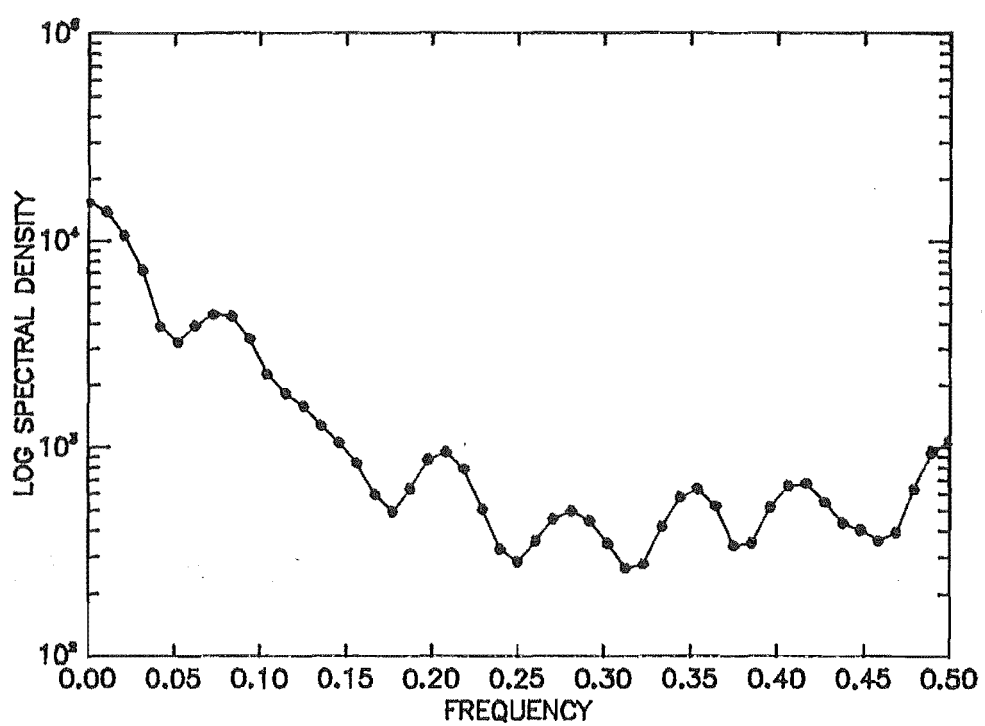
S9,MOOD



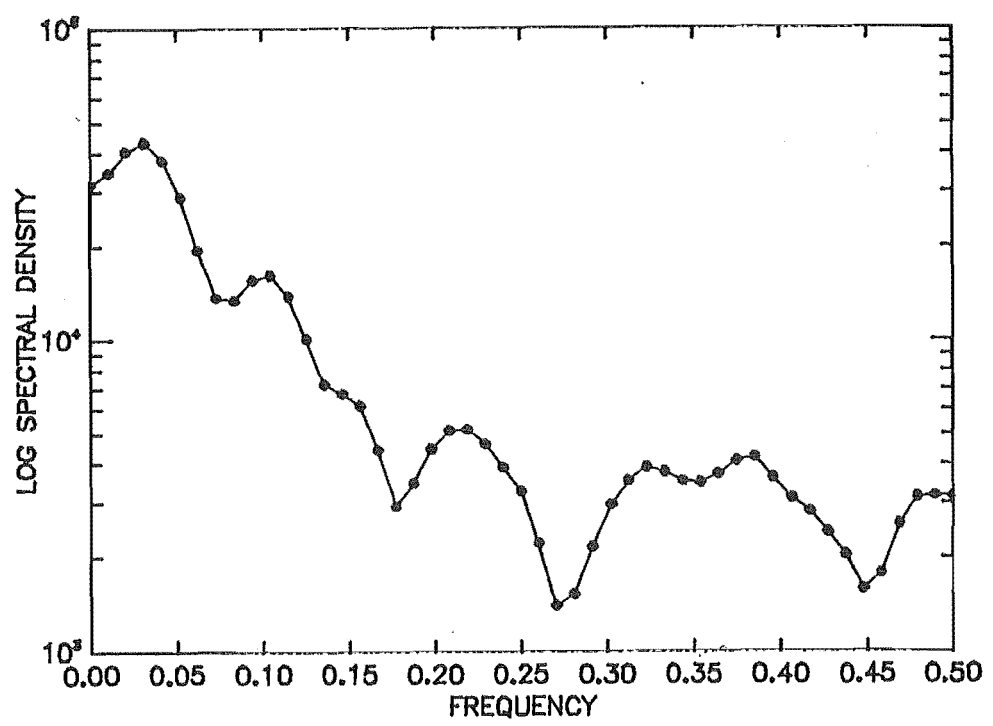
S9,MOOD



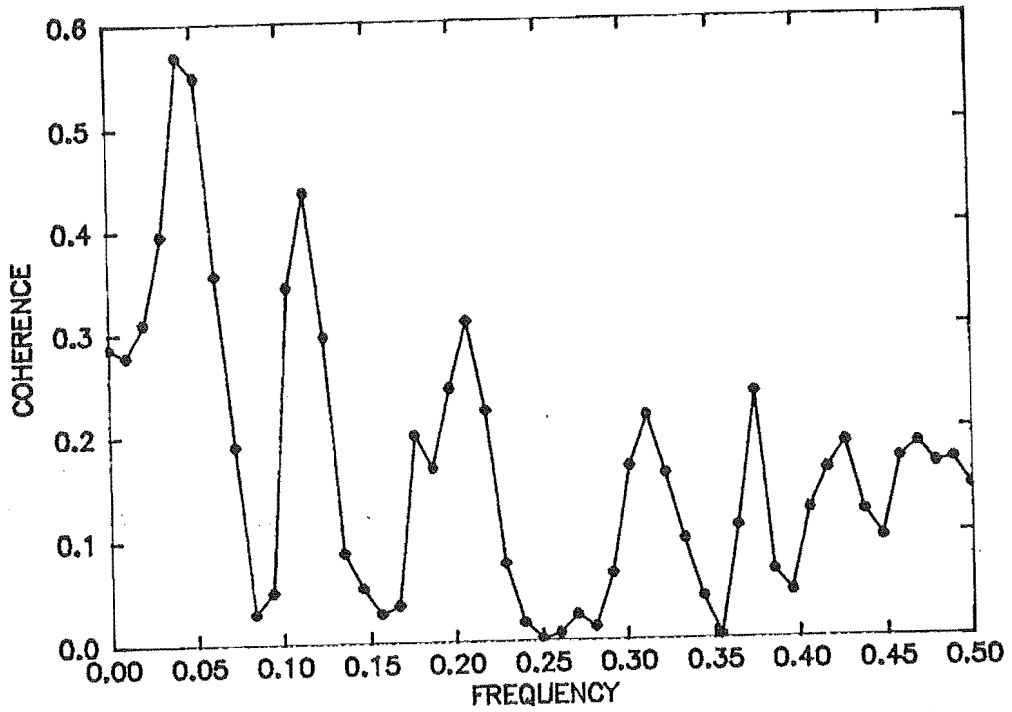
S10,MOOD,TARGET



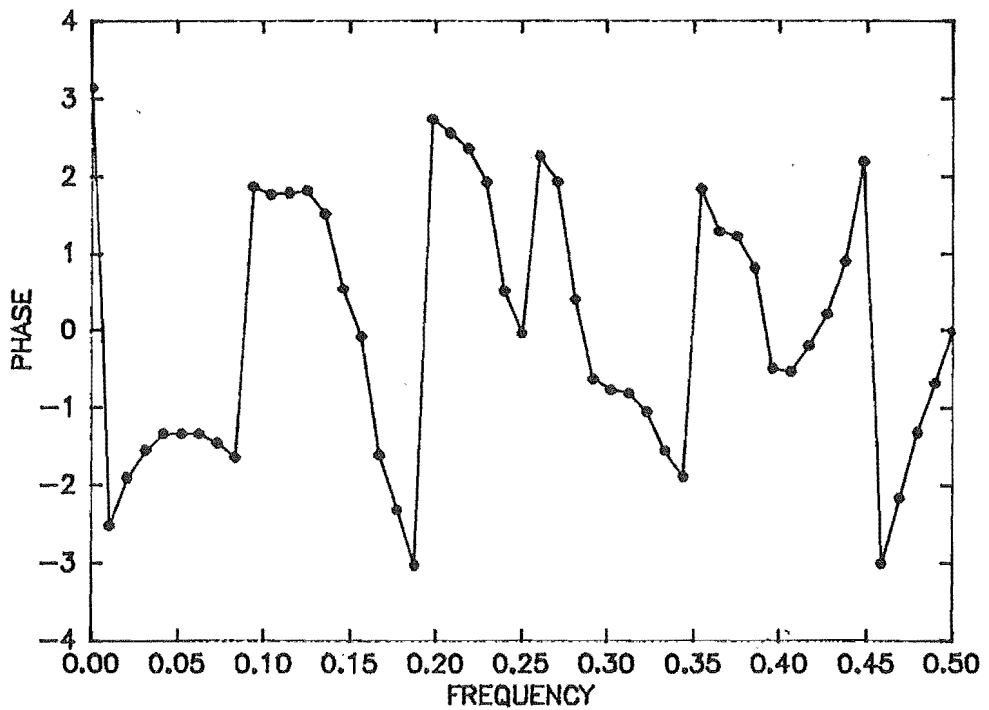
S10,MOOD,OBS



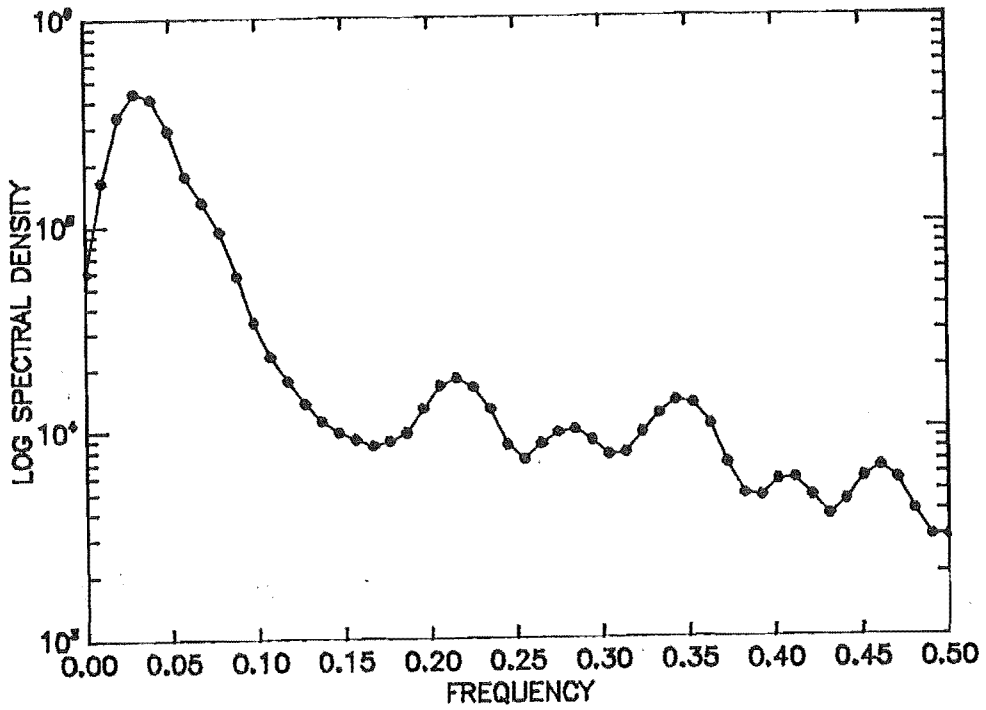
S10,MOOD



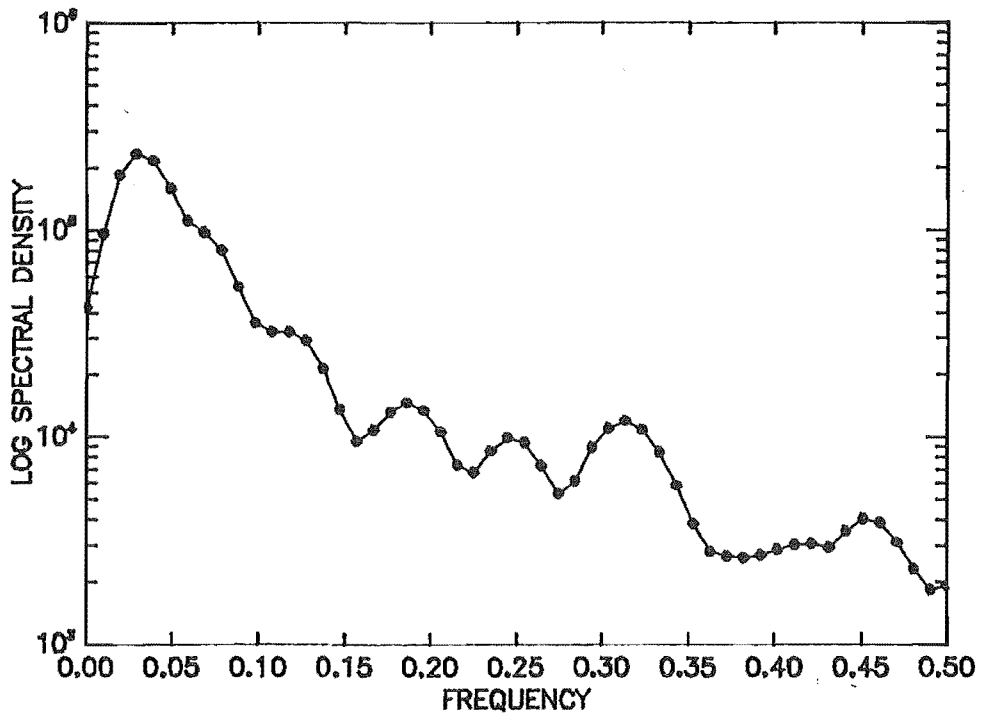
S10,MOOD



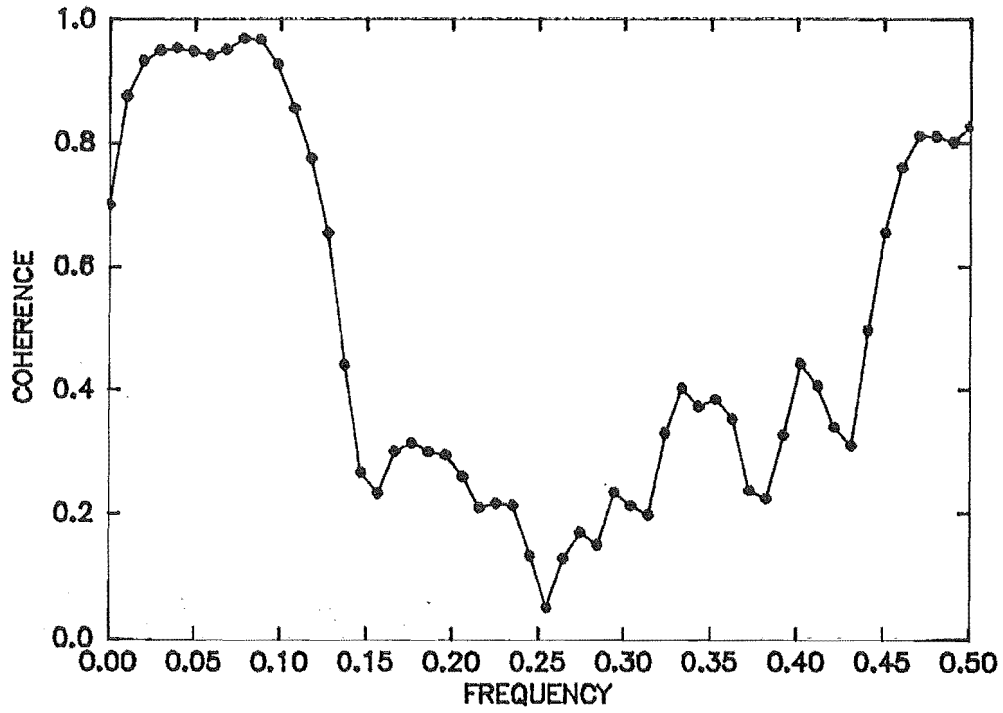
S12,MOOD,TARGET



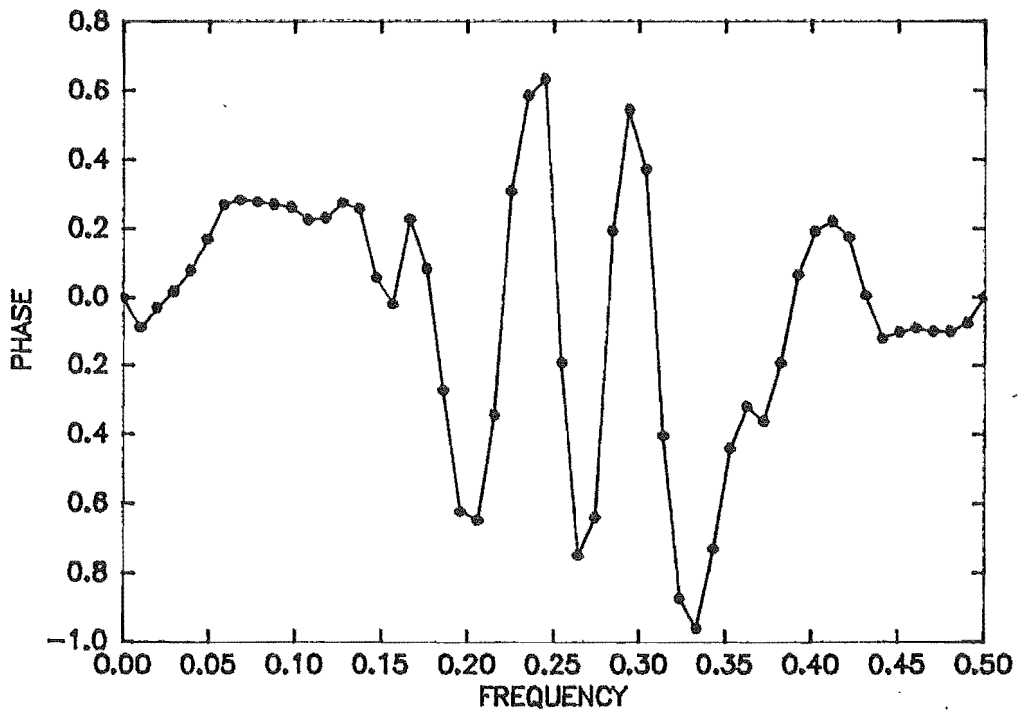
S12,MOOD,OBS



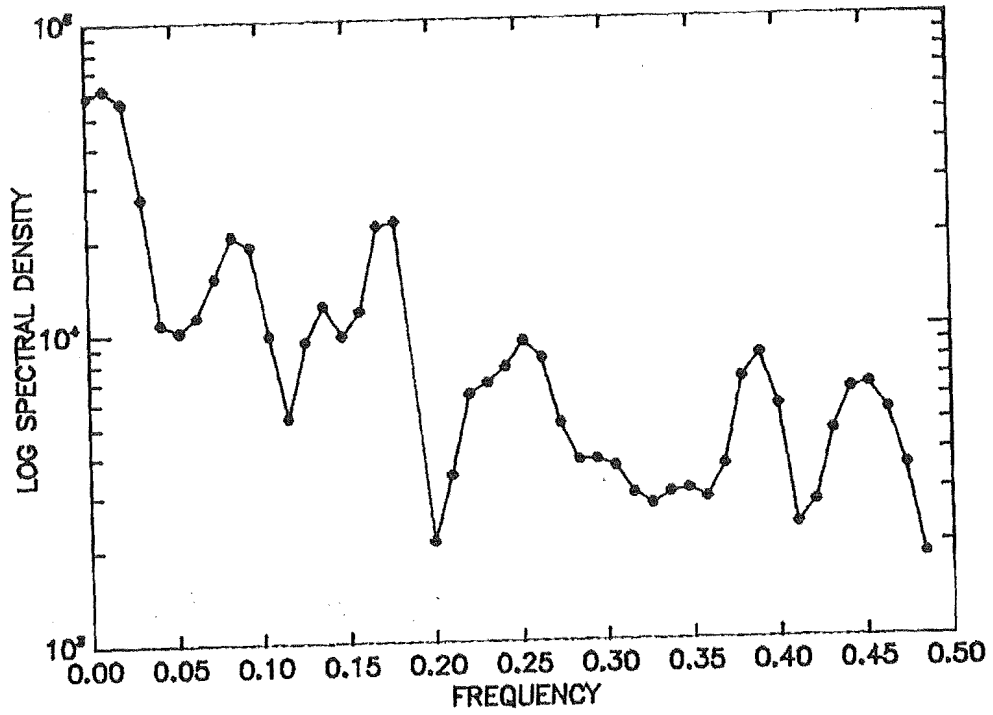
S12,MOOD



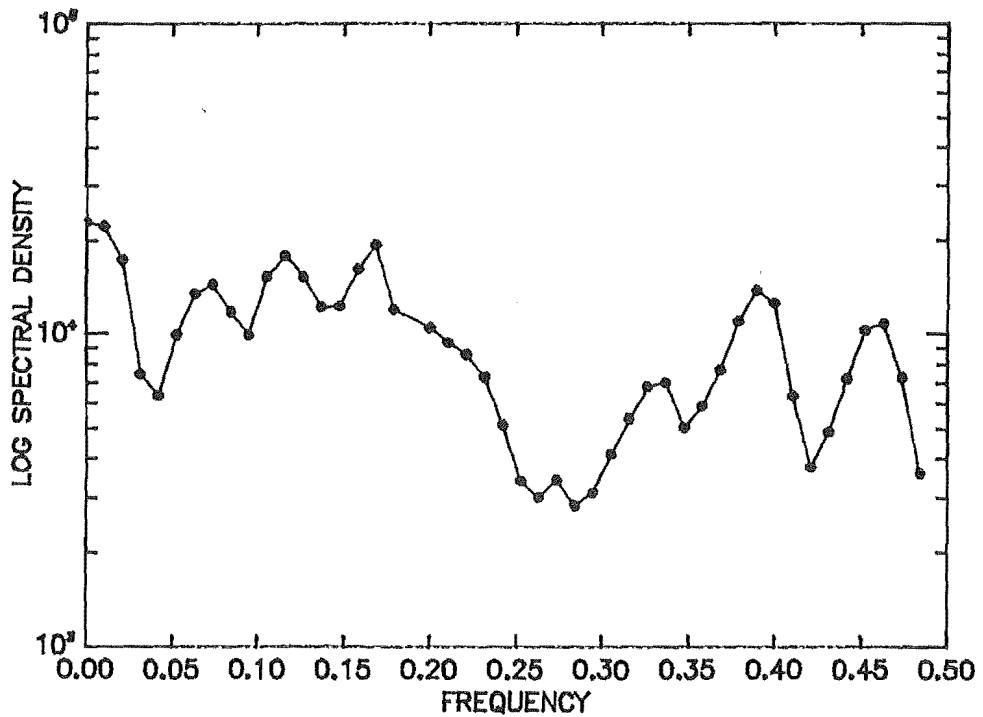
S12,MOOD



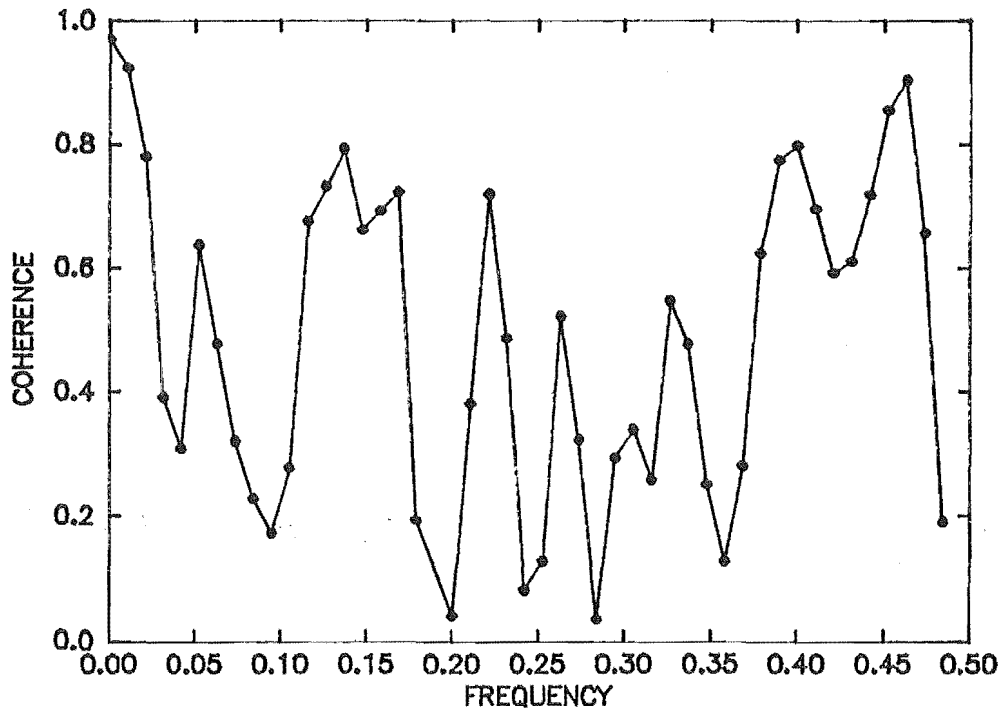
S13,MOOD,TARGET



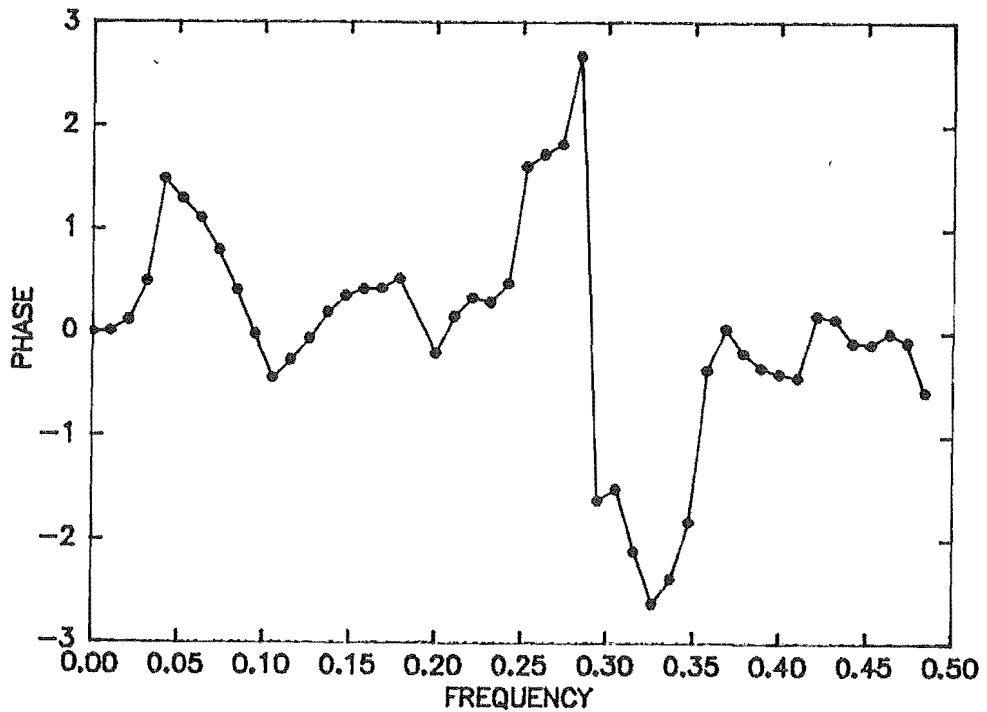
S13,MOOD,OBS



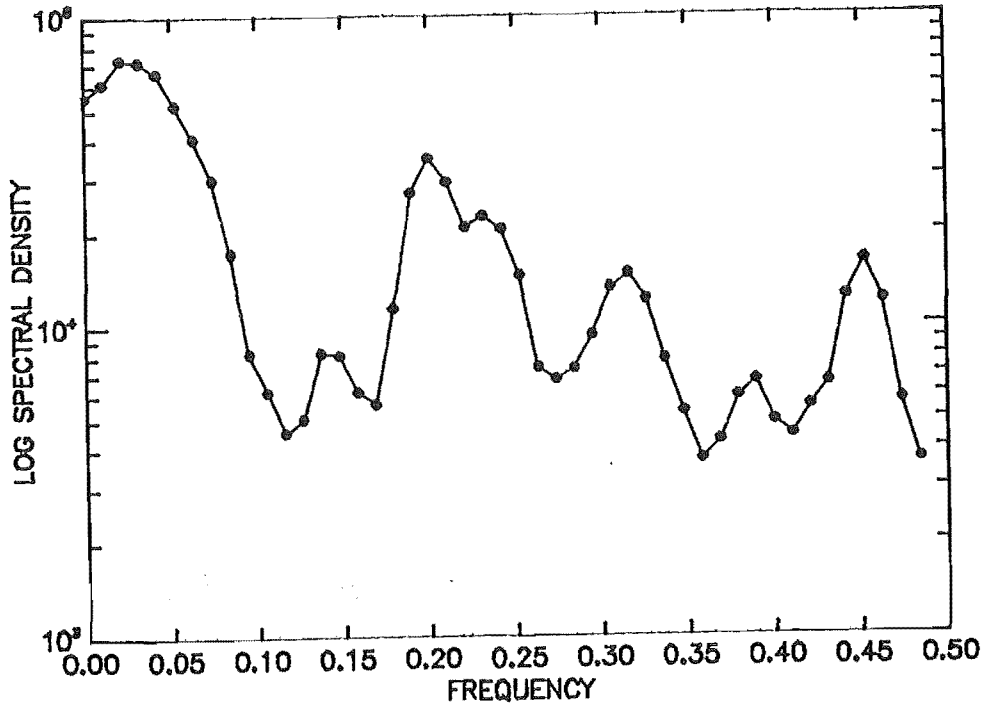
S13,MOOD



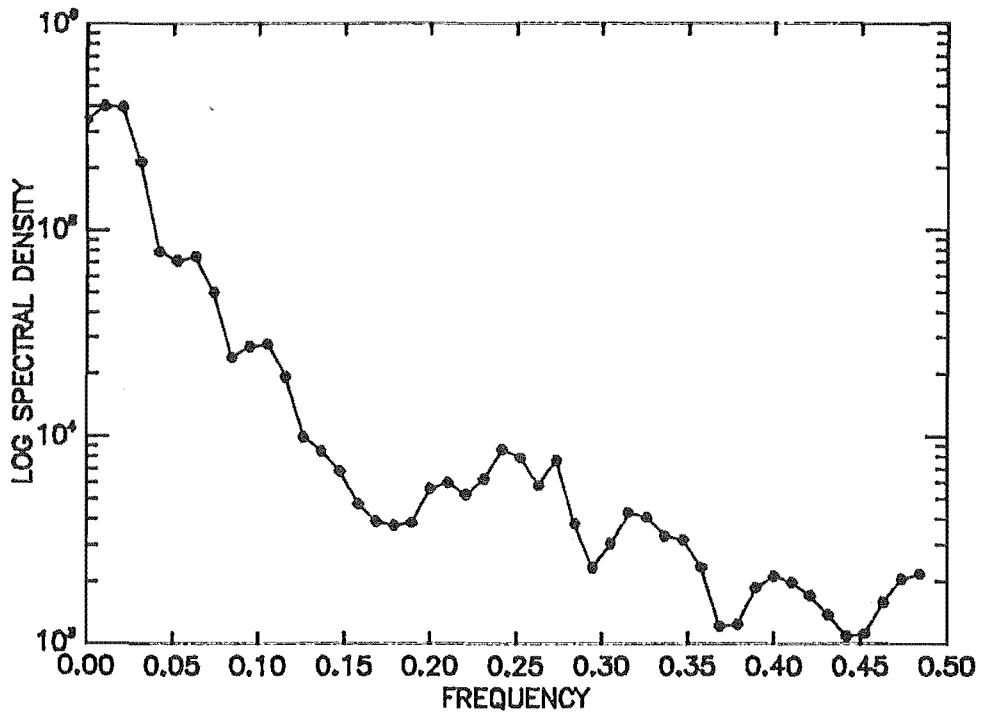
S13,MOOD



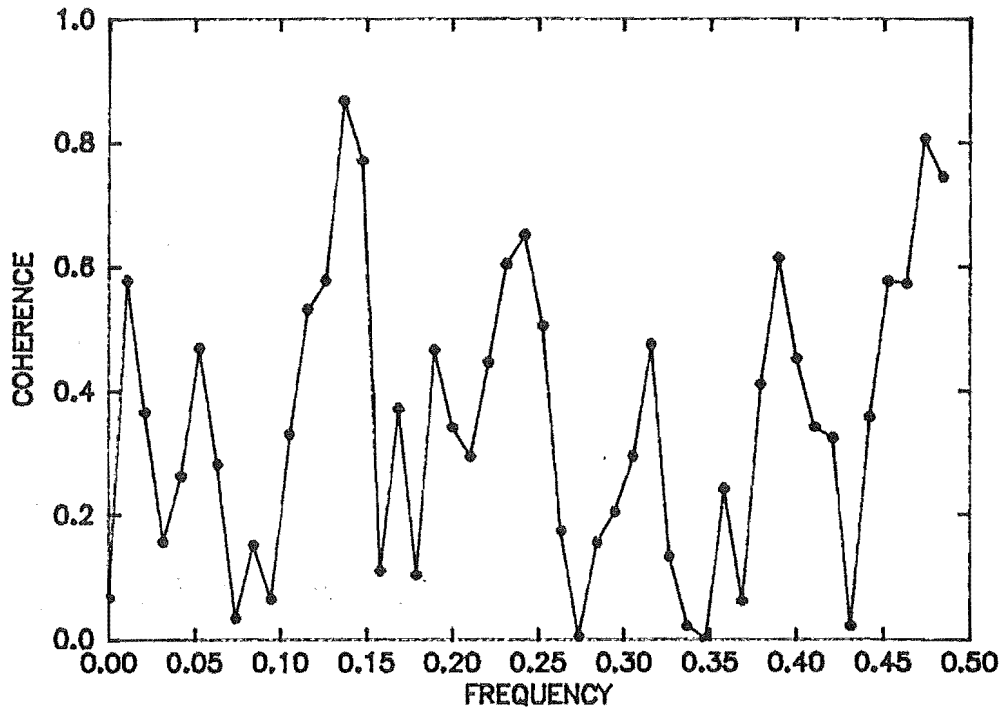
S14,MOOD,TARGET



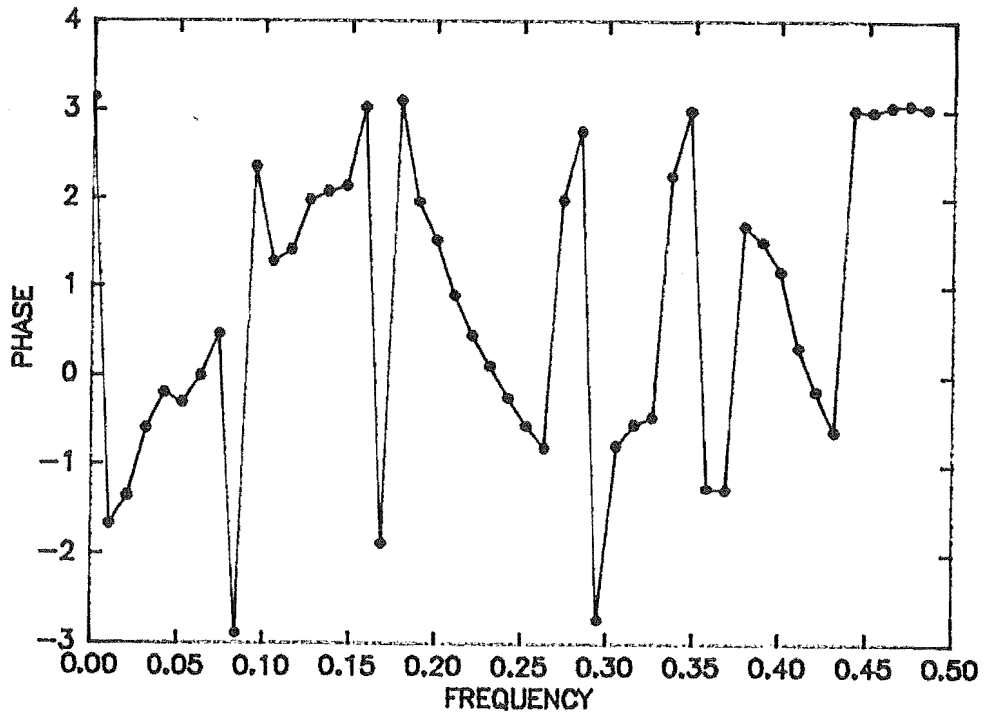
S14,MOOD,OBS



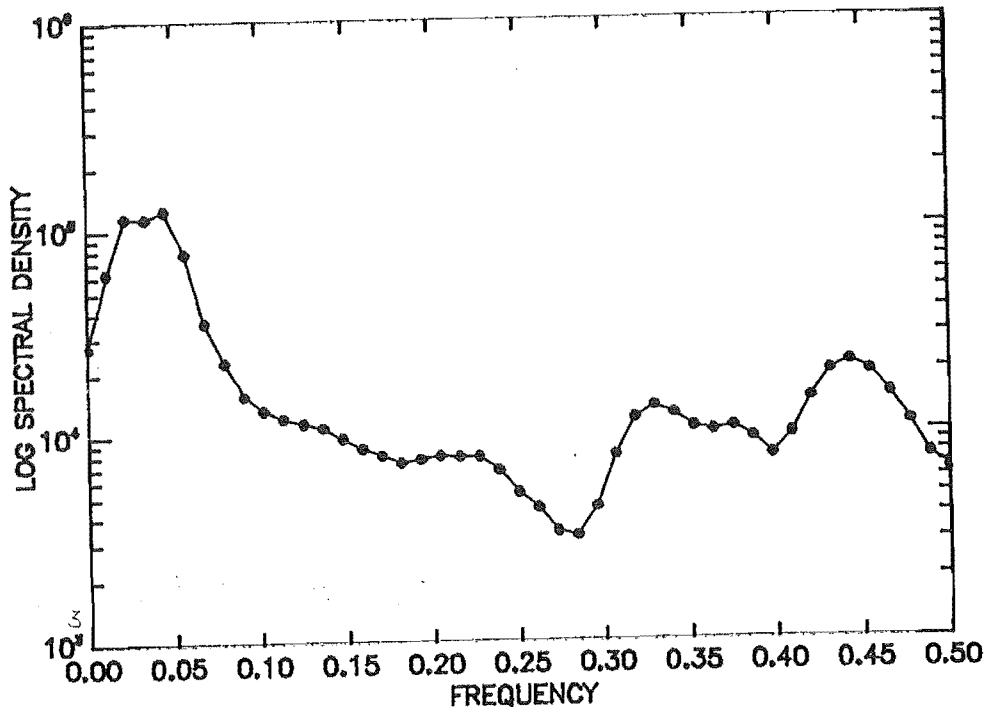
S14,MOOD



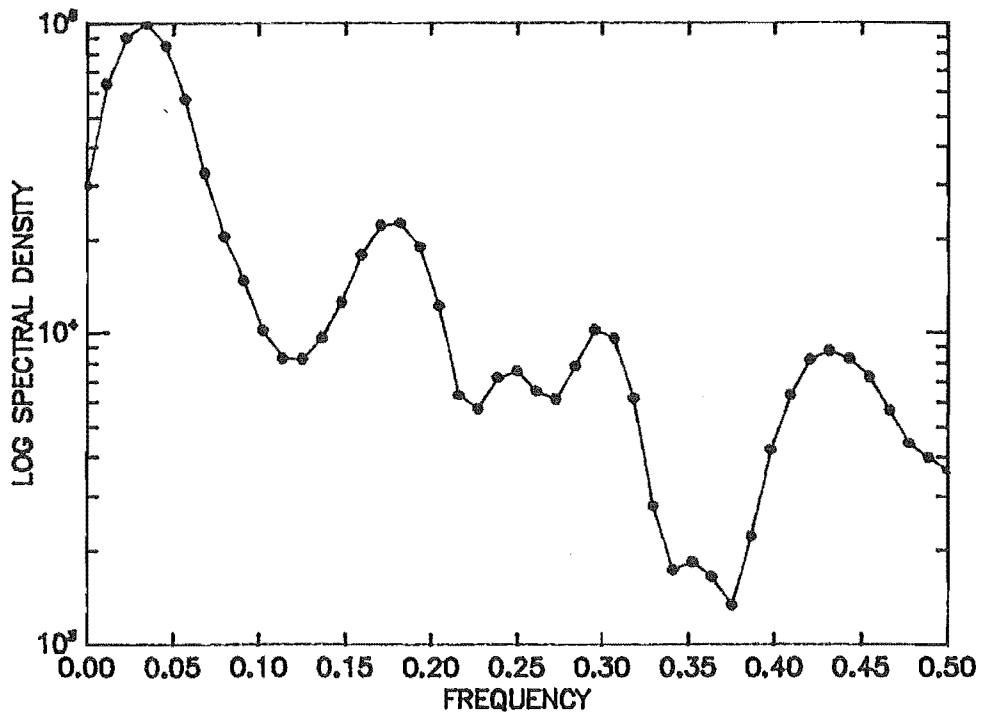
S14,MOOD



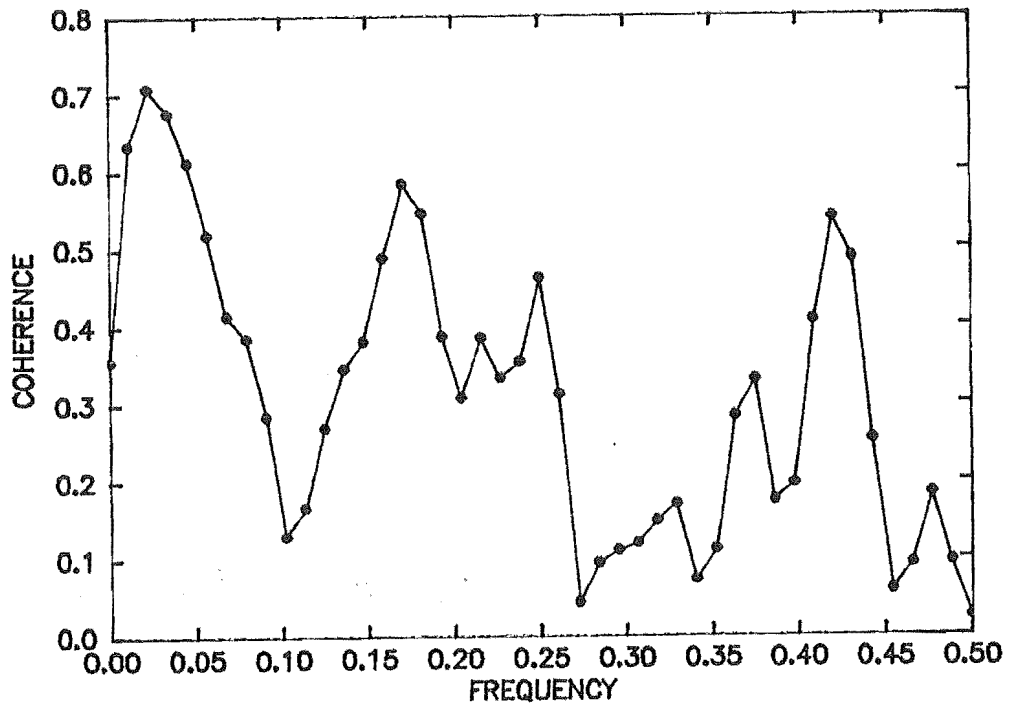
S15,MOOD,TARGET



S15,MOOD,OBS



S15,MOOD



S15,MOOD

