NSSDC

74-11

Users Guide for Information Retrieval Using APL

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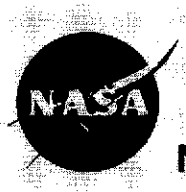

NATIONAL SPACE SCIENCE DATA CENTER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION · GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

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Users Guide for Information Retrieval Using APL

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ILLUSTRATIONS

INTRODUCTION

"A Programming Language" (APL) is a precise, concise, and powerful computer programming language. It was developed by K. E. Iverson, while he was at Harvard, and described in a 1962 Wiley publication. In 1966 an APL experiment time-sharing system was implemented for the IBM 360. Shortly thereafter APL gained wide acceptance by mathematicians, scientists, engineers, and statisticians to assist them with their work. APL is presently available on the IBM 360/95 at the Goddard Space Flight Center (GSFC).

Several features make APL useful to managers and other potential computer users. APL is interactive; therefore, the user can communicate with his program or data base in near real-time. This, coupled with the fact that APL has excellent debugging features, reduces program checkout time to minutes or hours rather than days or months. Of particular importance is the fact that APL can be utilized as a management science tool using such techniques as operations research, statistical analysis, and forecasting.

The gap between the scientist and the manager could be narrowed by showing how APL can be used to do what the scientists and the manager each need to do, retrieve information. Sometimes, the information needs to be retrieved rapidly. In this case APL is ideally suited for this challenge.

The National Space Science Data Center (NSSDC) at GSFC has developed a computer program called IRA (Information Retrieval using APL). This program accesses a data base containing information relating to space science experiments and to the phenomena being measured. IRA is a tool for retrieving information in response to requests made by the scientific community. IRA is executed from a remote terminal (to the IBM 360/95) and results are achieved in seconds.

This report describes the data base, the general search requirement, and explains how to use the system.

THE DATA BASE

Large amounts of data from scientific satellites and space probes are sent to NSSDC for the purpose of making them available to the international scientific community. The data come from a wide variety of devices measuring: (a) outgoing terrestrial and planetary radiations in the infrared (IR) and ultraviolet (UV), and radio waves, (b) solar and cosmic radio waves, UV, X-ray, and gamma-ray radiations, (c) ionospheric

composition and dynamics, (d) atmospheric composition and dynamics, (e) solar and galactic cosmic rays, (f) magnetospheric plasma, particles, and magnetic and electric fields, (g) interplanetary plasma, and electric and magnetic fields, (h) micrometeorites, and (i) lunar and planetary terrain features. Any one space science experiment may actually study more than one phenomenon; therefore, more than one keyword string may be associated with an experiment (with a limit of 10 such strings).

The data base is composed of the following two files. The Experiment File provides information common to all strings, and the Phenomenon File provides information unique for a particular string.

THE EXPERIMENT FILE

The Experiment File contains information common to all keyword strings (phenomena studied) associated with the experiment. The file includes (but is not limited to) the following information:

1. NSSDC Experiment ID Code
   The NSSDC Experiment ID is a 10-character code that uniquely identifies each experiment.

2. Experiment Identification
   The Experiment Identification is a 42-character field that contains the spacecraft common name, the experiment name, and the principal investigator's last name.

3. Experiment Agent (EAG) ID Code
   EAG is a three-character field for the initials or mnemonic of the acquisition scientist to whom the experiment is currently assigned at NSSDC.

4. NSSDC Date
   NSSDC Dates are the earliest and latest dates of coverage for any data identified by NSSDC to be from a given experiment.

PHENOMENON FILE

The Phenomenon File provides a string of information pertaining to a particular phenomenon being measured by an experiment aboard a spacecraft. Some experiments study several different phenomena; therefore, one experiment may have several strings of keywords describing each phenomenon measured. A keyword string consists of 22 fields, 15 of which are two-letter codes (C1 through C15). Two fields are floating point numbers N1 and N2, and the remaining five fields are dates T1 through T5. T1 through T5 are common to all strings for a given experiment.

Of the 15 two-character codes used in each keyword string, the first six (C1 - C6) are used to answer the question "what is measured?" The next four (C7 - C10) answer the question "where are the measurements taken or what remote sources are sensed?" The next four (C11 - C14) are mode status indicators or data usefulness codes. The last one (C15)* identifies the meaning of floating point fields N1 and N2, which are used to specify a particle energy range or electromagnetic radiation frequency range, or the like. The five date fields (Experiment Operation History (EOH)) record the time history of the major operating modes of the experiment. These dates are related to the C11 - C14 fields in that the status of operation of the mode in the time interval T1 to T2 is given in C11, T2 to T3 in C12, etc. Fewer than five dates may be used. Figure 1 shows the phenomenon keywords that may be used.

THE GENERAL REQUIREMENT

THE SEARCH

The general requirement for a search consists of any or all of the following 12 conditions.

1. C1 = _____
2. C2 = _____
3. C3 = _____
4. C4 = _____
5. C5 = _____
6. C6 = _____
7. C7 = _____
8. C15 = _____
9. + N1 between _____ and _____
10. +N2 between _____ and _____
11. +Time period between TA and TB
12. Data usefulness code(s) = _____ (C11 - C14)

*The actual designation used for field C15 is CE.

+Between is noninclusive.

ECODLA	ECODLB	ECODLC	ECODLD	ECODLE	ECODLF	ECODLG – ECODLJ	ECODLK – ECODLN	ECODLO – ECODLR	ENUMBS – ENUMBZ
WHAT						WHERE	WHEN	RANGED QUANTITIES	
C1	C2	C3	C4	C5	C6	C7–C10 [1]	C11–C14 [2]	C15–C18: C15 (N1–N2)	C15–C18: C16–C18 (N_3–N_8)

CATEGORY [1]

EM = ElectroMagnetic radiation

OBSERVABLE [1]
- EC = EleCtric field
- BC = magnetic field
- EB = Electromagnetic radiation

DIRECTION [1]
- OC = One Component
- WC = tWo Components
- TC = Three Components
- SM = Scalar Magnitudes

SPECTRAL "SPECIES"
- GR = Gamma >500 keV
- HX = Hard X 10–500 keV
- SX = Soft X 1–100A
- EU = Ext Uv 100–1000A
- UV = UV 1000–3000A
- VL = Visual 3000–8000A
- IR = IR 8000A–1mm
- MW = Mic Wv 1mm–30mm
- RW = Rad Wv >30cm

SPECTRAL RESOLUTION [2]
- YS = Yes, by Successive DC sampling or with $\lambda/\Delta\lambda > 10$ (for AC measurements)
- YO = Yes, with $\lambda/\Delta\lambda < 10$
- NO = NOne

TECHNIQUE [1]
- AB = AmBient sensor
- RM = ReMote sensor

CP = Charged Particles

SPECIES [1]
- EL = ELectrons
- PS = PoSitrons
- PN = ProtoNs
- DT = Deuteron/Triton
- AP = Alpha Particle
- HE = Z=2 nuclei, not α
- OS = Z>2, One Species
- NS = Numerous Species including ions
- US = Unknown Species
- OT = OTher

SPECIES RESOLUTION
- YR = Yes, Resolved
- PR = Partly Resolved
- NR = Not Resolved
- UR = Unknown Res

CHARACTERISTIC [1]
- PF = Particle Flux
- EF = Energy Flux
- CX = other, including propagation tech

SPECTRAL RESOLUTION [2]
- SY = Yes
- SN = No
- SU = Unknown

DIRECTIONALITY [2]
- DM = Directional Mea
- SI = Spin Integ
- OD = OmniDirect
- UD = Unknown Direct

MN = Microscopic Neutrals

SPECIES [1]
- NT = NeuTrons
- AM = Atoms/Molecules
- AT = ATmospheres
- OT = OTher

TECHNIQUE [1]
- MA = MAss spectro
- TD = Total Density
- DG = DraG tech
- PH = imagery
- OE = Other Em tech
- RP = Reentry Package
- OT = OTher

PURPOSE [1]
- EX = EXperimental
- OP = OPerational

MB = Macroscopic Bodies

TECHNIQUE [1]
- PH = imagery
- OE = Electromagnetic signal analysis
- ST = Seismic Tech
- RS = Samples
- IM = IMpact
- OA = Orbit Analysis
- RA = RAdioactivity
- OT = OTher

OT = OTher experiments

CATEGORY [1]
- CO = COmmunications
- ET = Engineering/Tech
- LS = Life Science
- MS = Materials Science
- NV = NaVigation
- OT = OTher

PURPOSE [1]
- OP = OPerational
- EX = EXperimental

EARTH
- ER = EaRth to 65km

NEAR EARTH 65 to 3000km
- EQ = EQuatorial <40° lat
- ML = Mid Lat 40–65° lat
- HL = High Lat >65° lat
- FL = EQ+ML+HL

MAGNETOSPHERE ABOVE 3000km
- IZ = Inner Zone L<2
- OZ = Outer Zone 2–6R_e
- QT = QuasiTrap 6–10R_e
- HP = Hi Polar
- MT = Magnetic Tail
- TR = Transition Region

INTERPLANET
- IN = Near earth–moon
- IF = beyond earth–moon

COMBINATIONS
- OQ = OZ + QT
- IQ = IZ + OZ + QT
- IT = IN + TR
- IA = IN + TR + MT

LARGE SOLAR SYSTEM BODIES
- SO = Sun
- LU = LUnar (earth)
- OM = Other Moon
- HG = mercury
- VN = VeNus
- ER = EaRth, to 65km
- MR = MaRs
- JU = JUpiter
- SA = SAturn
- UA = UrAnus
- NP = NePtune
- PT = PluTo
- MM = Meteors–dust
- CT = CometS
- GL = GaLactic/ext-gal
- ZD = ZoD lt/gegenschein
- AA = Aurora/Airglow

- DU = Data nominal
- DL = Data Less than nominally useful
- DN = Data Not obtained

FOR C1 = EM [2]
- CM = λ, CM
- EV = energy, EV
- HZ = frequency, HZ

FOR C1 = EM
- SR = Spectral Res $\lambda/\Delta\lambda$
- TH = angular res ($\Delta\theta$ in arc–min)

FOR C1 = CP [1]
- EN = Energy, eV/Nuc
- EZ = Energy, eV/Z

FOR C1 = CP
- ZR = charge Range
- XR = mass Range
- HZ = freq HertZ

FOR C1 = MN [3]
- EN = Energy, eV/Nuc
- XR = mass Range (proton = 1)
- CM = λ, CM

FOR C1 = MB
- RE = size RangE (M)
- CM = λ, CM
- EV = energy, EV

1. Item entry required.
2. Item entry required only for data at NSSDC.
3. Item entry required for C2 or C3 entry of NT, MA, OE, or PH.

Figure 1. Phenomenon Keywords

The user inputs search criteria to interrogate the data base. The criteria may consist of a series of "AND" relationships between the different field conditions being considered.

For example: C1 = CP AND C2 = PN.

A single field may also have a choice of values to be matched, as for C1 in C1 = CP OR EM AND C2 = PN.

If fields C7 through C10 are to be examined, only C7 = xx should be entered as all of the fields as a set will be checked for a match with xx.

For field C15 (units indicator) enter CE and respond to the range boundary questions asked by the program.

The terminal prompts the user with a series of questions or requests.

1. "What Search Requirement?"
   These are the conditions on C1 through C7 and C15. If C15 is not chosen in the search requirement, then the terminal skips responses 2 and 3 following.

2. "Enter Lower, Upper Limit of N1"
   The user supplies a range of values in which N1 must fall. The lower and upper limit are separated by a space.

3. "Enter Lower, Upper Limit of N2"
   The user supplies a range of values in which N2 must fall. The lower and upper limit are separated by a space. (If the user is not interested in N1/N2 range, enter 0 1E38 at the N1/N2 prompt.)

4. "Is a Time Period Desired? Yes or No"
   If the user response is "No," then the terminal skips responses 5 and 6.

5. "Enter Lower and Upper Limit of Time Period (YYMMDD YYMMDD)"
   The user supplies the time range in which he is interested. The lower and upper limits of the time period are separated by a space.

6. "What Condition on Data Usefulness? ULN, UL, N, ETC?"
   The user supplies the conditions for C11 through C14. The permissible entries are U, L, or N or any combination thereof.

The interplay between these conditions, the time period desired (last question), and the EOH are described in more detail in the following section, Output.

When these questions have been answered, IRA responds with the number of strings that satisfied the request and then asks if the user wishes to list the strings. If the answer is yes, then the user has the option of choosing a short form or a standard form for the output.

THE OUTPUT

The standard form for the output is a one-line-per-Phenomenon string report. Fields are chosen from both Phenomenon File and Experiment File with each line containing the following information.

1. NSSDC ID
2. 42-character "ID" (spacecraft, experiment, and experimenter names)
3. N1
4. N2
5. C15
6. TA*
7. TB*
8. NSSDC Data
9. EAGENT

TA* and TB* are defined as the first date of the first interval and the second date of the last interval in which the original search criteria are satisfied. For example, if the EOH contains five dates (T1, T2, T3, T4, and T5), and if TA (first date of requester-specified interval) falls between T1 and T2, and TB (last date of requester specified interval) falls between T3 and T4, and also if C11 and C13 satisfy the criteria placed on them, then TA* = T1 and TB* = T4. However, if C11 and C12 satisfy their criteria but C13 does not, then TA* = T1 and TB* = T3. If EOH has fewer than five dates and there is one fewer of the columns C11 - C14 filled in than EOH has dates, the experiment has terminated, and TA* and TB* are selected as described earlier. However, if EOH has fewer than five dates and there are as many of the columns C11 - C14 filled in as EOH has dates, the following applies: If TB (last date of interest to requester) precedes the last given EOH date, then TB* is determined as before; but, if TB is later than the last given EOH date and if the last date usefulness code (this could be C11 or C12 or C13 or C14) satisfies its condition, TB* is printed PRESENT.

If TA precedes T1, then TA* = T1 (if C11 meets criteria).
If TB follows T5, then TB* = T5 (if C14 meets criteria).

If the user prefers the short form for the output, then each line merely contains the NSSDC ID and the 42-character Experiment Identification.

HOW TO USE THE SYSTEM

To sign on to the system, the user must first dial extension 34, wait for the whistle, place receiver in appropriate spot, type)2222, and wait for the

response. After the computer responds, type in)LOAD BETH. The appropriate software is now in the active workspace. To initiate a request, the user types in ASK. From then on, IRA prompts the user. In this section several examples are given to show the user how to use the system. The examples given are taken from the actual data base, which consists of about 3000 strings of experiment phenomena keywords.

Example 1

Determine the number of phenomenon strings that measure Charged Particles.

DIAL 34 DIAL UP

)2222 SIGN ON

001) 11.37.20 07/11/74 ARTEX

A P L / 3 6 0

)LOAD BETH LOAD WORKSPACE

SAVED 13.26.56 04/22/74

ASK EXECUTE

WHAT SEARCH REQUIREMENT PROMPT

C1=CP RESPONSE

IS A TIME PERIOD DESIRED?(YES OR NO) PROMPT

NO RESPONSE

1825 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS?? (YES OR NO): PROMPT

NO RESPONSE

CPU=8.316666667 SEC

)OFF SIGN-OFF

Since there were so many strings that satisfied this request, the user did not choose to list the strings. The next sample is an attempt to narrow the number of strings that satisfy the request.

Example 2

Determine the number of phenomenon strings that measure Charged Particle Protons and has a Particle Flux Characteristic.

ASK

WHAT SEARCH REQUIREMENT

C1 = CP AND C2 = PN AND C4 = PF

IS A TIME PERIOD DESIRED? (YES OR NO)

NO

723 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS? (YES OR NO):

NO

There are still a large number of strings that satisfy the request; therefore, the user, again, did not choose to list the strings. The next example reduces the list considerably.

Example 3

List the phenomenon strings that measure Charged Particle Protons, have a Particle Flux Characteristic, and the measurements are taken Near Earth in the Mid-latitudes (40 degrees - 65 degrees).

ASK

WHAT SEARCH REQUIREMENT

C1 = CP AND C2 = PN AND C4 = PF AND C7 = ML

IS A TIME PERIOD DESIRED? (YES OR NO)

NO

42 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[SH], OR THE STANDARD FORM[ST]

ST

NSSDC ID	*EXPERIMENT NAME*		*N1*	*N2*	*UNIT*	*NSSDC DATA*	*EAG*
59-004A-03	*EXPL 6, ION CHαGMωE/1.55,2.86,Pλ*	*WINCKLER*	*3.64E 07*	*9.99E 37*	*EN*	*080759100659*	*EGS*
62-029A-01	*TELSTAR 1,CHARGED PARTICLES*	*BROWN*	*2.40E 06*	*2.50E 07*	*EN*	*071062022163*	*EGS*
62-029A-01	*TELSTAR 1,CHARGED PARTICLES*	*BROWN*	*2.60E 07*	*9.99E 37*	*EN*	*071062022163*	*EGS*
62-067B-02	*INJUN 3, PULSE SCINTILLATOR*	*OBRIEN*	*4.00E 07*	*9.99E 37*	*EN*	*121462102863*	*LRD*
62-068A-02	*RELAY 1, CHARGED PARTICLE DETS*	*BROWN*	*1.80E 06*	*1.80E 07*	*EN*	*121362033164*	*EGS*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*3.40E 07*	*9.99E 37*	*EN*	*121462102064*	*LRD*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*1.10E 06*	*1.40E 07*	*EN*	*121462102064*	*LRD*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*5.20E 06*	*9.99E 37*	*EN*	*121462102064*	*LRD*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*1.32E 07*	*6 30E 07*	*EN*	*121462102064*	*LRD*
63-013A-01	*TELSTAR 2, CHARGED PART*	*BROWN*	*1.80E 06*	*2.80E 07*	*EN*	*050763050765*	*EGS*

Example 4

List the phenomenon strings that measure Charged Particle Protons, have a Particle Flux Characteristic, the measurements are taken Near Earth in the Mid-latitudes (40 degrees - 65 degrees), have an EOH between the beginning of 1963 and the end of 1968, and the data measured are Nominal.

ASK

WHAT SEARCH REQUIREMENT

C1 = CP AND C2 = PN AND C4 = PF AND C7 = ML

IS A TIME PERIOD DESIRED? (YES OR NO)

YES

ENTER LOWER AND UPPER LIMIT OF TIME PERIOD [*YYMMDD YYMMDD*]

□ :

630100 690101

WHAT CONDITION ON DATA USEFULNESS? ULN,UL,N,ETC.

U

18 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[SH],*OR THE STANDARD FORM*[*ST*]

ST

NSSDC ID	*EXPERIMENT NAME*		*N1*	*N2*	*UNIT*	*TA**	*TB**	*NSSDC DATA*	*EAG*
62-029A-01	*TELSTAR 1, CHARGED PARTICLES*	*BROWN*	*2.40E 06*	*2.50E 07*	*EN*	*620710*	*630821*	*071062022163*	*EGS*
62-029A-01	*TELSTAR 1, CHARGED PARTICLES*	*BROWN*	*2.60E 07*	*9.99E 37*	*EN*	*620710*	*630821*	*071062022163*	*EGS*
62-087B-02	*INJUN 3, PULSE SCINTILLATOR*	*OBRIEN*	*4.00E 07*	*9.99E 37*	*EN*	*621213*	*631080*	*121462102863*	*LRD*
62-088A-02	*RELAY 1, CHARGED PARTICLE DETS*	*BROWN*	*1.80E 06*	*1.90E 07*	*EN*	*621213*	*650810*	*121362033164*	*EGS*
62-088A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*3.40E 07*	*9.99E 37*	*EN*	*621213*	*641020*	*121462102064*	*LRD*
62-088A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*1.10E 06*	*1.40E 07*	*EN*	*621213*	*630510*	*121462102064*	*LRD*
62-088A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*5.20E 06*	*9.99E 37*	*EN*	*621213*	*641020*	*121462102064*	*LRD*
62-088A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*	*1.80E 07*	*9.30E 07*	*EN*	*621213*	*641020*	*121462102064*	*LRD*
63-013A-01	*TELSTAR 2, CHARGED PART*	*BROWN*	*1.80E 06*	*2.80E 07*	*EN*	*630507*	*650516*	*050763050765*	*EGS*
63-013A-01	*TELSTAR 2, CHARGED PART*	*BROWN*	*5.00E 07*	*1.00E 08*	*EN*	*630507*	*650516*	*050763050765*	*EGS*

Example 5

List the phenomenon strings that measure Charged Particle Protons or Electrons of Positrons, have a Particle Flux Characteristic, the measurements are taken Near Earth in the Mid-latitudes (40 degrees - 65 degrees), have an EOH between 1963 and 1968, and the data measured are Nominal.

ASK

WHAT SEARCH REQUIREMENT

C1 = CP AND C2 = PN OR EL OR PS AND C4 = PF AND C7 = ML

IS A TIME PERIOD DESIRED? (YES OR NO)

YES

ENTER LOWER AND UPPER LIMIT OF TIME PERIOD [*YYMMDD YYMMDD*]

□ :

630100 690101

WHAT CONDITION ON DATA USEFULNESS? ULN, UL, N, ETC.

U

37 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[*SH*], *OR THE STANDARD FORM*[*ST*]

SH

NSSDC ID	*EXPERIMENT NAME*	
62-029A-01	*TELSTAR 1, CHARGED PARTICLES*	*BROWN*
62-029A-01	*TELSTAR 1, CHARGED PARTICLES*	*BROWN*
62-029A-01	*TELSTAR 1, CHARGED PARTICLES*	*BROWN*
62-067B-02	*INJUN 3, PULSE SCINTILLATOR*	*OBRIEN*
62-068A-02	*RELAY 1, CHARGED PARTICLE DETS*	*BROWN*
62-068A-02	*RELAY 1, CHARGED PARTICLE DETS*	*BROWN*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*
62-068A-03	*RELAY 1, PROTON-ELECTRON COUNTERS*	*MCILWAIN*

Example 6

List the phenomenon strings that measure Charged Particle Protons and cover the interval energy range 5 x 10^7 to 10^{38}.

ASK

WHAT SEARCH REQUIREMENT

C1 = CP AND C2 = PN AND CE = EN OR EZ

ENTER LOWER, UPPER LIMIT OF N1:

□ :

5.E7 1.E38

ENTER LOWER, UPPER LIMITS OF N2:

□ :

5.E7 1.E38

IS A TIME PERIOD DESIRED? (YES OR NO)

NO

95 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS?? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[SH], OR THE STANDARD FORM[ST]

ST

NSSDC ID	*EXPERIMENT NAME*		*N1*	*N2*	*UNIT*	*NSSDC DATA*	*EAG*
59-004A-01	*EXPL 6, TRIPLE COINC PROP COUNTER*	*SIMPSON*	*7.50E*	*9.99E*	*37 EN*	*080759100659*	*JJB*
60-001A-01	*PIONEER 5, TRIP COINC PROP COUNTER*	*SIMPSON*	*7.50E*	*9.99E*	*37 EN*	*031160051660*	*JJB*
61-013A-02	*EXPLORER 11, CHARGED PARTICLE*	*GARMIRE*	*7.50E*	*3.50E*	*08 EN*	*042861111261*	*JJB*
61-020A-04	*EXPL 12, C.R. SCINTαDBL SCINT TELE*	*MCDONALD*	*6.00E*	*9.99E*	*37 EN*	*081661120661*	*JHK*
61-020A-04	*EXPL 12, C.R. SCINTαDBL SCINT TELE*	*MCDONALD*	*5.50E*	*5.00E*	*08 EN*	*081661120661*	*JHK*
62-049A-02	*ALOUETTE 1, ENERGETIC PART. DETECT*	*MCDIARMID*	*1.30E*	*9.99E*	*37 EN*	*092962032664*	*EGS*
62-051A-04	*EXPL 14, C.R. SCINTαDBL SCINT TELE*	*MCDONALD*	*5.50E*	*5.00E*	*08 EN*	*100262081163*	*JHK*
62-051A-04	*EXPL 14, C.R. SCINTαDLB SCINT TELE*	*MCDONALD*	*6.00E*	*9.99E*	*37 EN*	*100262081163*	*JHK*
63-013A-01	*TELSTAR 2, CHARGED PART*	*BROWN*	*5.00E*	*1.00E*	*08 EN*	*050763050765*	*EGS*
63-046A-03	*EXPL 18, C.R. PROTONSωR VS DE/DX<*	*SIMPSON*	*9.00E*	*1.90E*	*08 EN*	*112763060864*	*JJB*

Example 7

List the phenomenon strings that measure Microscopic Neutrals (Neutrons) and have an EOH between 1965 and 1970.

ASK

WHAT SEARCH REQUIREMENT

C1 = MN AND C2 = NT

IS A TIME PERIOD DESIRED? (YES OR NO)

YES

ENTER LOWER AND UPPER LIMIT OF TIME PERIOD [YYMMDD YYMMDD]

□ :

650100 710101

WHAT CONDITION ON DATA USEFULNESS? ULN,UL,N,ETC.

ULN

5 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS?? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[SH], OR THE STANDARD FORM[ST]

ST

NSSDC ID	*EXPERIMENT NAME*		*N1*	*N2*	*UNIT*	*TA**	*TB**	*NSSDC DATA*	*EAG*
69-046D-07	*VELA 5A, NEUTRON DETECTOR*	*ASBRIDGE*	*1.00E 06*	*1.00E 08*	*EN*	*690523*	*PRESNT*		*JHK*
69-046E-07	*VELA 5B, NEUTRON DETECTOR*	*ASBRIDGE*	*2.99E 08*	*1.00E 08*	*EN*	*690523*	*PRESNT*		*JHK*
69-051A-18	*OGO 6, NEUTRON MONITOR*	*LOCKWOOD*	*1.00E 06*	*1.00E 07*	*EN*	*690605*	*691224*		*JHK*
69-051A-18	*OGO 6, NEUTRON MONITOR*	*LOCKWOOD*	*1.00E 05*	*2.00E 07*	*EN*	*690605*	*691224*		*JHK*
69-068A-07	*OSO 6, NEUTRON FLUX, 20-130MEV*	*LEAVITT*	*2.00E 07*	*2.00E 08*	*EN*	*690614*	*720121*		*LRD*

Example 8

Determine the number of phenomenon strings that measured either Microscopic Neutrals or Macroscopic Bodies and had a time period during calendar year 1967.

ASK

WHAT SEARCH REQUIREMENT

C1 = MN OR MB

IS A TIME PERIOD DESIRED? (YES OR NO)

YES

ENTER LOWER AND UPPER LIMIT OF TIME PERIOD [*YYMMDD YYMMDD*]

□:

670100 680101

WHAT CONDITION ON DATA USEFULNESS? ULN,UL,N,ETC.

U

33 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS?? (YES OR NO):

NO

Example 9

List the phenomenon strings that measured Macroscopic Bodies during calendar year 1967?

ASK

WHAT SEARCH REQUIREMENT

C1 = MB

IS A TIME PERIOD DESIRED? (YES OR NO)

YES

ENTER LOWER AND UPPER LIMIT OF TIME PERIOD [*YYMMDD YYMMDD*]

□:

670100 680101

WHAT CONDITION ON DATA USEFULNESS? ULN,UL,N,ETC.

U

13 STRINGS SATISFY REQUEST

DO YOU WANT TO LIST THE STRINGS?? (YES OR NO):

YES

DO YOU WANT THE SHORT FORM[*SH*]*, OR THE STANDARD FORM*[*ST*]

ST

NSSDC ID	*EXPERIMENT NAME*		*N1*	*N2*	*UNIT*	*TA**	*TB**	*NSSDC DATA*	*EAG*
65-105A-07	*PIONEER 6, CELESTIAL MECHANICS*	*ANDERSON*				*651216*	*700700*	*121865092467*	*CDW*
66-049A-21	*OGO 3, INTERPLAN DUST PARTICLES*	*BOHN*				*660607*	*691201*		*TNK*
67-008A-01	*LUNAR ORBITER 3, LUNAR PHOTOS*	*KOSOFSKY*				*670204*	*670223*	*021567022367*	*WSC*
67-035A-01	*SURVEYOR 3, TELEVISION*	*SHOEMAKER*				*670420*	*670504*	*010167050367*	*WSC*
67-035A-02	*SURVEYOR 3, SURFACE SAMPLER*	*SHOEMAKER*				*670420*	*670504*	*042767042767*	*WSC*
67-041A-01	*LUNAR ORBITER 4, LUNAR PHOTOS*	*KOSOFSKY*				*670511*	*670526*	*051167052667*	*WSC*
67-073A-18	*OGO 4, MICROMETORITE DETECTOR*	*NILSSON*				*670728*	*691023*		*TNK*
67-075A-01	*LUNAR ORBITER 5, LUNAR PHOTOS*	*KOSOFSKY*				*670806*	*670818*	*080667081867*	*WSC*
67-084A-01	*SURVEYOR 5, TELEVISION*	*SHOEMAKER*				*670910*	*670924*	*091167092467*	*WSC*
67-084A-02	*SURVEYOR 5, ALPHA SCATTER*	*TURKVITCH*				*670910*	*670924*	*090967092467*	*WSC*

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