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NASA CR-

144786

A Survey of the Utility of Satellite  
Magnetometer Data for Application to  
Solid-Earth Geophysical and Geological Studies

Final Report NASA Contract No. S-500-29A

Modification No. 8

N76-28631

Unclas  
48126

(NASA-CR-144786) A SURVEY OF THE UTILITY OF  
SATELLITE MAGNETOMETER DATA FOR APPLICATION  
TO SOLID-EARTH GEOPHYSICAL AND GEOLOGICAL  
STUDIES Final Report (Geological Survey,  
Reston, Va.) 30 p HC \$4.00  
CSCL 08G G3/43



U. S. Geological Survey

September, 1975

This report has not been edited  
or reviewed for conformity with  
U. S. Geological Survey standards  
and nomenclature.



## INTRODUCTION

The U. S. Geological Survey (USGS) on behalf of Goddard Space Flight Center (National Aeronautics and Space Administration) conducted a survey of potential users of low altitude satellite magnetic measurements for solid-earth and geological studies. The principal objectives of this survey were to: a) document the utility and application of the data and resultant products obtained from such a satellite mission, and b) to establish a users committee for the proposed low altitude vector magnetometer satellite.

This report summarizes the results of the survey. In addition to this report bound copies of all survey responses, respondents names and addresses in alphabetical order, and survey responses in computer coded cards are submitted under separate cover.

## SURVEY

In May, 1975 8,900 letters and questionnaires were mailed out. This included 6000 addresses on the Society of Exploration Geophysicists domestic mailing list and 2900 mailings to the American Geophysical Union's

Geomagnetism and Paleomagnetism Section membership. A conservative estimate is that there is at least a ten percent overlap between these two mailing lists. Copies of the letters and the questionnaire are contained in Appendix I-A.

### SURVEY RESULTS

As of September 1, 1975 we had received 2,448 responses. This represents approximately 28% of the total number of questionnaires.

A summary questionnaire with the tabulated responses is shown in Table 1.

The total responses to all questions does not always equal 2,448 because in some instances there were no responses to several questions and in other instances there was more than one response.

In addition to replies from individual scientists there were also several corporate responses. This alone is an indication of the interest in such global magnetic measurements that exists within the industrial and scientific communities. A selection of these are presented in Appendix I-B. Furthermore, there were also responses from most state and national geological surveys.

TABLE 1

1. Do you use magnetic data or anomaly maps on a regional or global scale?  
 Yes 1755  No 655
2. If satellite magnetic data at an altitude of 200-400 km were available, would you use it?  
 Yes 787  No 451  Possibly 1158
3. If regional or global scale magnetic anomaly maps derived from such data were available, would you use them?  
 Yes 1051  No 339  Possibly 951

1. Have you used geomagnetic field models?  Yes 1153  No 1238
2. If accurate, up-to-date models were available, would you use them?  
 Yes 1599  No 567
3. In which form would such models be most useful?  
 Computer Program 684  Chart 719  Table 75

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1. Please indicate your field(s) of interest
- |   |   |
|---|---|
| <input type="checkbox"/> mineral exploration 731                            | <input type="checkbox"/> petroleum exploration 1366     |
| <input type="checkbox"/> crustal studies 690                                | <input type="checkbox"/> secular change studies 170     |
| <input type="checkbox"/> studies of field sources 208                       | <input type="checkbox"/> space science applications 303 |
| <input type="checkbox"/> regional field removal in magnetic survey data 495 |   |
| <input type="checkbox"/> other (please specify) 346                         |   |

1. Please indicate the accuracy desired:
- |   |   |   |
|---|---|---|
|   | <input type="checkbox"/> at surface 972 | <input type="checkbox"/> at satellite 181 |
| 1) Magnetic Data                              | 2) Anomaly Maps                         | 3) Field Models                           |
| <input type="checkbox"/> not use              | <input type="checkbox"/> 197            | <input type="checkbox"/> 219              |
| <input type="checkbox"/> 1y (8 arc seconds)   | <input type="checkbox"/> 647            | <input type="checkbox"/> 32               |
| <input type="checkbox"/> 30y (80 arc seconds) | <input type="checkbox"/> 306            | <input type="checkbox"/> 271              |
| <input type="checkbox"/> 100y (6 arc minutes) | <input type="checkbox"/> 58             | <input type="checkbox"/> 108              |
| <input type="checkbox"/> other)               | <input type="checkbox"/> 27             | <input type="checkbox"/> 19               |
| <input type="checkbox"/> not Sure             | <input type="checkbox"/> 485            | <input type="checkbox"/> 555              |

- Would you be interested in participating in a users committee to define the requirements, and possibly participate in the analysis, of data from the described satellite magnetometer experiment? This does not represent a formal commitment.  
 Yes 381  No 1400  Undecided 591

- Would you like to remain on our mailing list to receive information, reports, etc., on the satellite magnetometer experiment, geomagnetic field models, and global magnetic data?  
 Yes 2070  No 346

1. Affiliation
- |   |   |   |  |
|---|---|---|--|
| <input type="checkbox"/> Research Lab 122 | <input type="checkbox"/> Government 328 | <input type="checkbox"/> University 625 | <input type="checkbox"/> Industry 1330 |
|---|---|---|--|

(4)

#### A) Utility of Satellite Data

The first three questions address the utility of satellite magnetometer data and resultant maps in geophysical studies. It should be noted that this is an application area that has only recently been developed (Regan et al, 1975). However, the results of these questions clearly indicate that there is substantial interest in this area. The high number of responses of "Possibly" to the second and third questions are undoubtedly indicative of the contemporary nature of such studies.

#### B) Geomagnetic Field Models

The results of the next three questions indicate that about one half of the respondents have used field models. Yet the response to question B-2 indicates there is apparently some reluctance to use present field models, undoubtedly because of their inaccuracies. Clearly there is a need for more accurate, up to date field models. A prerequisite for such models is the accurate global, vector measurements that could be provided by the proposed satellite magnetometer.

Of particular interest is the form in which users would like to see field models presented. Although most people would prefer to have field models in chart form, there are, at present, no models presented in such a manner.

c) Field of Interest

Question C in the tabulated form summarizes the fields of interest. The practical applicability of the satellite derived data to geophysical exploration is indicated by the high number of responses from people involved in mineral and petroleum exploration. This is also reflected in the corporate responses contained in Appendix I-B and in the large number of responses from industry. The last line of the questionnaire summarizes the affiliations and Table 2 presents a cross reference between affiliation and field of interest.

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TABLE 2

A Listing of Responses Categorized by Affiliation and Area of Interest

<u>Affiliation</u>	<u>Area of Interest</u>							
	Mineral Exploration	Crustal Studies	Studies of Field Sources	Regional Field Removal	Other	Petroleum Exploration	Secular Change Studies	Space Science Application
Research Lab	21	23	10	19	22	36	13	45
Government	86	132	49	96	89	64	52	81
University	167	330	101	172	125	138	88	132
Industry	443	193	46	198	102	1108	16	40
No Affiliation Noted	14	12	2	10	8	20	1	5

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D) Accuracy and Altitude of Data

The response to this question indicate that people are not certain about the accuracies involved with such data (particularly at satellite altitude). This is no surprise and is again reflective of the contemporary nature of such studies.

Basically there seems to be two groups of respondents; those that are not sure of accuracy required and those who would request that measurements be obtained as accurately as possible. A detailed analysis of the responses indicate that more precise answers were presented for measurements at the surface while the "Not Sure" category was checked by many for satellite data. However approximately half of the respondents did not reply to this question. This is indicated in Table 3 that categorizes the responses by affiliation and desired altitude of data.

E) Users Group and Mailing List

Names and addresses of those people willing to participate in a users committee, undecided about such participation, and those wishing to remain on a mailing list are contained in Appendix II - A, B, and C respectively. Because of the volume of such a listing this appendix is published as a separate report for distribution only to the contract monitor at Goddard Space Flight Center.

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TABLE 3

Responses Categorized by Affiliation and Altitude

<u>Affiliation</u>	<u>Altitude</u>			
	Satellite	Surface	Both	No Response
Research Lab	24	28	3	64
Government	47	119	10	138
University	75	288	11	241
Industry	34	528	16	746
No Affiliation Noted	1	9	0	37

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## CONCLUSIONS

The main conclusion to be drawn from the overwhelming response to this survey is that there is considerable interest, in both the scientific and industrial communities, in the utility of satellite magnetometer data.

There is also broad support for the proposed vector magnetometer satellite in near earth orbit. This is evident by the almost 400 responses from people interested in serving on a users committee. The proposed satellite data will have direct application to both regional and global magnetic anomaly maps and in the production of more accurate geomagnetic field models. These are timely concerns of both communities as indicated by this survey.

It should also be mentioned that because one of the objectives of this survey was to form a users committee, the majority of questionnaires were sent to domestic addresses. The results of the survey only weakly reflect the substantial international interest in the application of satellite magnetometer data to geological studies.

REFERENCES

Regan, R. D., Cain, J. C., and W. M. Davis, 1975, A Global Magnetic  
Anomaly Map, Journal of Geophysical Research, v. 80, n. 5, p. 794.

Appendix I-A

Letters and Questionnaire

- a) Letter to Society of Exploration Geophysicists membership
- b) Letter to American Geophysical Union membership
- c) Questionnaire

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## United States Department of the Interior

GEOLOGICAL SURVEY  
RESTON, VIRGINIA 22092

Dear Colleague:

We have been asked by NASA/Goddard Space Flight Center to survey the potential users of satellite magnetometer data, anomaly maps, and resultant geomagnetic field models in solid-earth geophysical and geological studies. This is an appropriate time for such an undertaking because a low altitude, three axis vector magnetometer satellite is one of several missions now under serious consideration by NASA.

The data derived from such a satellite should be of considerable interest to the geophysical exploration community. The global magnetic anomaly map produced as a result of our analysis of the POGO satellite magnetometer data represents an anomalous field that is most likely related to crustal structure. Perhaps of more immediate interest is the fact that satellite measurements represent the only viable method for obtaining up to date global data necessary for input to global and national magnetic charts and for the development of improved geomagnetic field models suitable for use in the reduction of magnetic surveys.

Available satellite magnetometer data were derived from missions primarily designed for magnetospheric studies. Consequently, the measurements were made at predominantly high altitudes. Also, because of technical limitations, only total field measurements were obtained. Thus, the resolution of resultant anomaly maps and the angular accuracy of derived field models are limited. Also, the most recent satellite measurements were made in 1971 and there are not at present any alternative plans for obtaining new global measurements.

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The vector satellite mission under consideration by NASA is designed to overcome these limitations. The low altitude (200-400 km; very low for a satellite) will provide a several fold increase in spatial resolution and sensitivity over previous satellite data, and the vector measurements, now technically feasible, would make possible more accurate global field models from the satellite data. The measurements would also provide a measure of recent secular change.

The main reason for our survey is to insure that the data derived from such a mission will have maximum utility to as many applications as possible. Accordingly, we would like to solicit your views on the potential utility of such data to your studies, your particular application of the data, and your interest in participating in a data users group. As an aid in formating your reply, we have prepared the enclosed questionnaire. However, the most important aspect of our inquiry is to obtain your views; so please do not be constrained by the questionnaire, but feel free to respond in any manner.

Thank you for considering our questionnaire. Your response is considered essential in designing and providing optimal satellite magnetometer data.

Very truly yours,



Robert D. Regan  
Geophysicist  
Office of Geochemistry  
and Geophysics

Enclosure

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## United States Department of the Interior

GEOLOGICAL SURVEY  
RESTON, VIRGINIA 22092

Dear Colleague:

We have been asked by NASA/Goddard Space Flight Center to survey the potential users of satellite magnetometer data, anomaly maps, and resultant geomagnetic field models in solid-earth geophysical and geological studies. This is an appropriate time for such an undertaking because a low altitude, three axis vector magnetometer satellite is one of several missions now under serious consideration by NASA.

The data derived from such a satellite should have wide application in many areas of geophysical studies. For example, the global magnetic anomaly map (JGR, 1975, v. 80, no. 5, p. 794) produced as a result of our analysis of the POGO satellite magnetometer data represents an anomalous field that is most likely related to crustal structure. Also, satellite measurements represent the only viable method for obtaining up to date global data necessary for the development of improved geomagnetic field models and are valuable to studies of the origin and physics of the main geomagnetic field.

Available satellite magnetometer data were derived from missions primarily designed for magnetospheric studies. Consequently, the measurements were made at predominantly high altitudes. Also, because of technical limitations, only total field measurements were obtained. Thus, the resolution of resultant anomaly maps and the angular accuracy of derived field models are limited. Also, the most recent satellite measurements were made in 1971 and there are not at present any alternative plans for obtaining new global measurements.

The vector satellite mission under consideration by NASA is designed to overcome these limitations. The low altitude (200-400 km; very low for a satellite) will provide a several fold increase in spatial resolution and sensitivity over previous

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satellite data, and the vector measurements, now technically feasible, would make possible more accurate global field models from the satellite data. The measurements would also provide a measure of recent secular change.

The main reason for our survey is to insure that the data derived from such a satellite magnetometer mission will have maximum utility to as many applications as possible. Accordingly, we would like to solicit your views on the potential utility of such data to your studies, your particular application of the data, and your interest in participating in a data users group. As an aid in formating your reply, we have prepared the enclosed questionnaire. However, the most important aspect of our inquiry is to obtain your views; so please do not be constrained by the questionnaire, but feel free to respond in any manner.

Thank you for considering our questionnaire. Your response is considered essential in designing and providing optimal satellite magnetometer data.

Very truly yours,



Robert D. Regan  
Geophysicist  
Office of Geochemistry  
and Geophysics

Enclosure

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A)

- 1. Do you use magnetic data or anomaly maps on a regional or global scale?  
 Yes                       No
- 2. If satellite magnetic data at an altitude of 200-400 km were available, would you use it?  
 Yes                       No                       Possibly
- 3. If regional or global scale magnetic anomaly maps derived from such data were available, would you use them?  
 Yes                       No                       Possibly

B)

- 1. Have you used geomagnetic field models?     Yes                       No
- 2. If accurate, up-to-date models were available, would you use them?  
 Yes                       No
- 3. In which form would such models be most useful?  
 Computer Program                       Chart                       Table

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C)

- 1. Please indicate your field(s) of interest
  - mineral exploration
  - crustal studies
  - studies of field sources
  - regional field removal in magnetic survey data
  - other (please specify) \_\_\_\_\_
  - petroleum exploration
  - secular change studies
  - space science applications

D)

- 1. Please indicate the accuracy desired:
 

	<input type="checkbox"/> at surface	<input type="checkbox"/> at satellite
1) Magnetic Data	2) Anomaly Maps	3) Field Models
Do not use	<input type="checkbox"/>	<input type="checkbox"/>
±2γ (8 arc seconds)	<input type="checkbox"/>	<input type="checkbox"/>
±20γ (80 arc seconds)	<input type="checkbox"/>	<input type="checkbox"/>
±100γ (6 arc minutes)	<input type="checkbox"/>	<input type="checkbox"/>
(other) _____	<input type="checkbox"/>	<input type="checkbox"/>
Not Sure	<input type="checkbox"/>	<input type="checkbox"/>

E)

- Would you be interested in participating in a users committee to define the requirements, and possibly participate in the analysis, of data from the described satellite magnetometer experiment? This does not represent a formal commitment.  
 Yes                       No                       Undecided

G)

- Would you like to remain on our mailing list to receive information, reports, etc., on the satellite magnetometer experiment, geomagnetic field models, and global magnetic data?  
 Yes                       No

H)

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Affiliation

- Research Lab
- Government
- University
- Industry

Appendix I-B  
Corporate Responses

C. E. EDWARDS  
P. O. BOX 36487  
HOUSTON, TEXAS 77036

May 20, 1975

Mr. Robert D. Regan, Geophysicist  
Office of Geochemistry & Geophysics  
U. S. Department of The Interior  
Reston, Virginia 22092

Dear Mr. Regan:

As you know, the Interior Department's questionnaire regarding satellite magnetometer data was sent to a large number of industry geophysicists. To assist you in an assessment of Company interest, we have compiled the attached, which is a consensus of thinking by geophysicists occupying responsible technical positions of research and operations in Standard Oil Company of California.

We trust you will be able to properly weight this "Company" response in relationship to other replies by individual professionals.

Very truly yours,

*C. E. Edwards*

C. E. Edwards  
Chief Geophysicist

Attachment

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May 14, 1975

Your file      Votre référence

Our file      Notre référence

4215

Dr. Robert D. Regan  
U.S. Geological Survey  
National Center (906)  
Reston, Virginia 22092  
U.S.A.

Dear Bob:

Although your questionnaire on the potential uses of satellite magnetometer data is intended for individual scientists rather than for institutions, I have been asked by the Director-General of the Earth Physics Branch to submit a written reply to the points raised in your covering letter expressing the official reaction of this organization.

I imagine that most of your respondents will be interested in the application of data from low-level magnetic survey satellites to the study of large-scale anomalies as they relate to crustal structure. This is a subject of great interest to our Department, but Canada is already covered systematically by airborne magnetic surveys, and it is most unlikely that satellite surveys will reveal any anomalies of crustal origin which are not already known. Phase I (1953-63) of the three-component airborne magnetic survey program of the Earth Physics Branch covered Canada and adjacent ocean areas with a reasonably uniform distribution of magnetic observations on flight lines spaced 100 to 200 km apart. Phase II (1965-76) will cover the same area with flight lines spaced 35 to 75 km apart. In addition, more than 60 percent of Canada has been covered since 1947 by detailed low-level aeromagnetic surveys of total intensity, with a flight-line spacing of less than 1 km, under the Federal-Provincial program organized by the Geological Survey of Canada. While there are real difficulties in compiling a coherent picture of magnetic anomalies with dimensions of 100 to 1000 km from observations made over periods of many years and by different methods, the necessary data are there, and the problems are basically more tractable than the identification and extrapolation of the small signals available at satellite altitude.

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Earth Physics Branch  
1 Observatory Crescent  
Ottawa Canada  
K1A 0E4

Direction de la Physique du Globe  
1 Place de l'Observatoire  
Ottawa Canada  
K1A 0E4

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May 14, 1975

For the study of anomalies with wavelengths greater than 1000 km, the global coverage of a satellite survey of course gives an advantage over the most detailed regional surveys, which tend to leave unanswered many questions near their boundaries.

The main interest of the Earth Physics Branch in satellite magnetic surveys is for the determination of secular change. This is because three-component airborne magnetic surveys over Canada will cease, for ten years at least, following completion of Phase II in 1976. We wish to preserve as long as possible the usefulness of the excellent data base for magnetic charts and models which will exist in 1976. Although we are planning an intensified program of re-occupation of secular change stations, and increased effort to find a reliable method of correcting for disturbance observations taken at repeat stations in high latitudes, we will need all the help we can get from component observations by satellite, especially over adjacent ocean areas. For this purpose, it is important that satellite data become available soon; ideally, we should have an overlap of airborne and satellite data.

To prepare ourselves for the utilization of satellite data for the above purpose, we intend to (a) pursue studies of upward continuation of airborne survey results to satellite altitude for comparison with existing satellite data, and (b) make an effort to find a solution to the serious problem of the correction for magnetic disturbance of satellite observations from the auroral zone and polar cap regions. We hope to work in cooperation with NASA and your own organization on both these problems. As you know, Dr. R.L. Coles will be visiting you and Dr. Langel in July to discuss possible approaches to these problems.

Yours sincerely,

*M. S. Bradford*

*for*  
Paul H. Serson  
Director  
Division of Geomagnetism

PHS/mb

cc Dr. K. Whitham

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A. C. BECHTOLD  
PT. WALTER M. SCHIRRA, JR.

Bechtold Satellite Technology Corp.

17137 EAST GALE AVENUE • CITY OF INDUSTRY, CA. 91745  
(213) 965-7353



May 15, 1975 .

Dr. Robert D. Regan  
U.S. Geological Survey  
National Center (906)  
Reston, Virginia 22092

Dear Dr. Regan:

Your undated letter concerning potential uses of satellite magnetometer data, received here May 5 has been studied with great interest.

We heartily endorse the idea of establishing such a project. Data from it would be extremely useful to us and others in our fields of interest (geology, geophysics, mineral, petroleum, geothermal exploration) and would add a new dimension to magnetometry.

We are specializing in ground based magnetometry confirmation of faults already identified in space imagery.

The little bit of Russian data from satellites which we have received has been extremely useful.

We would welcome an opportunity to serve on your committees or otherwise be of assistance to you and NASA.

With best wishes for the success of your program, I am,

Sincerely,

*Ira C. Bechtold /mg.*

Ira C. Bechtold  
President

enc: table

cc: file

ICB:mg

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22

Dictated by ICB and signed in his absence.

EXXON PRODUCTION RESEARCH COMPANY

POST OFFICE BOX 2183 • HOUSTON, TEXAS 77001

EXXON RESEARCH CORPORATION

May 14, 1975

Mr. Robert D. Regan  
Geophysicist  
Office of Geochemistry and Geophysics  
United States Department of the Interior  
Geological Survey  
Reston, Virginia 22092

Dear Mr. Regan:

We endorse the concept of a low level magnetometer-bearing satellite. The integrated magnetic and magnetic anomaly data resulting from such a survey would provide valuable information to groups interested in both academic and economic aspects of global geophysical data.

Attached is our answer to your questionnaire. We look forward to hearing more from you on this matter.

Very truly yours,

JBC:ck  
enclosure

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## TransOcean Oil, Inc.

1700 FIRST CITY EAST BUILDING  
1111 FANNIN • HOUSTON, TEXAS 77002  
713 - 225 0281

May 12, 1975

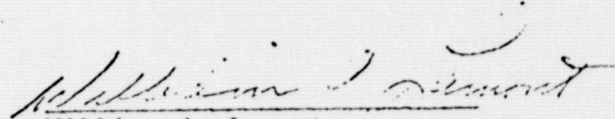
Mr. Robert D. Regan  
Office of Geochemistry & Geophysics  
Geological Survey  
Department of the Interior  
Reston, Va., 22092

Dear Mr. Regan,

We would be very interested in the results of regional magnetic observations from a low level satellite. There are many parts of the world where this could be of value in hydrocarbon exploration.

Please keep us informed of the programs progress and contact us if there is any way we can be of assistance.

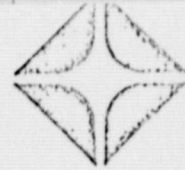
Sincerely,

  
William A. Lamont

W.L./tr  
CC: F.F. Foster

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INTERNATIONAL DIVISION  
515 South Flower Street  
Mailing Address: Box 2679 - T.A.  
Los Angeles, California 90051  
Telephone 213 486 3618



J. S. Pluta  
Chief Geophysicist  
International Exploration and Production Dept.

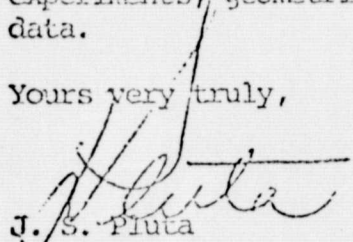
May 7, 1975

Mr. Robert D. Regan  
Geophysicist  
Office of Geochemistry and Geophysics  
United States Department of the Interior  
Geological Survey  
Reston, Virginia 22092

Dear Mr. Regan:

In regards to potential user of Satellite Magnetometer data please be advised we feel at this time we are not able to evaluate the significance of such data; however, we would like very much to remain on your mailing list in order to receive information on the satellite magnetometer experiments, geometric field models, and global magnetic data.

Yours very truly,

  
J. S. Pluta

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U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Rockville, Md. 20852

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MAY 16 1975

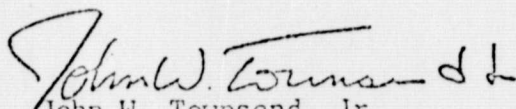
Mr. Robert D. Regan  
Geophysicist  
Office of Geochemistry and  
Geophysics  
U.S. Department of the Interior  
Geological Survey  
Reston, Virginia 22092

Dear Mr. Regan:

We had intended to provide a composite NOAA reply to the subject questionnaire. However, almost all in NOAA who have an interest in Satellite Magnetometer Data have received personal questionnaires and have completed them on their own.

There is one questionnaire which represents our data service input which we are forwarding.

Sincerely,

  
John W. Townsend, Jr.  
Associate Administrator

Enclosure

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May 6, 1975

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Robert D. Regan  
Office of Geochem. and Geophysics

Dear Bob:

Thanks you for thinking of me in connection with plans for the NASA mission to acquire vector magnetometer data.

I have discussed your notice and the questionnaire with several Survey people here as well as with a couple of geophysicists with the University of W. The responses given on the questionnaire over my signature really represent a composite of the reactions of several interested individuals. A few words of clarification therefore may be in order.

It strikes me that the highly filtered nature of high-quality satellite magnetic data may make them peculiarly well suited for studies of intermediate to gross tectonic elements as is hinted by some of the POGO data.

There is no question therefore that should such data become generally available, I would directly or indirectly investigate their utility,

or applicability, to research on sedimentary basins (locations, size, fill thickness, shape, etc) of interest in petroleum exploration. The initial investigations would necessarily be experimental or tentatively exploratory in nature. Should promising leads develop, extensive applications are easy to imagine, especially in such poorly explored frontiers as much of the U.S. continental margin, big parts of Alaska, and selected foreign areas of current interest to the U.S. When or how extensive (or limited) such work might be is impossible to define in the absence of the data.

Thank you again.

Yours truly,

Thorne Mellett

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DEFENSE MAPPING AGENCY  
INTER AMERICAN GEODETIC SURVEY  
FORT CLAYTON, CANAL ZONE

IAGS-TD-S

13 May 1975

Dr. Robert D. Regan  
U.S. Geological Survey  
National Center (906)  
Reston, Virginia 22092

Dear Dr. Regan:

Your recent undated flyer describing the vector satellite mission under consideration by NASA is of great interest to us.

The Defense Mapping Agency Inter American Geodetic Survey (IAGS), although primarily engaged in the geodesy and cartography of Latin America, has for over 25 years maintained a responsibility for the collection of geomagnetic data. The small percentage of our total resources expended for surface vector surveys and observatory maintenance has been a major influence.

The IAGS geomagnetic program is justified by cartographic and navigational requirements for compass deviation, but is in fact, a continuation of the work initiated at the turn of the century by the Carnegie Institution and extended during the 40's by the U.S. Coast and Geodetic Survey.

IAGS functions as a collection source but we are also concerned with the return to participating agencies of useful data products, and the validity of technical guidance we furnish to Latin America. If the low altitude vector satellite is eventually deployed, we would try to reorient the Latin American ground program to complement rather than duplicate the expected results.

We will be very interested in information concerning details and progress of the NASA Satellite Project.

Yours very sincerely,

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