The Magsat Bibliography

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INTRODUCTION

Magsat was a NASA Project/Mission with primary objectives to obtain data for improved modeling of the time varying magnetic field generated within the core of the earth, and to map variations in the strength and vector characteristics of crustal magnetization. Magsat was discussed initially by U.S. Geological Survey (USGS) and NASA scientists in the late 1960's and was officially approved in 1977. The instruments and the satellite were constructed from 1977-1979, under the direction of the GSFC project office headed by G. Ousley. Principal contractor for the spacecraft was the Johns Hopkins Applied Physics Laboratory with L. D. Eckard as project manager.

Launch occurred on October 30, 1979, into a twilight, sun-synchronous orbit with 96.76° inclination, 561 km apogee and 352 km perigee. The spacecraft remained in orbit for seven and a half months, until June 11, 1980.

By almost any measure this project has been a success. Launch was within budget and on time. The data acquired exceeded prelaunch quality requirements even though the instrumentation encountered some problems.

Perhaps a better measure of success for a scientific mission is the number and quality of publications. For Magsat this measure is documented in this bibliography. We have included all papers we are aware of which have to do directly with the Magsat project. This includes scientific papers, papers describing the spacecraft and its instrumentation, and papers describing the data and its processing. There are, of course, some grey areas. We have tried to limit the scientific papers to those which actually utilized either Magsat data or a product, such as a spherical harmonic main field model, which directly depended upon the Magsat data. Further, if it was a product which was used, we tried to only include papers where that product was important to the result of the paper. For example, if a paper used a Magsat field model, but could have used any field model, whether derived from Magsat data or not, that paper was not included. This eliminated many papers. We also did not in general include theoretical papers which were prompted by Magsat but did not use the Magsat data or a product therof.

The present Bibliography is complete, to the best of our knowledge to 1 March, 1987, and comprises 229 papers. These include descriptions of the program, the spacecraft and the data as well as scientific papers. We trust that it will prove a valuable resource to both the scientific community and to anyone who wishes to gain insight into the nature and results of the program.
ORGANIZATION OF THE BIBLIOGRAPHY

The Bibliography proper is in two parts. Part I lists all the papers together in order by author. Part II is subdivided into nine parts as follows:

1. Papers giving background for Magsat.
2. Papers having to do with the Magsat program.
3. Papers describing the spacecraft/instrumentation.
4. Papers describing the data and its processing.
5. Scientific papers studying, or related to studies of, the field from the earth's crust.
6. Scientific papers studying, or related to studies of fields originating external to the earth.
7. Scientific papers studying, or related to studies of, the field originating in the earth's core.
8. Scientific papers related to earth induction.
9. Review papers.

Included are papers which are "submitted", "in press" and a few preprints. At present the Bibliography is not annotated. It is hoped that annotation can be added in a later edition.

PUBLICATION STATISTICS

There are a total of 229 papers listed in the Bibliography. These include papers from three "special issues": The April 1982 issue of Geophysical Research Letters, with 36 papers; Volume 36, Number 10, 1984 of Journal of Geomagnetism and Geoelectricity, with 13 papers, and the February 28, 1985 issue of Journal of Geophysical Research, with 26 papers. Thus, these three issues account for 75 of the 229 papers.

The bibliography includes 2 Doctoral and 9 Masters theses.

A breakdown by Journal or publication type is as follows (the number in parentheses is the number of papers in that journal):

Geophysical Research Letters (49)
Journal of Geophysical Research (47)
Some comments are in order. As might be expected, the peak years for publication are 1982 and 1985, the years of the GRL and JGR special issues. The strong continuation of published studies into 1986, which is apparently continuing into 1987, is perhaps a bit unexpected since major project funding terminated in 1983.
The number of main field studies may seem low, but this is to be expected. There is only one main field at 1980 and once it is accurately determined further calculation simply serves to give small refinements. The possibilities of significant modeling papers is thus small. Two things are very encouraging. First, many of the papers have to do with the development of new techniques for models which both give more accuracy and which better reflect the physics of the inner earth. The second is that significant studies of the inner earth, the core, core-mantle boundary and mantle have been steadily forthcoming. It seems that Magsat not only provided a good data base for some of these studies but also injected new enthusiasm into the community.

Study of crustal fields from satellite data is a relatively new discipline in geophysics. It has gotten off to a somewhat slow start and there has been a measure of skepticism regarding the meaning and usefulness of the data. As pointed out by Langel in the introduction of the JGR special issue, there was a great deal of effort spent in just trying to gain confidence in the data and verify that we were indeed measuring crustal fields that could be interpreted meaningfully. Some of this skepticism remains. But as the data have become better understood the initial questions regarding the data are beginning to be answered. And it is more and more clear that significant advances in understanding of the crust have been made and will continue to be made by the study of this data. The continuing rate of publication attests strongly to this fact.
### TABLE 1:
SUMMARY OF PUBLICATIONS FROM THE MAGSAT PROGRAM

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### MAGSAT PUBLICATIONS BY YEAR

![MAGSAT Publications by Year](image-url)
BIBLIOGRAPHY - PART I

Organized by Author.
Achache, J., et al., A downward continuation formalism for satellite magnetic field data and its application to southeast Asia, accepted for publication in J. Geophys. Res., 1987


Acuna, M.H., et. al., The Magsat vector magnetometer--a precision fluxgate magnetometer for the measurement of the geomagnetic field, NASA/GSFC Tech. Memo. TM 79656, 1978


Araki, T., et. al., Sudden commencements observed by Magsat above the ionosphere, J. Geomagn. Geoelectr., 36, 507-520, 1984


Ben'kova, N.P., G.I. Kolomiytseva, Comparison of three satellite models of the main geomagnetic field, Geomagn. and Aeron., 25, 294-295, 1985

Ben'kova, N.P., et. al., Representation of the main geomagnetic field and its secular variations by Magsat model, Geomagn. and Aeron., 23, 94-98, 1983


Benton, E.R., et. al., Geomagnetic field modeling incorporating constraints from frozen-flux electromagnetism, accepted for publication in Phys. Earth Planet Int., 1987


Bradley, L.M., H. Frey Constraints on the crustal nature and Tectonic history of the Kerguelen Plateau from comparative magnetic modeling using Magsat data, accepted for publication in Tectonophysics, 1987


Bythrow, P.F., et. al., Variation of the auroral Birkeland current pattern associated with the north-south component of the IMF, in Magnetospheric Currents, ed. T. Potemra American Geophysical Union, Wash. D.C., 28, 131-136, 1984

Cain, J.C., et. al., Small-scale features in the earth’s magnetic field observed by Magsat, J. Geophys. Res., 89, 1070-1076, 1984


Fountain, G.H., et. al., The Magsat attitude determination system, APL Technical Digest, Johns Hopkins Univ., 1, 194-200, 1980


Fukushima, N., Summary of the results of Magsat investigations in Japan, J. Geomagn. Geoelectr., 36, 395-418, 1984


Golovkov, V. P., G. I. Kolomiytseva, The international analytical field and its secular trend for the 1980-1990 period, Geomagn. and Aeron., 26, 439-441, 1986


Hahn, A., et. al., A Model of magnetic sources within the earth's crust compatible with the field measured by the satellite Magsat, Geol. J., 75, 125-156, 1984


Haines, G.V., Magsat vertical field anomalies above 40N from spherical cap harmonic analysis, J. Geophys. Res., 90, 2593-2598, 1985


Hastings, D. A., On the availability of geoscientific data and scientific collaborators of and in Africa, Geoexploration, 20, 201-205, 1982


Heffernan, K.J., et. al. The Magsat attitude control system, APL Technical Digest, Johns Hopkins Univ., 1, 188-193, 1980


Iyemori, T., et. al., Amplitude distribution of small-scale magnetic fluctuations over the polar ionosphere observed by Magsat, J. Geophys. Res., 90, 12335-12339, 1985


Kamide, Y., et. al., A comparison of field-aligned current signatures simultaneously observed by the Magsat and TIROS/NOAA spacecraft, J. Geomagn. Geoelectr., 36, 521-527, 1984

Kane, R.P., Central plane of the ring current responsible for geomagnetic disturbance in the South-American regions, Annals de Geophys., 37, 271-280, 1981

Kane, R.P., Comparison of ssc magnitudes at Magsat altitudes and at ground locations, J. Geophys. Res., 90, 2445-2450, 1985

Kane, R.P., N.B. Trivedi, Storm time changes of geomagnetic field at Magsat altitudes and their comparison with changes at ground locations, J. Geophys. Res., 90, 2451-2464, 1985


Langel, R. A., Satellite magnetic measurements, accepted for publication Encyclopedia of Geophysics, 1987

Langel, R.A., Near-earth satellite magnetic field measurements: A prelude to Magsat, Eos, Transactions of the AGU, 60, 667-668, 1979


Langel, R.A., R.H. Estes, Large-scale, near-earth magnetic fields from external sources and the corresponding induced internal field, J. Geophys. Res., 90, 2487-2494, 1985

Langel, R.A., M. D. Schuster East-west striping in satellite magnetic anomaly maps, to be submitted to J. Geophys., 1987


Langel, R.A., et. al., Reduction of satellite magnetic anomaly data, J. Geophys., 54, 207-212, 1984


Longacre, M.B., Satellite magnetic investigation of South America, M.Sc. thesis Purdue University, 1981

Lotter, C.J., Stable inversions of Magsat data over the geomagnetic equator by means of ridge regression, accepted for publication in J. Geophys., 1987


Lowes, F.J., J.E. Martin, Optimum use of satellite intensity and vector Data in modeling the main geomagnetic field, unpublished/Department of Geophys. and, Planet Phys. at University of Newcastle upon Tyne, 1986

Lugovenko, V.N., et. al., Correlation connection between the anomolous magnetic and gravitatio nal fields for regions with different types of the earth’s crust, preprint, Academy of Sciences, the USSR, 1986


Maeda, H., et.al., Geomagnetic perturbations at low latitudes observed by Magsat, J. Geophys. Res., 90, 2481-2486, 1985


Meyer, J., et. al., On the identification of Magsat anomaly charts as a crustal part of the internal field, J. Geophys. Res., 90, 2537-2542, 1985

Meyer, J., et.al., Investigations of the internal geomagnetic field by means of a global model of the earth's crust, J. Geophys., 52, 71-84, 1983

Mishra, D.C., M. Venkatraydu, Magsat scalar anomaly map of India and a part of Indian Ocean- magnetic crust and tectonic correlation, Geophys. Res. Lett., 12, 781-784, 1985
Mobley, F.F., Magsat performance highlights, APL Technical Digest, Johns Hopkins Univ., 1, 175-178, 1980

Mobley, F.F., et. al., Magsat- a new satellite to survey the earth's magnetic field, IEEE Transactions on Magnetics, 16, 758-760, 1980


Nakagawa, I., T. Yukutake, Spatial properties of the geomagnetic field in the area surrounding Japan, J. Geomagn. Geoelectr., 36, 443-454, 1984

Nakagawa, I., T. Yukutake, Rectangular harmonic analyses of geomagnetic anomalies derived from Magsat data over the area of the Japanese Islands, J. Geomagn. Geoelectr., 37, 957-977, 1985

Nakagawa, I., et. al., Extraction of magnetic anomalies of crustal origin from Magsat data over the area of the Japanese islands, J. Geophys. Res., 90, 2609-2616, 1985


Negi, J.G., et. al., Crustal magnetisation-model of the Indian subcontinent through inversion of satellite data, Tectonophysics, 122, 123-133, 1986

Negi, J.G., et. al., Prominent Magsat Anomalies over India, Tectonophysics, 122, 345-356, 1986


Ousley, G.W., Overview of the Magsat program, APL Technical Digest, Johns Hopkins Univ., 1, 171-174, 1980


Potemra, T.A., Studies of auroral field-aligned currents with Magsat, APL Technical Digest, Johns Hopkins Univ., 1, 228-232, 1980

Potemra, T.A., et.al The geomagnetic field and its measurement: Introduction and magnetic field satellite glossary, APL Technical Digest, Johns Hopkins Univ., 1, 162-170, 1980


Raymond, C. A., J. L. LaBrecque, Magnetization of the oceanic crust: TRM or CRM?, accepted for publication J. Geophys. Res., 1987

Renbarger, K.S., A crustal structure study of South America, M.Sc. thesis, Purdue University, 1984

Ridgway, J.R., Preparation and interpretation of a revised Magsat satellite magnetic anomaly map over South America, M.Sc. thesis, Purdue University, 1984

Ridgway, J.R., W.J. Hinze Magsat Scaler anomaly map of South America, Geophysics, 51, 1472-1479, 1986


Schlinger, C.M., Magnetization of lower crust and interpretation of regional magnetic anomalies: example from Lofoten and Vesteralen, Norway, J. Geophys. Res., 90, 11484-11504, 1985


Schnetzler, C.C., R.J. Allenby, Estimation of Lower Crust Magnetization from satellite derived anomaly field, Tectonophysics, 93, 33-45, 1983


Schnetzler, C.C., et. al., Comparison between the recent U.S. composite magnetic anomaly map and Magsat anomaly data, J. Geophys. Res., 90, 2543-2548, 1985


Sexton, J.L., et. al., Long-wavelength aeromagnetic anomaly map of the conterminous United States, Geology, 10, 364-369, 1982


Silva, J.B.C., Reduction to the pole as an inverse problem and its application to low-latitude anomalies, Geophysics, 51, 369-382, 1986


Smola, J.F., The Magsat magnetometer boom system, APL Technical Digest, Johns Hopkins Univ., 1, 201-204, 1980

Starich, P.J., The South-Central United States magnetic anomaly, M.Sc. thesis, Purdue University, 1-76, 1984


Taylor, P.T., Magnetic data over the Arctic from aircraft and satellite, Cold Regions Science and Technology, 7, 35-40, 1983


Thomas, H.H., Petrologic model of the northern Mississippi Embayment based on satellite magnetic and ground-based geophysical data, Earth. Planet Sci. Lett., 70, 115-120, 1984


Von Frese, R.R.B., et. al., Regional magnetic anomaly constraints on continental breakup, Geology, 14, 68-71, 1986


Wellman, P., et. al., Australian long wavelength magnetic anomalies, BMR Journal of Australian Geology and Geophysics, 9, 297-302, 1984


Yanagisawa, M., Derivation of crustal magnetic anomalies from Magsat, D.Sc. thesis, Univ. of Tokyo, Tokyo, 1983

Yanagisawa, M., M. Kono, Magnetic anomaly maps obtained by means of the mean ionospheric field correction, J. Geomagn. Geoelectr., 36, 417-442, 1984

Yanagisawa, M., M. Kono, Mean ionospheric field correction for Magsat data, J. Geophys. Res., 90, 2527-2536, 1985


Yuan, D.W., Relation of Magsat and gravity anomalies to the main tectonic provinces of South America, M.Sc. thesis, University of Pittsburgh, 1983


27


Zanetti, L.J., et. al., Ionospheric and Birkeland current distributions for northward interplanetary magnetic field: inferred polar convection, J. Geophys. Res., 89, 7453-7458, 1984
BIBLIOGRAPHY - PART II

Subdivided by:

1. Background
2. Program
3. Spacecraft/Instrumentation
4. Data/Data processing
5. Crustal studies
6. External field studies
7. Main field studies
8. Earth induction studies
9. Review papers
BACKGROUND FOR MAGSAT

Langel, R.A., Near-earth satellite magnetic field measurements: A prelude to Magsat, Eos, Transactions of the AGU, 60, 667-668, 1979

Potemra, T.A., et.al The geomagnetic field and its measurement: Introduction and magnetic field satellite glossary, APL Technical Digest, Johns Hopkins Univ., 1, 162-170, 1980
DESCRIPTIONS OF MAGSAT PROGRAM

Ousley, G.W., Overview of the Magsat program, APL Technical Digest, Johns Hopkins Univ., 1, 171-174, 1980
DESCRIPTIONS OF MAGSAT INSTRUMENTATION

Acuna, M.H., The Magsat precision vector magnetometer,
APL Technical Digest, Johns Hopkins Univ.,
1, 210-213, 1980

Acuna, M.H., et. al., The Magsat vector magnetometer--a precision
fluxgate magnetometer for the measurement of the geomagnetic
field,

Allen, W.E., The Magsat power system,
APL Technical Digest, Johns Hopkins Univ.,
1, 179-182, 1980

Farthing, W.H., The Magsat scaler magnetometer,
APL Technical Digest, Johns Hopkins Univ.,
1, 205-209, 1980

Fountain, G.H., et. al., The Magsat attitude determination system,
APL Technical Digest, Johns Hopkins Univ.,
1, 194-200, 1980

Heffernan, K.J., et. al. The Magsat attitude control system,
APL Technical Digest, Johns Hopkins Univ.,
1, 188-193, 1980

Lancaster, E.R., et. al., Magsat vector magnetometer calibration using
Magsat geomagnetic field measurements,

Lew, A.L., et. al. The Magsat telecommunications system,
APL Technical Digest, Johns Hopkins Univ.,
1, 183-185, 1980

Mobley, F.F., Magsat performance highlights,
APL Technical Digest, Johns Hopkins Univ.,
1, 175-178, 1980
Mobley, F.F., et. al., Magsat— a new satellite to survey the earth’s magnetic field, 
IEEE Transactions on Magnetics, 16, 758-760, 1980

Schenkel, F.W., R.J. Heins, The Magsat three axis arc second precision attitude transfer system, 
J. of the British Interplanetary Society, 34, 539-546, 1981

Smola, J.F., The Magsat magnetometer boom system, 
APL Technical Digest, Johns Hopkins Univ., 1, 201-204, 1980

Tossman, B.E., et. al., Magsat attitude control system design and performance, 
DESCRIPTION OF MAGSAT DATA

C.T. Russell and D.J. Southwood,
American Geophysical Union, Wash. D.C., 109-111, 1982

Langel, R.A., et. al., Magsat data processing: A report for
investigators,

Shuster, M.D., et. al. In-Flight estimation of spacecraft attitude
sensor accuracies and alignments,
J. of Guidance, Control, and Dynamics, 5, 339-343, 1982
CRUSTAL FIELD STUDIES

Achache, J., et al., A downward continuation formalism for satellite magnetic field data and its application to southeast Asia, accepted for publication in J. Geophys. Res., 1987


Bradley, L.M., H. Frey Constraints on the crustal nature and Tectonic history of the Kerguelen Plateau from comparative magnetic modeling using Magsat data, accepted for publication in Tectonophysics, 1987

Cain, J.C., et. al., Small-scale features in the earth’s magnetic field observed by Magsat, J. Geophys. Res., 89, 1070-1076, 1984


Hahn, A., et. al., A Model of magnetic sources within the earth’s crust compatible with the field measured by the satellite Magsat, Geol. J., 75, 125-156, 1984


Haines, G.V., Magsat vertical field anomalies above 40N from spherical cap harmonic analysis, J. Geophys. Res., 90, 2593-2598, 1985
Hall, D.H., et. al., Crustal structure of the Churchill Superior boundary zone between 80N and 98W longitude from Magsat anomaly maps and stacked passes,
J. Geophys. Res., 90, 2621-2630, 1985

Harrison, C.G.A., Magnetic anomalies,

Harrison, C.G.A., et. al., Interpretation of satellite magnetic anomalies,

Hastings, D. A., On the availability of geoscientific data and scientific collaborators of and in Africa,
Geoexploration, 20, 201-205, 1982

Hastings, D.A., Preliminary correlations of Magsat anomalies with tectonic features of Africa,

Hayling, K.L., C.G.A. Harrison, Magnetization modeling in the north and equatorial Atlantic Ocean using Magsat data,

Hinze, W.J., et. al., Regional magnetic and gravity anomalies of South America,

Johnson, B.D., Viscous remanent magnetization model for the Broken Ridge satellite magnetic anomaly,

Keller, G.R., et. al., The role of rifting in the tectonic development of the mid-continent U.S.A.,
Tectonophysics, 94, 391-412, 1983


Langel, R.A., M. D. Schuster East-west striping in satellite magnetic anomaly maps, to be submitted to J. Geophys., 1987


Langel, R.A., et. al., Reduction of satellite magnetic anomaly data, J. Geophys., 54, 207-212, 1984

Longacre, M.B., Satellite magnetic investigation of South America, M.Sc. thesis Purdue University, 1981

Lotter, C.J., Stable inversions of Magsat data over the geomagnetic equator by means of ridge regression, accepted for publication in J. Geophys., 1987

Lugovenko, V.N., et. al., Correlation connection between the anomalous magnetic and gravitational fields for regions with different types of the earth’s crust, preprint, Academy of Sciences, the USSR, 1986


Meyer, J., et. al., On the identification of Magsat anomaly charts as a crustal part of the internal field, J. Geophys. Res., 90, 2537-2542, 1985

Meyer, J., et.al., Investigations of the internal geomagnetic field by means of a global model of the earth's crust, J. Geophys., 52, 71-84, 1983

Mishra, D.C., M. Venkatraydu, Magsat scalar anomaly map of India and a part of Indian Ocean- magnetic crust and tectonic correlation, Geophys. Res. Lett., 12, 781-784, 1985


Nakagawa, I., T. Yukutake, Rectangular harmonic analyses of geomagnetic anomalies derived from Magsat data over the area of the Japanese Islands, J. Geomagn. Geoelectr., 37, 957-977, 1985

Nakagawa, I., et. al., Extraction of magnetic anomalies of crustal origin from Magsat data over the area of the Japanese islands, J. Geophys. Res., 90, 2609-2616, 1985


43
Negi, J.G., et. al., Crustal magnetisation-model of the Indian subcontinent through inversion of satellite data, Tectonophysics, 122, 123-133, 1986

Negi, J.G., et. al., Prominent Magsat Anomalies over India, Tectonophysics, 122, 345-356, 1986


Raymond, C. A., J. L. LaBrecque, Magnetization of the oceanic crust: TRM or CRM? , accepted for publication J. Geophys. Res., 1987
Regan, R.D., et. al., A closer examination of the reduction of
satellite magnetometer data for geological studies,

Renbarger, K.S., A crustal structure study of South America,
M.Sc. thesis, Purdue University
, 1984

Ridgway, J.R., Preparation and interpretation of a revised Magsat
satellite magnetic anomaly map over South America,
M.Sc. thesis, Purdue University
, 1984

Ridgway, J.R., W.J. Hinze Magsat Scaler anomaly map of South America,
Geophysics, 51, 1472-1479, 1986

Ritzwoller, M. H., C. R. Bentley, Magnetic anomalies over Antarctica
measured from Magsat ,
in Antarctic Earth Science - 4th Int. Symposium,
Olivier, R.L., et al. eds, Cambridge Univ. Press, NY,
504-507, 1983

Ritzwoller, M.H., C.R. Bentley, Magsat magnetic anomalies over
Antarctica and the surrounding oceans,

Ruder, M.E., Interpretation and modeling of regional crustal
structure of the Southeastern United States,
M.Sc. thesis
The Pennsylvania State University, 1986

Ruder, M.E., S.S. Alexander, Magsat equivalent source anomalies over
the southeastern U.S.: implications for crustal magnetization,

Sailor, R.V., et. al., Spatial resolution and repeatability of Magsat
crustal anomaly data over the Indian ocean,
Schlinger, C.M., Magnetization of lower crust and interpretation of regional magnetic anomalies: example from Lofoten and Vesteralen, Norway, J. Geophys. Res., 90, 11484-11504, 1985


Schnetzler, C.C., R.J. Allenby, Estimation of Lower Crust Magnetization from satellite derived anomaly field, Tectonophysics, 93, 33-45, 1983


Schnetzler, C.C., et. al., Comparison between the recent U.S. composite magnetic anomaly map and Magsat anomaly data, J. Geophys. Res., 90, 2543-2548, 1985


Sexton, J.L., et. al., Long-wavelength aeromagnetic anomaly map of the conterminous United States, Geology, 10, 364-369, 1982

Silva, J.B.C., Reduction to the pole as an inverse problem and its application to low-latitude anomalies, Geophysics, 51, 369-382, 1986


Starich, P.J., The South-Central United States magnetic anomaly, M.Sc. thesis, Purdue University, 1-76, 1984


Taylor, P.T., Magnetic data over the Arctic from aircraft and satellite, Cold Regions Science and Technology, 7, 35-40, 1983


Thomas, H.H., Petrologic model of the northern Mississippi Embayment based on satellite magnetic and ground-based geophysical data, Earth. Planet Sci. Lett., 70, 115-120, 1984


Von Frese, R.R.B., et. al., Regional magnetic anomaly constraints on continental breakup, Geology, 14, 68-71, 1986


Wellman, P., et. al., Australian long wavelength magnetic anomalies, BMR Journal of Australian Geology and Geophysics, 9, 297-302, 1984


Yanagisawa, M., Derivation of crustal magnetic anomalies from Magsat, D.Sc. thesis, Univ. of Tokyo, Tokyo, 1983

Yanagisawa, M., M. Kono, Magnetic anomaly maps obtained by means of the mean ionospheric field correction, J. Geomagn. Geoelectr., 36, 417-442, 1984


Yuan, D.W., Relation of Magsat and gravity anomalies to the main tectonic provinces of South America, M.Sc. thesis, University of Pittsburgh, 1983

EXTERNAL FIELD STUDIES


Araki, T., et. al., Sudden commencements observed by Magsat above the ionosphere, J. Geomagn. Geoelectr., 36, 507-520, 1984


Bythrow, P.F., et. al., Variation of the auroral Birkeland current pattern associated with the north-south component of the IMF, in Magnetospheric Currents, ed. T. Potemra American Geophysical Union, Wash. D.C., 28, 131-136, 1984


Iyemori, T., et. al., Amplitude distribution of small-scale magnetic fluctuations over the polar ionosphere observed by Magsat, J. Geophys. Res., 90, 12335-12339, 1985

Kamide, Y., et. al., A comparison of field-aligned current signatures simultaneously observed by the Magsat and TIROS/NOAA spacecraft, J. Geomagn. Geoelectr., 36, 521-527, 1984

Kane, R.P., Central plane of the ring current responsible for geomagnetic disturbance in the South-American regions, Annals de Geophys., 37, 271-280, 1981
Kane, R.P., Comparison of ssc magnitudes at Magsat altitudes and at ground locations, J. Geophys. Res., 90, 2445-2450, 1985

Kane, R.P., N.B. Trivedi, Storm time changes of geomagnetic field at Magsat altitudes and their comparison with changes at ground locations, J. Geophys. Res., 90, 2451-2464, 1985


Maeda, H., et.al., Geomagnetic perturbations at low latitudes observed by Magsat, J. Geophys. Res., 90, 2481-2486, 1985

Nakagawa, I., T. Yukutake, Spatial properties of the geomagnetic field in the area surrounding Japan, J. Geomagn. Geoelectr., 36, 443-454, 1984

Potemra, T.A., Studies of auroral field-aligned currents with Magsat, APL Technical Digest, Johns Hopkins Univ., 1, 228-232, 1980


Yanagisawa, M., M. Kono, Mean ionospheric field correction for Magsat data, J. Geophys. Res., 90, 2527-2536, 1985


Zanetti, L.J., et. al., Ionospheric and Birkeland current distributions for northward interplanetary magnetic field: inferred polar convection, J. Geophys. Res., 89, 7453-7458, 1984
MAIN FIELD STUDIES


Ben'kova, N.P., G.I. Kolomiytseva, Comparison of three satellite models of the main geomagnetic field, Geomagn. and Aeron., 25, 294-295, 1985

Ben'kova, N.P., et. al., Representation of the main geomagnetic field and its secular variations by Magsat model, Geomagn. and Aeron., 23, 94-98, 1983


Benton, E.R., et. al., Geomagnetic field modeling incorporating constraints from frozen-flux electromagnetism, accepted for publication in Phys. Earth Planet Int., 1987


Cain, J.C., et. al., The use of Magsat data to determine secular variation, 

Cain, J.C., et. al., The geomagnetic model spectrum for 1980 and core-crustal separation, submitted to 

Carle, H.M., C.G.A. Harrison, A problem in representing the core magnetic field of the Earth using spherical harmonics, 

Golovkov, V. P., G. I. Kolomiytseva, The international analytical field and its secular trend for the 1980-1990 period, 
Geomagn. and Aeron., 26, 439-441, 1986

Gubbins, D., Geomagnetic field analysis I--Stochastic inversion, 

Gubbins, D., Geomagnetic field analysis: II secular variation consistant with a perfectly conducting core, 

Gubbins, D., J. Bloxham, Geomagnetic field analysis, III- Magnetic fields on the core-mantle boundary, 

Harrison, C.G.A., H. M. Carle, Modelling the core magnetic field of the Earth, 

Langel, R.A., R.H. Estes, A geomagnetic field spectrum, 

Langel, R.A., R.H. Estes, Large-scale, near-earth magnetic fields from external sources and the corresponding induced internal field, J. Geophys. Res., 90, 2487-2494, 1985


Lowes, F.J., J.E. Martin, Optimum use of satellite intensity and vector data in modeling the main geomagnetic field, unpublished/Department of Geophys. and Planet Phys. at University of Newcastle upon Tyne, 1986


STUDIES OF EARTH INDUCTION

REVIEW PAPERS


Langel, R. A., Satellite magnetic measurements, accepted for publication Encyclopedia of Geophysics, 1987


The Magsat Bibliography

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Publications related to the Magsat project number 228, as of March 1987. Of these, 34 deal with analysis of the Earth's main magnetic field, 125 with analysis of the Earth's crustal field, and 42 with analysis of the magnetic field originating external to the Earth. The remainder document the magsat program, satellite, instruments or data or are review papers. The Bibliography is divided into two parts. The first lists all papers by first author; the second is subdivided by topic.

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