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FROM: L.W. Braile and W.J. Hinze, Dept. of Geosciences, Purdue University,  
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SUBJECT: Quarterly Progress Report - July, August and September, 1982

DATE: September 30, 1982

Progress has continued on all phases of the research program for the period July, August and September, 1982. To facilitate processing large data arrays, elements of our spherical earth analysis programs NVERTSM, SMFLD, NVERTG and GLFD have been implemented and tested on the IBM 4341 computer at Purdue's Laboratory for Application of Remote Sensing (LARS).

Currently, the problem of inverting  $<2^\circ>$  MAGSAT scalar anomalies for the region (80°W, 60°E) longitude and (40°S, 70°N) latitude is being implemented on the LARS-computer for quantitative comparison with free-air gravity anomaly, geothermal and tectonic data. Gravity and MAGSAT anomalies from a subset of this region (30°W, 60°E), (40°S, 70°N) have already been processed for a paper entitled SATELLITE MAGNETIC ANOMALIES OF AFRICA AND EUROPE by R. Olivier, W.J. Hinze and R.R.B. von Frese for presentation at the Society of Exploration Geophysicists' (SEG) 1982 annual meeting in Dallas during the week of October 17-21. A second paper also will be presented at this meeting entitled REGIONAL ANOMALIES OF THE MISSISSIPPI RIVER AULACOGEN by R.R.B. von Frese which considers regional multicomponent magnetic and gravity models of the embayment's crustal structure constrained by satellite-elevation anomaly data. The paper entitled LONG-WAVELENGTH AEROMAGNETIC ANOMALY MAP OF THE CONTERMINOUS U.S.A. by J.L. Sexton, W.J. Hinze, R.R.B. von Frese and L.W. Braile has been published (1982) by *Geology*, 10, p. 364-369. Also, the abstract for the paper entitled DO SATELLITE MAGNETIC ANOMALY DATA ACCURATELY PORTRAY THE CRUSTAL COMPONENT? by R.R.B. von Frese and W.J. Hinze, which was presented at the U.S. Geological Survey's Geomagnetic Workshop in Denver during April 13-15, 1982, was published in *EOS (Am. Geophys. Union Trans.)*, 63, p. 655. In addition, satellite-elevation magnetic anomaly maps of South America, prepared by our group, will be presented at the SEG meeting in a paper entitled "Relation of MAGSAT Anomalies to the Main Tectonic Provinces of South America" by D.W. Yuan, E.G. Lidiak, G.R. Keller and M.B. Longacre.

(E83-10133) [MAGSAT SCALAR ANOMALIES]  
Quarterly Progress Report, Jul. - Sep. 1982  
(Purdue Univ.) 2 p HC A02/HF A01 CSCL 05B

W.J. Hinze and R.R.B. von Frese continue to be active members of the Geopotential Research Mission (GRM) advisory committee. During July 6-9, 1982, they attended a GRM-workshop at NASA-GSFC and contributed and reviewed documentation related to THE REPORT OF THE GEOMAGNETIC

**WORKSHOP** which is intended to serve NASA officials in administrating future geopotential research projects.

A new graduate student in geophysics, Jeff Ridgway, has begun to process MAGSAT data for his dissertation research. Current activities are related to selecting a quiet-time, noise-free, low-level data set for constructing revised magnetic anomaly maps of South America.

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