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**QUARTERLY REPORT**  
**FOR**  
**MAGSAT SCIENCE INVESTIGATIONS**

**Contract NAS 5-26328**

**For the period**

(E82-10199) MAGSAT SCIENCE INVESTIGATIONS  
quarterly Report (Business and Technological  
Systems, Inc.) 3 p HC A02/ME A01 CSCL 05B

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Unclas  
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**submitted to**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
**GODDARD SPACE FLIGHT CENTER**  
**Greenbelt, Maryland 20771**

**by**

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## 1.0 WORK ACCOMPLISHED DURING REPORT PERIOD

During this quarter modifications have been completed to existing equivalent layer magnetization modeling software to accommodate Magsat total field anomaly data. An initial inversion has just been completed using a data set supplied by R. Horner via GSFC. The initial model and associated field anomaly representation for the U.S. will be presented at the Baltimore AGU meeting. The associated vector field will be compared with preliminary fine-attitude Magsat vector data. An initial data set has been obtained by us. New software for display of results is in progress or has been completed.

In other developments, software for spectral analysis of aeromagnetic profile data and computation of depth-to-magnetic-bottom is nearing completion. It is being tested through a series of simulations and will initially be applied to N00 Project Magnet profiles. Considerable time has been devoted to correcting errors in this data. Silica geotemperature data supplied by C. Swanberg has been interpolated to an equal area map grid for direct comparison with a magnetization model. Accumulation of correlative data continues.

## 2.0 WORK PLANNED FOR NEXT REPORTING PERIOD

- 1) Complete development of spectral analysis software and produce initial Curie depth model for comparison with models derived from Magsat data.
- 2) Complete software modifications to inversion for increased efficiency, reduced core, and capability of accommodating component input.
- 3) Produce initial magnetization model for U.S. for 200 km resolution.

- 4) Begin series of runs with new software to investigate resolution limit achievable with Magsat data.

### 3.0 FISCAL AND PLANNING DATA

Contract Price

Prior Expenditure

Expenditure this Quarter

(December 1980 - February 1981)

Total Expenditure to Date

Amount Remaining

Total Hours Expended

Amount Next Quarter (estimate)

Amount Required to Complete Work