

093287



UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D C 20548

GENERAL GOVERNMENT  
DIVISION

SEP 6 1972

Dear Dr White

We have reviewed the legislation, policies, procedures and practices associated with (1) the operation of geomagnetic observatories, (2) the analysis of geomagnetic data, and (3) the preparation of geomagnetic information for dissemination to users. The review was performed primarily at NOAA headquarters in Rockville, Maryland. A significant portion of the review was performed prior to internal reorganizations which affected the geomagnetism program. We did not examine NOAA's basic research activities relating to geomagnetism.

In the mid-1960's NOAA increased its number of permanent geomagnetic observatories from 10 to 14 and established a number of temporary observatories to conduct activities in 1964 and 1965 -- the International Quiet Sun Years. This expansion of the geomagnetic observatory network and subsequent reductions in staff assigned to analyze geomagnetic data has adversely affected the balance between NOAA's data gathering and its analysis and processing capabilities.

NOAA officials stated that prior to the personnel reductions, which took place between the end of fiscal year 1967 to the end of fiscal year 1971, there was sufficient staff to perform the various duties to insure the production of timely and accurate data. The personnel reductions necessitated the gradual introduction of modified processing procedures which did not provide the degree of accuracy that formerly existed. Furthermore, formal standards for data quality do not exist.

While the users of geomagnetic data have traditionally relied on NOAA's reputation for compiling accurate data, there have been instances where users detected errors in the processed data after the modified procedures were introduced. Although NOAA officials believe that most users were unaffected by the modified procedures, the decision to modify the procedures was not based on a comprehensive evaluation of users' requirements.

~~713839~~

093287

We also identified problems relating to (1) spare parts and operating supply inventories, (2) development of automated digital equipment, (3) maintenance of land and buildings and (4) occupation of repeat stations.

NOAA officials stated that some of the observatories were operating with low spare parts and operating supply inventories. The extensive reprogramming of funds at the end of fiscal years 1969 and 1970, to provide these inventories, prevented a partial shutdown of NOAA's geomagnetic observatory network. At the end of fiscal year 1971 only limited funds for reprogramming were available. Plans to restore inventories in fiscal year 1972 were not implemented and additional funds for this purpose were not requested for fiscal year 1973. We believe that adequate inventories must be maintained to insure the continuous operation of the geomagnetic facilities

The development of digital equipment to record magnetic information was initiated in the early 1960's. Development of this equipment, however, has been impeded because (1) staff was available only on a part-time basis, (2) the available staff lacked sufficient technical training and (3) funds were not available for necessary spare parts and instrument debugging. Because digital equipment is supposed to eliminate the laborious, expensive and time consuming process of converting analog data to digital form, we believe that once this project was initiated, adequate support should have been provided.

We found that NOAA did not have a preventive maintenance program for the land and buildings at its observatories. A NOAA official told us that at some of the observatories maintenance was performed only when absolutely necessary and that sometimes repairs were temporary and makeshift. As a result there has been a general deterioration of the geomagnetic facilities. In order to protect the Government's investment of over \$2 million in geomagnetic facilities, we believe that NOAA should implement a preventive maintenance program.

The number of repeat survey stations visited by observatory personnel has declined in recent years. A NOAA official stated that data from about 100 stations is needed every 5 years to compile high quality geomagnetic charts of the United States. Another NOAA official stated that these stations must be revisited prior to July 1, 1974, for the compilation of the 1975 United States magnetic charts. As of November 1971 only 17 repeat stations had been revisited. A special effort to revisit more stations was being made to assure that sufficient data is collected for the 1975 charts. We believe this effort should be continued to insure the future production of high quality charts.

In August 1970, NOAA officials approved a plan to correct known deficiencies in the observatory program. The plan includes provisions for expanding the observatory network. This plan, however, has not been implemented and is considered as an informational document.

We believe that NOAA should balance its data analysis capability with its data acquisition capability before considering any future expansion of the geomagnetic observatory network. We also believe that NOAA should reassess all existing and potential user requirements including, for example, the need for reliable and timely data before making any changes in the program.

We recommend that NOAA (1) conduct a comprehensive evaluation of existing and potential user requirements, (2) establish standards for data quality, (3) provide adequate support for the development of new instrumentation and (4) insure that adequate funding and personnel will be available to fully accomplish the activities associated with data acquisition, analysis and dissemination

We appreciate the cooperation extended to our representatives during the review. We plan no further reporting on the results of our survey, however, we would appreciate receiving information as to your action or views on the matters discussed in this letter. Copies of this letter are being sent to the Assistant Secretary for Administration and to the Director, Office of Audits, Department of Commerce.

Sincerely yours,

Donald C. Pullen

Donald C Pullen  
Assistant Director

Dr Robert M. White, Administrator  
National Oceanic and Atmospheric  
Administration  
Department of Commerce