

Increasing the Accessibility of IMS Magnetograms

There has been an improvement in the accessibility of ground-based magnetic records obtained from 1978–1979, during the International Magnetospheric Study (IMS). During this period, many new magnetic stations were established with digital output. These records have been archived at the World Data Center A for Solar Terrestrial Physics, but they are difficult to use because of the way the data are stored.

This difficulty of use is unfortunate because the existence of extensive measurements in the distant magnetosphere and solar wind at this time makes this interval one of intense interest. As one who has tried to use these records, I have found that the labor involved in assembling digital data sets from 50–60 different stations to study one disturbed interval to be daunting. Thus I set about to find a better way to access these data. With the cooperation of the World Data Center (WDC-A) and the support of both the National Science Foundation and the University of California, Los Angeles (UCLA), we have sorted all the available 1-minute magnetograms for the IMS period into a single time-ordered data set. Thus all data for any minute during the IMS are available in a single record, and obtaining any interval of data now involves reading only a single tape, rather than dozens of tapes.

We did not incorporate the stations from the Institute of Geological Science (Edinburgh, U.K.) network. We have the unsorted data, but the data set preparation that would have been necessary to include them exceeded our level of support. We did include the data from the Braunschweig chain. These data were not originally available at 1 minute, but we have averaged all the data to be commensurate with the other data sets. In fact, at the original resolution of 1 second, few, if any, researchers could afford to purchase the entire Braunschweig data set for use from the World Data Center A.

The resulting data set fills 12 6250-BPI (bit per inch) tapes. These tapes have been sent to the WDC-A (NESDIS/NGDC, 325 Broadway, Boulder, CO 80303). Limited quantities of this data are also available directly from the author. We are able to distribute data in three formats: electronic transmission over the Space Physics Analysis Network (SPAN); 5¼" high-density floppy disks for the IBM-AT personal computer and compatibles; and 1600-BPI or 6250-BPI tapes. Those who wish to use SPAN should be aware that these data sets are large. One day's worth of magnetograms may contain over two megabytes of data. The SPAN link from UCLA to the Jet Propulsion Laboratory (Pasadena, Calif.) is only a 9600-baud line. There may be even lower-baud rate lines between other locations and the SPAN trunk lines. Those who wish to receive data on floppy disks should also be advised that a single high-density floppy can only store 1.2 megabytes, or about 20 days' worth, of data on one station or 10 hours of data for all stations.

Interested parties can request these data directly over SPAN by using the command SET HOST BRUNET and using the user and password REQUEST. This will automatically put them into the request program, which will ask for the name and address for shipping and take the request. The same program may also be used to request International Sun-Earth Explorer (ISEE) and Pioneer Venus magnetometer data. We invite comments on our request procedure as well as on the data base itself.

We are continuing this work. We would like to include a better catalog of available data and to incorporate later years in the data base. Presently, we are working on the years 1980–1984. Also, if we have overlooked any data sets that should be incorporated, please notify me about them (C. T. Russell, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA 90024) and tell me how I could obtain them.

This report was contributed by C. T. Russell.