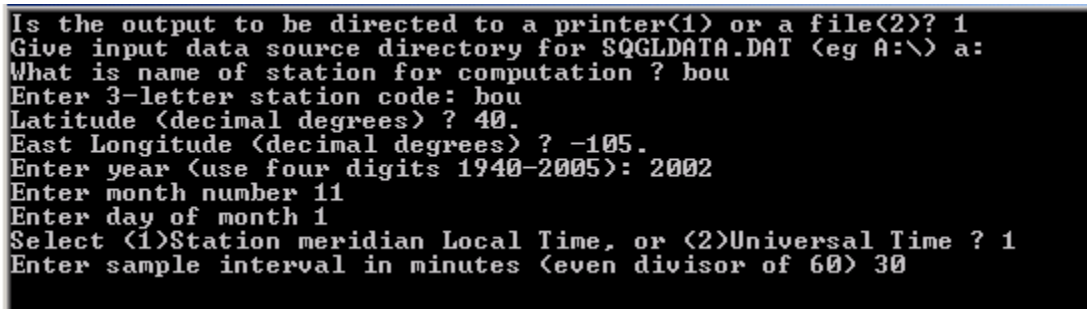
Quiet-Day Field Variation Sq (SQ1MODEL)

The SQ1MODEL program by W.H. Campbell produces an estimate of the daily variation of the geomagnetic field for any global location. The model was derived using data gathered at a global distribution of observatories, on the quietest days in the extremely quiet year 1965. Yearly variations were obtained using a Fourier analysis of the daily Fourier coefficients for selected quiet days (see the FOURSQ1 program below). These coefficients were smoothed in latitude and longitude to form the incremental global data source file SQGLDATA.DAT on the disk. The data, arranged in geomagnetic coordinates, are simply extended to other years (1940 to 2005) by adjustment to the changed geomagnetic coordinates (using a version of the GMCORD program) at the prescribed location on the selected date. It must be realized that on solar active years the entire Sq system can be modified somewhat from the quietest year behavior. Because of the scarcity of observatories in the polar region at the time the data were gathered, there is less confidence in the values that the program produces at very high latitudes. An example screen is shown below.



To run the program, you can elect to have the list of values for each increment of minutes (either local or universal time) directed to your printer or placed in a directory file of your selection. Longitude values should be positive for east and negative for west; latitude values should be positive for north, negative for south. The field values, in both HDZ and XYZ field component directions, are given in universal time and local meridian time.