GLOBAL MAPS OF MARTIAN GEOPHYSICAL AND GEOLOGIC DATA;

Observations covering large regions of Mars have been obtained with instruments on the Mariner 9 and Viking Orbiter spacecraft, and with earth-based optical and radar instruments. These observations have a wide range of spatial resolution and their original formats vary greatly. In order to facilitate analysis of these data sets and correlations between them, a number of original and derived data sets have been transformed into a common format that can be processed by standard image-processing techniques. The Mars Consortium standard format is a $1/4^\circ$ latitude by a $1/4^\circ$ longitude cylindrical map projection; most data sets are also processed into a sinusoidal equal-area projection with $1/16^\circ$ square elements. In addition, the data are archived in one of several standard forms that maintain the full spatial and measurement resolution of the experiment. Observations of a spectral nature are put into a standard spectra format, with automatic mapping of any individual parameter. Such observations have several measurement variables at each measurement location, e.g., earth-based opticals spectral and radar observations.

Data sets currently available include: Viking Orbiter imaging approach color and color ratios, topography based on Mariner 9 and radar observations, geology based on Mariner 9 observations, Mariner 9 crater inventory, Earth-based albedo (several oppositions), Earth-based spectra, Earth-based radar (partial set), Viking predawn temperature residuals, Viking thermal inertia, Viking broad-band albedo, Viking atmospheric water content (for several seasons), Viking $1.4 \ \mu m$ albedo, Viking gravity, Viking moderate-resolution color imaging (apoapsis), and maps, based on Viking photography, channels, ten types of eolian features, wind streaks, and ridges (partial set). Several other data sets are in preparation, including a crater inventory based on the 1:2,000,000 map series, and an image array index to localized studies. A variety of single- and multi-dimensional statistical and image-processing products are available. Monochrome, color, and stencil transparencies allow geographic studies without the use of a computer. The Mars Consortium data sets are available on standard computer-compatible tapes. The Mars Consortium data processing is supported by the NASA Planetary Division, Geophysics and Geochemistry Program.