

## REQUIREMENTS FOR PLANETARY SYMBOLOGY IN GEOGRAPHIC INFORMATION SYSTEMS

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A large number of new developments have influenced digital mapping in the last few years. The main advances beyond the conventional analogue map preparation encompass [a] mapping conduct with the help of vector-based graphic software to [b] complex Geographic Information System (GIS)-based mapping environments which provide a common spatial domain and context for data and also [c] attempts to provide platforms for interactive web-based mapping.

These improvements also affect the field of planetary geoscientific mapping. As in Earth-oriented geosciences planetary mapping nowadays is mainly conducted in and supported by integrated GI systems. Thematic maps in planetary geology are created either systematically in a framework of survey-coordinated and agency-funded scientific mapping project, or they have emerged from broader scientific programs and individual geoscientific research on global, regional and local scales.

When designing maps for other planetary objects a number of specific requirements need to be addressed concerning planetary cartographic systems and the definition of reference bodies. In order to simplify a geological and geomorphological mapping process on the mapper's side, and to harmonise the variety of map results for subsequent use we currently work on embedding a catalogue of standardized mapping symbols within a commercial GIS environment. The contents of this symbol catalogue are mainly based on the *Digital Cartographic Standard for Geologic Map Symbolization*, which define visualisation rules for geological and geomorphological point, line, and areal symbols on terrestrial and planetary maps. We started with the complete implementation of the *planetary geological features* (appendix 25), and as a response to working-group requirements, further symbols of the standard were implemented and additional symbols were created. The entire symbol set resp. catalogue for planetary symbols enables the user to visualise delineated spatial objects while the geoscientific analysis and interpretation of planetary surfaces is done in a homogeneous and cartographically correct way. As the symbols are designed for use by different mappers situated at various locations, we are currently seeking to develop an efficient way of making the symbol catalogue portable among different platforms. This task of setting up a cartographical symbol catalogue is one component in an overarching project that focuses on the generation of an extensible and modular database model to meet growing scientific and technical needs in planetary mapping. However, all modules will first be generated as stand-alone packages for individual use and will be integrated into the steadily growing database model in several subsequent steps. For the project presented in this work, a number of different scenarios and approaches are discussed in order to find an efficient way of storage and exchange of symbol sets and to create an appropriate interface between symbology and the underlying database model.