

PLANETARY CARTOGRAPHY AS INTEGRAL DISCIPLINE IN PLANETARY SCIENCES: FROM PLANETARY MAPPING TO MAP PRODUCTION. A. Nass¹, S. van Gasselt², H. Hargitai³, T. Hare⁴, N. Maunaud⁵, I. Karachevtseva⁶, E. Kersten¹, T. Roatsch¹, M. Wählisch¹, and A. Kereszturi⁷

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Introduction: Cartography is one of the most important communication channels between users of spatial information and laymen as well as the open public alike. This applies to all known real-world objects located either here on Earth or on any other object in our Solar System. In planetary sciences, however, the main use of cartography resides in a concept called planetary mapping with all its various attached meanings: it can be 1. systematic spacecraft observation from orbit, i.e. the retrieval of physical information, 2. the interpretation of discrete planetary surface units and their abstraction as units on maps, or it can be 3. planetary cartography *sensu strictu*, i.e., the technical and artistic creation of map products. As the concept of planetary mapping covers a wide range of different information and knowledge levels, aims associated with the concept of mapping consequently range from a technical and engineering focus to a scientific distillation process.

Among others, scientific centers focusing on planetary cartography are the United State Geological Survey (USGS, Flagstaff), the Moscow State University of Geodesy and Cartography (MIIGAiK, Moscow), Eötvös Loránd University (ELTE, Hungary), and the German Aerospace Center (DLR, Berlin). The International Astronomical Union (IAU), the Commission Planetary Cartography within International Cartographic Association (ICA), the Open Geospatial Consortium (OGC), the WG IV/8 Planetary Mapping and Spatial Databases within International Society for Photogrammetry and Remote Sensing (ISPRS) and a range of other institutions contribute on definition frameworks in planetary cartography and on a wide range of technical, technological and infrastructural aspects.

Classical cartography is nowadays often (mis-) understood as a *tool* mainly rather than a scientific discipline and an art of communication. Consequently, concepts of information systems, mapping tools and cartographic frameworks are used interchangeably, and cartographic workflows and visualization of spatial information on thematic maps have often been neglected or were left to software systems to decide by some arbitrary default values.

The diversity of cartography as a research discipline and its different contributions in geospatial sciences

and communication of information and knowledge will be highlighted in this contribution. This aspect and related topics have also been discussed recently in e.g. [1] - [7].

Current questions and tasks in the field of planetary cartography which have to be taken care of are e.g.

1. Optimization of the GIS-based mapping processes and analyses in planetary science
2. Establishment of interoperability and efficient infrastructure
3. Critical reviewing and updating existing standards for cartographic symbols within geological maps [8] and their link to descriptive reference books e.g. [9].
4. Establishment of a digital map archive system which combines analog and digital maps and map products with access privileges for working groups/teams and public levels.

We invite colleagues of this and other disciplines to discuss concepts and topics for joint future collaboration and research.

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