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Small-scale geological mapping on Earth: Setting up guidelines, standards and portrayal rules. Experience from pan-European projects

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Geological mapping and cartography on Earth encompasses principally the description of the landforms, i.e. geomorphology, the lithology and the age (stratigraphy) of the rocks found at or beneath the Earth's surface. By interpretation of this information genetic information (process, event and environment) can be derived from the rock units encountered and often is included in geological maps, in particular in larger scale maps.

Mapping agencies and geological survey organisations everywhere have for centuries been developing their own regional or national mapping methods and representation colour sets and symbols to represent the geological information on paper and now in spatial databases and GIS.

BGR and its predecessors has been undertaking geological mapping at both large and small scales since the 19th century and through this has gained considerable mapping experience. This contribution describes the establishment of mapping rules and guidelines for three small-scale European cross-boundary mapping projects implemented through international cooperation: the IGME 5000 (pre-Quaternary) and the IQAME (Quaternary) projects, and the EMODnet Geology seafloor work-package. The experience gained within the projects in the creation and use of standardised specifications for data models and cartographic aspects such as symbols and colours will be introduced and challenges, advantages and disadvantages will be discussed.

All three projects include off-shore geological information; in particular these aspects of the marine mapping and cartography may be partly comparable to planetary mapping, since "even with all the technology that we have today -- satellites, buoys, underwater vehicles and ship tracks -- we have better maps of the surface of Mars and the Moon than we do the bottom of the ocean." [Gene Feldmann, NASA, 10.08.2009].

Thus the experience and results in Earth mapping described may contribute and serve as "good practise" for the benefit of the fascinating new field of planetary mapping.