



Tectonic Storytelling with Open Source and Digital Object Identifiers - a case study about Plate Tectonics and the Geopark Bergstraße-Odenwald

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The communication of advances in research to the common public for both education and decision making is an important aspect of scientific work. An even more crucial task is to gain recognition within the scientific community, which is judged by impact factor and citation counts. Recently, the latter concepts have been extended from textual publications to include data and software publications.

This paper presents a case study for science communication and data citation. For this, tectonic models, Free and Open Source Software (FOSS), best practices for data citation and a multimedia online-portal for scientific content are combined. This approach creates mutual benefits for the stakeholders: Target audiences receive information on the latest research results, while the use of Digital Object Identifiers (DOI) increases the recognition and citation of underlying scientific data. This creates favourable conditions for every researcher as DOI names ensure citeability and long term availability of scientific research.

In the developed application, the FOSS tool for tectonic modelling GPlates is used to visualise and manipulate plate-tectonic reconstructions and associated data through geological time. These capabilities are augmented by the Science on a Halfsphere project (SoaH) with a robust and intuitive visualisation hardware environment.

The tectonic models used for science communication are provided by the AGH University of Science and Technology. They focus on the Silurian to Early Carboniferous evolution of Central Europe (Bohemian Massif) and were interpreted for the area of the Geopark Bergstraße Odenwald based on the GPlates/SoaH hardware- and software stack.

As scientific story-telling is volatile by nature, recordings are a natural means of preservation for further use, reference and analysis. For this, the upcoming portal for audiovisual media of the German National Library of Science and Technology TIB is expected to become a critical service infrastructure. It allows complex search queries, including metadata such as DOI and media fragment identifiers (MFI), thereby linking data citation and science communication.