



Scientific Data Management with Open Source Tools – An Urban Drainage Example

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ABSTRACT

Storing scientific data is challenging due to the nature of scientific workflows and data are of limited usefulness if they are not stored in an organised manner. Especially for scientific purposes flexible solutions allowing easy data interchange are of major importance. Meta-information needs to be stored in addition to the actual data to allow later interpretation of the values. This highlights the demand for using standards in providing both the data and the data description. This contribution describes a data management approach developed at Graz University of Technology based on long term experience in sewer monitoring. It is based on the principles to use and refine existing open source technologies and use standards wherever possible in order to provide sustainable technologies adequate for the future challenges. A review of existing technologies shows that many commercial software solutions do not take the complexity of the scientific workflow fully into account. Relational database showed limited performance with high data volumes. Scientific data formats that provide proper means of data and metadata storage were most adequate. The presented solution is highly flexible and shows high performance. We hope that this contribution helps to promote scientific data formats and the use of standards. By this, the community will be prepared when these standards are more commonly used.

KEYWORDS

data management, urban drainage, open source, standardisation