Research data management infrastructure and services for long-term, interdisciplinary collaborative research centers with a focus on environmental sciences

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A well-fitted research data management infrastructure and corresponding services are important for science as it is nowadays mostly conducted in collaborative, cross-institutional research projects. These projects require active sharing of research ideas, data, documents and further information in a well-managed, controlled and structured manner. Technical infrastructures facilitate storage, documentation, exchange and re-use of data that result from scientific output. Additionally, also publications, conference contributions, reports, pictures etc. should be managed. Furthermore, regular project meetings and joint field campaigns support the exchange of research ideas. Both, knowledge and data sharing is essential to create synergies.

Funding to establish research data management (RDM) infrastructures and services is offered by the German Research Foundation for large, coordinated research projects, so-called 'Collaborative Research Center' (CRC). CRCs are interdisciplinary, multi-institutional, long-term (up to 12 years), university-based research projects (up to 25 sub-projects). These CRCs address complex and scientifically challenging research questions.

This contribution presents the RDM services and infrastructures that have been established for two CRCs, both focusing on environmental sciences. Since 2007, a RDM support infrastructure and associated services have been set-up for the CRC/Transregio 32 (CRC/TR32) 'Patterns in Soil-Vegetation-Atmosphere-Systems: Monitoring, Modelling and Data Assimilation' (www.tr32.de), which were adapted for the CRC1211 'Earth - Evolution at the Dry Limit' (www.crc1211.de), funded since 2016. In both projects, scientists from various disciplines collect heterogeneous data at field campaigns or by modelling approaches. To manage the scientific output, the TR32DB data repository (www.tr32db.de) has been designed and implemented for the CRC/TR32. This system was transferred and adapted to the CRC1211 needs (www.crc1211db.uni-koeln.de) in 2016. Both repositories support secure and sustainable data storage, backup, documentation, publication with DOIs, search, download, statistics as well as web mapping features. Moreover, RDM consulting and support services as well as training sessions are regularly carried out.