IT4S Forum | 19.04.2023

Meeting documents

Presentation of the meeting (PDF, 11MB)

Recording of the event

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Opening

Digitalisation for Researchers at the University of Vienna

Ronald Maier, Vice-Rector Digitalisation and Knowledge Transfer

The Role of the ZID in Supporting IT for Researchers

Ulf Busch, CIO

Innovative IT solutions in selected scientific projects

IT for Meteorology and Climate Science

Leopold Haimberger, Professor of Meteorology and Vice Dean for Infrastructure at the Faculty for Geosciences, Geography and Astronomy

Abstract: Spatially and temporally well resolved global to local scale gridded fields of atmospheric parameters are essential input for many inter- and transdisciplinary applications from hazard alert systems to climate change mitigation strategy development. For teaching and improving the methods how to create these fields, which involves km-scale modeling, there will be continuous demand for local HPC resources. To optimize internal workflows but also the visibility as scientists we need to publish not only papers but also our algorithms and data sets. To make these popular among cloud service users in- and outside our research area, they not only need to be of high scientific quality and FAIR, but also “near”. Making data “near” in this context means to provide a place where bandwidth-hungry parallel and out-of memory data analysis codes can work efficiently. A few ways to achieve this are outlined.

Digitalisation of zoological specimens

Simon Engelberger, Collections Manager in charge of the University of Vienna Zoological Collection

János Békési, supervising UNIDAM and several services for researchers, mainly in the digital humanites / ZID
The data we work with, since about 2 years, are digital images of zoological specimens as well as scans of historical photographs and other archival materials held by the zoological collection of the University of Vienna (UVZC). These physical objects have been accumulated over a period of nearly 250 years for research and teaching purposes. We reckon that digitization is the best way to make these objects and their associated data available to current scientific inquiries, at the same time preventing the valuable original specimens from unnecessary manipulations. To maximize the subsequent usability of the generated data sets, it is important to record and store data in conformity with internationally accepted data standards of a particular research field. For biodiversity data, two such meta-data standards are widely used worldwide, namely Audubon core (AC) for the description of AV-media and Darwin core (DWC) for physical voucher specimens and records. As the UVZC contains a substantial number of materials from both areas (physical specimens and AV-media), a database solution to accommodate both types of standard metadata was necessary to migrate all available data to the digital realm. Since no commercially available software solution was available for this task, the ZID and the collection staff decided to develop a customized database. Based on Easydb, a flexible and highly customizable digital asset management system (DAM), the system was set up to allow metadata recording and storage of digital media files (images, av-media) in a single system. Additionally, sections to store, organize and describe digitized catalogues and/or card files are included and fully inter-linkable with the object metadata sets. Standardized collection of literature references is possible via the linked YARM system, allowing for automated importing and updating of citations. The generated data sets are of potential interest for a wide variety of research disciplines, ranging from biodiversity conservation, climate change research and functional anatomy to historical studies on the development research networks, biological thoughts and teaching practices. We therefore hope that by and by the database will become a potent tool for researching and interconnecting various aspects of the zoological collection.

DataLife – Data Infrastructure for Life Sciences

Thomas Rattei, Head of the Division of Computational Systems Biology and Vice-Head of the Department of Microbiology and Ecosystem Science.

Abstract: The research and education in biology, medicine, ecology, pharmacy and other life sciences is increasingly based on the acquisition, analysis and interpretation of large data amounts. Typical examples of these developments are imaging data in tumour diagnostics, real-time microscopy data in molecular biology and DNA sequences in genomics. The new project DataLife will establish novel powerful infrastructure for data from and around the Vienna Biocenter. The new infrastructure will allow the real-time storage of newly generated data on their final storage destination, which will be directly available within several High-Performance Computing Platforms, including the Vienna Scientific Cluster and the Life Science Compute Cluster. This will enable the instant analysis of bioanalytical data with computational methods for data reduction, database comparison, statistics and machine learning. The DataLife project also includes the training of users and the public representation of data in high capacity and throughput (Open Science). The 3-years project DataLife has been started recently and is funded by the Austrian Ministry of Education, Science and Research. Infrastructure for data in life sciences needs to be well connected internationally. Across Europe, the intergovernmental organisation ELIXIR coordinates and develops life science resources so that researchers can more easily find, analyse and share data, exchange expertise, and implement best practices. The DataLife project is therefore the core of Austria’s integration into ELIXIR and will establish the initial Austrian ELIXIR node.

IT services of the ZID for science and research

Supporting projects in all stages

Ulrich Kiermayr, Head of Communication Networks & Infrastructure and Vice Head of Zentraler Informatikdienst

Abstract: What do scientists need to know before setting up a project that will need a lot of IT resources? Ulrich Kiermayr, Head of Communication Networks & Infrastructure at the ZID, gives an overview of the capabilities of the networking infrastructure – what is already possible, what is planned in the near future and what is not (yet) possible. He will speak about when to contact the ZID in the process of planning the project, what information to gather beforehand so planning can proceed quickly, and what difficulties might arise if questions of generating, transferring, processing and storing large quantities of data are tackled very late in the project.

Overleaf – Collaborative Online LaTeX Editor

Eva Karall, Head of E-Learning at Zentraler Informatikdienst

Abstract: Overleaf is now available for members of the University of Vienna. It simplifies the use of LaTeX in many ways. Overleaf can also be integrated into the E-learning platform Moodle.

Summary and Outlook

Moderation: Michaela Bociurko, IT Communications and Marketing / ZID
Sarah Curtis, IT Communications and Marketing / ZID