Developing an Efficient Planetary Space Weather Alert Service using Virtual Observatory Standards

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The objective of this Task is to identify user requirements, develop the way to implement event alerts, and chain those to the 1) planetary event and 2) planetary space weather predictions. The expected service of alerts will be developed with the objective to facilitate discovery or prediction announcements within the PSWD user community in order to watch or warn against specific events. The ultimate objective is to set up dedicated amateur and/or professional observation campaigns, diffuse contextual information for science data analysis, and enable safety operations of planet-orbiting spacecraft against the risks of impacts from meteors or solar wind disturbances. OBSPARIS and UCL will study and adapt VOEvent to those purposes. CNRS-IRAP and SRC will study the way to implement VOEvent as a service for the PSWS tools (Planetary Space Weather Services). *The Europlanet H2020 Research Infrastructure project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654208.*

Keywords: Alert Service, Planetary Science, Space Weather

HTML5とJavaScriptを利用したWINおよびWIN32形式地震波形ファイル表示
Seismic data viewer on a web browser for WIN and WIN32 format, using HTML5 and JavaScript

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In Japan, WIN and WIN32 format are widely used to record, collect and store seismic data. Web site of Hi-net, NIED provides seismic data of Hi-net and other institutes in the WIN32 format, which is extended from the original WIN format to handle data from many institutes and networks.
Applications to check and decode this format data are provided from each institute. However, installation is required as these official programs are written in C language. This is sometimes not convenient, for example, in the case of using a temporal environment or travelling outside. Using HTML5 and JavaScript, I have developed a web application which enables us to check the WIN and WIN32 data in various situations.
 This application can check the contents of WIN and WIN32 format file and display waveform data. Basic usage of this application is just to choose WIN and WIN32 files using a select button. Then, waveform data is displayed in the panel within the browser. Duration and displayed stations can be selected and changed at the details field within the browsing window. If a channel table file is specified, information of station, component, and physical amplitude is reflected in the panel.
WIN system contains some programs to handle the content of a WIN file. “wck” in the WIN system is a tool to check the content of channels. “dewin” in the WIN system is a tool to decode the seismic data of a specified channel from a WIN format file. This web application has similar functions to these two programs, when these operations are specified within the details field. I note that organization ID and network ID information are displayed for WIN32 files. This is a newly added feature to the original “wck” program.
This application is, however, sometimes slow in the case of handling large files which is larger than several tens of megabytes. Memory usage should be improved in the future. In addition, appearance should be also refined for better user experiences.
 This web application enables us to view the content of WIN and WIN32 files, using only a single HTML file. As typical recent web browsers (e.g., IE11, Firefox, Chrome, and Safari) supports HTML5 and JavaScript, installation of any other programs is not necessary in such an environment with these browser. In addition, this application also works without internet connection. Copying this html file to a PC is just a necessary preparation to use this program even in that case. This program will enables us to use WIN/WIN32 files in various scenes, and makes WIN and WIN32 format more convenient.

キーワード：地震波形、ウェブアプリケーション、WIN、WIN32
Keywords: Seismic waveform, Web application, WIN, WIN32

Data alliances in Open Science for interoperable and multidisciplinary data usage

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The idea of Open Science combines the Open Data, Open Access and further more open principles and activities for an improved domain specific but also cross-domain and interoperable usage of scientific data and appropriate publications, methods, software, etc. Scientific collaboration according to the Open Science principles is also opening the chance to return to a holistic approach integrating science and humanities. In order to get the maximum benefit from the principles of Open Science a change of scientific and administrative culture is still necessary as well as a transparent and secure access to data, information and knowledge. Data scientists could play an important role in the management of the whole data life cycle but also the cross-domain integration of data and publication. Scientific libraries should assume the tasks of an institutional body for all activities around a sustainable management of scientific data and appropriate value added services in Open Science.
Beside the discussion of general topics of this concept, the results and challenges of an international project for the integration of proprietary data server via semantic mashup of data catalogs in the geoscience and space domain are addressed in this presentation.

Keywords: Open Science, Open Access, Holistic Approach, Semantic Mashup, Data Catalog, Scientific Library

生物多様性・生態系評価へ向けたGRENE-eiによるデータ整備

Data management for evaluating biodiversity and ecosystems conducted by GRENE-ei (Green Network of Excellence - environmental information)

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The loss of biodiversity and its impact on ecosystem functions and services are the biggest environmental issues. It needs to assess present status of biodiversity and ecosystems to address these problems. In addition, many kinds of environmental information such as biodiversity, ecological, climatological and geographical data are required for developing indicators that are effective in assessing the conditions of biodiversity and ecosystems. However, most existing data are not comprehensively available because they are scattered among many various databases that are independent of each other. Therefore, our Green Network of Excellence - environmental information (GRENE-ei) project aimed to manage metadata about biodiversity and ecosystem information at the first. We connected existing metadata databases through cooperation with Japan Long Term Ecological Research Network (JaLTER) and Data Integration and Analysis System (DIAS). JaLTER Metacat (http://db.cger.nies.go.jp/JaLTER/) provides information such as location, availability and format of ecological observation data in Japan. We created the data element mappings between JaLTER and DIAS metadata formats and integrated JaLTER metadata catalogue into the search and discovery system for DIAS datasets (http://dias-dss.tkl.iis.u-tokyo.ac.jp/ddc/). The next step was accumulation of biodiversity and ecosystems data. We collected observational data from separate layers such as species distribution, community structure, ecosystem and flux. One of the main data sources at the species and community levels is the vegetation survey data conducted by The Ministry of the Environment, Japan. Using the output of this survey, the plant distribution database including 718,211 records with 4,683 species names was developed. The data format of this species occurrence database was compliant with the Darwin Core (http://rs.tdwg.org/dwc/) in order to maximize interoperability. The third step was the creation of spatial interpolated distribution datasets of species and community. We constructed the species distribution models (SDMs) of each plant both from the occurrence data mentioned above and environmental factors (such as climate, topography, geography and land cover data), and predicted the potential distributions of species suitable habitats in Japan. These interpolated datasets of plant species and community distribution would be an indispensable infrastructure for mapping the potential distribution of organisms that interact with plants, such as herbivore insects. Our main achievements, particularly interpolated datasets of plants, are preparing publication through DIAS data archives.

キーワード：データ整備、生物多様性、生態系、相互運用性、GRENE環境情報分野、地球環境情報統融合プログラム

Keywords: data management, biodiversity, ecosystem, interoperability, GRENE-ei, DIAS

