Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

ACG38-P01 Room:Poster Time:April 28 18:15-19:30

The data release of Earth observation project data products considering data provider's policies by DIAS

KINUTANI, Hiroko[1*] ; SHIMIZU, Toshiyuki[2] ; LI, Jiyi[2] ; NAKAHARA, Yoko[2] ; YOSHIKAWA, Masatoshi[2] ; KITSUREGAWA, Masaru[3] ; KOIKE, Toshio[1]

[1]The University of Tokyo, [2]Kyoto University, [3]The University of Tokyo, National Institute of Informatics

Our project, DIAS (Data Integration and Analysis System) started in 2006, has a purpose of constructing data infrastructure that can integrate earth observation data, numerical model outputs, and socio-economic data effectively. DIAS also has a purpose to create knowledge enabling us to solve earth environment problems and to generate socio-economic benefits. From October 2010, we have released data of DIAS with Document-metadata, describing about dataset in English and Japanese. Anyone can use the DIAS data discovery system by accessing http://dias-dss.tkl.iis.u-tokyo.ac.jp/ddc/, and can download data files of 195 datasets through the system.

The data in DIAS is classified into 4 categories:

1) Numerical simulation outputs for the purpose of research,
2) Satellite data for the purpose of research,
3) Datasets created by DIAS researchers,
4) Datasets created at related projects supported by DIAS.

Newly released datasets are **NIES CGER Ochiishi Monitoring Station Greenhouse Gases Data**, **NIES CGER Tomakomai Energy, Water, CO2 Flux, Spectral Radiation, Vegetational Index Data**, **Atmosphere and ocean carbon dioxide monitoring using volunteer observing ship (Pyxis) servicing between Japan and West Coast**, **The Japanese 55-year Reanalysis (JRA-55)**, **GRENE-City Tsunami archive**, **AGURAM Ground Information Database** and Asian Monsoon Year projects data products.

Data provider to release datasets from DIAS should create the document metadata (both in English and Japanese) that describes the dataset.Data provider should write a policy concerning the data in order to notify to data user in it. In addition to data policy of data provider, project policy of a project that became the background of the data creation, and DIAS data policy are included in the document metadata. If conflicting terms are written among the data policies, we have determined the priority of data policy; the order is data provider, project and DIAS.

The data policy of DIAS is as follows:

1. With regard to Data policy, if there is any data policy indicated by the data provider, that policy always has priority over this DIAS data policy.
2. DIAS data sets are to be used only for scientific research or educational purposes. Commercial use and exploitation of DIAS data sets are prohibited
3. Any modification or change of the original DIAS data sets is prohibited.
4. Any Re-export or transfer of the original data sets to a third party is prohibited.
5. The origin of DIAS data being used for any publication of scientific results must be acknowledged and referenced in the publication, with the *quotation* given below as an acknowledgement.
6. Whenever DIAS data sets are used for publication of scientific results, the author(s) shall send a copy of the respective publication, preferably in an electronic form or in a separate printed version, to the DIAS CONTACTS as indicated

Data policy of DIAS may use as the basis for data providers to create their own data policy.

In addition, the data download system developed by DIAS has 4 level access controls to the data for users' data downloading.

1) Registered users are able to download.
2) In addition to 1), after agreement of data policy, users are able to download.
3) In addition to 2), after sending a use application through the system to the data provider and approval is obtained, users are able to download.
4) In addition to 2), after users have negotiated individually with the data provider and approval is obtained, users are able to download.

By considering the data policy of data provider in this way, we are trying to improve the reliability of DIAS data repositories and DIAS data release.

Keywords: DIAS, Earth Observation data, Satellite data, Model output data, In-situ data, data policy

Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

ACG38-P02 Room:Poster Time:April 28 18:15-19:30

Development of a basic common library (SCALE) for future HPC and datasets created by the library

SATO, Yousuke[1*] ; NISHIZAWA, Seiya[1] ; YASHIRO, Hisashi[1] ; MIYAMOTO, Yoshiaki[1] ; TOMITA, Hirofumi[1]

[1]RIKEN Advanced Institute for Computational Science

A basic Common library named Scalable Computing for Advanced library and Environment (SCALE) is now being developed at RIKEN, Advanced Institute for Computational Science (AICS). The library is developed to solve the problems that come from the sophistication of numerical models and the recent trend of high performance computing (HCP). The library is downloadable from the web site of RIKEN, AICS (http://scale.aics.riken.jp/). The license of the SCALE is based on BSD 2 license.

SCALE-Large Eddy Simulation (LES) is now available as a component of the SCALE library. The SCALE-LES is based on fully compressible system, and it uses vertically explicit and horizontally explicit (HE-VE) scheme. Even ordered central differential schemes (2nd ordered central differential scheme for the terms relating to the density, 4th ordered central differential scheme for the other terms) are applied for spatial discretization. The 3rd ordered Runge-Kutta scheme is applied for the temporal discretization. Physical components implemented in the SCALE-LES are turbulent scheme, a radiation scheme, cloud microphysical schemes (1-moment bulk, 2-moment bulk, and spectral bin scheme), and surface flux model. The aerosol model, chemical transport model, urban canopy model will be implemented near future.

In future, the SCALE library will be extended to regional model with nesting system, global model. As well as the atmospheric component, the SCALE will be extended to the entire targets for numerical simulation (e.g. ocean, biosphere, molecular dynamics, or so).

We will introduce some examples of the results obtained from the SCALE-LES and some datasets. We aim to share and discuss about not only the model results but also the problem when we treat the big data (e.g. data handling, visualization or so) with the participants regardless of their background.

Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

ACG38-P03 Room:Poster Time:April 28 18:15-19:30

Japan mosaic land-cover 0.01 degrees raster dataset

HIGUCHI, Atsushi[1*] ; KAWAKAMI, Satoshi[2] ; MURAKAMI, Akinobu[3] ; MASUTOMI, Yuji[4] ; TAKAMI, Akinori[5]

[1]CEReS, Chiba University, [2]HP Japan, [3]University of Tsukuba, [4]Center for Environmental Science in Saitama, [5]NIES

As one of basic information for numerical weather simulation, land-cover and land-use dataset is essential for initial condition. In Japan, MILT published land-cover information as tile and vector files. We mosaicked tile vector files into one raster (gridded) file dataset over Japan. Such mosaicked raster files are available for 1976, 1987, 1991, 1997 and 2009. We also made convert programs from original land-cover flag (number) into typical land surface model (SiB and SiB2) land-cover flag. We also try to explain how to utilize these dataset for the assessment of urban-green to reduce heat island without use of urban canopy model within the poster session core-time. To make the dataset, SALSA project under RECCA/MEXT supports our activity.

Keywords: land use, land numerical mesh, Japan mosaic, raster data

Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

ACG38-P04 Room:Poster Time:April 28 18:15-19:30

Meteorological observations for the purpose of educational use in Nagata ward, Kobe

FUKUSHIMA, Azusa[1*] ; OTSUKA, Shigeaki[1]

[1]Faculty of Humanities and Sciences, Kobe Gakuin University

Weather and climate are the units in science or geography classes in elementary and junior high school. Recently, many data have archived on the Internet by the individuals or scientific groups other than JMA with the spread of the meteorological instruments. However, if a teacher who is working at a public school hopes to do constructive class with some practical works using the meteorological data, he has to spend for hours and hours preparing. For example, he has to choose a case day to learn the unit in effective way, and he has to prepare the data that it can be used in his students easily. Therefore we considered that if a provider prepares some support measures for using the data, the teacher might be easy to introduce the meteorological dataset into his class as a course material. In this study, we report an approach to the educational use of a meteorological dataset observed at the Nagata center of the Center for Area Research and Development, Kobe Gakuin University from 2011.

The Nagata center of the Center for Area Research and Development was established in 2010. It is located in the former buildings of the Futaba elementary school in Nagata ward, Kobe-shi. The instruments for the observation of the meteorology and seismology were installed on summer of 2011. The elements of meteorological observation are air temperature, wind speed and direction, relative humidity, rainfall, net solar radiation, ultraviolet A and B, and pressure. The elements for the seismology are seismic intensity, seismic wave, groundwater level, and underground water temperature. The observation data is automatically saved as daily reports, monthly reports, and annual reports. The daily reports are available on our website to the registered users. The data can be used only for the educational and research purposes.

Observation site is located in the urban area between Shin-Nagata station (JR line) and the port of Nagata. It is at a distance of about 7km southwest of Kobe Local Meteorological Observatory. JMA Akashi AMeDAS station is in Futami coastal area of Harima-Nada. Nagata is the side of Osaka Bay and is located in the south of Rokko-Awaji fault zone. If the observation data used in conjunction with the data of Kobe Local Meteorological Observatory, it can be carried out a research of urban heat island and sea and land breezes at the regional scale. A practical training of the meteorological observation or the tour of equipment at the Nagata center is also possible.

The data that observed in near at hand can be used to understand local scale weather and climate as a course material in the school. Furthermore, it is possible to feed the geographic and the temporal sense of the weather phenomenon by comparing the data of several weather stations including Nagata.

Keywords: Meteorological and Seismological Data, Earth Science Education, Nagata ward, Kobe

Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

ACG38-P05 Room:Poster Time:April 28 18:15-19:30

Study of tropospheric tomography for water vapor distribution with Neural Network

HIROKI, Akimitsu[1*] ; HATTORI, Katsumi[1] ; HIROOKA, Shinji[1]

[1]Graduate School of Science, Chiba University

Many meteorological disasters such as landslides with torrential rain have been reported. Monitoring and a prediction of the precipitation activity are very important to mitigate these disasters. However, in the developing countries such as Indonesia and the Philippines, the observation with the radars is difficult in the present conditions due to the cost and the maintenance. The water vapor tomography using a GPS and/or broadband satellite is considered to be effective for the precipitation monitoring system instead of the radars in the above countries.

When the rain cloud bringing the damage of a heavy rain and the thunderstorm is developing, there is an apparent flow of the water vapor from the neighborhood. It is possible that the GPS can detect the flow and distribution of water vapor. Therefore, in this study, we develop a water vapor tomography from GPS and AMeDAS data using algorithm of residual minimization learning neural network (RMTNN). The numerical simulation demonstrates a capacity of the developed method, that is, the reconstructed image can show the transient changes and the inverse layer in given water vapor distributions. The details will be shown at our presentation.

Keywords: tomography, water vapor, GPS