Project 5 (TWP2-WP3): Arctic data portal

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Project Start/End: September 2013 – August 2014

Position offer:

The laboratory of excellence L-IPSL of the Institut Pierre-Simon Laplace offers a post-doctoral position of 1 year to develop an L-IPSL Arctic data portal.

Context: The Arctic is undergoing unprecedented changes as a result of global warming such as the rapid decline in summer sea-ice. However, the reasons for such changes and their impacts on the environment and society are not well understood thereby limiting our ability to predict what might happen in the future. In particular, the performance of global climate models needs improving including treatments of many processes and their interactions within the atmosphere-ocean-ice-biosphere system. Process-based studies based on a combination of analysis of available data and models of varying complexity/scales will lead to improvements in climate models. The Arctic has been highlighted as a research priority within L-IPSL and nationally with the creation of the French Chantier Arctique.

Description of work: Many different datasets exist at L-IPSL collected as part of different projects examining a wide range of scientific issues in the Arctic. These include projects studying atmospheric, ocean, biogeochemical processes as well as pollution, permafrost, glaciers, sea-ice etc. In order to promote new avenues in Arctic research within IPSL and to improve Arctic modelling capabilities, L-IPSL is creating an Arctic data portal. In the first instance, the aim is that this data portal will provide links to existing datasets including information about each dataset using a user-friendly web-based environment. It will contain information about different regions and types of data (ground-based, marine, aircraft, satellite). In a second phase, a data policy will be developed to facilitate the use of datasets for the evaluation of models at IPSL, including the global IPSL climate model and regional models. Modelling results may also be incorporated into the data portal.

Supervision team: The work will be conducted under the main supervision of P. Keckhut (IPSL) and K. Law (LATMOS) and carried out in close collaboration with the IPSL data management team as part of the ESPRI project (in particular, at LMD/Palaiseau). The work will be carried out at LATMOS in Guyancourt, west of Paris where the Observatoire Versailles and Saint Quentin (OVSQ) Arctic network is also based.

Expertise: Persons with expertise in geophysical data management who are motivated to work on scientific issues in the Arctic are invited to apply. Good written and spoken English is required together a willingness to interact and discuss with different groups. Applications from people with research experience in the Arctic are also welcome. Experience in computing is also useful.

Duration and salary: The researcher (master level upwards) will be recruited for 12 months with a net monthly salary around 2000 euros, commensurate with experience. This includes social services and health insurance.

Contact for applications: Applications should include a CV, a statement of research interests and the names of at least two references including e-mail addresses and telephone numbers. Applications should be submitted by e-mail to Philippe.Keckhut@latmos.ipsl.fr and Kathy.Law@latmos.ipsl.fr.

Final results :

As part of the LABEX-IPSL many types of datasets exist obtained by different projects focussed on the wide range of scientific issues in the Arctic. These include projects studying atmospheric, ocean, biogeochemical processes as well as pollution, permafrost, glaciers, sea-ice etc. The motivation for the creation of an L-IPSL Arctic Data portal is to promote new avenues in Arctic research within IPSL, and to improve Arctic modelling capabilities. A first aim is to provide links to existing datasets including information about each dataset using a user-friendly web-based environment. The portal will contain information about different regions and types of data (ground-based, marine, aircraft, satellite). In a second phase, a data policy could be developed to facilitate the use of datasets for the evaluation of models at IPSL, including the global IPSL climate model and regional models. The development of the Arctic Data portal started in September 2013 and was planned to last one year. Due to technical problems with the creation of the portal interface, the launch of the portal is still in progress. Fig. 1 shows the preliminary presentation page as it will appear in the LABEX-IPSL website (http://climserv.ipsl.polytechnique.fr/arcticportal/).

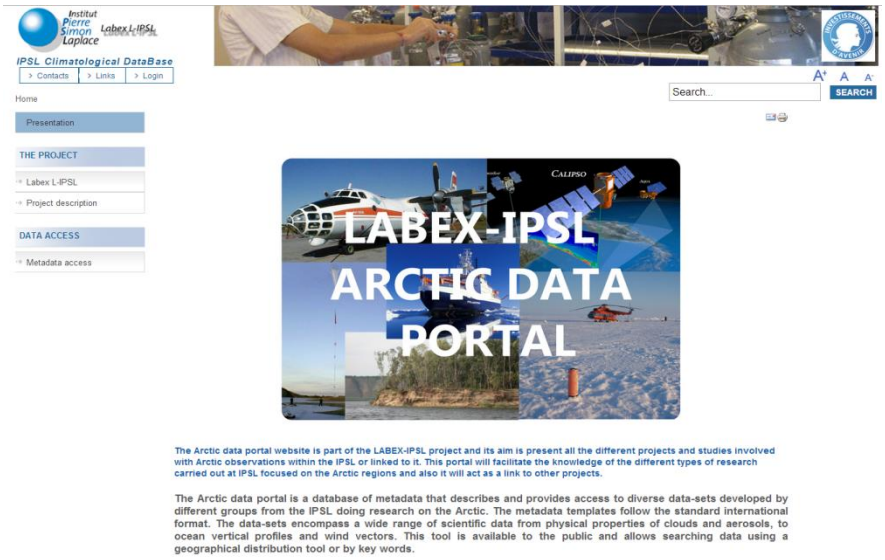

Fig. 1: LABEX-IPSL Arctic Data Portal preliminary presentation page

The first objective of the project was to make a list of all the contacts within the IPSL who have been involved making observations in the Arctic and hence who could provide metadata information about their datasets. They were contacted via email or meetings with the contacts from the different laboratories in IPSL or linked to it. At the same time, another list was compiled including existing Arctic data portals and databases at an international level. These portals, databases and project websites are included in the portal as external links. The portal contains standardized information about each dataset as part of the metadata, together with links to relevant publications and to the data distribution sources. Examples are shown in Fig. 2. Fig. 3 shows how the metadata information is classified for each dataset. Finally, all the datasets that will be in the final version of the portal are listed in Table 2 (see Annex B).

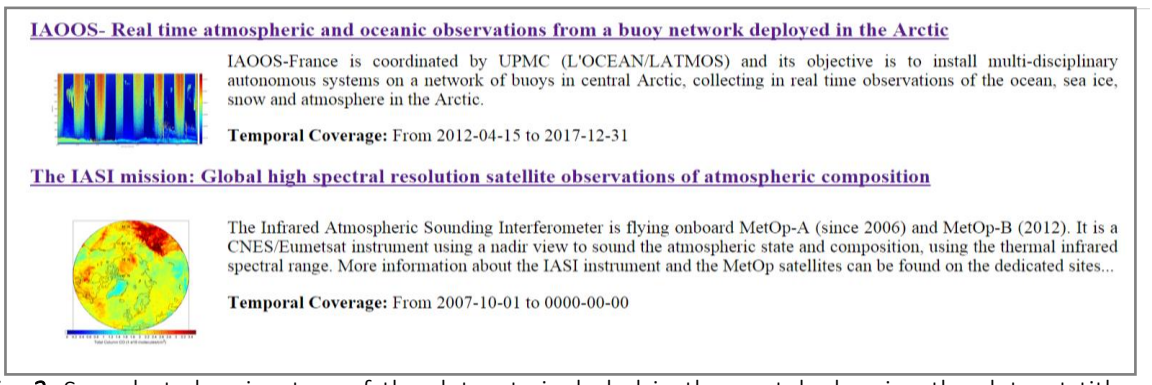

Fig. 2. Snapshot showing two of the datasets included in the portal, showing the dataset title, plot related to the measurements, summary of the dataset and temporal coverage (http://climserv.ipsl.polytechnique.fr/arcticdatadb/Datasets/).

Dataset | Projects | Contacts | Parameters | Datacenter | References | Multimedia Sample | Distribution | Data Resolution | Instrument | Spatial Coverage | Paleo Coverage

Dataset Title	IAOOS- Real time atmospheric and oceanic observations from a buoy network deploied in the Arctic
Dataset Purpose	
Dataset Abstract	IAOOS-France is coordinated by UPMC (L'OCEAN/LATMOS) and its objective is to install multi-disciplinary autonomous systems on a network of buoys in central Arctic, collecting in real time observations of the ocean, sea ice, snow and atmosphere in the Arctic.
Acquisition Methodology	The platform is equipped with CTD vertical profilers, ice mass balance, temperature and pressure sensors, micro-lidars and optical depth sensors. Vertical cloud profilers are produced several times per day by the micro-lidars. 6 platforms to be deployed every year following the first deployment of 15 platforms, making a total of 40. All the systems on each buoys should operate during 2 years with satellite transfer data. The deployment will start in spring 2014 with two buoys totally overseen by public organisms (DT INSU, LATMOS, LOCEAN). Then all the others buoys will be developed under contract with two first units for autumn 2014.
Quality	
Dataset DOI	
Access Constraints	Restricted access to the data through ICARE data centre.
Use Constraints	
Keywords	
Status	In work
Temporal Coverage	
Start Date	2012-04-15
Stop Date	2017-12-31

Fig. 3. Snapshot showing how the different information for each dataset is classified in different categories (http://climserv.ipsl.polytechnique.fr/arcticdatadb/Datasets/view/1).

The final step of the portal, once all the datasets are included in the web interface, will be to publically launch it after all the contacts involved revise the datasets information (planned for October 2014). A small article to be sent to Dataset Papers in Science (http://www.hindawi.com/journals/dpis/) is being prepared.