



Photo : David Huard, Ouranos

CONTEXT

Climate projections play a crucial role in evaluating climate change impacts, vulnerabilities and opportunities. With the continual increase in spatial and temporal resolution of climate models, the growing number of model simulations, as well as increasingly complex data analysis methods, the computational effort required for state-of-the-art climate data analysis is accelerating at a furious pace. This project aims to build a platform that streamlines climate scientist workflows. Running on networked supercomputers, the platform will provide tools to analyze and visualize large volumes of climate data to serve Ouranos' users. The focus will be on answering the most-pressing needs identified: creation of standard and custom climate scenarios for impacts and adaptation studies, exploration, analysis and validation of climate model simulations, as well as visualization of climate scenarios.

OBJECTIVES

- Reduce the time spent for climate data collection by canadian researchers.
- Develop high performance code for climate scenario production.
- Use state of the art visualization software to analyze climate simulations.
- Provide access to climate information to a greater number of potential users.

METHODOLOGY

Potential users of the platform are split into five distinct categories namely climate modellers, climate scenario providers, users of climate data, users of climate services, as well as digital humanities researchers. General methods will include:

- Identification of specific user category needs (with a particular emphasis on the climate scenario providers and users);
- Evaluation of existing IT tools and selection of the most efficient for inclusion in the PAVICS platform. The platform will build on existing software developed by the ESGF international community;
- Development of services and web applications based on a common software architecture and testing with selected groups from each category;
- Sharing the platform within the user community and climate service providers.

EXPECTED RESULTS

- A computer platform that will be useful to Ouranos, its partners and collaborators;
- A streamlined data extraction application which will enable Canadian climate scientists to focus on the analysis, application, and interpretation of climate data;
- The use of parallel computing and Calcul Quebec resources will accelerate data processing tasks, alleviate bottlenecks in large volume data distribution to users, and will enable enhanced online service delivery;
- Standardization of climate scenarios will ensure a better utilization of climate services in vulnerabilities, impacts and adaptation studies;
- The project will contribute to the training of the collaborators in software development.

CLIMATIC SCENARIOS AND SERVICES

PROJECT STARTING DATE AND LENGTH
APRIL 2016 • 2 years

INFORMATION

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BENEFITS FOR ADAPTATION

The PAVICS software platform will put climate data directly into the hands of the people who need it. Sharing a common infrastructure and IT tools will accelerate the development and production of climate information ultimately dedicated to adaptation to climate change.

The access to customized climate information products (such as time-series, maps, graphics) will help increase the utilization of climate services in vulnerabilities, impacts and adaptation studies. Moreover, higher quality standards should be achieved across vulnerabilities, impacts and adaptation projects which will ensure better links between disciplines and a more integrated strategy for adaptation to climate change.