



COMPENDIUM OF CANADA'S ENGAGEMENT IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS AND INSTRUMENTS

Memorandum of Understanding between Korean Meteorological Administration and Environment and Climate Change Canada's Science & Technology Branch for Collaboration within PyeongChang 2018 Olympic and Paralympic Winter Games to further their understanding of processes governing hazardous weather under cold conditions in complex terrain

SUBJECT CATEGORY:

Meteorology

TYPE OF AGREEMENT / INSTRUMENT:

Bilateral

FORM:

Memorandum of Understanding

STATUS:

- Signed by Canada on August 8, 2016 (S&T - ASTD)

LEAD & PARTNER DEPARTMENTS:

Lead: Environment and Climate Change Canada

FOR FURTHER INFORMATION:

Web Links: N/A

Contacts:

[ECCC Inquiry Centre](#)

COMPENDIUM EDITION:

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PLAIN LANGUAGE SUMMARY

A Memorandum of Understanding (MOU) between Korean Meteorological Administration (KMA) and Environment and Climate Change Canada (ECCC) was established for the PyeongChang 2018 Olympic and Paralympic Winter Games to collect, and then analyze, advanced weather observations during these Olympics. The study of these specialized data will allow scientists to better understand meteorological processes in mountain and coastal regions in a winter environment. As part of this project, ECCC's Science and Technology Branch, a leader in weather observation based research, contributed a number of advanced instruments that provided detailed measurements of winds, precipitation and fog. Working with South Korea, Canada will use these data and knowledge to improve our weather prediction models and in forecasting hazardous weather.

OBJECTIVE

The purpose of this memorandum of understanding (MOU) is to establish a collaboration framework for the transfer of the Canadian experience in the provision of science support to public events for which meteorological information is critical. This collaboration aims at scientific exploitation of enhanced observations and numerical weather model experimental runs to improve short-range weather forecasting under cold climate and over complex terrain in the context of public events.

KEY ELEMENTS

The PyeongChang 2018 Olympic and Paralympic Winter Games science project is coordinated by WMO and involves several international partners who will provide instruments, model runs and knowledge to the project. The MOU establishes a framework where state of the art meteorological instruments, experimental tailored model runs, expertise and experience using meteorological science to support public events can be shared to further the scientific

knowledge necessary to improve services critical to human safety, economic prosperity and environmental protection in both countries.

EXPECTED RESULTS

As part of this agreement, the following activities will take place: ECCC will provide leadership expertise to the organization of the scientific observation part of the Project, sharing of observations, models, experimental runs (and configurations) for meteorological and environmental predictions, sharing of meteorological instrumentation, and sharing of knowledge and analysis results at expert meetings.

CANADA'S INVOLVEMENT

The MOU between Canada and South Korea is very important to ECCC in terms of research and development in the field of meteorological science, because it allows us to leverage our expertise in science support to public events to access results from an international concerted effort using state of the art numerical models and observations to produce short range hazardous weather forecast.

This agreement covers for the preparation and implementation phase of the PyeongChang 2018 Olympic and Paralympic Winter Games and allows for one more year for joined data analysis and interpretation. Canada is in the process of renewing its weather radar network. For several years, we will run a mixed frequency network. During the PyeongChang 2018 Olympic and Paralympic Winter Games, a series of different frequency weather radars will be operated by a set of different radar owners in a very complex terrain. The dataset and the pool of experts will provide for a unique opportunity for Canada to acquire knowledge, which will directly benefit the optimization of our own weather radar network.

RESULTS / PROGRESS

Activities

Leading up to the Winter Games, ECCC deployed scientific weather instrumentation to South Korea. Such instrumentation included two Doppler LIDAR's, fog-monitoring equipment and a number of precipitation sensors. These instruments augmented observation "supersites" for which a large set of specialized meteorological observations were collected throughout the Games. Canada provided scientific and technical support during the project and overall ECCC provided leadership to the observing program. After the Winter Games, ECCC scientists have organized and will be participating in a number of expert meetings to collaborate with South Korea

and the international community regarding the use of this remote sensing dataset and specifically in its support to short term hazardous weather prediction, numerical weather prediction system assessment and radar network optimization.

This MOU established that KMA will cover travel and shipment of instruments costs.

This MOU did not involve any transfer of funds between the two parties. However, under this MOU, KMA covered all direct cost associated to Canadian participation in the PyeongChang 2018 Olympic and Paralympic Winter Games science project, excluding salaries.

Results

The MOU continues to enable ECCC and Korean Meteorological Administration in developing a scientific relationship between the two countries in the fields of meteorological science. This agreement opens new horizons for research and development that will benefit both countries.

We expect that this agreement will result in publications or reports containing results from specific instruments such as the wind LIDAR in support to operational weather forecasting in the context of hazardous weather, and the improvement of weather data processing under complex terrain. We also anticipate that results will include peer reviewed scientific publications reporting on the performance of the Canadian model and communicating the knowledge advancement resulting from this collaboration.