



## AXYS WATCHKEEPER™ BUOY

*The 2015 Pan American and Parapan American Games will take place this year in Toronto and surrounding areas from July 10-26 and August 7-15, respectively. The Toronto 2015 Games is the largest multi-sport event Canada has ever hosted, involving 7,600 athletes competing in 51 sports (36 Pan Am and 15 Parapan) in 30 different venues located in the Greater Golden Horseshoe Area. Environment Canada is providing state-of-the art, 24/7 dedicated, venue-specific weather alerting services and environmental emergency support for the Toronto 2015 Games. The TO2015 Games are also a catalyst for enhancing existing weather services through research and demonstration projects that will benefit future generations of Canadians.*

### What does the technology do?

This AXYS WatchKeeper™ buoy has been deployed in addition to the TRIAXYS™ Directional Wave Buoy to supplement the meteorological and wave observations available in support of the open water events at the TO2015 Games.

The AXYS WatchKeeper™ buoy is a self-contained, solar powered data acquisition system outfitted with a suite of meteorological and oceanographic instrumentation to measure wind speed and direction, air temperature, barometric pressure, water temperature, and wave height, period and direction. The 1.7 m diameter polyethylene buoy weighs nearly 540 kg and is capable of measuring waves approaching 20 m with a resolution of 1 cm with an accuracy of better than 1%.

### What's new about the technology?

This WatchKeeper™ Buoy is the first in Canada outfitted with a cell modem to enable the transmission of weather reports every 10 minutes, directly to Environment Canada's Canadian Meteorological Centre (CMC). Both buoys have been deployed south of the Toronto Islands specifically for monitoring near-shore marine conditions during the Games.

### How is the new technology better?

The TO2015 Games will be hosting a number of open water events in the inner harbour and south of the Toronto Islands, an area where the competition or logistics could be affected by thunderstorms, severe weather, or heat stress.



As open water events, notably sailing, are extremely sensitive to wind and weather, Environment Canada's Ontario Storm Prediction Centre will provide dedicated weather forecasts to inform the TO2015 Games competition management, athletes, volunteers, and spectators about winds, waves, and weather for the day. Existing Environment Canada marine forecasts are for off-shore conditions, away from the influences of shoreline, shallow waters and buildings. During the TO2015 Games, the Ontario Storm Prediction Centre will be providing a near-shore forecast for Toronto Harbour and surrounding waters. This buoy is part of a system of additional monitoring technologies, with higher than standard temporal reporting, put in place to inform our forecast process.

### **What is the legacy for Canadians?**

Environment Canada is taking advantage of the buoy's proximity to shore to test the use of a cell modem for frequent weather updates. Post Games, Environment Canada will examine the utility of using cell modems on lake buoys which are close enough to land for cell service. The more frequent weather updates could show an improvement in accuracy for forecasts, or response times for alerts, during active marine weather conditions.

