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Near-Real-time Water Level and Streamflow Conditions Mapping

**North American Drought
Monitor Workshop (NADM)**

Ottawa – October 16, 2008

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Scope of Presentation

- Canada's hydrometric program
- Near-Real-Time reporting
- Hydrological Conditions Mapping
- Trends in Streamflow

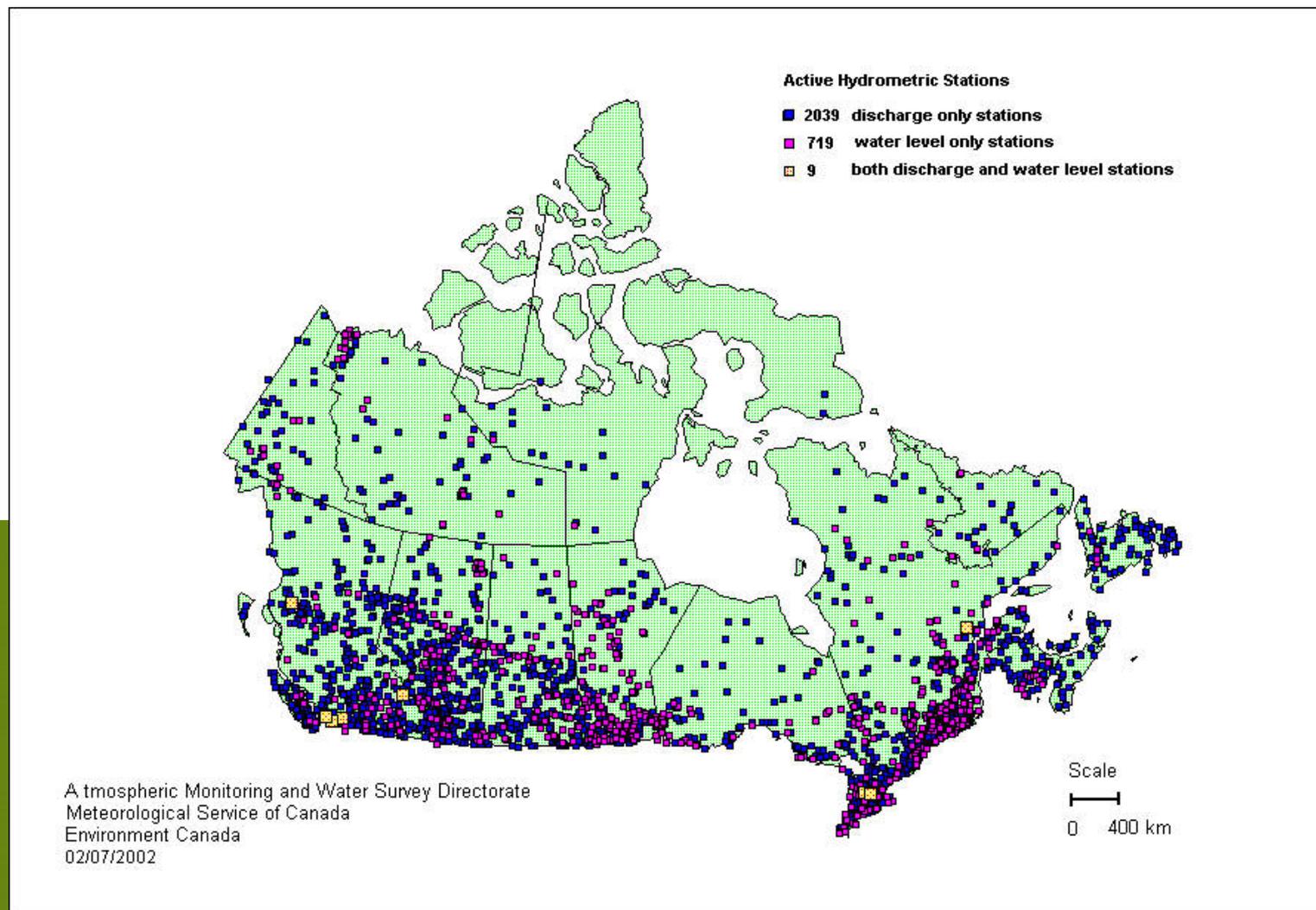


Canada's Hydrometric Program

- National Federal-Provincial hydrometric program
- Since 1908
- ~2800 active water level and streamflow stations
- HYDAT – archived data
- HYDNow – real-time data
- HYDEX – station metadata
- Public WSC website:

www.wsc.ec.gc.ca

Active Hydrometric Stations



Status of National R-T Hydrometric Data Reporting System

- On-going development
- >1800 stations (two-thirds of active stations)
- Public: Raw water level data only
- National server being re-located to secure site
- Automated QA/QC being introduced in 2008
- Real-time “provisional” water level and streamflow in 2009

Hydrological Conditions Mapping

- Discussed at NADM workshop in Regina, October 2004...
- Current state of water levels and/or flows – i.e. high, average, low – as indicator of water availability



Initial Water Level Conditions Mapping

- MapServer mapping application
- uses ~ 400 natural flow stations
- Similar approach to USGS WaterWatch
- A simple red, yellow, green colour coding is used to represent today's water levels as in the high, low or average range compared to the last 30 years.
- (http://map.ns.ec.gc.ca/thematic_map/?contexturl=http://map.ns.ec.gc.ca/contexts/quantity.xml)

Further Development of R-T Mapping Applications

- R-T Water level conditions → more stations
- R-T Streamflow conditions
- R-T 7-day low flow
- Web services for each
- Potential funding under CESI, Canadian Environmental Sustainability Indicators
- Early 2010



Trends in Streamflow

- The Reference Hydrometric Basin Network (RHBN), is a 229-station sub-set of Canada's national hydrometric network
- Selection criteria:
 - Good quality water level and streamflow data have been collected at natural flow stations for at least 20 years
- The RHBN was first developed in 1997 to help understand and document the hydrological effects of a changing climate, including trends in streamflow.
- A comprehensive review of the RHBN is underway

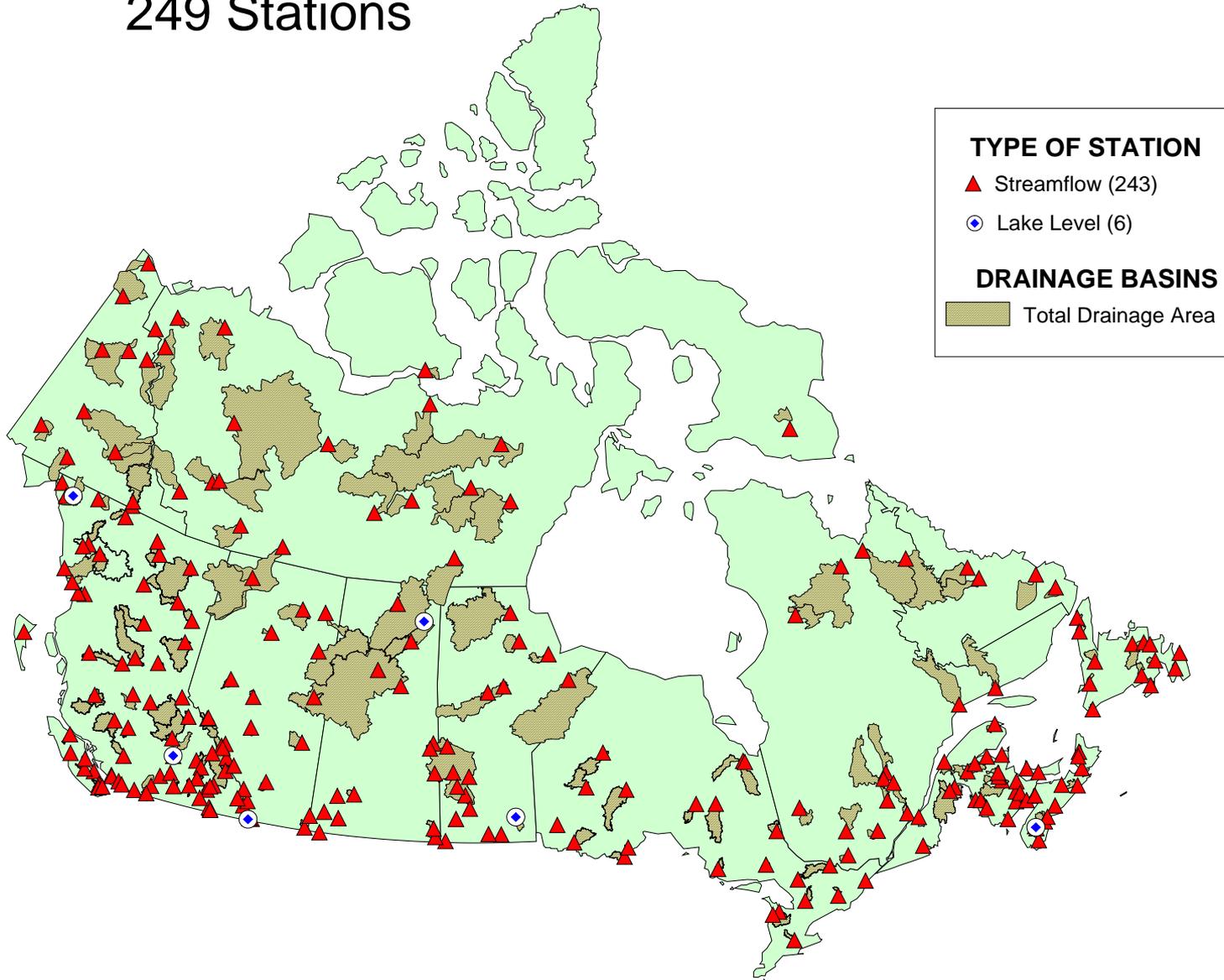
RHBN Selection Criteria

- **1. Breadth of coverage:** active seasonal and continuous discharge and lake level stations
- **2. Degree of basin development:** pristine or relatively stable land-use conditions
- **3. No significant regulation or diversions**
- **4. Length of record:** minimum of 20 years
- **5. Longevity:** future stability
- **6. Accuracy of the records:** open water and ice-cover conditions



Canada's Reference Hydrometric Basin Network

249 Stations





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Water Survey
Relevés hydrologiques

