

Flood Forecasting in Smaller Organizations

Joel Harrison
Water Resources Scientist



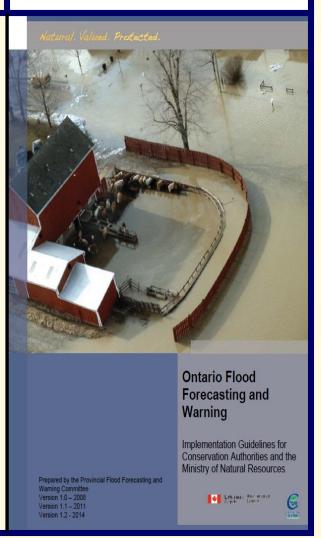
19 September 2018





"The Daily Planning Cycle (DPC) is a series of scheduled tasks, performed daily, to ensure that the flood potential can be identified at any time in a timely manner and communicated to parties within the system."

MNR. 2014. Ontario Flood Forecasting and Warning Implementation Guidelines





Current Conditions

(water levels, snowpack, soil moisture, *etc.*)



Forecasted Conditions

(precipitation, temperature, *etc.*)

Flood model and/or professional judgement

Response

(dam operations, messaging, etc.)

DPC Tools Survey



2018 Survey on FF&W

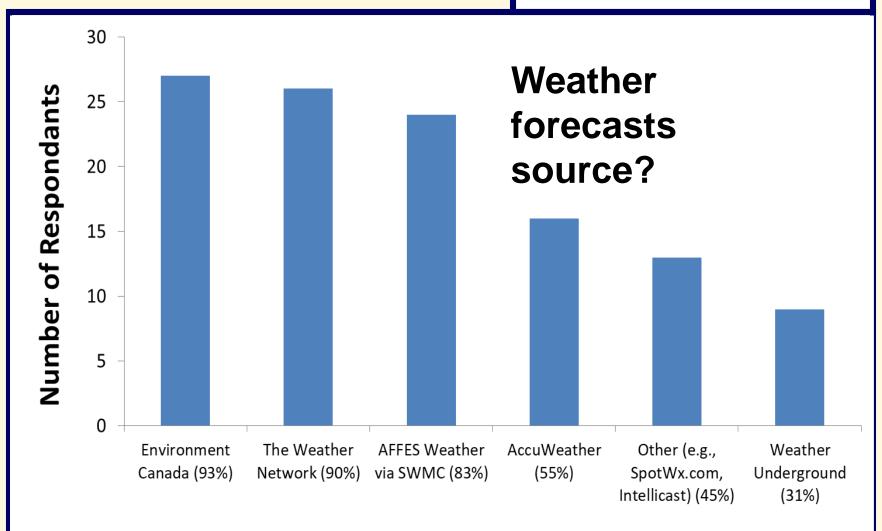
24/36 (67%) of CAs + 2 gov. staff completed survey

Questions on:

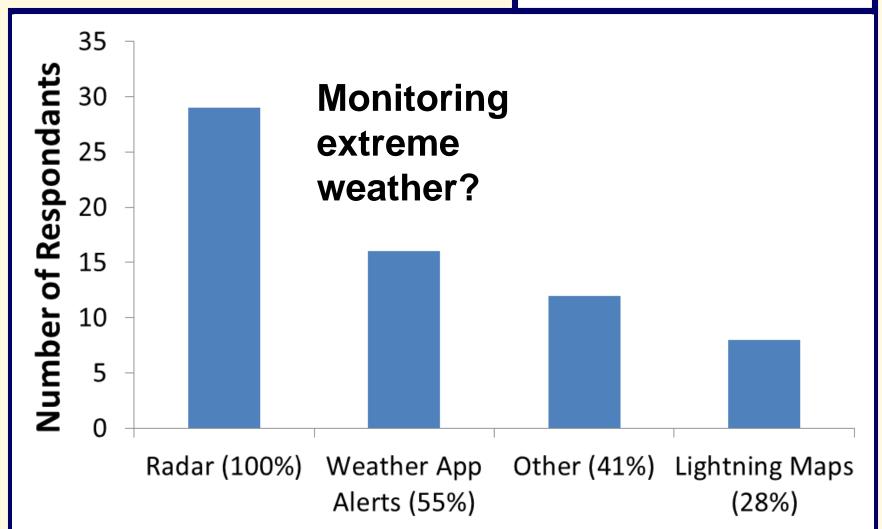
- Weather forecast sources
- Extreme weather monitoring
- Database tools
- Flood thresholds
- Alert systems
- Forecasting/modelling tools/software
- Staffing & scheduling



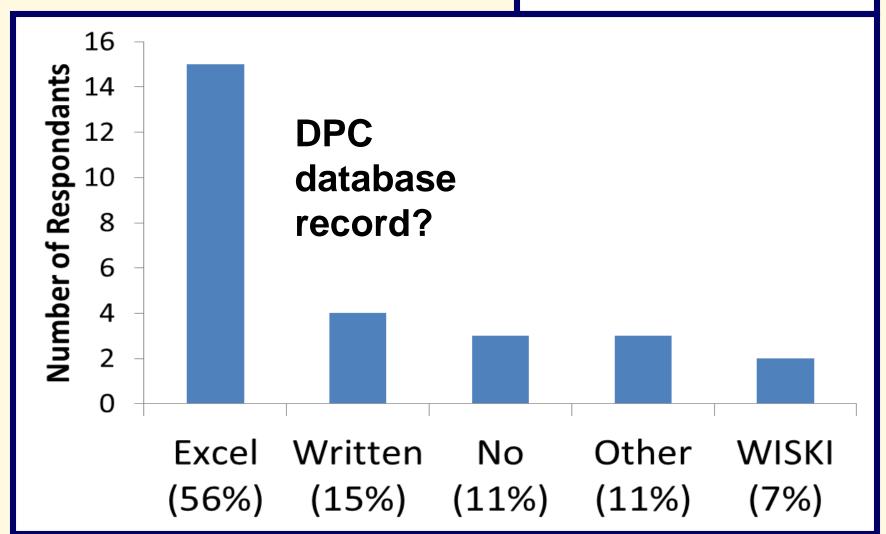




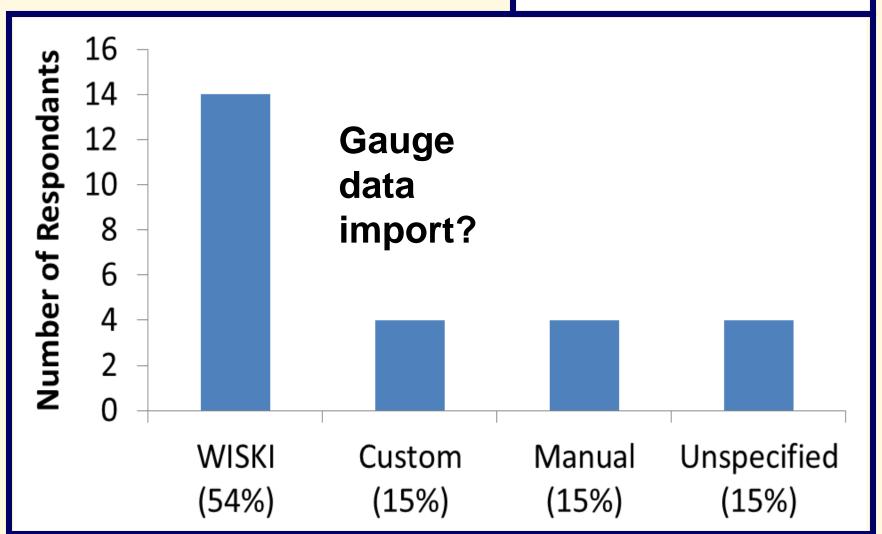




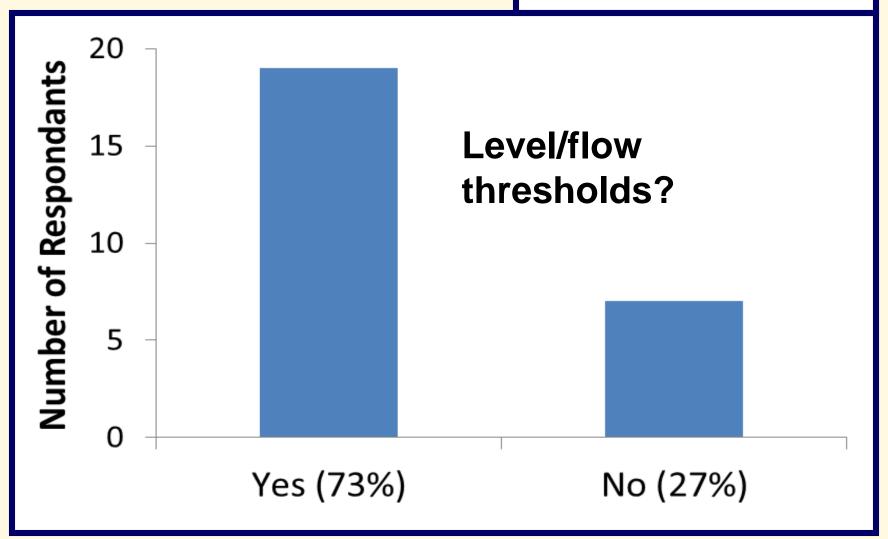




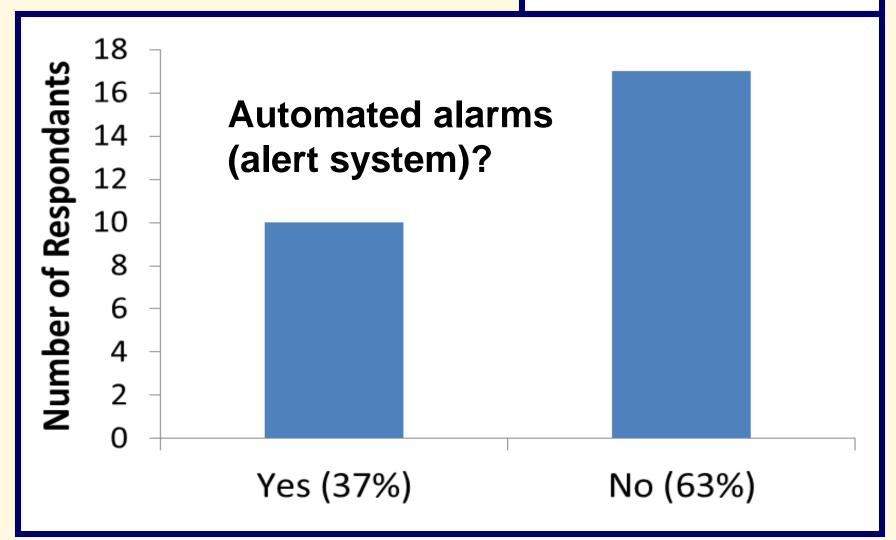




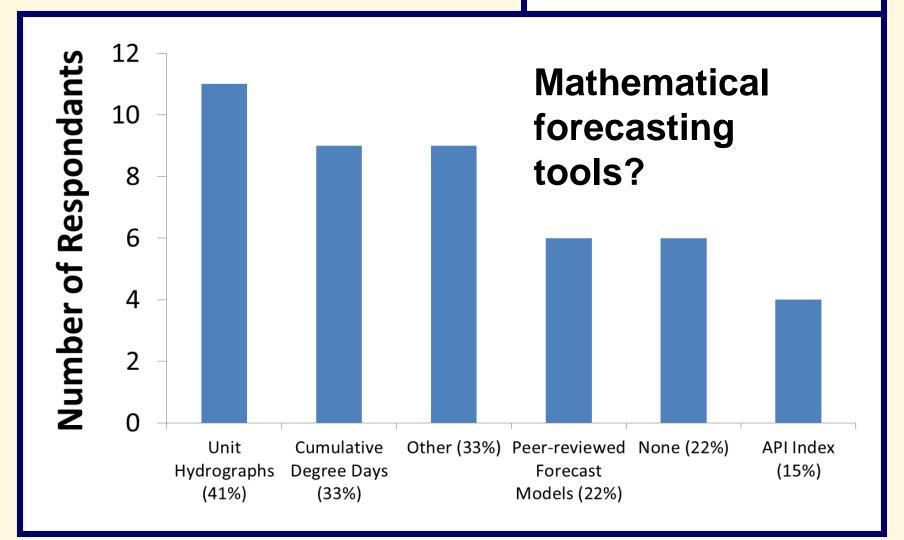




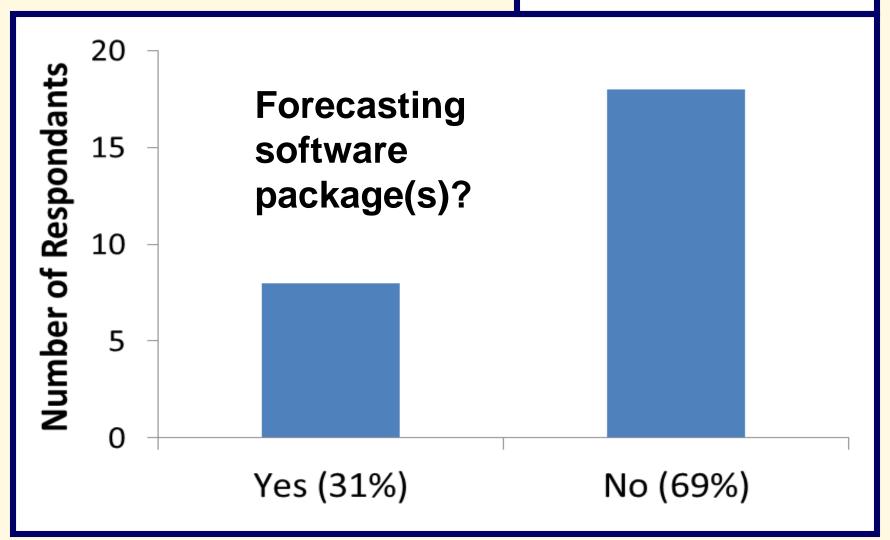




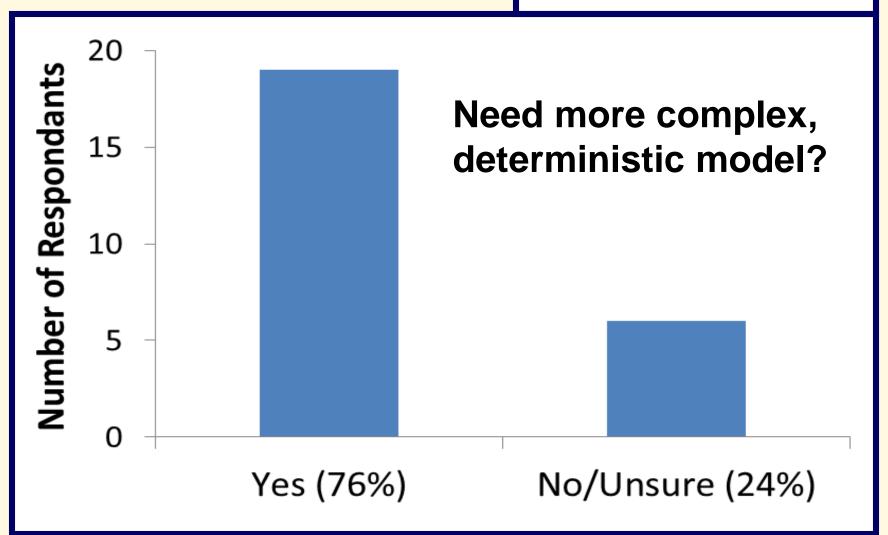




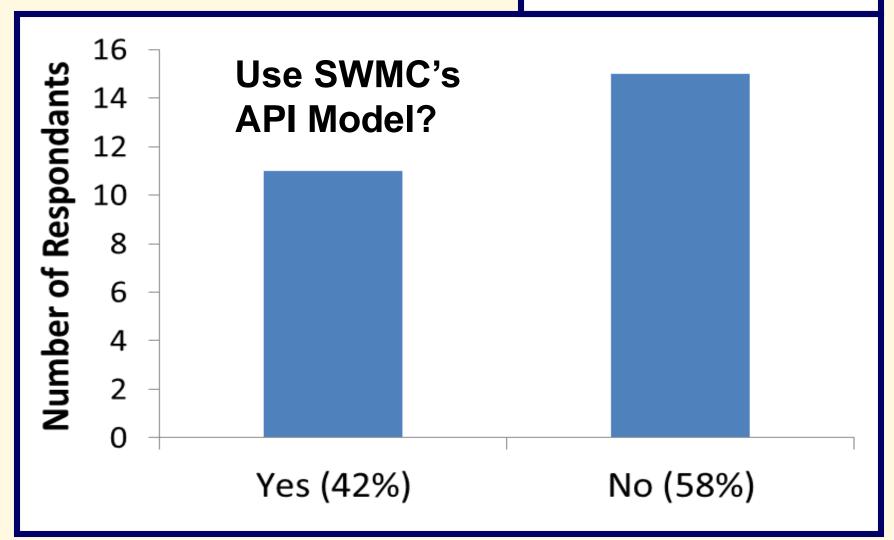




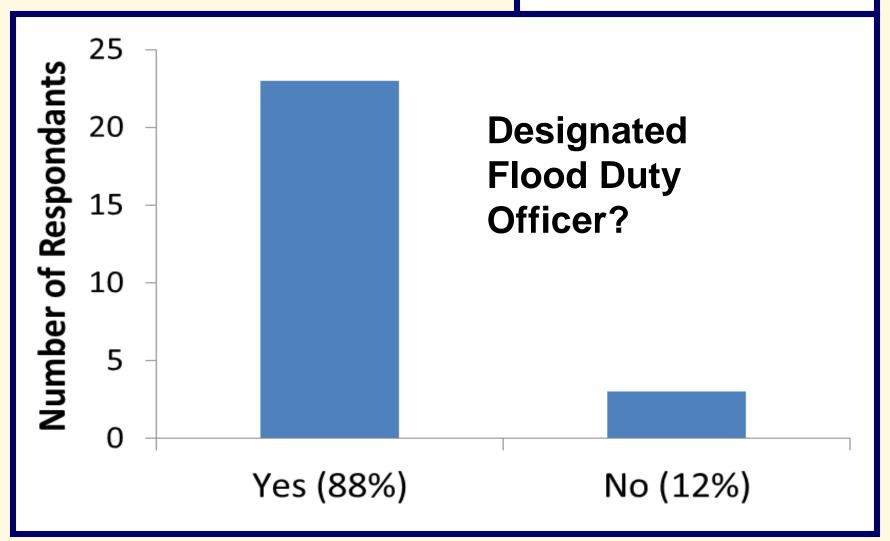




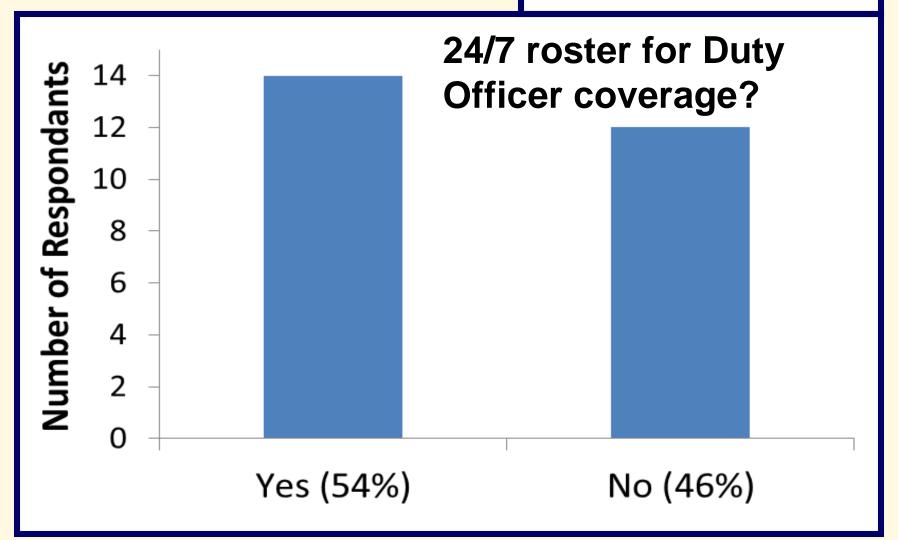




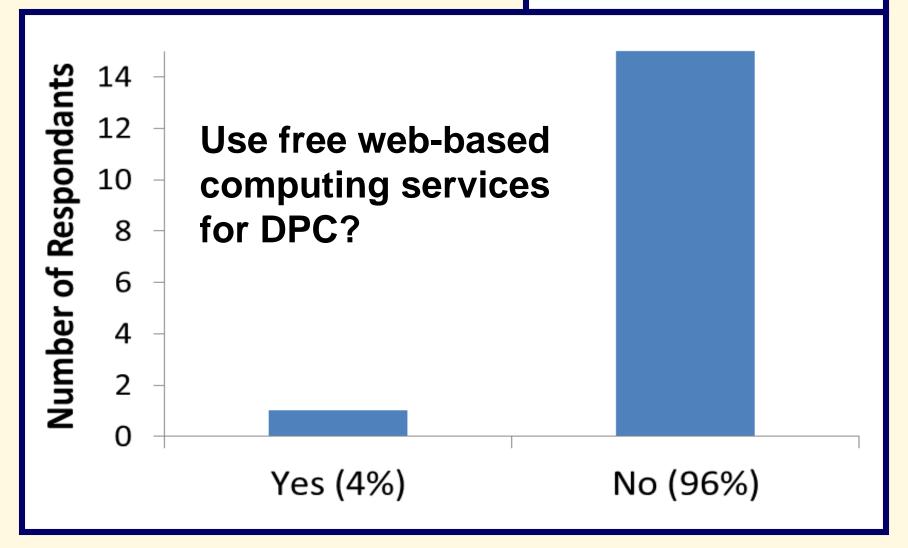




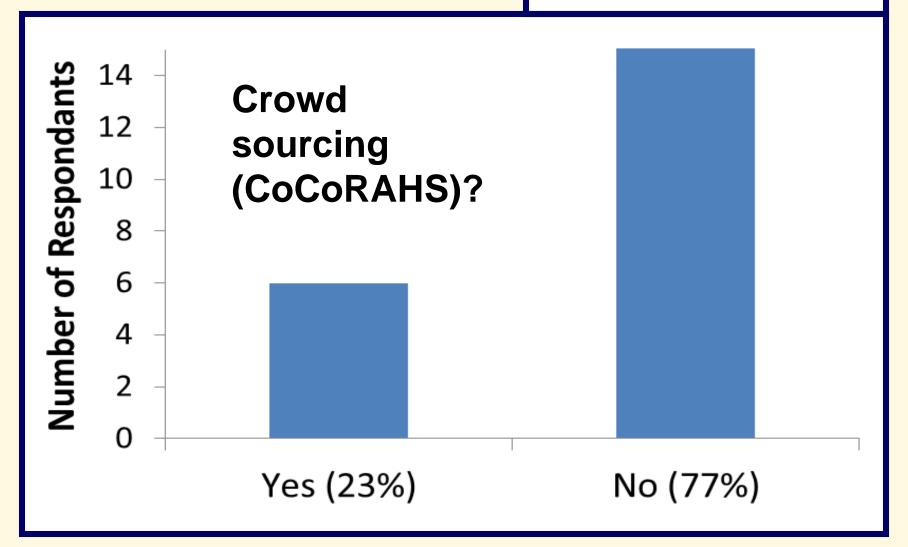




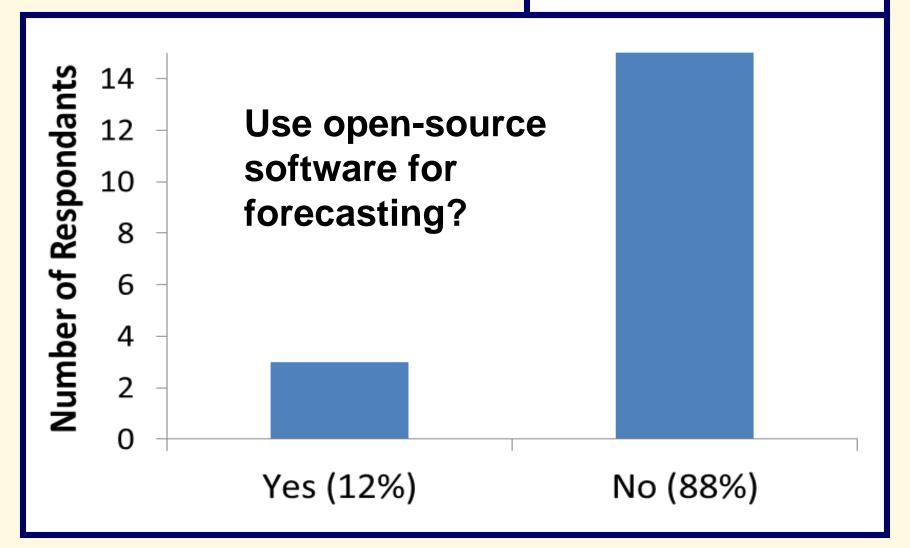














Last Question:

"If you would like to be entered into the draw for the #ONstorm Umbrella please provide your contact information below."

70% need an umbrella!!

"Smaller CAs"



Toronto and Reg

Credit Valley Conservation

Conservation Halton

Grand River Conservation Authority

Lake Simcoe Region Conservation Authority Hamilton Conservation Authority

Upper Thames River Conservation Authority

Rideau Valley Conservation Authority Niagara Peninsula Conservation Authority

Central Lake Ontario Conservation Authority

Essex Region Conservation Authority

South Nation Conservation

Nottawasaga Valley Conservation Authority

Mississippi Valley Conservation

St. Clair Region Conservation Authority

Ausable Bayfield Conservation Authority

Cataraqui Region Conservation Authority

Quinte Conservation Saugeen Conservation

Lower Thames Valley Conservation Authority

Ganaraska Region Conservation Authority Long Point Region Conservation Authority

Kanariha Conservation
North Sev-Matteres Conservation Authority

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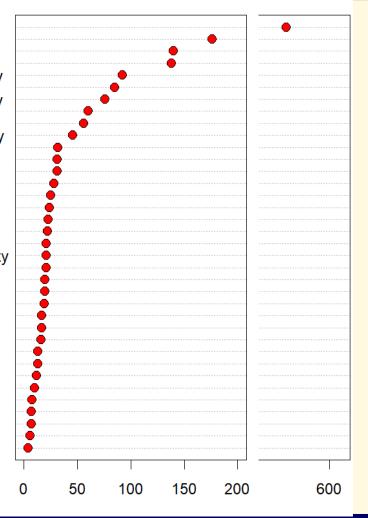
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A to the beautiful

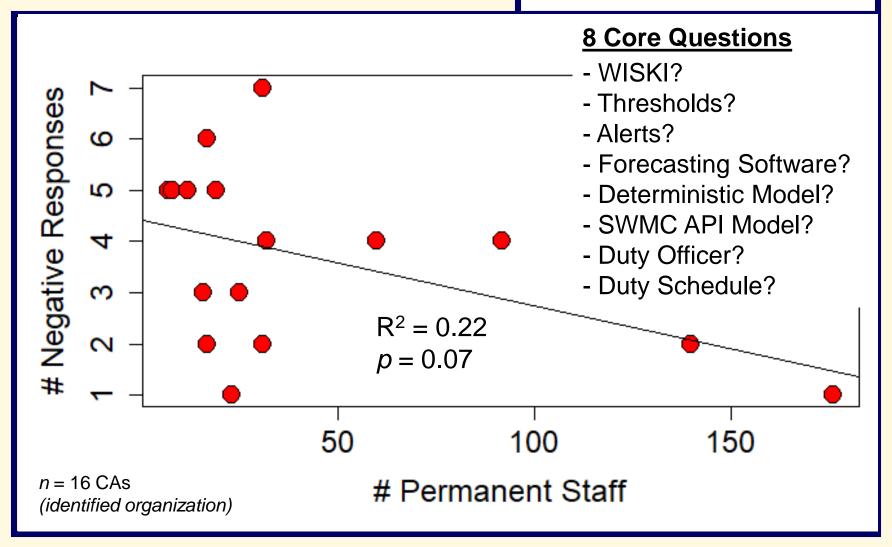
"Smaller CAs"



Toronto and Region Conservation Authority Credit Valley Conservation Conservation Halton Grand River Conservation Authority
Lake Simcoe Region Conservation Authority
Hamilton Conservation Authority
Upper Thames River Conservation Authority
Rideau Valley Conservation Authority Niagara Peninsula Conservation Authority
Niagara Peninsula Conservation Authority
Central Lake Ontario Conservation Authority
Essex Region Conservation Authority
South Nation Conservation
Nottawasaga Valley Conservation Authority
Mississippi Valley Conservation
St. Clair Region Conservation Authority
Ausable Bayfield Conservation Authority
Cataraqui Region Conservation Authority
Quinte Conservation
Saugeen Conservation Saugeen Conservation
Lower Thames Valley Conservation Authority
Ganaraska Region Conservation Authority
Long Point Region Conservation Authority
Kawartha Conservation North Bay-Mattawa Conservation Authority Maitland Valley Conservation Authority Lower Trent Conservation Authority
Lower Trent Conservation
Otonabee Conservation
Raisin Region Conservation Authority
Grey Sauble Conservation Authority
Lakehead Region Conservation Authority
Sault Ste. Marie Conservation Authority
Nickel District Conservation Authority
Crowe Valley Conservation Authority
Catfish Creek Conservation Authority
Mattagami Region Conservation Authority







What's a smaller CA to do?

- don't reinvent the wheel (beg, borrow, steal)
- pool resources (e.g., WISKI HUBs)

"What is the **best free tool** that you incorporate into your DPC?"

"R"

"GetRealtime"

"CoCoRAHS"

"Weather Underground"

"SpotWx"

"SWMC forecast & products"

"WSC water levels/flows & precip"

"Numerical Weather

"Pivotalweather.com"

"GTA [Flood Event Database]"

Models of ECCC"

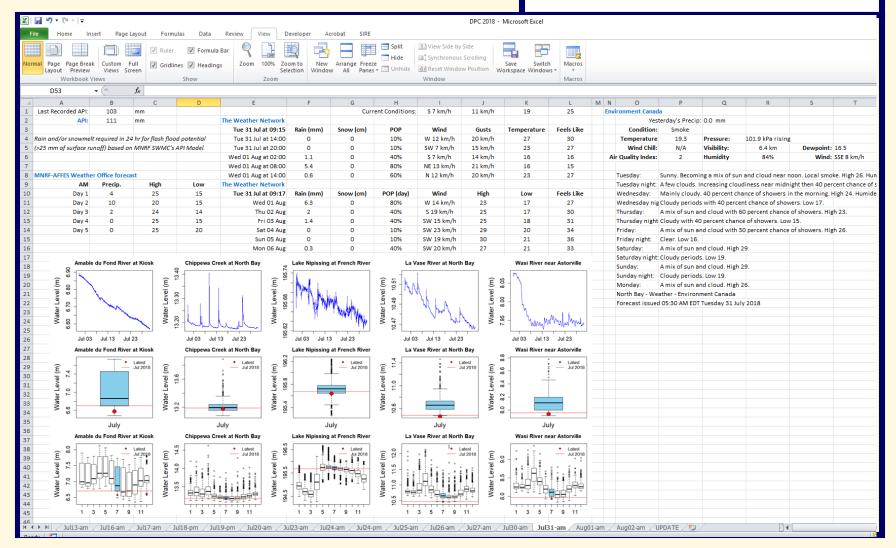
NBMCA's Old DPC Files



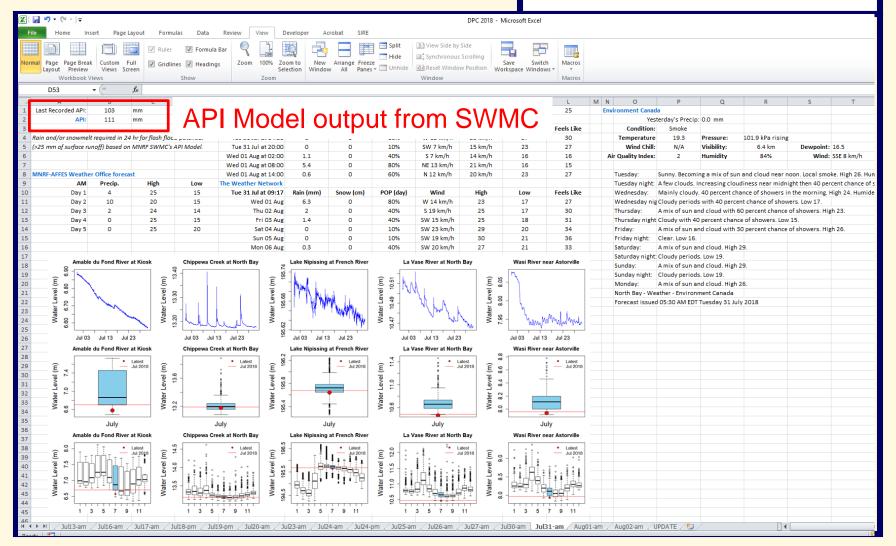


NBMCA's New DPC File

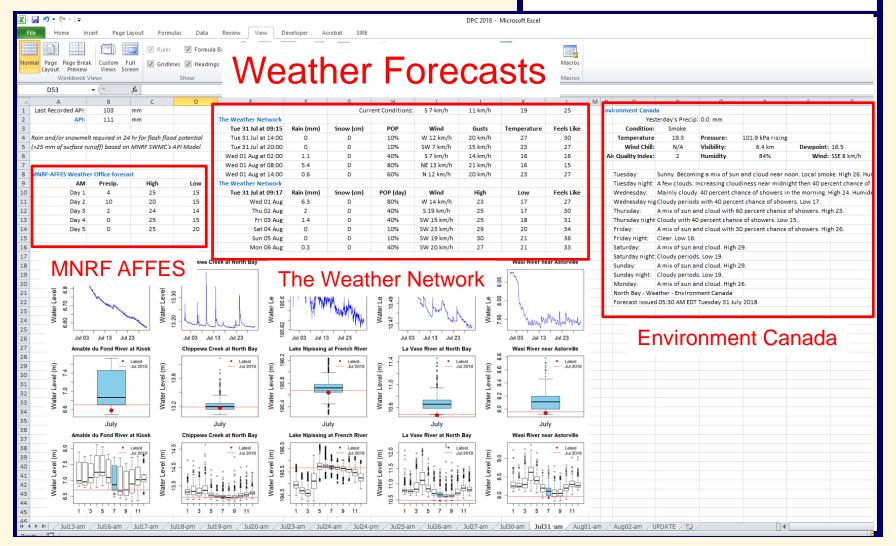




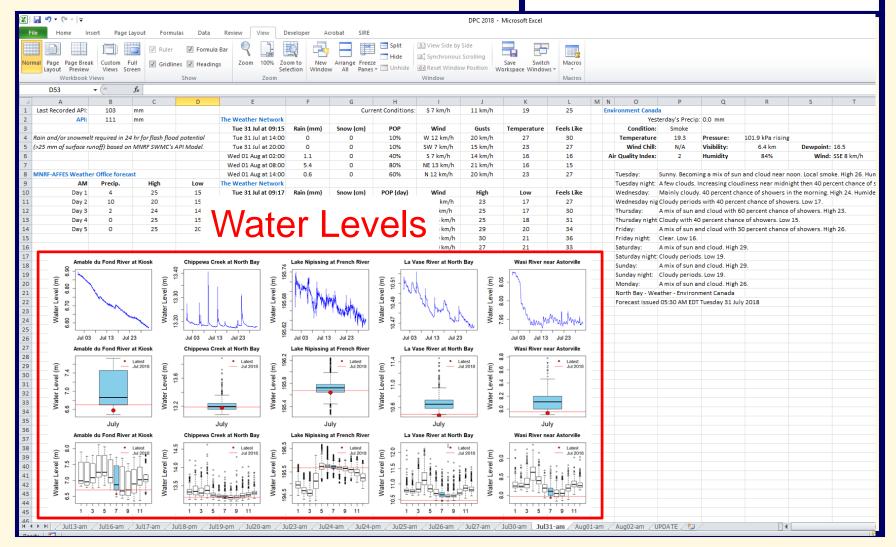








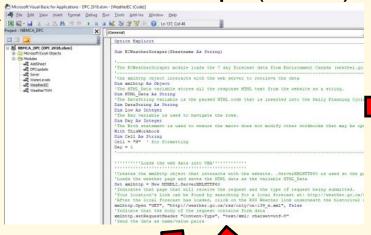






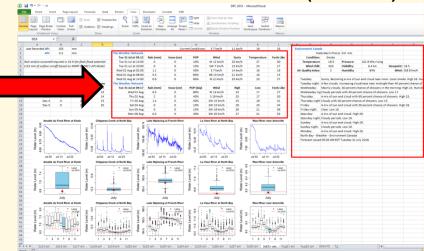
Automated Weather Forecast Scraping

VBA script (Excel)



"web scraping

DPC Weather (Excel)



XML code (weather websites)

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Secure https://weather.gc.ca/rss/city/on-139_e.xml
III Apps Dates GS GS Groundwater Hydrology KWIS Mapping Math Resources SWQ Toxicology
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   <name>Environment Canada</name>
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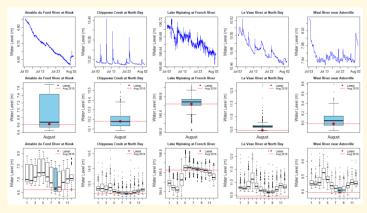
Water Levels

Government of Canada

PNG file





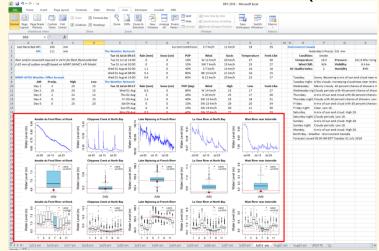


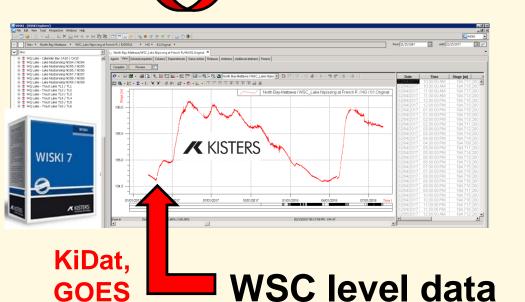


VBA script



DPC Water Levels (Excel)





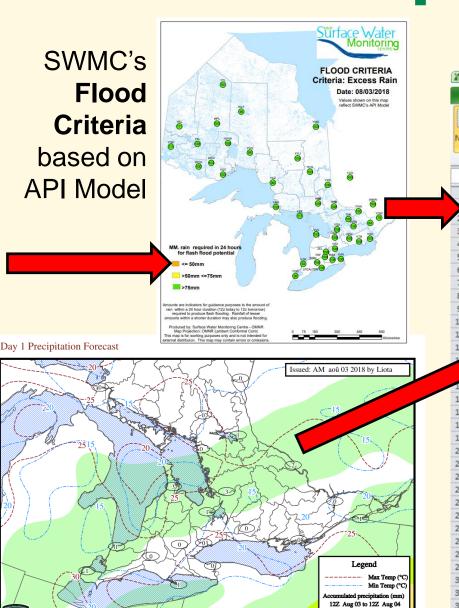
transmission

Manual Data Input

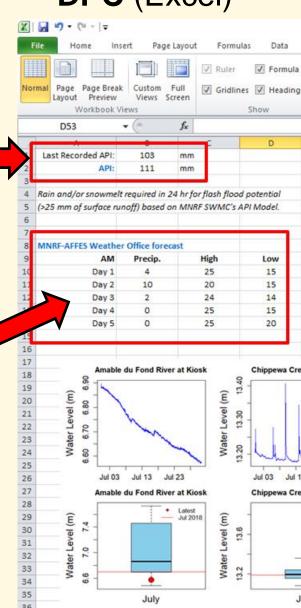
SWMC Extranet



MNRF's AFFES Weather Forecast



DPC (Excel)





Thank You!

