



Environnement et
Changement climatique Canada

Environment and
Climate Change Canada

Canada

Support Capacity of Meteorological Service of Canada to SWFDP-Caribbean

RA IV Experts Group Meeting on SWFDP

Miami, USA, 23-26 May 2017

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Canadian Centre for Meteorological and Environmental Prediction

Meteorological Service of Canada

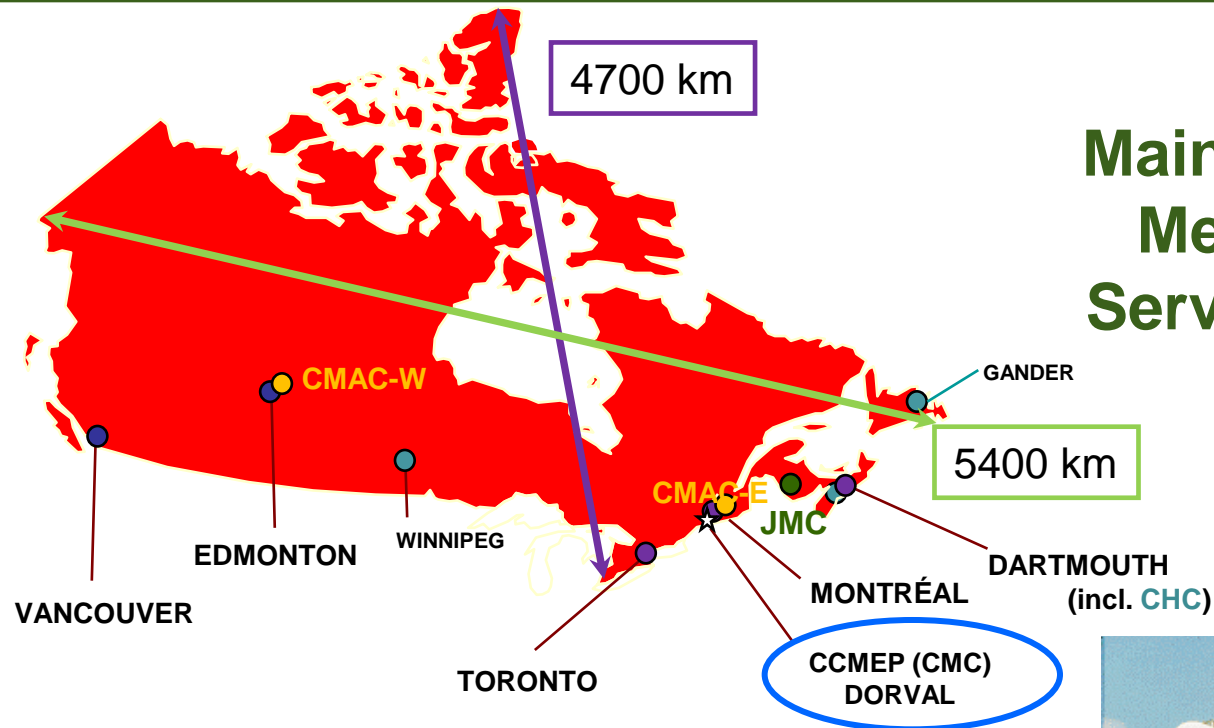
(Based on the presentation of A. Giguère to EG in Dec. 2016)

Canadian Centre for Meteorological and Environmental Prediction

- Where we are, Who we are and What we do.
- Our capacities, from global to regional to local
- What we have done in the past
- What we could do in the future



CCMEP: Where we are



Main offices of the Meteorological Service of Canada



Canadian Centre for Meteorological and Environmental Prediction: Who we are?

Also known as “Canadian Meteorological Centre” :
a critical center of the Meteorological Service of Canada

- National Meteorological Center and NWP Center (24/7, year round)
- Emergency response capacity

- [WMO RSMC](#) for nuclear emergency response.
- [ICAO VAAC](#): Volcanic Ash Advisory Center.



- Unique operational capacity,

services to various departments:

Defence, Fisheries, Coast Guard, Health, Natural Res. , Air navigation

- Superinformatics support, telecom network operation and IT mngmt serving ECCC 24/7 also located mostly at CMC (**GTS** hub)



CCMEP: What we do: NWP, mostly

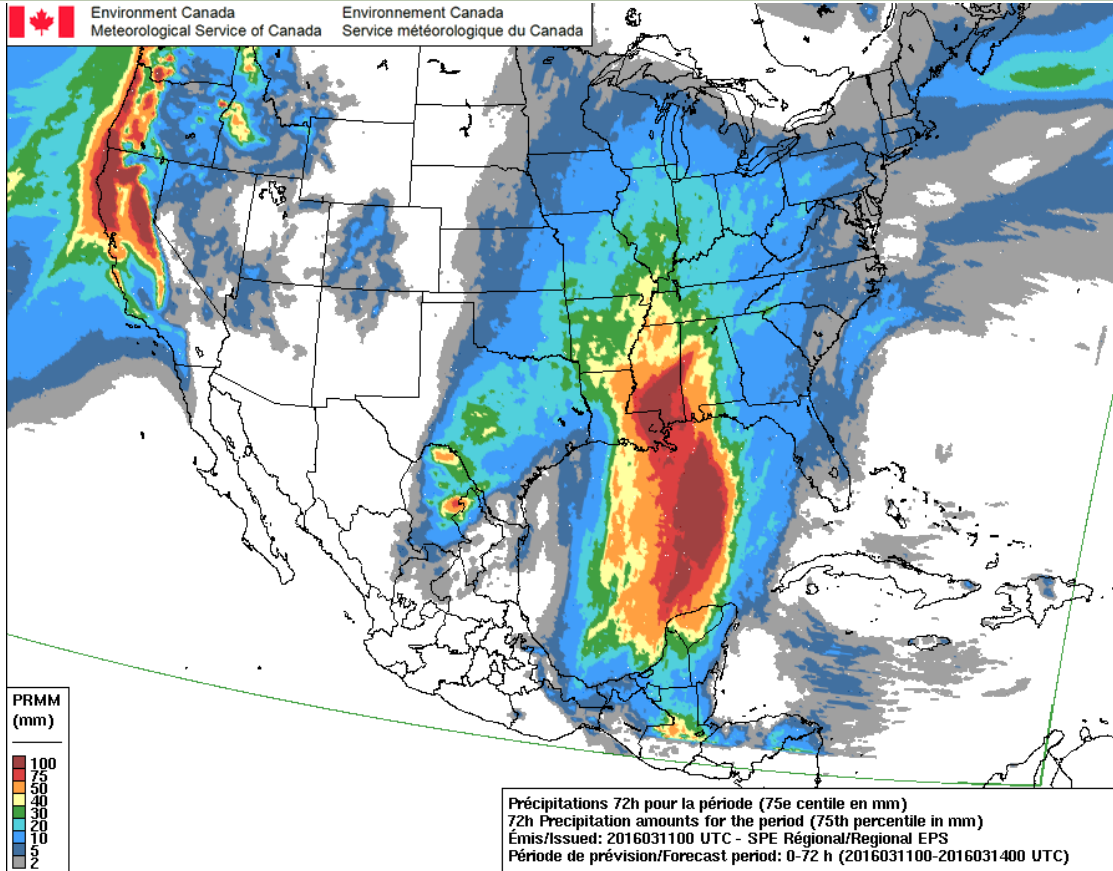
The NWP Process involving Research, Development, Operations

1. Data acquisition (Sat., aerology, aircrafts, surface, radar, buoys etc.)
2. Data assimilation and analysis
3. Numerical Weather Prediction (Running the models)
4. Post-processing (Product generation)
5. Dissemination (Regional, national, international)
6. Verification (Post-event evaluation of forecast performance)
7. Training (Meteorologists initial training and career development)



Our capacities: from global to regional to local

Resolution



ns to Year

els, 20 members, 30 yrs hindcast, 1 / 3
adtime; probabilistic and anomaly

S); NAEFS:

5 members in EnKF
t / day

10 day fcts /

s / d

High resolution DPS: Hor. Res. 2.5 km, no assimil. 4 x 48h fcts / day

Minutes to Hours
Urban-scale modeling system

Forecast period covered



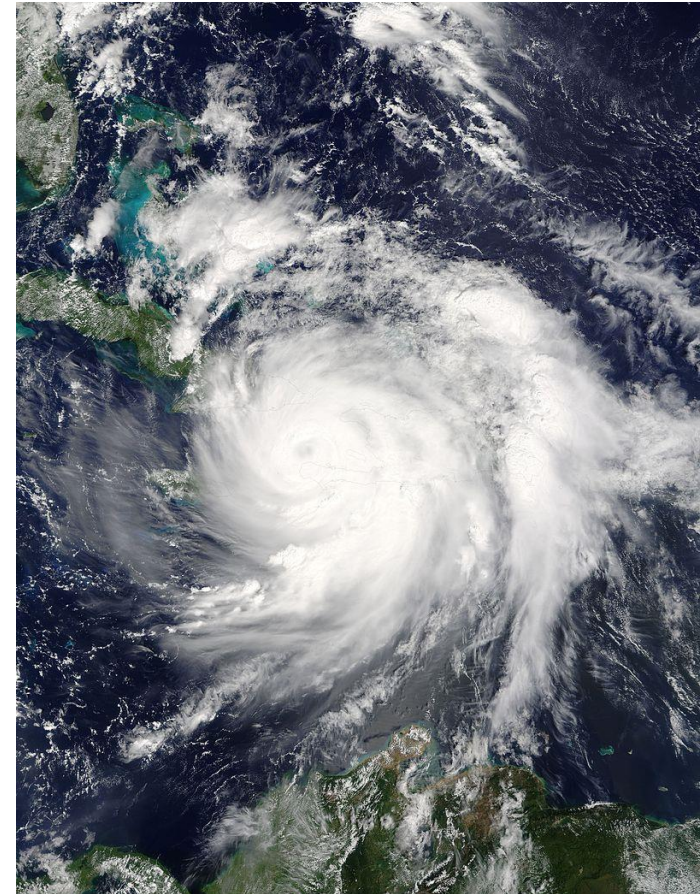
Other Products

NWP system (all GEM based) O: operational E: Experimental	Domain configuration and coverage	Remarks
Other systems	<ul style="list-style-type: none"> • Wave prediction (Global and Regional) • Coupled Ice-Ocean-Atmosphere (Global–O/Regional-E) • Lagrangian dispersion 	<ul style="list-style-type: none"> → forcing by deterministic global or regional → coupled with NEMO model → initial and boundary conditions from deterministic global or regional



What we could do in RA-IV

- Assist , especially natural disaster threat or their aftermath: possibility of interaction with senior forecasters team
- Share existing NWP products:
 - Deterministic: Global/Regional
 - Ensemble: Global/Regional (15km)
 - NAEFS (Global, soon Regional)
- Create specific products (deterministic/ensemble): on tailored domains/by using our model data publicly available in grib format
- Improve our Regional ensemble: soon 10 km with larger domain/NAEFS
- Training (En/Fr): online or welcoming trainees in our training center; can be done in collaboration with M-F and/or NOAA.



Hurricane Matthew over Haïti
MODIS image captured by NASA's Terra satellite



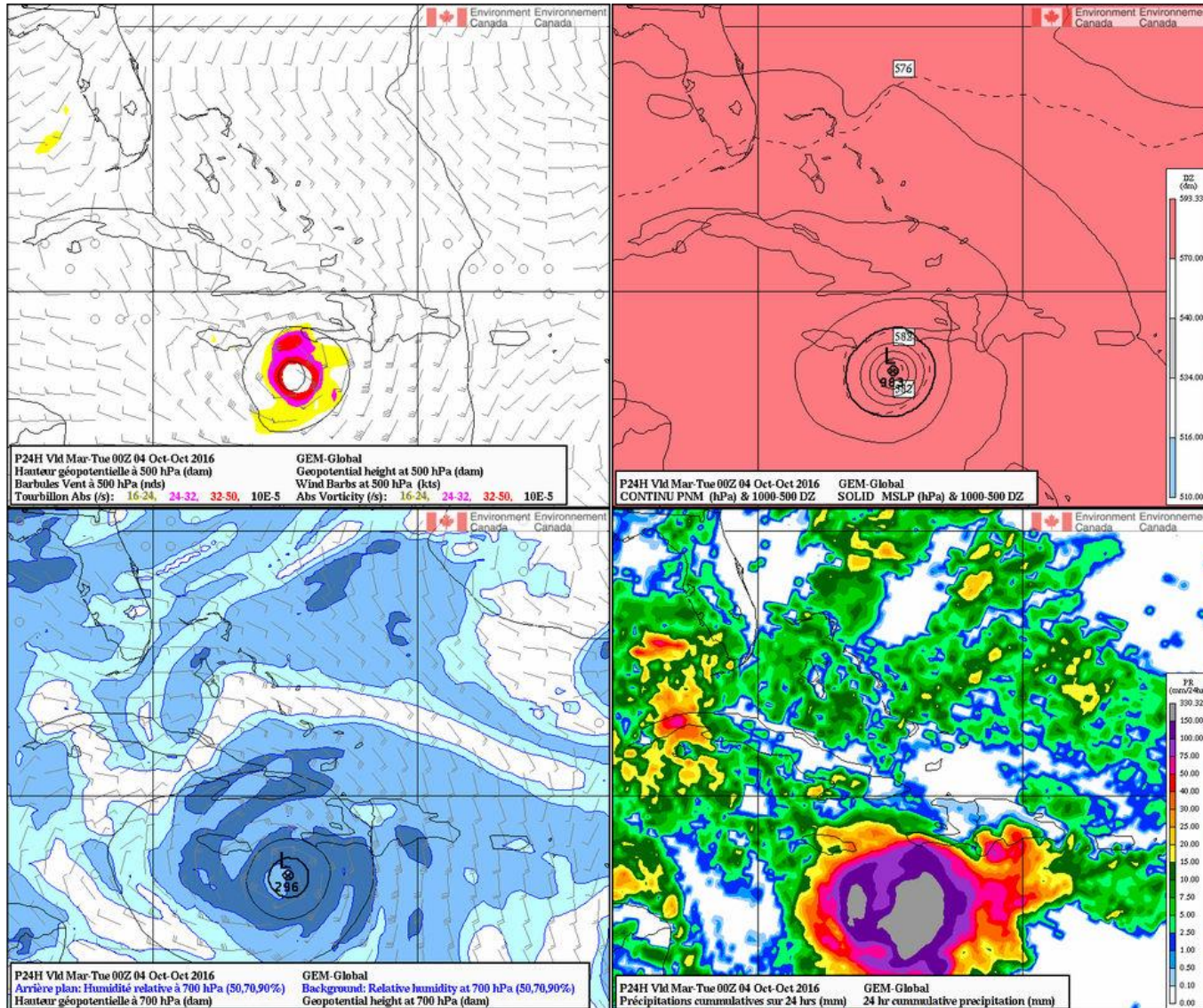
Example of what we have done in the past

- As major global centre, we supported the meteorological service of Haiti in the aftermath of the 2010 earthquake
 - Several senior meteorologists sent to La Martinique to assist in forecasting, and training of Haitian colleagues
 - To assist during tropical storm season, set of special products for Haiti (ensemble and deterministic based), some still in operational production, and 24/7 availability of senior meteorologists for assistance and consultation



Deterministic Forecast (CCMEP GEM-Global)

Hurricane Matthew



Deterministic Forecast (CCMEP GEM-Global) City of Jacmel, Haiti



NAEFS
SPENA

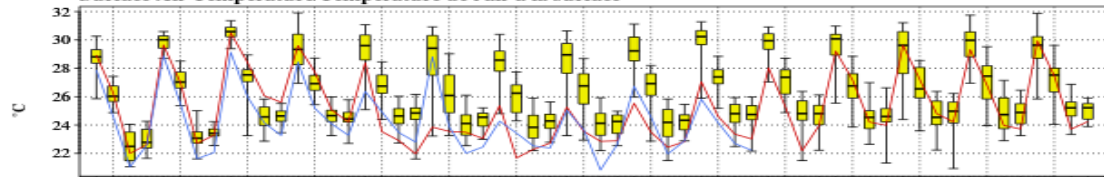


Ensemble and Deterministic Forecasts issued 11 March 2016 12 UTC
Prévision d'ensemble et déterministe émises le 11 Mars 2016 12 UTC
for/pour

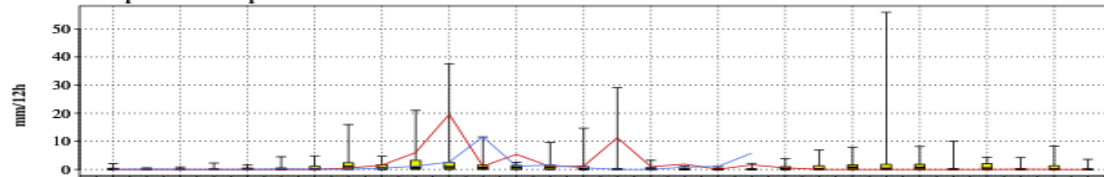
(Ensemble CMC)

JACMEL (MTJA) 18.23 N 72.52 W/O

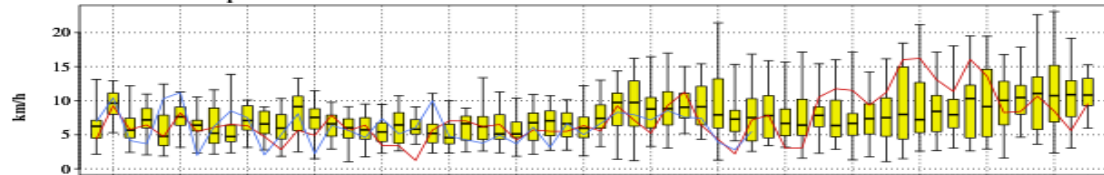
Surface Air Temperature/Température de l'air à la surface



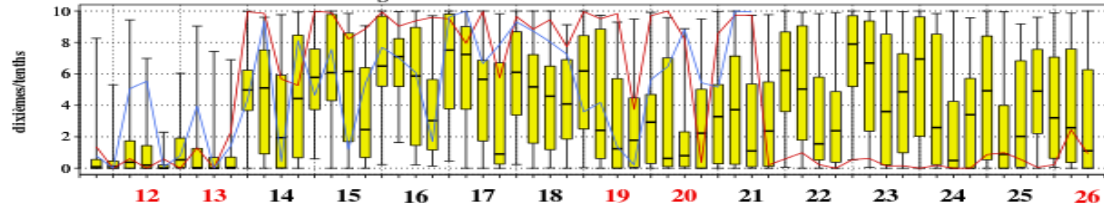
Precipitation/Précipitations



Surface Wind Speed/Vitesse du vent à la surface



Total Cloud Cover/Couvert nuageux total



March/Mars 2016

— Global Model / Modèle global
— Control Member / Membre contrôlé

max
75%
median/médiane
25%
min



Thank you *Merci*



Photo: Global News

