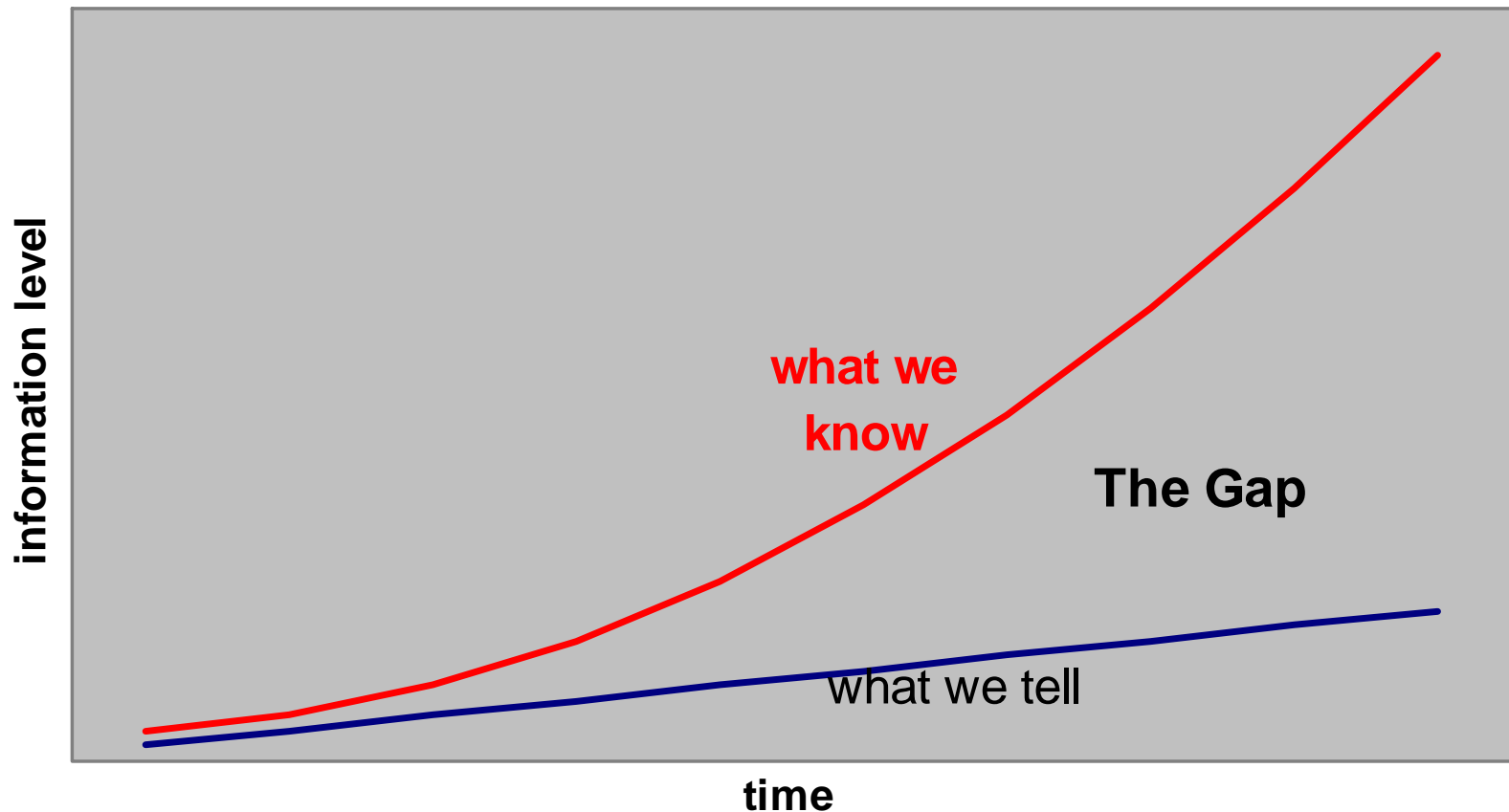

*Making your own weather forecast –
second-guessing the meteorologist?*

Kent Johnson
Meteorological Service of Canada
Kelowna, BC



The Meteorology Knowledge Gap



Traditional Weather Forecasts

- are deterministic (one forecast)
- are issued several times per day
- are really difficult for Southern Yukon

What if you could look at 30 forecasts?

- you can using the ensemble forecast system



How are probabilistic forecasts made using computers?

Deterministic Forecast

Possible range of error

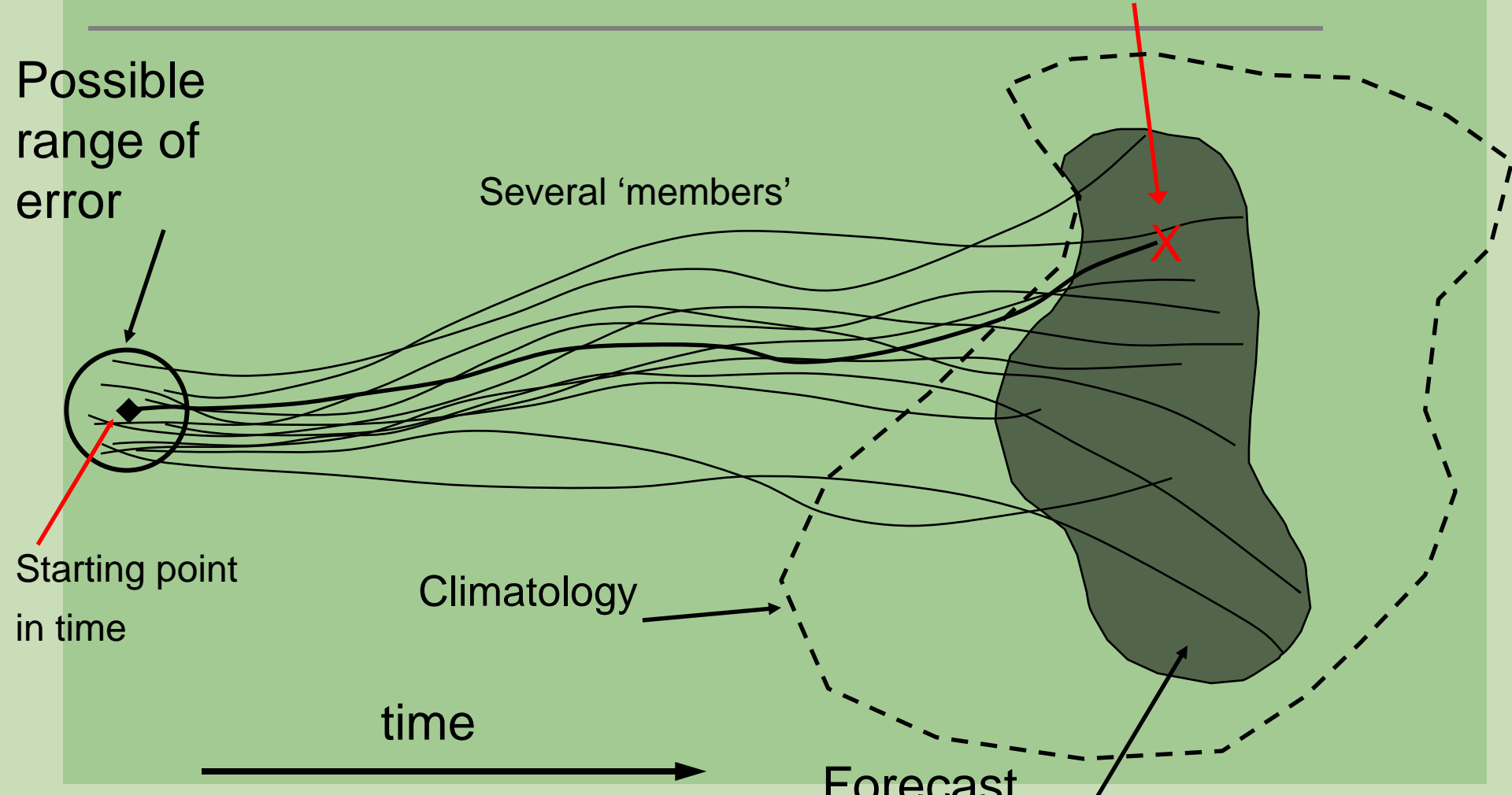
Several 'members'

Starting point in time

Climatology

time

Forecast Uncertainty

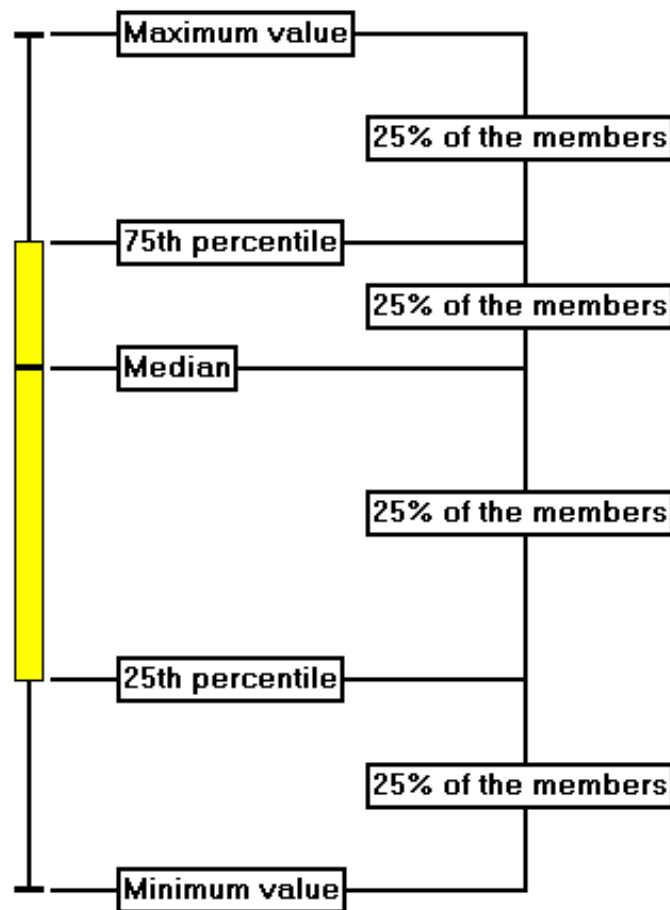


Forecast uncertainty

- every weather forecast has uncertainty
- forecast temperature of 5 ± 2 is very different from forecast of 5 ± 10
- sometimes there is high confidence in forecast for day 8 – other times day 3 is a wild guess
- expression of uncertainty is challenging

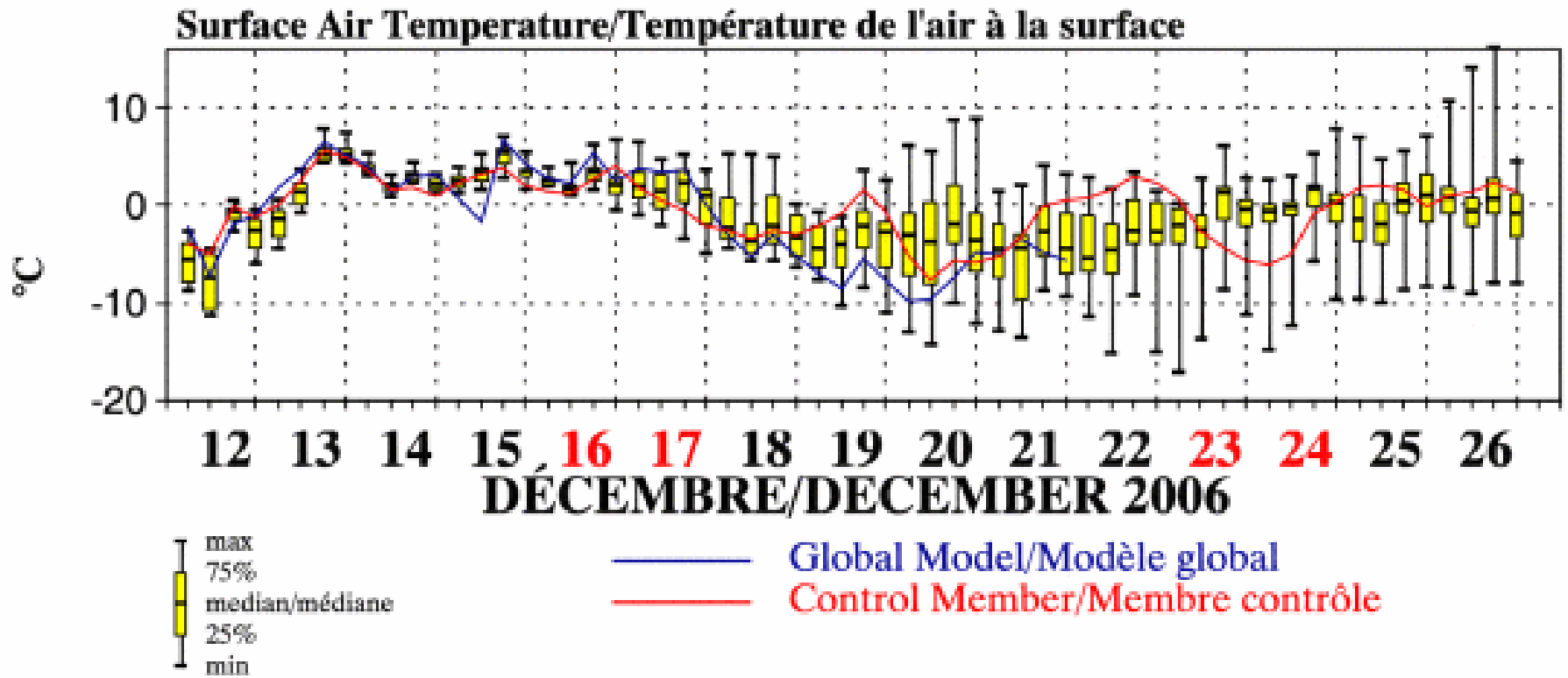


Meteograms (or EPSgrams)



Meteograms

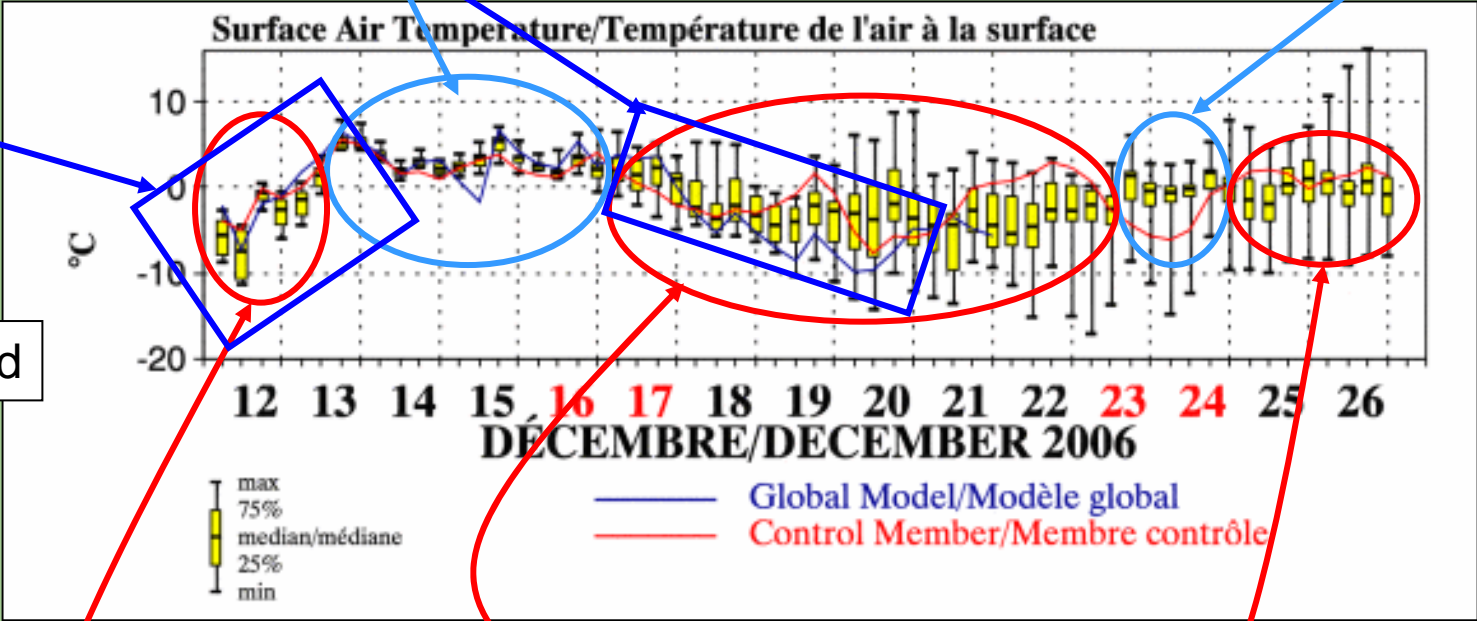
What can you tell about this meteogram for surface temperature?



Cooling trend

Relative higher confidence

Warming trend



Relative lower confidence



Basic Limitations

- Yukon terrain is the most complex in Canada
- Temperature is difficult – precipitation is extremely difficult
- Ensemble prediction system runs at low resolution
- cannot possibly account for local differences
- actual temperature scale is not important
- trends and uncertainty can be seen
- compare with “outside the window”



Where to find the top secret information

- start with www.weather.gc.ca
- Analyses and Modelling then down to Ensemble Forecasts (NAEFS)
- go to the bottom and click on
 - *EPSgrams for cities in Canada, Mexico and USA*
- Select location
 - *7 in Yukon though they may be quite similar*
- For more online learning go to meted.ucar.edu





Ensemble and Deterministic Forecasts issued 8 May 2009 00 UTC

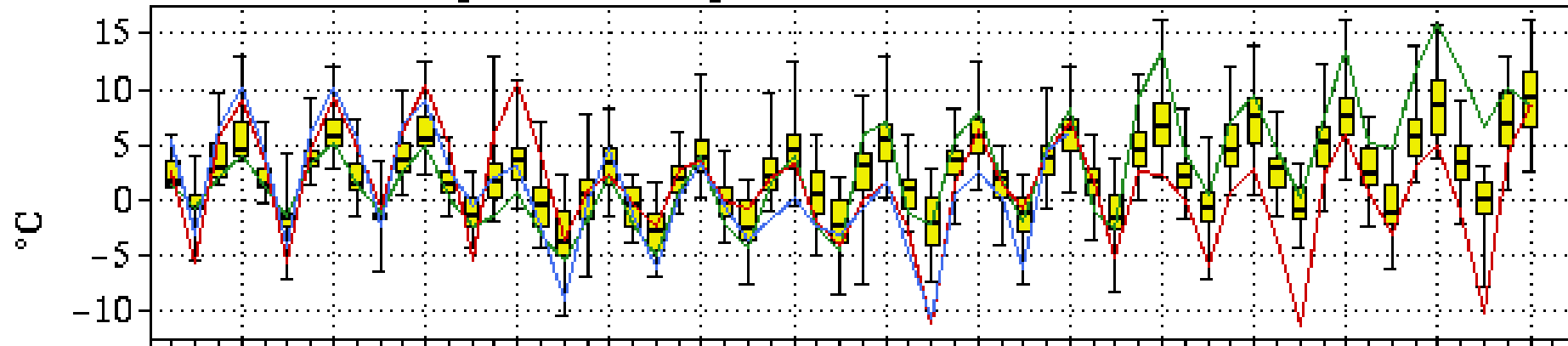
Prévision d'ensemble et déterministe émises le 8 Mai 2009 00 UTC

for/pour

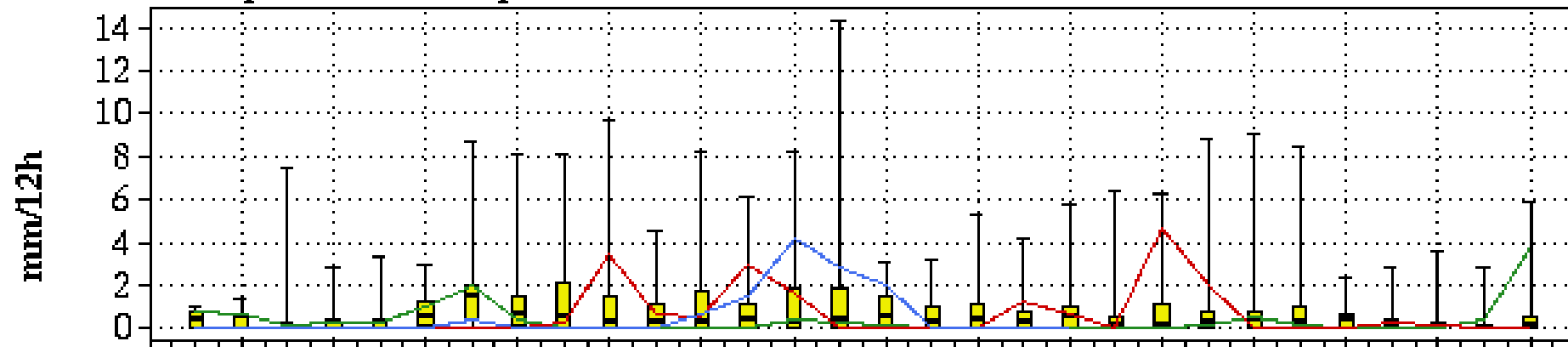
NAEFS / SPENA

WHITEHORSE (YXY) 60.72 N 135.07 W/O

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



Precipitation/Précipitations



Surface Wind Speed/Vitesse du vent à la surface



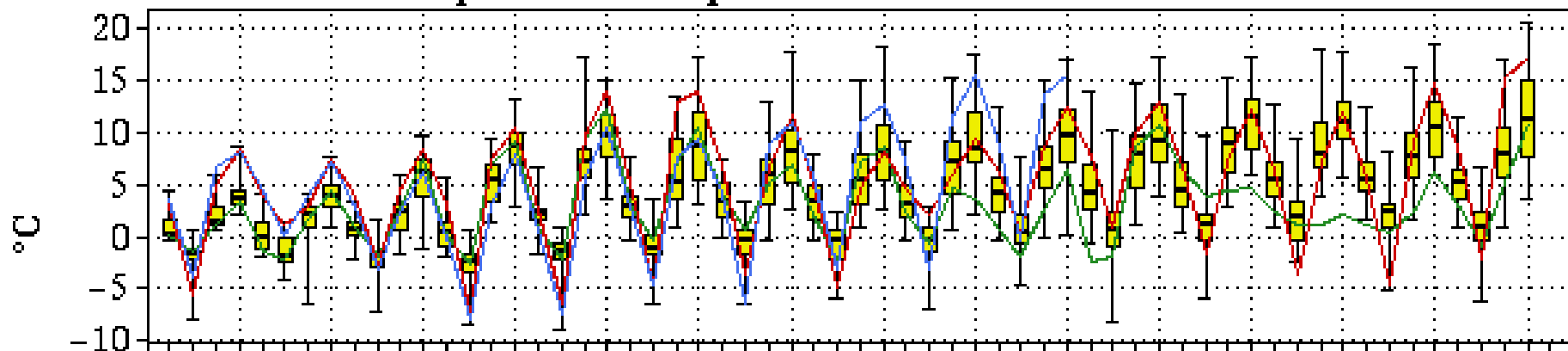
Ensemble and Deterministic Forecasts issued 15 May 2009 00 UTC
Prévision d'ensemble et déterministe émises le 15 Mai 2009 00 UTC

for/pour

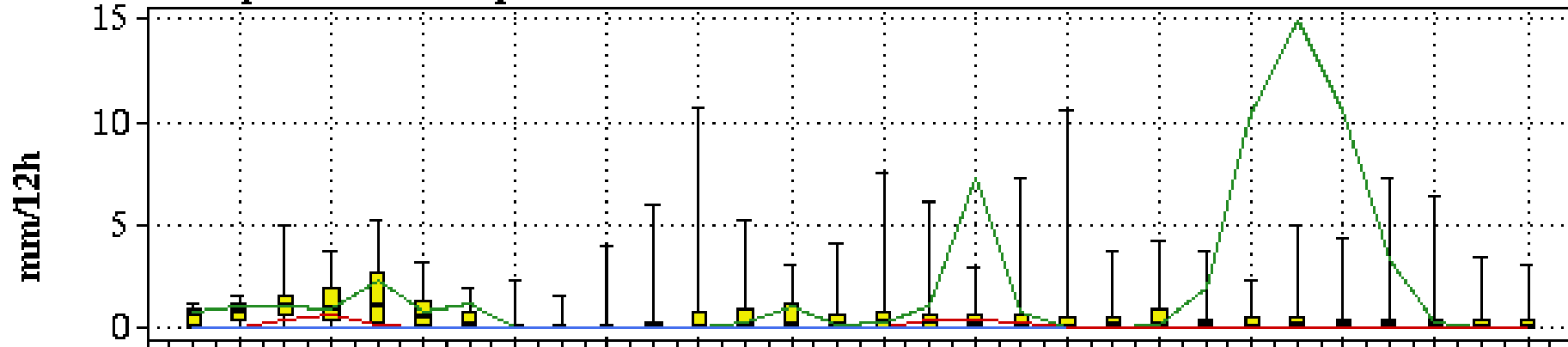
NAEFS / SPENA

WHITEHORSE (YXY) 60.72 N 135.07 W/O

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



Precipitation/Précipitations



Surface Wind Speed/Vitesse du vent à la surface





Ensemble and Deterministic Forecasts issued 21 May 2009 00 UTC

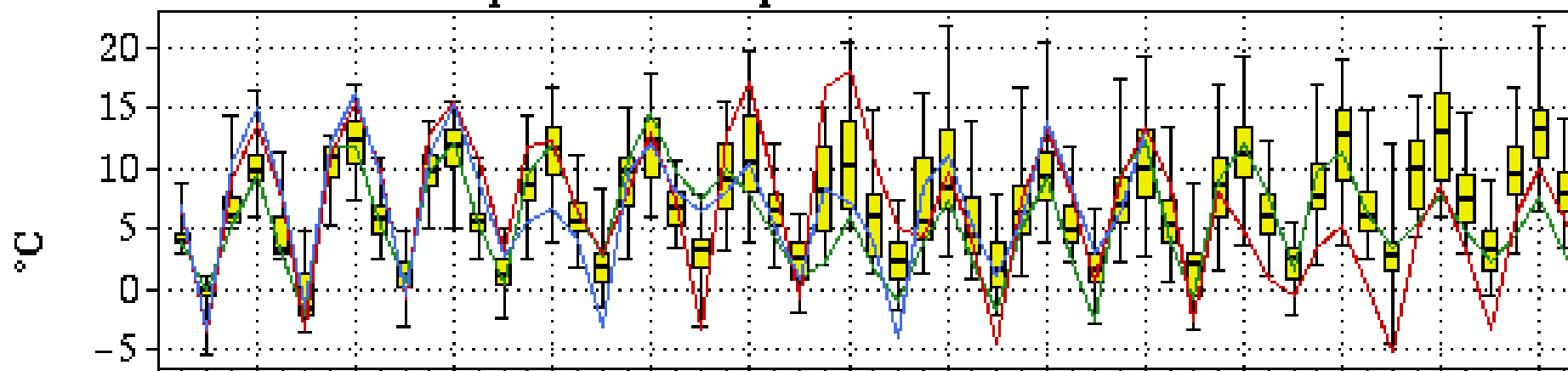
Prévision d'ensemble et déterministe émises le 21 Mai 2009 00 UTC

for/pour

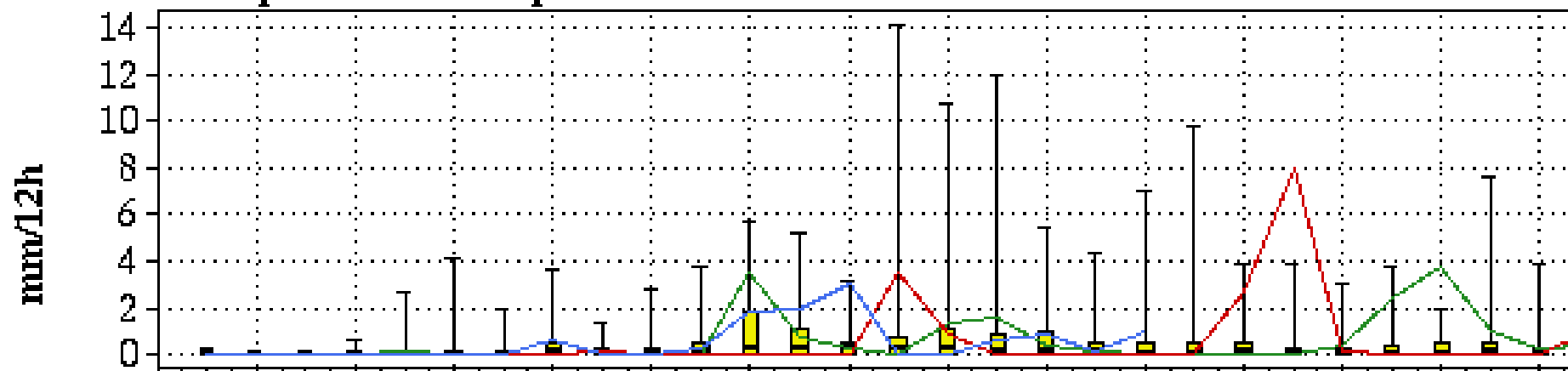
NAEFS / SPENA

WHITEHORSE (YXY) 60.72 N 135.07 W/O

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



Precipitation/Précipitations



Thank You

Kent Johnson (kent.johnson@ec.gc.ca)

www.weather.gc.ca

<http://www.weatheroffice.gc.ca/ensemble/naefs/>

