Canadian Meteorological Center
report to GHRSST

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Introduction

- **L4 0.1º CMC SST v3.0**
  - Global 0.1º resolution, latitude/longitude grid
  - AVHRR (3), AMSR2, VIIRS (1), in situ data, ice information
  - Method : optimal interpolation
  - Period : since January 1, 2016
  - Available from PO.DAAC and NOAA/NCEI in GDS2 format
  - Drifter data in BUFR format since June 2016
  - New ice analysis in NetDF files staring in July (additional satellite data – ASCAT and AMSR2 and CIS regional ice charts)
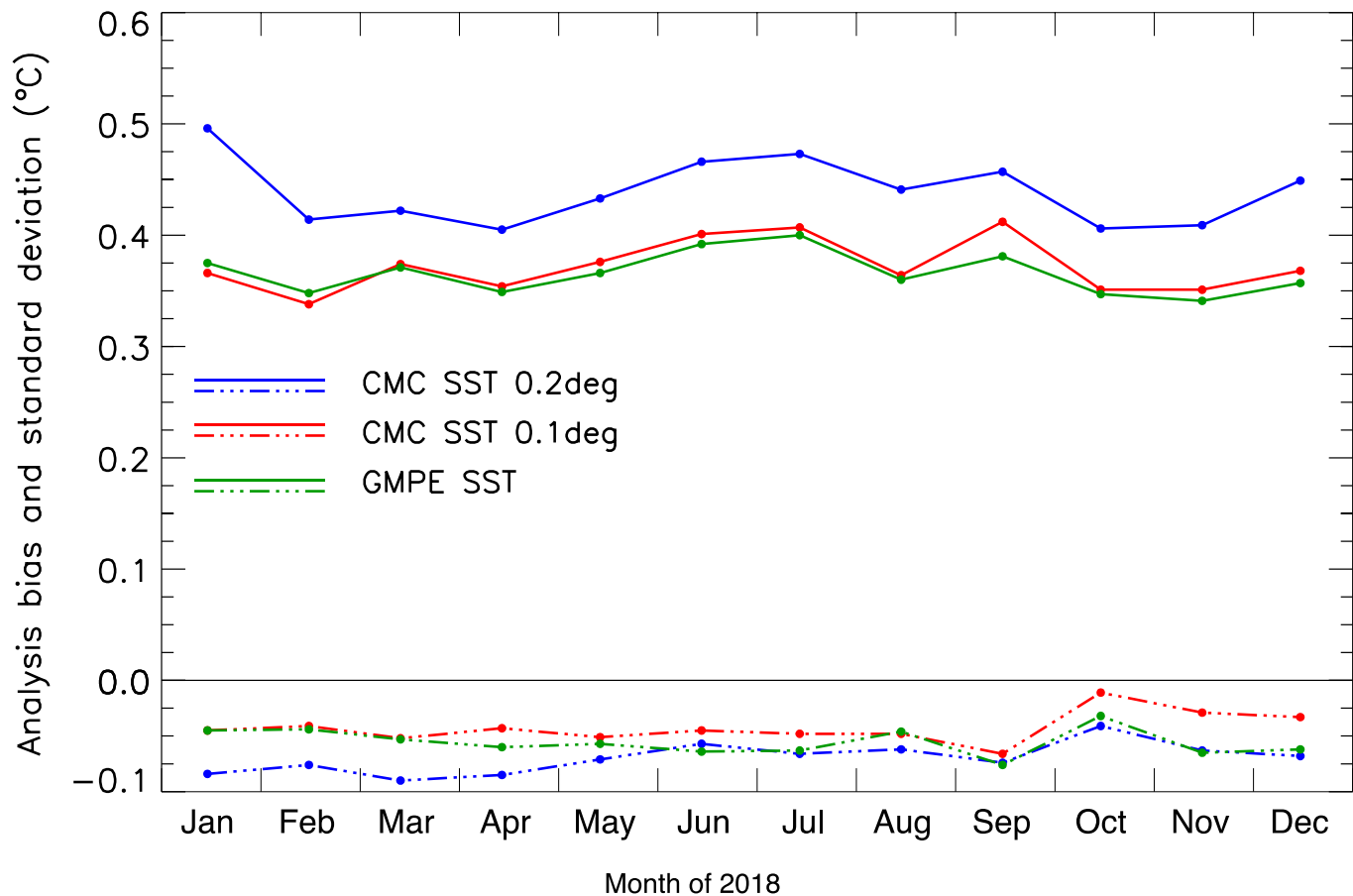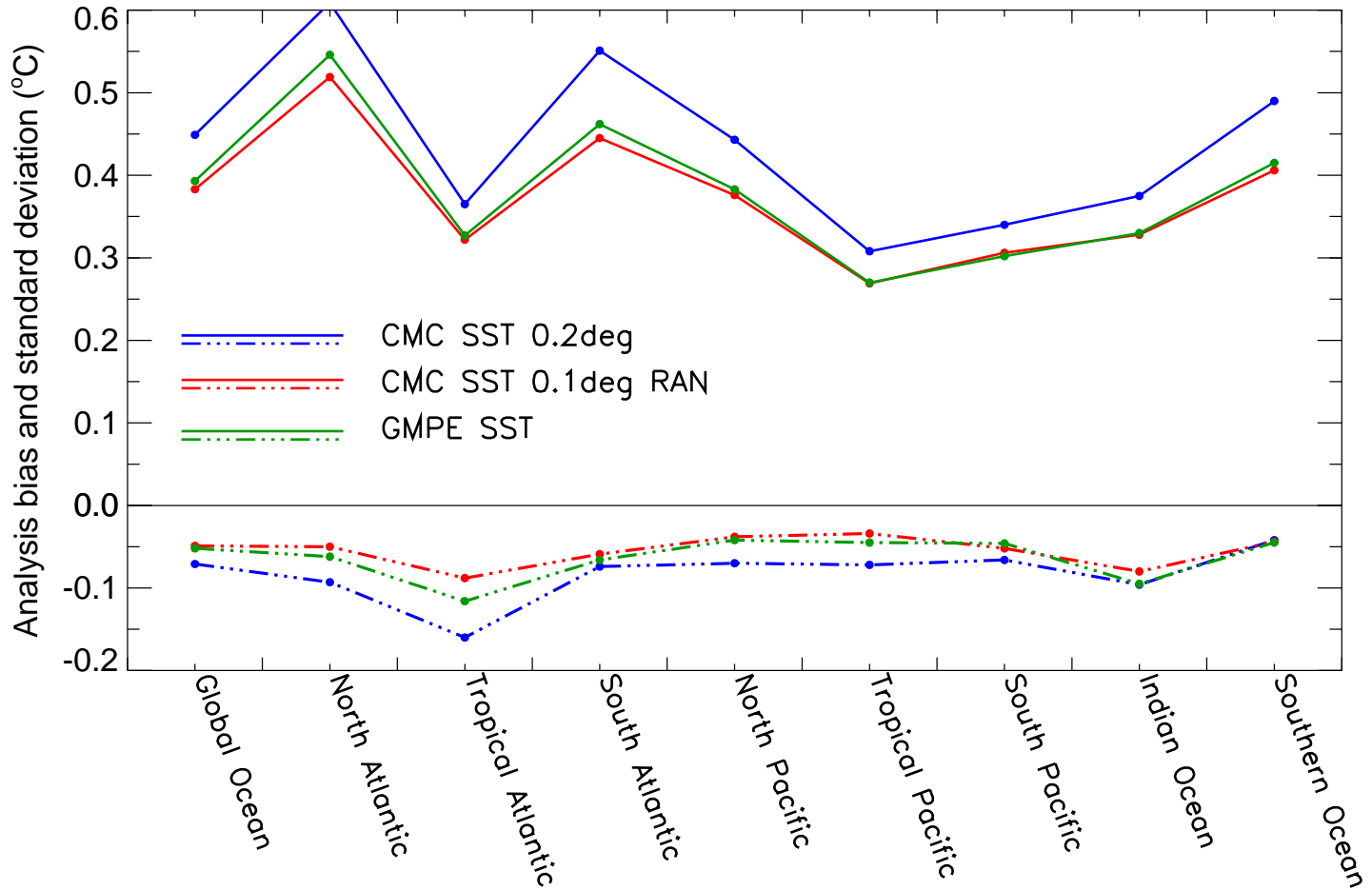
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Data input CMC SST 0.1º

DATA SET	DATA TYPE	PRODUCER / DATA ACCES
NOAA 19 AVHRR	L2P	NAVOCEANO / PO.DAAC
MetOp-A AVHRR	L2P	NAVOCEANO / PO.DAAC
MetOp-B AVHRR	L2P	NAVOCEANO / PO.DAAC
GCOM-W1 AMSR2	L3	RSS
Suomi NPP VIIRS	L3U	NOAA/NESDIS/OSPO / PO.DAAC
Buoys, Ships	TAC/BUFR	GTS
Ice concentration	L4	CMC ice analysis

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Performance of CMC SST

Performance of CMC SST

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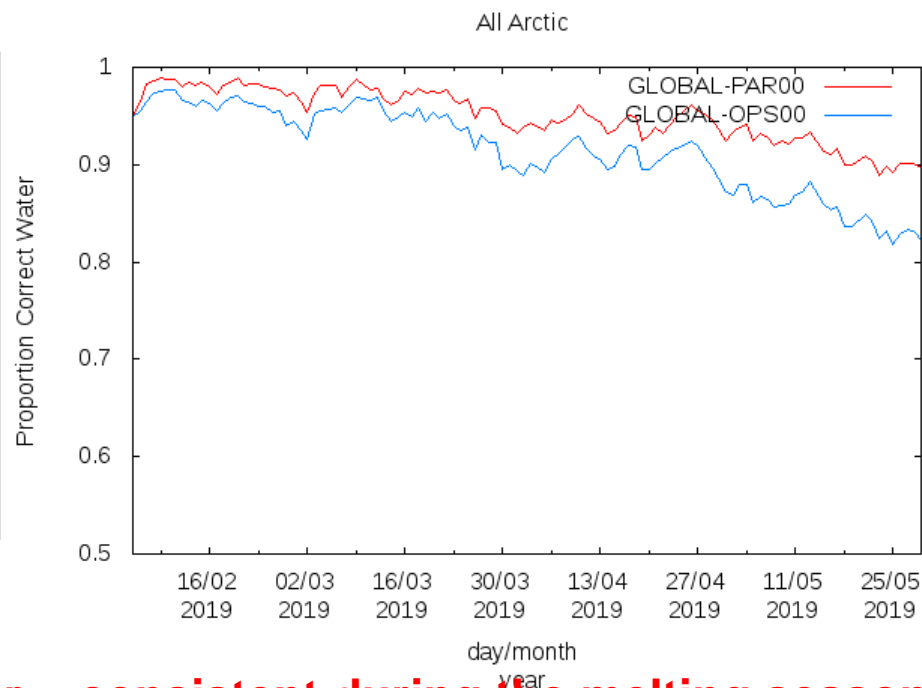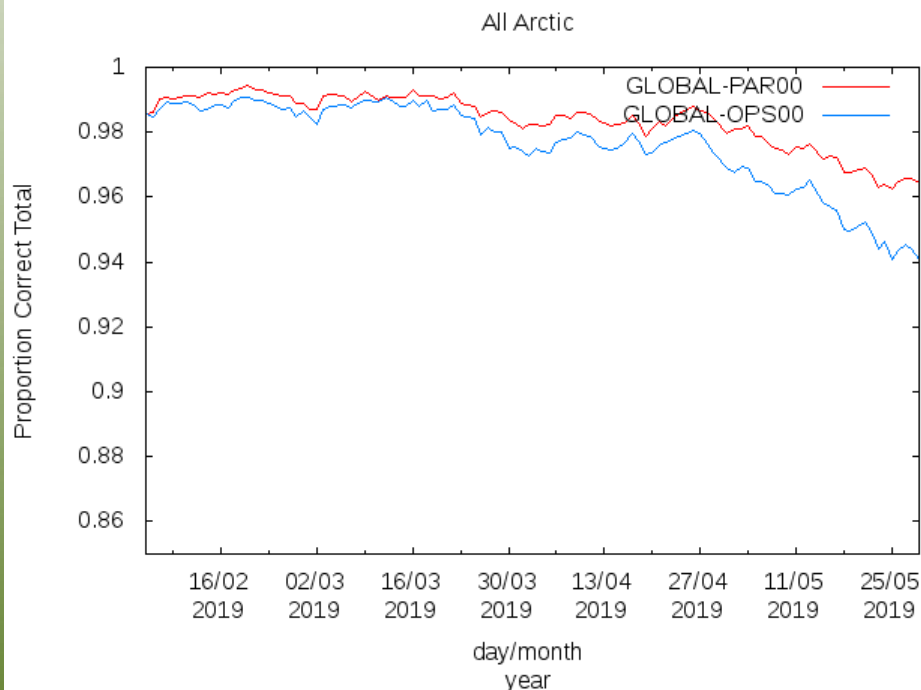Climate Change Canada

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New ice analysis

- Verification against IMS (Multisensor Snow and Ice Mapping System)

Significant reduction of total error - consistent during the melting season
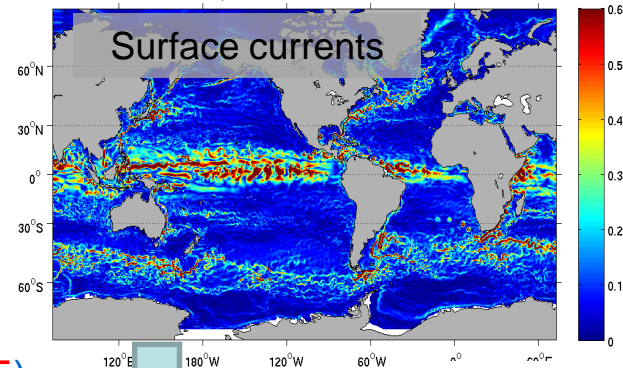
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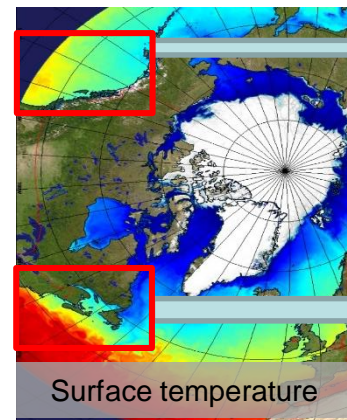Changement climatique Canada

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Ocean modelling at CMC

- Global 1/4° resolution (GIOPS)
  - Medium-to-Monthly forecasting
  - Coupled Deterministic (GDPS)
- N. Atlantic and Arctic 1/12° (RIOPS)
  - Full data analysis cycle
  - 48 hour forecast – every 6 hours
  - Coupled with 3km GEM for YOPP (CAPS)
- Coastal Environmental Prediction (CIOPS-W/E)
  - Emergency response, Search and Rescue
- Great Lakes 2km (RMPS-GL)
- Gulf of St. Lawrence 5km (RMPS-GSL)
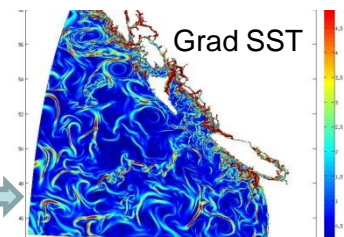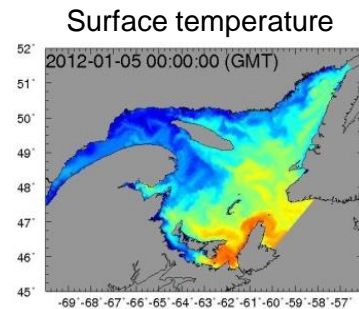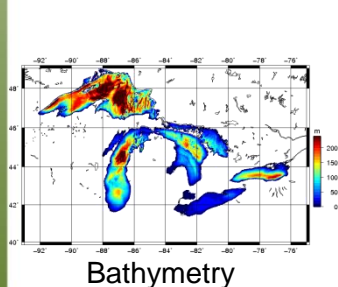 - Short-term forecasting
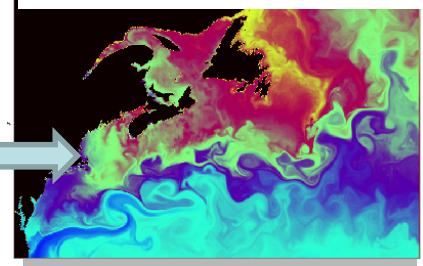
1/4° Global

Surface currents

1/36° NE Pacific

Grad SST

1/12° N. Atlantic and Arctic

1/36° NW Atlantic

Surface temperature

2012-01-05 00:00:00 (GMT)

Bathymetry

Surface temperature

Surface temperature

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Future plans

- Assimilate new satellite data (Sentinel, NOAA20/VIIRS)

- Change the assimilation method for SST (variational data analysis) and migrate ice and SST analysis into MIDAS (Modular and Integrated Data Assimilation System) - framework used for atmospheric 4D-EnVar →facilitate strongly coupled DA of atmosphere–ice–upper-ocean

- First tests for weakly coupled atmospheric-ocean data assimilation show significant positive impact on atmospheric forecast scores near the atmosphere-ocean interface (Skachko et al, submitted)

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