3D-Var cycles running at CIS in real time – simultaneous assimilation of multiple data sources

3D-Var FGAT

AMS-R-E & SSM/I data (NT2)

CIS image analyses and daily ice charts

Previous analysis projected in time by persistence as First Guess (no model, FGAT ineffective)

3D-VAR produces Analysis increments to add to Background state (usually a model forecast) to produce the current analysis

These are a continuous cycles using persistence to supply the background state

North America Ice Analysis – run 4 x a day at 5 km resolution

Operational Implementation planned for 2010 at the Canadian Meteorological Centre

Ice extent from CIS Polar analysis (NSIDC insert)

Arctic Sea Ice Cover

Future work:

- Replace persistence with model (CICE) to analyse ice types and thickness
- Add 3D-Var ice DA to CMC Gulf of St-Laurent coupled atmosphere-ice-ocean model
- Add 3D-Var to CECOM (Canadian East Coast Ocean Model from BIO)
- Extend Analysis domain to both hemispheres to replace CMC global ice analysis for NWP purposes
- Exploring further assimilation data sources: SSMIS, AVHRR, Vis/IR and SAR
- Add ocean model (NEMO) to assimilate SST and currents

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