IICWG/S4D Workshop, Oct 15-17, 2008 Copenhagen

Frank Kauker (AWI): Adjoint analysis of the summer 2007 Arctic sea-ice minimum
Thomas Lavergne (MET.NO): Arctic 2-day sea-ice motion from SSMI / buoy-drifts
Leif Toudal Pedersen (DMI): High resolution arctic sea-ice drift from MODIS (250m resolution)
Rasmus Tonboe (DMI): joint NSIDC and EUMETSAT sea-ice concentration re-analysis
Jean-Claude Gascard (DAMOCLES): IPY in-situ measurements

Frank Kauker: adjoint analysis: summer 2007 Arctic sea-ice minimum:
86% of reduction explained by only 4 factors:
- May and June wind conditions (wind stress)
- September 2-m temperature
- March ice thickness

2/3 of reduction is determined by factors at the end of June
No sensitivity to low cloud

Thomas Lavergne: 2-day ice drift from SSMI+QuikSCAT
Purpose: for operational data assimilation (real time)
Smoothing to reduce systematic quantization due to high noise
Validated against buoy drifts

Leif Toudal Pedersen: High resolution sea-ice drift (sub-kilometer):
Daily coverage of ESA's ENVISAT SAR images in the last 15 months
AVHRR: wide swath & large overlap --> 14 observations / day, 1km resolution
MODIS: images at resolution ~250m

Rasmus Tonboe (DMI):
Comparison of 7 most common radiometer algorithms for sea-ice concentration calculations
Error sources: atmospheric, ice/snow emissivity, footprints, sensor noise
Want: algorithms less sensitive to atmospheric cloud & emissivity
algorithms sensitive to water vapour & open ocean surface wind
Plan: re-analysis 1987-present
Algorithms chosen (3): low sensitivity to cloud & ice surface emissivity
(a) Bristol at high C
(b) TUD
(c) Bootstrap at low C
Will be released at NSIDC at end of 2008: concentration & full error analysis

Rough estimate of errors: ~10% at all concentrations, slightly higher at low concentration

Jean-Claude Gascard:
APY data: damocles.met.no
www.whoi.edu/itp