The Concordiasi project over Antarctica during IPY

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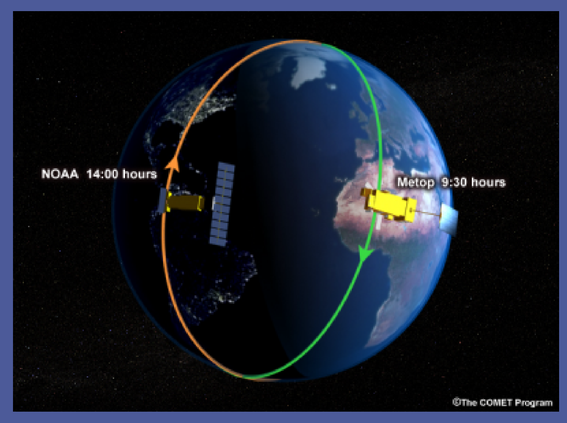
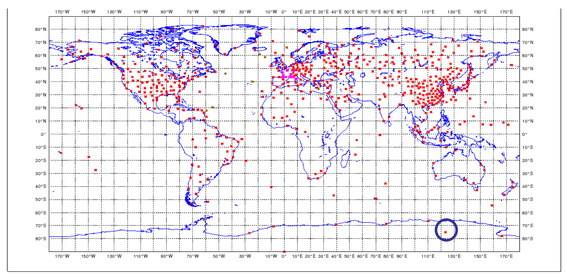


The Context

The Concordiasi Experiment
A joint French-US initiative
With International collaborations
BBelongs to the THORPEX-IPY cluster (N°121 in IPY)

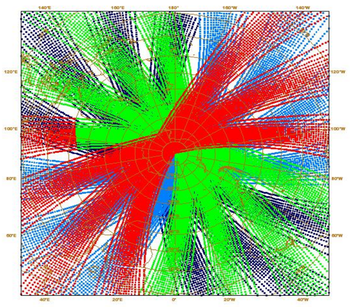
Scarcity of conventional data over the poles

Concordia: new French-Italian station in Antarctica

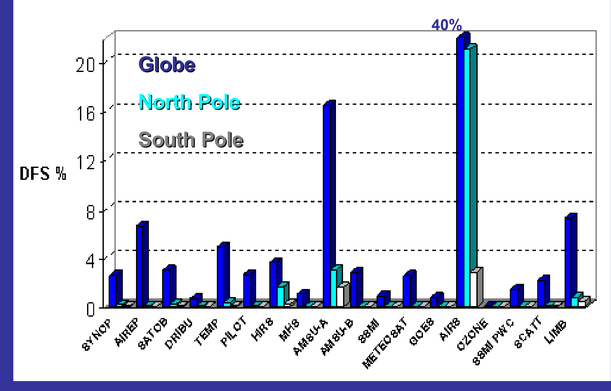


MetOp launch in October 2006.

Very good satellite data coverage over the polar areas



Large impact of satellite data over the polar areas



Courtesy ECMWF

Goal and Field campaign

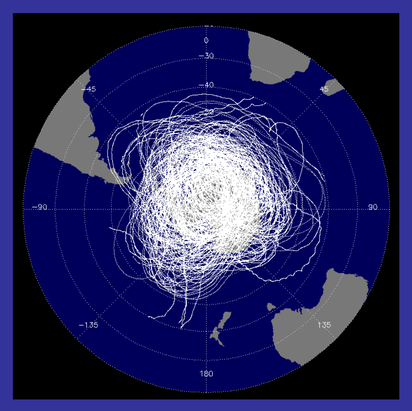
Validate the assimilation of IASI and other sounder data over Antarctica

Field campaign in Sept-Nov 2008
- Extra radiosoundings over Concordia
- Driftsondes from CNES balloons
- Extra stratospheric measurements (aerosols, gravity-wave activity, ozone) to better understand stratospheric clouds and chemistry processes.

Long-duration balloons drifting at 20kms from CNES, driftsonde system from NCAR

Aiming for 10 to 12 balloons, 500 to 700 dropsondes

Trajectories during previous Vorcore campaign (2005)



Concordia: Ideally located to validate analyses inland

Scientific plans

Issues for an optimal assimilation of IASI
- Cloud detection
- Bias correction

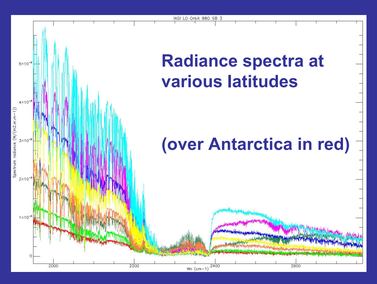
To better assimilate microwave observations over snow-covered areas

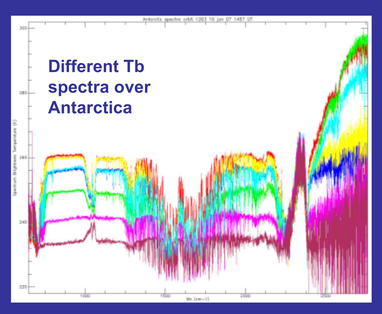
Work on microwave surface emissivity
- Retrieval from data
- Modelling using a snow model

Evaluate impact of improvements on local forecasts, chemical-transport models and lower latitudes.

IASI signal weaker over Antarctica

But signal clearly visible





Courtesy CNES

Temperature profiles very different from other latitudes can cause problems

Clouds over very cold surfaces can often appear warmer compared to the underlying surface.This is the opposite signal many cloud detection schemes are looking for.

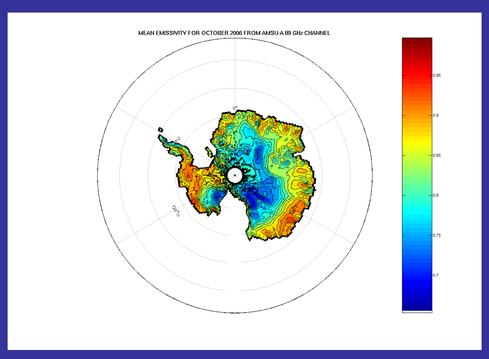
Similar difficulties to detect the possible presence of Polar Stratospheric clouds

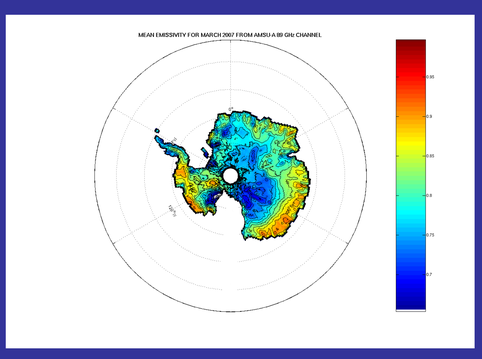
11 micron infrared image from MODIS

warm cloud

cold surface

Microwave emissivity highly variable in space and time





http://www.cnrm.meteo.fr/concordiasi/

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CNES, IPEV, LGGE, LMD, Météo-France	France
ENEA, PNRA, CNR	Italy
ECMWF	International
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