

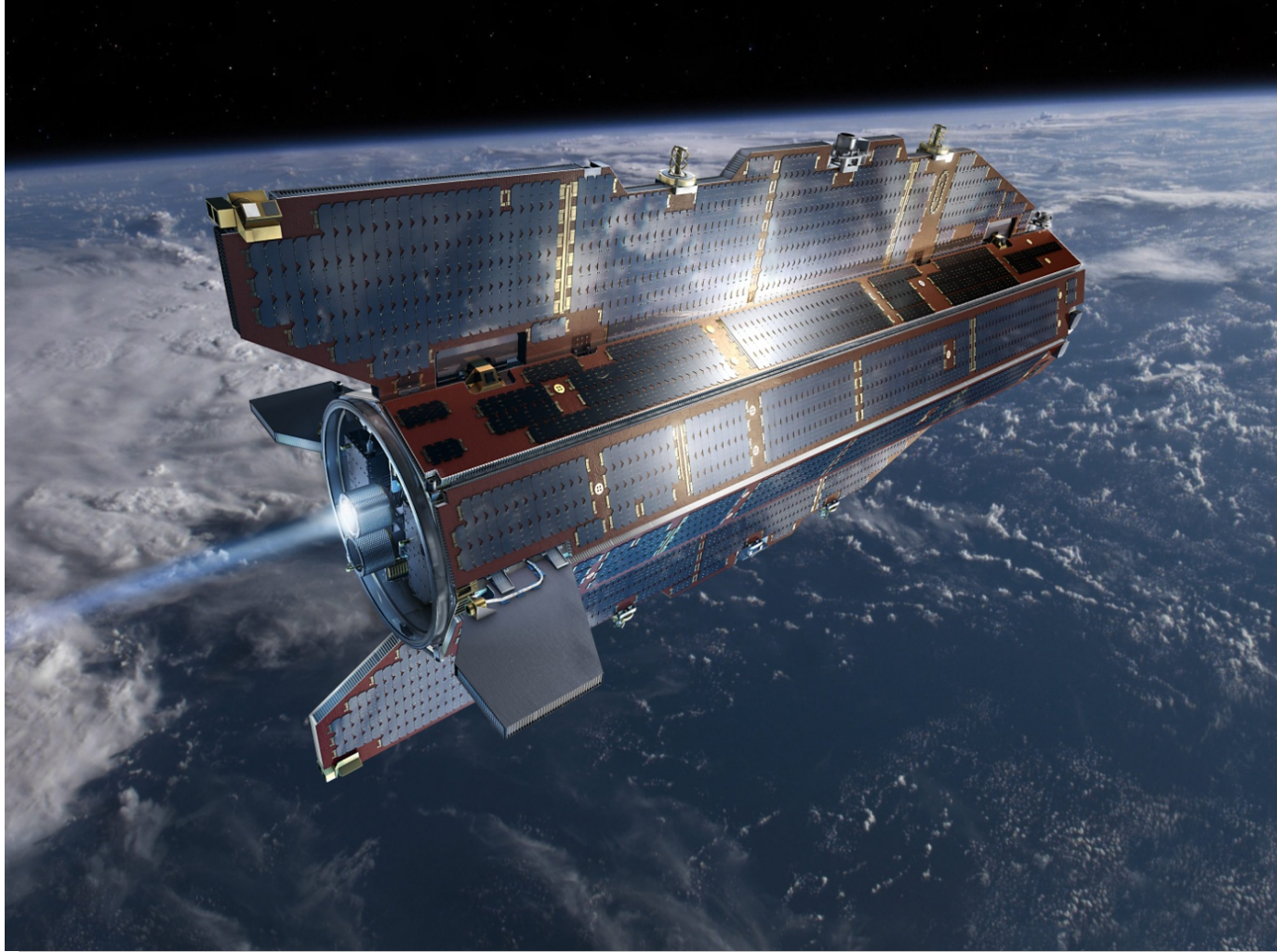
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Gravity changes in East Greenland
from
GOCE Gradient and ground gravity data.





Gravity Field and Steady-State Ocean Circulation Explorer



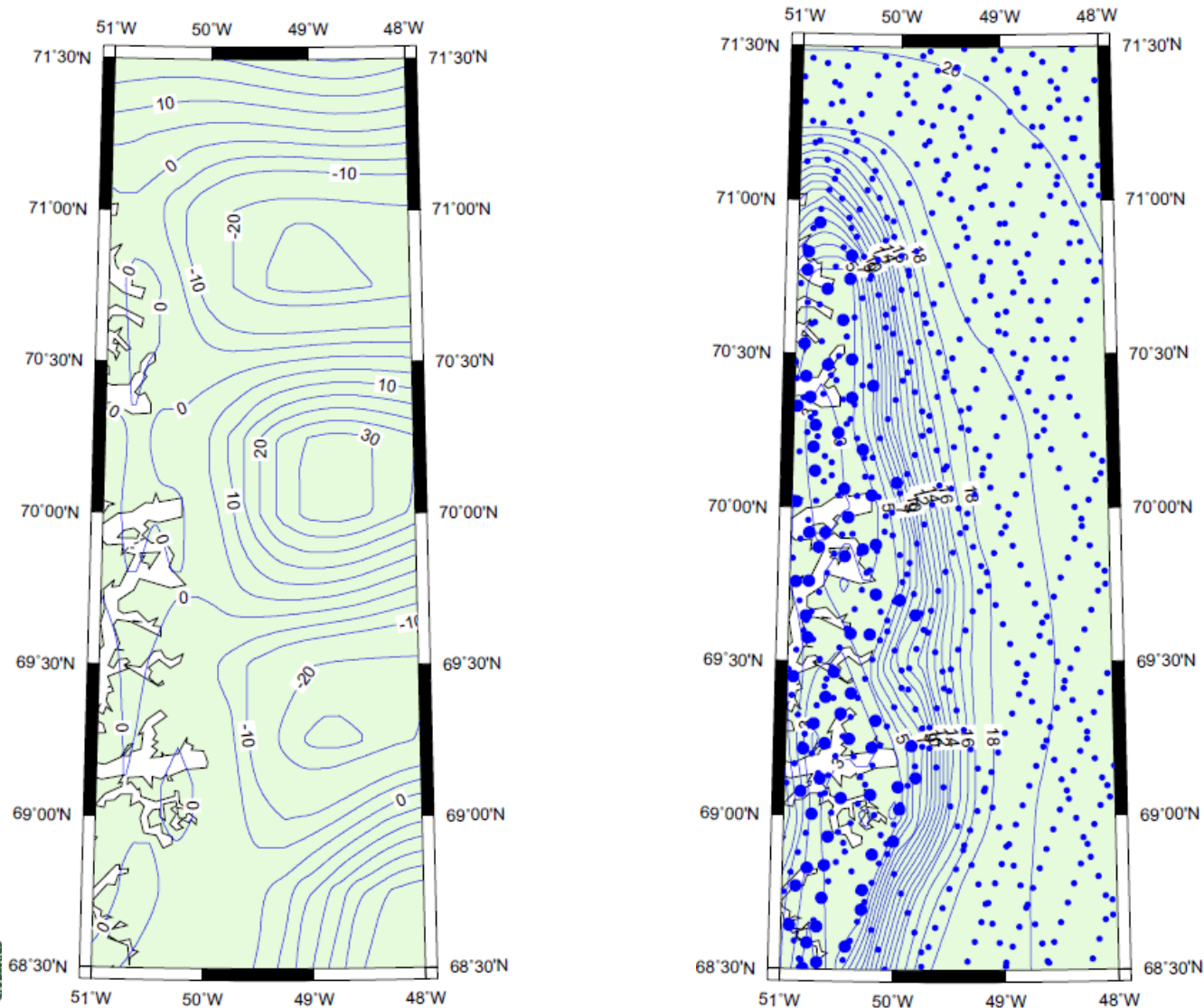
Greenland Ice Sheet Seminar 2014

Global gravity, ground and Airborne data.

- Old gravity observations at the coast
- Gravity data at GRIP, 1990. (not used)
- Airborne data from 1991/1992
- Global gravity field models
GRACE,GOCE.
- Gravity computed from GOCE vertical gradient data, Winter 2008, Summer 2012.



Differences W2009-S2012, and error-estimates, units: mgal.



Small dots:
GOCE obs.
Large dots:
Ground
gravity



Comparison and verification of results:

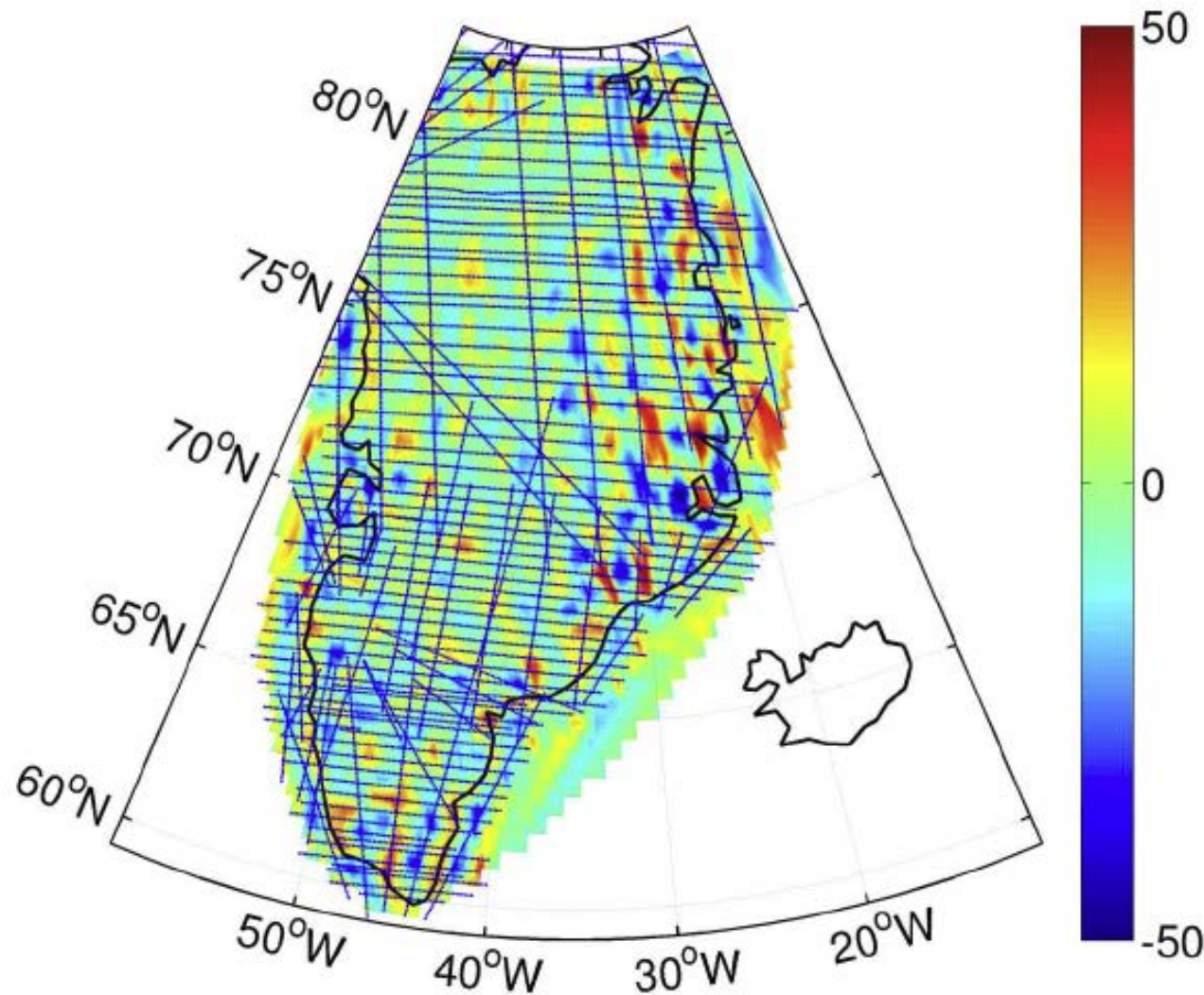
- Large differences observed,
- But **error** of same magnitude.

- **Improvements**: subtract effect of topography/ice to lower signal variance which makes error smaller.

- **Compare** with ice changes observed by ATM, CryoVex and PROMICE data (Joanna Levinsen)



Comparison with Airborne gravity and GOCE model (mgal), at 3900 m.



Differences:
Greenland
Mean: 2.3
Stdv.: 12.9
South-West:
Mean: 0.15
Stdv.: 7.14

**NO MASS
CHANGE
1992-2012**

