

# **The Geoid, Mean sea surface and mean dynamic topography**

## ***Splinter summary & recommendations***

**Y. Faugere and O. Andersen**

# The Session.

- **6 oral presentations**
- **2 on Geoid/Gravity (Sandwell/Garcia & Andersen)**
- **2 on MSS (Pujol/Faugere & Andersen)**
- **2 on MDT (Mulet & Gille)**

## **2 Posters:**

Bosch et al. Instantaneous profiles of dynamic ocean topography (iDOT)

Knudsen: A Global mean ocean circulation estimation using GOCE

# Message

- Recognizing the importance and impact of

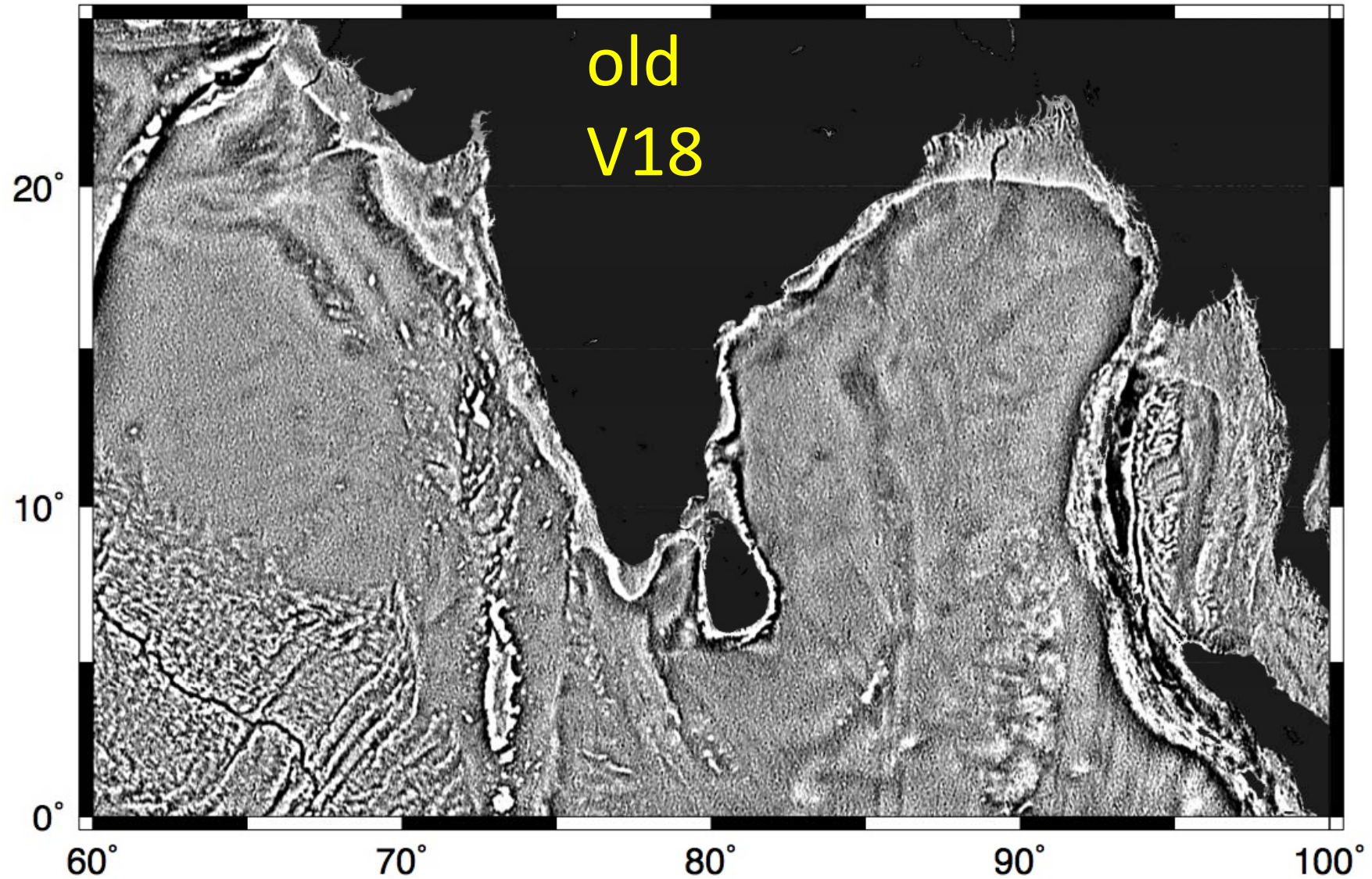
**GOCE**

**Jason-1 EOL Geodetic Mission**

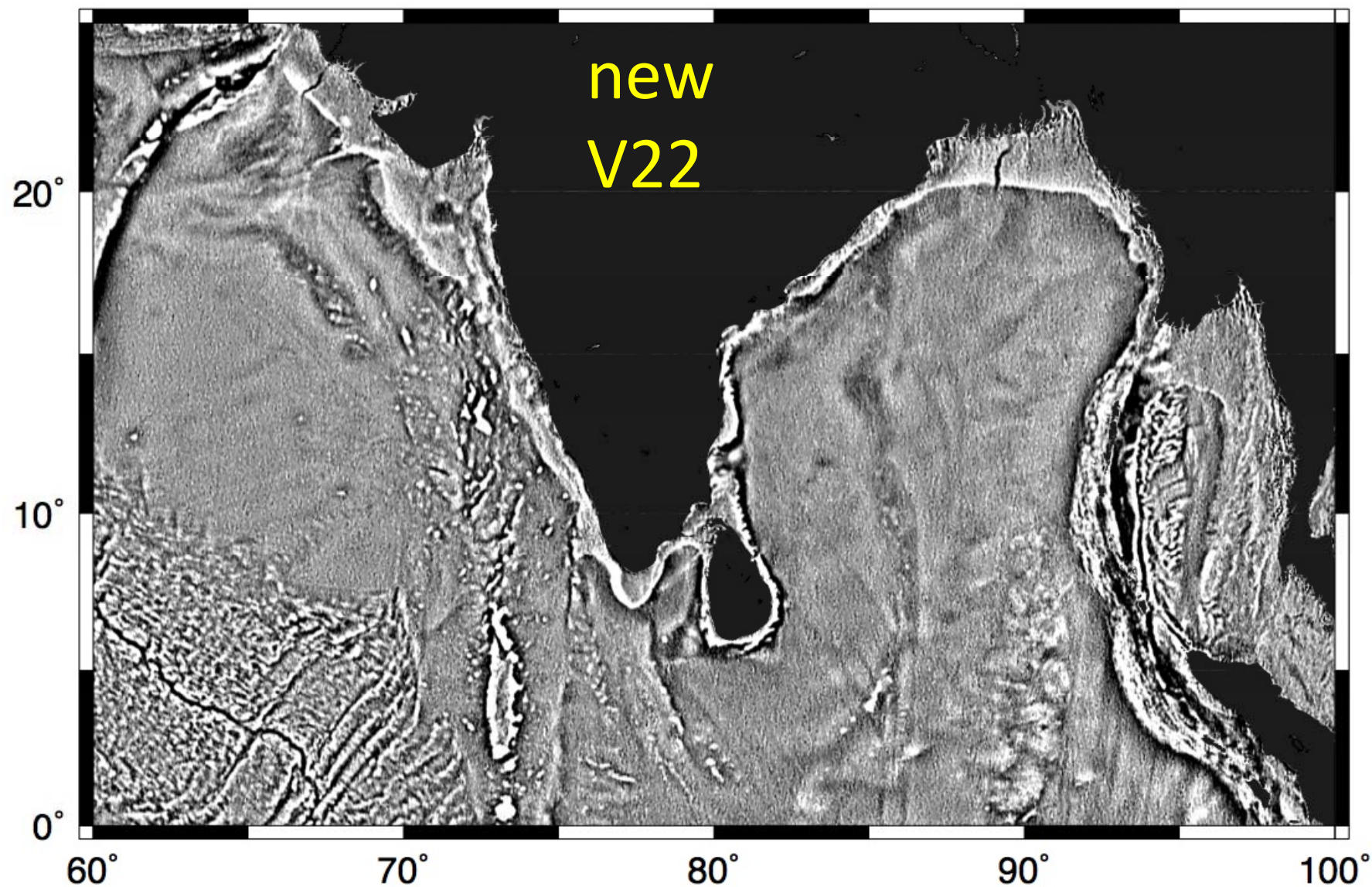
**Cryosat-2 (near Geodetic Mission)**

Major improvement in geoid/gravity MSS/MDT

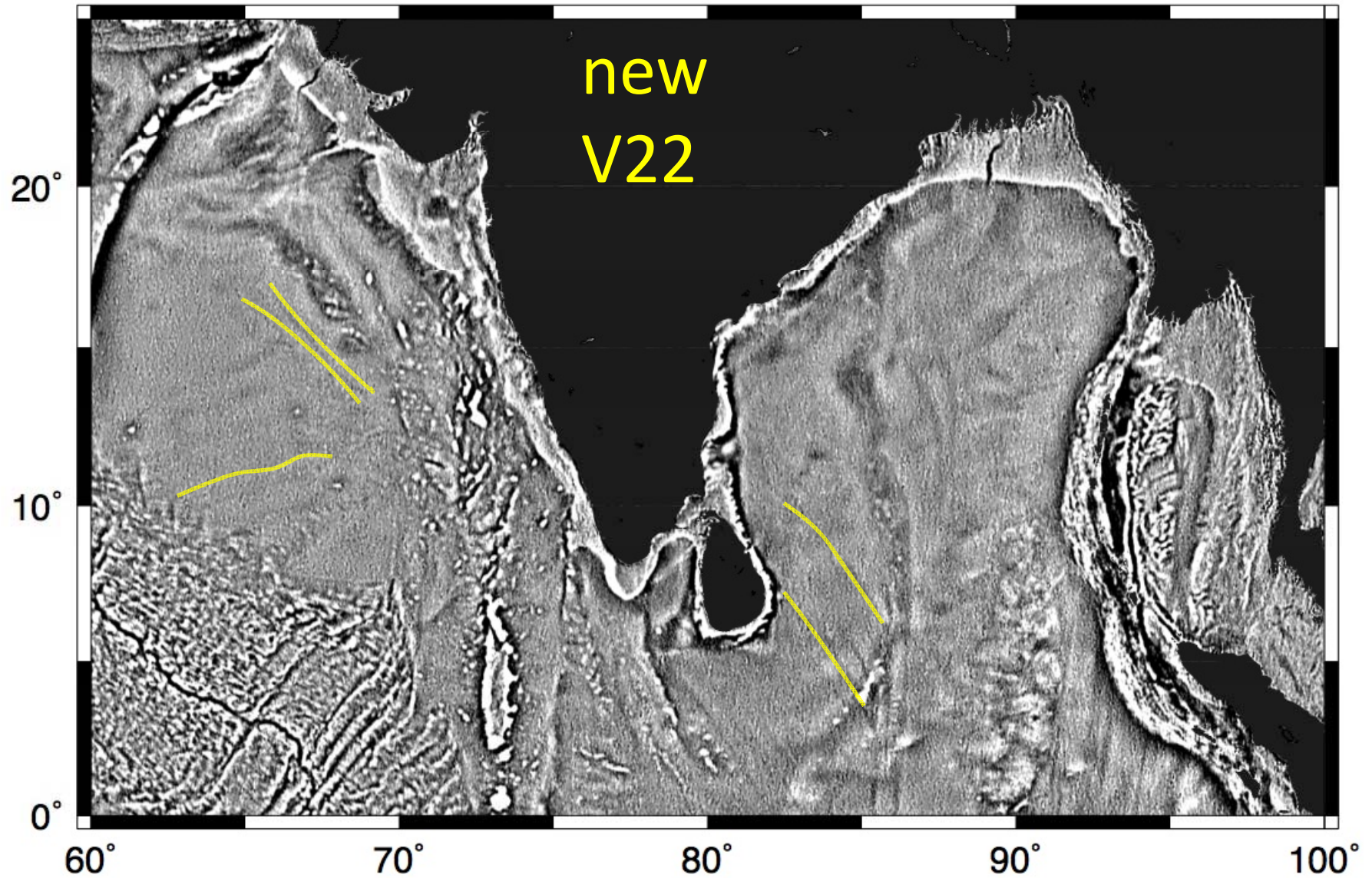
# TECTONIC STRUCTURES UNDERNEATH SEDIMENTS



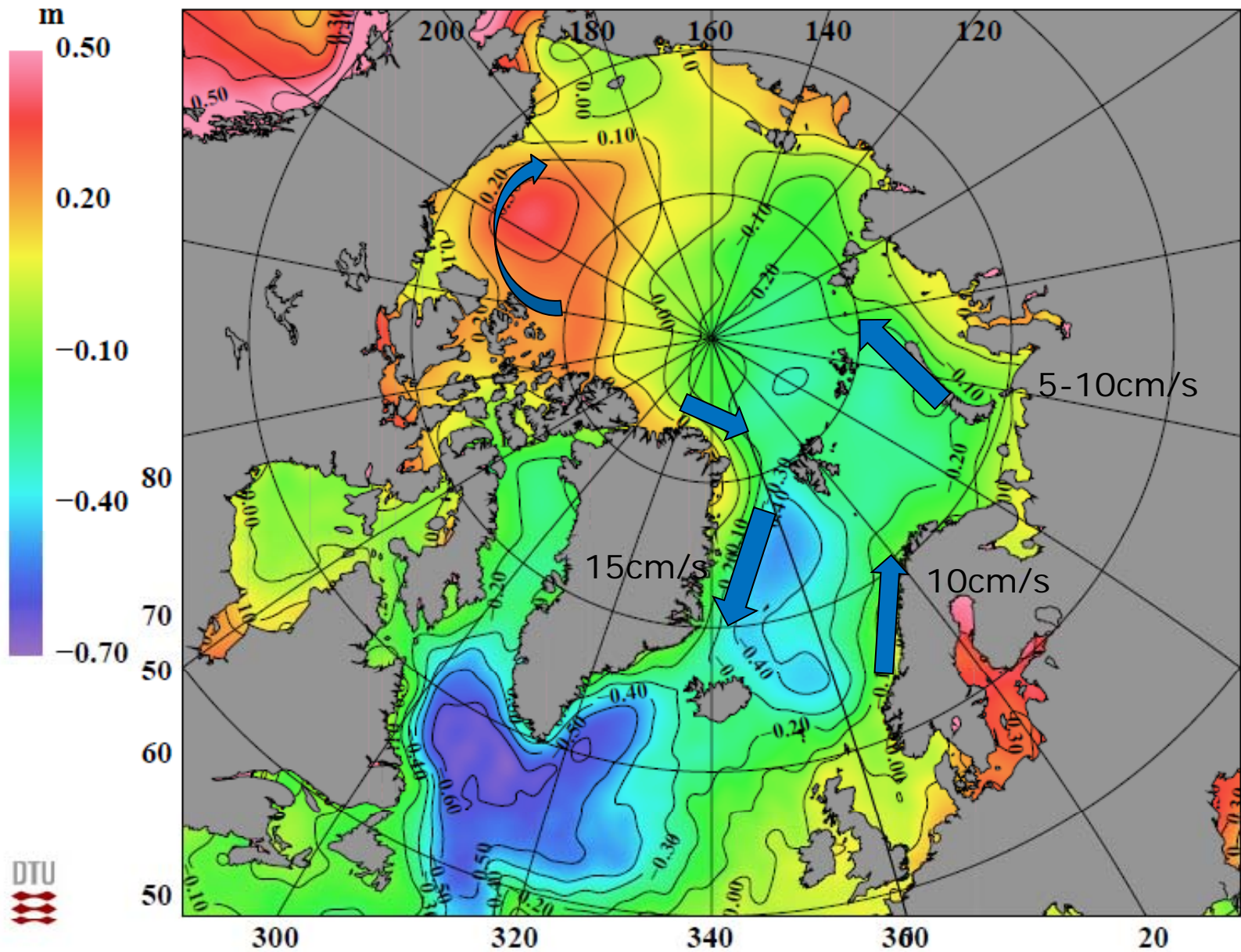
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# IDTU13MDT = Filtered(DTU13MSS-Eigen6C1)



# Discussion recommendation (1/4)

## Input altimetry data

- **Reprocessing of old missions. Geosat, ERS-1, T/P – Jason1**
  - Importance of SSB / Retracking - spectral hump
  - Continuity between regional and global products / Tide correction
- **SAR Mode for MSS/MDT (Cryosat-2 and future satellites)**
  - Reprocessing of C2 SAR (> 3 years)
  - Area-request:
    - SAR regions for improved MSS -> SWOT preparation
    - Consistency of existing regions (long terms observations)
    - Consistency between LRM/SAR/SAR-in -> MSS Sensitivity to gradients.





# Discussion recommendation (2/4)

## Input altimetry data

- **Future Geodetic Missions:**
  - Recommending Jason-2 geodetic End of Life vs interleaved mission .
  - Recommending possible HY-2 geodetic Mission.
- **Higher resolution products (1->5->10->20->40 Hz) :**
  - We recommend/need higher resolution products for MSS
  - Investigate issuing higher hz data (with SAR and Altika -> SWOT preparation)
- **SWOT discussion:**
  - Study Limitation of the current MSS for SWOT?
  - High latitudes / sea ice coverage

# Discussion recommendation (3/4)

## Models/technique

- **MSS reference (continuation).**
  - Focusing on estimating MSS/MDT accuracy/error -> future OSTST
  - 20 Year averaging period (variability mapping).
  - Arctic/Antarctica (different averaging period north/south 66°)
  - Urges future work at high latitudes.
  - Geoid (satellite only/GOCE) secondary reference

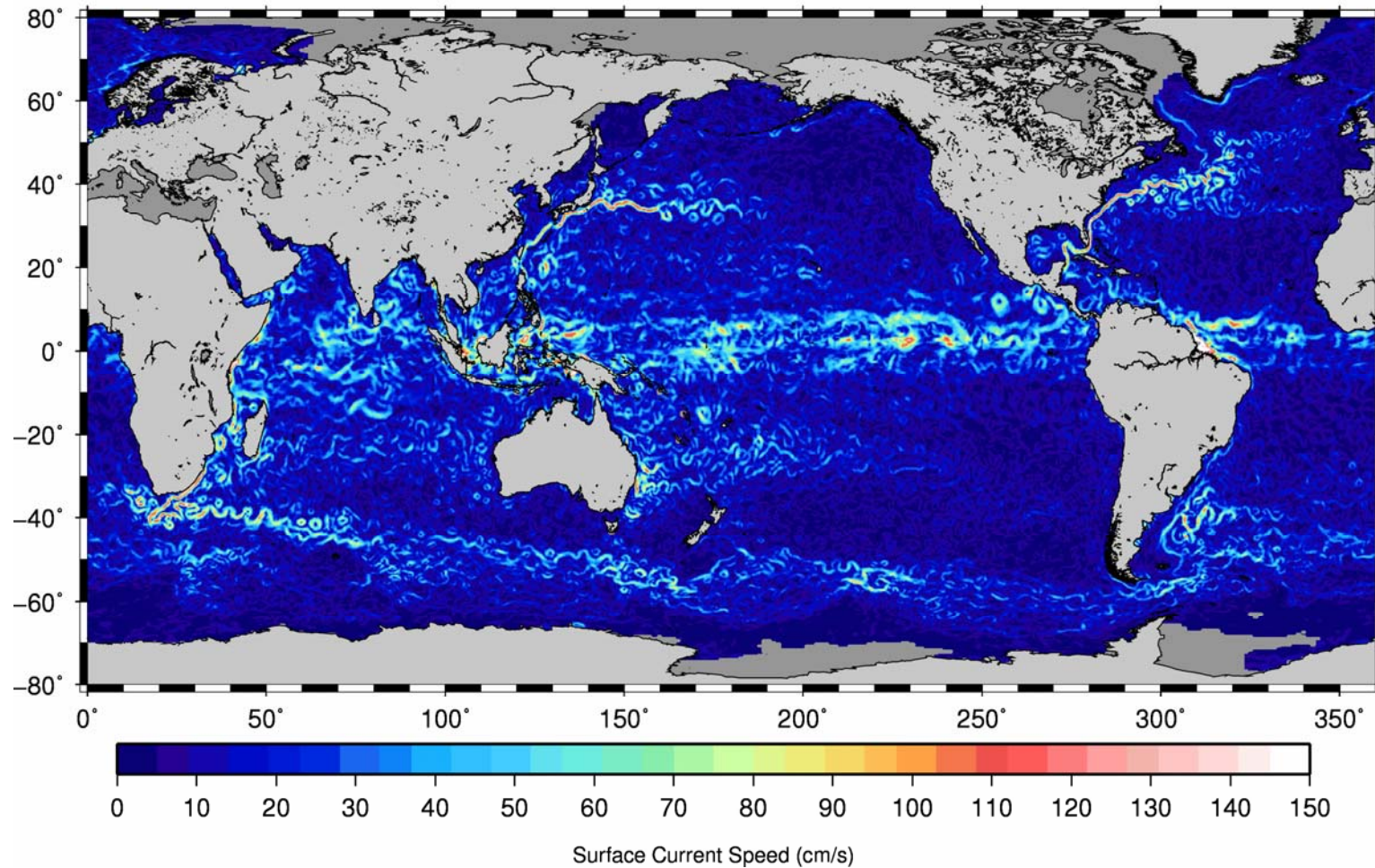
# Discussion recommendation (4/4)

## Models/technique

- **MDT development**
  - Need of good in-situ data -> work on processing
  - Coastal region (broader coast vs near-shore) - tidal errors
  - Deriving currents. Directional filtering/adaptive filtering
- **Future Applications:**
  - Use of Geoid/MSS for height (and tide gauge) unification.

□ 20 years of absolute surface currents relative to CLS/CNES MDT

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