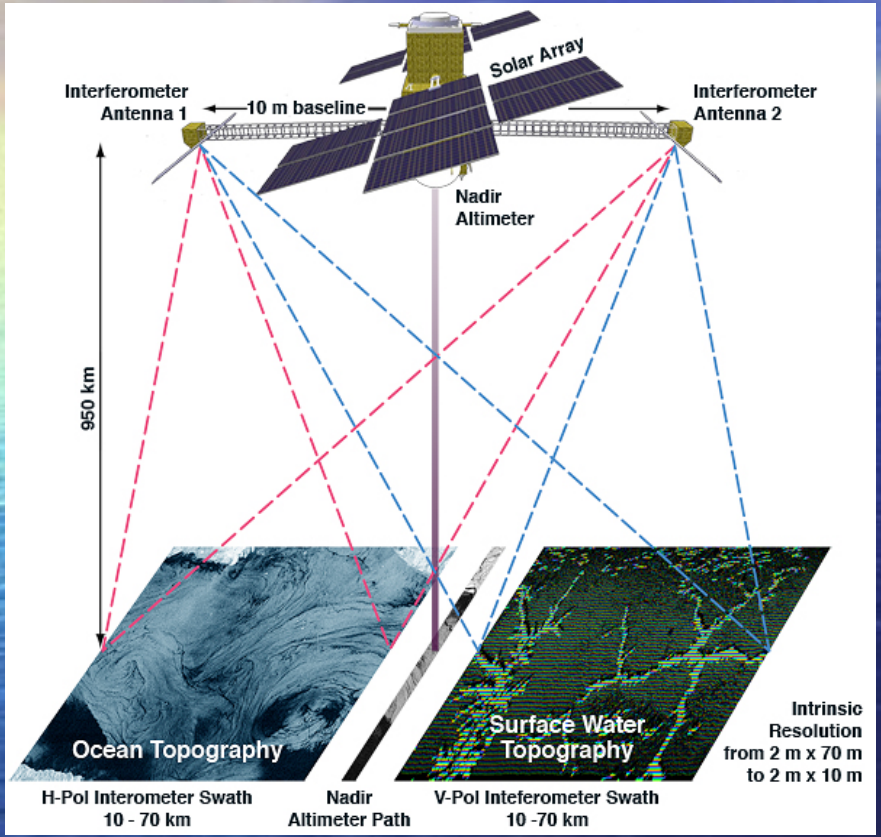
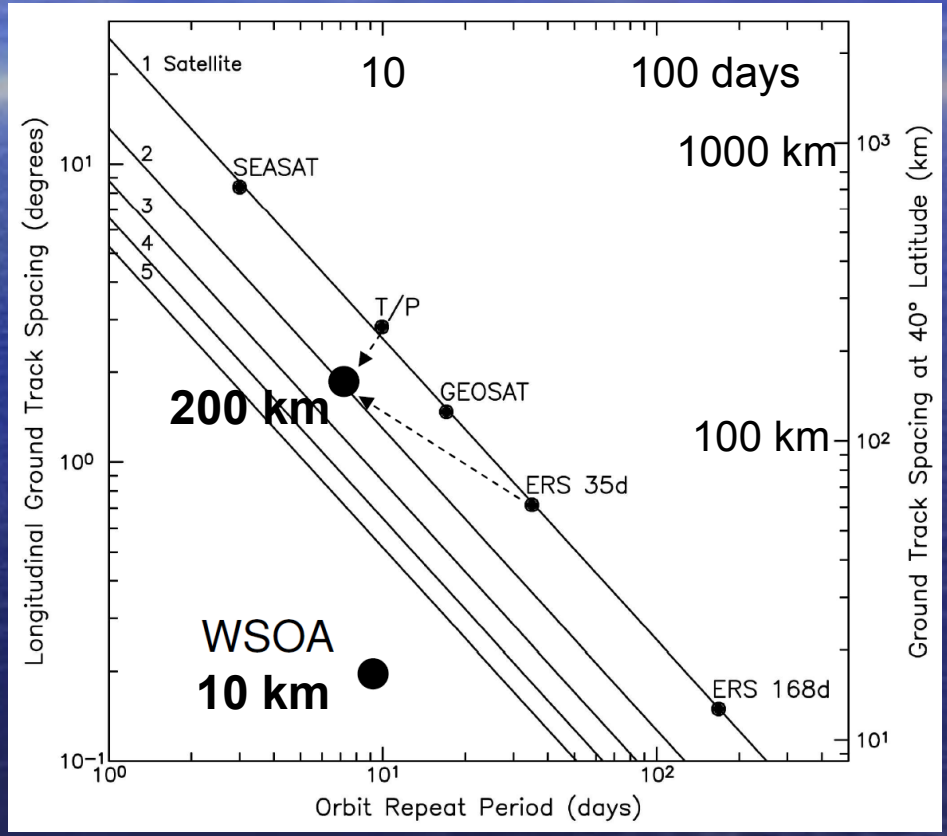
High-resolution wide-swath altimetry will make breakthrough in observing the oceanic submesoscale

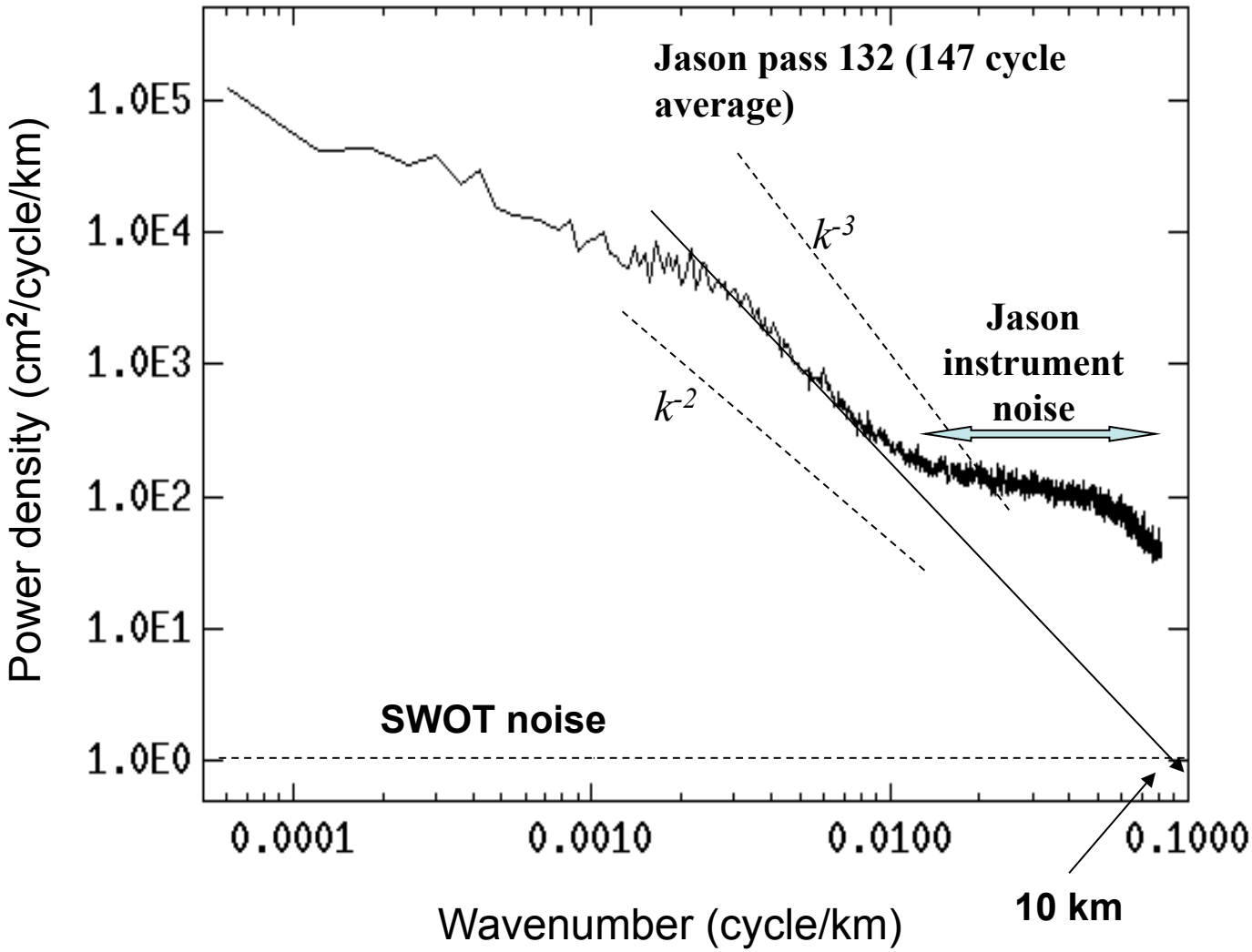




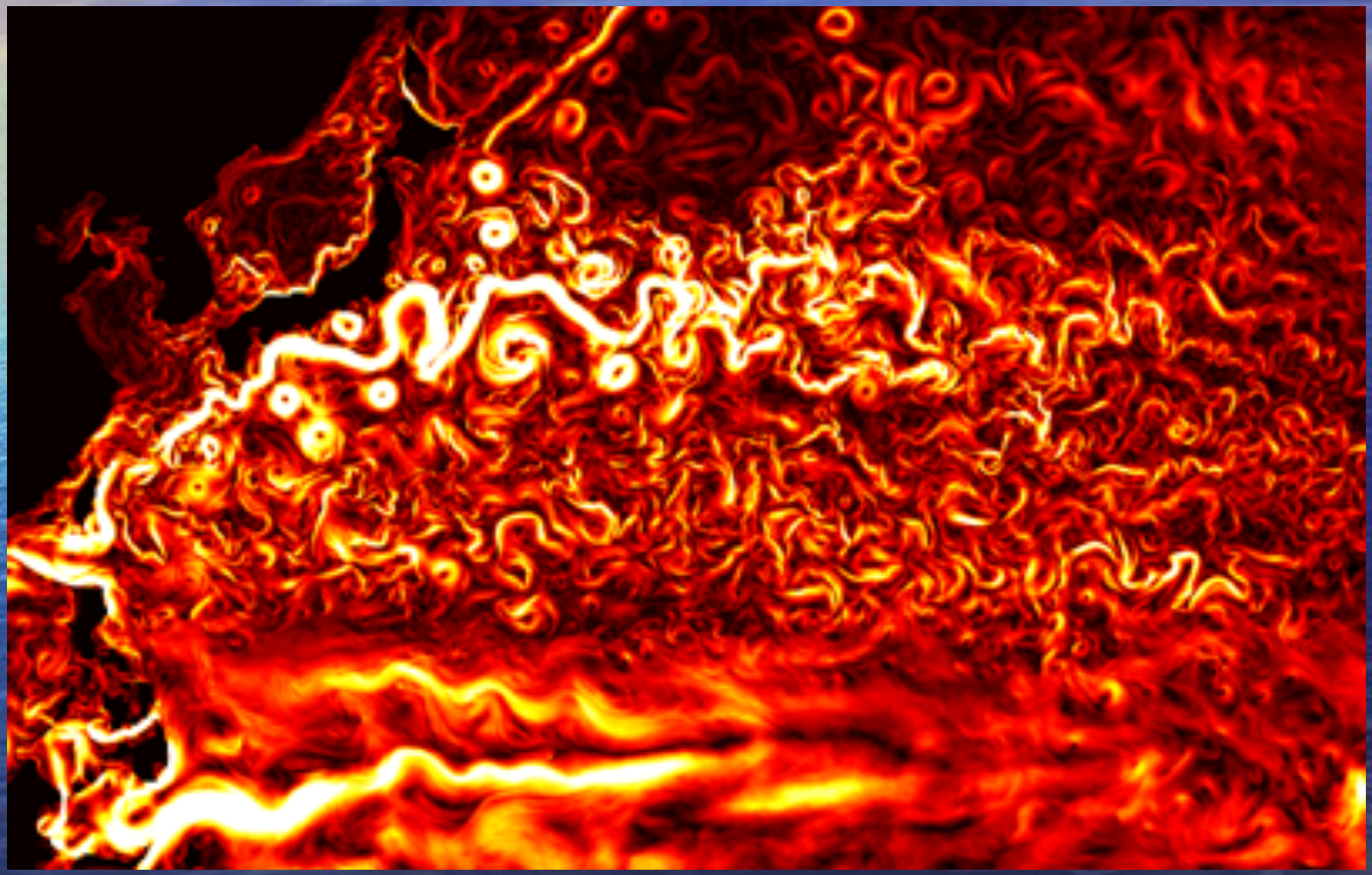
Surface Water & Ocean Topography (SWOT), a NASA/CNES mission recommended by the NRC Decadal Survey

SWOT ○ **1 km**

SSH wavenumber spectrum

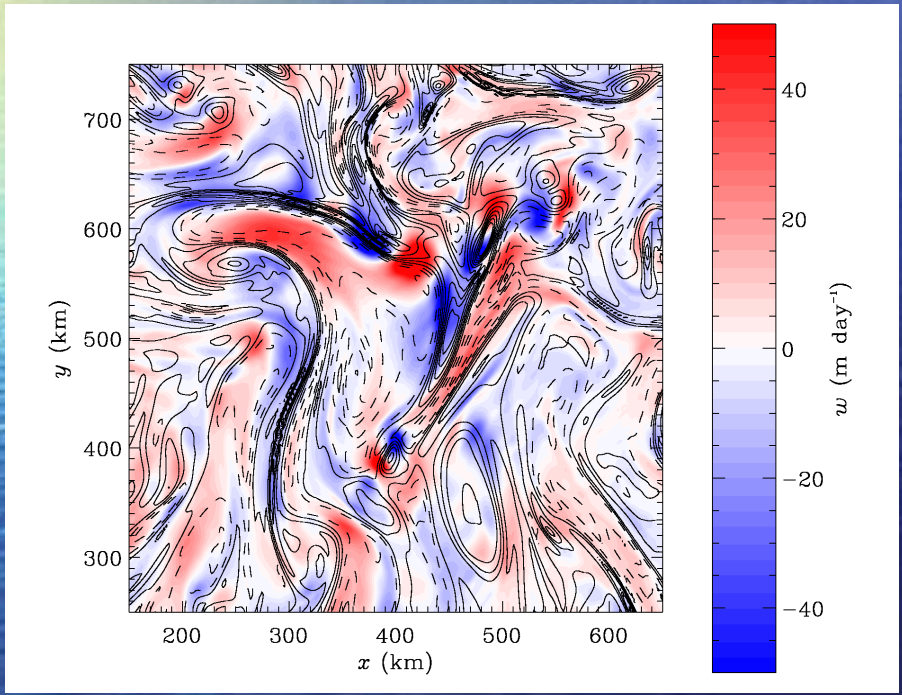


Is the ocean really behaving like this?

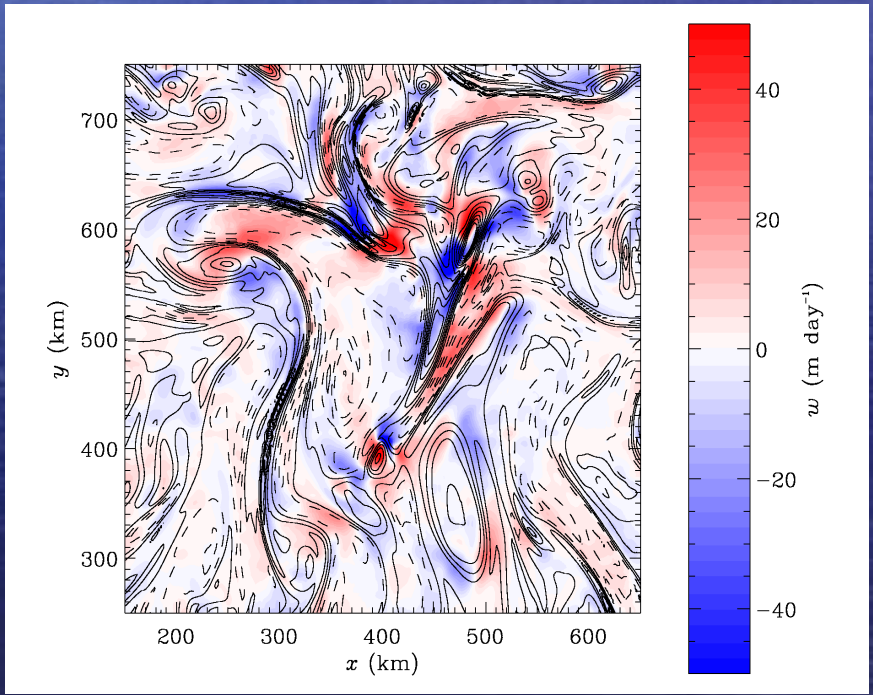


Feasibility of estimating the vertical velocity of the upper ocean from SSH measurement

Simulated W by an OGCM



Reconstructed W from SSH

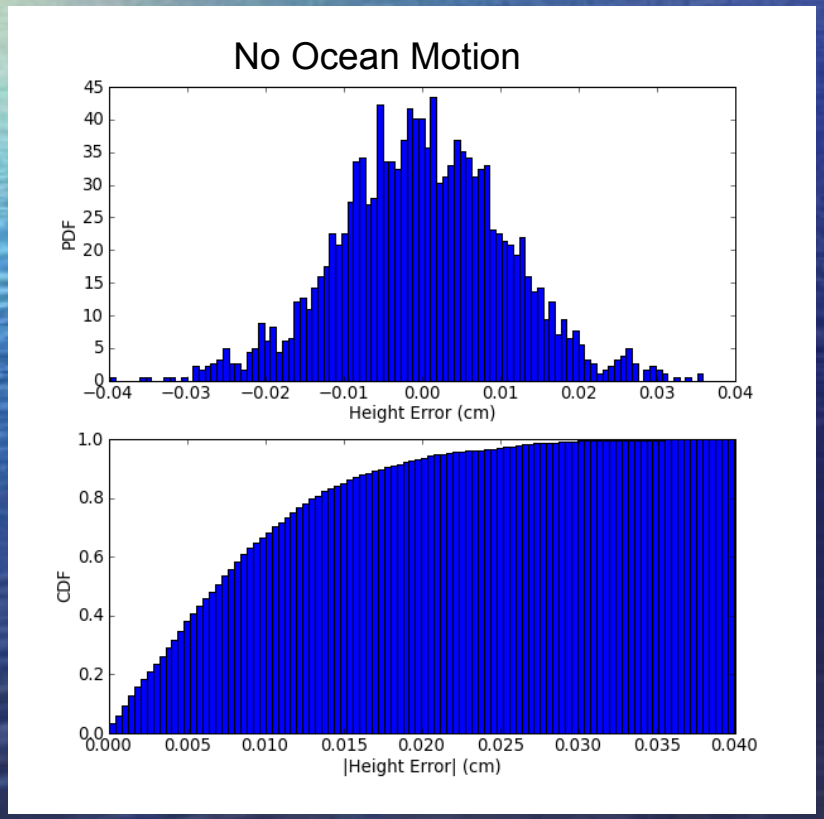


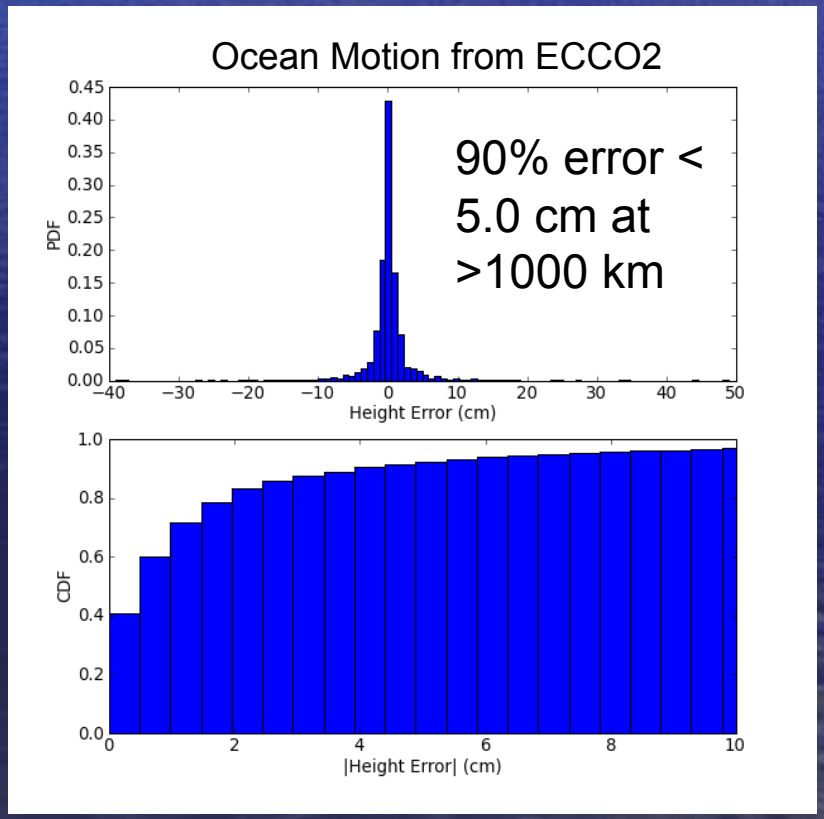
Contours are relative vorticity

P. Klein (IFREMER)

ECCO-2 for Mission Design

- Test the effects of sampling on estimating the upper ocean circulation
- Test the performance of cross-over calibration
- Require one-year simulation at 1/16 deg resolution for better results





Future Perspectives

- SWOT is a way to engage NASA and CNES in ocean dynamics and sea level change after the transition of nadir altimetry to NOAA and UMETSAT.
- ECCO-2 is a critical tool for mission design and pre-launch science studies.