



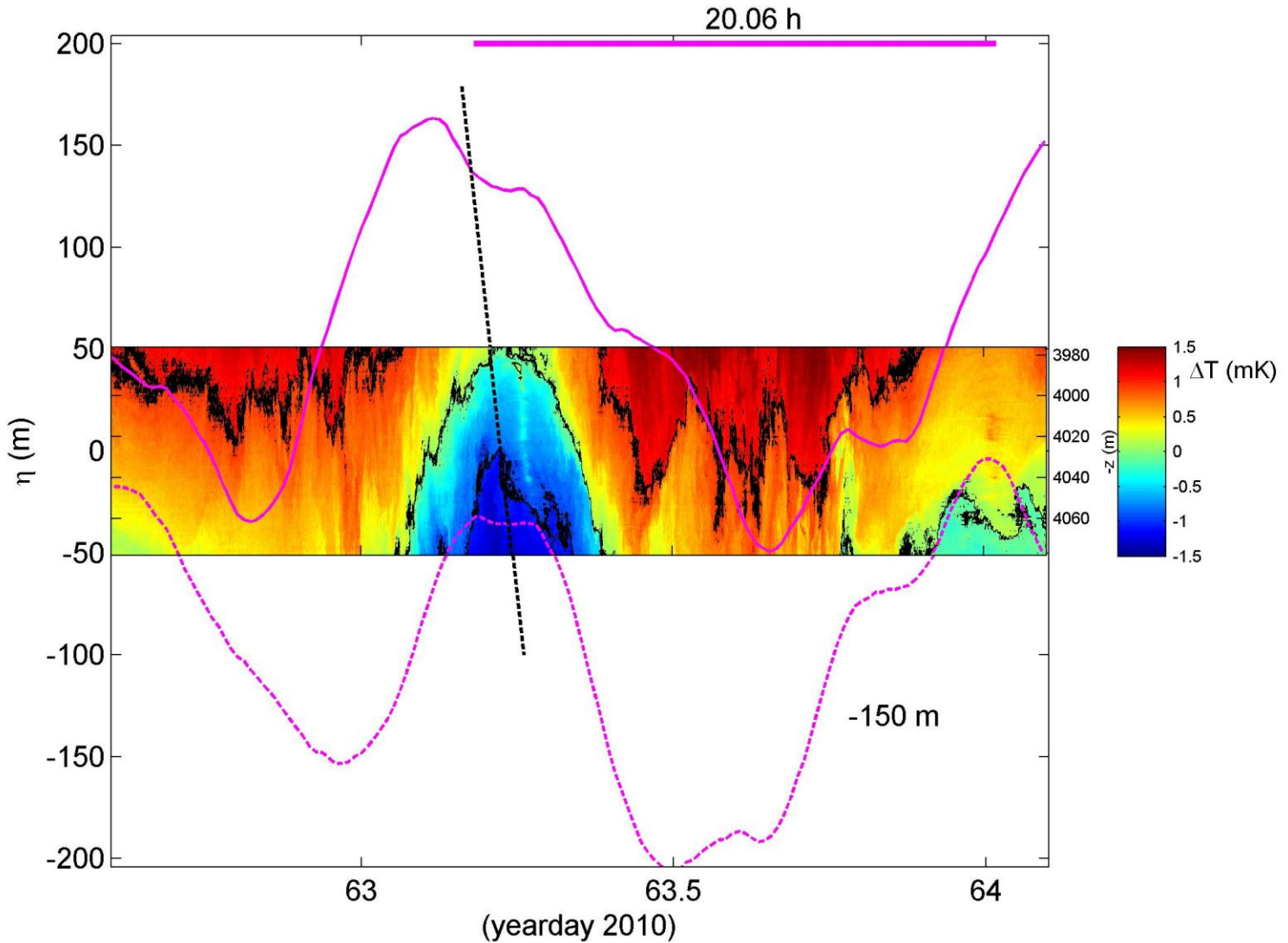
Royal Netherlands Institute for Sea Research

High resolution oceanography

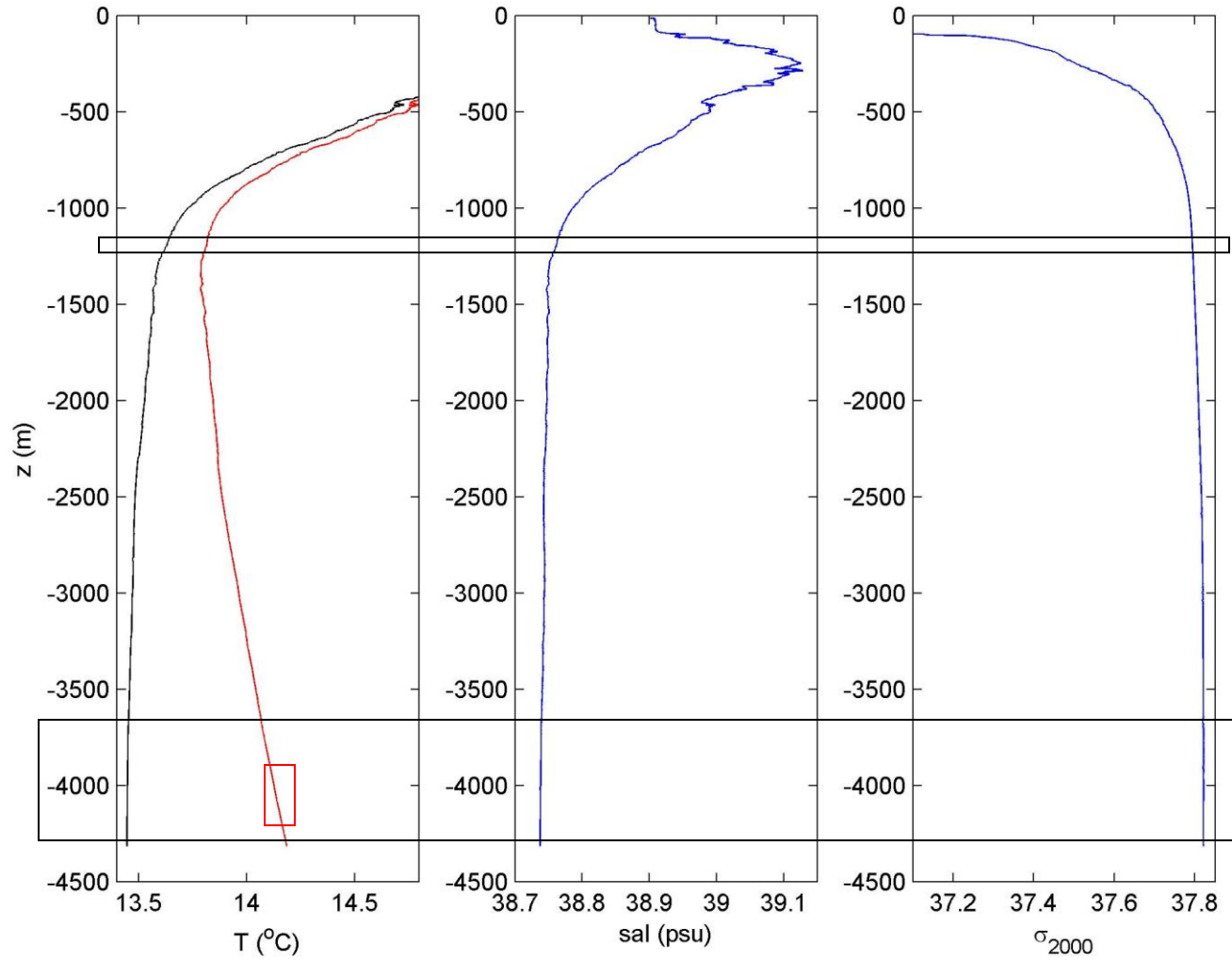
Hans van Haren



1.5 days 1-Hz sampling 100 temperature sensors total 0.003°C range

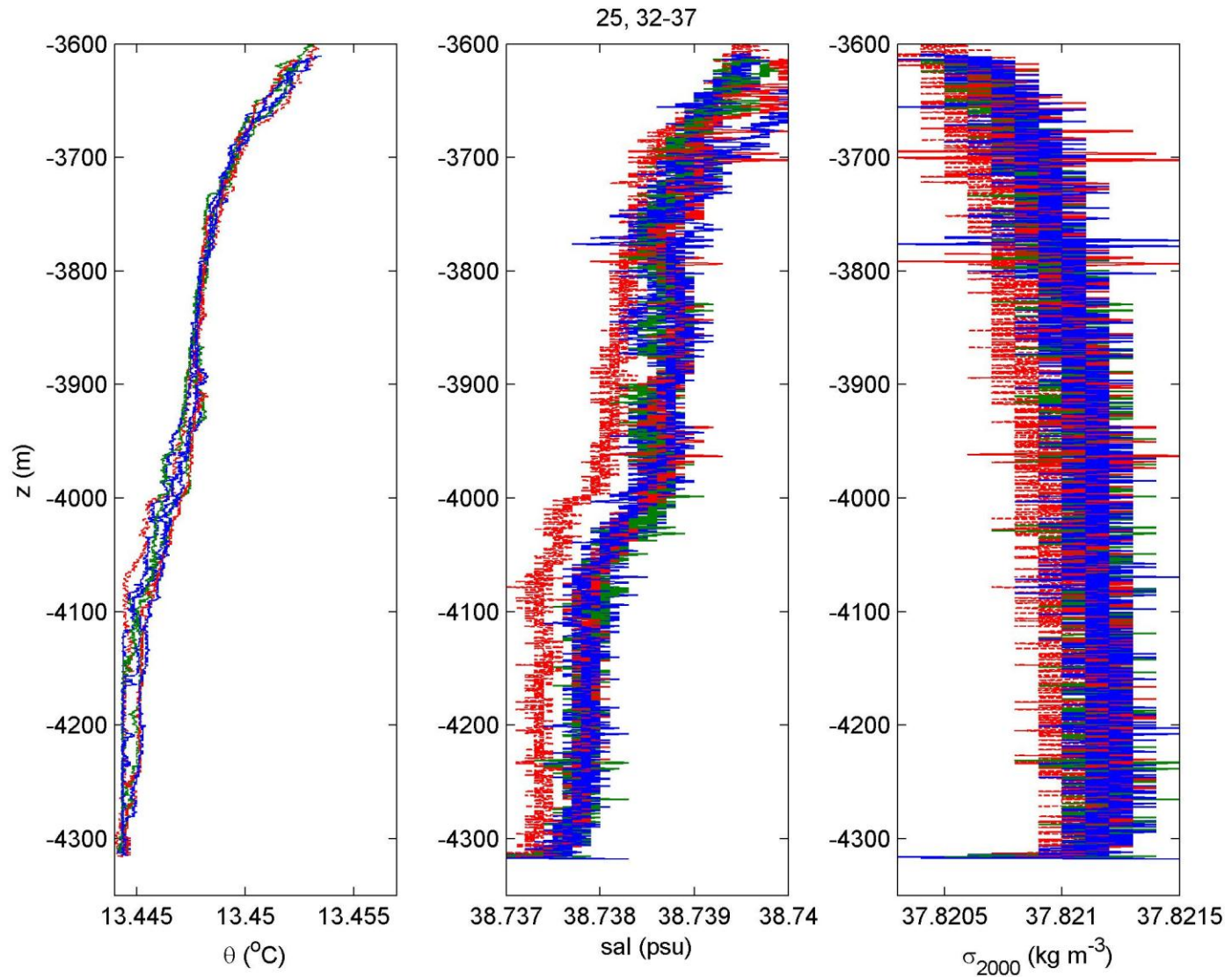


CTD-hydrography



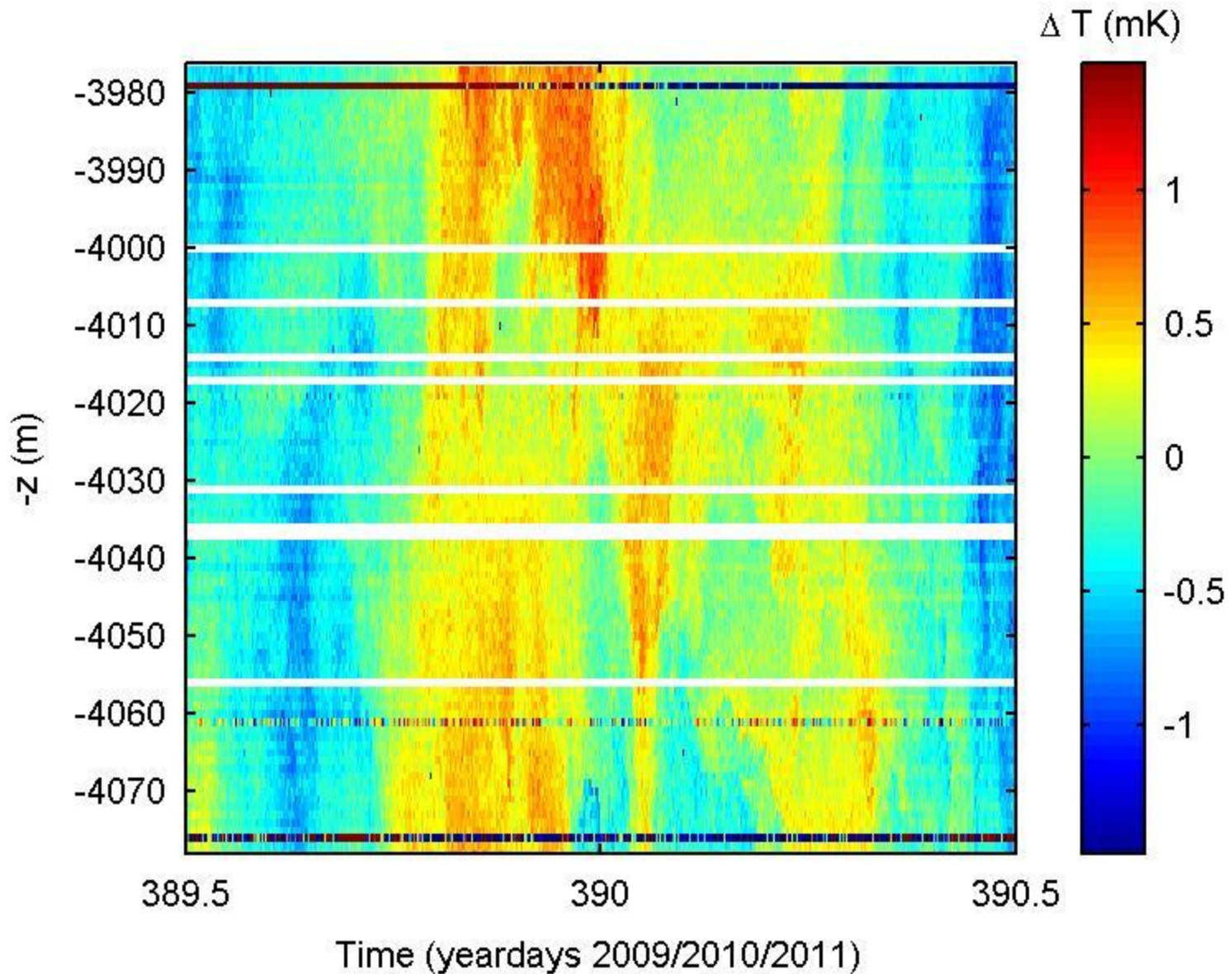


CTD-yoyo: bottom detail



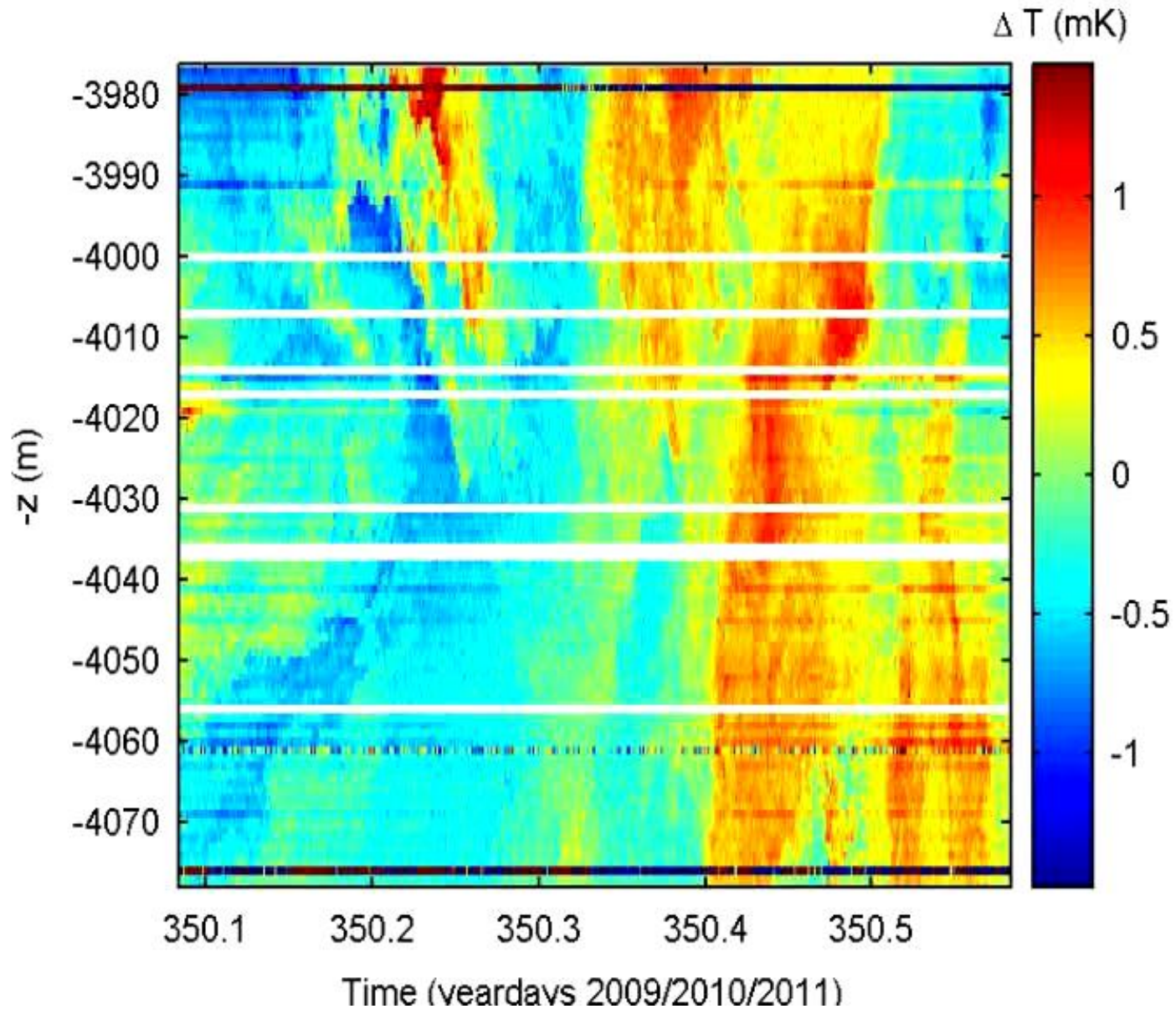


1 day: 100 thermistors @1 m, 1 Hz (0.001°C)



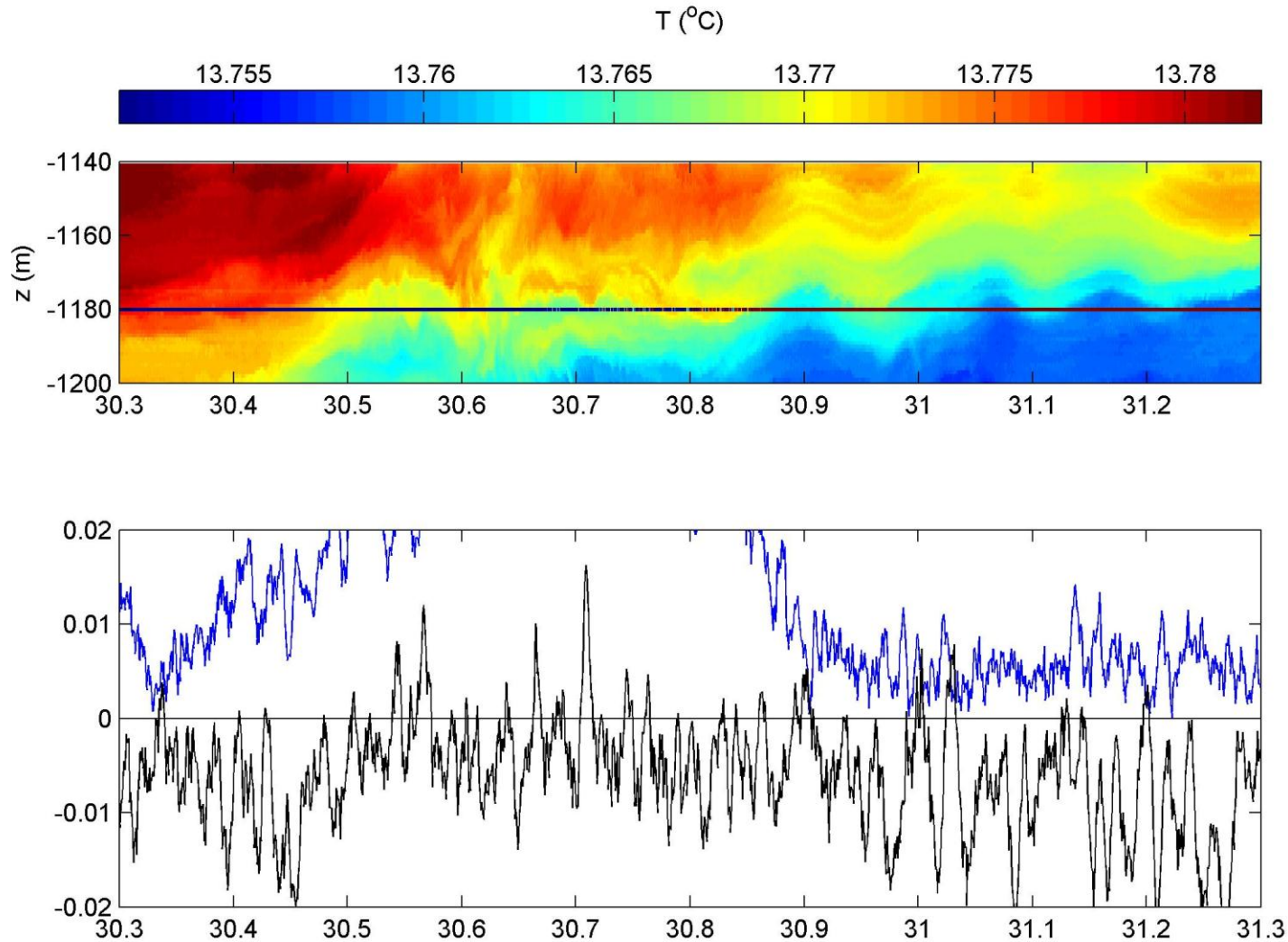


A movie of variability: 0.5 d window





One day of internal waves in "shallow" water: 60 thermistors @1 m, 1 Hz ($<0.001^{\circ}\text{C}$)



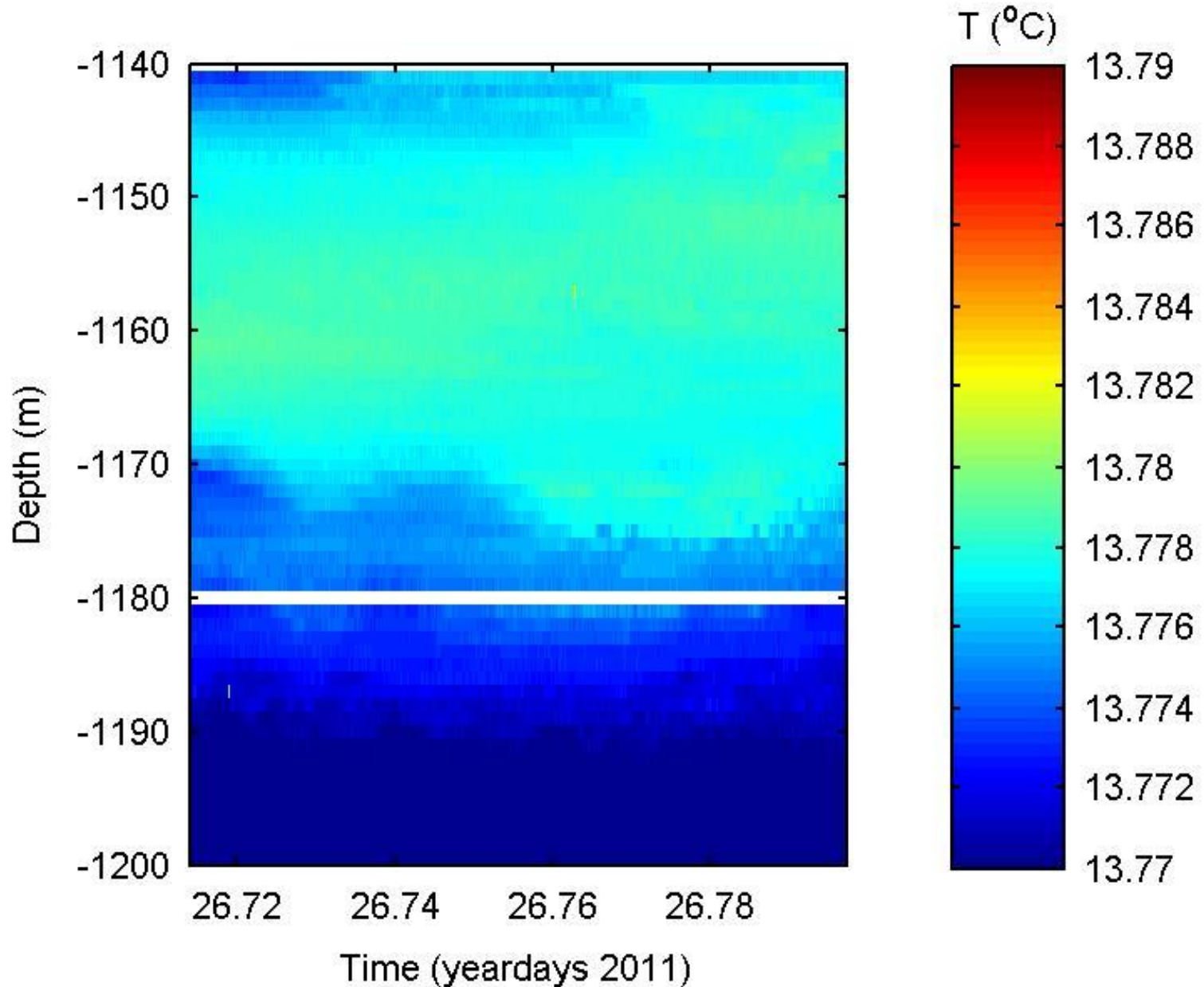
Currents:

Horizontal
(ampl)

Vertical



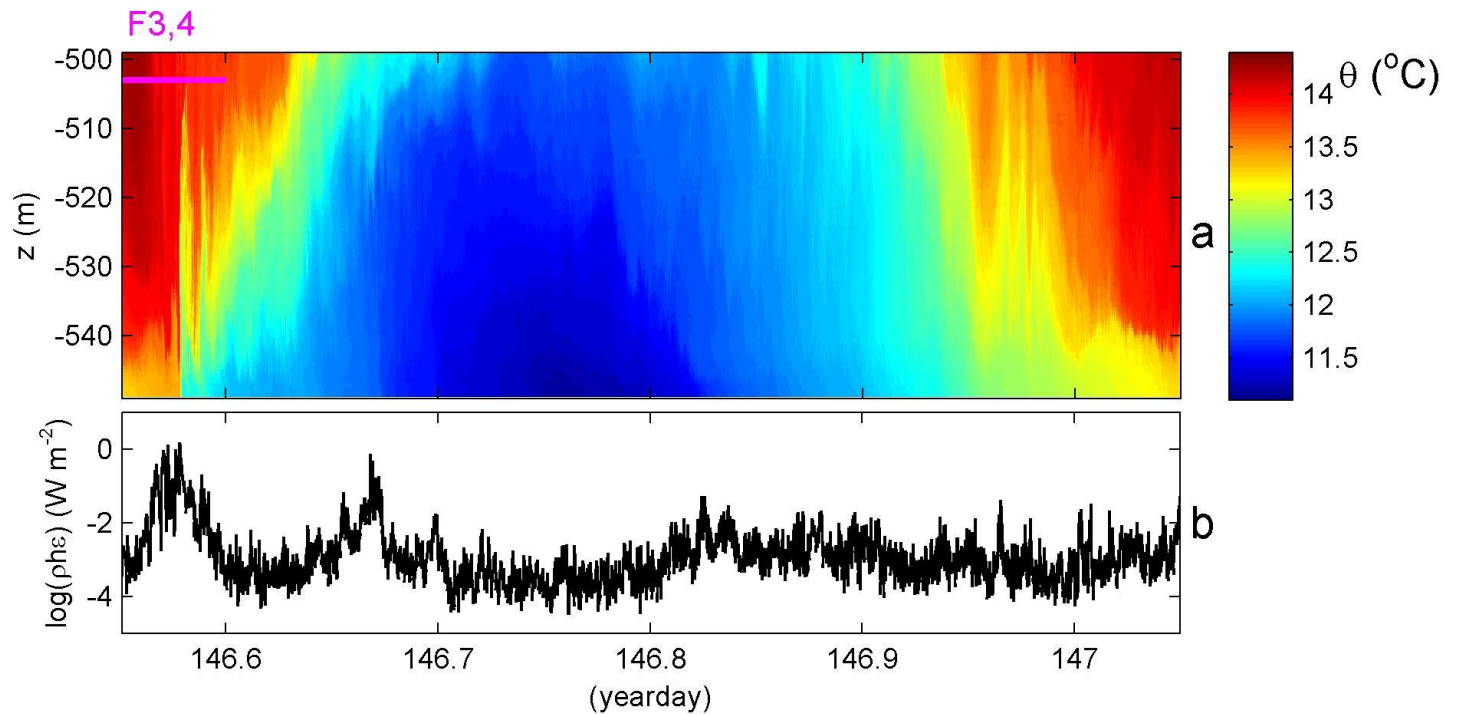
Another movie: 2 h window

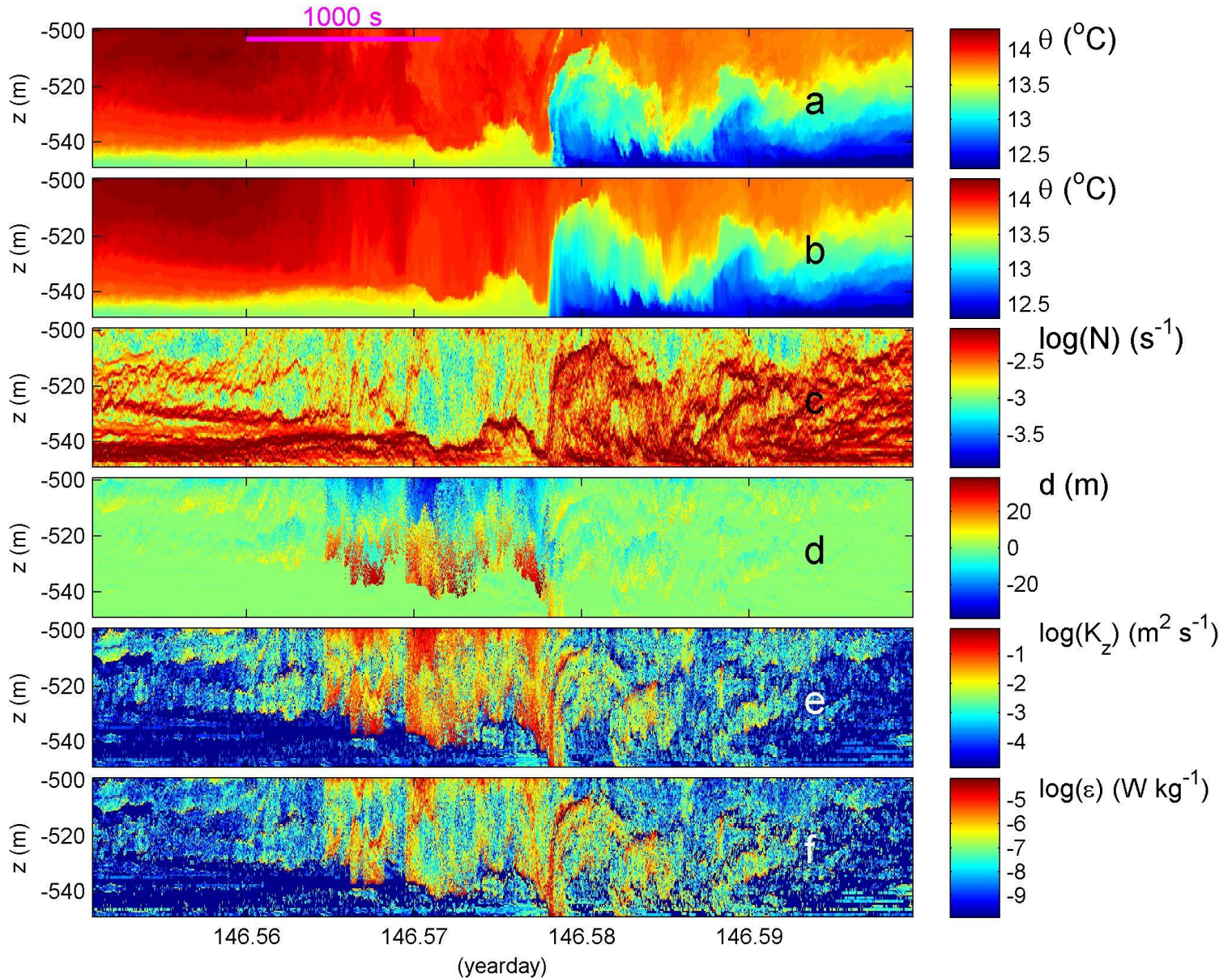




TS relationship known: turbulence estimates

Great Meteor Seamount (Atlantic Ocean)





20% mixing tidal period in 3 minutes; 65% in half hour



Conclusions

- Perspectives for high-resolution oceanography
- Internal wave turbulence and mixing
- 3D imaging

