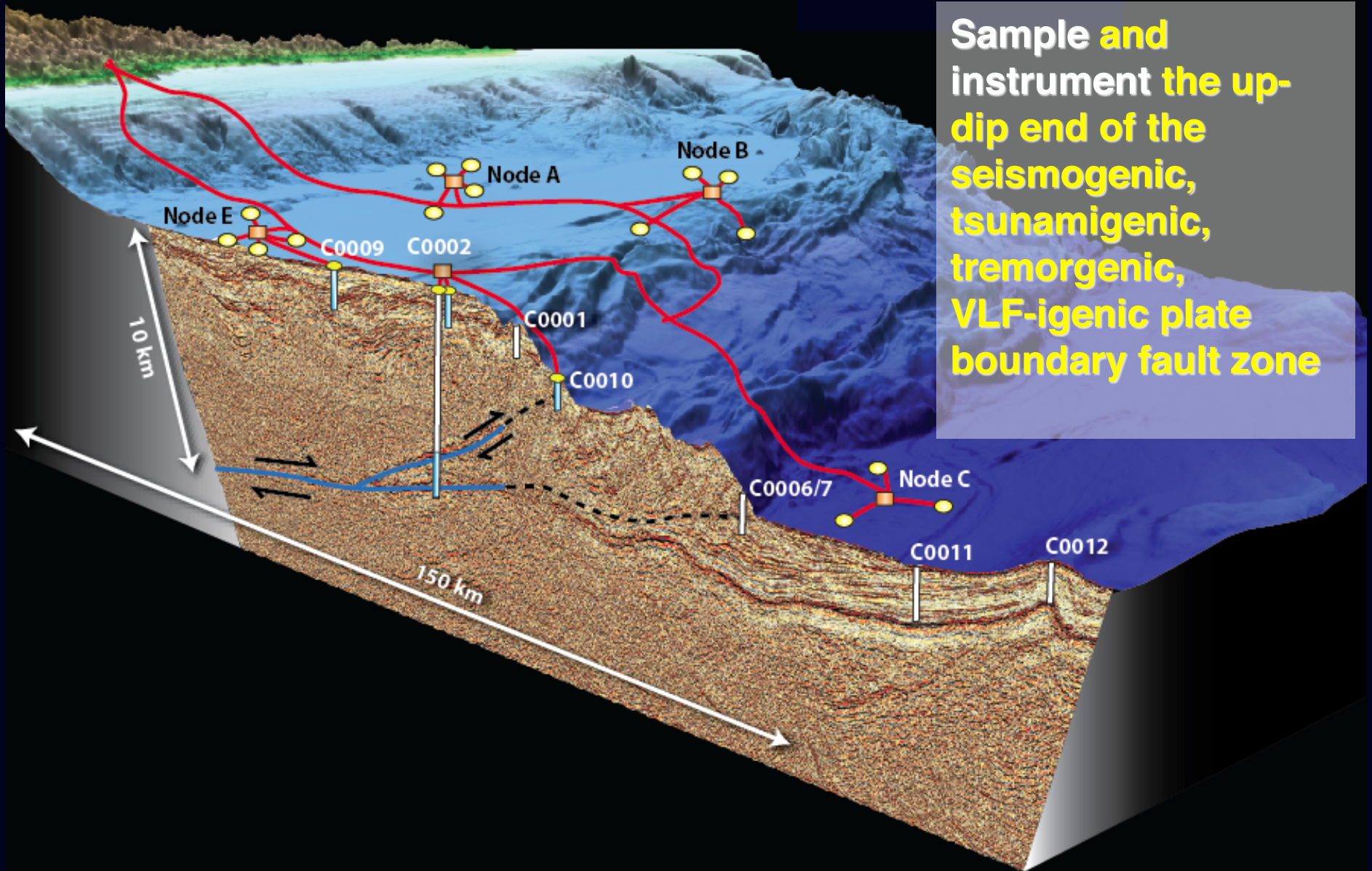
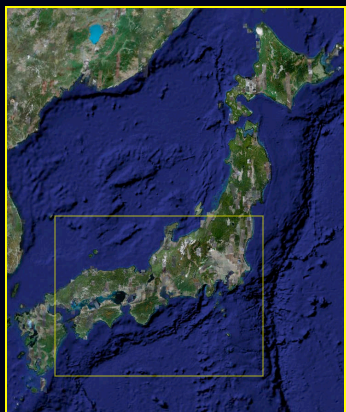


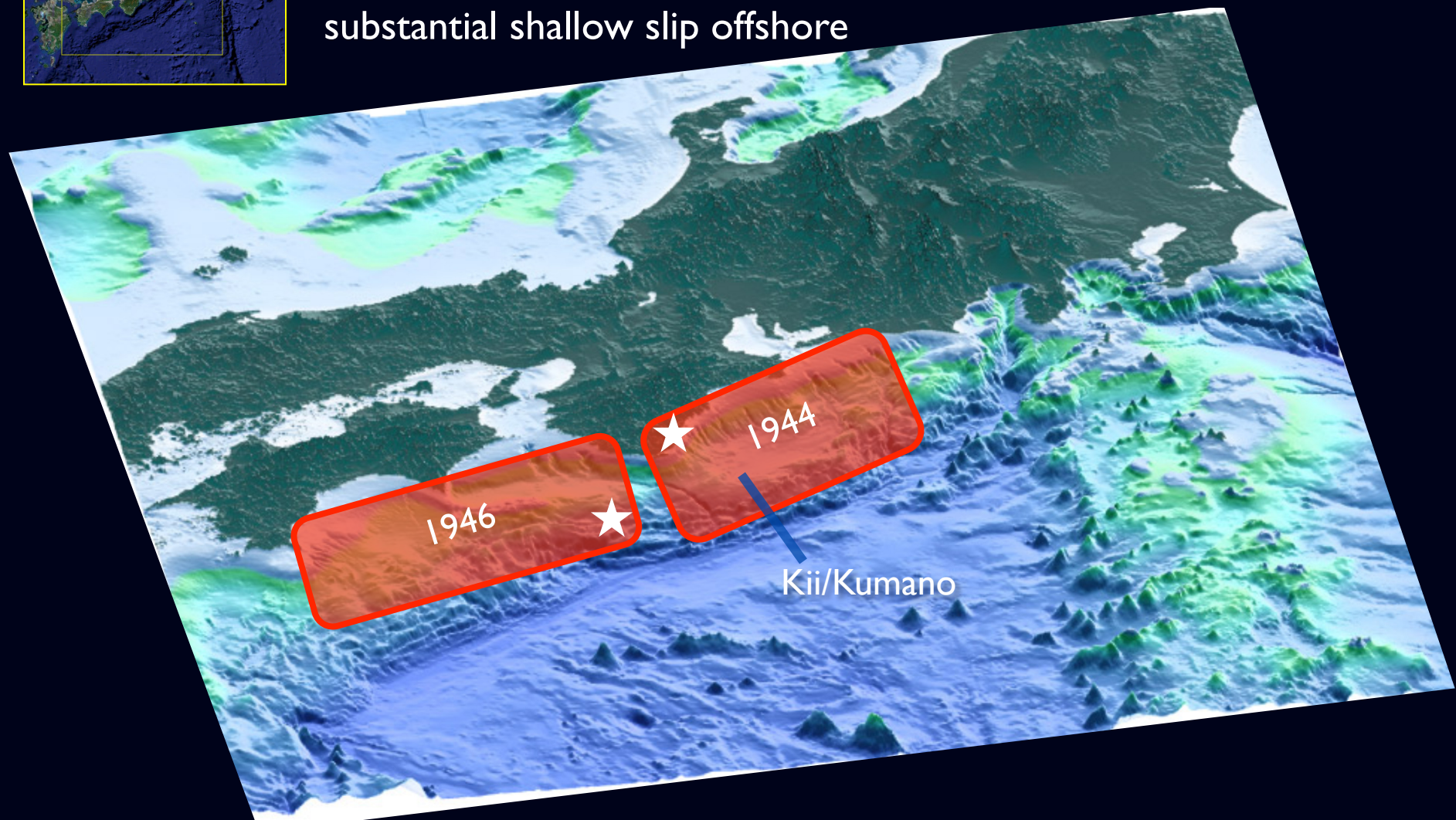
NanTroSEIZE: The Nankai Trough Seismogenic Zone Experiment





Nankai Trough: Frequent Great Earthquakes and Tsunami

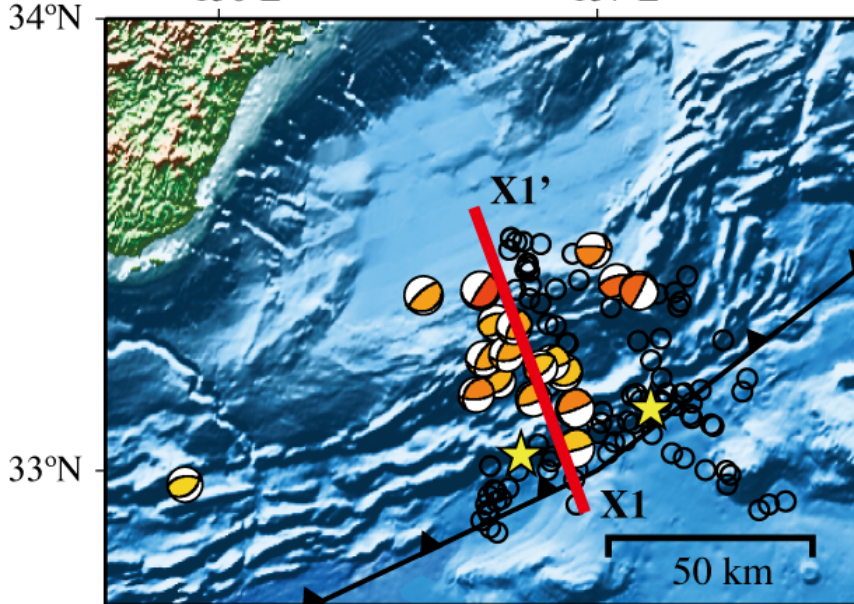
1300 years of history shows that a major earthquake and tsunami has occurred on average every 90 - 120 years with substantial shallow slip offshore



Off Kii

34°N 136°E

137°E

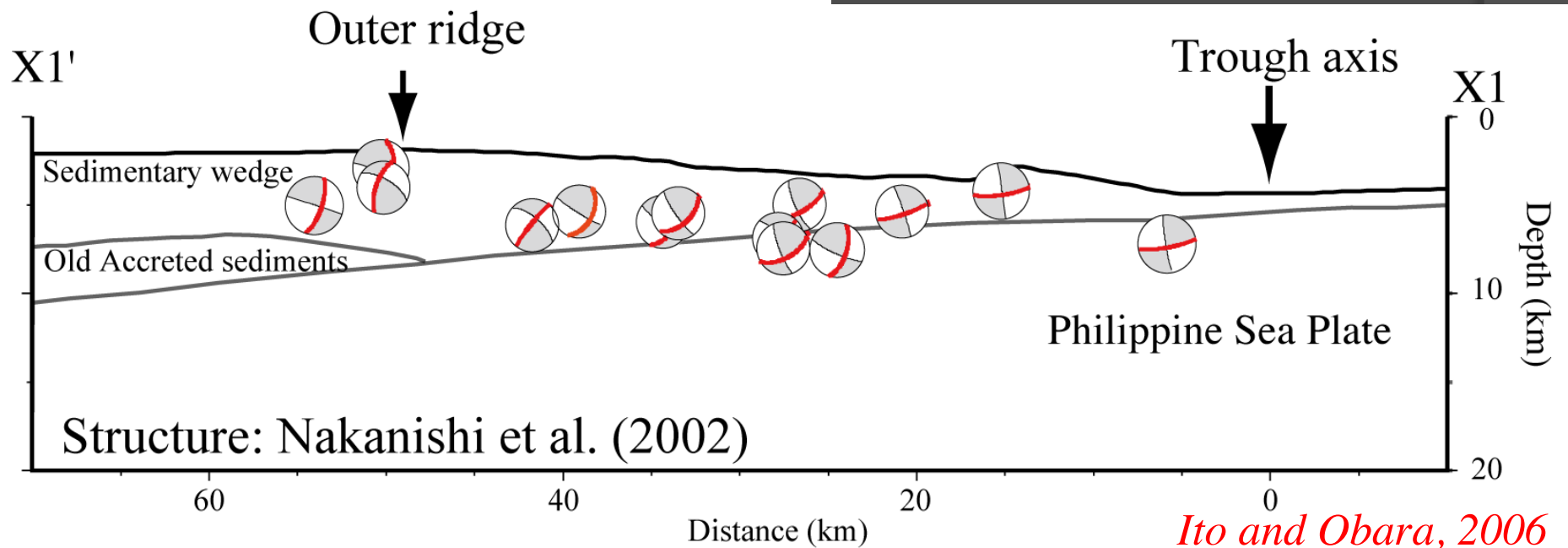


VLF earthquakes

Recently discovered very low frequency events

up to M 4.5

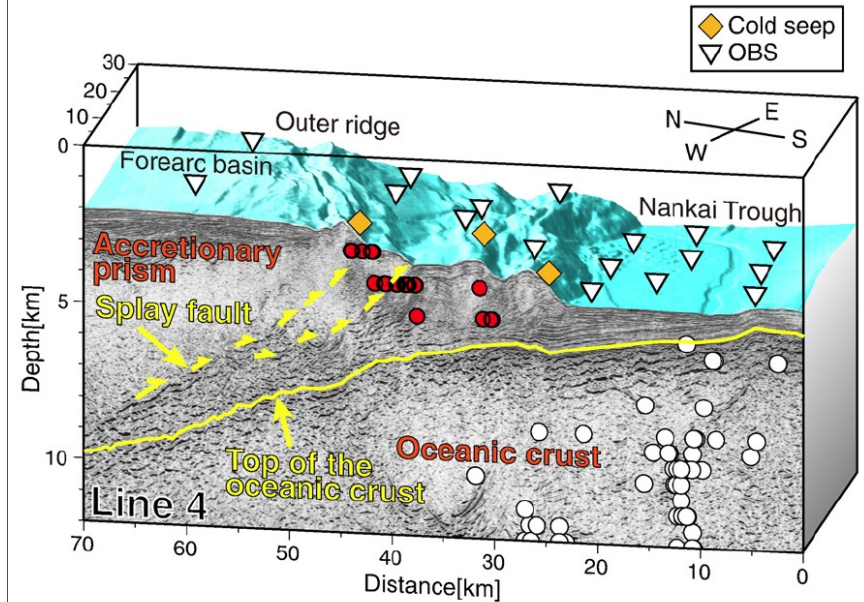
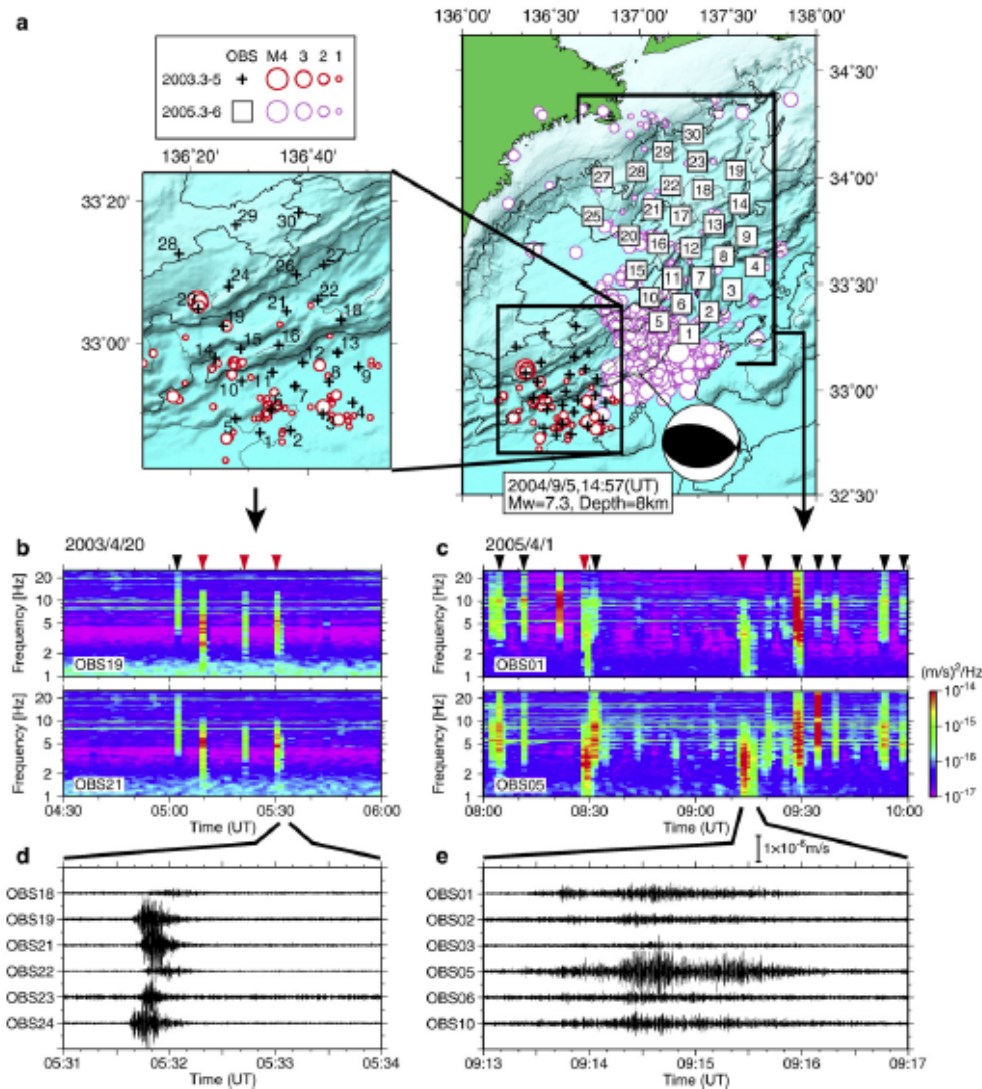
Occur in outer accretionary wedge



Low-frequency tremors associated with reverse faults in a shallow accretionary prism

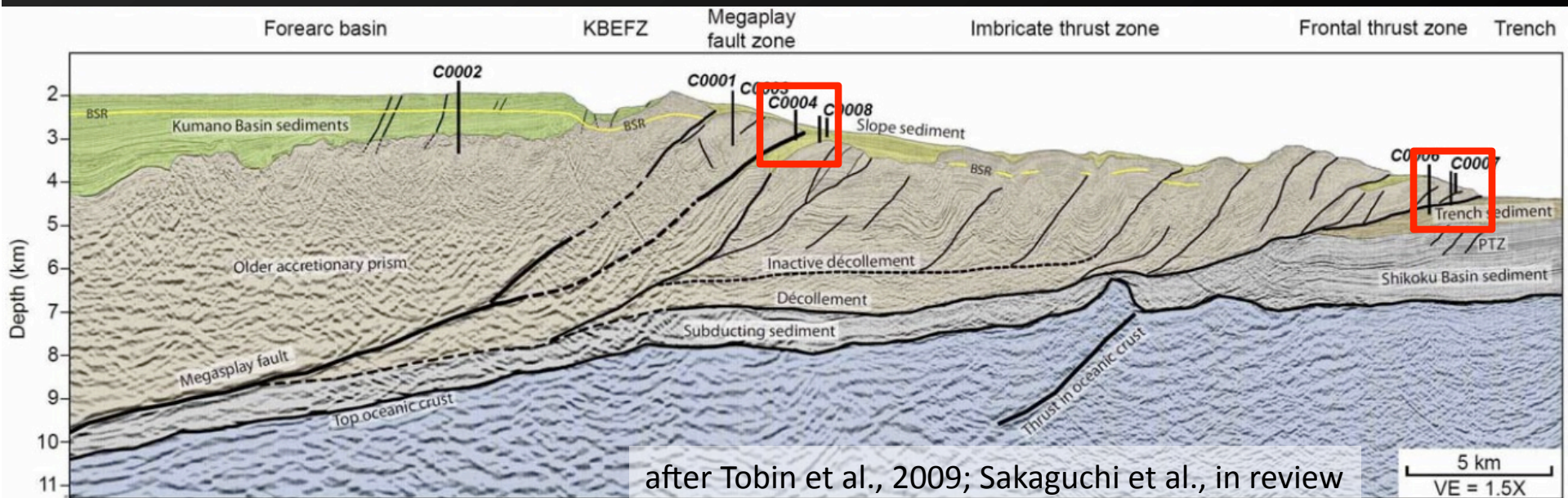
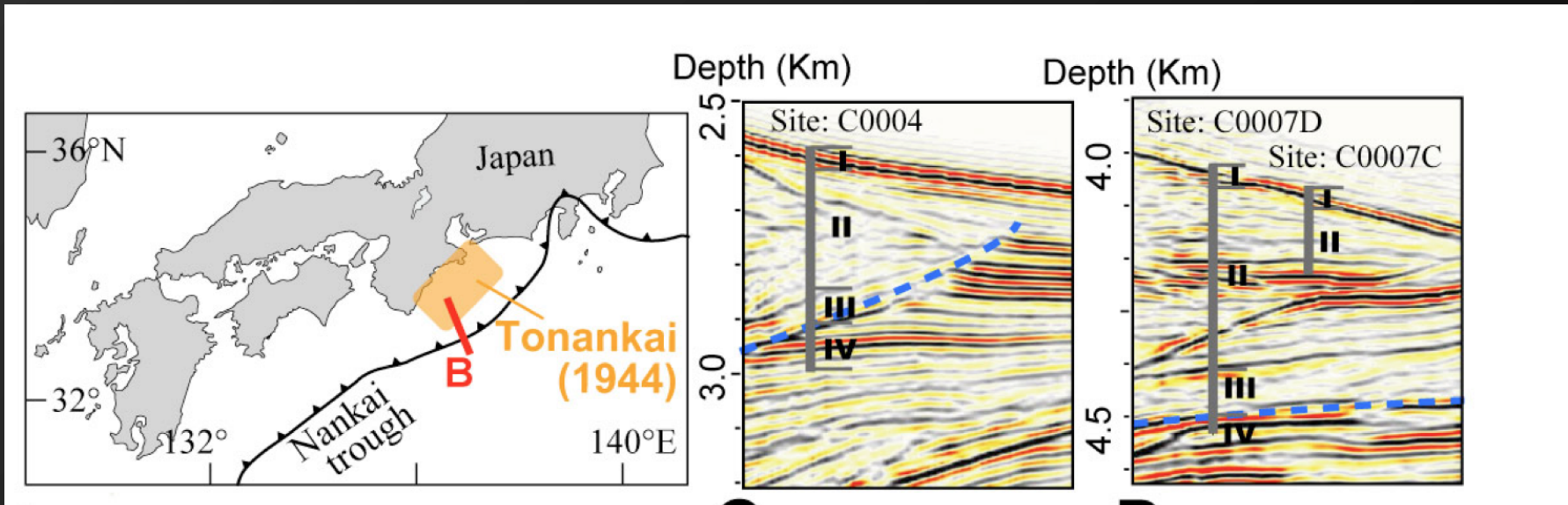
Koichiro Obana*, Shuichi Kodaira

Institute for Research on Earth Evolution, Japan Agency for Marine-Earth Science and Technology, 3173-25 Showa-machi, Kanazawa-ku, Yokohama 236-0001, Japan

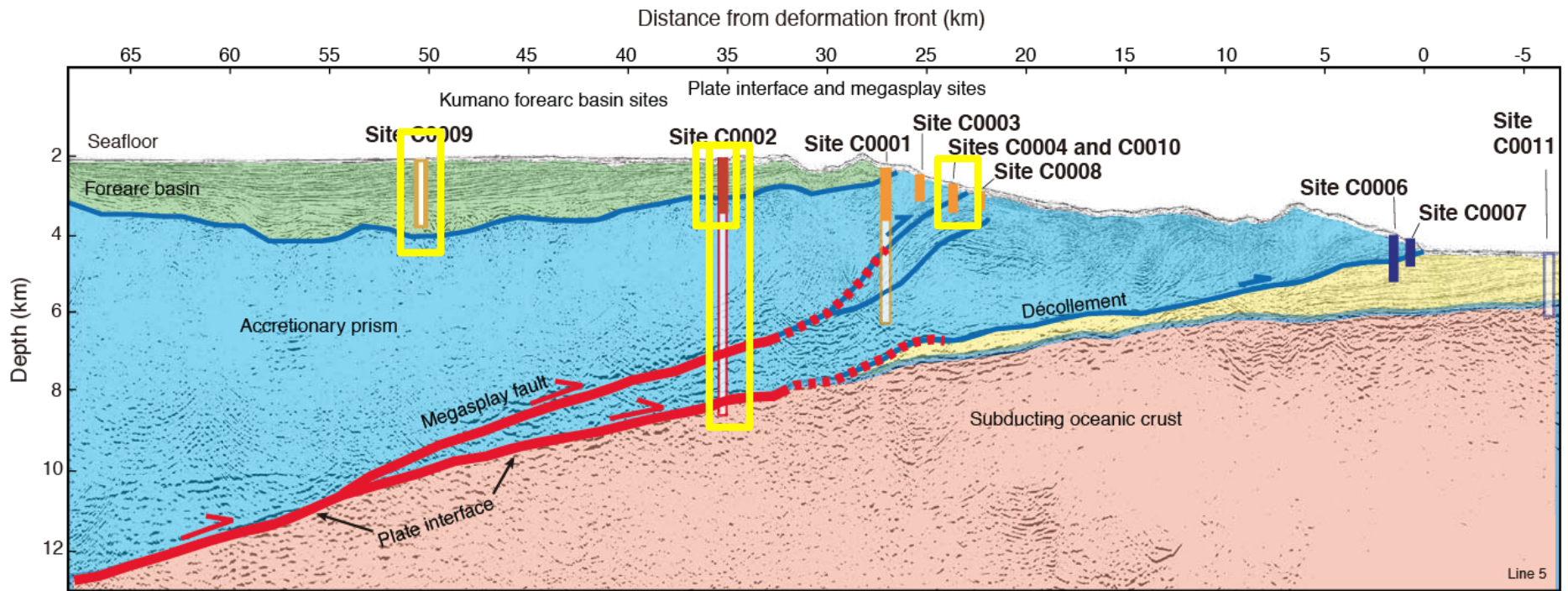


First (?) report of tremor-like activity in an accretionary prism up-dip of locked megathrust (EPSL, 2009)

Work to date has sampled key faults at depth of 100s of meters, prism to 1600 meters



Drilling and Planned Final Configuration

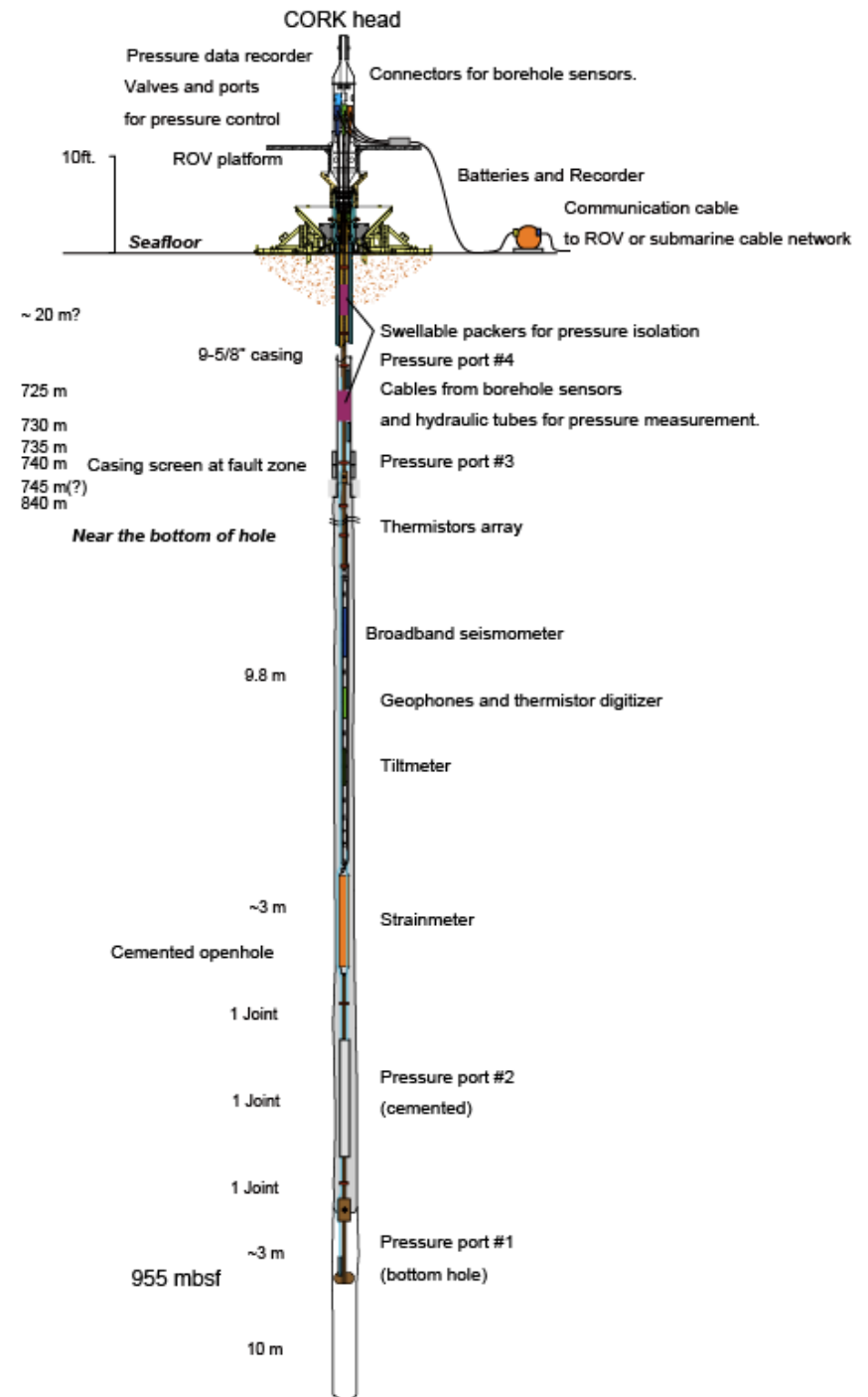


2011 & 2012: Continued drilling and casing of the main 7000 meter deep hole, 1st borehole instrument packages

Final Plan: 4 long-term monitoring borehole observatories

C0002-NR Borehole package to be installed ... before AGU

- ◆ Hardened Guralp CMG3T
- ◆ Geophones
- ◆ Tiltmeter
- ◆ Strainmeter
- ◆ 2 pore pressure ports
- ◆ Thermistor array



Site C0002: Deep plate boundary

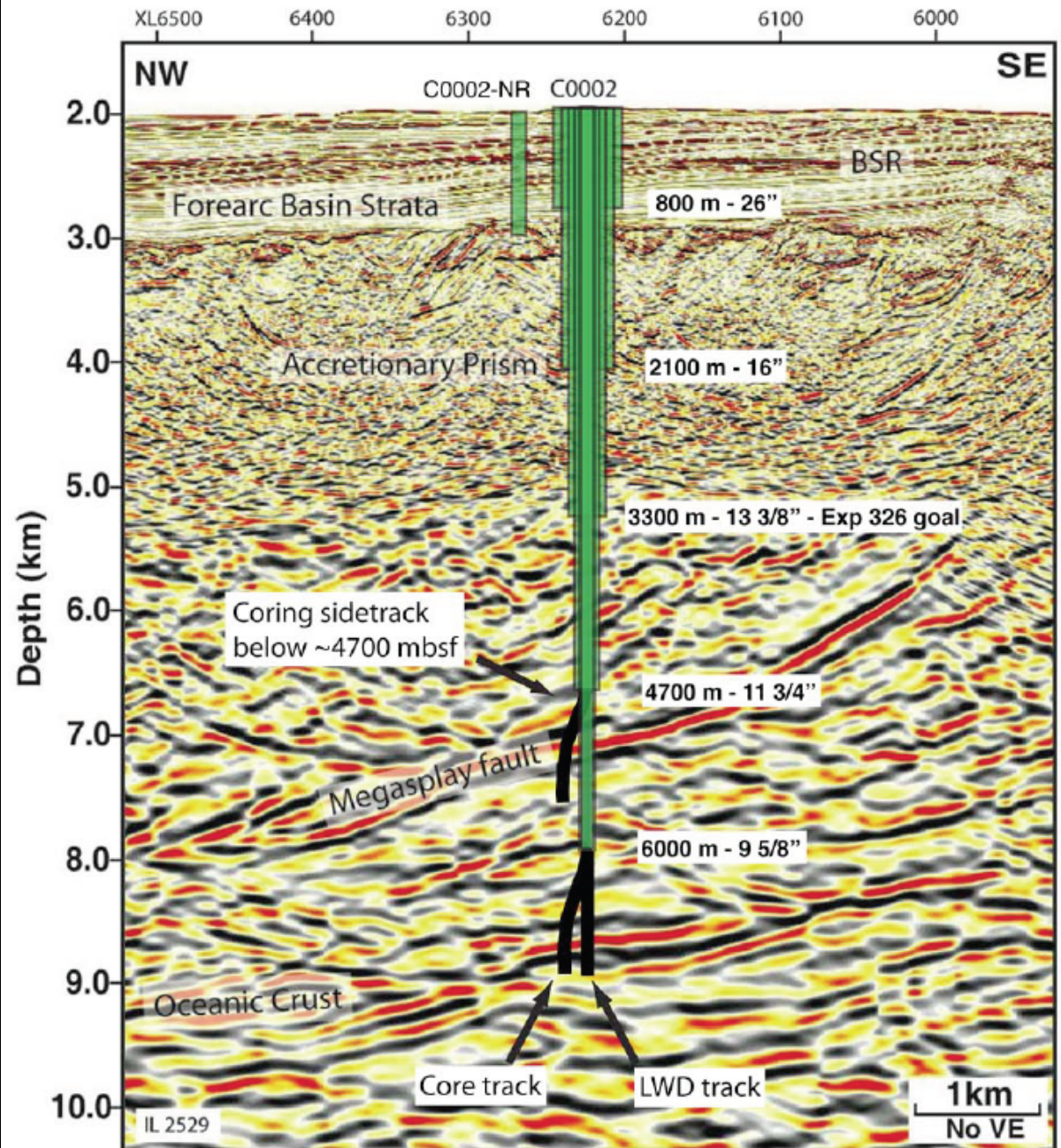
~ 6 casing strings required to reach TD of ~7000 m

Final configuration to include long-term observatory:

- pore fluid pressure
- BB seis + short-period array
- strainmeter
- tiltmeter
- temperature

CHALLENGES:

- Kuroshio current
- Budget and time
- Temperature at depth



Call for Scientist Participation

- In IODP, anyone can apply to participate as a shipboard or shore-based scientist.
 - Obtain samples, data
- Exp. 338 about to be advertised: 2011 drilling into mid-prism (August 2011 – Jan 2012)
- **We want YOU!**
 - www.iodp.org
 - www.oceanleadership.org/programs-and-partnerships/ussp/expedition-participation/
- **2012: Planned drilling across main mega-splay reflector**
- Completion to 7000 m in 2013 (+)

