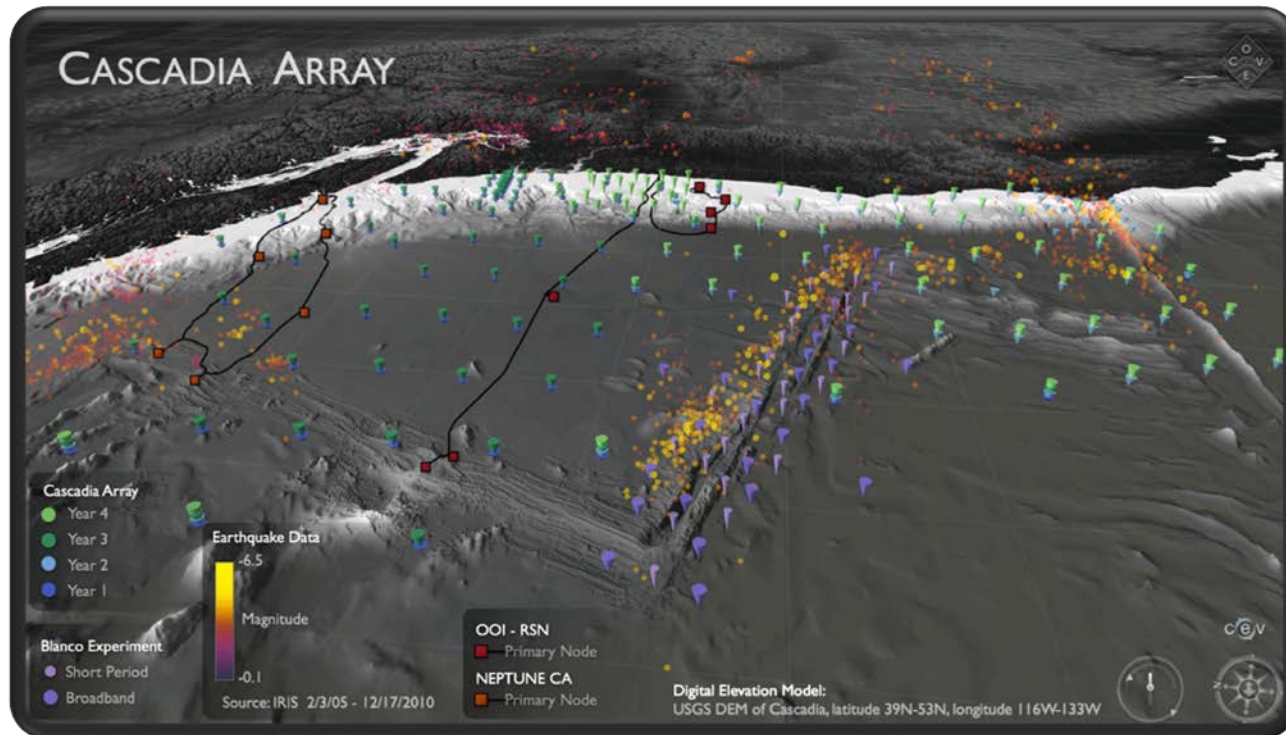


Status of the Ocean Bottom Seismology Component of the Cascadia Initiative



Douglas R. Toomey, Richard M. Allen, John A. Collins, Robert P. Dziak, Emilie E. Hooft, Dean Livelybrooks, Jeffrey J. McGuire, Susan Y. Schwartz, Maya Tolstoy, Anne M. Trehu, William S. Wilcock

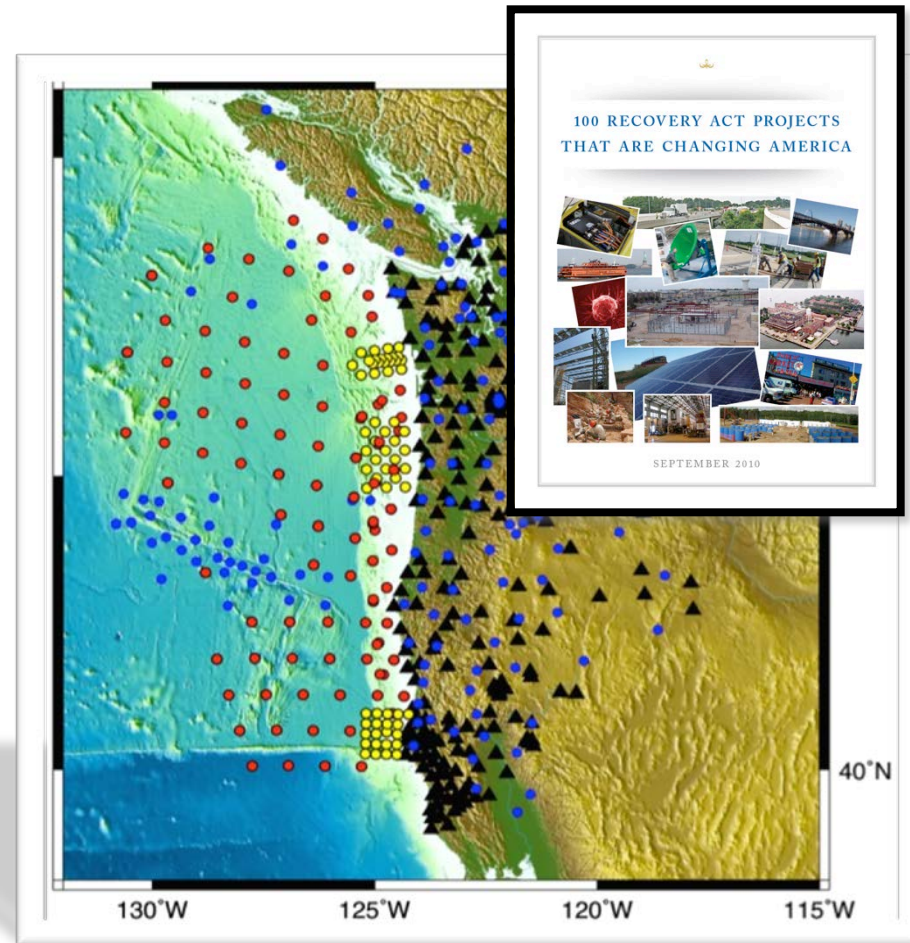


Supported by the National Science Foundation

Cascadia Initiative Facilities

Obtain high quality data *across* the shoreline that includes the plate boundaries. \$10M ARRA funds:

- GPS: 232 high rate sites
- Onshore seismic stations: 27 broadband and accelerometer sites
- Ocean bottom seismometers: 60 new ARRA OBS from OBSIP & 10 Keck OBS.



The Cascadia Initiative is a Community Experiment

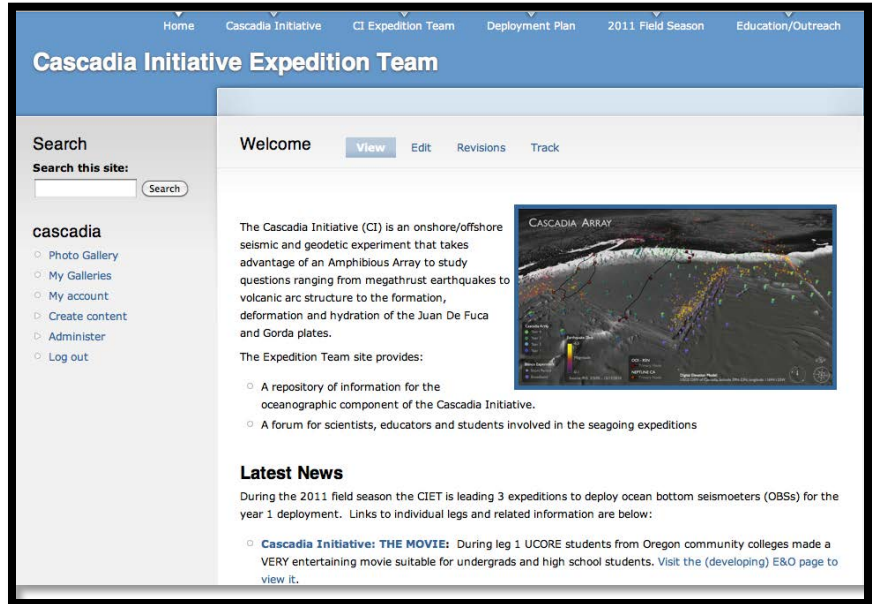
- Deployment plan developed by an NSF-funded community workshop (Portland, 2010)
- Data openly available to all via the IRIS DMC
- Amphibious Array Steering Committee (AASC)
 - Facility oversight
- Cascadia Initiative Expedition Team (CIET)
 - Implementation



Cascadia Initiative Expedition Team (CIET)

CIET

- Implementing the oceanographic component of the deployment plan developed at the Portland workshop
- Lead expeditions to deploy and recover CI OBSs
- Develop Education and Outreach modules
- Knowledgeable about the science and operational objectives
- Individuals with chief scientist experience and ones who have not yet been to sea
- representatives from both the EAR and OCE communities

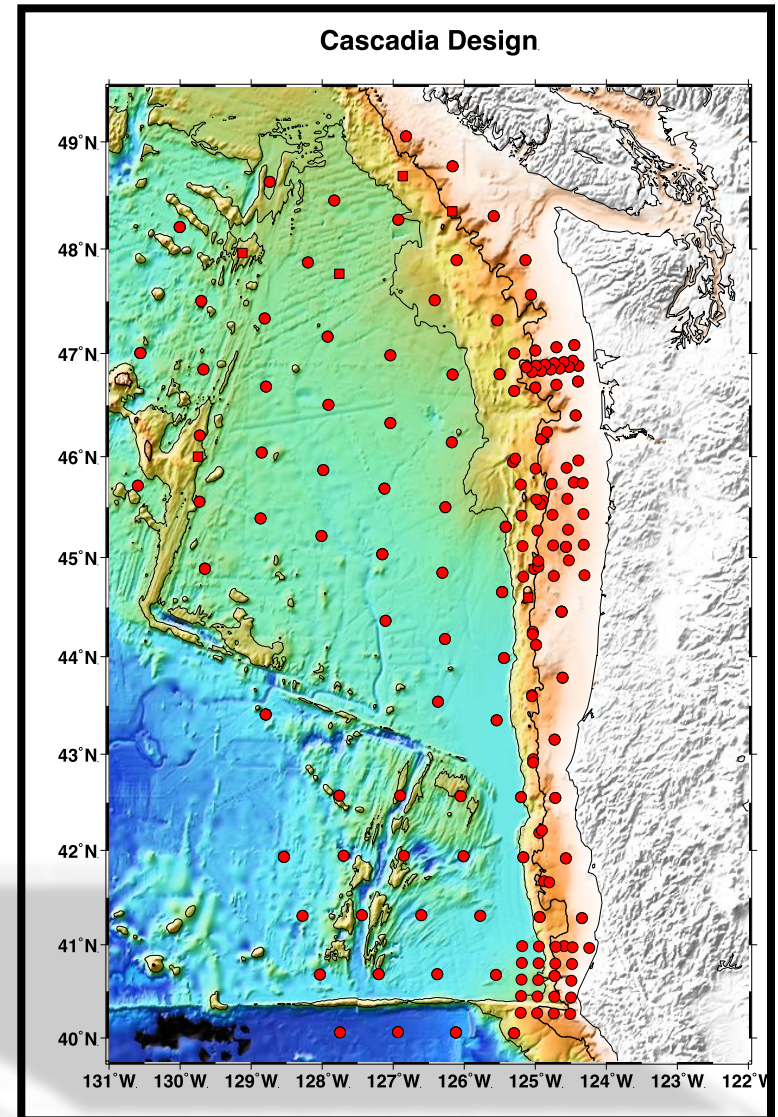


<http://cascadia.uoregon.edu>

Cascadia Initiative is planned as a 4 year experiment

Multi-scale array with several components

- Regional/Transportable array
 - Plate scale imaging
- Monitoring array
 - Nominal station spacing of 35 km along the thrust
- 3 focused experiments
 - Grays Harbor (2011/2013)
 - Mendocino Triple Junction (2012)
 - Central Oregon segment boundary (2014)



The CI leverages resources of other facilities and PI- and community-driven experiments

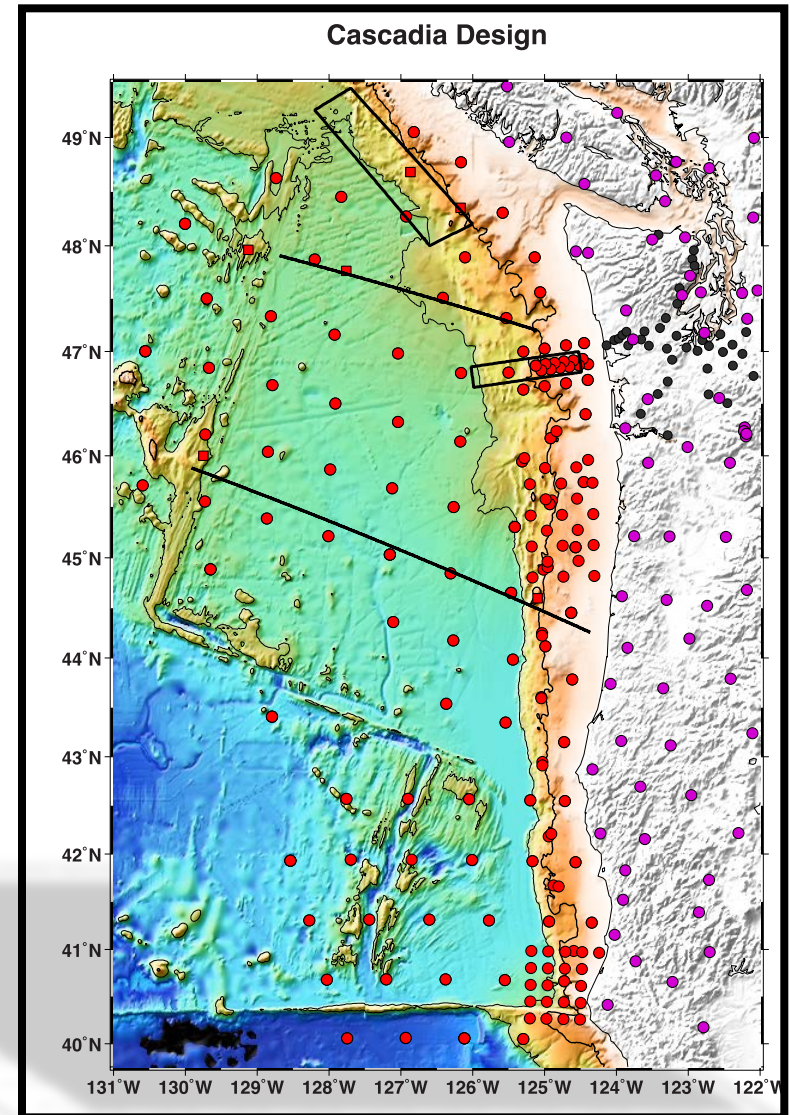
Synergies & high resolution studies

- NEPTUNE Canada & OOI
- 2 MCS and refraction studies
 - Carbotte/Canales
 - Holbrook and others
- CAFÉ experiment

Broadband and short-period studies:

- Accretionary prism: SeaJade
 - McGuire, Wang and others
- Blanco transform
 - Nabelek/Braunmiller
- Mendocino triple junction on land

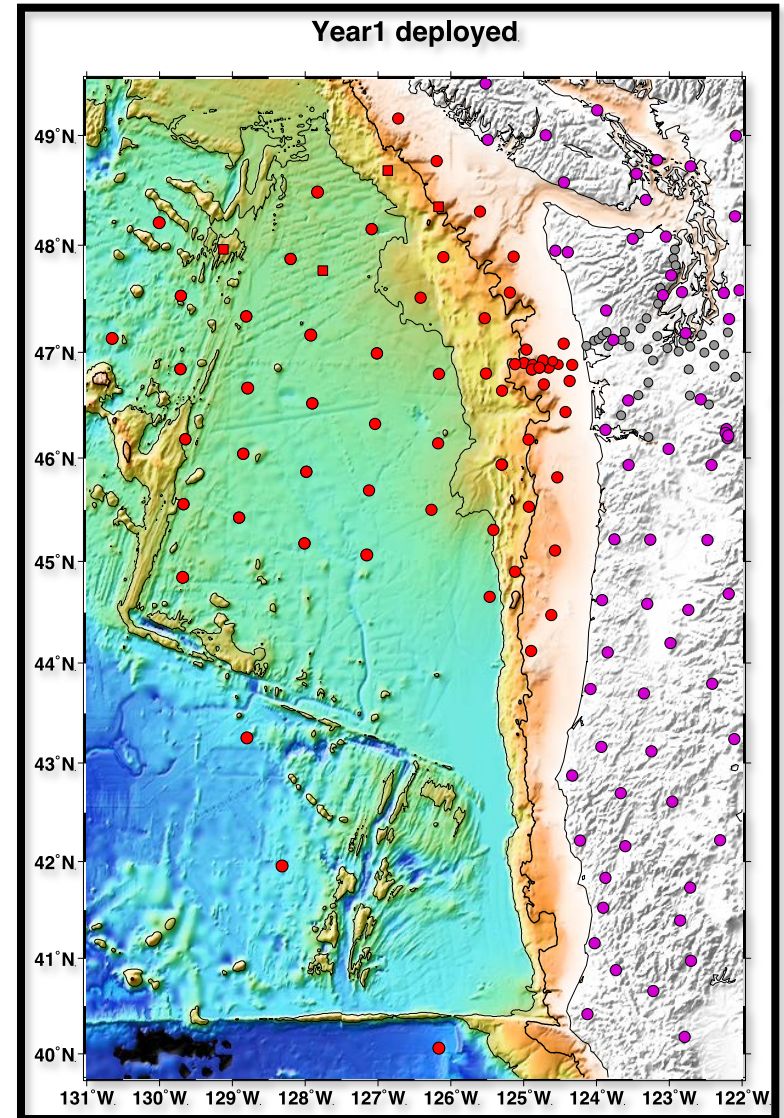
Over 400 OBS deployments (!)



2011 Field Operations

Deploy 70 OBSs, including

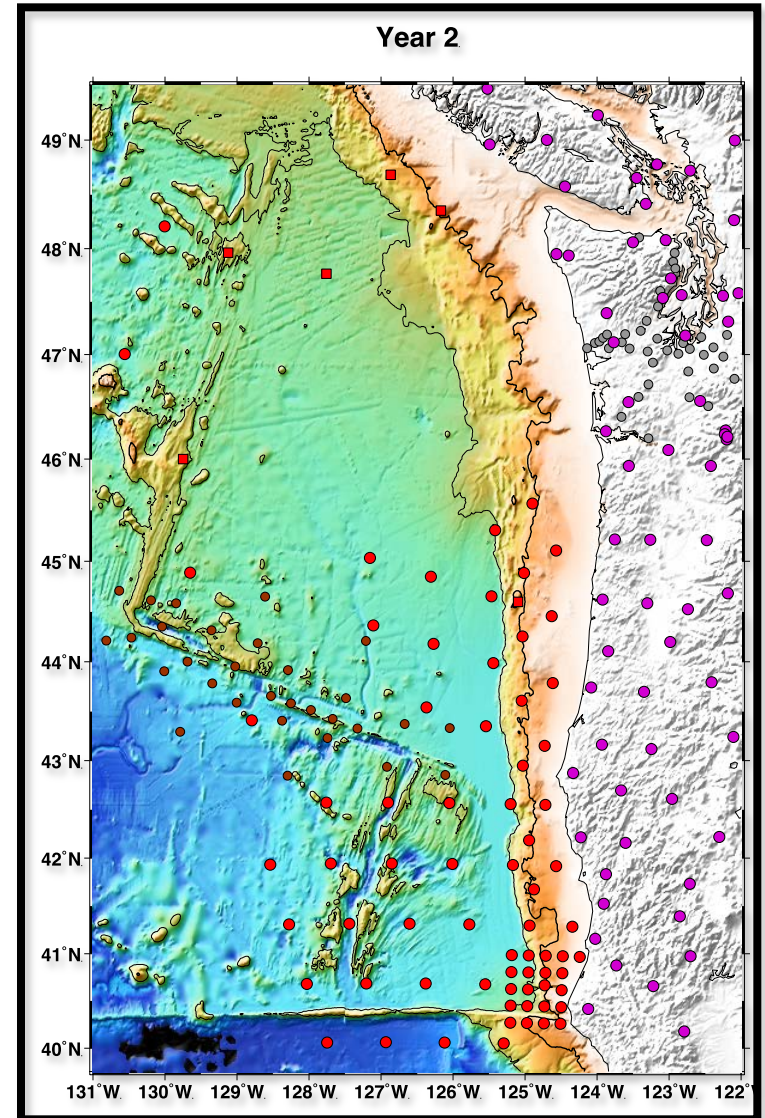
- Northern Focused Array at Grays Harbor
- Northern transportable array
- Reference array
- Chief Scientists
 - Leg 1: Tolstoy & Trehu
 - Leg 2: Dziak and Bohnenstiehl
 - Leg 3: Collins and Hooft



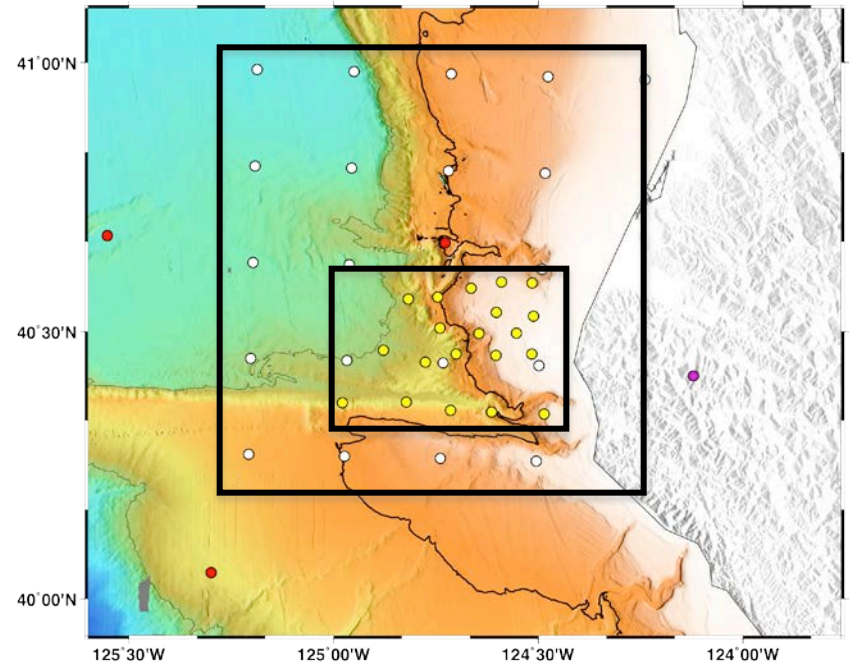
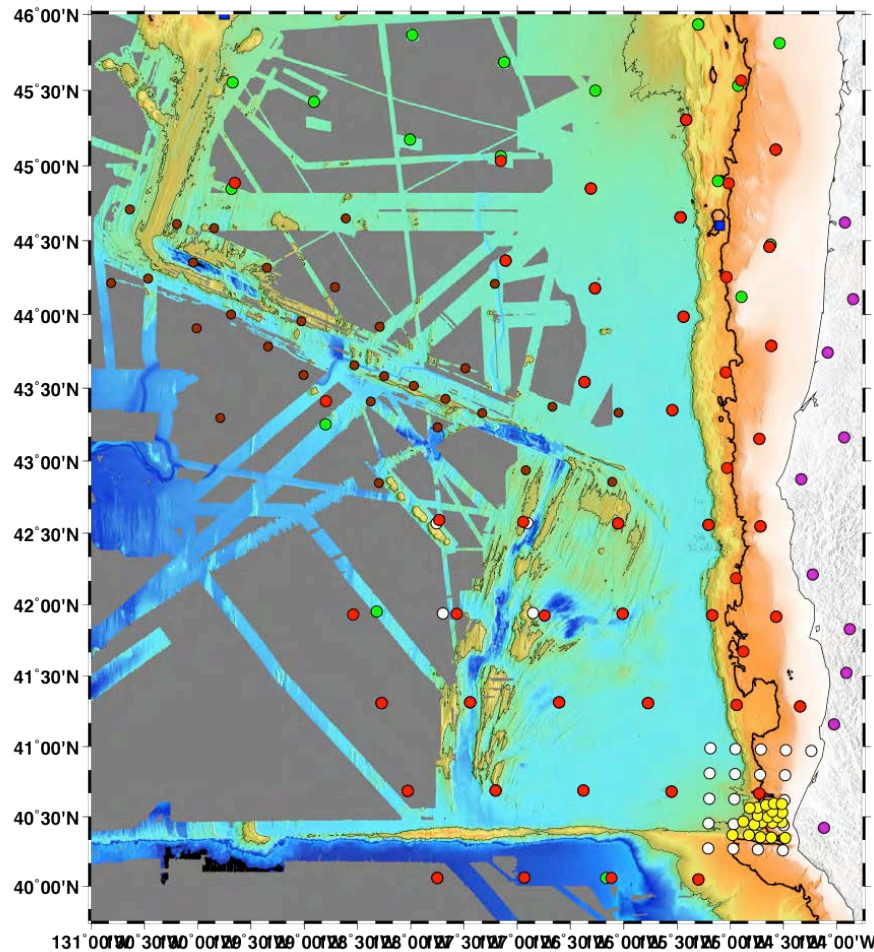
2012 Field Operations

Objectives:

- Recover instruments deployed in 2011
- Deploy 70 OBSs, including
 - Southern focused array at Cape Mendocino
 - Southern transportable array
 - Reference array
- Operations will include six cruises
- CI array will be complemented by a PI-driven experiment at the Blanco Transform (Nabelek)



Southern Focus Array Design Not Finalized



Community input is requested for the design of the southern FA

- 90 km aperture vs. 40 km aperture

Summary

Cascadia Initiative is an ambitious community experiment. How you can participate:

- Seagoing expeditions
 - berths for students, post-docs and other scientists to participate
 - gain valuable experience in planning and carrying out an OBS experiment
- Read and respond to NSF Dear Colleague letter
- Download and analyze the data!

