

# Appendix A

## Workshop Agenda

Draft

**Offshore Geophysical Monitoring of Cascadia for Early Warning and Hazards Research  
UW Center for Urban Horticulture, NHS Hall**

**Day 1 (Monday, April 3, 2017)**

8:30 Welcoming Remarks  
Workshop Objectives

Dean Lisa Graumlich,  
David Schmidt & William Wilcock

Opening Session- Motivation (Moderator - John Vidale)

8:45 Earthquake Early Warning Overview Paul Bodin  
9:00 Tsunami Monitoring and Modeling in Cascadia Randy LeVeque  
9:15 Goals and Priorities for Megathrust Science in Monitoring Offshore Cascadia Kelin Wang  
9:45 Group Discussion  
9:55 Research and Monitoring Needs for Tsunami Mitigation in Washington Tim Walsh  
10:25 Group Discussion

10:35 Break

Overview of Existing Offshore Observatories (Moderator - Emily Roland)

10:50 OOI Cabled Array Deb Kelley  
11:10 ONC NEPTUNE Cabled Observatory Martin Heesemann  
11:30 DONET Katsuyoshi Kawaguchi  
11:50 S-NET Masanao Shinohara (for Kenji Uehira)  
12:10 OBSCT Masanao Shinohara

12:30 Introduction to the afternoon breakout session David Schmidt

12:35 Lunch

13:35 Small Group Breakout 1

Science and Hazards Requirements for a System Offshore Cascadia:

- What are the goals and how should they be prioritized?
- Which goals require offshore measurements?
- What capabilities are needed - observations, coverage, data latency, robustness?

Groups organized by topic (Discussion Facilitators)

1. Earthquake Early Warning (Brendan Crowell, Richard Allen, Ian Stone)
2. Tsunami Early Warning (Diego Melgar, Diego Arcas, Donsub Rim)
3. Aseismic processes (Susan Schwartz, Ken Creager, Carolyn Nuyen)
4. Earthquake processes (Harold Tobin, Roy Hyndman, Erin Wirth)

2:55 Break

3:10 Lightning Talks - open to all participants (1 slide, 2 minutes per presenter)

4:25 Synthesis from Breakout 1 Breakout Facilitators

5:00 Adjourn

5:30 Burke Museum "Life and Times" Gallery open to meeting participants

6:30 Drinks followed by Buffet Dinner in the Burke Museum

## Day 2 (Tuesday, April 4, 2017)

8:30 Goals for Day 2 William Wilcock

### Engineering Approaches I (Moderator - Geoff Cram)

8:40 Design Options / Technical Considerations Mike Harrington, Chuck McGuire, & Dana Manalang  
Cable Technologies, Potential Layout Options, Challenges Non-Cabled Technologies

9:40 Discussion

9:50 Wave gliders for geodesy and seismology Dave Chadwell & John Orcutt

10:05 Questions

10:10 AUV's and optical modems for seismology John Collins

10:20 Questions

10:25 Break

### Engineering Approaches II (Moderator - Chuck McGuire)

10:45 An Update on NOAA's Deep Ocean Tsunami Observations and Future Needs Chris Meinig

10:55 Questions

11:00 Real-time Tsunami Prediction System using DONET Narumi Takahashi

11:10 Questions

11:15 Optical Fiber Sensors for Earthquake Early Warning Mark Zumberge

11:30 Questions

11:35 How Time-variable Contributions to Bottom Pressure can be Accurately Removed Randy Watts

11:45 Questions

11:55 Seafloor & Formation Pressure: Using IODP Boreholes for Subduction Zone Geodynamics Earl Davis

12:00 Questions

12:05 Real-time Borehole Observatories in Nankai-trough Eiichiro Araki

12:15 Questions

12:20 Shallow Continental Shelves: a "no fly zone" for seafloor geodesy, and a possible solution Tim Dixon

12:30 Questions

12:35 Instructions for Breakout 2 David Schmidt

12:45 Lunch

### 1:35 Small Group Breakout 2

Design Approaches and Technologies

Groups Organized by Primary Question:

1. What are the risks, pros and cons of the different engineering approaches? Is there a clear winner? (Pete Barletto, John Reardon, Erik Frederickson)
2. What combination of sensors and spacing are needed? What observations are required before a full-scale installation? (Laura Wallace, Katsuyoshi Kawaguchi, Emma Myers)
3. What emerging technologies/platforms are most promising? (Mark Zumberge, Chris Meinig, Trung Dung (Andrei) Nguyen)
4. Additional Breakout Room available if one group becomes too big

3:05 Break

3:20 Synthesis from Breakout 2 Breakout Facilitators  
3:45 Instructions for Breakout 3 William Wilcock

3:50 Small Group Breakout 3  
Drafting of Conceptual Designs (Maps and overlays provided)

Groups Organized by Topic:

1. Earthquake Early Warning (Jackie Caplan-Auerbach, Ronni Grapenthin, Robert Martin-Short)
2. Tsunami Warning (Tania Insua, Chris Vogl, Jessie Saunders)
3. Subduction Research I (Jessica Murray, Doug Toomey, Rose Wade)
4. Subduction Research 2 (Garry Rogers, Maya Tolstoy, Marie Salmi)
5. Participants can also divide into independent groups.

5:10 Reconfigure room for posters and drinks

5:30 Poster & Demonstration Session with drinks

7:30 Adjourn for dinner on your own

### Day 3 (Wednesday, April 5, 2017)

8:30 Goals for Day 3 David Schmidt  
8:35 Synthesis from Breakout 3 Breakout Facilitators

Emerging International Efforts and Related Programs (Moderator – John Delaney)

9:00 The Chilean Seismic Obs. Network and Earthquake Early Warning Sergio Barrientos  
9:15 Korean Plans Sang Mook Lee  
9:30 Plans and Future Potential for Offshore Monitoring in New Zealand Laura Wallace  
9:45 SMART Submarine Cables for Climate / Earthquake / Tsunami Monitoring Bruce Howe  
10:00 Subduction Zone Observatory Bob Detrick  
10:10 U.S. Geological Survey Plan to Advance Subduction Zone Science Joan Gomberg  
10:20 NAS Committee on Seismology and Geodynamics Maya Tolstoy

10:30 Break

10:45 Plenary Summary Discussion William Wilcock & David Schmidt

*What is the path forward?*  
*Is there a sensible phased approach?*  
*What is required before implementation?*  
*Who are the stakeholders?*  
*How do we build a coalition?*

12:00 Main meeting adjourns

Boxed lunches available for those who signed up