

# OBSIP Experiment Archive

<b>Year:</b>	2002
<b>Experiment Name:</b>	Hydrate Ridge, Oregon
<b>Principal Investigator(s):</b>	Ingo Pecher (UTIG)

**Experiment Summary:** (Taken from the NSF Abstract Award #[0002487](#)): Recommended project is for a series of seismic experiments to be conducted from boreholes during Ocean Drilling Program (ODP) Leg 198 to map occurrences of gas hydrate and free gas in sediments on Hydrate Ridge offshore Oregon. These experiments will geophysically extend observations from direct core description, direct core measurement, and borehole logging into the surrounding sediments, thereby provide 3-D coverage of inferred gas hydrate and free gas occurrence over a much larger sediment volume. The experiments include: 1) constant-offset vertical seismic profiling (VSP) with a fixed source receiver, coordinated with zero-offset VSP's, which will result in vertically continuous shear-wave velocity ( $V_s$ ) profiles;

*Continued Next Page*

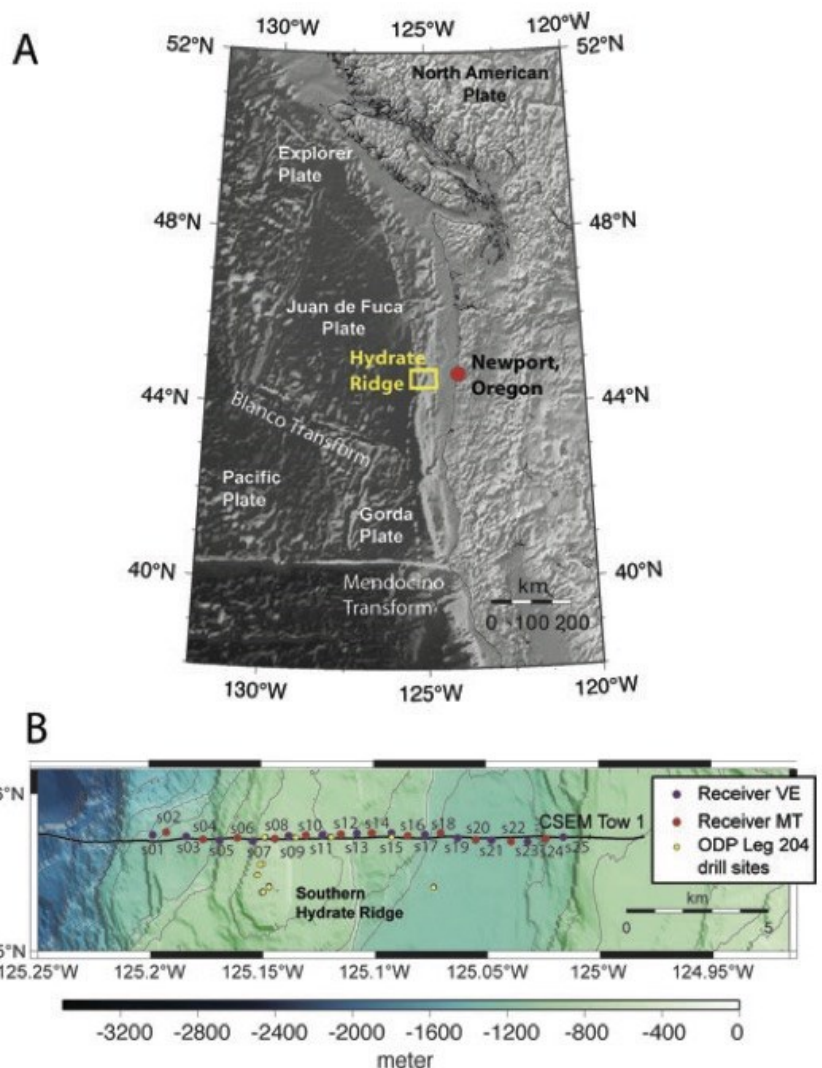


Figure from Weitemeyer et al., *GJI*, 2011: A) Hydrate Ridge is located on the accretionary complex where the Juan de Fuca Plate subducts beneath the North American Plate, approximately 80 km offshore from Newport, Oregon. (B) The electromagnetic survey at southern Hydrate Ridge consisted of 25 seafloor receivers of two configurations: a magnetotelluric (MT, even numbered sites) and a vertical electric (VE, odd numbered sites). Bathymetry data is ETOPO2v2c from the National Geophysical Data Center

# OBSIP Experiment Archive

...Continued

<b>Year:</b>	2002
<b>Experiment Name:</b>	Hydrate Ridge, Oregon
<b>Principal Investigator(s):</b>	Ingo Pecher (UTIG)

**Experiment Summary:** ...2) walkaway VSP's, acquired by shooting over the borehole with a second ship to a receiver at fixed depth within the borehole, thereby acquiring high-quality Vs and compressional wave (Vp) data to calibrate rock physics models of gas-hydrate bearing sediments; 3) deployment of ocean bottom seismometers in a dense array around one of the boreholes for dense 3-D seismic coverage to examine an area of inferred focused fluid flux and its relationship to a gas hydrate cap; and 4) using the ODP Advanced Piston Corer (APC) as a seismic source during piston deployment for a larger array of measurements using the OBS array. These geophysical results will be directly tied to drilling results to constrain relationships between fluid flux, free gas, and hydrate formation in a convergent margin setting.

## **Cruises:**

8/12/2002 - 9/6/2002:

4 WHOI short-period OBS were deployed and recovered in Deployment 1, 5 in Deployment 2, and 3 in Deployment 3 onboard the R/V Maurice Ewing [EW0208]. UTIG OBS were also deployed and recovered.

## **Data:**

Data from all OBSIP instruments deployed is archived under temporary network code [ZU](#) and assembled dataset ID# [03-003](#) at the IRIS DMC.

## **Downloads/Links:**

[Interactive Oceans Website](#)