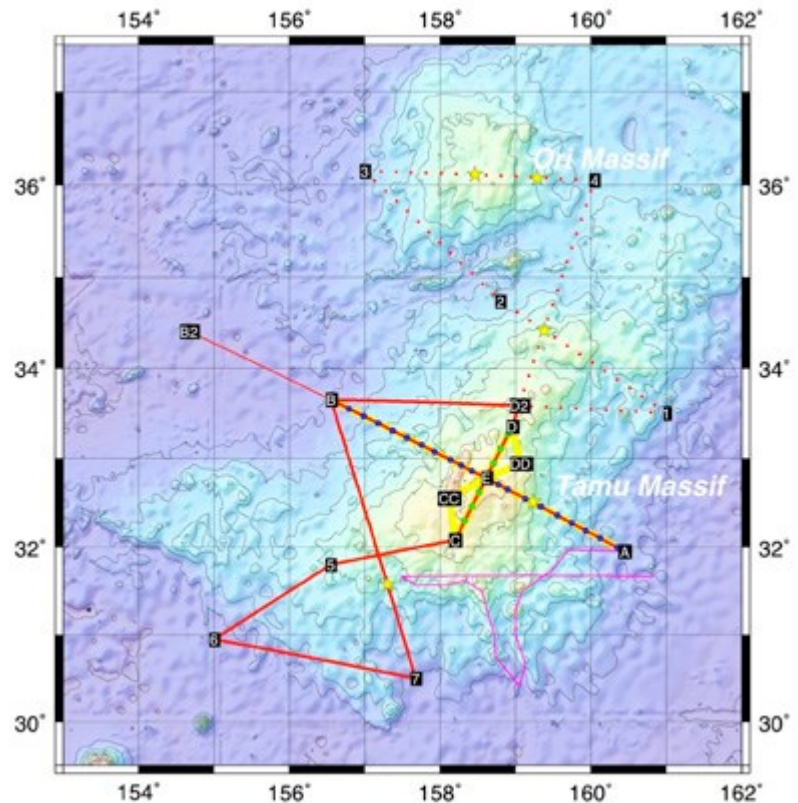


# OBSIP Experiment Archive

<b>Year:</b>	2010
<b>Experiment Name:</b>	Shatsky Rise Geophysical Constraints on Mechanisms of Ocean Plateau Formation from Shatsky Rise, Northwest Pacific
<b>Principal Investigator(s):</b>	Jun Korenaga (Yale) Will Sager (Texas A&M)

**Experiment Summary:** (Taken from NSF Abstract Award #[0927001](#)): Deciphering the origins of the giant large igneous provinces is a critical element for understanding mantle dynamics and its relation to terrestrial magmatism. Among a dozen or so large oceanic plateaus in the oceans Shatsky Rise is an important target because of its unique tectonic setting. It is the only giant plateau formed at a time of frequent magnetic reversal anomalies that show its relationship to coeval spreading ridges. IODP Expedition 324 is currently also scheduled to sample the sediments and upper igneous layers at five sites on Shatsky Rise in late 2009, which could provide important ground-truthing. The PIs propose a collaborative geophysical project with two foci: (1) constraining the crustal structure by an OBS reflection and refraction experiment, and (2) delineating the tectonic history by MCS profiling and reanalysis of bathymetry and magnetic data. A new model of crustal seismic structure will constrain the nature of mantle melting on the basis of correlation between thickness and velocity. The detailed upper crustal structure revealed by MCS will help to reconstruct the tectonic history of Shatsky Rise, which appears to be a huge volcano formed at a triple junction and then split apart by seafloor spreading. The PIs will synthesize the results of these geophysical studies to build a comprehensive tectonic framework, including better estimations of eruption rate, its temporal variation, its relation to ridge kinematics, and the coeval evolution of the parental mantle.



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# OBSIP Experiment Archive

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## Cruises:

7/15/2010—9/14/2010:

28 WHOI short period ocean bottom seismographs were deployed and recovered on board the R/V Marcus Langseth.

## Data:

Data from all instruments deployed are archived under temporary network code [ZL](#) at the IRIS DMC.

## Downloads/Links:

[Shatsky Rise Website](#)

[Cruise Blog](#)

[EPSL Publication](#)

[JGR Publication](#)

[Nature Geosciences Publication](#)

[Cruise Report](#)