

Solid Earth Physics Seminar, Harvard University

**Thursday 15 September 2016, 1:00 pm
Faculty Lounge, 4th Floor, Hoffman Lab, 20 Oxford Street**

***Probing Sources and Structure with
Multi-Station and Multi-Array Techniques***

**Brian Kennett
Research School of Earth Sciences
Australian National University**

Abstract:

The idea of a global “Array of seismic Arrays” has been suggested as a way of improving resolution of structure at depth in the Earth. Yet, how can multiple arrays be used together effectively?

Much can be learnt from the study of seismic sources and I demonstrate how the azimuthal control provided by stations across the globe can provide resolution of source behaviour in 3-D as for the 2013 very deep Sea of Okhotsk event. Good results can be achieved even where the densest arrays cannot be brought to bear, such as for the ‘forgotten’ Mw 8.1 event near Macquarie Island on 2004 December 24.

When multiple arrays with medium aperture are used simultaneously, time controls prove to be more significant than slowness constraints. The critical issue in all cases is to work back from the source zone to the stations or arrays rather than looking outwards as in conventional slowness based analysis.