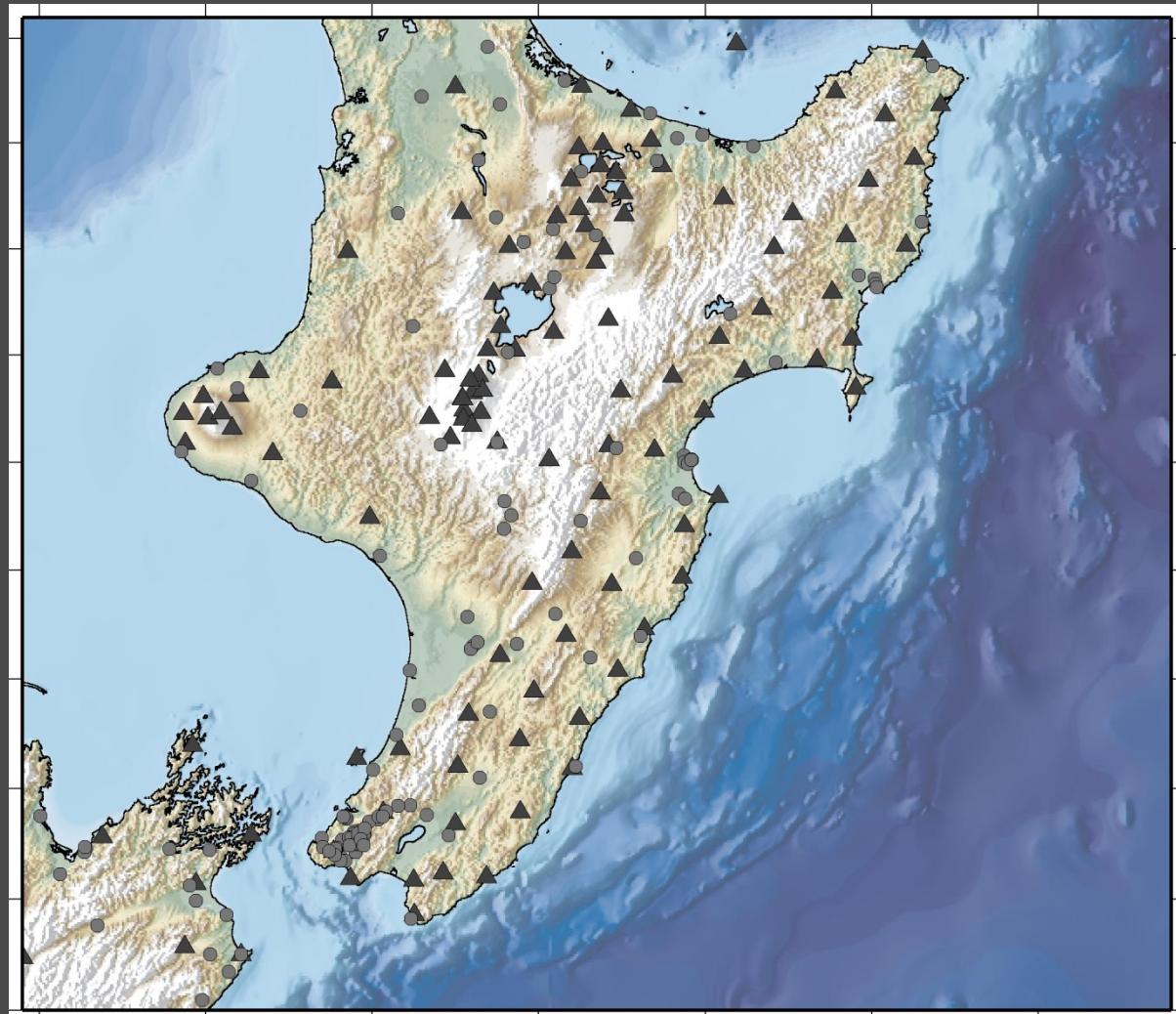


# New Zealand national seismometer network – Hikurangi margin

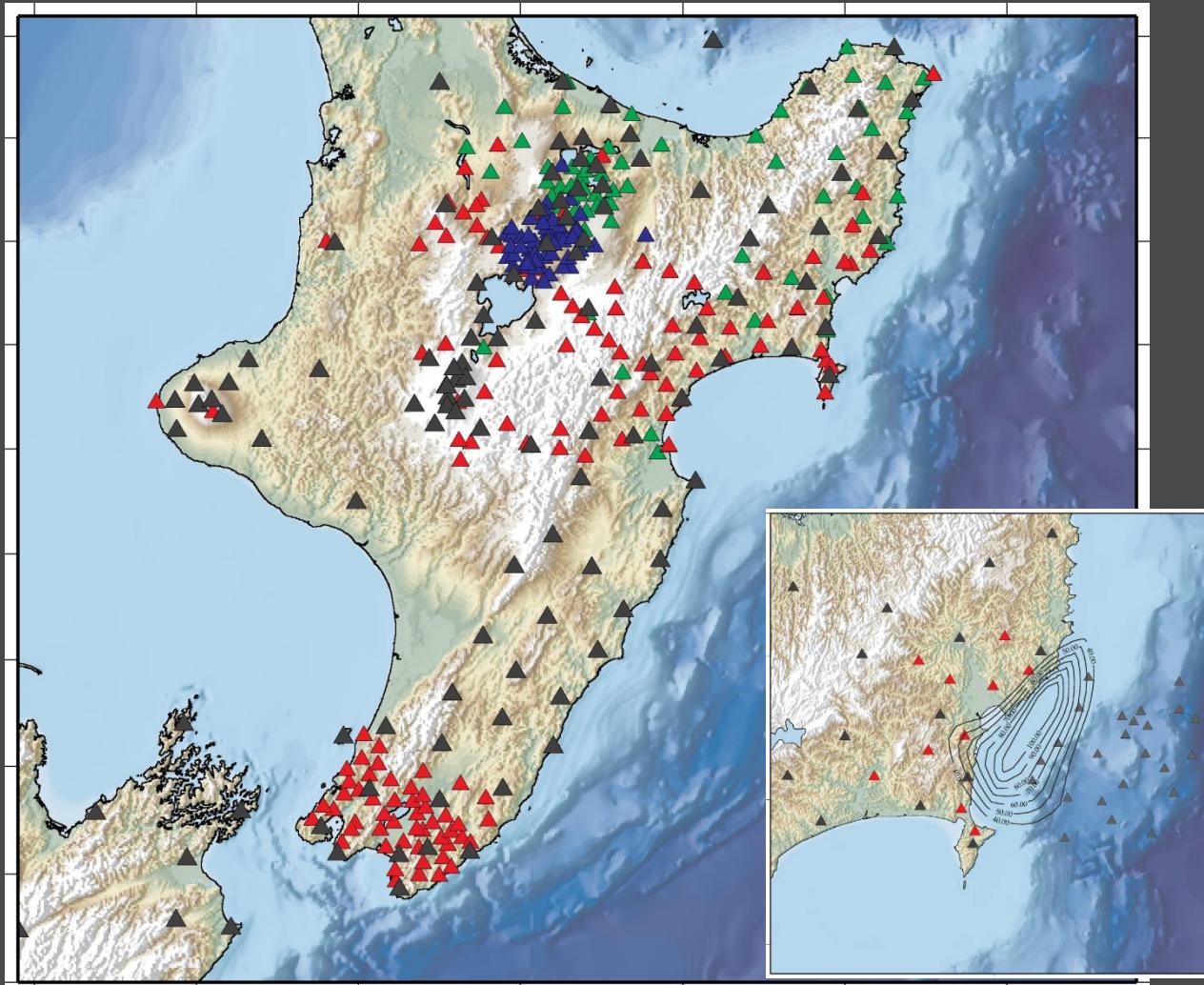


Geonet

Grey=strong motion

Passive Seismic Studies  
Donna Eberhart-Phillips &  
Stephen Bannister

# Supplemented by campaign seismic array work in 1995, 2000-2001, 2009-2011, 2011-2014



**NZ-wide velocity field :**  
Eberhart-Phillips et al,  
SRL 81,6 (2010)

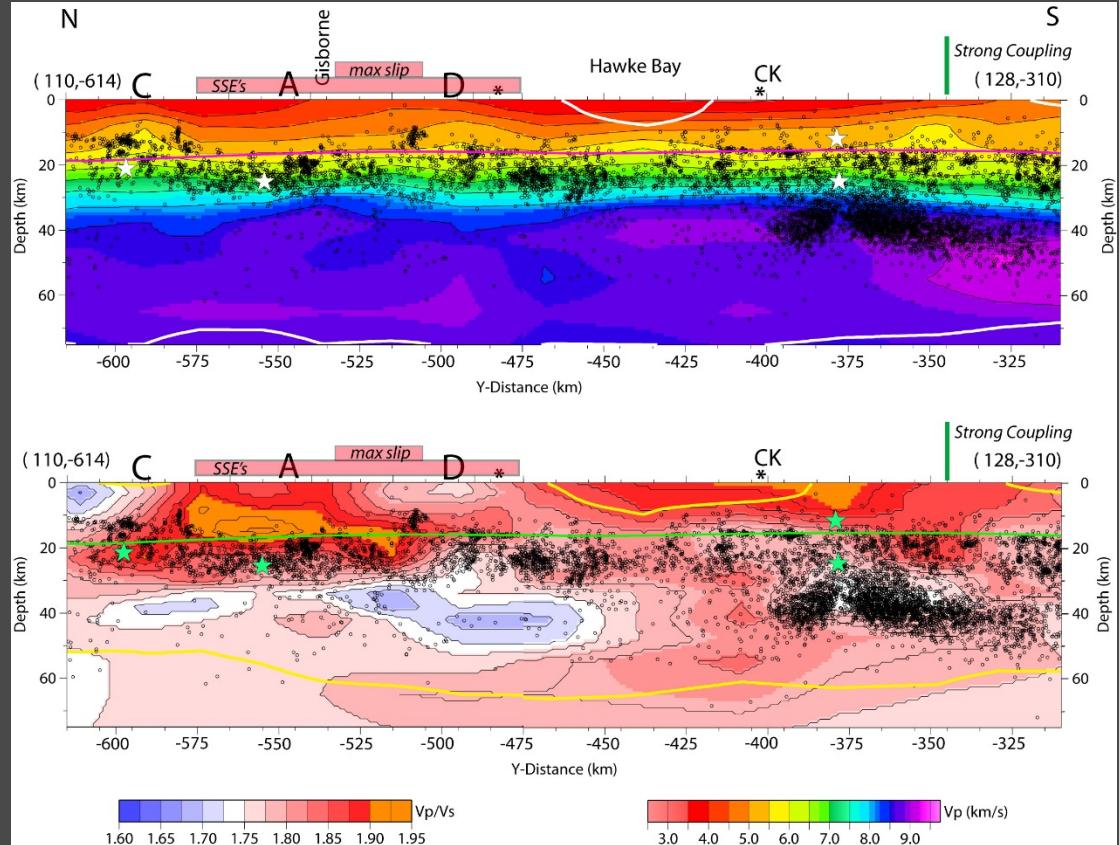
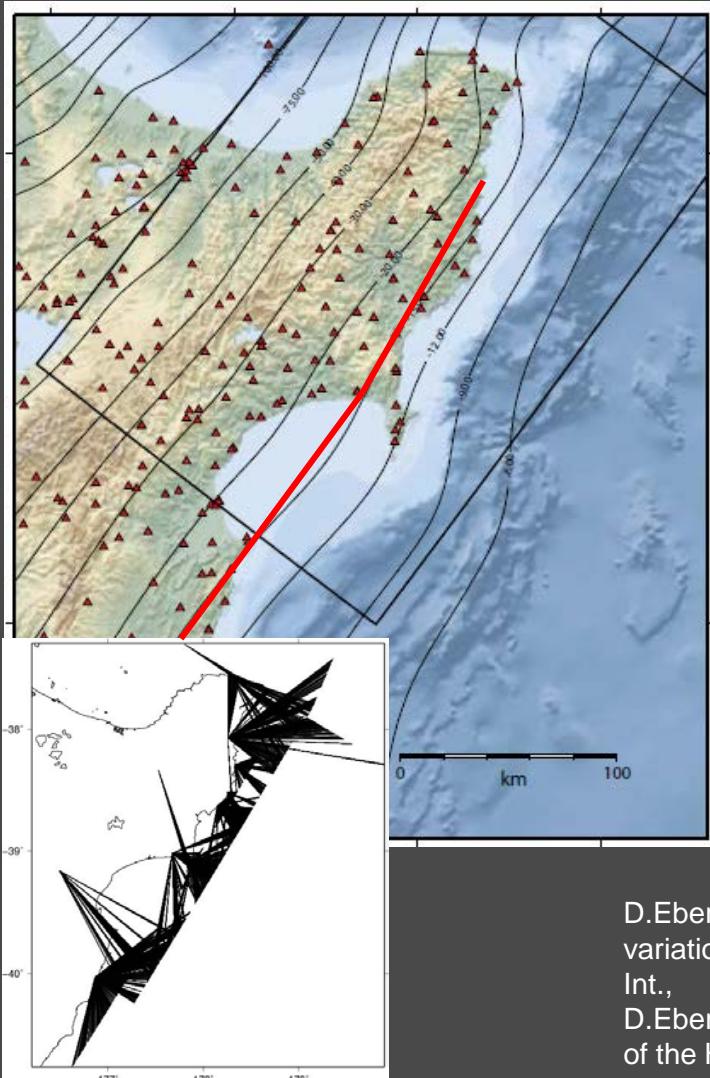
**NZ-wide Q :** poster  
AGU S43B-4547  
(on wall here)

**Megathrust interface, 12-  
15 km depth above SSEs**

- Onshore 2011-2014  
targeted broadband  
seismometer array

(Offshore: HOBITTS current  
OBS)

# Subduction zone structure – seismology recent progress

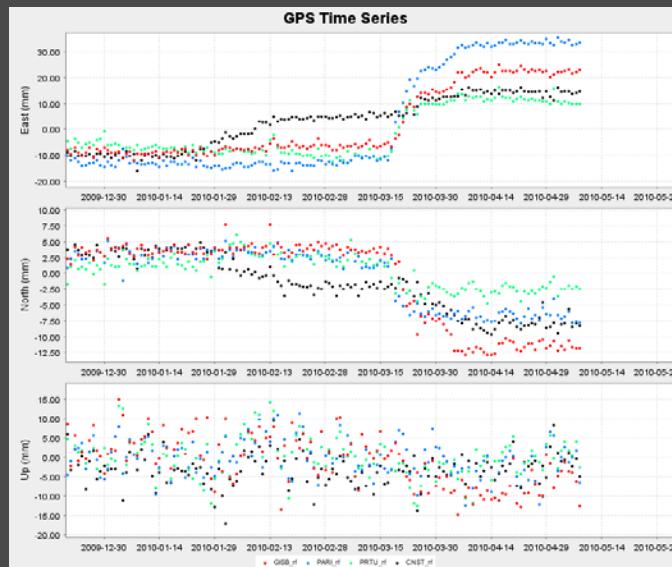


D.Eberhart-Phillips, S.Bannister. 3-D Imaging of the northern Hikurangi subduction zone: variations in subducted sediment, slab fluids and slow slip, submitted to Geophysical Journal Int.,

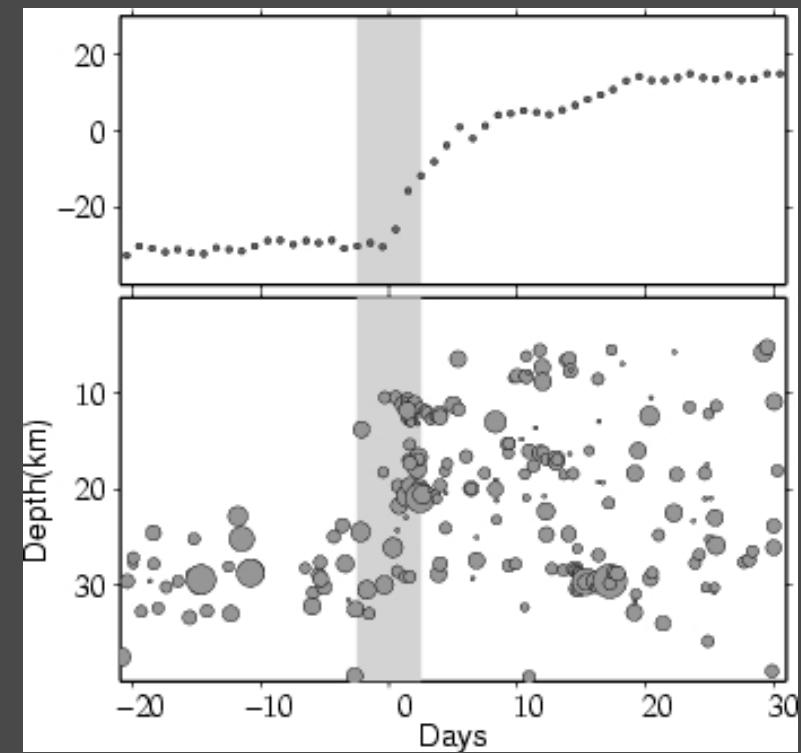
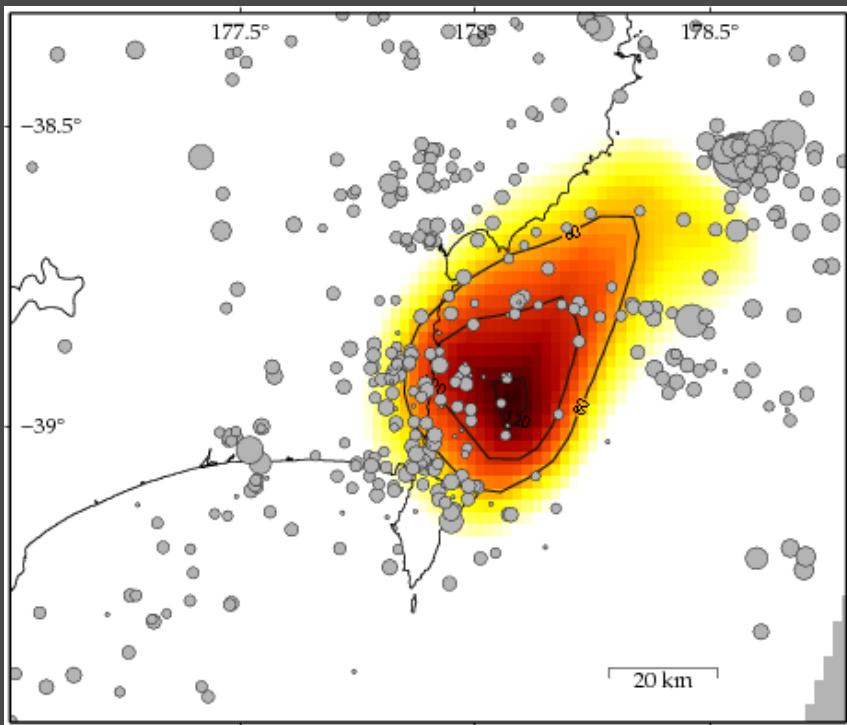
D.Eberhart-Phillips, S.Bannister, S.Ellis. Imaging P and S attenuation in the termination region of the Hikurangi subduction zone, New Zealand, Geophysical J. Int., May 2014.

# March 2010 SSE : synchronous seismicity ( M<sub>L</sub>1 to M<sub>L</sub>4 )

Very similar to Boso seismicity in  
2007-08 (Hirose et al, GRL 2014)



cGPS time series



# Overview

- Both upper and lower plate heterogeneity influence Plate Interface behaviour (seismic, aseismic, slow slip events)
- Synchronous seismicity during SSEs occurs close to (or on) the megathrust interface
- Diverse seismicity behaviour and properties ( $V_p$ ,  $V_p/V_s$ ,  $Q_p$ ,  $Q_s$ ) associated with SSEs