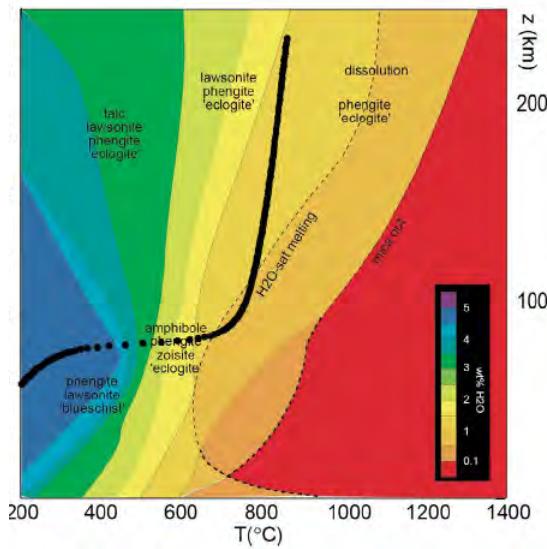


Using the drillship to determine subduction zone inputs

Terry Plank, LDEO, Columbia Univ.

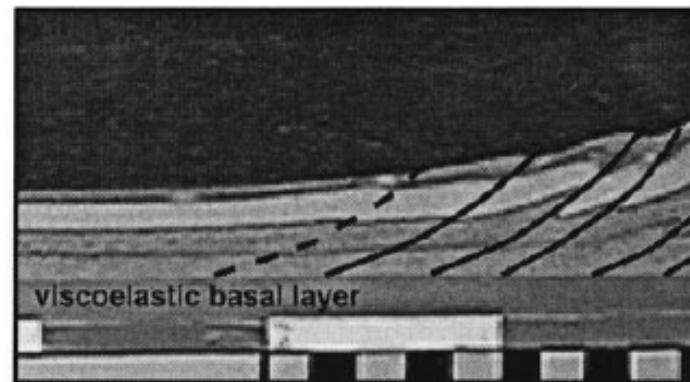
Global Subducting Sediment (GLOSS) Plank and Langmuir (1998) Chem. Geol.

Plank (2013) Treatise on Geochemistry



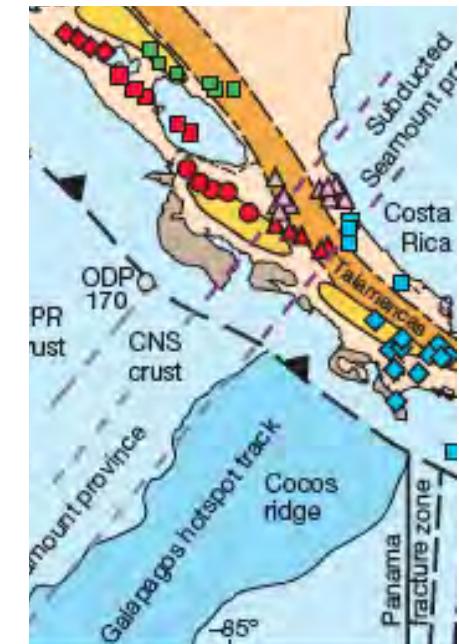
Phase diagram to predict H₂O loss during subduction

After van Keken et al. (2011) JGR



Rheology, fore-arc structure and fault slip

After Gutscher et al. (2001) Geology

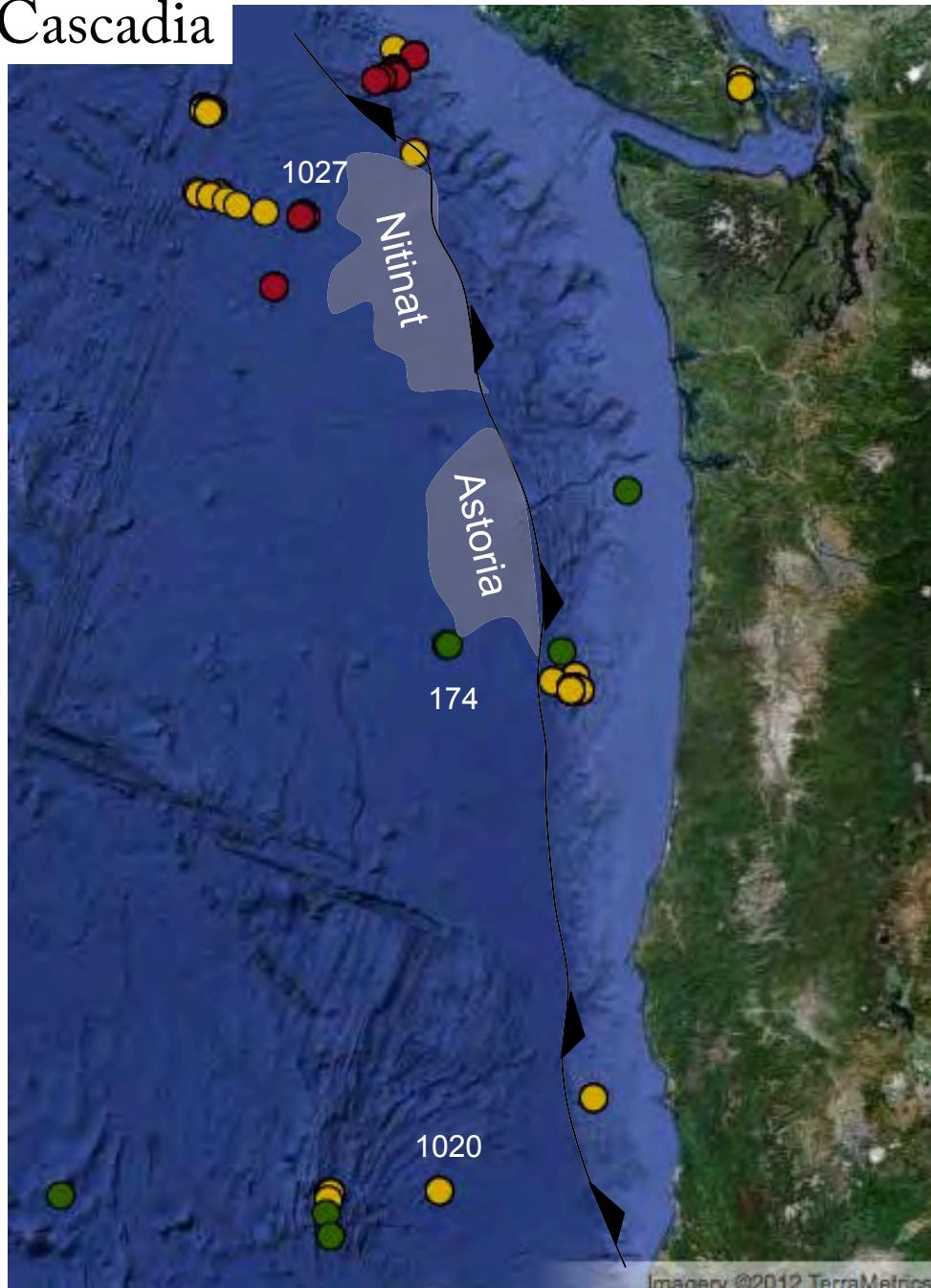


Tracer for the dynamics of mantle wedge flow

After Hoernle et al. (2008) Nature

What about subducting oceanic crust and mantle serpentinite?

Cascadia



Marion Carpentier
ODP 888, 1027
Nitinat Fan
Juvenile terranes
Carpentier et al. (2013) Chem. Geol.
**(300-400 m bsmt, JdF hydro
IODP 301 & 327)**

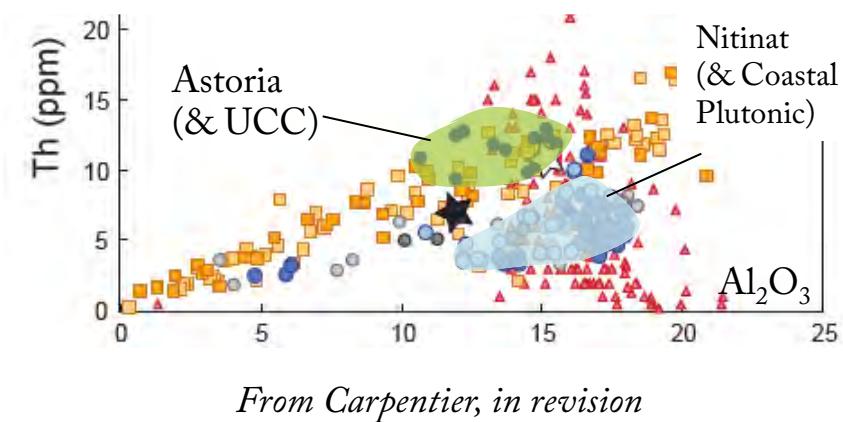
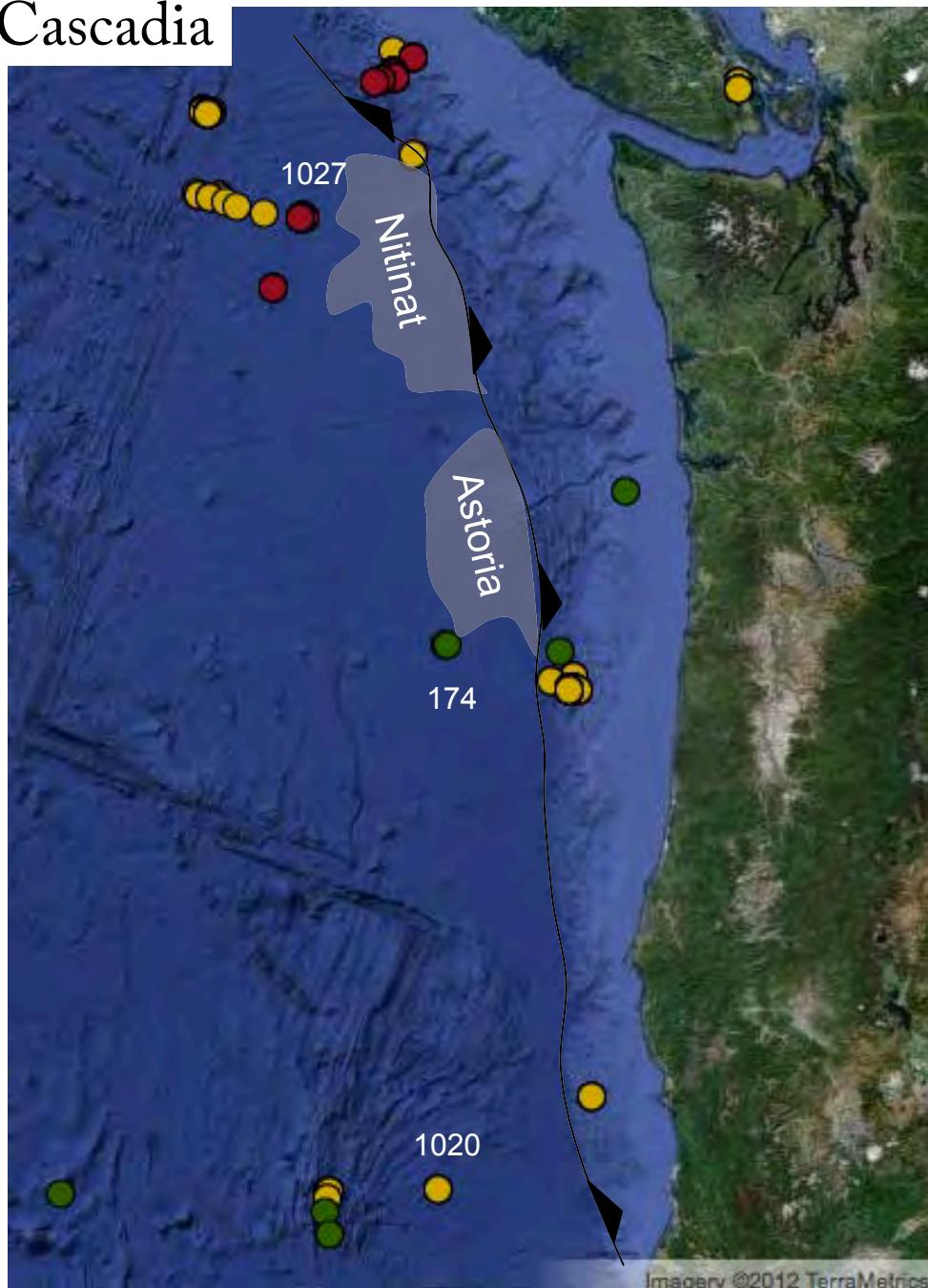


Julie Prytulak
DSDP 174
Astoria Fan
Proterozoic glacial outburst
Prytulak et al. (2006) Chem. Geol.
(no basement)



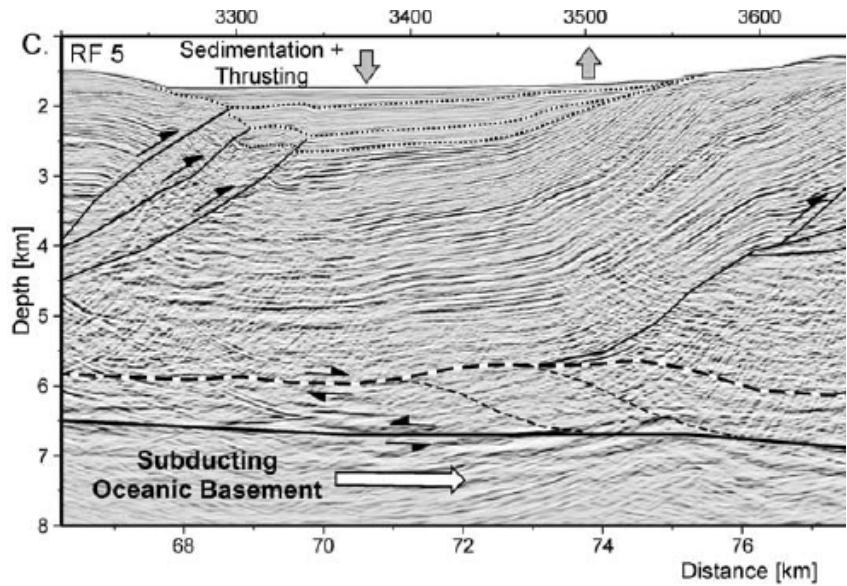
Emily Johnson
ODP 1020
Gorda pelagic sediments
(tagged basement)

Cascadia



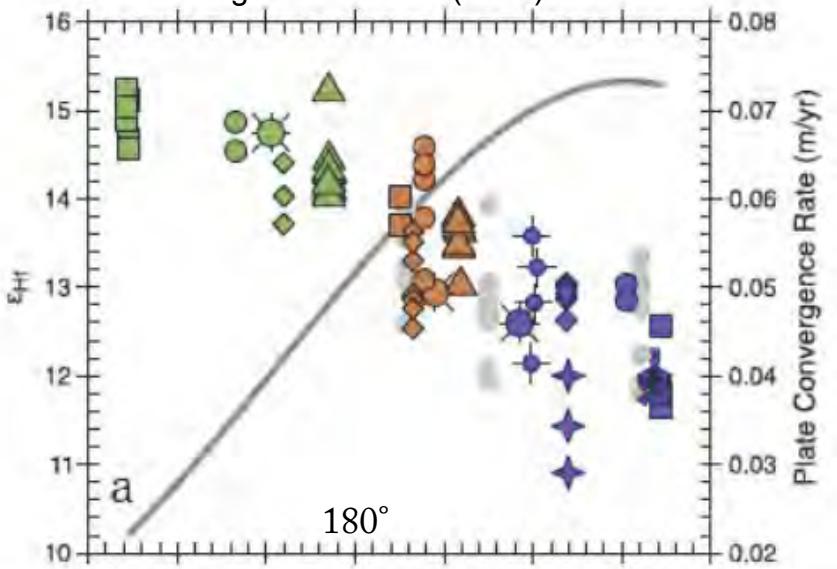
From Carpentier, in revision

Strong geochemical gradient in sediment along strike?

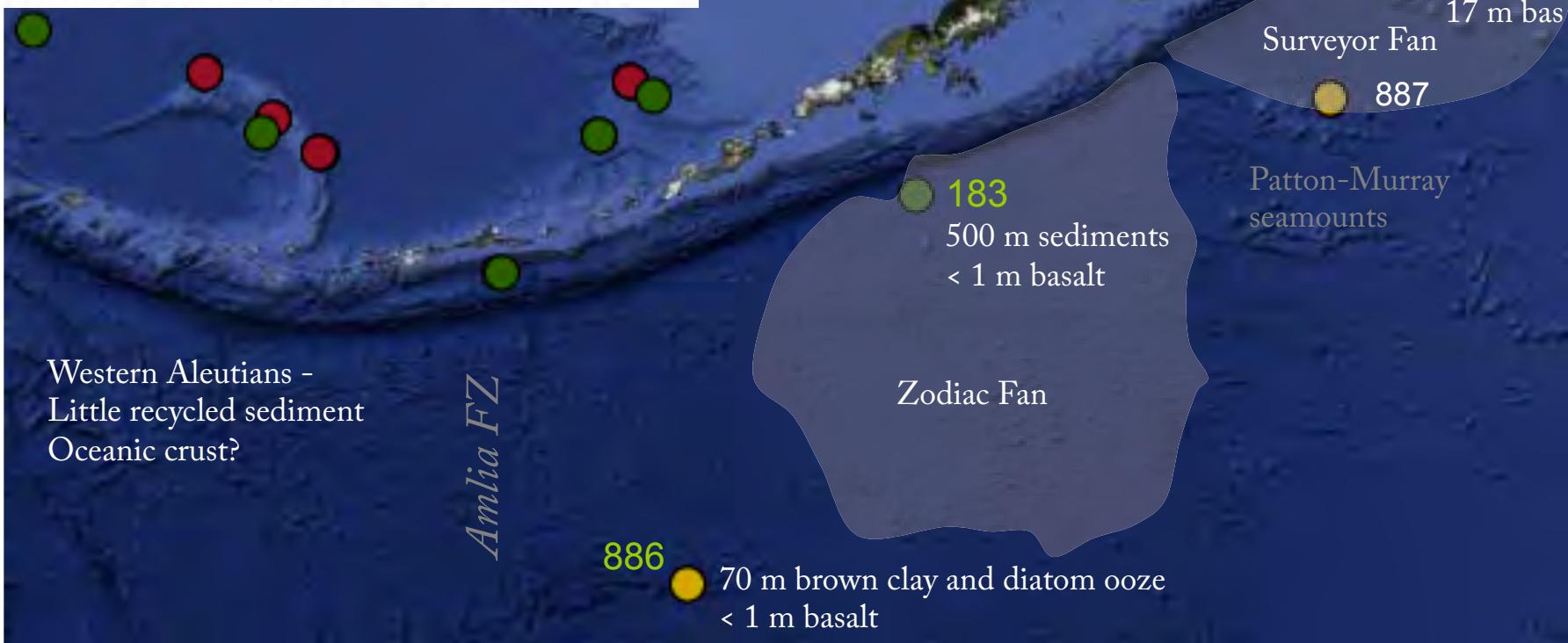


How much sediment subducts?
What was the margin like 3 m.y. ago?

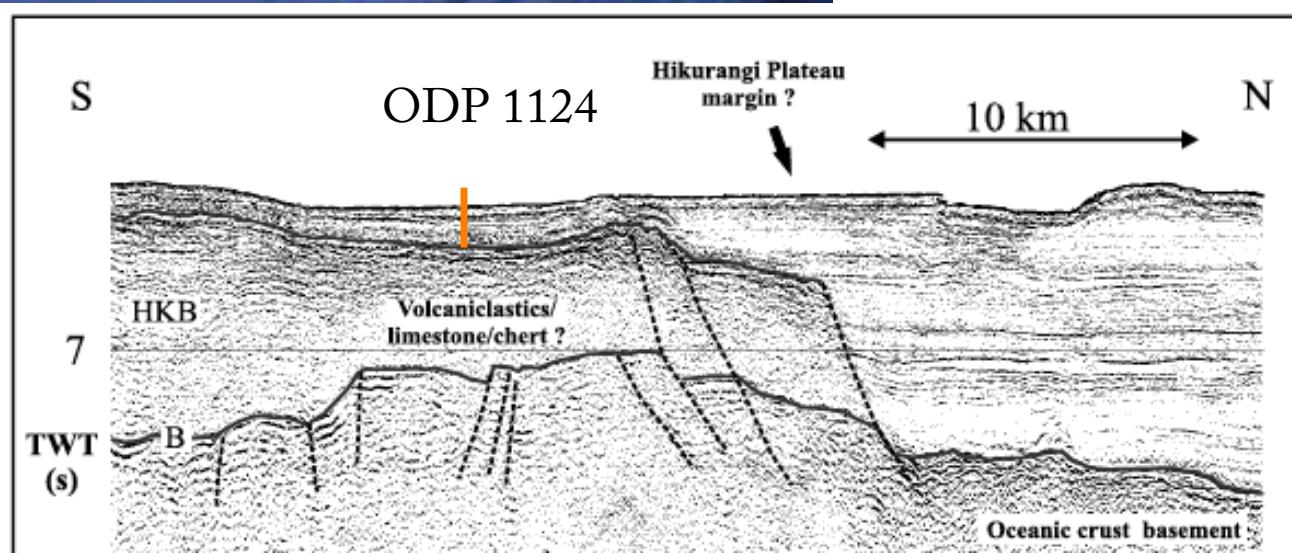
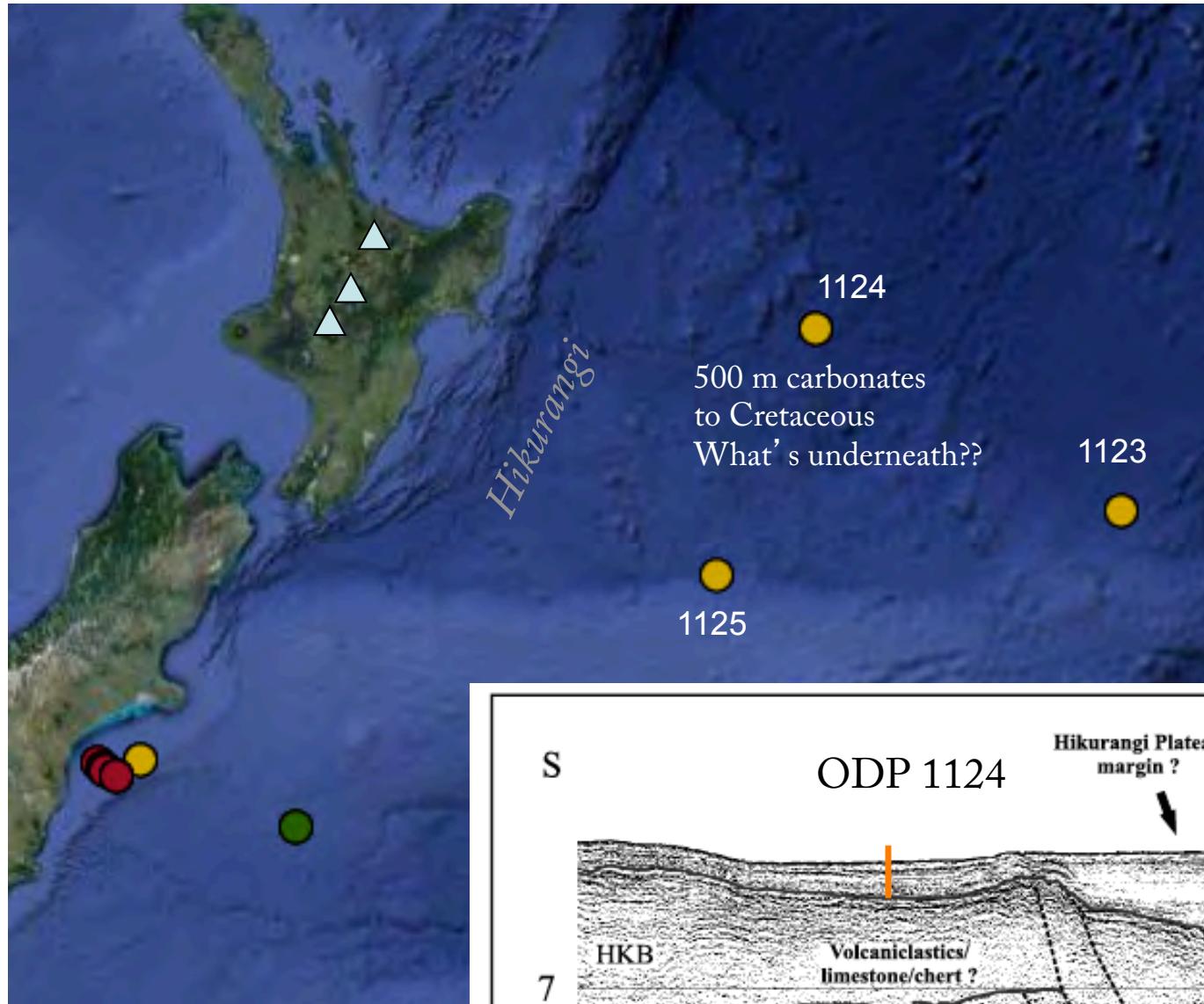
Yogodzinski et al. (2010)



Aleutians



New Zealand



from Davy et al. (2008) G3