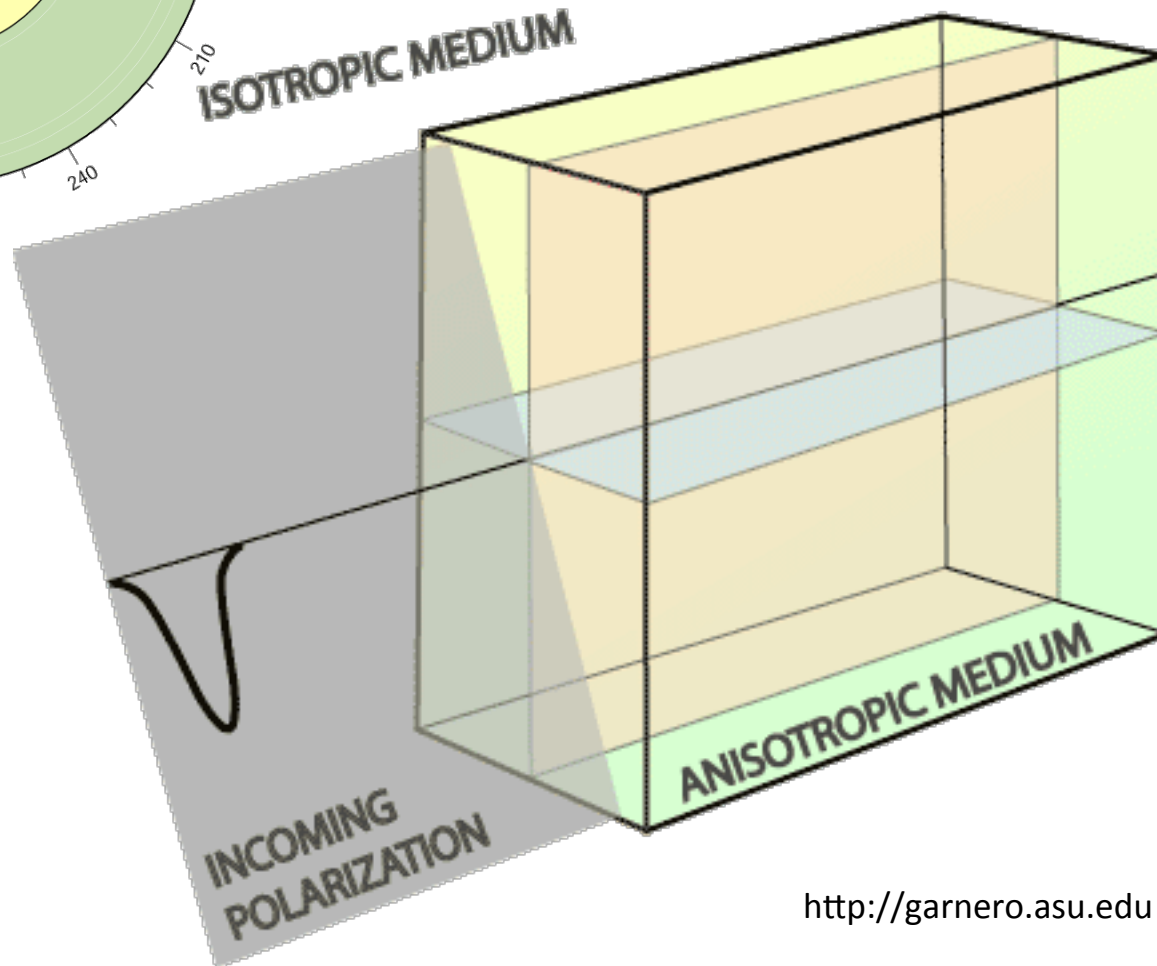
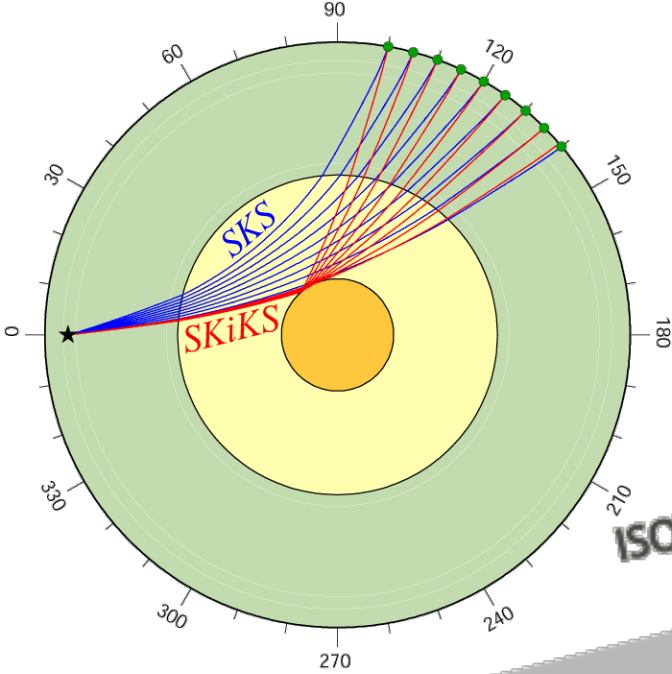


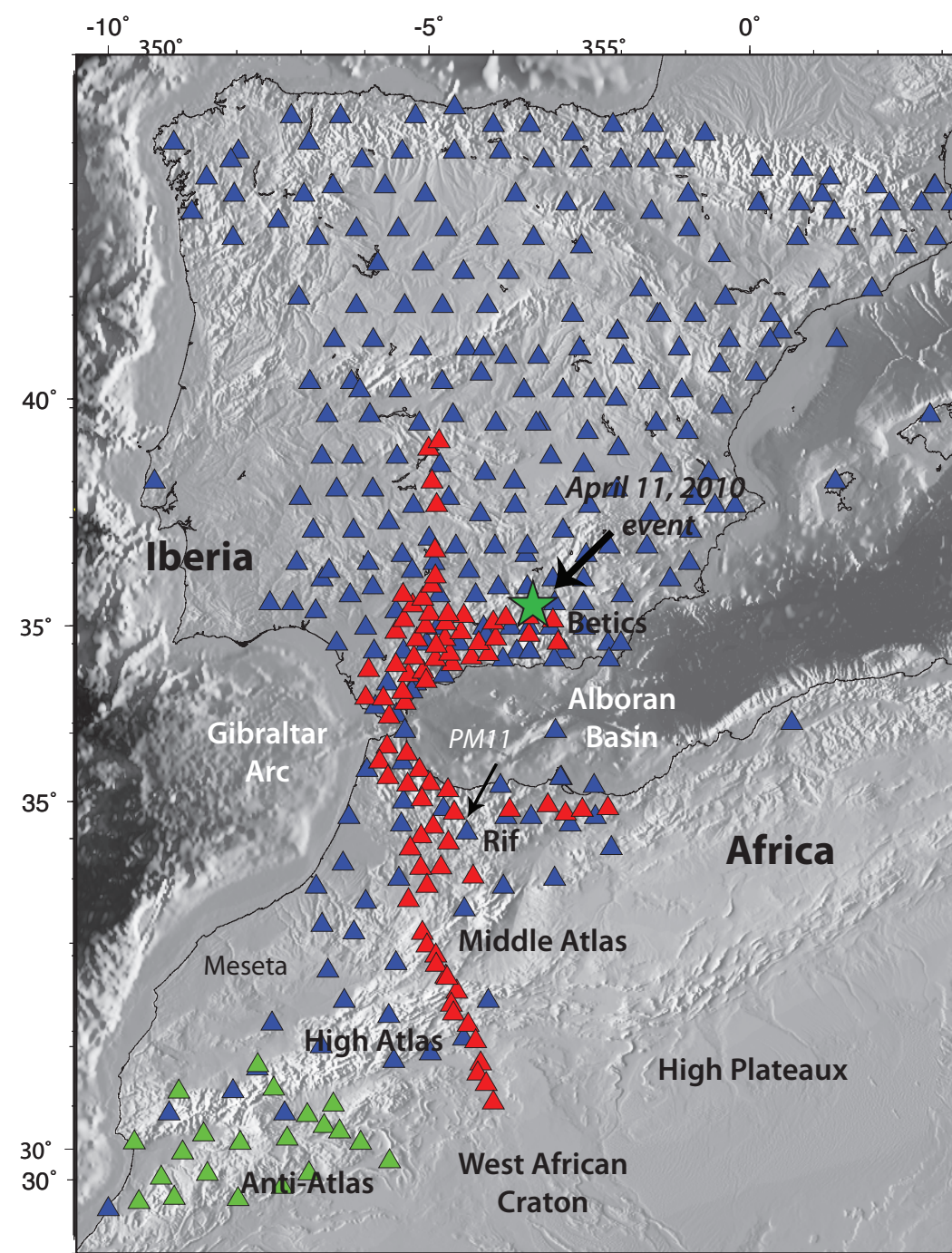
# Shear wave splitting in SplitLab

-plus other broadband imaging techniques

Meghan S. Miller

# Shear wave splitting





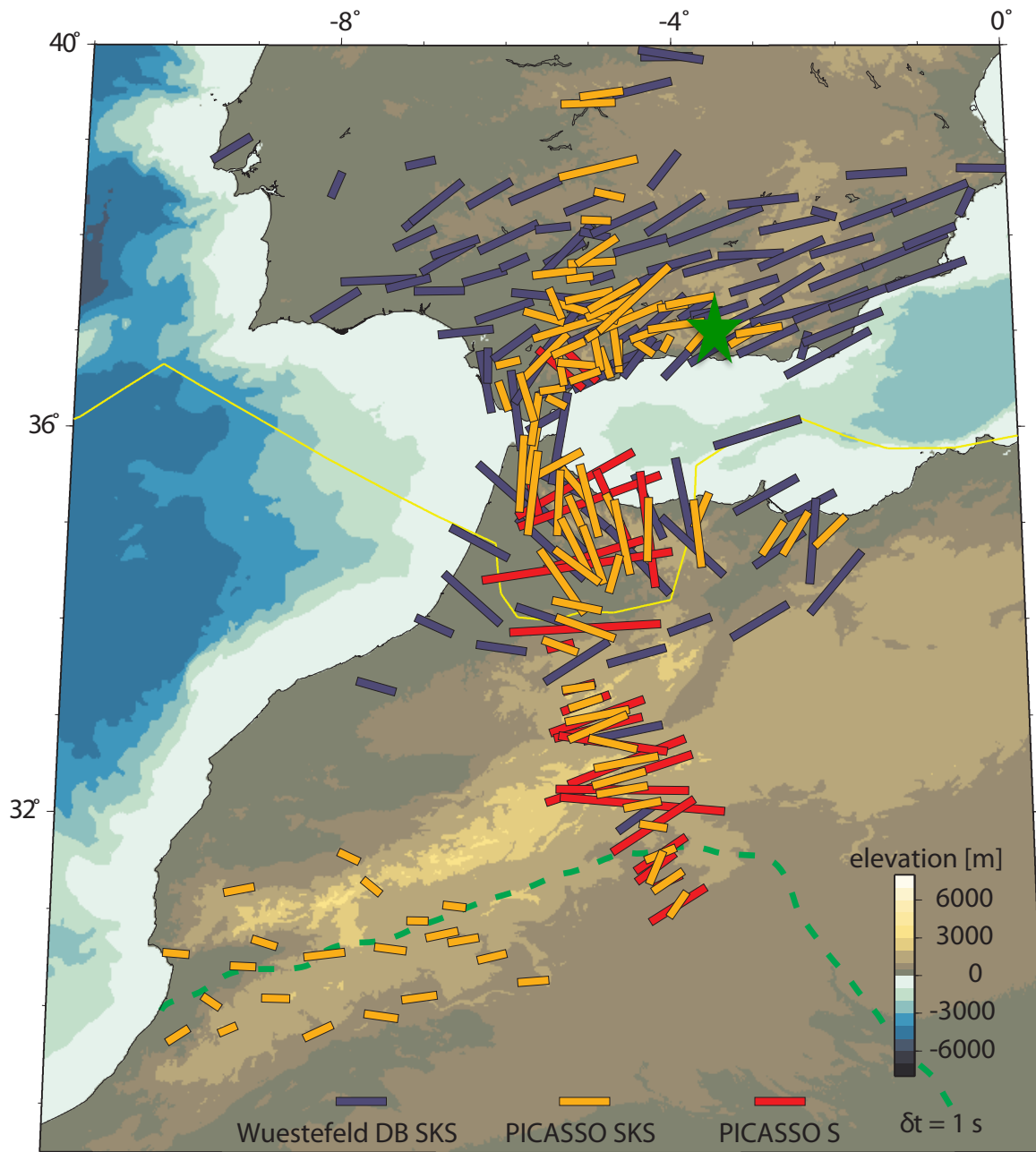
## PICASSO experiment

80 broadband instruments

additional 21 broadbands from  
Münster and Bristol

mantle and lithospheric  
structure at the westernmost  
extent of the Alpine-Himalayas  
orogen

understand the Alboran Sea,  
Betic-Rif and the Atlas  
formation

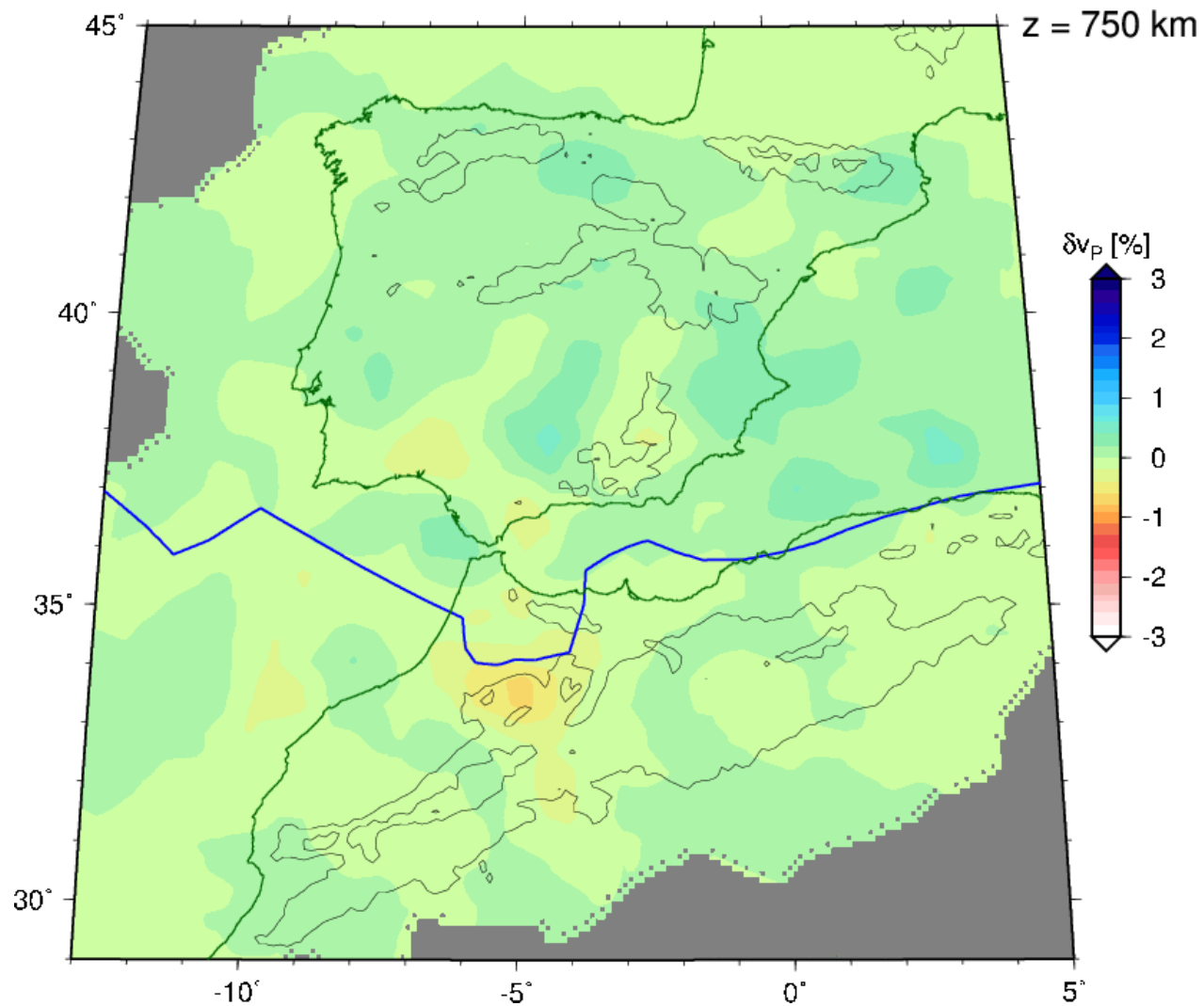


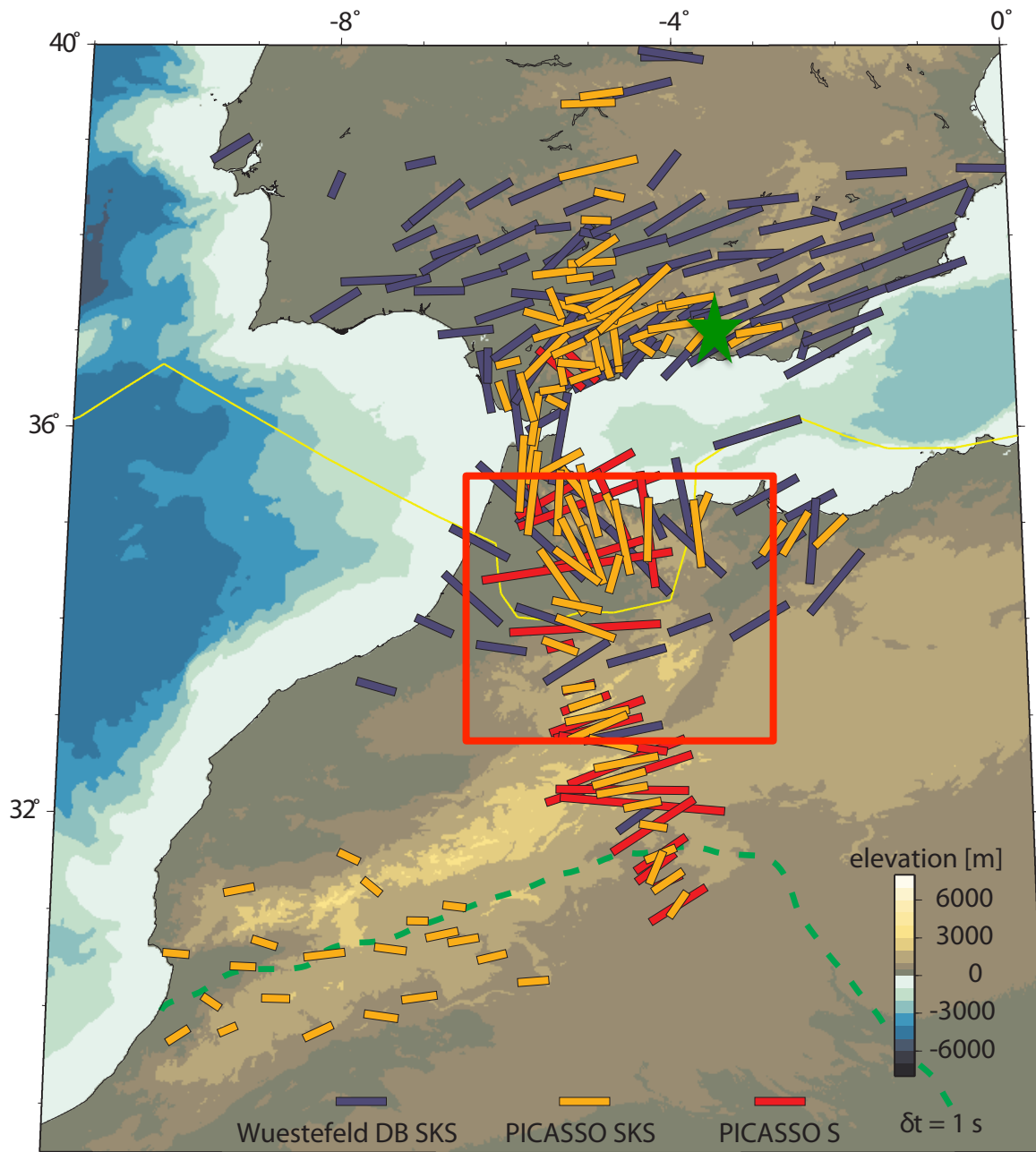
# Shear wave splitting results

-  New SKS results
-  New S results from deep event
-  Previous SKS results (Diaz et al., 2010 & Wuestefeld DB)

 617 km deep event on April 11, 2010

# P-wave tomography

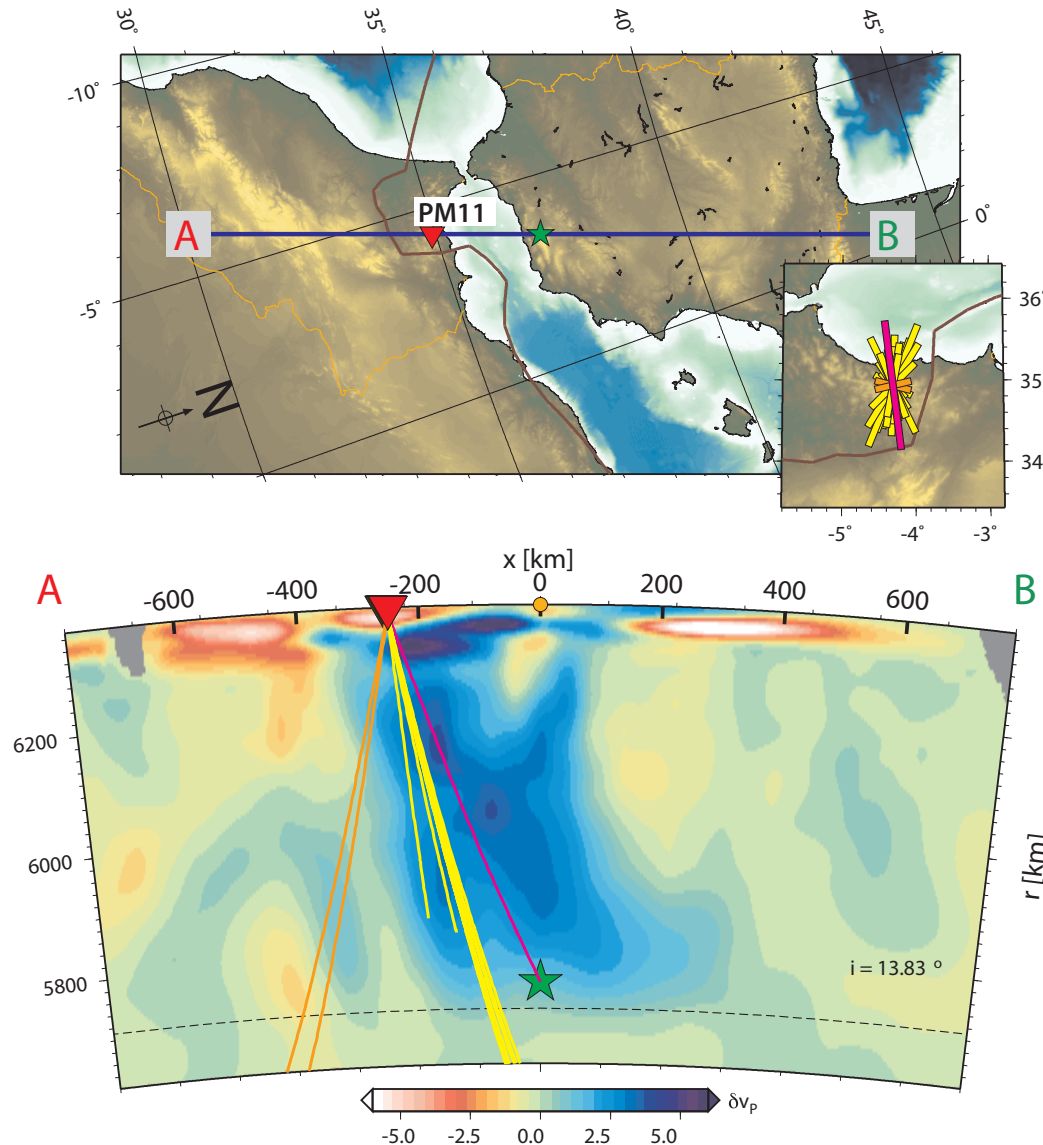




# Shear wave splitting results

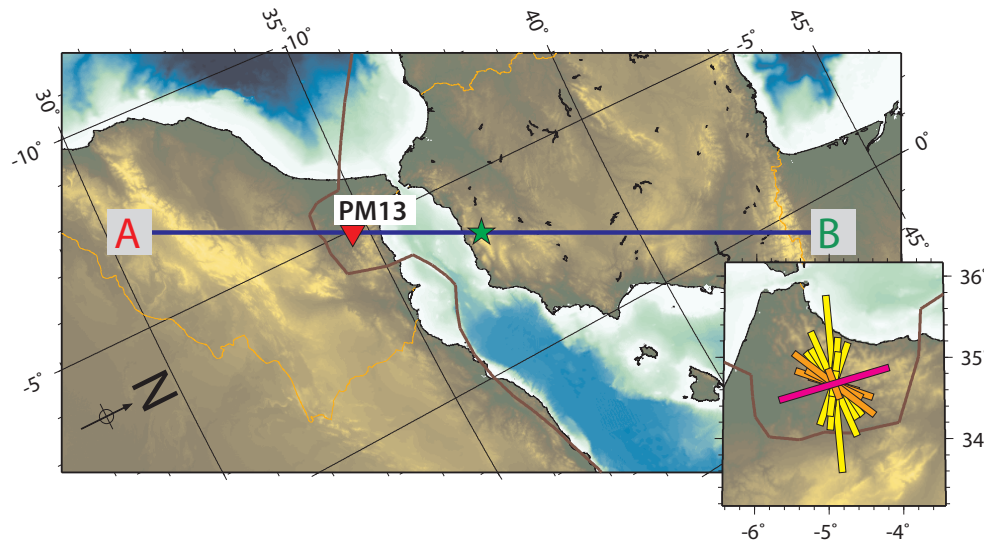
- New SKS results
- New S results from deep event
- Previous SKS results (Diaz et al., 2010 & Wuestefeld DB)

617 km deep event on April 11, 2010

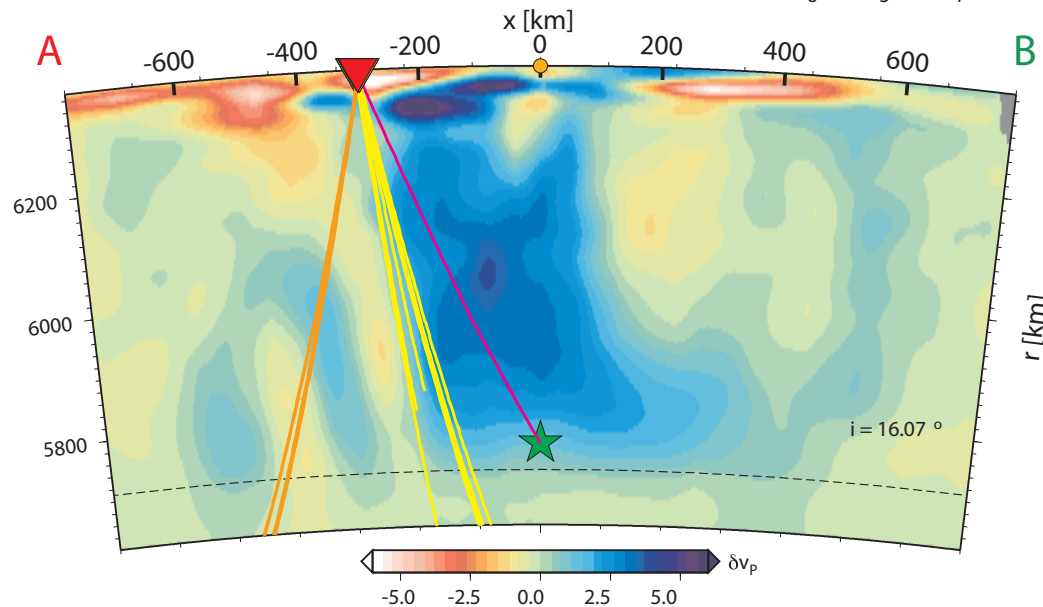


P-wave  
tomography  
(Bezada et al.,  
2013) and  
ray paths of the  
April 11, 2010  
deep focus  
event plus SKS  
events to  
station PM11 in  
the Rif

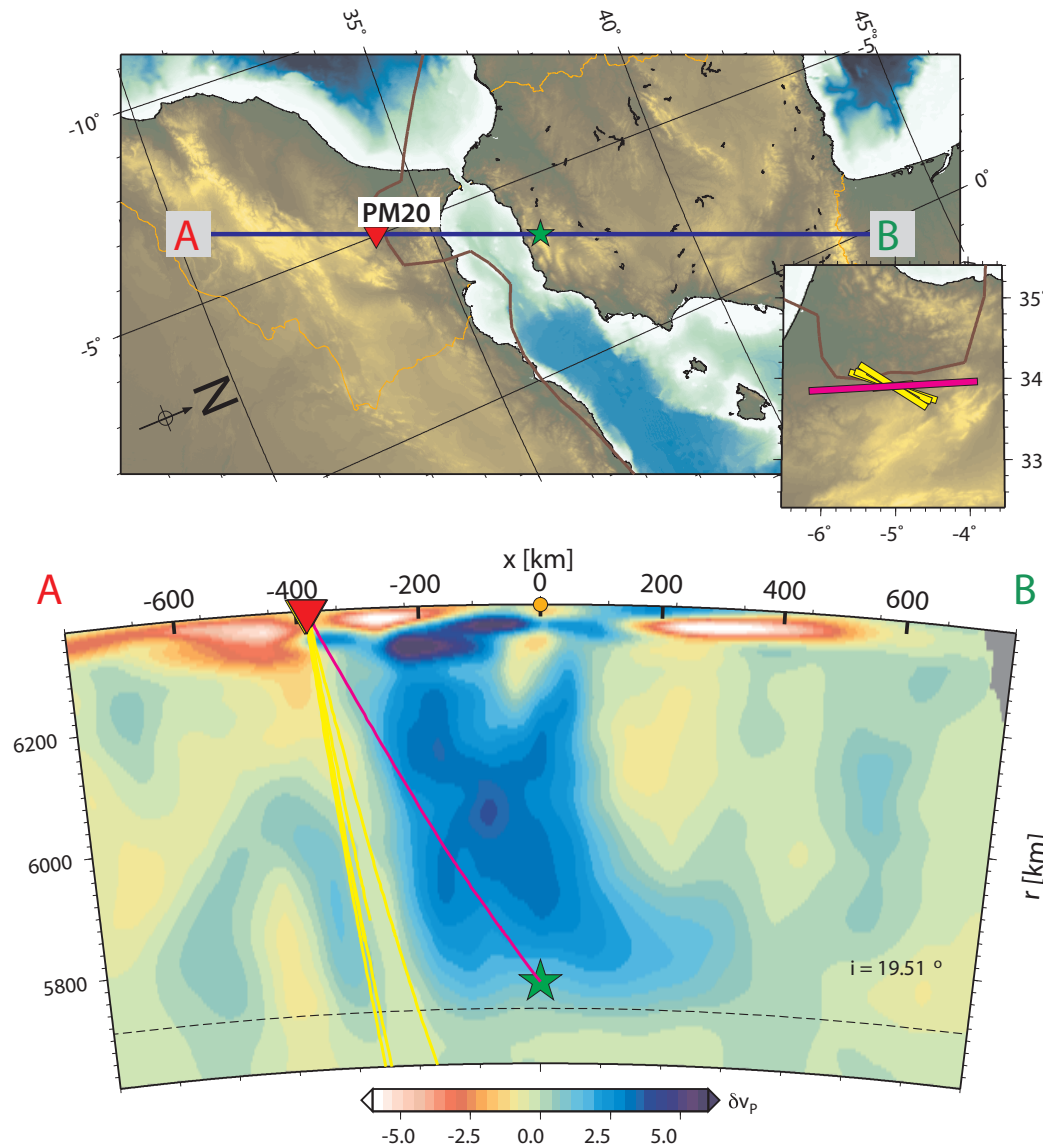
- Direct S
- SW baz SKS
- NE baz SKS



P-wave  
tomography and  
ray paths to  
station PM13 in  
the Rif

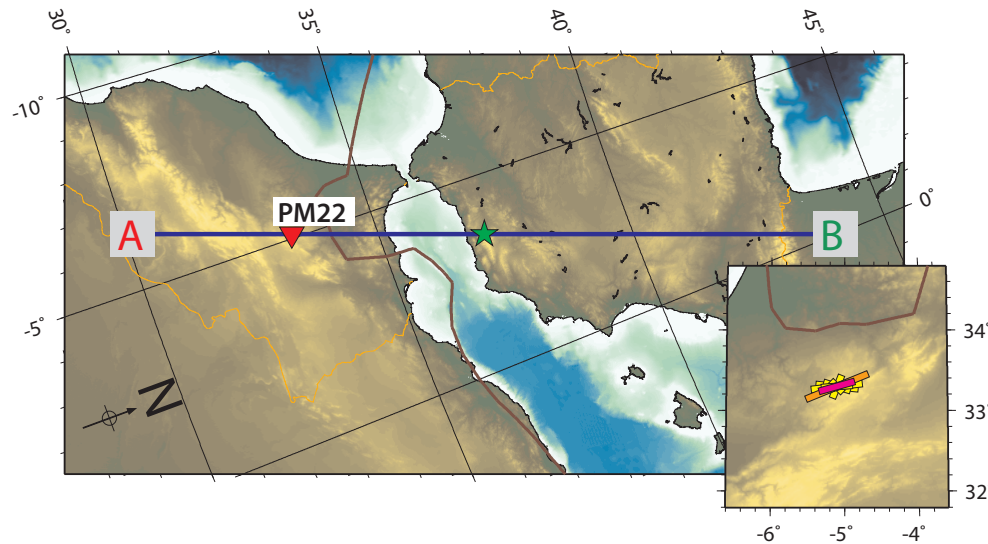


- Direct S
- SW baz SKS
- NE baz SKS

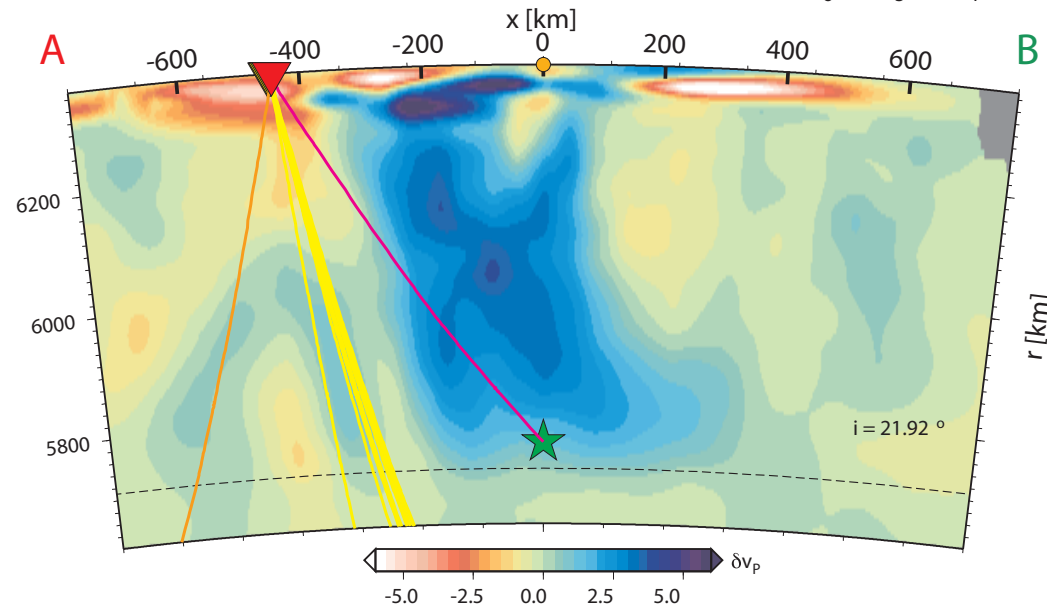


P-wave  
tomography and  
ray paths to  
station PM20  
between the Rif  
and the Middle  
Atlas

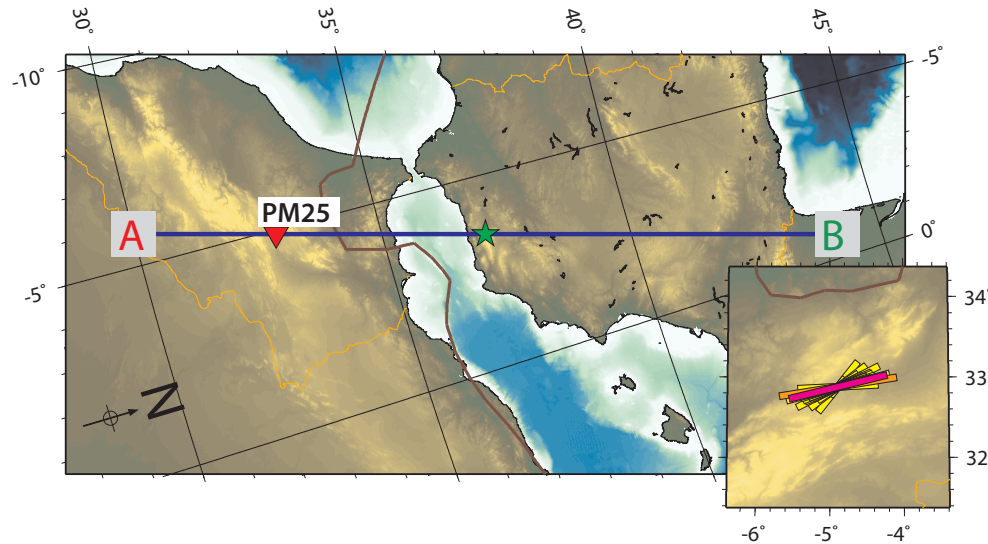
- Direct S
- SW baz SKS
- NE baz SKS



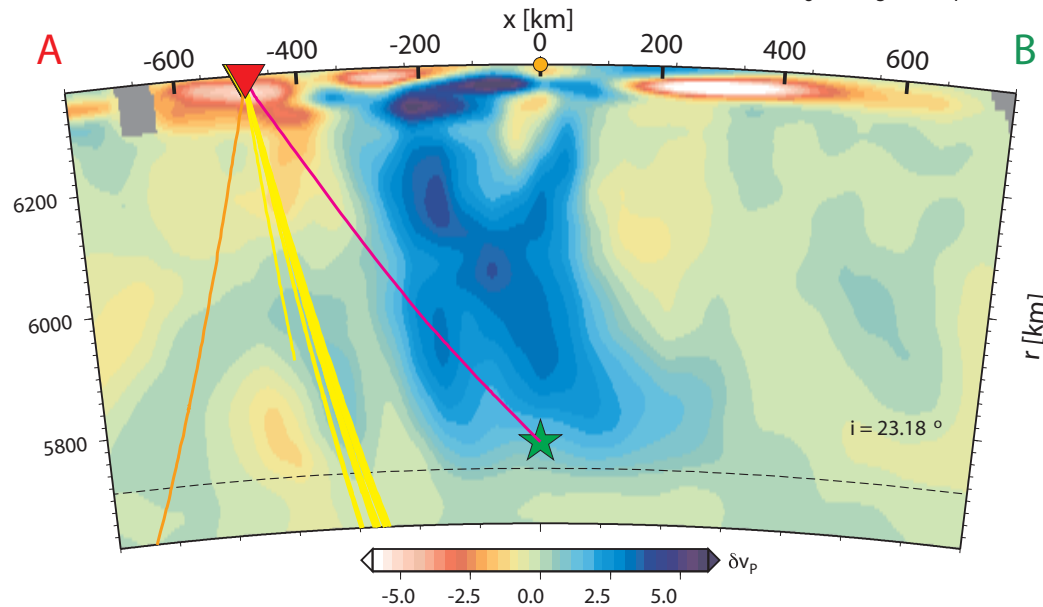
P-wave  
tomography and  
ray paths to  
station PM22 in  
the Middle Atlas



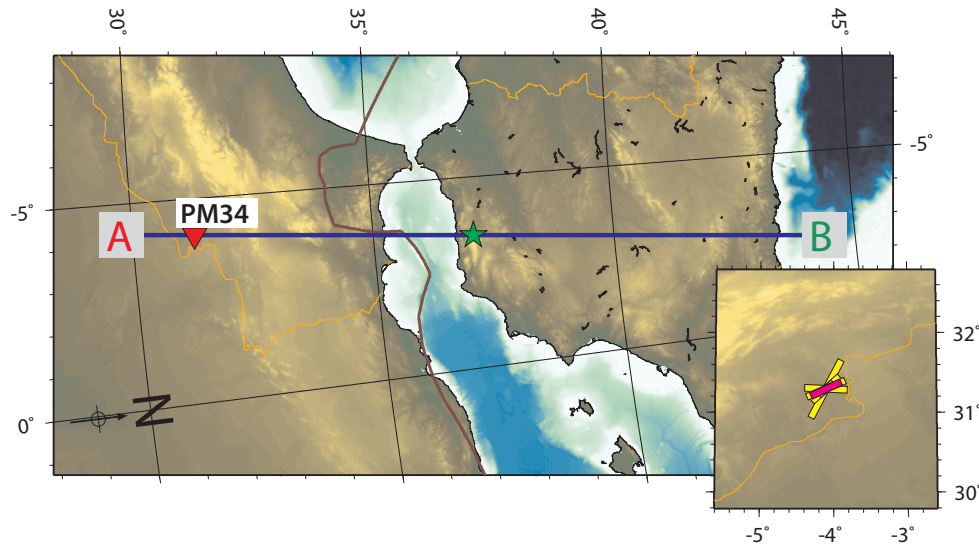
Direct S  
SW baz SKS  
NE baz SKS



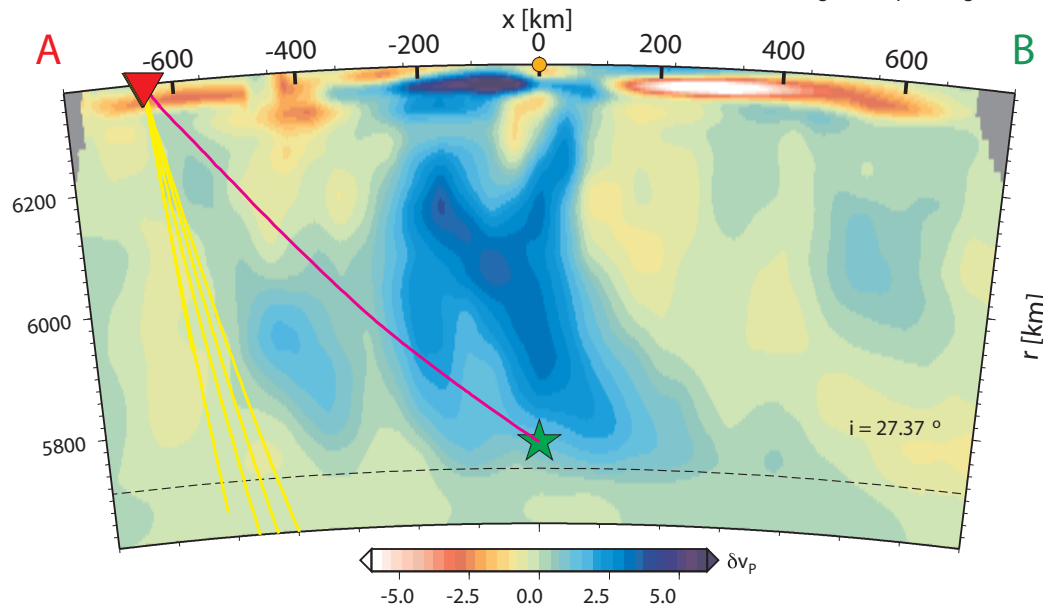
P-wave  
tomography and  
ray paths to  
station PM25 in  
the Middle Atlas



Direct S  
SW baz SKS  
NE baz SKS

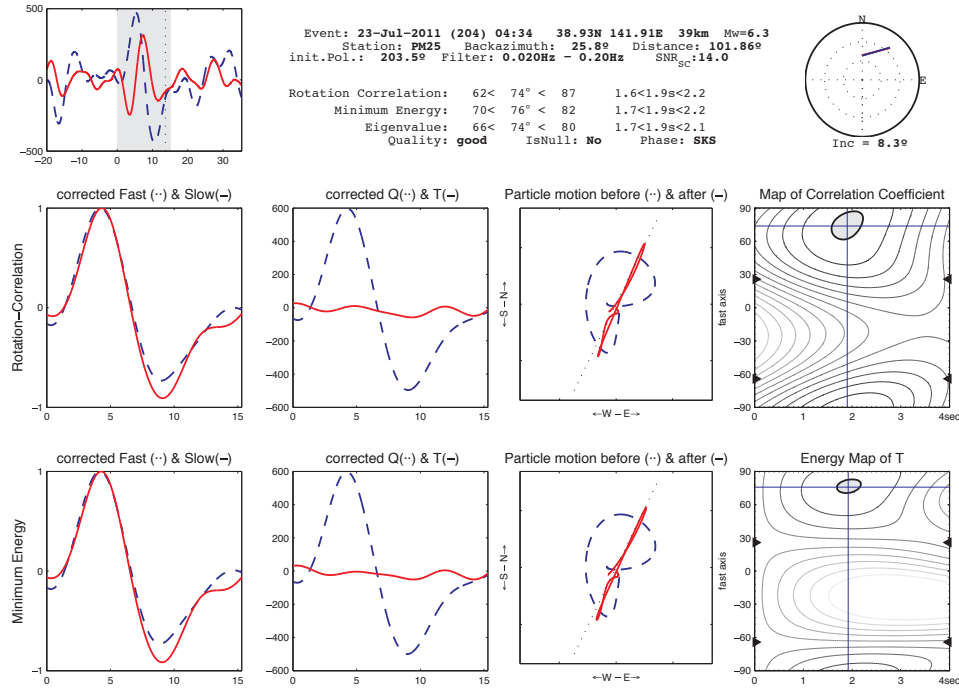


P-wave  
tomography and  
ray paths to  
station PM34 on  
the Saharan  
Platform

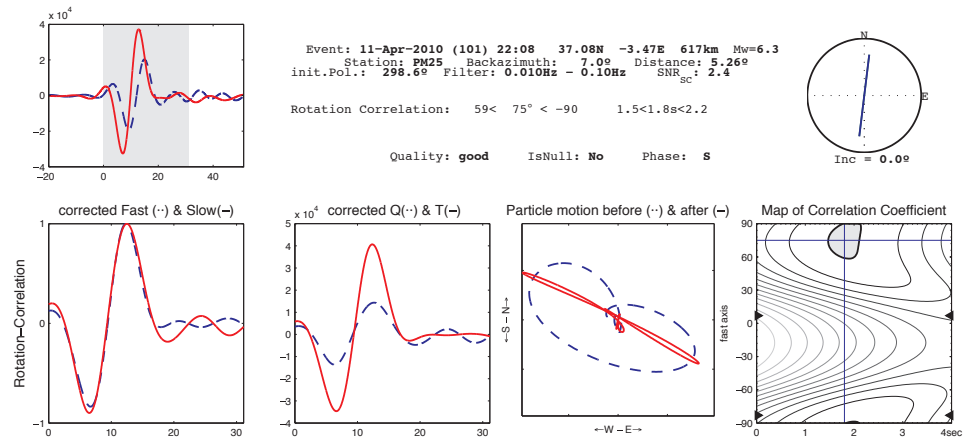


Direct S  
SW baz SKS  
NE baz SKS

## A) SKS splitting results for PM25



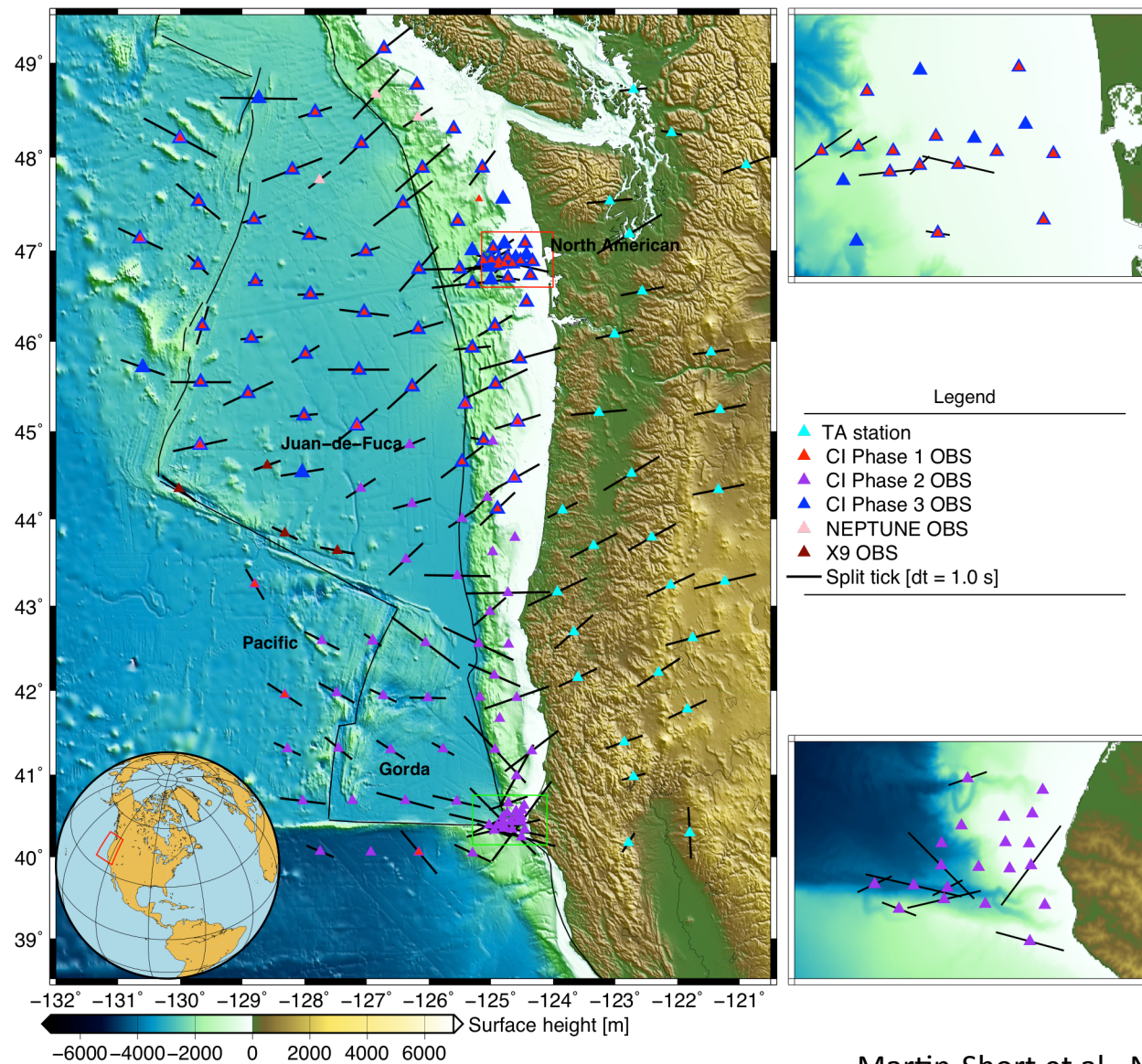
## B) Direct S splitting result for PM25



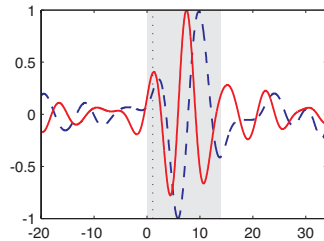
# **Mantle flow geometry from ridge to trench beneath the Gorda–Juan de Fuca plate system**

**Robert Martin-Short<sup>1\*</sup>, Richard M. Allen<sup>1</sup>, Ian D. Bastow<sup>2</sup>, Eoghan Totten<sup>1,2</sup> and Mark A. Richards<sup>1</sup>**

**S2: Map showing the splitting results and the locations of the station deployments**

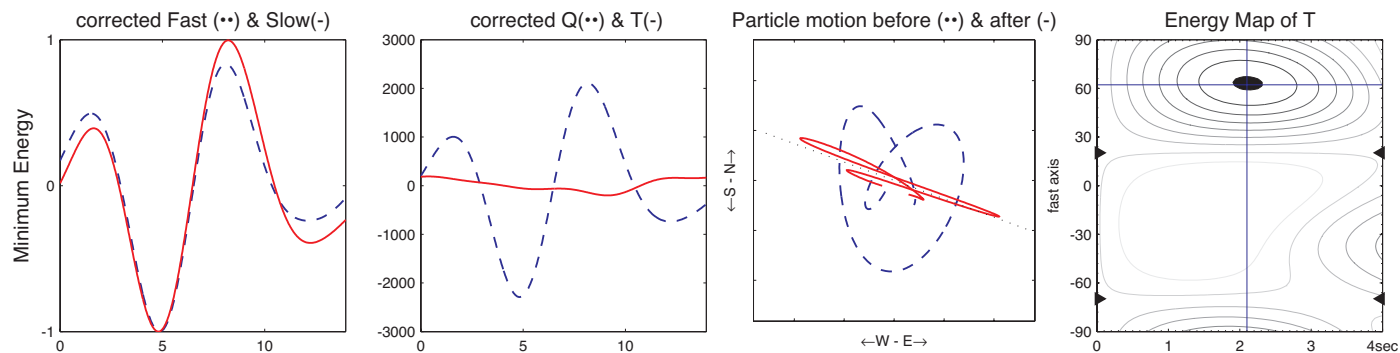
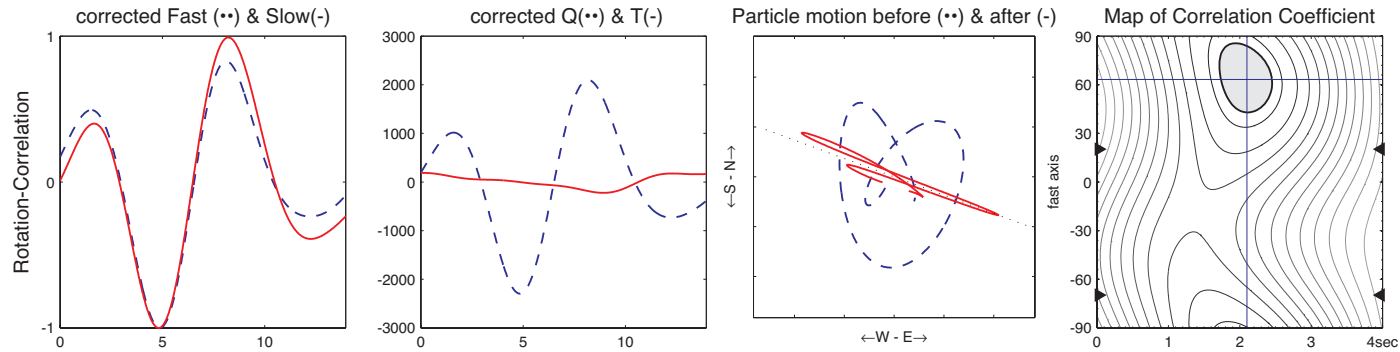
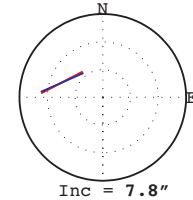


# USArray TA example

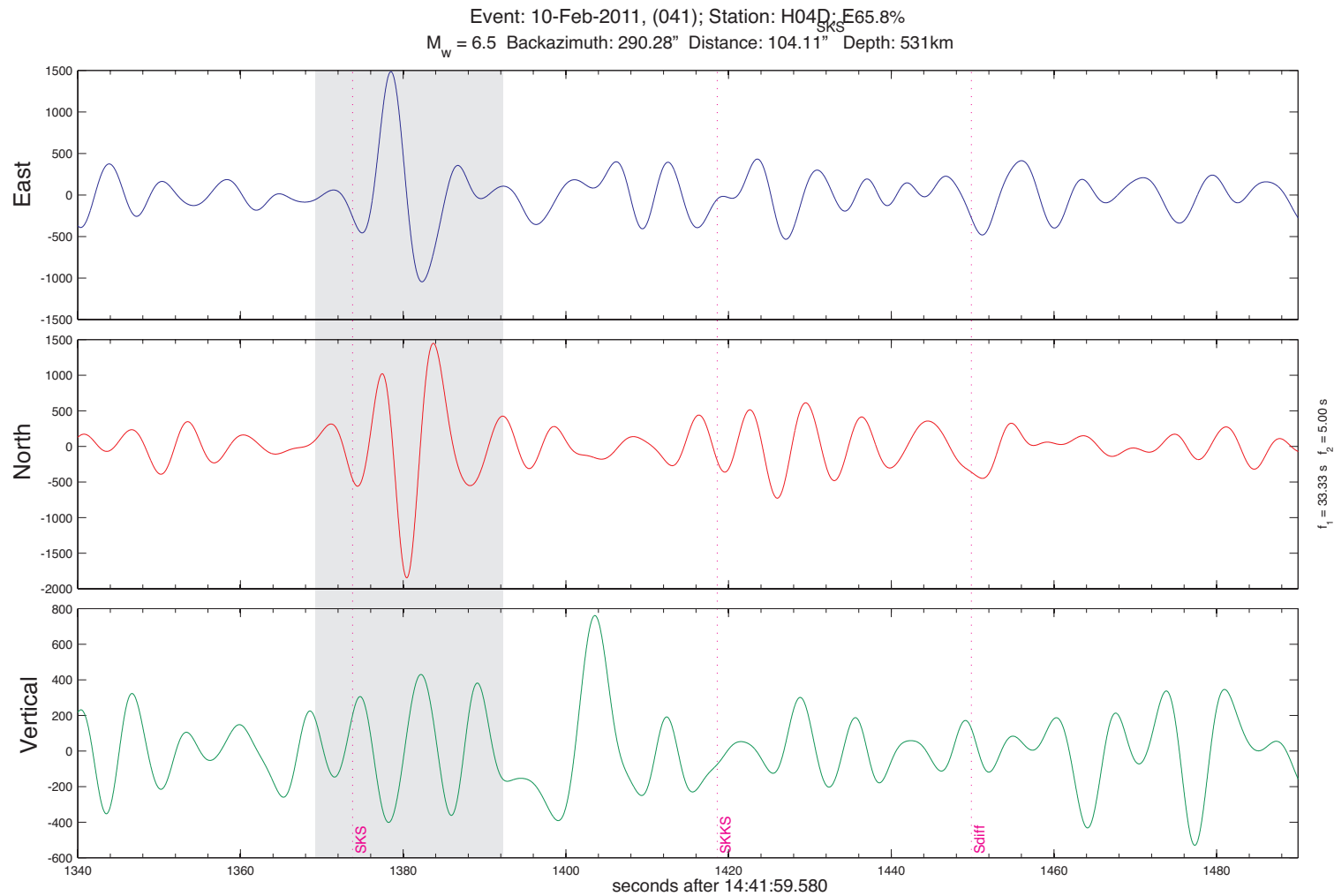


Event: 10-Feb-2011 (041) 14:41 3.97N 123.12E 512km  $M_w=6.5$   
 Station: H04D Backazimuth: 290.2" Distance: 104.03"  
 init.Pol.: 116.3" Filter: 0.050Hz - 0.20Hz  $SNR_{sc} = 9.4$

Rotation Correlation: 43< 63° < 86 1.7<2.1s<2.5  
 Minimum Energy: 60< 62° < 68 1.9<2.1s<2.3  
 Eigenvalue: 58< 66° < 80 1.9<2.1s<2.3  
 Quality: **good** IsNull: **No** Phase: **SKS**



# USArray TA example



# Background – Database - Code

- [Shear wave splitting database – IRIS](#)
  - <http://www.iris.edu/dms/products/sws-db/>
- [Montpellier Shear Wave Splitting Database](#)
  - <http://www.gm.univ-montp2.fr/splitting/DB/index.html>
- [Splitlab](#)
  - <http://www.gm.univ-montp2.fr/splitting/>
    - Now updated by Rob Porritt
  - <https://robporritt.wordpress.com/software/>