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Interactive comment on "New constraints on the geometry of the subducting African plate and the overriding Aegean plate obtained from P receiver functions and seismicity" *by* F. Sodoudi et al.

Anonymous Referee #1

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This manuscript presents receiver function data and interpretation from the EGELADOS experiment with the objective of characterizing the structure of the subducting plate and mantle wedge in the Hellenic subduction zone. The study identifies a number of interesting structural elements including a ubiquitously serpentinized forearc wedge evidenced by lack of overriding Moho, the dipping Moho of the subducting African plate, overriding crust of variably thickness over the region, a steeply dipping slab segment below the eastern Aegean and a shallowly dipping segment below the west, and a low velocity discontinuity near 60 km interpreted as the LAB of the overriding plate.

This study is comprehensive and worthy of publication once some relatively minor issues are dealt with.

1. Previous work by MIT investigators across profiles that overlap/coincide with those presented here should be referenced and compared to the current study, ie

Suckale et al., (2009) High-resolution seismic imaging of the western Hellenic subduction zone using teleseismic scattered waves, GJI, 178, 775-791.

Pearce et al., (2012) Seismic investigation of the transition from continental to oceanic subduction along the western Hellenic subduction zone, JGR, 117, doi:10.1029/2011JB009023.

2. Have the authors tried imaging using reverberations from their data sets as performed in this previous work? The reverberations possess better spatial resolution and might provide additional constraint / support for some of the features interpreted in the manuscript.

3. There is a problem with English grammar on line 22 of abstract.

4. In figure 3b the caption indicates that black circles denote seismicity, but I can't see any sign of black circles.

5. The authors provide a listing of Vp/Vs ratios in Table 1 and mention them once or twice in the text but there is no analysis provided. Many of the values are quite low (<1.7) and a few are high (>1.8) How do the authors explain these values, in particular the low ones? Are there any systematic geographic variations in these values that can be related to the subduction complex?

6. It is a shame that there are no profiles that are fully continuous that would enable a clearer indication of the transition from normal Moho to reversed forearc Moho. The reason, I presume, relates to the difficulty of deploying OBS's in deeper waters of the Sea of Crete(?) In this regard, it is interesting to note that the the onset of forearc mantle wedge in several regions appears to be correlated with bathymetric lows, e.g. the Seto Island Sea north of Shikoku, the Georgia Strait/Puget Sound/Willamette Valley in Cascadia and Golfo Coreovado in Chile. Perhaps this association is worth mention-

ing(?)

Interactive comment on Solid Earth Discuss., 5, 427, 2013.