Interactive comment on “Seismic visibility of a deep subduction channel: insights from numerical simulation of high-frequency seismic waves emitted from intermediate depth earthquakes” by W. Friederich et al.

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This is an interesting and timely paper investigating numerically possible seismological effects of serpentinized subduction channel presence atop descending slabs. The paper is of general interest and opens an interesting new direction, which will hopefully stimulate “modeling-inspired” seismic observations in subduction zones. The paper is generally well written but discussion of results could be improved by addressing two issues. Upper boundary of subduction channel is assumed to be planar whereas numerical thermomechanical simulations often suggest that upper boundary of the serpentinized channel in the forearc mantle can be strongly corrugated (e.g., Gerya et al., 2006; Angiboust et al., 2012; Baitsch-Girardello et al., 2013). This may affect resulting seismograms in a significant way and needs short discussion. Would also be good to clearly indicate possible “channel features” on the seismograms from the Hellenic subduction zone – they are difficult to see for inexperienced readers.

Taras Gerya, Zurich 2.10.2013

Minor comments


P. 1464, section 25. “turbulent flow”. This term is typically used for describing inertia-driven flows in low-viscosity fluids. Better to use some other term, e.g. “chaotic flow” or “strongly perturbed flow”.

P. 1471, section 5, should be “dry diamond eclogite”

References


Interactive comment on Solid Earth Discuss., 5, 1461, 2013.