Geophysical Research Abstracts
Vol. 15, EGU2013-1953, 2013
EGU General Assembly 2013

3D attenuation structure of Deception Island (Antarctica)

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A three-dimensional S wave attenuation tomography of Deception Island has been obtained with measurements of coda-normalization method. We used about 52000 waveforms relative to the dataset from an active seismic experiment using offshore shots (air guns) recorded at over 100 onshore seismic stations. The rays were traced in a 3D velocity model. The spatial resolution in our tomography is the same as that obtained by velocity tomography: we resolve 250m cubic cells for Deception. Results have shown that there is likewise agreement with the velocity tomography; the low velocity zones being consistent with regions featuring high attenuation effects and the high velocity zones with regions featuring low attenuation effects. Therefore, our observations agree with the volcanic characteristics of the medium and we can also confirm the presence of a massive magma reservoir beneath the center of the island.