

Deep structure and heat source of the geothermal area in a non-volcanic area in Kii Peninsula, southwest Japan

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Kii Peninsula is located in the fore-arc region of SW Japan and has distinct structural and tectonic features characterized by high seismicity in the crust and the subducting Philippine Sea slab, high surface heat flow, high $^3\text{He}/^4\text{He}$ isotopic ratio. Magnetotelluric survey, seismological imaging and analysis of He isotopic compositions in well gases in the Kii Peninsula were carried out to understand the thermal activity in a non-volcanic region. The results imply that the movement of fluids derived from subducting slab may cause the thermal and geochemical anomaly in non-volcanic regions, and does not necessarily require the presence of hidden magmatic activity below.