Additional Material

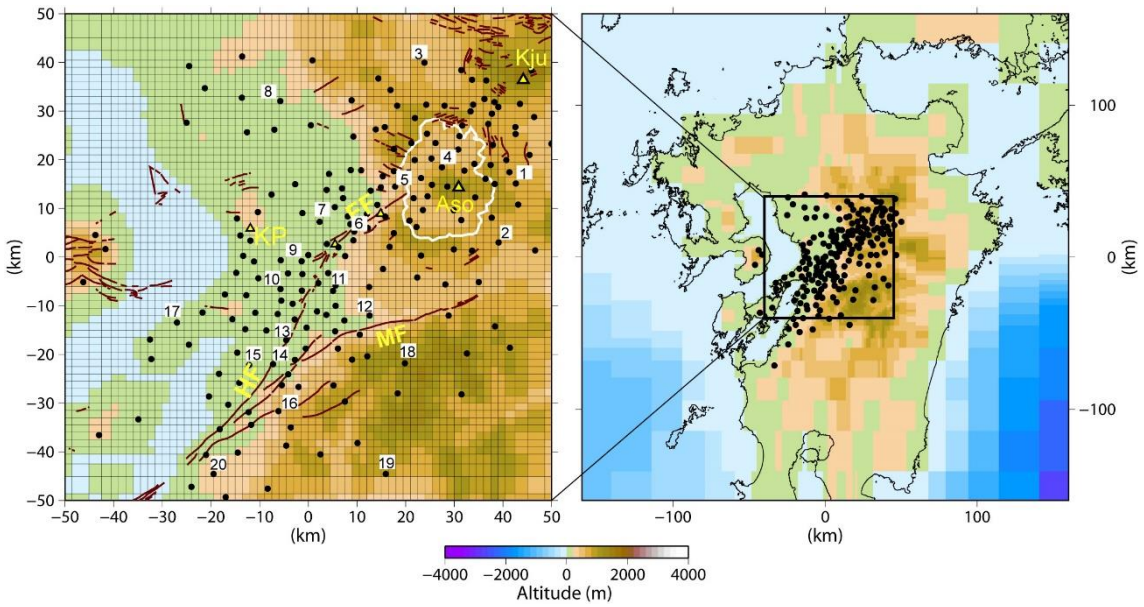

Fig. S1
Mesh used in the 3-D inversion. Solid circles show the 200 measurement sites used in the inversion. HF: Hinagu Fault, FF: Futagawa Fault, MF: Midorikawa Fault, KP: Kumamoto Plain. The numbers indicate the sites where the observed and theoretical sounding curves are compared in Fig. S2. The site numbers are shown above the corresponding solid circles. Other notations are the same as in Fig. 1.

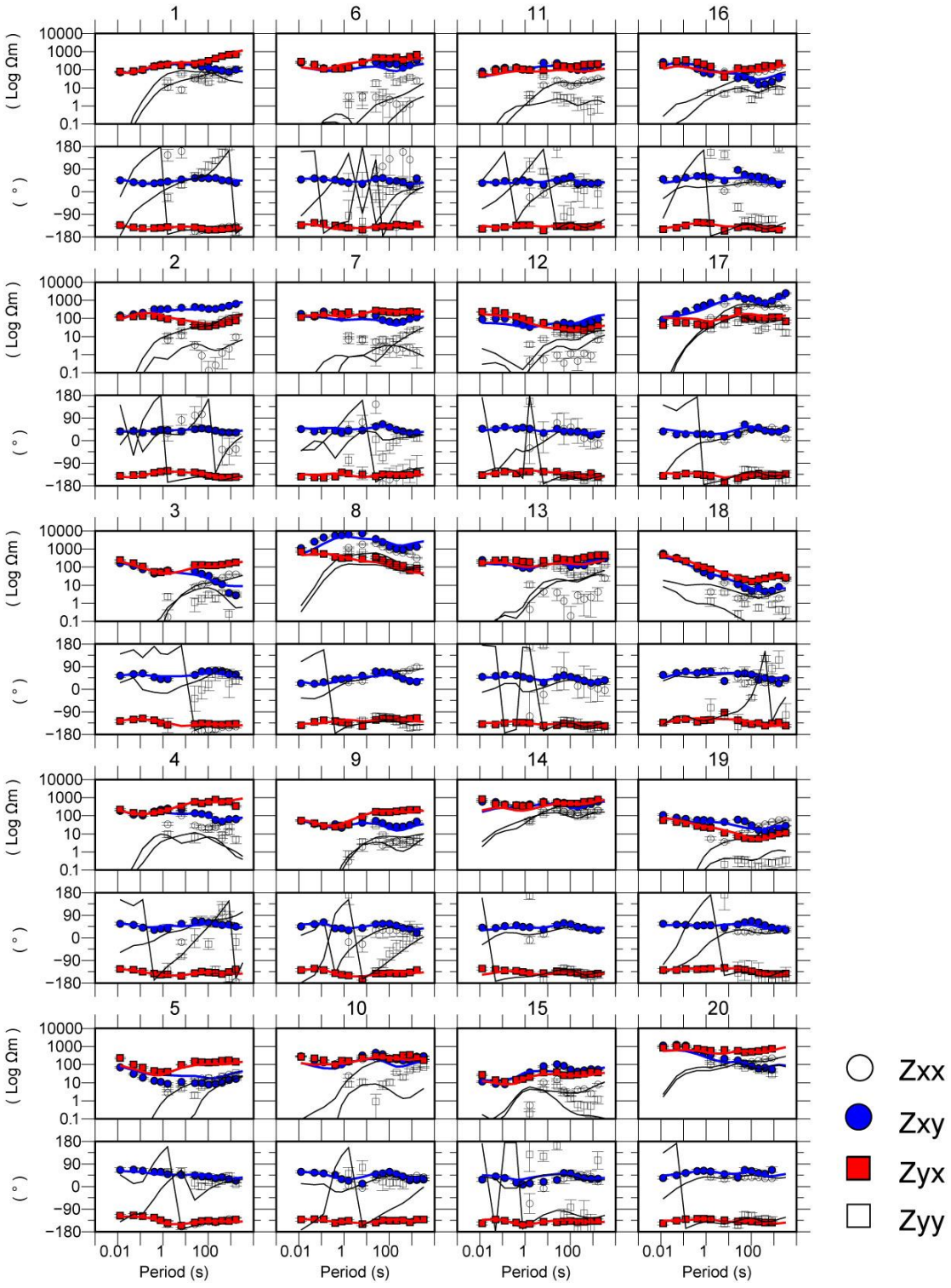

Fig. S2

Representative sounding curves for comparison of observed data (symbols) with calculated response (lines). The locations of the sites are shown in Figure S1. The data show the 15 periods used in the inversion.

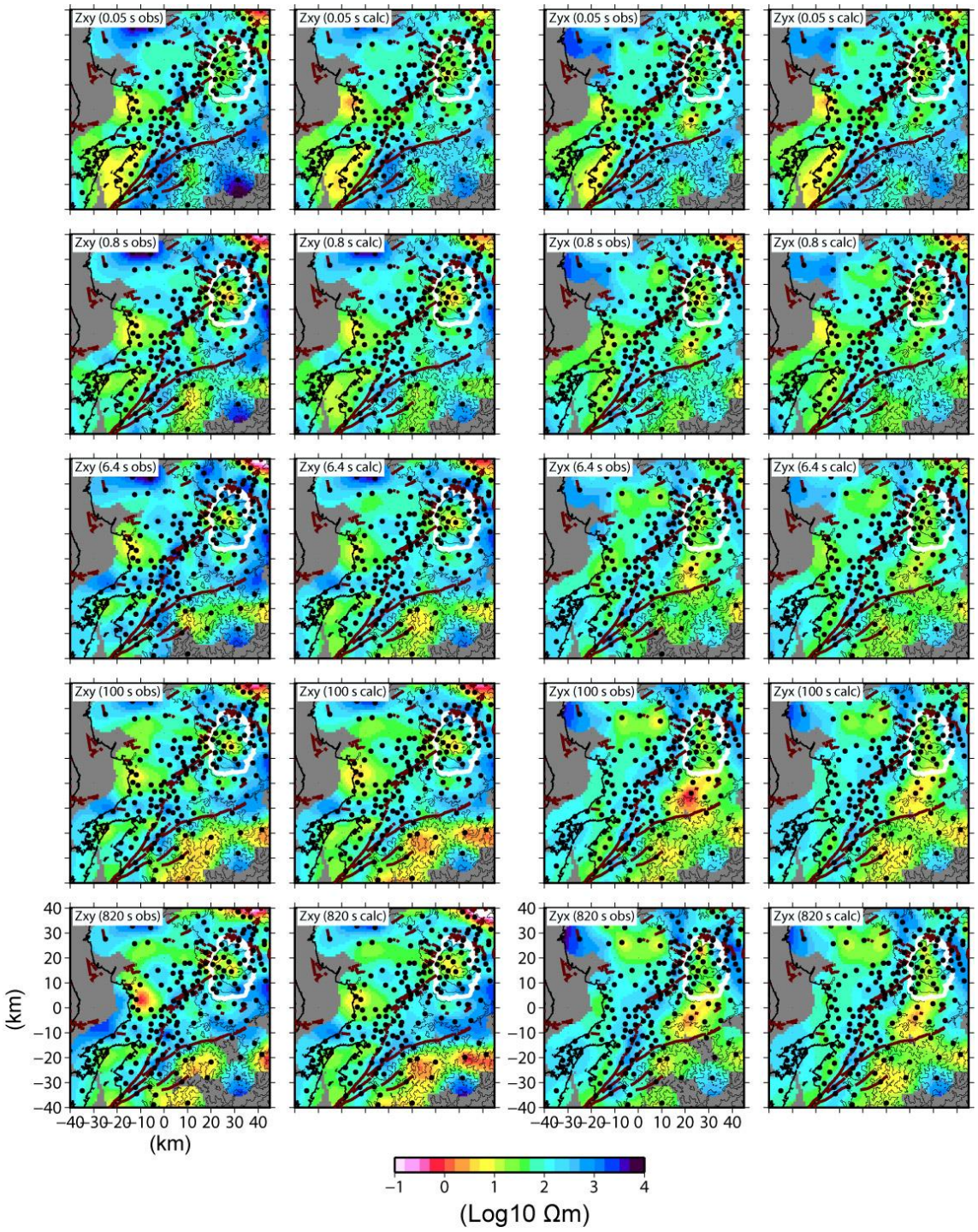

Fig. S3

Apparent resistivity maps of observed (obs.) and calculated (calc.) MT responses at various frequencies. The off-diagonal components (Zxy and Zyx) of the impedance tensor are shown. Other notations are the same as in Fig. 1.

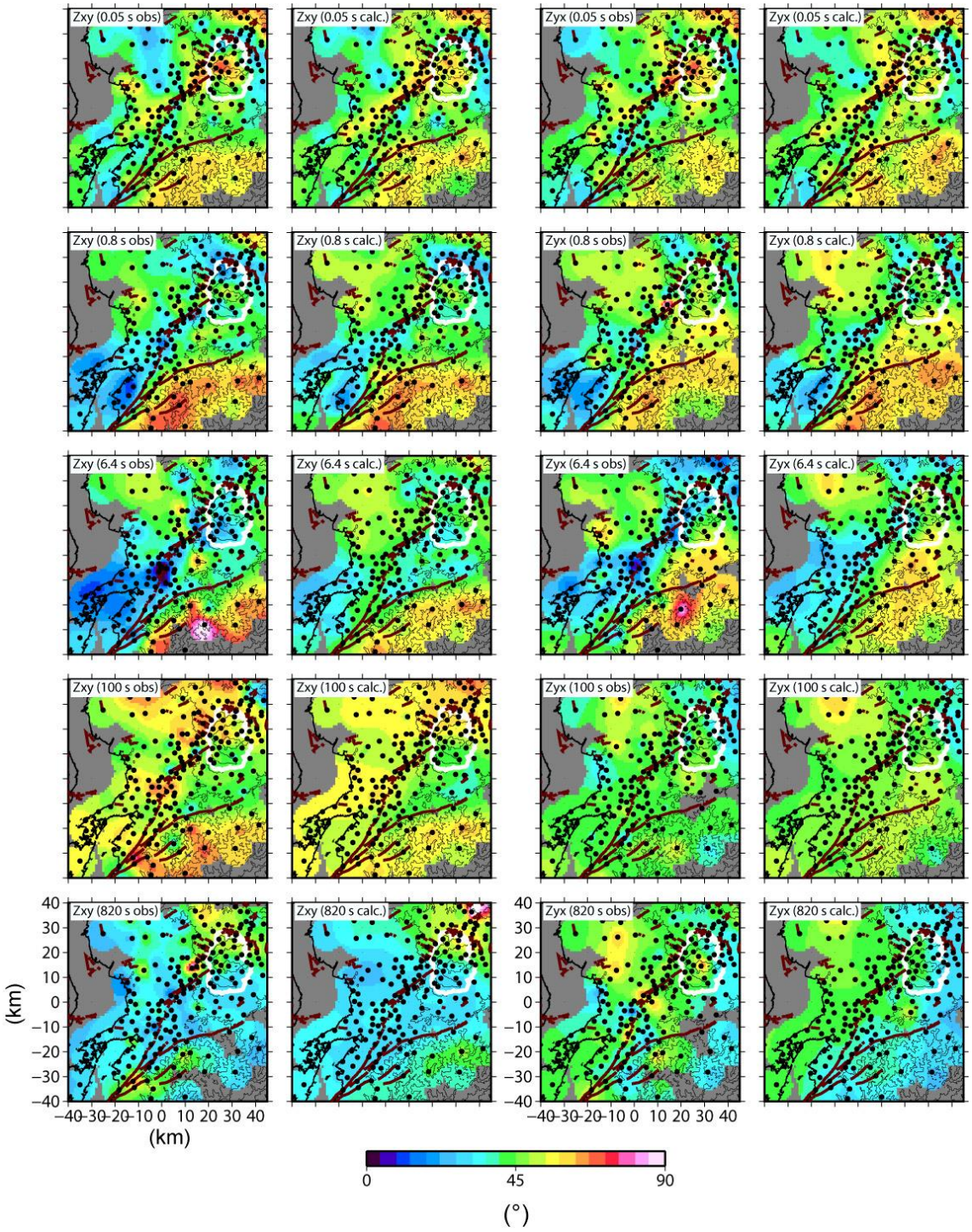

Fig. S4

Phase maps of observed (obs.) and calculated (calc.) MT responses at various frequencies. The off-diagonal components (Zxy and Zyx) of the impedance tensor are shown. Other notations are the same as in Fig. 1.

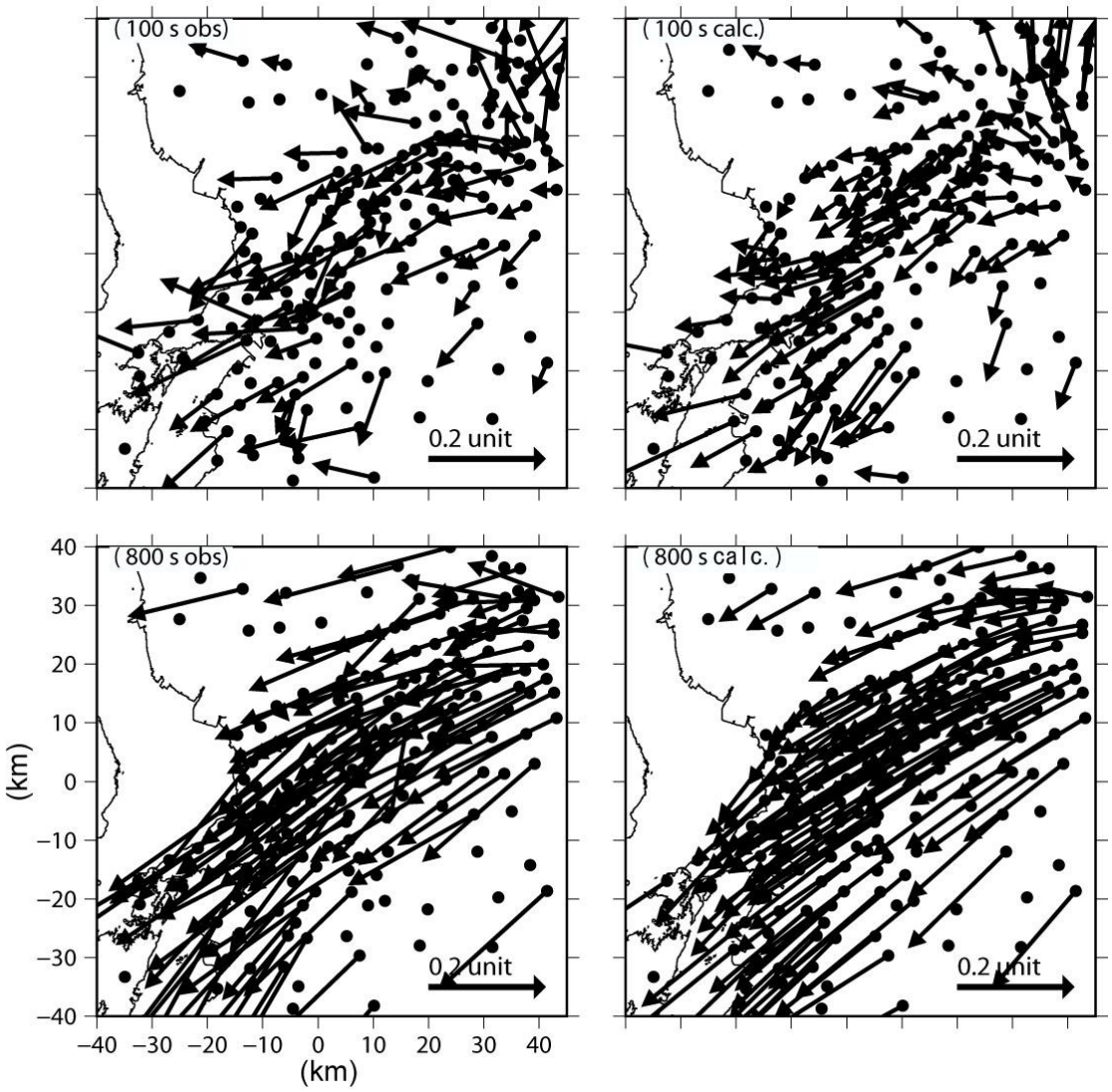

Fig. S5

Real-part induction vector maps (Parkinson criteria) of the observed (obs.) and calculated (calc.) responses at 100 s (upper) and 800 s (lower). The induction vectors at the telluric only sites were not used for the inversion.

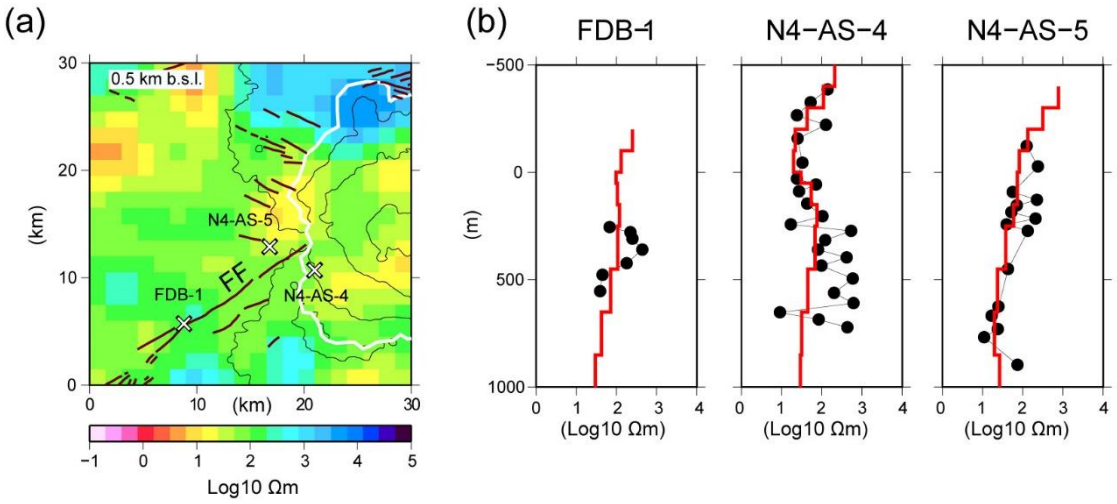

Fig. S6
Well-log data from the drill sites and inverted resistivity structure. (a) Horizontal slices of the 3-D resistivity structure at 0.5 km b.s.l around the drilling sites. White crosses indicate the drilling sites. FF is the Futagawa Fault, which ruptured during the mainshock of the 2016 Kumamoto earthquake sequence. Other notations are the same as in Fig. 1. (b) Well-log data from the drill sites. Solid circles with lines indicate the well-log resistivity data. Red lines indicate the resistivity structure beneath the drilling sites that was determined from the 3-D inversion in this study.

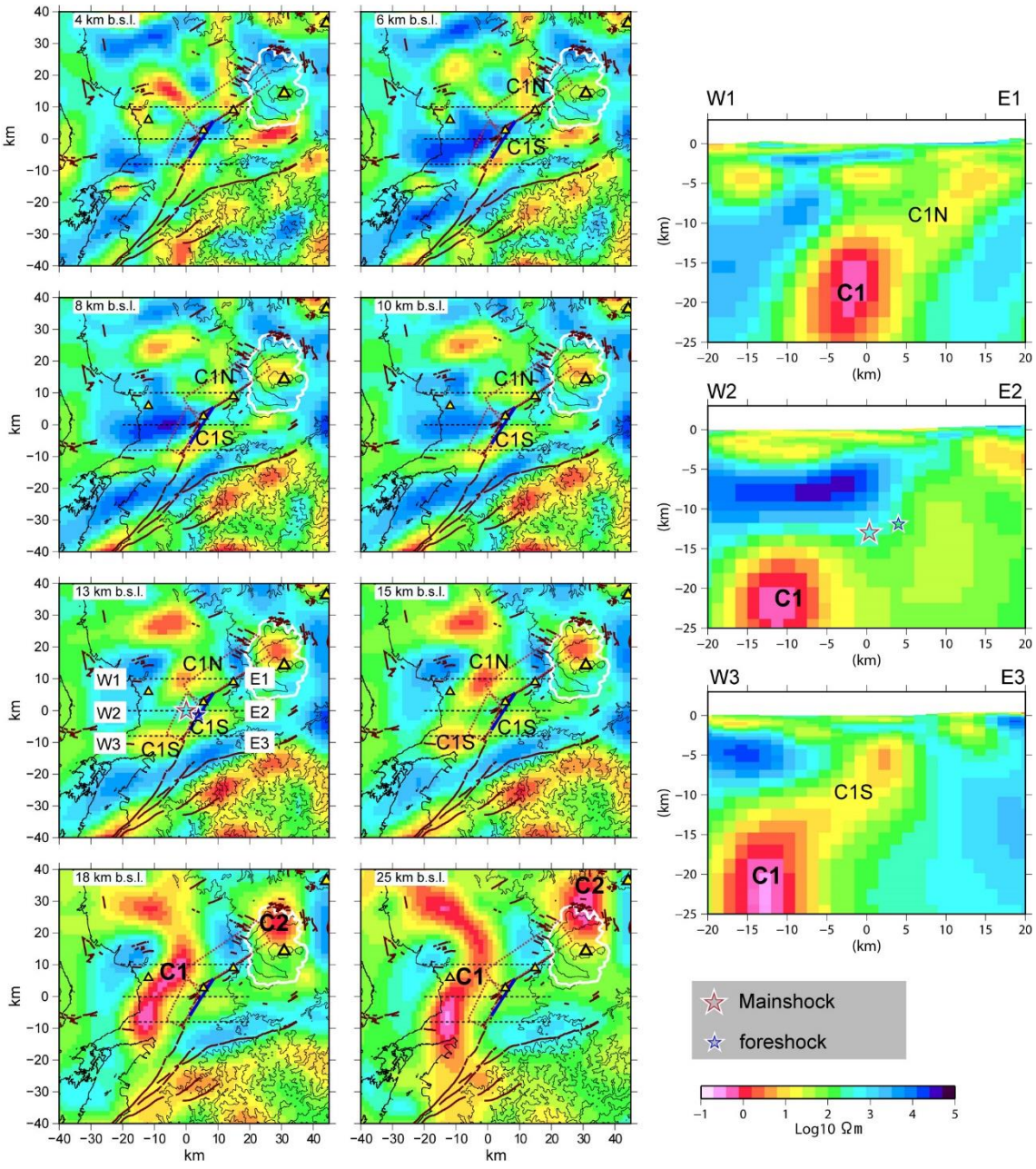

Fig. S7

Horizontal and vertical slices of the 3-D resistivity structure. Large and small stars mark the mainshock and foreshock hypocenters, respectively. The three dashed lines in the horizontal slices (left hand side) correspond to the vertical slices (right hand side). Other notations are the same as in Fig. 2.

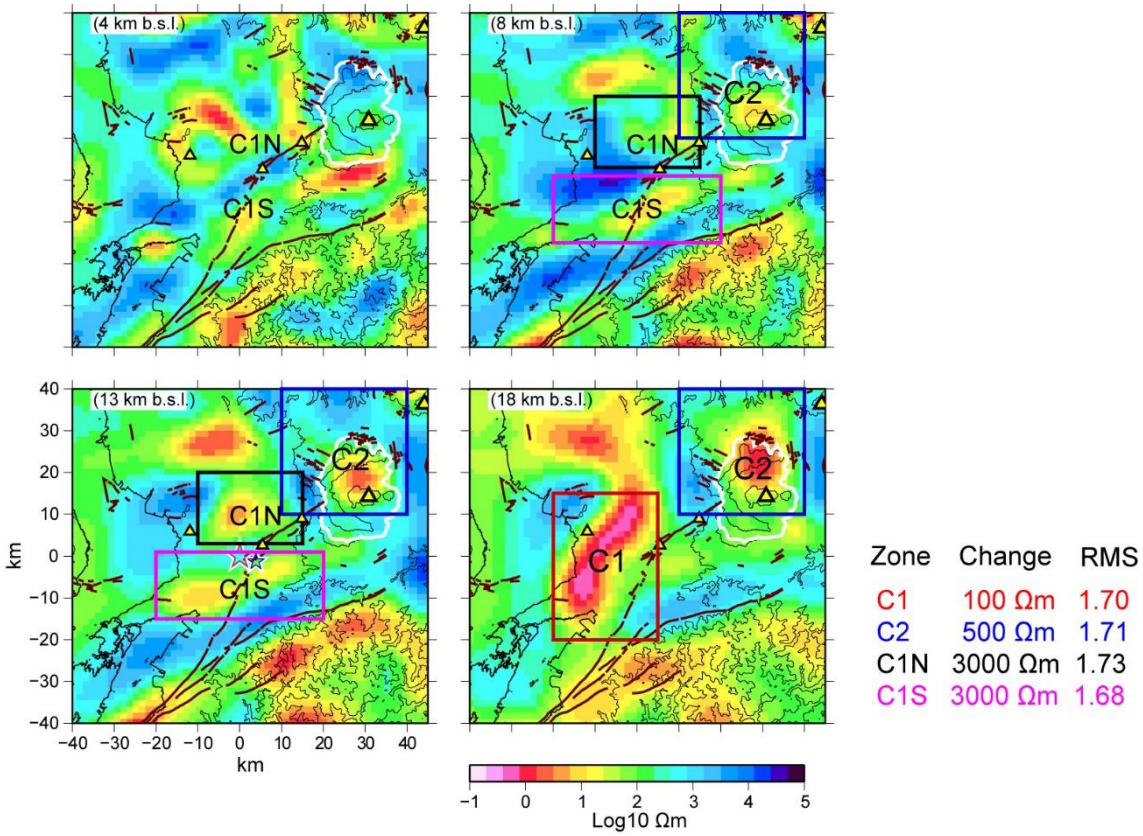

Fig. S8

Sensitivity tests. The ability to detect the four low-resistivity zones discussed in the text is verified by modifying the initial resistivity model. C1: The <100-Ωm cells in the red rectangle (14–42 km b.s.l) were all changed to 100 Ωm. This elimination of C1 resulted in an increase in the RMS misfit from 1.57 to 1.70. C2: The <500-Ωm cells in the blue rectangles (7–42 km b.s.l) were all changed to 500 Ωm. This elimination of C2 resulted in an increase in the RMS misfit from 1.57 to 1.71. C1N: The <3000-Ωm cells in the black rectangles (3–13 km b.s.l) were all changed to 3000 Ωm. This elimination of C1N resulted in an increase in the RMS misfit from 1.57 to 1.73. C1S: The <3000-Ωm cells in the magenta rectangles (3–13 km b.s.l) were all changed to 3000 Ωm. This elimination of C1N resulted in an increase in the RMS misfit from 1.57 to 1.68.