Additional file 1 for

Rupture process of the 2016 Kumamoto earthquake in relation with the thermal structure around Aso volcano

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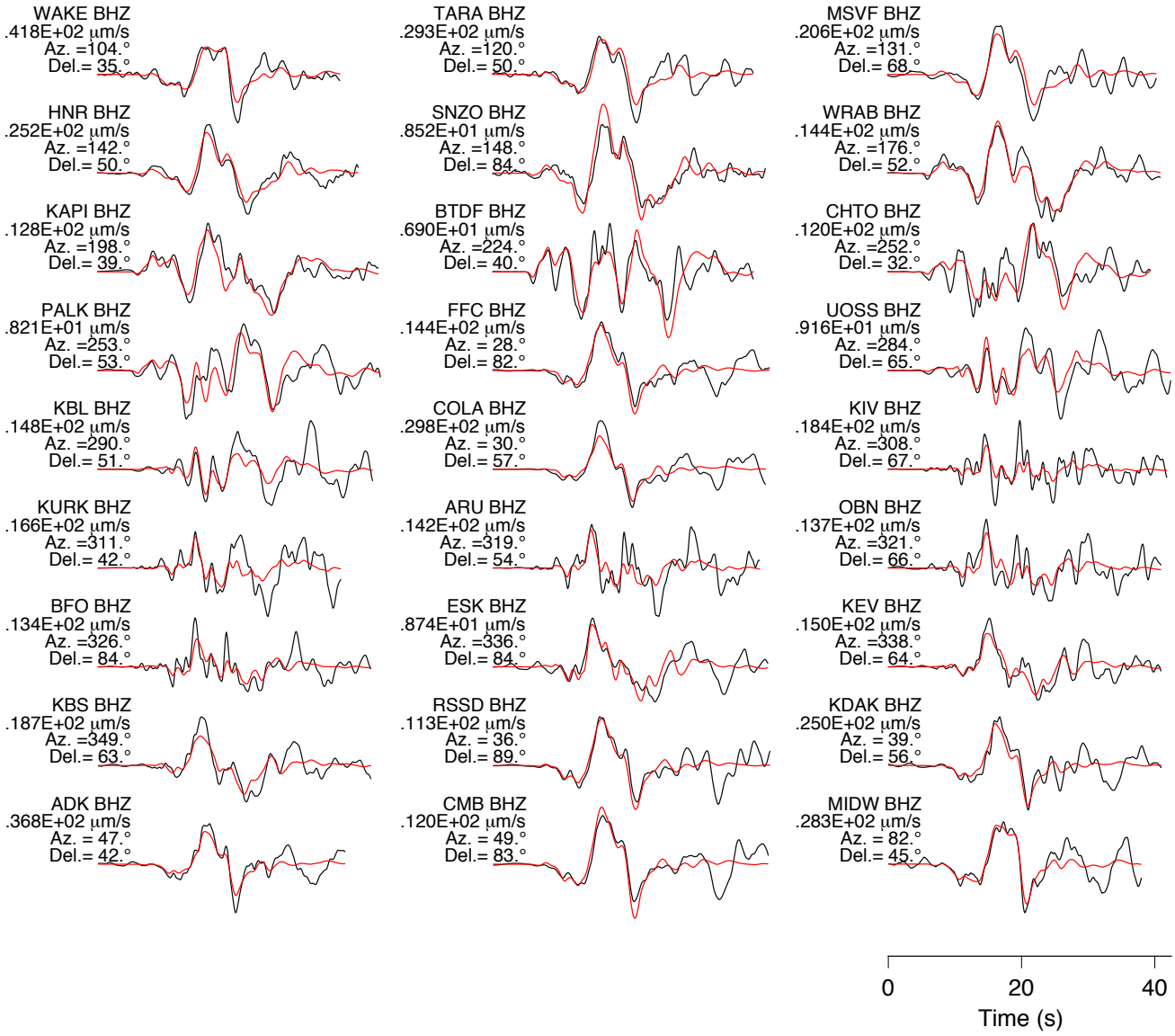
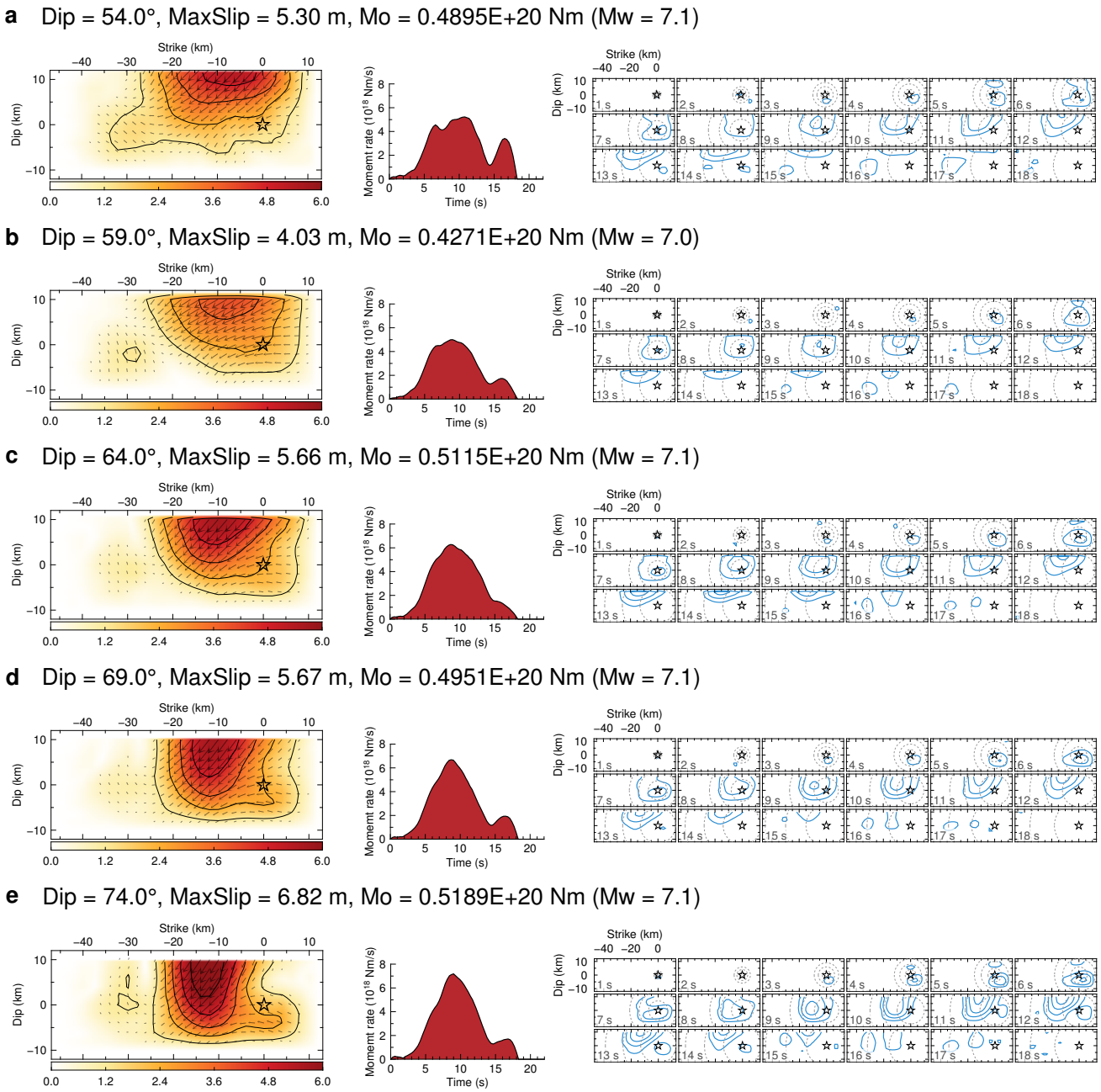
Figures A1, A2 and A3, Table A1, and a reference.

Figure A1



Waveform fittings between observed (black) and synthetic (red) waveforms, both band-pass filtered in the range 0.001–4.5 Hz. Although this frequency band is higher than that applied for the synthetics and observed waveforms during the inversion procedure (0.001–0.56 Hz), we calculated synthetics at sampling rate of 10 Hz, and in order to compare in detail the synthetics with the high-sampled (20 or 40 Hz) observed waveforms, we applied the higher frequency band 0.001–4.5 Hz for generating this figure. The station code, maximum amplitude, azimuth, and distance from the epicenter are written next to each waveform.

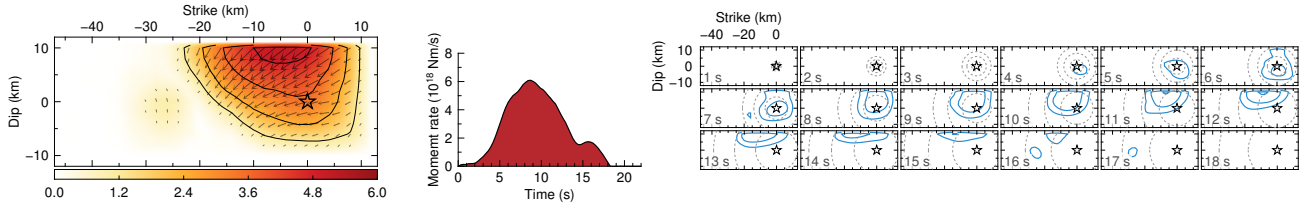
Figure A2



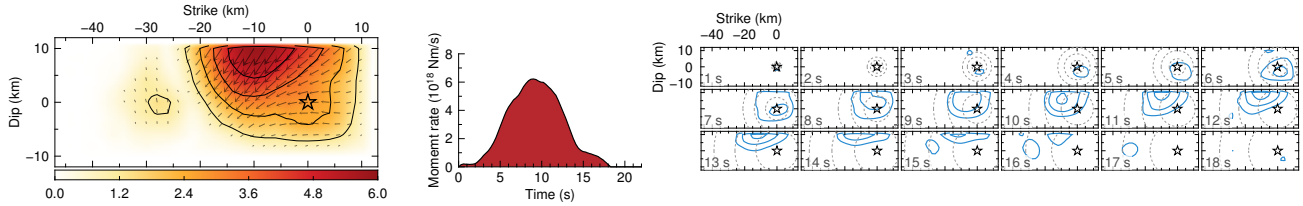
Alternative slip models calculated based on various assumptions of dip angle. An assumption of maximum rupture velocity is fixed at 2.4 km/s for each model. Left panel shows for each model the cumulative slip distribution with contours every 1.2 m. The graph in the center shows the moment-rate function. The right panels show the time evolution of the slip-rate for each model, with an interval of 1 s. The contour delimits 0.25 m/s. The star denotes the assumed hypocenter.

Figure A3

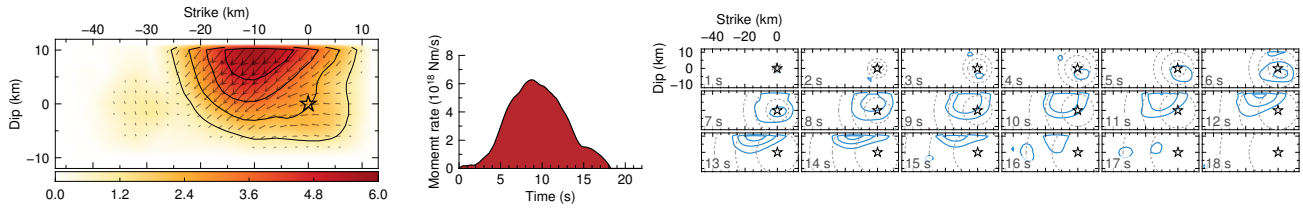
a Vr = 2.00 km/s, MaxSlip = 5.15 m, Mo = 0.4840E+20 Nm (Mw = 7.1)



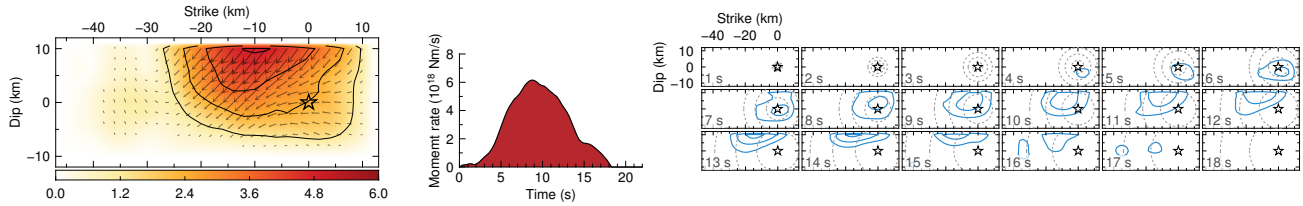
b Vr = 2.20 km/s, MaxSlip = 5.88 m, Mo = 0.4841E+20 Nm (Mw = 7.1)



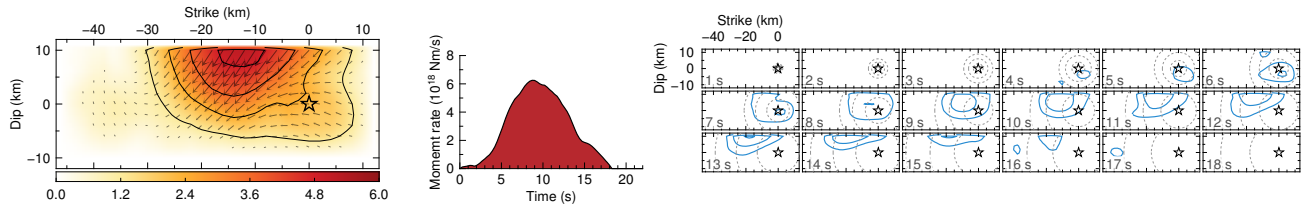
c Vr = 2.40 km/s, MaxSlip = 5.66 m, Mo = 0.5115E+20 Nm (Mw = 7.1)



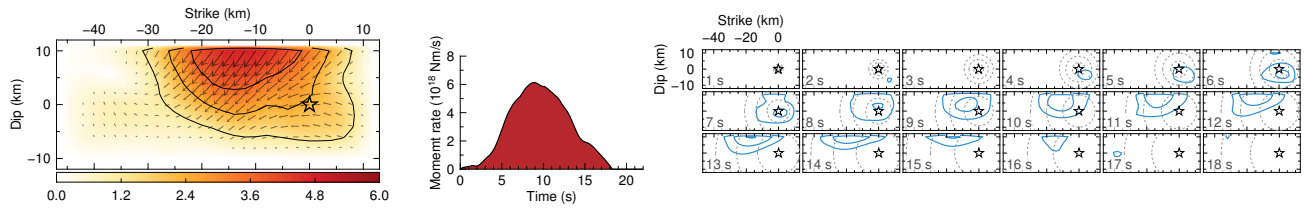
d Vr = 2.60 km/s, MaxSlip = 4.88 m, Mo = 0.5093E+20 Nm (Mw = 7.1)



e Vr = 2.80 km/s, MaxSlip = 5.16 m, Mo = 0.5215E+20 Nm (Mw = 7.1)



f Vr = 3.00 km/s, MaxSlip = 4.77 m, Mo = 0.5205E+20 Nm (Mw = 7.1)



Alternative slip models calculated based on various maximum rupture velocities. Left panel shows for each model the cumulative slip distribution with contours every 1.2 m. The graph in the center shows the moment-rate function. The right panels show the time evolution of the slip-rate for each model, with an interval of 1 s. The contour delimits 0.25 m/s. The star denotes the assumed hypocenter.

Table A1

1-D structural velocity model of the near the source region used for calculating Green's functions extracted from the CRUST1.0 model (Laske et al. 2013).

V_P (km/s)	V_S (km/s)	Density (10^3 kg/m^3)	Thickness (km)
5.80	3.40	2.63	8.77
6.30	3.62	2.74	8.58
6.90	3.94	2.92	8.52
7.70	4.29	3.17	0.00

Reference

Laske G, Masters G, Ma Z, Pasyanos M (2013) Update on CRUST1.0 - A 1-degree Global Model of Earth's Crust. Geophys Res Abstracts 15:EGU2013-2658