



Figure 6. (opposite) The 25 March 1998 Antarctic plate earthquake (with a seismic moment of 1.3×10^{21} N m). (a) Relocated aftershocks [Henry *et al.*, 2000] for the period 25 March 1998 to 25 March 1999 are shown as diamonds, with the main shock epicenter shown by a star. Only those earthquakes which are located with the semimajor axis of the 90% confidence ellipse < 20 km are shown. International Seismological Centre epicenters for the period 1 January 1964 to 31 July 1997 are shown as circles. Marine gravity anomalies from an updated version of Sandwell and Smith [1997], illuminated from the east, with contours every 20 mGal, are shown in the background in the epicentral region. Selected linear gravity features are identified by white lines and are labeled F1–F6. F1, F2, and their southward continuation to join F1a compose the George V fracture zone. F4–F6 compose the Tasman fracture zone. (b) An expanded view of the region of the aftershocks. The relocated aftershocks in the first 24 hours are shown as diamonds; the rest are shown as circles. The 90% confidence ellipses are plotted for the locations; earthquakes without confidence ellipses were not successfully relocated and are plotted at the National Earthquake Information Center (NEIC) locations. The yellow star shows the NEIC epicenter for the main shock, with the CMT mechanism of solution 5 from Henry *et al.* [2000]. Available Harvard CMT solutions for the aftershocks are plotted, linked with lines to their centroid locations and then to their relocated epicenters, and are identified by their dates (mmddyy). The location of the linear features identified on Figure 6a are shown by black arrows. (c) Final distribution of moment release for preferred solution 8 of Henry *et al.* [2000]. There are the same gravity anomalies, same linear features, and same epicenters as Figure 6b except that now only earthquakes which are located with the semimajor axis of the 90% confidence ellipse < 20 km are shown. Two isochrons from Müller *et al.* [1997] are plotted as white lines. Superimposed graph shows the final moment density, with a peak density of 1.25×10^{19} N m km $^{-1}$. Regions of the fault with $< 15\%$ of this maximum value are excluded in this plot. The baseline of the graph is the physical location of the fault. The spatial and temporal grid sizes used in the inversion for the slip were $5 \text{ km} \times 5 \text{ km}$ and 3 s, respectively. (d) Principal features of the main shock rupture process [from Henry *et al.*, 2000]. Arrows show location and directivity for the first and second subevents. Arrows are labeled with start and end times of rupture segments. Focal mechanisms are shown for the initiation, the first subevent plotted at the centroid obtained by Henry *et al.* [2000], and the second subevent. (The second subevent is not well located, and the centroid location is not indicated.) The cross shows the centroid location of moment tensor of the total earthquake obtained by Henry *et al.* [2000], and the triangle shows the Harvard CMT centroid. The same aftershock epicenters as Figure 6c are shown. Linear gravity features are shown as shaded lines, and probable locations of tectonic features T1a and T3a associated with the gravity features F1a and F3a are shown as shaded dashed lines. (See Henry *et al.* [2000] for further details.)