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# Deformation models and volcanic source location for Deception Island Volcano (South Shetland Islands, Antarctica).

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From 1991/1992 to 2002/2003, the using of GPS observations in the REGID geodetic network in Deception Island (South Shetland Islands, Antarctica) has allowed to characterize the existing deformation in the island due to its volcanic activity. An extensive radial process together with an uplift from January 1992 until December 1999 was detected. Two important seismic crises took place during this period, in particular, during the 1991/92 and 1998/99 campaigns. From 2000 until 2003, it is not noticed considerable displacements, though the stations seem to converge on a compressive radial process together with a subsidence, reflecting a change in the geodynamical of the island.

According to the contour maps that characterize the deformation, two clear alignments are observed: one in the NW-SE direction, from 1991/92 to 1999/00, and another one in the NE-SW, from 2000 to 2003, coinciding with the principal directions of the tectonic features of the region: the Fracture Hero Zone and the Bransfield Rift. On the other hand, the location and geometry of the sources causing the 1992 and 1998 crisis were estimated by means of Mogi's Model. They are located approximately 5 km and 1.5-2.5 km depth respectively, both of them in the central part of the island.