



## **Horizontal deformation model in Deception Island Volcano from GPS surveying**

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In this work it is presented the GPS observations carried out in Deception Volcano (South Shetland Islands, Antarctica). Deception Island is one of the few active volcanoes in the Antarctica, with recent eruptions in 1842, 1967, 1969 and 1970, and it has been periodically monitored since 1988 to control its geodynamic activity.

Moreover, the Spanish Antarctic Base Gabriel de Castilla is located in Deception Island and several research groups move there to develop their projects every year, what makes the monitoring of the volcanic activity necessary. With this aim, geophysical observations are made during the austral summer, when the Antarctic campaigns take place. The interpretation of the results obtained from these researches provide information about the status of the volcanic activity and allow us to detect an increase in the activity and the possible reactivation of the volcano.

In this paper we will just focus on the analysis of the GPS data obtained from the surveying of the geodetic network REGID in Deception Island. This network consists of 12 stations around the island and another one in Livingston Island, approximately 30 km away. A levelling network was also implemented to get the vertical deformation models.

GPS data have been processed using BERNESSE v4.2 software and preliminary horizontal deformation models will be shown. Some other techniques for the data analysis will be also presented, in particular, those related to the wavelet theory and its geodetic applications.