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LONG-TERM PROGRAMMES FOR REFINING GPS AND SEISMIC STUDIES BY ESTABLISHING GPS AND SEISMIC ARRAYS AT MAITRI, INDIAN ANTARCTIC STATION

Akilan A, Malaimani EC, Ravi Kumar N

National Geophysical Research Institute, Hyderabad, AP, India

The studies on seismotectonics and geodynamical processes between Antarctica and Southern Indian Peninsula by GPS-Geodesy and seismology were initiated in 1997 by National Geophysical Research Institute (NGRI). Having achieved the primary objective of obtaining the signatures of geodynamical and crustal deformation processes between India and Antarctica, these programmes would continue for another 10 years from 2005. To refine the already estimated results on the interplate and intraplate strain accumulation as well as the seismicity within Antarctica and also to improve the accuracy of the estimates, NGRI is launching future programmes by densifying GPS and Seismic stations around Maitri and also around the third station at Larsemann Hills. The existing IGS GPS stations, for example Casey and Davis, are quite far away from our permanent Station at Maitri, which impairs the critical evaluation of the deformation processes. So the planned array of 5 GPS stations around the geodetic marker at Maitri would further help in estimating the internal deformation processes within Antarctica very precisely. This would also aid the precise understanding of the geodynamical processes between Antarctica and Southern Indian Peninsula once this array is geodetically tied to other ITRF reference stations. Similarly a Seismic array with 5 Broadband seismometers would be installed around our stations. This array of seismometers would help in locating the epicenters and hypocenters of the earthquakes even of minor magnitudes that occur in and around Antarctica very precisely, which are exactly the objectives of the long-term programmes. This array would also help to assess the velocity and crustal structure beneath Maitri and surrounding region.