

**INCREASE IN SEISMICITY IN AND AROUND ANTARCTICAN PLATE AS MONITORED BY THE SEISMOLOGICAL OBSERVATORY AT MAITRI, ANTARCTICA**

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The permanent Seismic Observatory at Maitri, Antarctica has been established in 1997 primarily to monitor the seismicity in and around Antarctica, but also the space and time distribution of earthquake occurrences, stress drop, velocity inversion for underground structure and receiver function analysis. By contributing data to NEIC, USGS, and ISC, UK, Maitri Seismological observatory has gone global by becoming one of the permanent stations in Antarctic Seismic Web Resource (AnSWeR). The global seismic events recorded at Maitri since inception show an increasing trend of seismic activity in and around Antarctica specifically in the larger oceanic part of the Indian Plate. Some significant observations made during the XXII and XXIII Indian Antarctic Expeditions are presented here. The acquired Digital Broad Band seismic data were processed and analysed using SEISAN software. As representative of seismic prone regions, the South Sandwich Islands, which are in 16 to 25 degrees distance from Seismic Observatory (MAIT), registered about 29 earthquakes of magnitude ranging from 4.1 to 7.5. The Scotia Sea region, which falls between 20 to 24 degrees distance from Maitri, experienced 19 earthquakes of magnitudes ranging from 4.2 to 5.9. A total number of 380 earthquakes were recorded in 2002 alone. Minor to semi major earthquakes of magnitude varying from 3.5 to 4.5 within Antarctica have also been recorded. The devastating Sumatra earthquake (9.2Mb) on the December 26, 2004 and the Macquarie Island, Antarctic plate earthquake (8.1Mb) of December 23, 2004 were clearly recorded at Maitri Observatory. The most recent Indo-Pakistan border region earthquake (7.6Mb) was also very clearly recorded, which are all the indicators of the quality of the seismic data obtained from Maitri Seismic Observatory. The increasing seismic activity in and around Antarctica and along the oceanic ridges in the Indian Ocean confirm the emerging deforming zone in the Indian Ocean between India and Antarctica. This increased seismic activity in this region gives an insight into the spreading rates of the ridges and reorganization of plate boundaries.