## Study the Shallow Seismic Activity of Offshore Southern and Eastern of Sri Lanka

SHANTHA S.N. GAMAGE and S.A.D.L.K. SURAWEERA

Department of Physics, University of Sri Jayewardenepura, Sri Lanka

Sri Lanka is considered to be in an aseismic zone away from major plate boundaries or any active faults. However during the last century, there have been several hundreds of earthquakes and earth tremors reported in and around Sri Lanka. Some of these events are described in historical records and more recent events have been identified by institutions such as United States Geological Survey (USGS), and other global seismic networks. These earthquakes have been categorized as shallow and intermediate depth earthquakes. Although this type of earthquakes have been occurring specially in the offshore region of Sri Lanka, detailed investigation of their activity in this region has not been carried out. We therefore made an attempt to investigate earthquake activity of offshore region of the eastern and southern Sri Lanka which is seismically active.

We analyzed the shallow seismic activity of offshore of eastern and southern parts of Sri Lanka and identified their focal mechanisms. We obtained hypocentral data from the Data Management Center (DMC) at the Incorporated Research Institutions for Seismology (IRIS). The earthquake list distributed by the IRIS DMC made clear that there are sometimes multiple epicenter estimates for a single earthquake. We identified those errors and calculated them relative to the NEIC catalog epicenter. Since there are mislocations of events, we tried to identify the magnitude of those errors. Then we analyzed the seismic activity region by region. Our finding shows that large number of earthquakes takes place at a belt lie in southern part of offshore Sri Lanka although some events are scattered due to location errors mentioned above. The focal mechanism data obtained from Harvard CMT moment tensor catalogue were also analyzed for the events occurring in the region. Although different types of focal mechanism solutions exist in earthquakes of near coast events, we clearly noted that earthquake belt in the southern part of Sri Lanka have mechanical solutions which is similar to that of strike slip fault mechanisms. By analyzing earthquakes occurring in the identified belt in Southern part of Sri Lanka and studying their mechanical solutions, it seems that this seismically active region may belong to the boundary of Indo-Australia plate.