

IDENTIFICATION OF ACTIVE FAULT SIGNATURES USING INTEGRATED REMOTE SENSING AND GEOPHYSICAL TECHNIQUE IN CARBYN CHOWK, PORT BLAIR, SOUTH ANDAMAN, INDIA

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Abstract

The surface manifestation and subsurface geometry of the Carbyn Fault (CF) were inspected using integrated earth observation data (SRTM DEM, Landsat 8 OLI_TIRS & Google Earth Imagery) and geophysical technique (VLF-EM) in Port Blair, South Andaman, India. Primarily, the CF was marked in the study location of Carbyn Chowk, Port Blair with the help of a literature review along with satellite data and field validation. The linear structure on the DEM and Landsat 8 images was visually identified. Additionally, the 2D profile of elevation drawn over DEM indicates the presence of a fault line at the contact between the Ophiolite suite and Andaman Flysch. Further, it was analyzed using the selected three VLF-EM profiles perpendicular to the fault line. The present study highlights the significance and role of satellite remote sensing and VLF-EM for active fault studies. According to the VLF-EM cross sections, high and low conductivity zones were observed in the Ophiolite and Andaman Flysch respectively. In VLF Pseudo depth sections, pronounced zones of high current density were observed along profiles 1116E (AA1), 1120E (BB1), and 1128E (CC1). These findings strongly suggest the presence of subsurface dipping, conductive fractures indicative of active fault activity.

Keywords: Andaman, Active Fault, Carbyn Fault, Remote Sensing, SRTM DEM, Landsat 8, VLF-EM.