## New Findings in the Epicenter Zone of 2001, Kachchh Earthquake Using Magnetotelluric Studies

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Hundreds of aftershocks having magnitude M $\geq$ 3 of 2001 Kachchh earthquake of Mw7.7 have been recorded by various agencies like National geophysical Research institute (NGRI) and Institute of Seismological Research (ISR). Until 2006, the seismicity was very high and the earthquakes of M<sub>w</sub>>5 were recorded in the epicenter region. After 2006, aftershocks of Bhuj earthquake and seismic activity are concentrating in the eastern part of the epicentral zone along Samkhiali basin and Wagad area. To decipher the nature of the faults in this area, a detailed MT survey has been conducted from Sikara village in the west of Bhachau to Mae village in the north of Bhachau with an inter station spacing of 1 to 3 km. The profile is about 25 km east of the epicenter of 2001 mainshock.

From the 1D Bostick analysis of 9 MT stations, the sedimentary thickness is found to be varying from 1.5 km to 2.3 km. The 2D inversion analysis of MT data shows two distinctive resistive blocks corresponding to Wagad uplift in the north and the Kachchh Mainland in the south. A deep seated (from 4km to 40km depth) fault dipping south probably exists 4km north of possible extension of Kachchh Mainland Fault (KMF). The area between the two uplifted blocks (Samkhiali basin) has conductive sediments of about 2km thickness over the resistive block.

**KEYWORDS:** Local Magnetotelluric survey, 2-D inversion, resistive blocks, faults in Kachchh.