

# Tectonic Geomorphology and Neotectonic Setting of the Seismically Active South Wagad Fault (SWF), Western India, Using Field and GPR Data

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## Abstract

The South Wagad Fault (SWF) is an E–W trending fault that delimits the Wagad uplift comprising Mesozoic rocks in its northern upthrown block and Neogene–Quaternary sediments in the southern downthrown block. Detailed GPR investigations were carried out at seven sites selected after field studies. All profiles clearly showed the lithological contrast across the fault. The sharp amplitude contrast of the radar waves along a vertical to sub-vertical line is interpreted as the near surface trace of the SWF. As the Quaternary sediments are not displaced, we infer that no large magnitude earthquake has occurred along the SWF in late Quaternary. We attribute the low magnitude of neotectonic activity along the SWF to gentle warping of the Tertiary rocks in the southern downthrown block and greater accumulation of compressive stresses along the nearby KMF with an opposite structural setting. This is consistent with the observed variable levels of ongoing seismicity in the region around the SWF.

**Key words:** tectonic geomorphology, neotectonics, active fault, South Wagad Fault (SWF), Kachchh, Western India.

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