

2003 Fall Meeting
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[Preliminary Identification of Major Faults in the Namche Barwa: Results from a NASA Shuttle Radar Topography Mission \(SRTM\) DEM Calibrated With Field Mapping and Seismicity](#)

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One of the most striking features of the Himalayan eastern syntaxis, Tibet, is the Tsangpo River Gorge, whose erosive power has created over 7000 m of local relief in the region of Namche Barwa. The erosion rate at Namche Barwa is rapid relative to other parts of the Himalaya, and the geodynamic/surface interaction is hypothesized to be very similar to the tectonic aneurism identified in the western syntaxis (Nanga Parbat and the Indus River, Pakistan) by Zeitler et al. (2001). Although the Namche Barwa is rapidly eroding, most of the active faults that accommodate exhumation have not been mapped. Based on the hypothesis that underlying tectonic processes are recorded in distinct topographic signatures, this study utilizes the NASA seamless Shuttle Radar Topography Mission (SRTM) digital elevation model (DEM) in conjunction with seismicity and field mapping to identify potential locations of active faults in this rapidly-eroding region for further field investigation. This type of calibration of remote-sensed DEM and TM (ETM+) data with field mapping and seismicity can be applied to identify active faults in other regions, such as the politically- and geographically-restricted southeastern portion of Namche Barwa or other remote sites on Earth, a critical first step in forming topographic descriptions that can determine where and how the landscape is responding to underlying geodynamic processes. Globally, unprecedented opportunities for remote studies of topography will arise as more 90-m SRTM and data of similar resolution are released, and it is timely to further characterize their uses and limits.

UR: <http://ees.lehigh.edu>

DE: 8040 Remote sensing

DE: 8107 Continental neotectonics

SC: Tectonophysics [T]
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