

**GROUND TILTING IN LIKHABALI AREA ALONG THE FRONTAL PART OF
ARUNACHAL HIMALAYA: EVIDENCE OF NEOTECTONICS** by Khayingshing Luirei and S. S.
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This paper is based on measurements made on Survey of India toposheets in the laboratory and based on these measurements the authors arrived at some quantitative data after applying few formulae and based on these quantitative data they finally proposed that the Siwaliks thrust over the Quaternary of the Brahmaputra Basin in the southern foothill of Arunachal Himalaya in Recent geological times. To support their idea they provided a field photo (Fig.4b) which according to them supports thrusting of Siwaliks over Quaternary.

As I have worked on Siwaliks exposed in Arunachal Pradesh (Sharma et al. 2001; Srinivasan, 2003), I wish to bring to the notice of the authors the ground reality. In the foothill area, especially in nala cuttings, at places one may get the impression of Siwaliks structurally overlying Quaternary alluvium. But it is nothing but slump feature due to undercutting of Siwaliks by stream action. Slumping or sliding gives the false impression of thrusting of Siwaliks over Quaternary. That is why field geologists take attitude measurements of planar and linear elements at number of locations in the field before proposing any structure model. The contact between Siwaliks and Quaternary alluvium is definitely a tectonic contact (Foothill Fault of Srinivasan, 2003) but considering this tectonic contact as a thrust is not supported by field data.

The authors proposed that due to thrusting of Siwaliks over Quaternary, the streams on Siwaliks migrated towards south. I do not understand how it is possible and it is impossible to visualize this type (especially sense of direction) of migration. The whole work is based on few quantitative data collected from toposheets and drainage basin study is incomplete without quantitative study. Of course for qualitative details, field work is required. They also proposed that the gorge segment of Siji River (Fig.5) lies in the hinge zone of a major fold and suggested active nature of fold in Quaternary times. I carried out field mapping from Likhali to Garu along the bank of Siji River (Srinivasan, 2003) and I can state emphatically that there is no field data to support their structural idea which is based entirely on topographic feature as seen in toposheet. Narrowing/widening of streams can easily be explained with change in lithology or even compactness within the same lithology and there is no need to involve structures (without field data) to explain such common phenomenon.

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We carried out both studies based on field and measurements made on Survey of India toposheets.

In field we observed that the Siwalik sandstone, dipping 30° towards SE direction, overlies the horizontal compact and stratified deposit that is not Siwalik. However, as

pointed out by Srinivasan “it (Quaternary alluvium) may be slump feature due to undercutting of Siwaliks by stream action”, which cannot be ruled out. We agree that by and large the tectonic contact between Siwaliks and Quaternary alluvium is not visible at present ground level.

Due to inaccessible region and limited good rock exposures, we studied Survey of India Toposheets. Based on the data generated, the interpretations were made by

using the methodology given by Cox (1994). We agree that the conclusions drawn should be strengthened by detailed fieldwork. As we recognized one major anticline whose NE-SW trending broad hinge zone coinciding with the gorge segment of Siji River, and because the southeastern overturned limb of anticline overlies the Quaternary deposit along a fault as shown in Fig.4b, therefore we interpreted the active nature of anticline in the Quaternary times.