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## Structural and Lithological Controls on the Northern Margin of the Tibetan Plateau.

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The Qilian Mountains and Qaidam Basin, in northeast Tibet, form the youngest part of the Tibetan

Plateau, and may provide a type example for the evolution of older regions of the Plateau (Fig. 1). The area is a reactivated orogenic suture belt which was accreted to the North China Craton during the mid-Palaeozoic. Deformation and mountain building associated with the Indo-Asian collision have been active in the region since the Miocene and are characterised by the formation of fold-thrust mountain ranges which splay south-eastwards

from the sinistral northeast trending Altyn Tagh Fault (ATF). Our study involves the investigation of both the Quaternary and Pre-Quaternary tectonics around the Changma Basin at the very north-eastern corner of the Plateau. There, the ATF forms a triple junction with the frontal thrust of the Qilian Nan Shan. The basin is surrounded on all sides by high mountain ranges composed of lower Palaeozoic meta-sedimentary and meta-volcanic rocks, which are being actively uplifted either by frontal thrusts or transpression along the ATF

### Figures

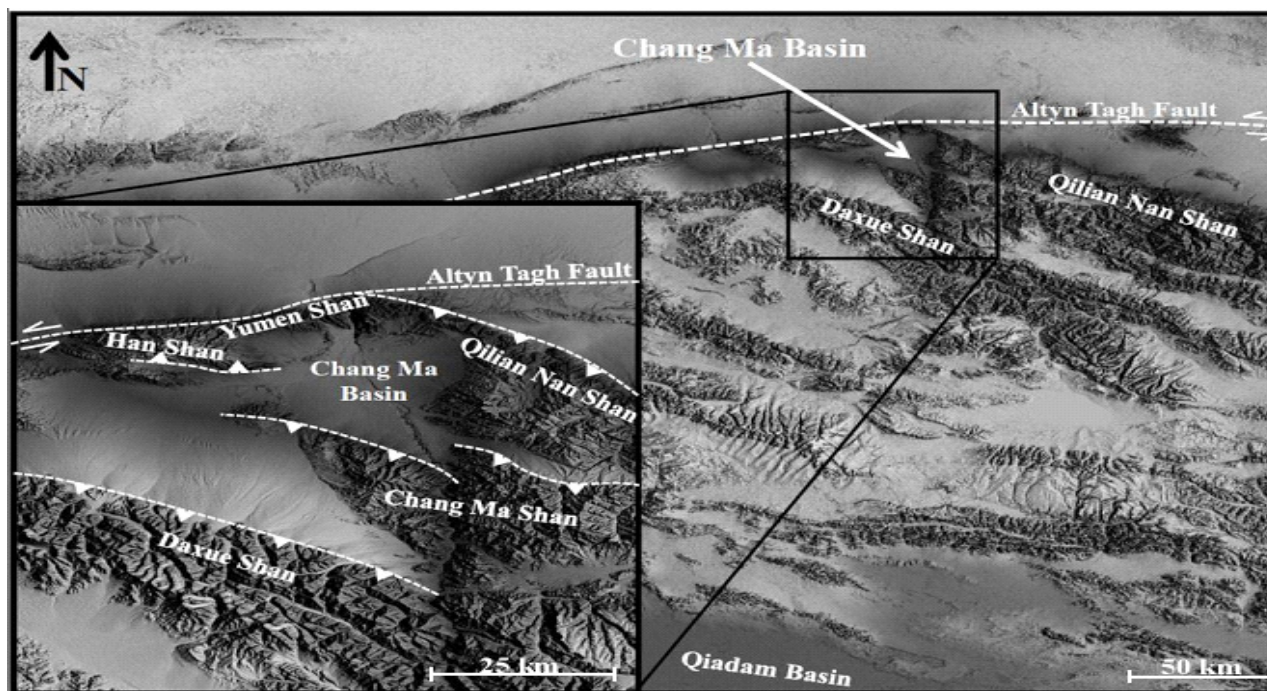


Fig 1. Topographic map showing the location of the Chang Ma Basin within the Northeast Tibetan Plateau, and ranges and faults which surround the basin.

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(Fig. 1). In addition, the basin itself is internally deforming and topographically inverting along discrete thrust zones, but the basin is also eroding and losing sediment via the Su Le He River, the largest river draining northernmost Tibet. Thus the dynamic interplay between erosion and tectonic uplift directly affects the region's physiographic development. By linking structural transect mapping, remote sensing and image analysis, the structures and lithologies within the ranges are being documented to establish the extent of basement control on the modern growth of the mountain ranges and on the kinematics of the faults responsible for their uplift. These new data will be used to test the hypothesis that the north-eastward growth of the Tibetan Plateau is constrained by pre-existing weaknesses in the Palaeozoic crust to the south of the ATF and the rigid Archaean basement to the north.

**Keywords:** Northeast Tibet, Altyn Tagh Fault, Qilian Shan, plateau growth, basin inversion.

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