



Structural and topographic characteristics of restraining bend mountain ranges in the Altai, Gobi Altai and easternmost Tien Shan

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Intracontinental intraplate mountain building in the Altai, Gobi Altai and easternmost Tien Shan is characterised by Late Tertiary-Recent transpressional deformation. These mountain belts comprise a previously unrecognised class of intraplate orogen characterised by oblique deformation with complex strike-slip and thrust fault connectivity and interaction. Various types of restraining bend uplifts with diverse flower structure fault patterns can be identified and coalescence of restraining bends, thrust ridges and other transpressional uplifts has led to continuous mountainous terrain in much of the Altai. Mountain building processes in the Gobi Altai are similar, but the Gobi Altai is at a younger stage of evolution allowing earlier stages in the growth of restraining bend mountain ranges to be documented. In addition, in the Gobi Altai and along the eastern flank of the Altai, insights into the development and eventual destruction of intramontane clastic basins can be gained. In this presentation, twelve separate restraining bends are identified and analysed for their topography, dimensional attributes, and fault architecture responsible for topographic uplift. Lithospheric controls on the nucleation, topography, and kinematic development of restraining bends will be discussed. Restraining bends and other transpressional uplifts are major orogenic elements along the entire western and northern perimeter of the Indo-Eurasia deformation field and understanding their construction is important for evaluating the seismic hazard in these regions and for understanding overall processes of oblique intracontinental deformation.