



Tibet-a future craton——Scandinavia-a former Tibet

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The structure of seismic discontinuities in the upper mantle below Tibet and several cratons is compared. This structure is obtained from seismic observations using mainly the S receiver function technique, which produces relatively clear and unambiguous images of positive and negative discontinuities in the upper mantle. The lithosphere-asthenosphere boundary (LAB) is frequently seen, also in some cases the bottom of the asthenosphere (the Lehmann discontinuity). It appears that “lithospheric stacking” is visible in Tibet, in Scandinavia and perhaps also in South Africa; not however in North America. About 500km of underthrusting of Indian lithosphere underneath Tibet is observed and perhaps 1000km of underthrusting of Phanerozoic European lithosphere below Scandinavia. In northern Tibet underthrusting of the Eurasian lithosphere is less clear. Lithospheric thinning is observed below eastern Tibet which is probably a result of delamination in that region.