DR2004034

Data Repository Items

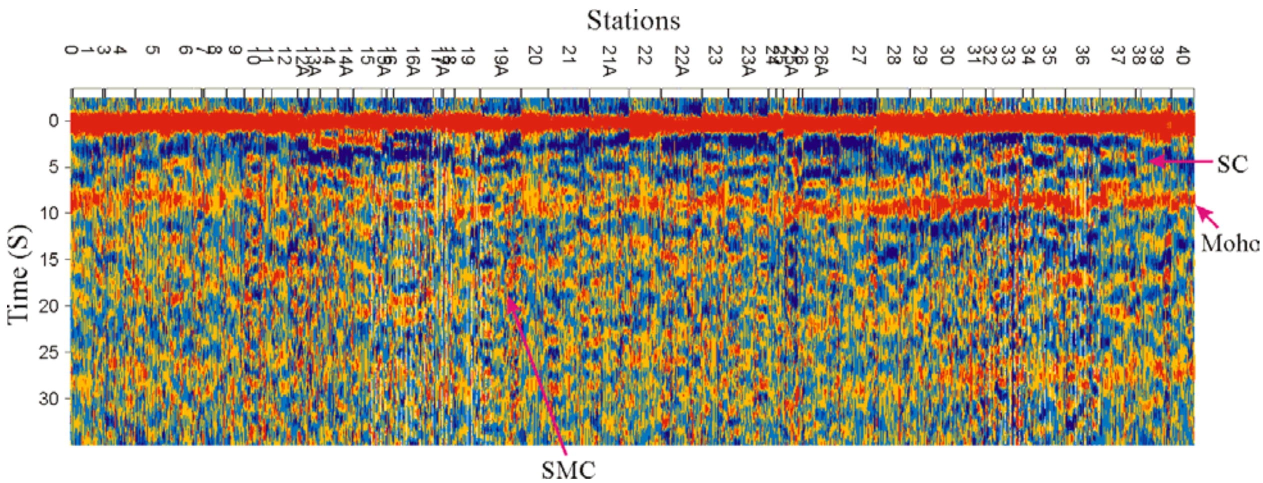

Figure DR1. Sample receiver functions for back-azimuths between N45°E and N135°E. A south-dipping converter (SC) from the upper to the lower crust of the Qiangtang terrane is shown clearly. A south-dipping mantle converter (SMC) is discernible as well. In the receiver function calculation, the Gaussian filter factor α and the water level factor *c* are set to 1.5 and 0.05, respectively.

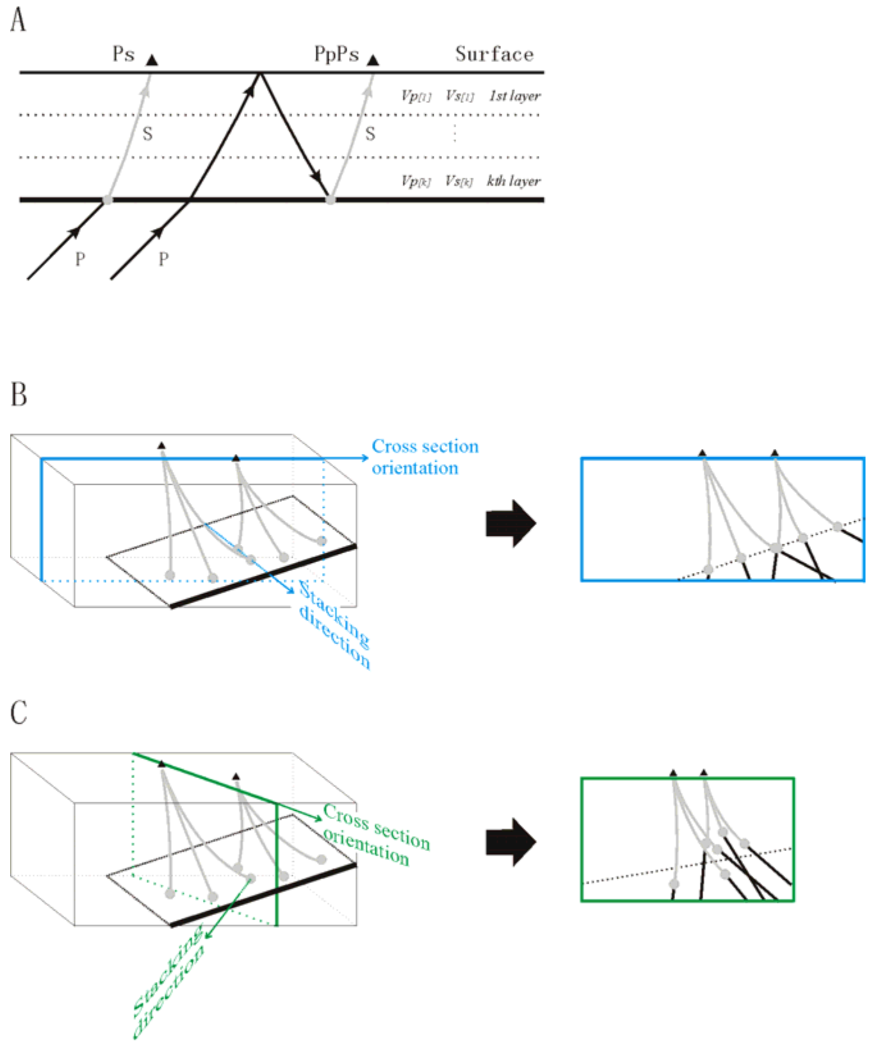

Figure DR2. Diagrams for the construction of receiver function cross sections in this study. A: Ray paths of the directly converted Ps wave and the multiple converted PpPs phase in a layered medium, on the basis of which receiver functions are migrated into spatial image. B: Dipping structure imaged on the cross section (a projective vertical plane) perpendicular to the strike of the dipping structure. C: Dipping structure imaged on the cross section oblique to the strike of the structure. In the cross section construction, receiver functions are stacked (averaged) along the normal direction of the vertical plane. Therefore, dipping structure will be imaged more coherently on the former cross section than on the later one. Although sometimes the layered medium migration method may yield somewhat dip-shift for dipping structure on the image (comparable to of that in seismic reflection profiling), this method is still preferable because it recovers correctly (or frankly) the geometry of (sub-) horizontal structures. Usually, the impairment on the signal coherence for dipping structure due to the migration error can be reduced by using only earthquakes whose backazimuths within a special range in the stacking (ref. Langston 1977; Nabelek, et al., 1993, EOS Trans. AGU, v. 74, p. 431).

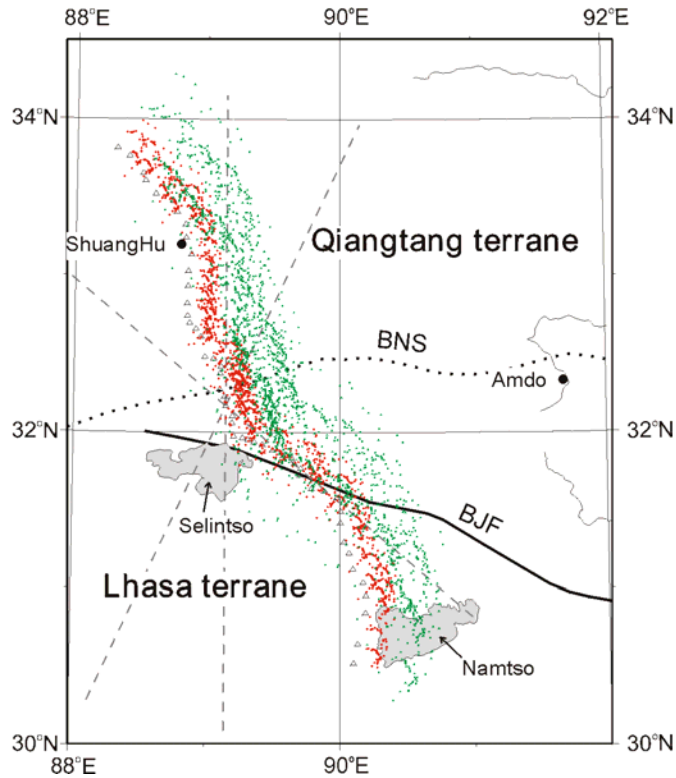

Figure DR3. Location of piercing points of P-to-S converted waves at 65- (red) and 150- km (green) depths below sea level (migrated with layered velocity model), indicating that the receiver functions sample (or represent) subsurface structures below and just east of the quasi-linear array. Triangles indicate INDEPTH III seismological stations. Dashed gray lines represent the orientations of the three cross sections. Dotted line represents Bangong-Nujiang suture (BNS). Thick solid line marks Bengco-Jiali right-lateral strike slip fault (BJF). Thin solid lines are rivers, and gray- shaded areas are lakes.

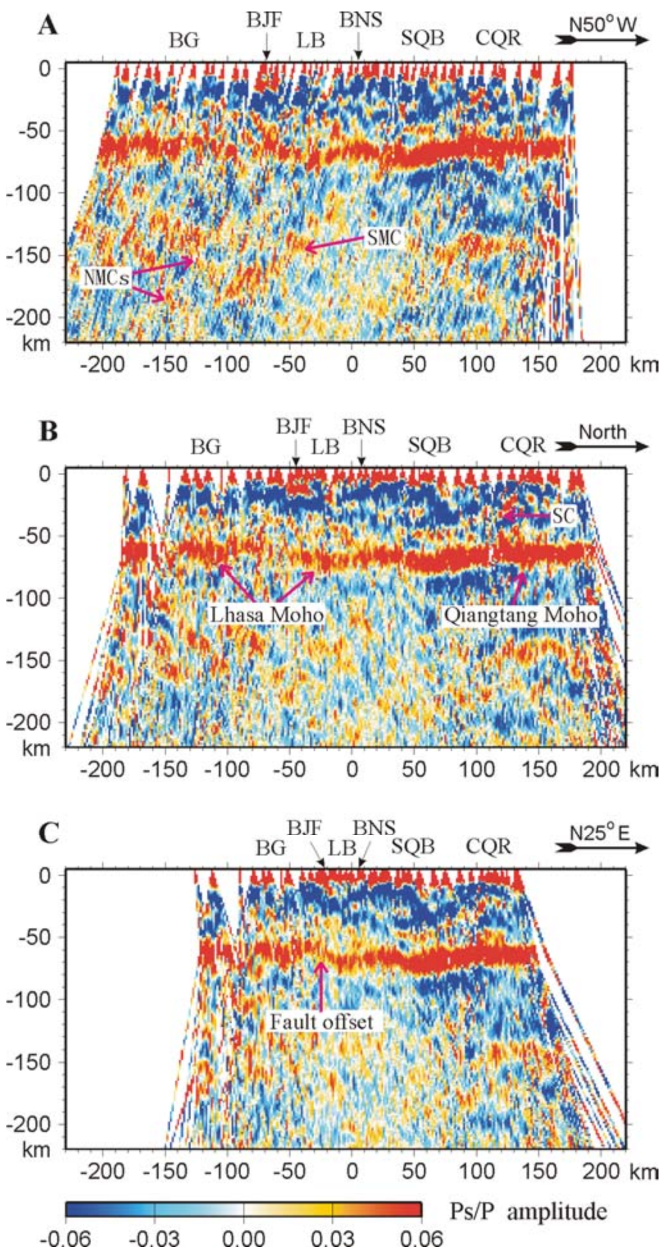

Figure DR4. Cross sections similar to of those shown in Fig. 2 but constructed with smaller stacking bin size. BJF—Bengco-Jiali fault; BNS—Bangong-Nujiang suture; BG—Bango granite; LB—Lumpola basin; SQB—southern Qiangtang basin; CQR—central Qiangtang rise.

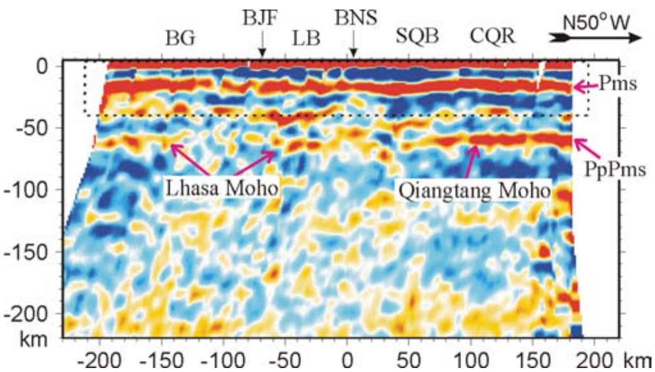

Figure DR5. Moho imaged with multiple conversion PpPms phase. Different conversion characteristics of Lhasa Moho and Qiangtang Moho are shown as distinctly as in image using direct-conversion Pms phase (Fig. 2). All the data in this cross section are migrated for the multiple converted PpPs phases. Therefore, the multiple converted PpPms phase should be correctly migrated in this image, but the directly converted phases (including Pms) should be mis-positioned (mostly enclosed in the dashed rectangle). BJF—Bengco-Jiali fault; BNS—Bangong-Nujiang suture; BG—Bango granite; LB—Lumpola basin; SQB—southern Qiangtang basin; CQR—central Qiangtang rise.

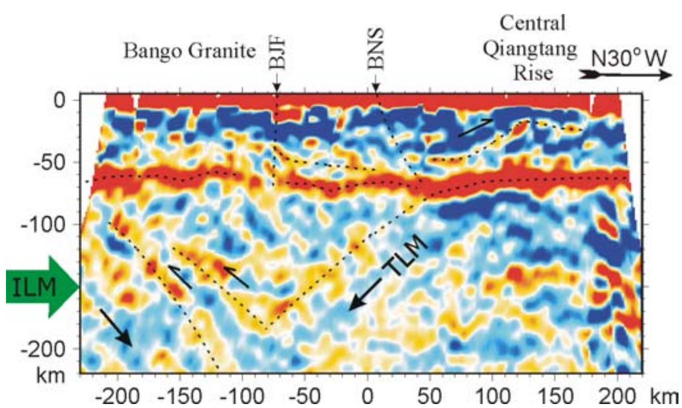

Figure DR6. Cross section constructed along the array and the correspondent deformation structures shown in Fig.3.