Large deformation field from InSAR during 2015 to 2021 for the Makran subduction and North Tibet

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We have calculated the deformation velocity field for the Makran subduction and North Tibet region with the spatial range of [25°N - 31°N; 55°E-67°E] and [30°N-41°N; 85°E-97°E], respectively. There are two significant deformation signals in the epicenter of the 2013 Mw 7.7 Balochistan earthquake and the 2001 Mw 7.8 Kokoxili earthquake. For the Balochistan earthquake, we found that the 7-year post-seismic deformation was due to the widespread aseismic slip along the megathrust and not due to the viscoelastic relaxation. For the Kokoxili earthquake, we probed whether the viscoelastic relaxation of 2001 Kokoxili earthquake is still continuing. We first simulate the deformation caused by the interseismic slip along the major active faults in Tibet. By comparing the simulated deformation and the observed deformation, we found that the maximum ratio of the simulated deformation to the observation is 42\%, which means that the viscoelastic relaxation of 2001 Kokoxili earthquake is still continuing. The effective viscosities of lower crust and upper mantle are inverted as $1.78 \times 10^{19}$ Pas and $1.78 \times 10^{20}$ Pas, respectively.