Abstract

Previous studies based on Envisat, Sentinel and TerraSAR-X SAR data and GPS observations have shown that the central segment of the August 17, 1999 Izmit earthquake rupture on the North Anatolian Fault (NAF) had began slipping aseismically following the event. Recent SAR data of Sentinel 1A/B satellites and recently established GPS network of 35 benchmarks confirm the ongoing creep as one of the longest lasting afterslip (> 23 years) instrumentally recorded. Decaying logarithmically with time, afterslip appears to have reached a steady rate comparable to the pre-earthquake full fault-crossing rate, suggesting that it may continue for decades and possibly until late in the earthquake cycle. This suggests that the aseismic slip along the NAF in western Marmara Sea may be the afterslip of the 1912 Ganos earthquake. In addition to the stable steady state creep, InSAR time series disclose transient creep events (creep bursts).