Potential volcanic deformation signals at Ol Doinyo Lengai in 2017: detection and response

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Monitoring of volcanoes and data collection in real-time has increased over the past decade as the transmission and cyberinfrastructure capabilities continue to improve. In June 2016 we initiated the first phase of Tanzania's first volcano observatory at the active Ol Doinyo Lengai volcano (TZVOLCANO), which includes 5 continuous and telemetered GNSS/GPS sensors of which 2 produce real-time PPP-AR position solutions. We developed a simple program to use EarthCube's Cloud HOsted Real-time Data Services for the geosciences (CHORDS, NSF ICER #1639750) for visualization and easy access to the data (tzvolcano.CHORDSrt.com). On January 17, 2017 we observed the first of a series of potential volcanic signals at Ol Doinyo Lengai through the time-series generated in near real time. In response, we rapidly deployed a field team to assess the stability of our GNSS/GPS stations and determined that our positioning sensors were functioning properly in January 2017. Further, local team members of the Engaresero village reported (1) low magnitude seismicity, (2) changes in crater geometry, and (3) increased ash emissions after the initial January 2017 signals were observed via CHORDS. We report about these events, our subsequent actions, and the implications for volcanic hazards assessment in Tanzania.