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Potential use of Interferometric Techniques in the Location and Size Estimation of Suspected Test Sites

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Interferometric techniques using radar signals to map the elevation of the Earth's surface or to map differences in the topography as a function of time have surged in applications in the last few years. Satellite interferometry, using successive radar images of the Earth's surface are now routinely used to monitor subsidence of sedimentary basins due to water or oil extraction, for example. Similar interferometric instrumentation is now also available to be mounted in drones at relatively low elevation, allowing a very dense cloud of observations leading to a very high spatial resolution. One of the main challenges of an on-site inspections is the rapid location of the potential test site within a relatively large area. For this purpose, a number of geophysical and geodetic techniques have been proposed for use at Entry into Force. Here, we propose and demonstrate that with the current availability of open-source satellite images and the low cost of drone-borne interferometry, the location of the suspected site where the nuclear test may have taken place will be revealed by subsidence or deformation of the ground surface. Thus interferometry may be the more economical method of a first order mapping the location of a suspected test site.

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