

of Nuclear Test Sites by Satellite Imagery

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Satellite imagery is a powerful tool to monitor compliance of States Parties with the Comprehensive Nuclear-Test Ban Treaty (CTBT). Satellite imagery can be used by the States Parties as one of the national technical means of CTBT verification. Moderate to high spatial resolution satellite imagery is useful to investigate areas where a nuclear test may have taken place, as primarily indicated by the data of the seismic network. In this study, recent Sentinel-2 data and historic Landsat images of a number of sites of underground nuclear tests that have been carried out by USA, ex-USSR, France, China, India, Pakistan, and People's Republic of Korea are analysed. The multivariate change detection algorithm, imagery animation and other visualization techniques were used to analyse the data. The moderate spatial resolution imagery can accurately detect areas of surface disturbance due to the nuclear tests, especially for tests carried out in desert regions. However, low yield tests may not produce surface expression detectable by the satellite imagery. In these cases, high spatial resolution imagery is useful to monitor activities that may be related to a nuclear testing event.

Promotional text

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