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Change Detection Using Sentinel-1 Synthetic-aperture Radar on the Google Earth Engine Platform

The European Commission's Copernicus mission regularly releases SAR data from the Sentinel -1 satellites. These data have proven valuable for nuclear non-proliferation verification activities by offering analyst s medium resolution datasets for site monitoring at no cost. This paper describes a change detection algorithm based on an omnibus likelihood ratio test statistic for the equality of several variance-covariance matrices following the complex Wishart distribution, with an associated p-value and a factorization of the test statistic. The algorithm runs on Sentinel-1 datasets provided by the Google Earth Engine (GEE) repository using a JavaScript API or a local Docker engine and web browser. By using this cloud computing platform, analysts relinquish the burdensome storage and computation needs from their local network. Examples in the nuclear fuel cycle are used in the paper to illustrate the benefit of this change detection algorithm for analysts.

Which "Key Question" does your Abstract address?

TEC3.2

Topics

TEC3

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