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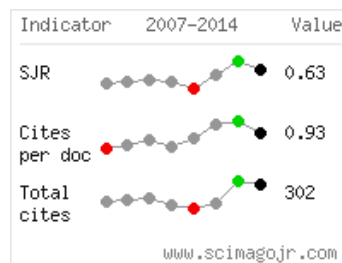
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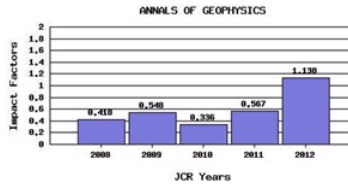
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Fast Track

Detection of Volcanic Plumes by GPS: the 23 November 2013 Episode on Mt. Etna

Massimo Aranzulla, Flavio Cannavò, Simona Scollo

Abstract

The detection of volcanic plumes produced during explosive eruptions is

important to improve our understanding on dispersal processes and reduce risks to aviation operations. The ability of Global Positioning System (GPS) to retrieve volcanic plumes is one of the new challenges of the last years in volcanic plume detection. In this work, we analyze the Signal to Noise Ratio (SNR) data from 21 permanent stations of the GPS network of the Istituto Nazionale di Geofisica e Vulcanologia, Osservatorio Etneo, that are located on the Mt. Etna (Italy) flanks. Being one of the most explosive events since 2011, the eruption of November 23, 2013 was chosen as a test-case. Results show some variations in the SNR data that can be correlated with the presence of an ash-laden plume in the atmosphere. Benefits and limitations of the method are highlighted.

Keywords

GPS; SNR data; Etna; volcanic plume

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