Land subsidence monitored by satellite interferometry in Mexican cities

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Abstract Land subsidence has been observed in Mexico since the 1980s. The urban centres located in the central part of the Mexican Volcanic Belt (MVB) were the first affected by such a problem. In order to monitor the phenomenon and to retrieve land subsidence rates, a satellite interferometric analysis was carried out for the main cities located within the MVB, namely Morelia, Celaya and Querétaro. Differential interferograms of these cities display phase signals related to ground displacements. Deformations of the ground surface are concentrated along the main surface faults. Through phase unwrapping, maximum land subsidence rates of −35, −100 and −68 mm/year for Morelia, Celaya and Querétaro, respectively, have been recorded.

Key words land subsidence; satellite interferometry; Morelia; Celaya; Querétaro