Macrocategoria: Materiali e Pavimentazioni.

Titolo articolo: A New Tool for Road Network Deformations Monitoring Through Space-Born SAR Data and In-Situ Instruments.

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Abstract: Transportation networks infrastructure ageing, deterioration and maintenance present a global problem and their loss translates to a loss of movement and transportation, trade and commerce, among others. The use of remote sensing technologies (non-invasive) is an efficient solution to enhancing the condition assessment of these from large-scale networks to single sections supporting improved decision making. Nowadays, the availability of a large amount of SAR data can be implemented in a Web-Based Spatial Decision Support System (WB-SDSS) platform to provide a powerful instrument for quick diagnosis to stakeholders. To this aim, a novel WB-SDSS solution has been developed in the Angular workspace. The IT architecture is based on PostgreSQL relational databases, periodically updated with new SAR data acquired and processed, and shared with users thanks to Geoserver services. The implemented Python code allows visualizing time series of Permanent Scatterers (PSs) obtained from free-of-charge SAR imagery in addition to data acquired by in-situ instruments (i.e. inclinometers, piezometers, etc.). Finally, to provide a useful instrument for quick diagnosis to stakeholders, employing the methodology of the I-Pro MONALISA algorithm presented by [1] the road network has been discretized in terms of areas with different degrees of attention.

Keywords: Decision Support System; Infrastructure monitoring; Structural Health Monitoring.