



## An innovative mobile georadar system for road monitoring and diagnostic: first application in Southern Italy

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This work will show the preliminary results obtained through the use of an innovative mobile georadar system for road monitoring and diagnostic. This electromagnetic mobile system is an innovative tool which is able to analyse and monitor the road paving of the overall road network with the aim of individuating critical areas affected by sinking or wearing. The georadar system, equipped by a high frequency antenna ( $f=1\text{GHz}$ ), is mounted on a van and is able to acquire suitable data at velocities up to 70Km/hour. Through the use of this kind of mobile system it is possible to obtain in a short time and with very low costs a wide amount of data on thickness and roughness of the asphalt, superficial sinking and water saturated areas. The first tests were carried out on the main provincial road located in an area of the Southern Apennines affected by hydrogeological risk. This activity has been performed in the framework of a project funded by the Province of Potenza, and realized thank to the consolidated collaboration between the Institute of Methodologies for the Environmental Analysis (IMAA) and the Institute for Electromagnetic Sensing of the Environment (IREA) of the National Research Council of Italy (CNR). This activity has been recognized also at European level as a best practice procedure in the frame of "Window on GMES - Global Monitoring for Environment and Security". The application of this innovative electromagnetic system on the overall road system of the province of Potenza will enable the decision-makers to plan with more detail and awareness the technical actions addressed to maintain and repair the road sections really affected by anomalies, with a time-saving and lower management costs.