Geophysical Research Abstracts
Vol. 14, EGU2012-11173, 2012
EGU General Assembly 2012

Improvement on a portable laser profiler for gully volume evaluation: laboratory and field testing

C. Castillo (1), R. Pérez (1), E.V. Taguas (1), J.S. Lora (1), J.V. Giráldez (1), and J.A. Gómez (2)

(1) University of Córdoba, Rural Engineering Department, Spain (ccastillo@uco.es), (2) Institute for Sustainable Agriculture. CSIC. Apartado 4084. 14080 Cordoba Spain

Gullies are some of the most important sediment sources in the semi-arid environment, which cannot be documented sufficiently through measure conventional methods which usually are very expensive and time-consuming. This communication describes the improved technical characteristics and the expected accuracy of the laser distance sensor when is used for gully volume quantification under laboratory and field conditions.

The implementation of magnetometers and accelerometers on a laser profiler have allowed to register the orientation and the inclination of the sensor. In addition, a 7 m- resolution global position system (GPS) was used to determine the approximate location of the measurements. The accuracy of the device is evaluated against the measurement distance, angle of incidence, colour and roughness of target surfaces and lighting conditions at the laboratory. Field studies have been conducted to assess the performance of the device in actual soil samples and gully configurations.