



Determination of first exposure year by using dendrogeomorphological analysis of Scots pine roots

J.M. Rubiales (1), **J.M. Bodoque** (2), A. Díez-Herrero (3), J.F. Martín-Duque (4)

(1) Technical University of Madrid, (2) University of Castilla-La Mancha, (3) Spanish Geological Survey, (4) Complutense University of Madrid (JoseMaria.Bodoque@uclm.es / Phone: +34-925-268800)

The first year of root exposure as consequence of sheet erosion action has been determined in a popular trail in a Scots pine forest (Senda Schmidt, Valsáin) located on the northern slope of the Guadarrama Mountains, Central Spain. This site was selected because of the presence of denudation processes caused by human influence (trampling by continuous trekking), resulting in exposed roots. For such aim, an anatomical study of exposed and not exposed *Pinus sylvestris* roots, as well as an analysis of variance (ANOVA) of the anatomical parameters studied have been carried out. These parameters were: a) width of the growth ring; b) number of cells per ring; c) percentage of late wood; d) diameter of cellular light in early wood. The results obtained verify that the anatomical changes produced by having the roots of *Pinus sylvestris* exposed allow the determination of the first year of exposure better than morphological pattern of roots analysis.