POSTDOCTORAL POSITION OFFER FORM

1. Job Position title: Impact of Past Soil Erosion on Future Soil Security in the Mediterranean
2. Keywords:

soil erosion, hydrology, sustainability, food security, geostatistics

3. Researcher in charge in DAUCO:

- Title:
- Full name: Tom Vanwalleghem
- Email: ag2vavat@uco.es
- Research group: AGR-127
- Website: https://www.uco.es/organiza/departamentos/agronomia/es/hidrologia-e-hidraulica-agricola-agr-127
- ORCID: https://orcid.org/0000-0002-1023-9387

4. Research Group description (max. 2.000 characters)

The main activities and expertise of our research group AgHy2 (AGR-127 Agricultural Hydrology and Hydraulics) are related to superficial hydrological processes in Mediterranean environments, with special focus to erosion and sediment transport, water quality and soil moisture dynamics.

Our group is conformed of eight full-time staff, and several PhD students and postdocs. Our research facilities include a lab space for soil physical analysis, and we have several fully sensorized field sites where we measure soil moisture dynamics, runoff and soil erosion. We participate in several national and international research projects (for example the H2020 Super-G project on sustainable grassland management, https://www.super-g.eu/). We have active research collaborations with universities all over Europe, Australia, Japan and the US, where students can do research stays.

5. Job position description (max. 2.000 characters)

The main objective of this project is to measure and model historical soil erosion rates as a function of past land use and climate changes in Andalusia, Southern Spain. This research will be used to understand the current status and evolution of soil resources and their ability to sustain agricultural production and other ecosystem functions under future climate and societal changes.

The primary duties of the successful candidate involve:

- development and evaluation of new radionuclide tracers for measuring soil erosion
- measure historical soil erosion rates in a set of key catchments spanning different land use histories
- modelling historical soil erosion rates based on reconstruction of past land use changes
- evaluate the effects of soil erosion on soil security through the assessment of the main soil functions under different scenarios of global change