



**INTERUNIVERSITY PHD COURSE**  
**“SUSTAINABLE LAND MANAGEMENT”**  
**Cycle XXXVI**

<b>Phd student:</b>	Francesco Vito Ronco
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<b>Research project title</b>	<b>Monitoring and evaluation of soil erosion through the use of remote sensing techniques</b>
<b>Professor/ tutor:</b>	Prof. Francesco Gentile

**Summary**

**Introduction:** It is estimated that about the 20% of the Italian territory is exposed to different hydrogeological hazards (ISPRA Report 2018) with consequent damages that determine considerable efforts in terms of disbursement of economic resources for the restoration of initial conditions. It is important to integrate, in order to support the civil protection forecasting, prevention and monitoring activities, the different existing remote sensing methodologies (r.s.) that allow to investigate surfaces of different sizes with different degrees of spatial resolution.

**State of the art:**

Some predictive methods of surface erosion have been developed ad hoc in Europe, and are applied in the affected areas. However, other natural ecosystems, such as those of Puglia, may have different erosion processes, in relation to the different vegetation, climatic and topographical composition, and therefore require the creation of ad hoc models.

Several authors are proposing in-depth studies and research aimed to the application of predictive models that involve the use of r.s.

**Materials and methods**

The research aims to apply a model that, by integrating the different methodologies that use r.s. techniques, allows the constant monitoring of the territory with relatively low costs.

**Expected results**

In this context, the research project aims to obtain an integrated system, for the Mediterranean environment, which, starting from the studies and methodologies already proposed in the field of remote sensing, can propose rapid and technical tools to identify, monitor and reduce slope erosion, and at the same time give quick answers even in the management phase of civil protection emergencies.

**Bibliographical references**

1. *Modelling soil erosion in a mediterranean watershed: comparison between swat and annagnps models o.m.m. abdelwahab et al – 2018*
2. *A spatial analysis to define data requirements for hydrological and water quality models in data-limited regions - Ersilia D'ambrosio et al 2019*
3. *Geomorphic effectiveness of check dams in a debris-flow catchment using multi-temporal topographic surveys - Massimo Morea et al 2019*
4. *Integrated approach of rusle, gis and esa sentinel-2 satellite data for post-fire soil erosion assessment in basilicata region (southern italy) – Antonio Lanorte et al 2019*