



## Seminar(i)

**Machine learning in Earth Observation:  
retrieving parameters from space**

**Gustau Camps**

**Image and signal processing (ISP)  
group (UVEG)**

Earth observation (EO) from remote sensing satellites allows us to monitor the processes occurring on the land cover, water bodies and the atmosphere, as well as their interactions. In the last decade machine learning (ML) has impacted the field enormously due to the unprecedented data deluge and emergence of complex problems that need to be tackled (semi)automatically. I will pay attention to one of the main problems in EO: to perform estimation of bio-geo-physical variables from remote sensing (satellite) observations, and will review the current ML methods through some examples in land/vegetation, water and atmosphere applications, and will discuss on new data-driven physics-aware methods.

**Spatializing plant traits at a global  
scale using remote sensing data**

**Álvaro Moreno**

**Image and signal processing (ISP)  
group (UVEG)**

Plant traits characterize species and have been used intensively for ecosystem modeling. In most of these models functional properties of vegetation are over simplified to a reduced number (~10) of plant functional types (PFTs) with similar physical, phenological and physiological traits. Such groupings ignore important variability within individual PFTs, and constitute a significant source of errors in model estimates. Solutions to this issue include the use of plant trait databases and potential covariates (eg. meteorological data) to move forward from the static PFT parameter paradigm and create continuous maps of plant traits. We developed and validate a general framework to estimate global maps (500 m) of plant traits using modern machine learning techniques along with remote sensing and climate data.

**WHERE?**

Seminar room – SS6

(Institutes building floor -1)

**WHEN?**

Thursday 21/03/2019 – 12:00 h