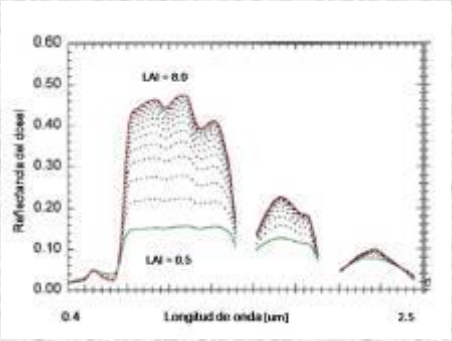
The usage of ASD FieldSpec Pro by the Laboratory of Remote Sensing and GIS of Doñana Biological Station (LAST-EBD)



R. Díaz-Delgado
Technical Head LAST-EBD

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Estación Biológica Doñana CSIC

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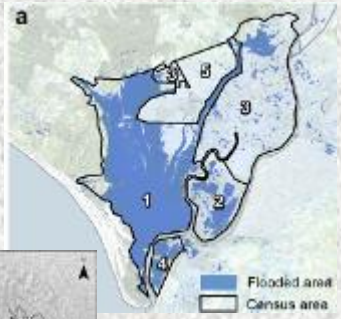
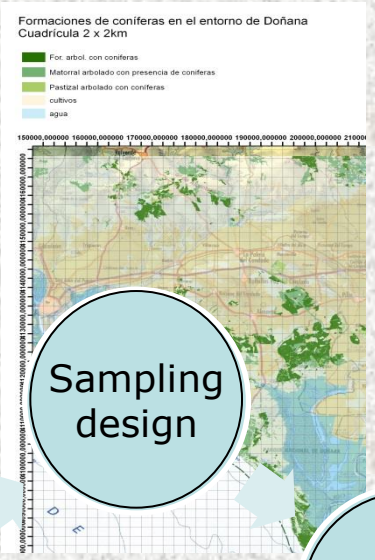
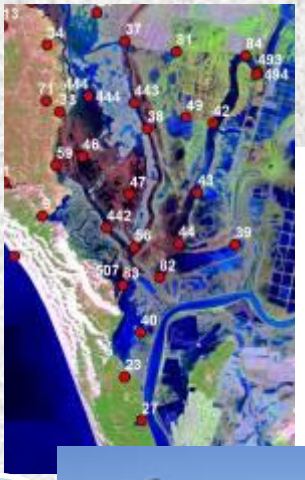
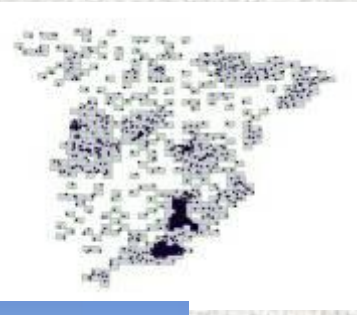
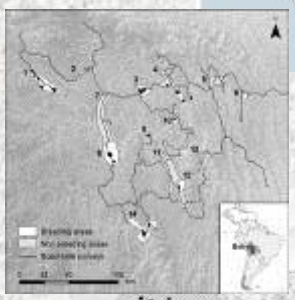
LAST-EBD: providing services







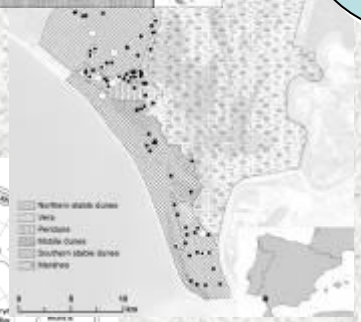




Sampling design

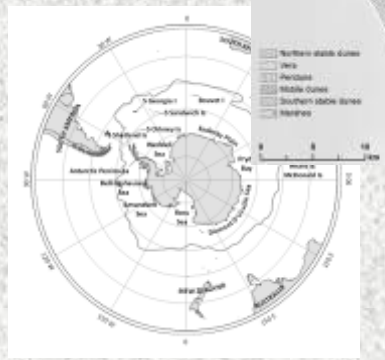
Data collection

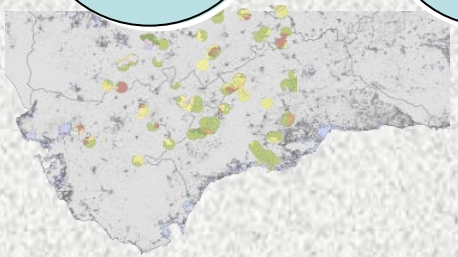
Publication

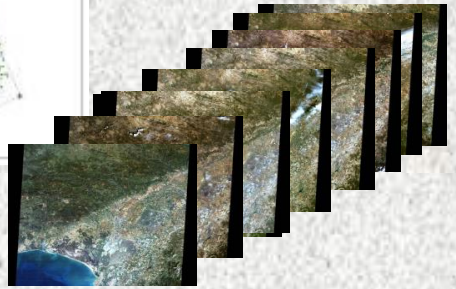


Search, Download Processing

Analysis







Own research projects

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eLTER
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Integrated European Long-Term Ecosystem
& socio-ecological Research Infrastructure

Chapter 6. Trends in Selected Biomes, Habitats and Ecosystems: Inland Waters

AUTHOR: Ned Gardiner[1]
CONTRIBUTORS: Ricardo Díaz-Delgado Hernández[2]
REVIEWERS: David Coates[3], Ricardo Díaz-Delgado Hernández[2]
1 American Museum of Natural History, 2 Doñana Biological Research Diversity

ELSEVIER
Journal of Environmental Management

Predictive models of turbidity and water depth in the Doñana marshes using Landsat TM and ETM– images

Javier Bustamante [a,b,*], Fernando Pacios [a,b], Ricardo Díaz-Delgado [a,b], David Aragonés [a,b]

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Research Article

Linking *Azolla filiculoides* invasion to increased winter temperatures in the Doñana marshland (SW Spain)

100 YEARS Journal of Ecology

Journal of Ecology

Long-term expansion of juniper managed landscapes: patterns in space and time

Cristina García[1]*, Eva Moracho[2], Ricardo Díaz-Delgado[3] and Pedro Jordano[2]

1 Plant Biology, Centro de Investigación en Biodiversidad y Recursos Genéticos (CIBIO-INIA), Crta

Ricardo Díaz-Delgado, Javier Bustamante, David Aragonés and Fernando Pacios
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4042472

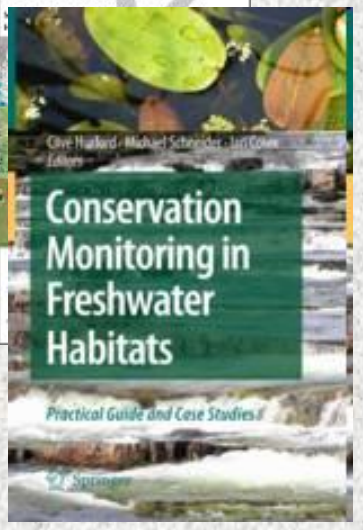
Article

Towards a Standard Plant Species Spectral Library Protocol

LONG TIME SERIES OF LANDSAT IMAGES TO RECONSTRUCT RIVER SURFACE TEMPERATURE AND TURBIDITY REGIMES OF GUADALQUIVIR ESTUARY

Ricardo Díaz-Delgado[1], Iban Ameztoy[1], Jordi Cristóbal[2] and Javier Bustamante[1]

1 Remote Sensing and GIS Laboratory of Doñana Biological Station-CSIC. Seville. Spain
2 Department of Geography, Autonomous University of Barcelona, Cerdanyola del Vallès, Spain.



Multiscale approach

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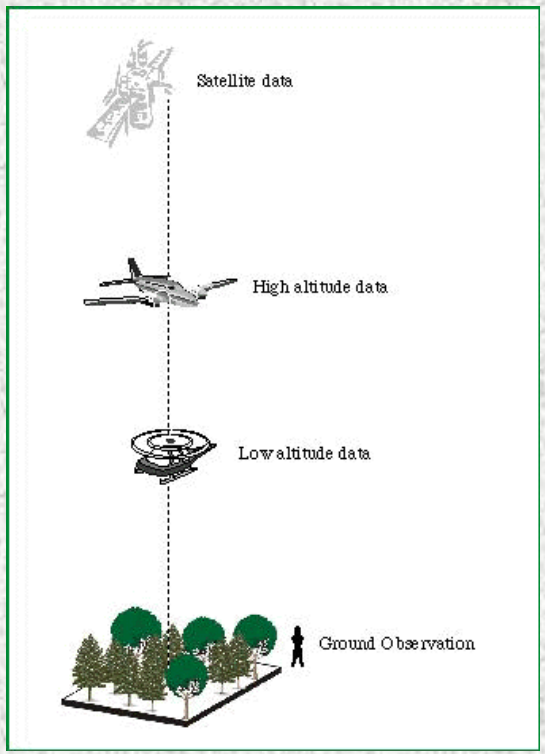
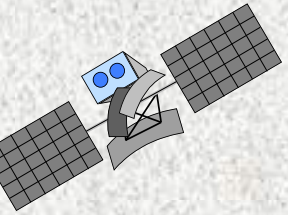
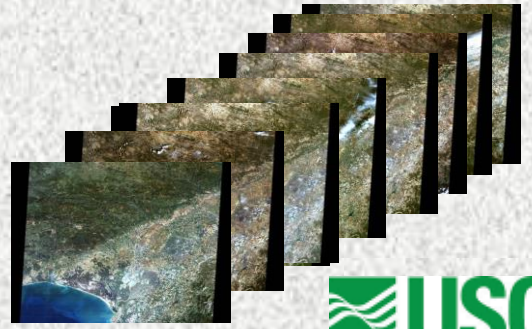
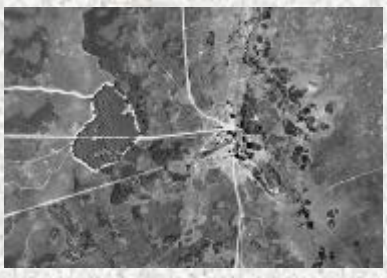






USGS
science for a changing world



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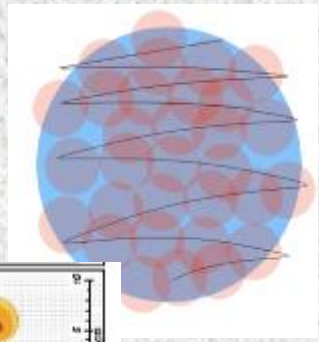
DOÑANA
PARQUE NACIONAL
PARQUE NATURAL

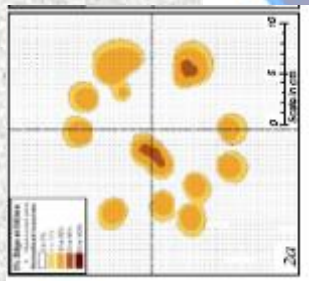
Using our ASD FieldSpec Pro JR

Since 2004
Unit 6453

Main and first uses: calibration of hyperspectral airborne images

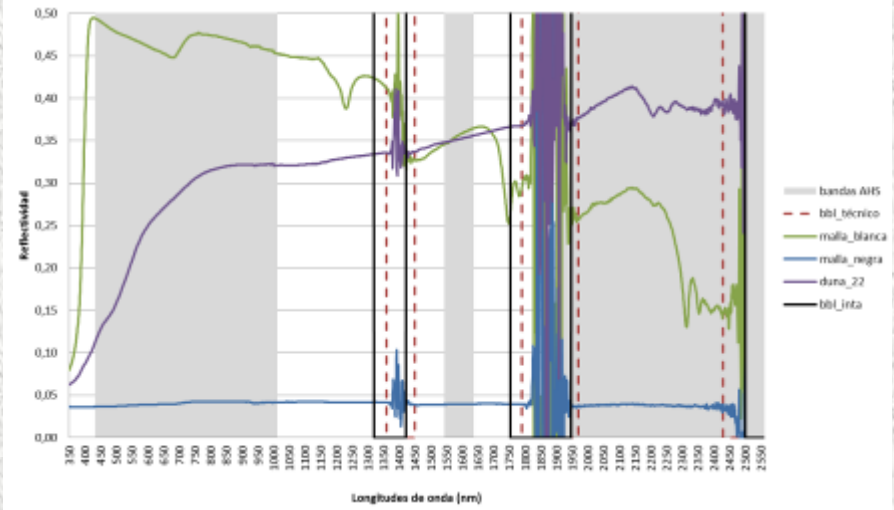
Sampling



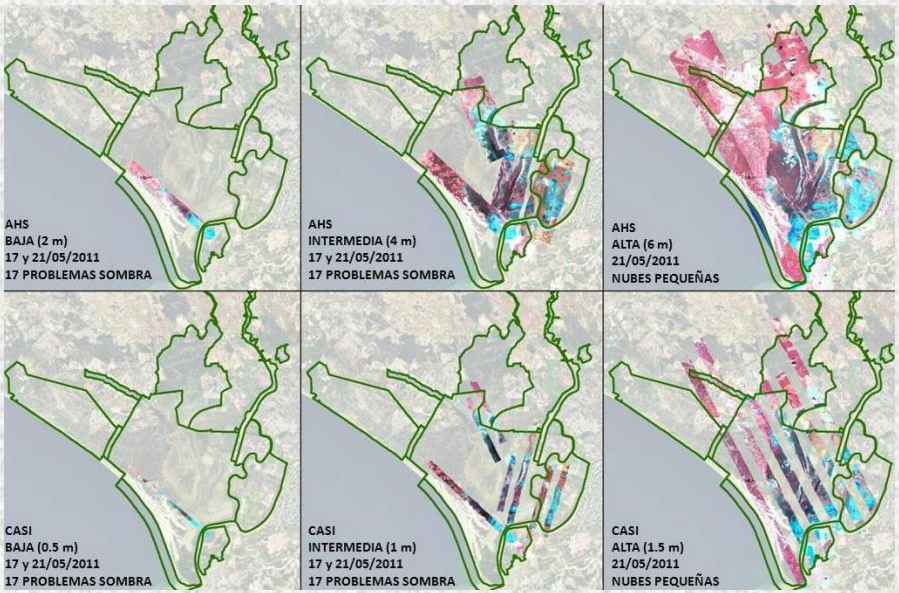


FOV Issues

Figura7. Vista cenital de los diferentes target artificiales. Fuente: LAST-EBD (CSIC).

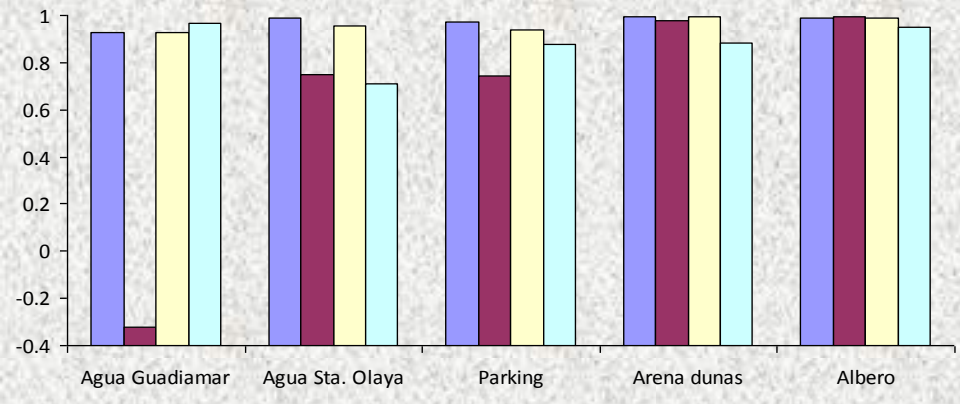


Empirical line corrections on AHS & CASI hyperspectral images

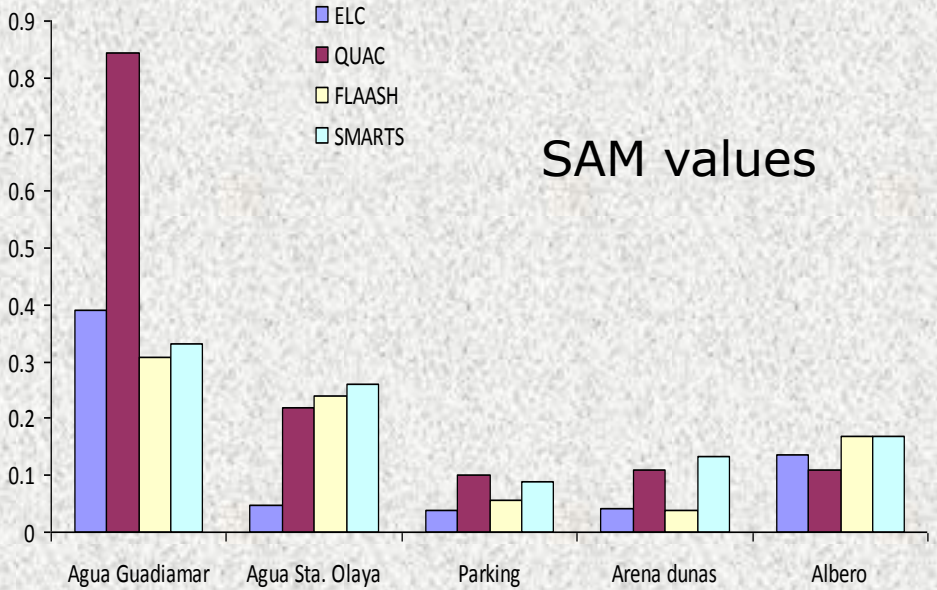


- Atmospheric radiative transfer models critically require accurate atmospheric data
- EL performed properly for both terrestrial and aquatic covers

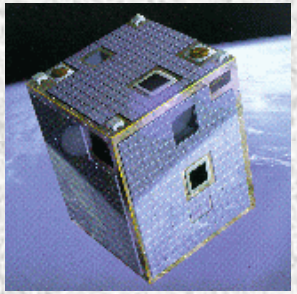
Pearson r

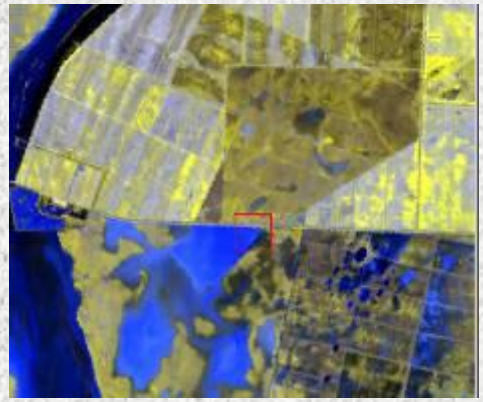


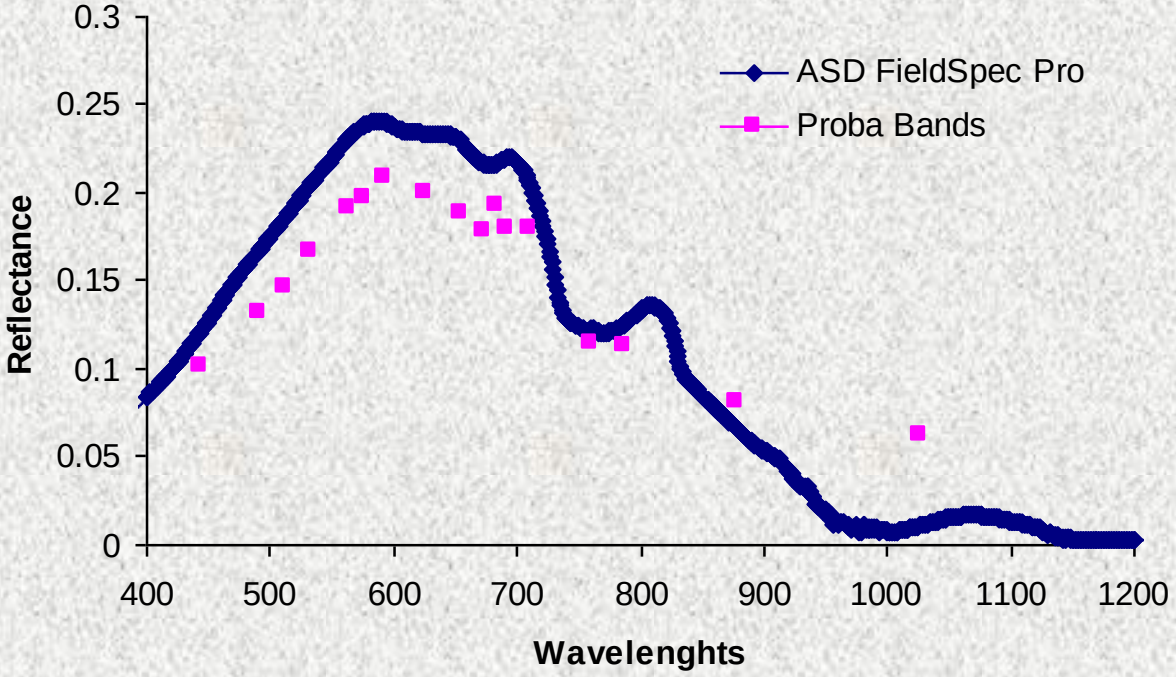
SAM values



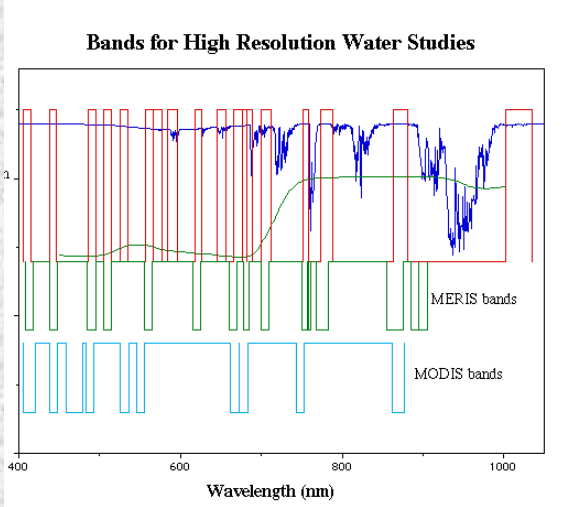
ASD vs. CHRIS-PROBA (Compact High Resolution Imaging Spectrometer - Project for On-Board Autonomy)



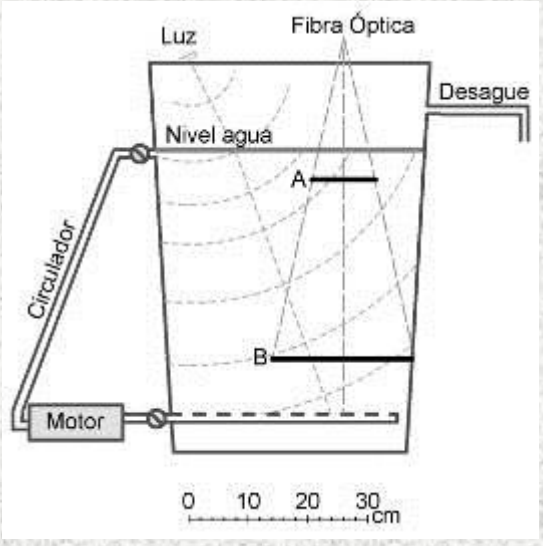


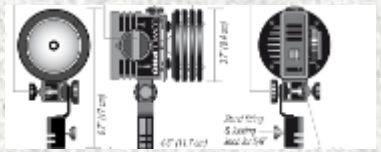


- Quick evaluation shows an **overall underestimation** of water reflectance for the bands in the visible range (2-14).
- NIR Bandsa (15-16) are close to ASD measurements but 17 and 18 bands are overestimated
- Overall spectral behaviour in the VIS range is OK. IR reflectance values are not less accurate.

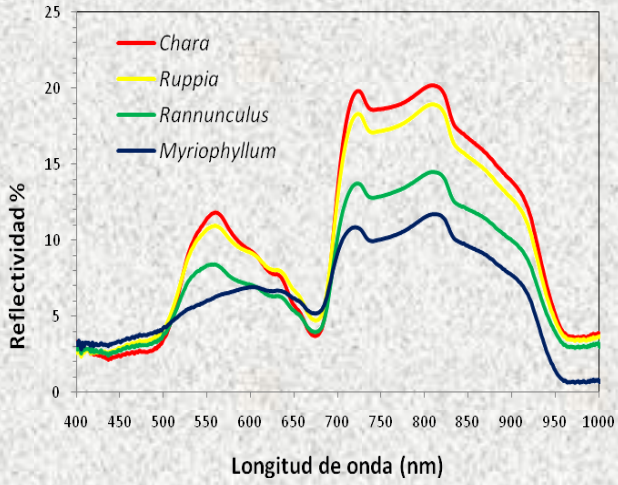


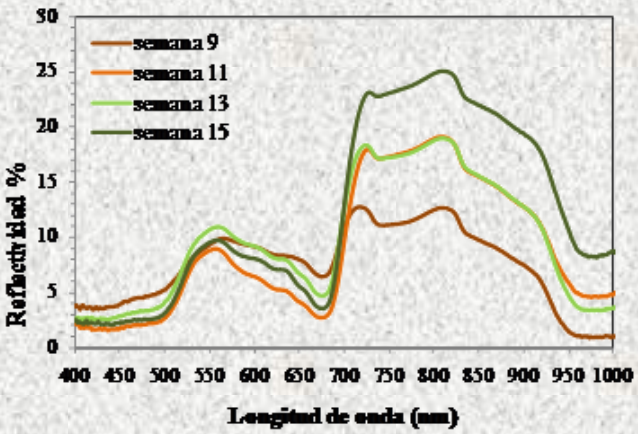
Aquatic macrophytes (multifactorial design)



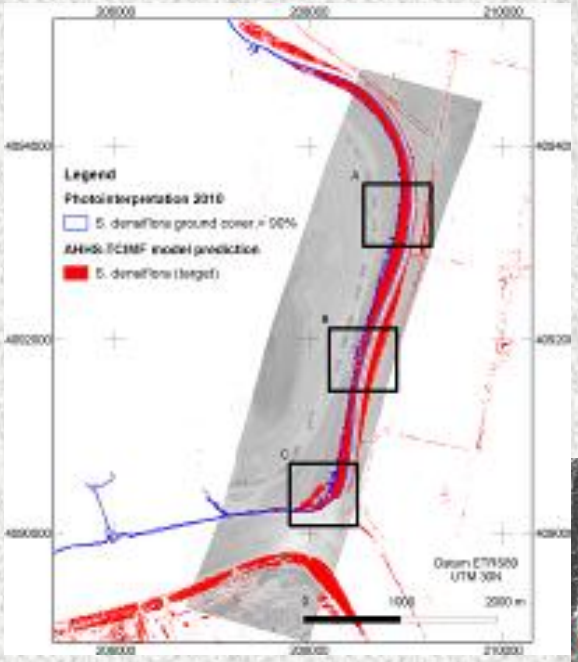


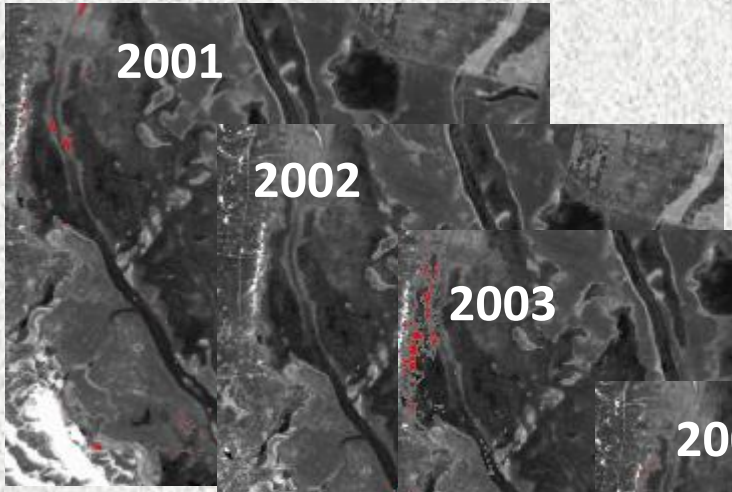
-Pro-lamp diffuse light ASD 14.5V bulb 50W

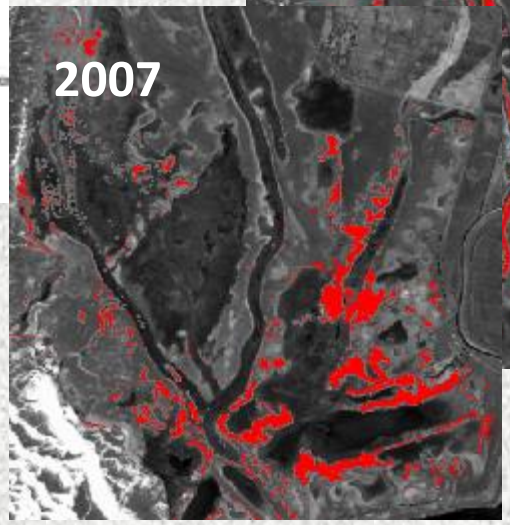


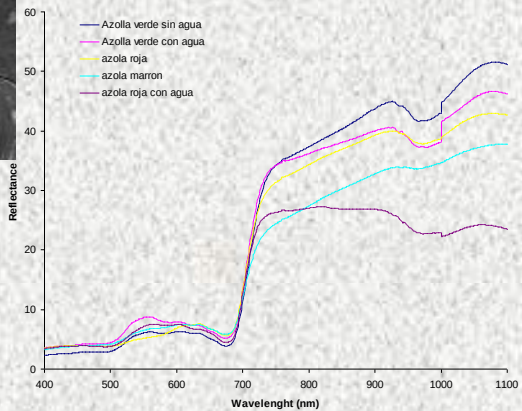


Alien ssp detection (Azolla sp & Spartina sp)





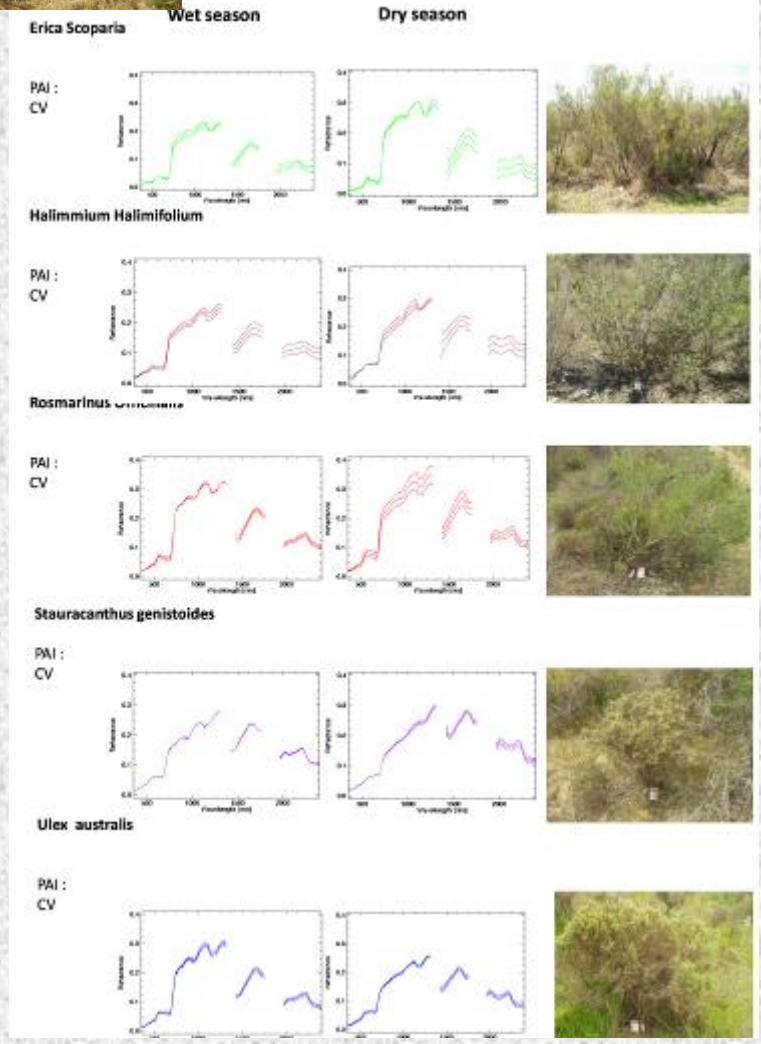




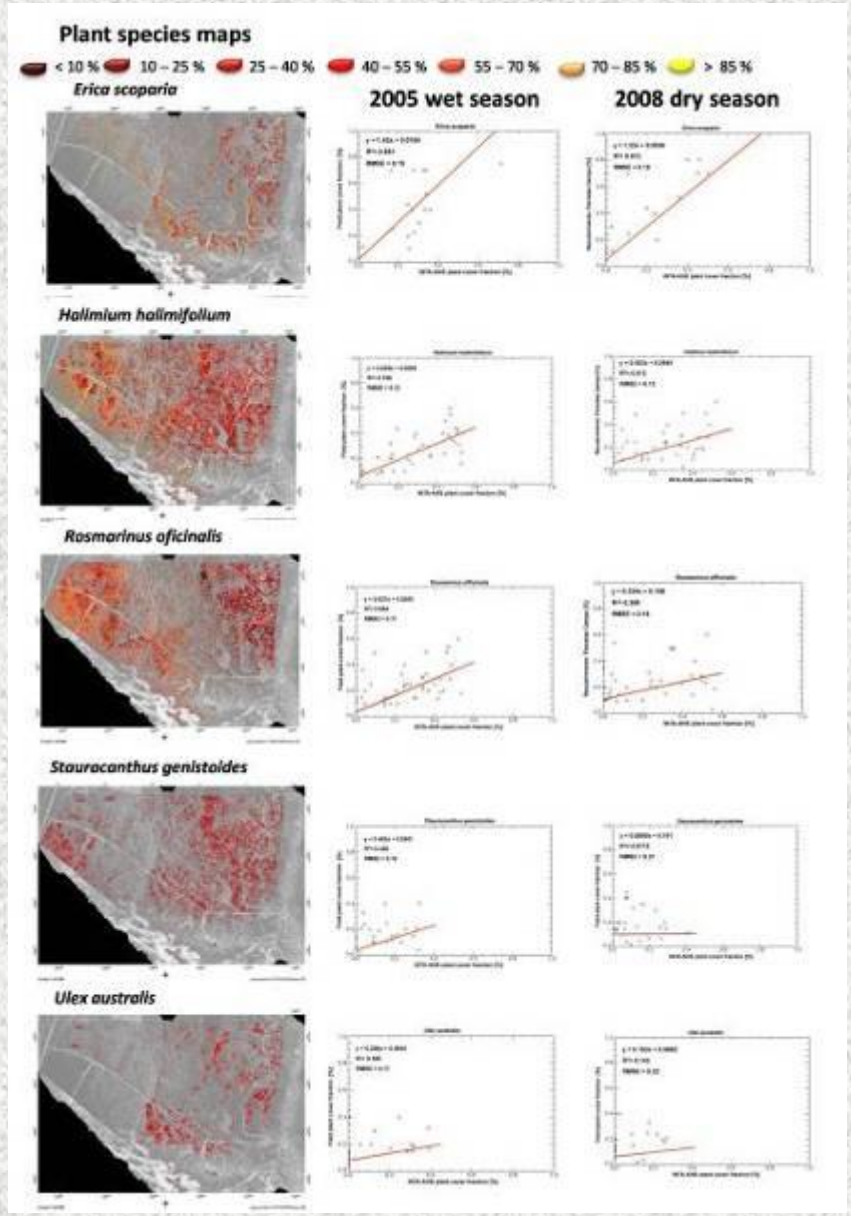
Spectral library collection for Shrubland ssp mapping

MINISTERIO DE DEFENSA

INTA

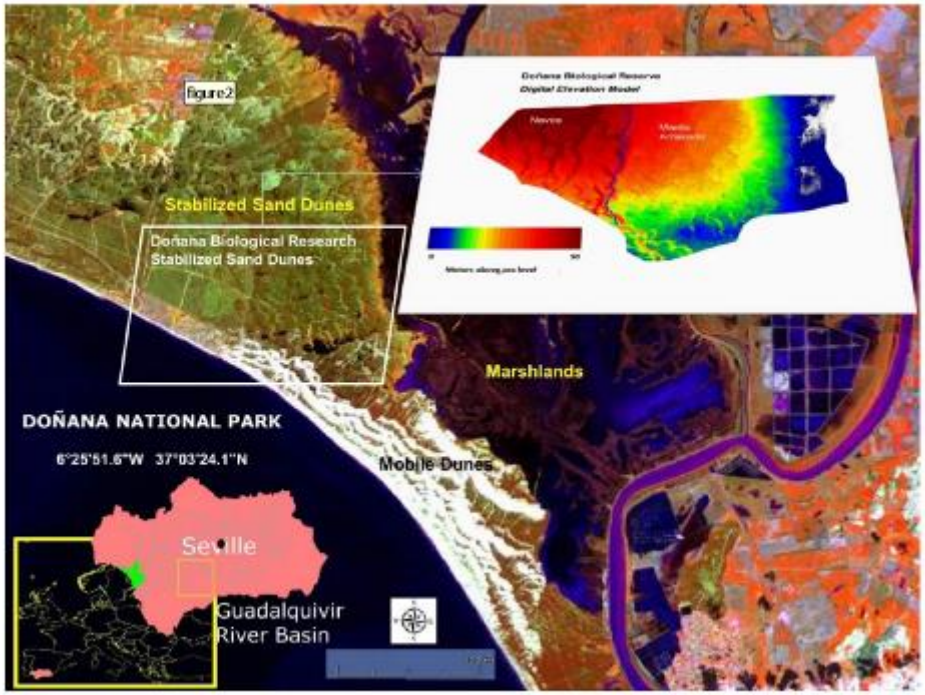


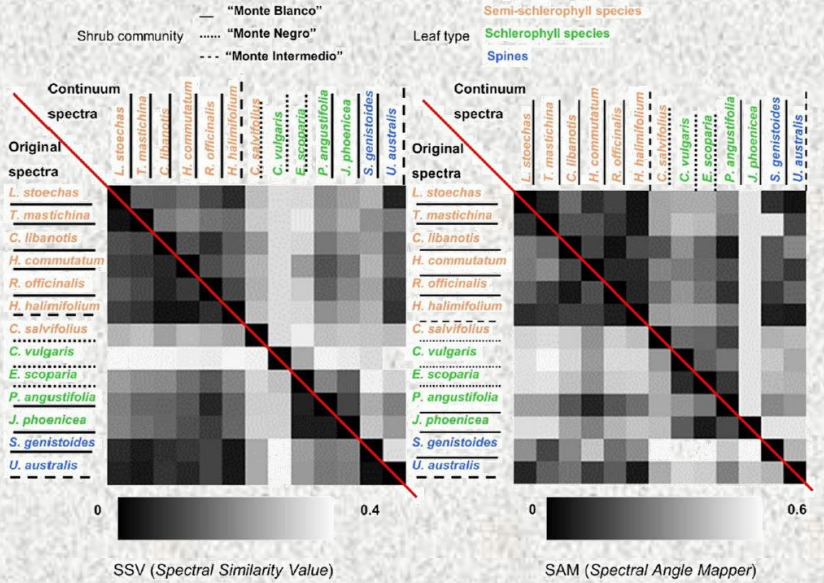
Spectral library



Ssp Abundance mapping

Proposal of standard spectral library protocol





SSV (*Spectral Similarity Value*) SAM (*Spectral Angle Mapper*)

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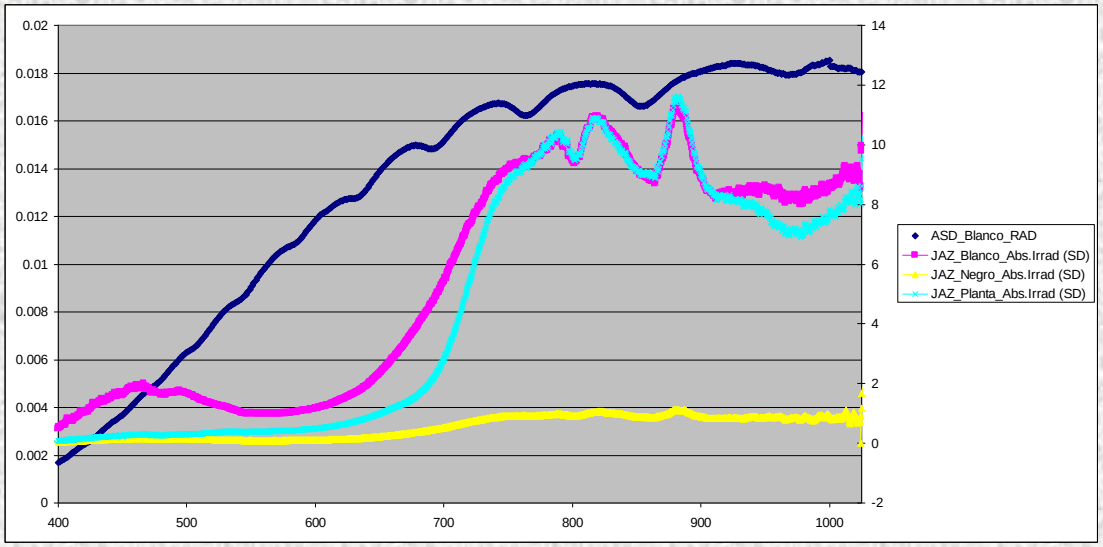
Article

Towards a Standard Plant Species Spectral Library Protocol for Vegetation Mapping: A Case Study in the Shrubland of Doñana National Park

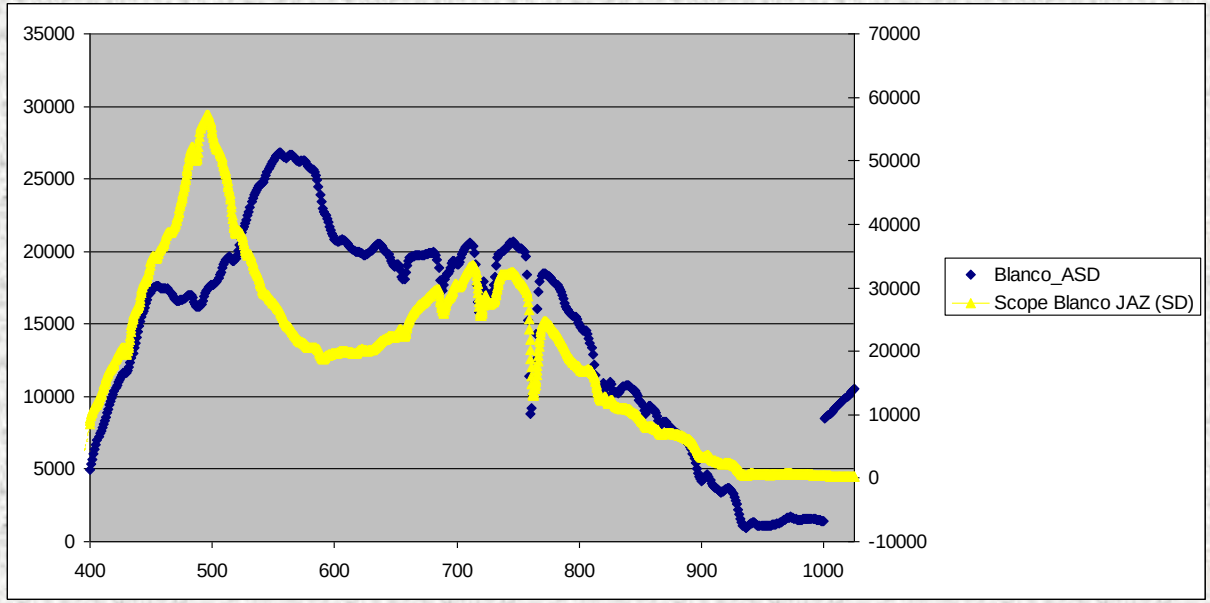
Marcos Jiménez [1,*] and Ricardo Díaz-Delgado [2]

Comparison with Ocean Optics JAZ

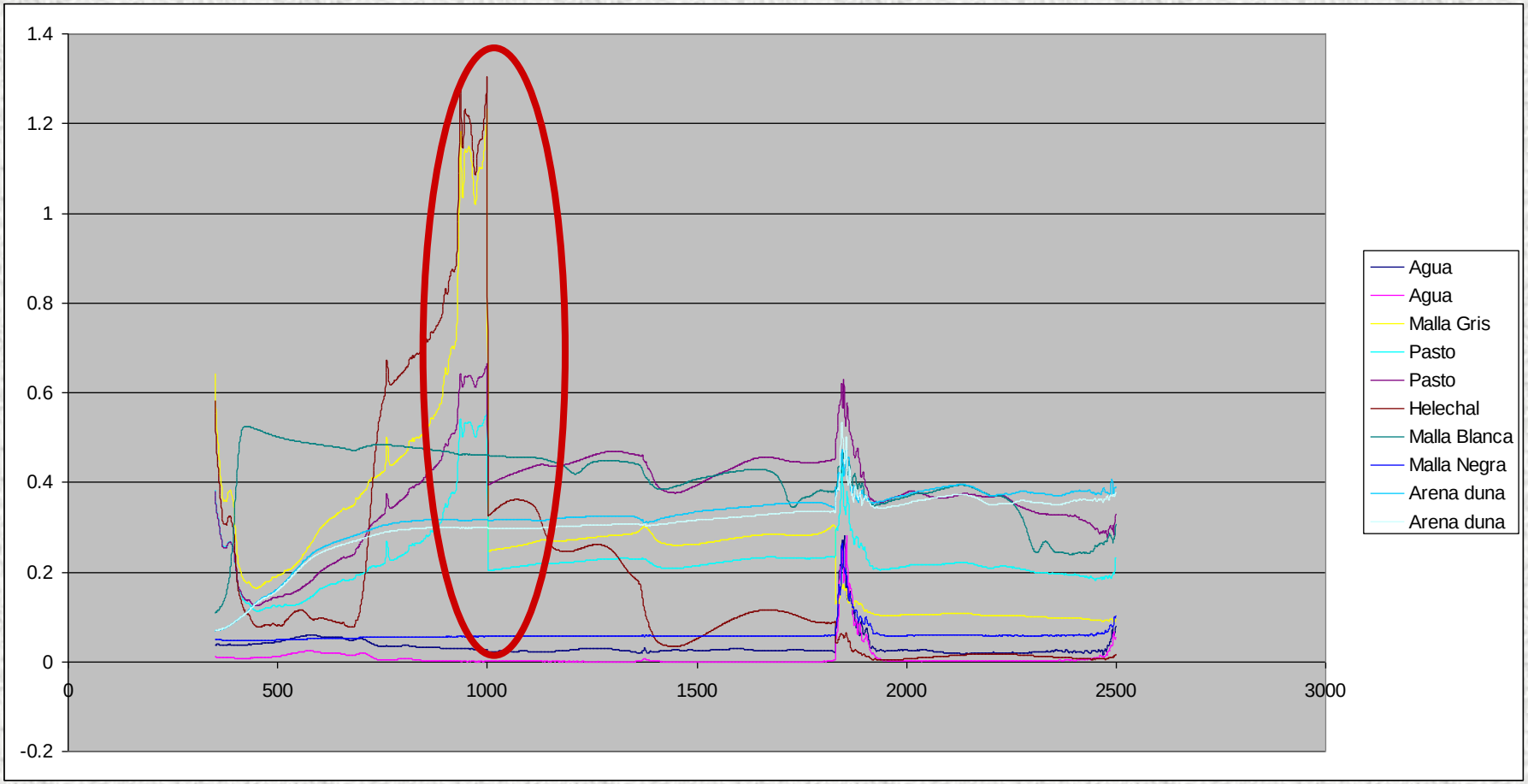


Indoors radiance
- 99% panel
- 25% panel

Indoors radiance
- 99% panel

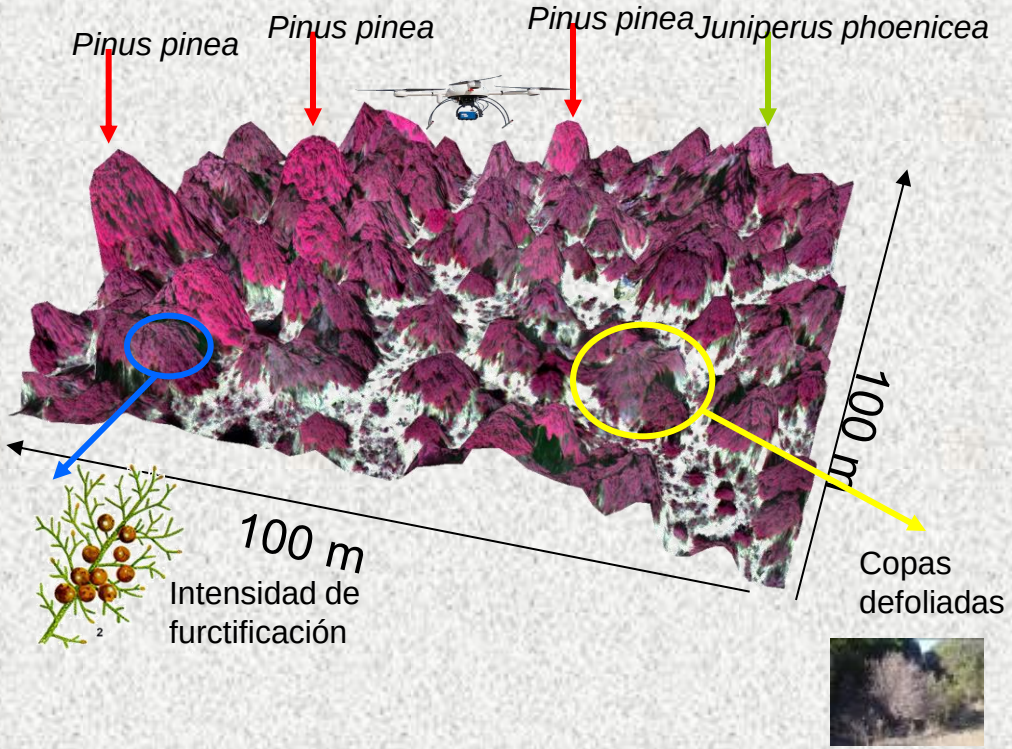


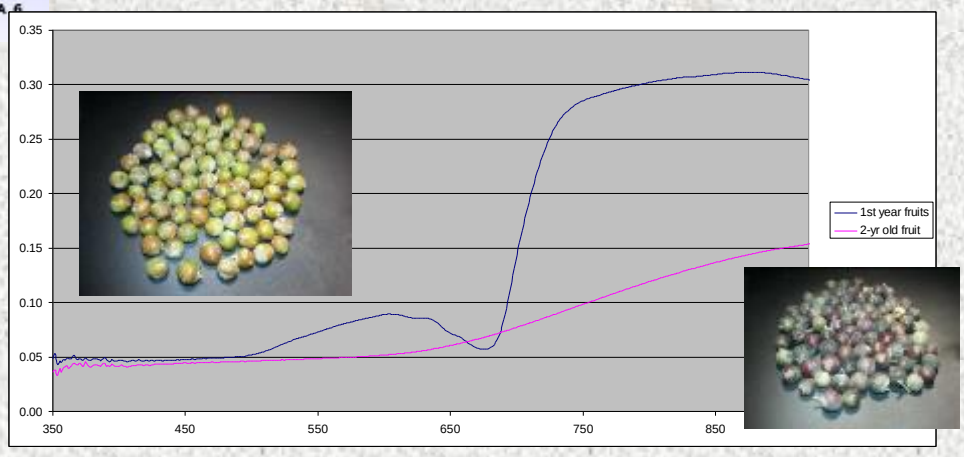
Observed Issues:



- Unplugging of the Laptop to radiometer cable
- Measuring on wetlands and harsh conditions
- Periodic calibrations (2010 and 2016)

Challenges: mapping fruit intensity





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Thank you