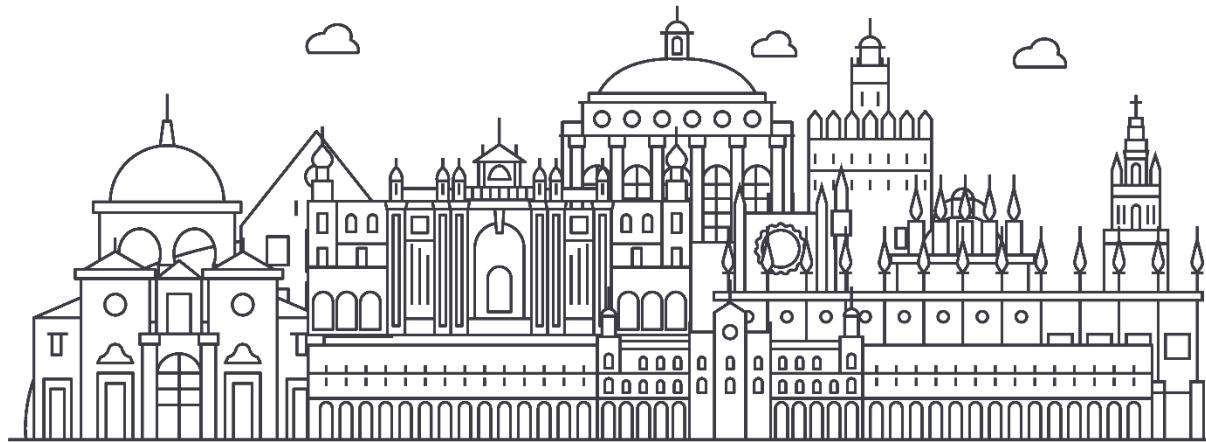




The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville
22-24/05/23



Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



UNIVERSIDAD DE MÁLAGA



Environmental and Biodiversity
Climate Change Lab
(EnBiC2-Lab)

Environmental and Biodiversity Climate Change Lab (EnBiC2-Lab)

María Luisa Antequera Gómez (marialan@uma.es)

Cristóbal Barba González

Ismael Navas Delgado

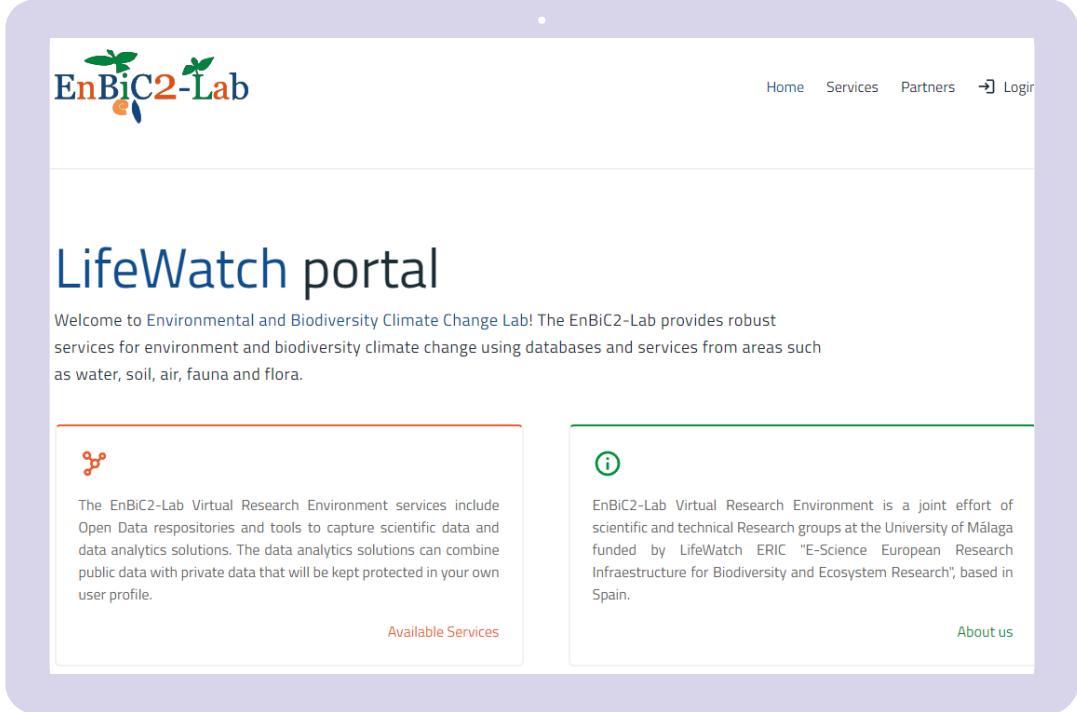
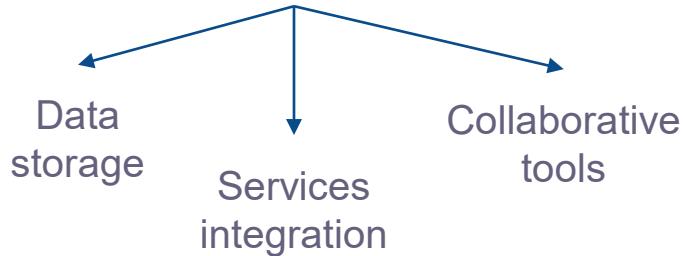
José Francisco Aldana Montes



EnBiC2-Lab



VRE



The screenshot shows a purple-themed website for "EnBiC2-Lab". At the top right are links for "Home", "Services", "Partners", and "Login". The main title is "LifeWatch portal". Below it is a brief welcome message: "Welcome to Environmental and Biodiversity Climate Change Lab! The EnBiC2-Lab provides robust services for environment and biodiversity climate change using databases and services from areas such as water, soil, air, fauna and flora." Two main sections are visible: one on the left with a gear icon and another on the right with an info icon. Both sections contain descriptive text and links to "Available Services" and "About us".

Environmental and Biodiversity Climate Change Lab



EnBiC2-Lab → Partners

- KHAOS Research (UMA / ITIS Software) → **Big Data**
- European Topic Centre on Spatial Analysis and Synthesis (ETC-UMA)
→ **Remote Sensing**
- Geomorphology and Soils Laboratory (IGS UMA) → **Soil**
- Hydrogeology Center (CEHIUMA) → **Water**
- Biogeography, Diversity and Conservation Group (UMA) → **Fauna**
- Botany Department (UMA) → **Flora**
- Aerobiology Group (UMA) → **Air**
- ERTIS Research (UMA / ITIS Software) → **IoT**
- Supercomputing and Bioinnovation Center (SCBI UMA) →
Supercomputing



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Instituto de Geomorfología y Suelos



Biogeografía, Diversidad y Conservación



CENTRO DE HIDROGEOLOGÍA
DE LA UNIVERSIDAD DE MÁLAGA



Red Andaluza de Aerobiología



EnBiC2-Lab: Study areas

- Los Alcornocales Natural Park
- Sierra de las Nieves National Park
- Cabo de Gata-Níjar Natural Park



EnBiC2-Lab:

Data storage

Web Forms



Forms: Soil

Make your samples here!

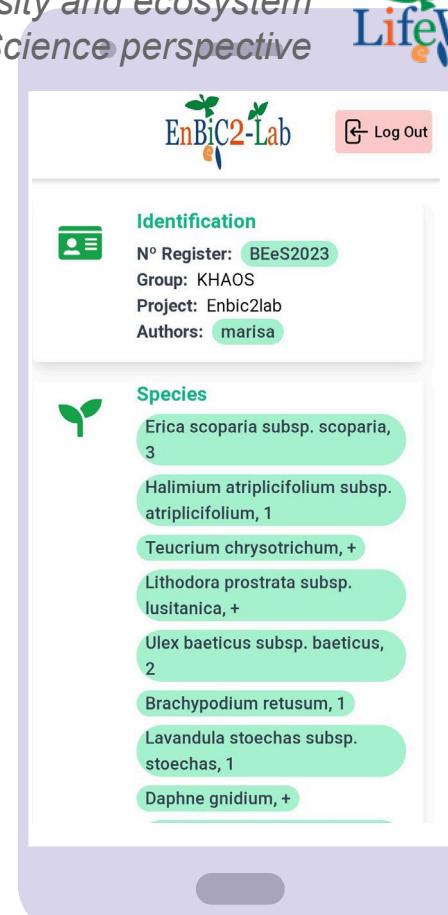
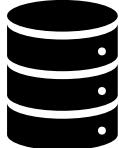
[Sample List](#) [Create Form](#)

General Information

Code *	Sample 1	Author *	Maria Luisa Antequera
Group *	KHAOS	Project *	EnBiC2-Lab
Date *	05/23/2023	Location *	Málaga
Description	Lorem ipsum dolor. Sit amet in non nulla magnis. Varius est nulla quis quis nibh libero enim in. Orci cubilia nulla. Sodales fusce sit ullamcorper massa lectus nascetur morbi urna.		

EnBiC2-Lab: Data storage

Data Collection Applications



The image shows a smartphone displaying the EnBiC2-Lab mobile application. The screen has a light blue header bar with the text "EnBiC2-Lab" and a "Log Out" button. Below this is a white section titled "Identification" with a green icon. It contains the following information:

- Nº Register: BEEs2023
- Group: KHAOS
- Project: Enbic2lab
- Authors: marisa

Further down is a section titled "Species" with a green icon. It lists several plant species with their counts:

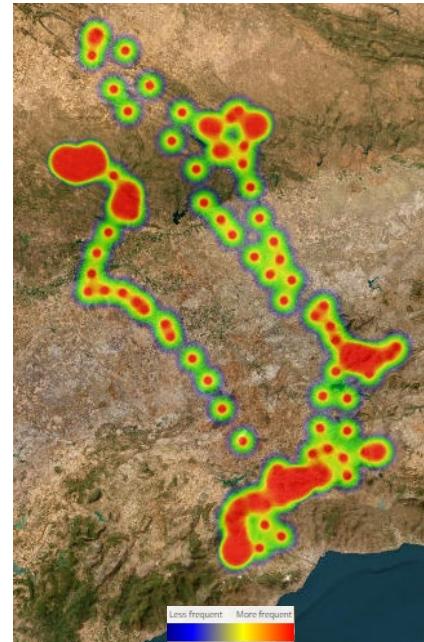
- Erica scoparia subsp. scoparia, 3
- Halimium atriplicifolium subsp. atriplicifolium, 1
- Teucrium chrysotrichum, +
- Lithodora prostrata subsp. lusitanica, +
- Ulex baeticus subsp. baeticus, 2
- Brachypodium retusum, 1
- Lavandula stoechas subsp. stoechas, 1
- Daphne gnidium, +

EnBiC2-Lab: Services integration

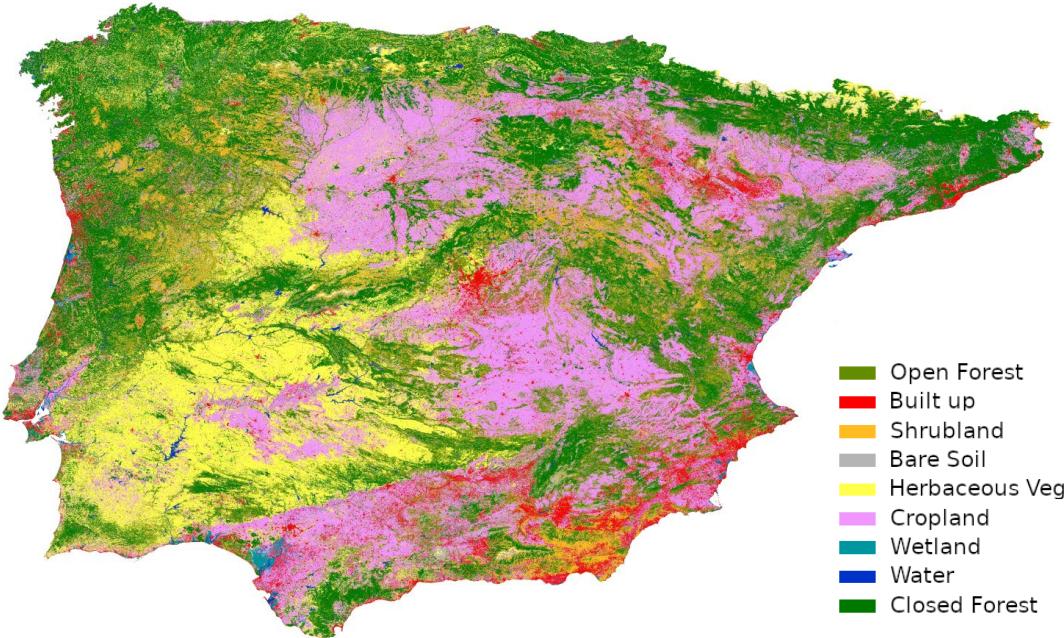
Fauna

Fauna  Vulture Labeler

Drag and Drop images to detect or Click



EnBiC2-Lab: Services integration

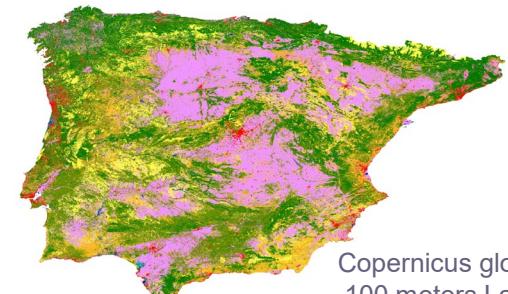


Mediterranean basin

Remote
Sensing

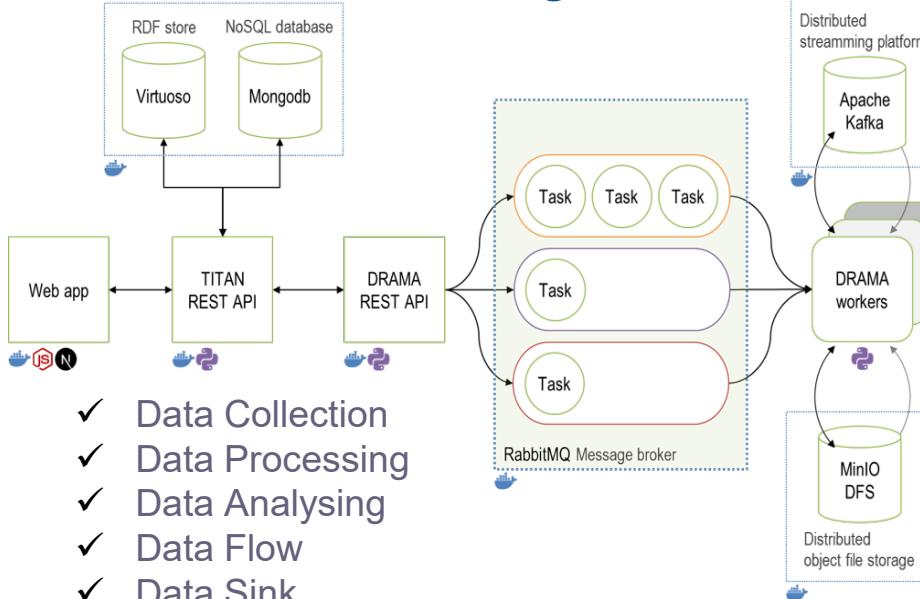
Land cover

Forest cover



Copernicus global
100 meters Land
Cover

EnBiC2-Lab: Services integration



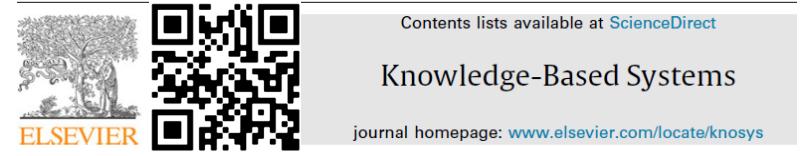
- ✓ Data Collection
- ✓ Data Processing
- ✓ Data Analysing
- ✓ Data Flow
- ✓ Data Sink



BIGOWL: Knowledge centered Big Data analytics[☆]

Cristóbal Barba-González, José García-Nieto*, María del Mar Roldán-García, Ismael Navas-Delgado, Antonio J. Nebro, José F. Aldana-Montes

Departamento de Lenguajes y Ciencias de la Computación, University of Málaga, ETSI Informática, Campus de Teatinos, Málaga 29071, Spain

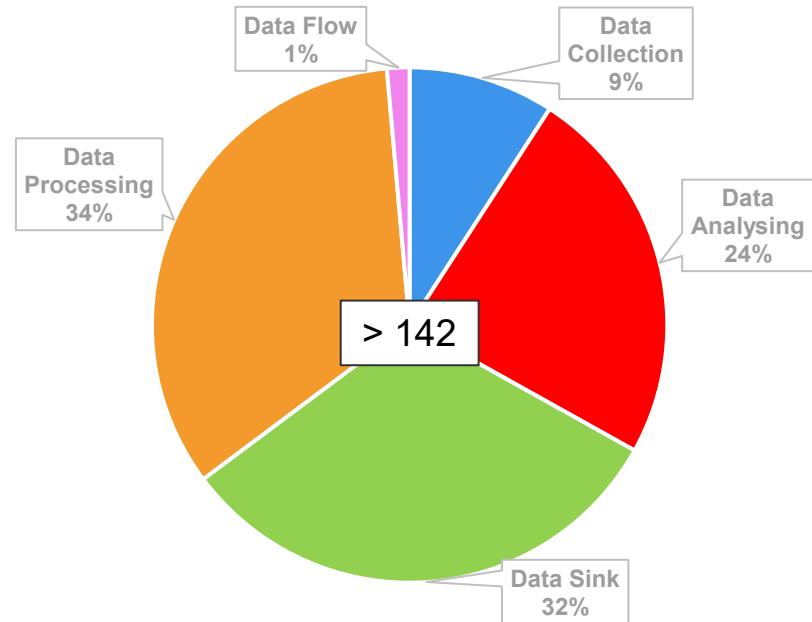
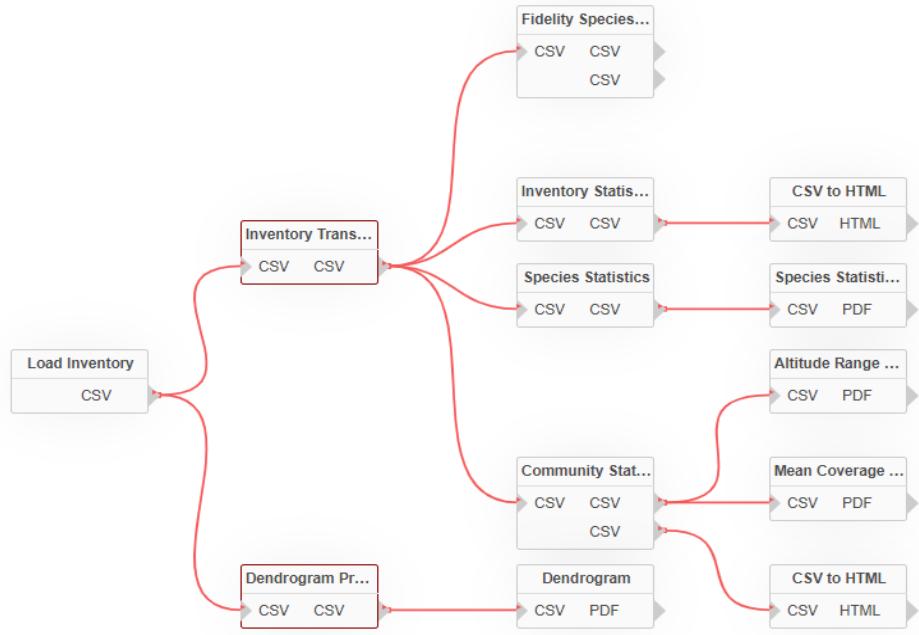


TITAN: A knowledge-based platform for Big Data workflow management[☆]

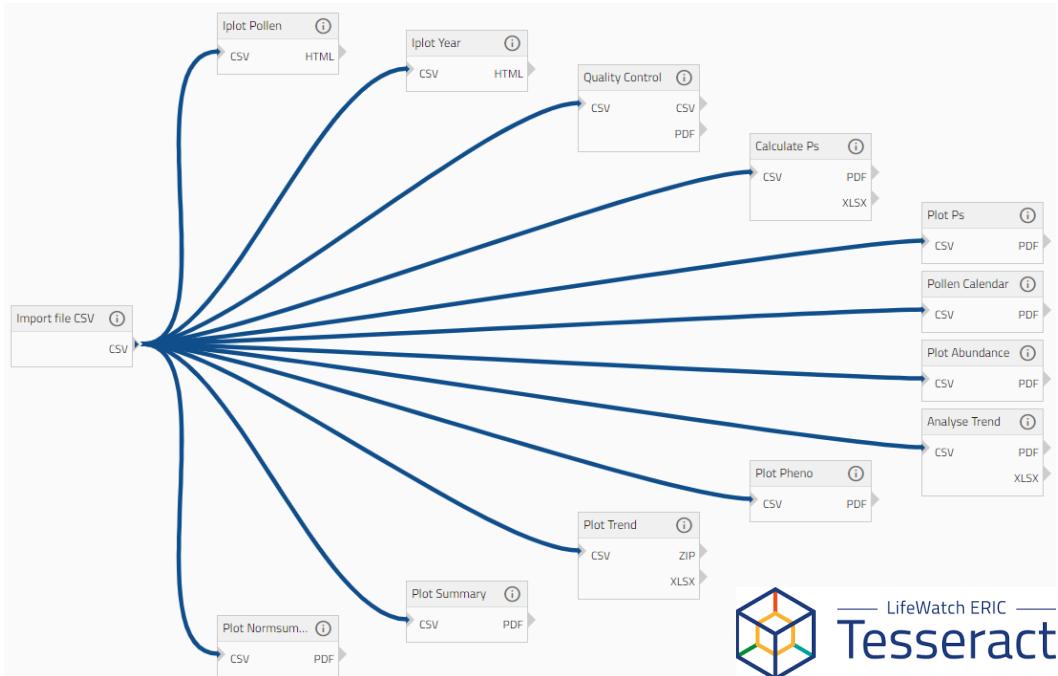
Antonio Benítez-Hidalgo¹, Cristóbal Barba-González, José García-Nieto, Pedro Gutiérrez-Moncayo, Manuel Paneque, Antonio J. Nebro, María del Mar Roldán-García, José F. Aldana-Montes, Ismael Navas-Delgado*

Dept. de Lenguajes y Ciencias de la Computación, ITIS Software, Universidad de Málaga, Málaga 29071, Spain

EnBiC2-Lab: Services integration



EnBiC2-Lab: Collaborative tools



- ✓ Air
- ✓ Fauna
- ✓ Flora
- ✓ Soil
- ✓ Water
- ✓ Data science workflows

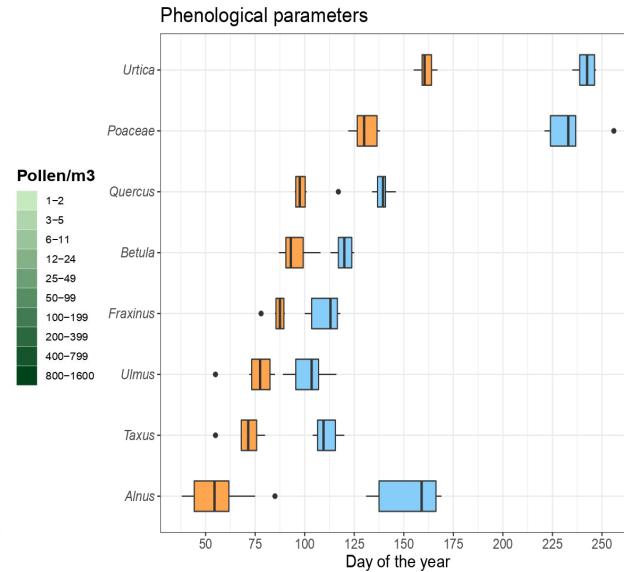
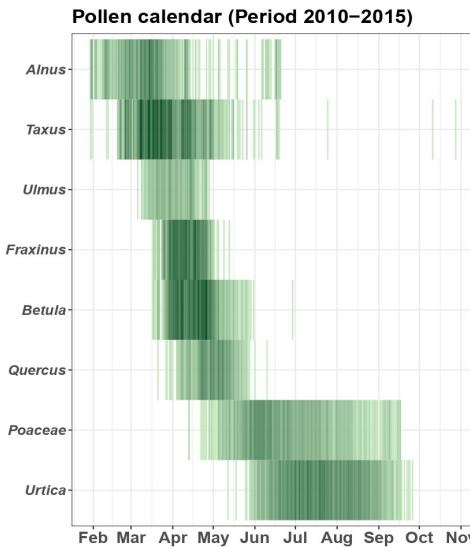
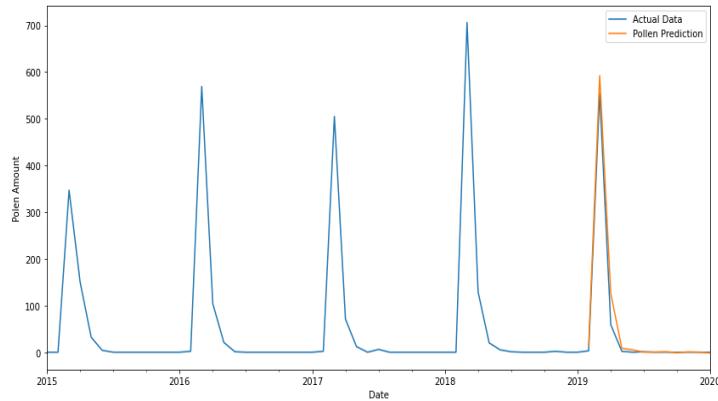


EnBiC2-Lab: Collaborative tools

- Pollen trends (AeRobiology) → R

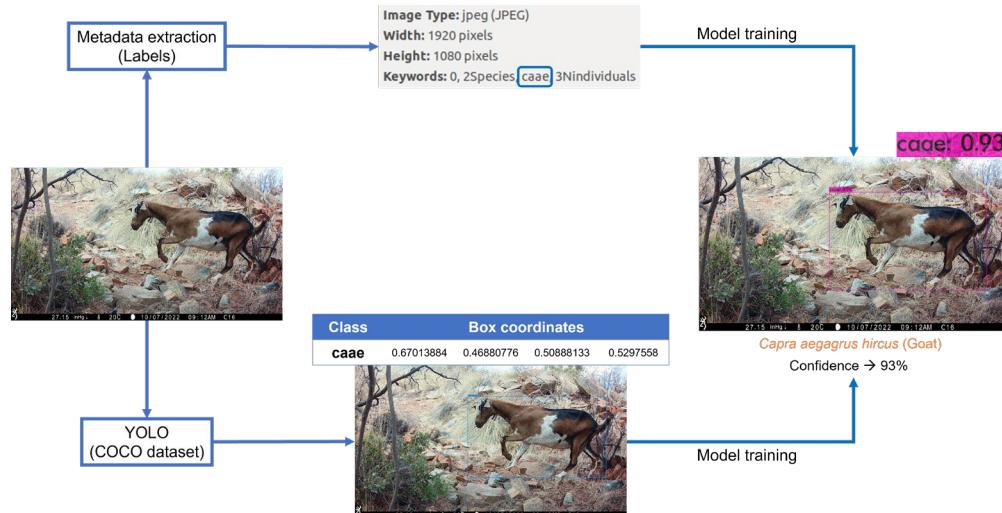
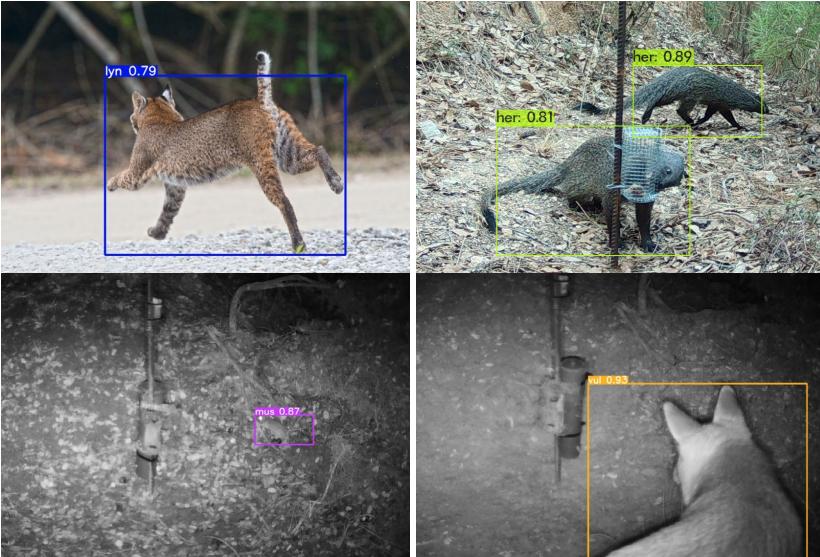
<https://cran.rstudio.com/web/packages/AeRobiology/>

- Pollen forecasting



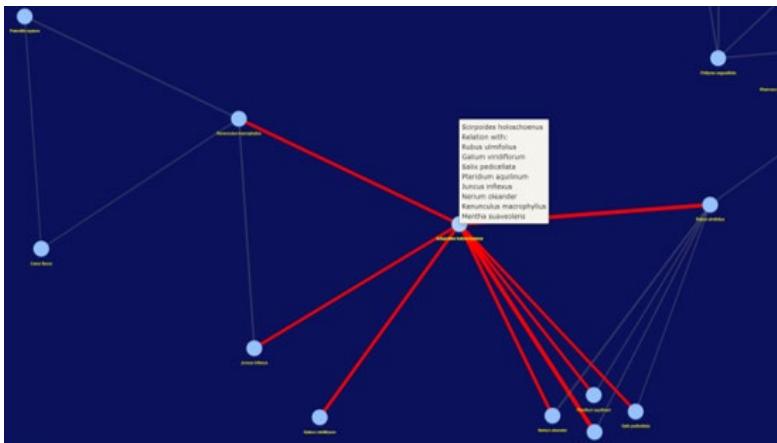
EnBiC2-Lab: Collaborative tools

- Mammals monitoring → Camera trap

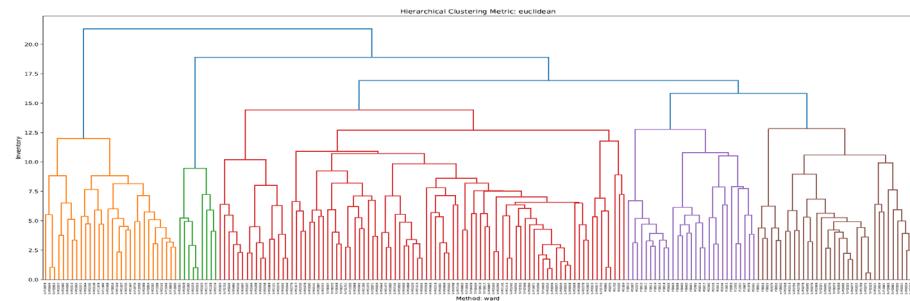
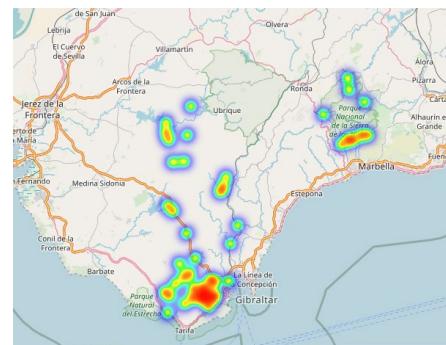


EnBiC2-Lab: Collaborative tools

- Phytosociological inventories to DB
- Taxa distribution
- Statistical workflow



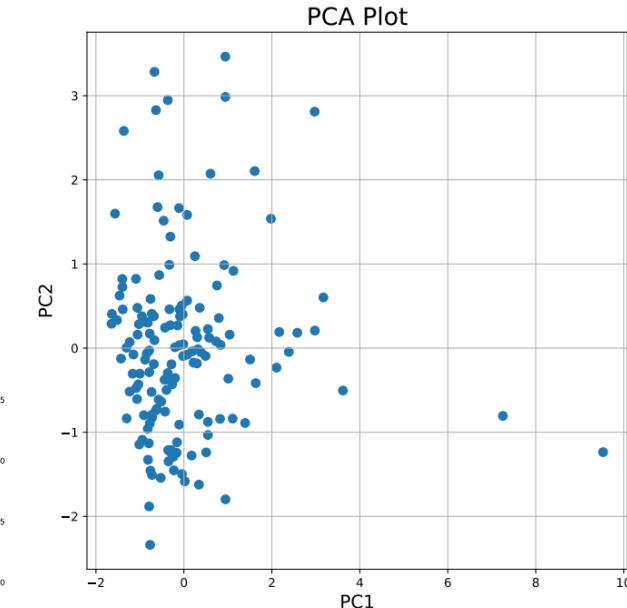
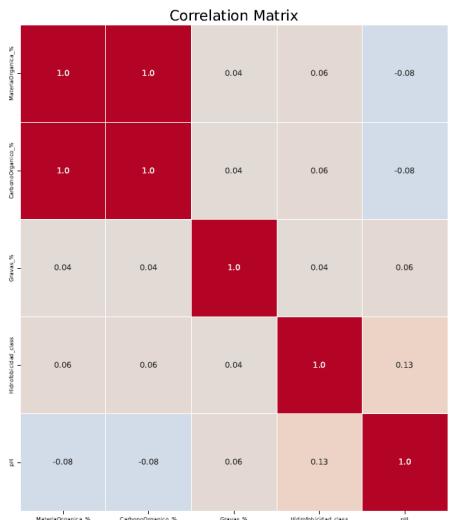
Flora



EnBiC2-Lab: Collaborative tools

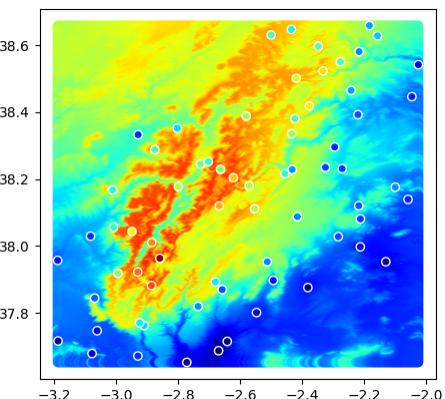
- Samples to DB
- PCA → different sources

	PC1	PC2	PC3
MateriaOrganica_%	0.7008238	-0.0036019	-0.0216513
CarbonoOrganico_%	0.7008238	-0.0036019	-0.0216513
Gravas_%	0.0490701	0.3995871	0.9036037
Hidrofobicidad_class	0.0775407	0.6341841	-0.3918842
pH	-0.0962896	0.6619023	-0.1702632



EnBiC2-Lab: Collaborative tools

- Precipitation and Temperature
- ETp
- 3D Interpolation



Hidrologic Year	JABUGO	GALAROZA	CORTEGANA	ARACENA	ALAJAR	Average Annual Precipitation (mm)
1970/1971	756.3	719.5	814.6	500.5	936.3	745.4
1971/1972	988.5	1057	1036.3	904.5	1151.4	1027.5
1972/1973	1002.2	1105.5	1266	1042	1214.3	1126
1973/1974	868.2	749.9	930.1	905.5	1024.3	895.6
1974/1975	803.9	825.5	933.9	725.5	999.6	857.7
1975/1976	806.9	915	883.7	750	873.7	845.9
1976/1977	1316.9	1078.5	1356.2	1199.5	1503.3	1290.9
1977/1978	1698.7	1526	1708.8	1426	1692.9	1610.5
1978/1979	1499.4	1350.5	1469.1	1232	1718.5	1453.9

Max	1715.4	1550.5	1739.6	1617.2	2093.4	1717.7
Mean	925.6	939	1007.2	893.8	1117.6	973.8
Min	174.3	292	227.4	201	411.1	277.2
Mean * 1.15	1064.5	1079.9	1158.3	1027.9	1285.2	1119.8
Mean * 0.85	786.8	798.2	856.1	759.7	949.9	827.7
Wet years	13	15	16	9	14	14
Middle years	22	14	18	9	19	21
Dry years	14	17	15	12	15	14

EnBiC2-Lab: Events & Social Networks



marialan@uma.es



@enbic2lab

@khaosresearch



khaos-research



@khaosresearch



Visit our website:

<https://enbic2lab.uma.es/>





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Seville
22-24/05/23



Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



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Thank you! | www.lifewatch.eu/bees-2023

