

# AICLIMATE@EU

# DHEFEUS

2023

-

2026

IDL LIBRARY and ONLINE

**1st WORKSHOP**



Iceland  
Liechtenstein  
Norway grants

Ana Russo

**BRIEFING SESSION**

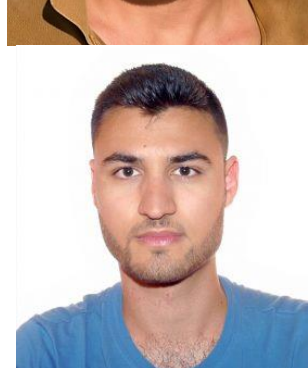
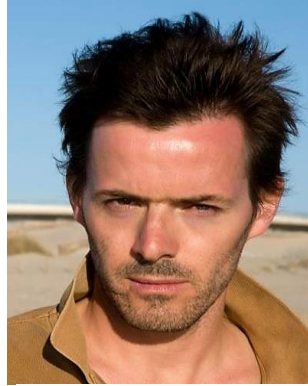
**13 Nov 2024**



# GOAL



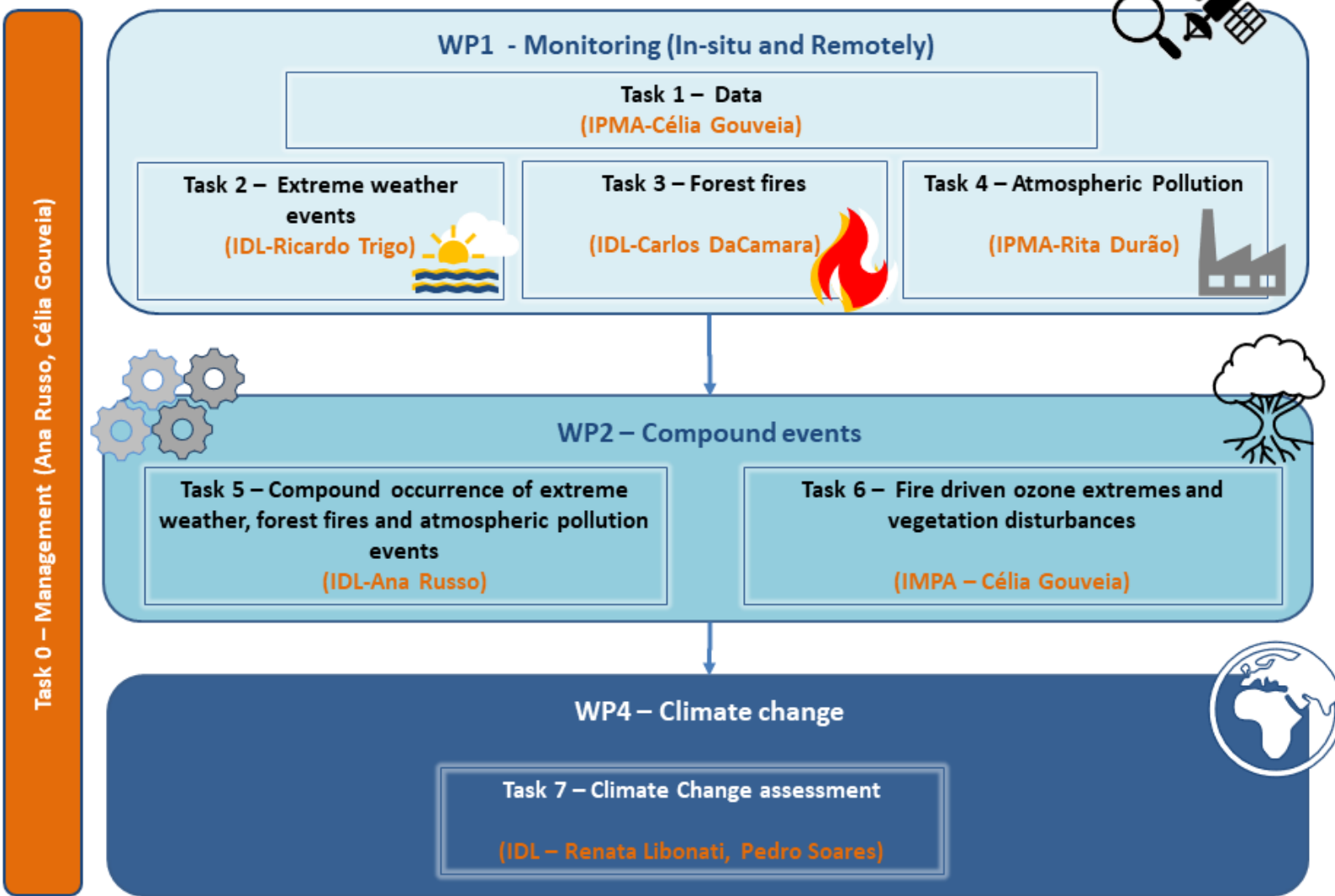
- The overarching goal of DHEFEUS is to enhance the knowledge on compound or cascading weather/climate events, namely droughts and heatwaves, and further associate them with wildfires and pollution events in Europe and South America
- DHEFEUS will address the potential weather–air pollution interaction during wildfires and dust storms, taking into consideration that concurrent droughts and extreme temperatures can potentiate fires and the occurrence of air pollution episodes
- Apart from addressing weather and climate-driven events, DHEFEUS will also focus on 1) wildfires’, which are very sensitive to weather, climate variability and particularly, to weather extremes such as heatwaves and droughts; 2) wildfires’ pollutants emissions





# DEFHEUS- Droughts, heatwaves, and fires: Exploring compound and cascading hazards and their impacts in air quality at the European scale under a climate change perspective

Annex 1 - Project Flowchart



# TASKS



# Partnership and Engaging Early Career

13-15  
November  
2024

# AICLIMATE@EU DHEFEUS

IDL LIBRARY and ONLINE



- BRIEFING SESSION
- WORKSHOP
- TRAINING SESSIONS
- FINAL MEETING

Ana Russo (IDL/UL) and Pedro Lind (OsloMet/ NordSTAR) established a bilateral relation funded by the European Economic Area Financial Mechanism 2014-2021 (AIClimate@EU). AIClimate@EU strengthened the cooperation activities of both partners, in particular, establishing a network for exchange of climate data and Artificial Intelligence (AI) methods to broaden the knowledge of cascading climate events in Europe leading to possible social and economical catastrophes. Moreover, it ensured the dissemination of results across Europe and fostered future collaboration between the two institutions.



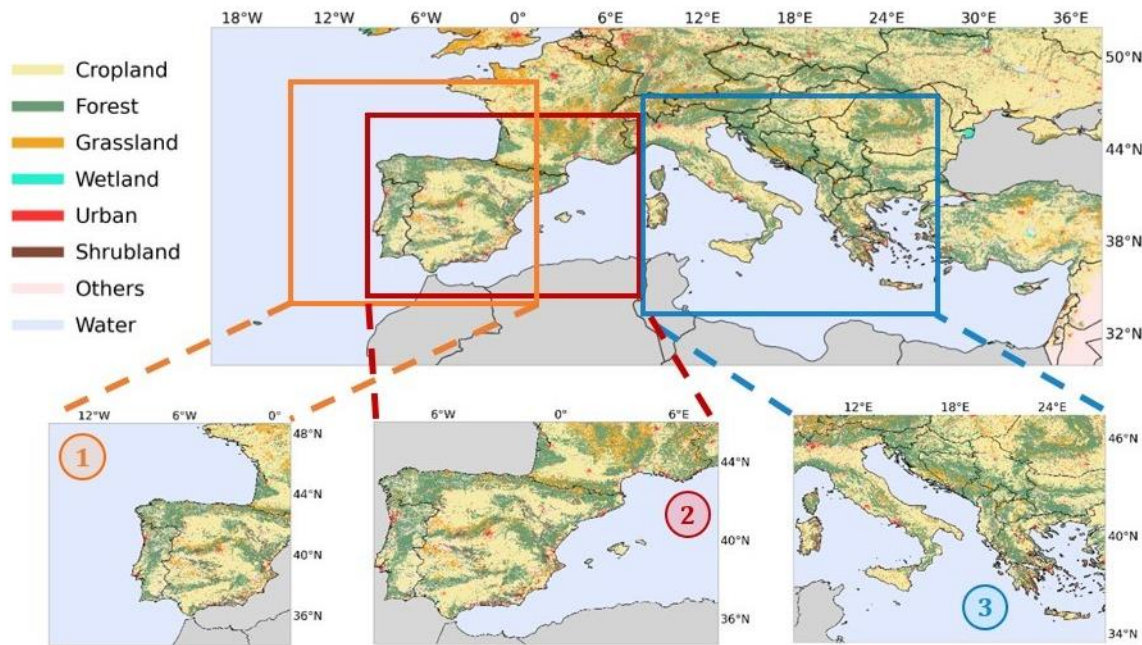
Iceland  
Liechtenstein  
Norway grants

Article | [Open access](#) | Published: 20 August 2024

# Co-occurrence of marine and atmospheric heatwaves with drought conditions and fire activity in the Mediterranean region

[Raquel Santos](#) , [Ana Russo](#) & [Célia M. Gouveia](#)

*Scientific Reports* **14**, Article number: 19233 (2024) | [Cite this article](#)



Spatial and compound dependencies in drought and heatwaves in the climate of South-Western Europe

Ebenezer Takyi



Thesis submitted for the degree of  
Master in Applied Computer and Information  
Technology - ACIT  
(Data Science)  
60 credits

Department of Computer Science  
Faculty of Technology, Art and Design

Oslo Metropolitan University — OsloMet

Spring 2024

6th International Conference on Energy and Environment: bringing together Engineering and Economics  
Guimarães, Portugal  
6-7 June, 2024

## A Markov-chain model for assessing heatwaves and droughts in Iberian Peninsula

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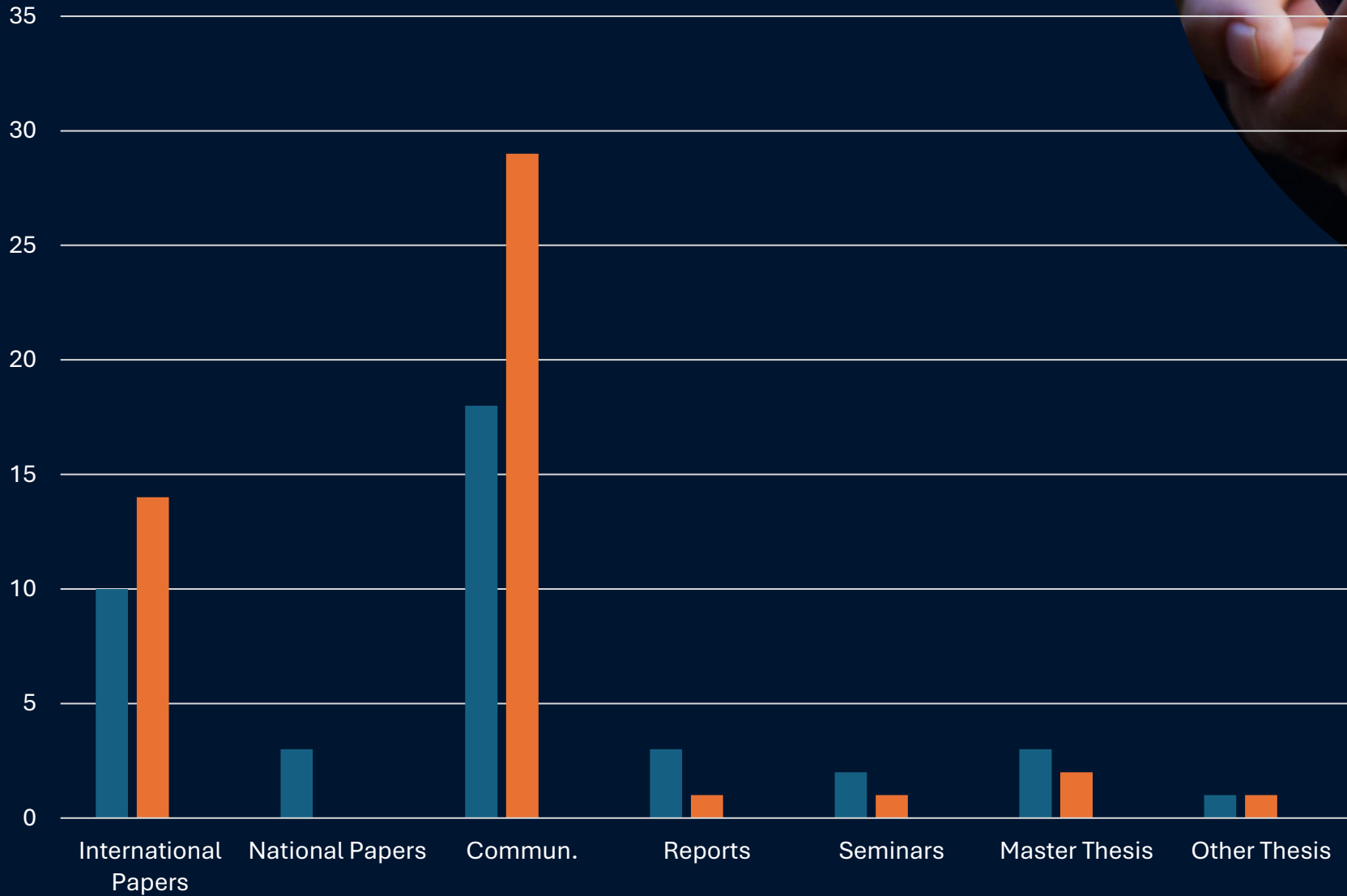
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14:20 – 14:40	AI applications to extreme events (Pedro Lind, OsloMet)
14:40 – 14:55	Air pollutants modelling and forecast using in situ and CAMS data in Portugal (André Brito, IPMA, FCUL)
14:55 – 15:10	User-friendly atmospheric blocking detection algorithm helps identification of extreme events (Miguel Lima, IDL, FCUL)
15:10 – 15:20	The adoption of Copernicus Services National Collaboration Programme (Rita Durão, IPMA)
15:20 – 15:50	<i>Coffee Break and Poster Session</i>
15:50 – 16:20	Project Dhefeus - Gaps that still need to be addressed (Francesca Di Giuseppe, ECMWF)
16:20 – 16:30	Compound Climate Events in the Mediterranean: The interaction between marine conditions and heatwaves, droughts and wildfires (Raquel Santos, IPMA, FCUL)
16:30 – 16:40	A global view of concurrent wildfires, droughts, heatwaves, and air pollution: impacts and risks (Virgilio Bento, IDL, FCUL)
16:40 – 16:50	How has burned vegetation been recovering? Assessing post-fire recovery using remote-sensing products and dynamic global vegetation models (Tiago Ermitão, IDL, FCUL, IPMA)
16:50 – 17:00	Compound drought and heatwaves over South America under present and future climate change conditions: evolution, atmospheric dynamics and land-atmospheric feedbacks (João Geirinhas, IDL, FCUL)
17:00 – 17:20	<b>Concluding remarks</b> (Célia Gouveia, IDL, FCUL, IPMA)

# DELIVERABLES



● Proposed

● Delivered

**4 Submitted Papers**

**18 Conference Presentations**





# TAKE HOME MESSAGES

- Extreme impacts don't require extreme weather
- The analysis of compound events has particular advantages
- Extreme events have impacts on agriculture, fires and vegetation
- Extreme events have impacts on life, particularly for certain risk groups
- Compounded events have higher impacts

