Citizen Science and Geographical Information Technologies for the assessment of compound hot-dry events: CITOSEQ Project, Spain

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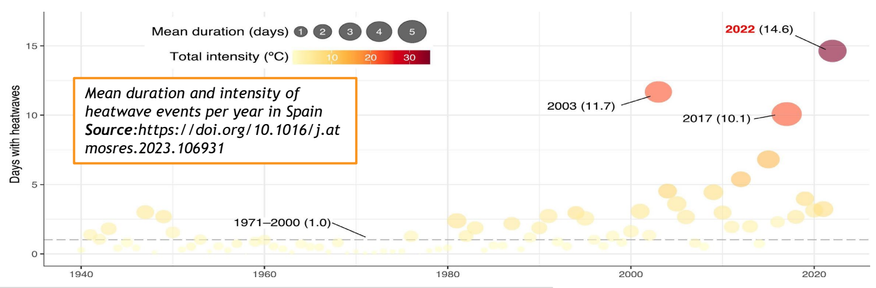
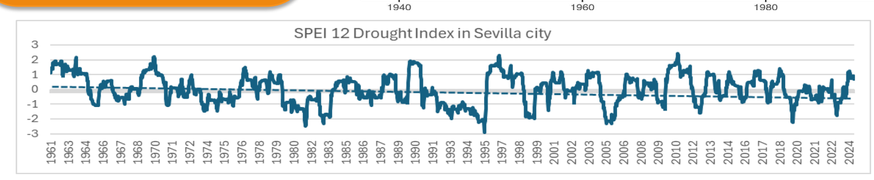
WHAT IS OUR NEW PROJECT ABOUT?

- The CITOSEQ project aims to address **Compound drought and heatwaves (CDHWs)** risks using Geographical Information Technologies and a participatory approach
- Analysis of the **compound hazards of these phenomena**, improving understanding of how high temperatures affect the development of meteorological and hydrological droughts, and explores the combined risks of droughts and heat waves
- Development of a methodology to **evaluate urban vulnerability to these risks**→ identifying elements and people exposed, focused on urban environments, and applying it in **two Spanish cities in Sourhern Spain as pilots** to develop a composite vulnerability index and specific cartography
- Citizen participation in risk evaluation and management is promoted→ **Collaborative web platform** for data collection, interpretation, and dissemination by citizens, which will also analyze social risk perceptions and risk management measures

WHY ARE THESE TOPICS RELEVANT?...

Heatwaves and droughts are increasingly **prominent in Southern Europe**





Source: Own ellaboration with info from the Spanish Drought Monitor (monitordesequia.csic.es)

Climate change projections predict more **CDHWs events** in Southern Europe

Poor understanding, undefinition

Physical aspects are documented, unlike research on their combined effects and social components→ Need for **research on adaptive capacity indicators, linked to socio- institutional contexts in urban areas, and impacts**

...AND FOR WHOM?

Mainly...

- Local Governments and City Planners
- Urban Population in Pilot Cities and beyond
- Utilities and Water Management Authorities

...but also

- Wider society beyond urban
- Scientific community
- Emergency response services
- Policy makers at other scales

...informing and benefitting...

... participating through...

HOW IS THE PROJECT GOING TO BE IMPLEMENTED?

WP1 Hazard assessment for droughts and heatwaves

- ✓ **Enhance understanding** of drought in Southern Spain using drought indicators that include temperatures
- ✓ **Create a geospacial database** of heatwave occurrence data from 1975 to 2022 in the pilot cities
- ✓ **Assess temporal and spatial conections** of droughts and heatwaves to spread a deeper understanding of compound hot-dry events

WP2 Vulnerability assessment for droughts and heatwaves

- ✓ **Identify the actors exposed**
- ✓ **Compound Vulnerability Index:** integrating the different variables and indicators examined in case studies in Seville and Málaga

WP 3 Citizen participation in risk evaluation

- ✓ **Inclusion of representative individuals** in discussions with experts on water management
- ✓ **Collaborative web platform** to allow accesible and interactive reviews on drought and heatwaves & citizen participation through ~3000 online surveys in the pilots. **Social perceptions** about vulnerability and actual impacts

Citoseq

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