



The Greek in-situ component in the domain of atmospheric and climate sciences

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Learn more here:

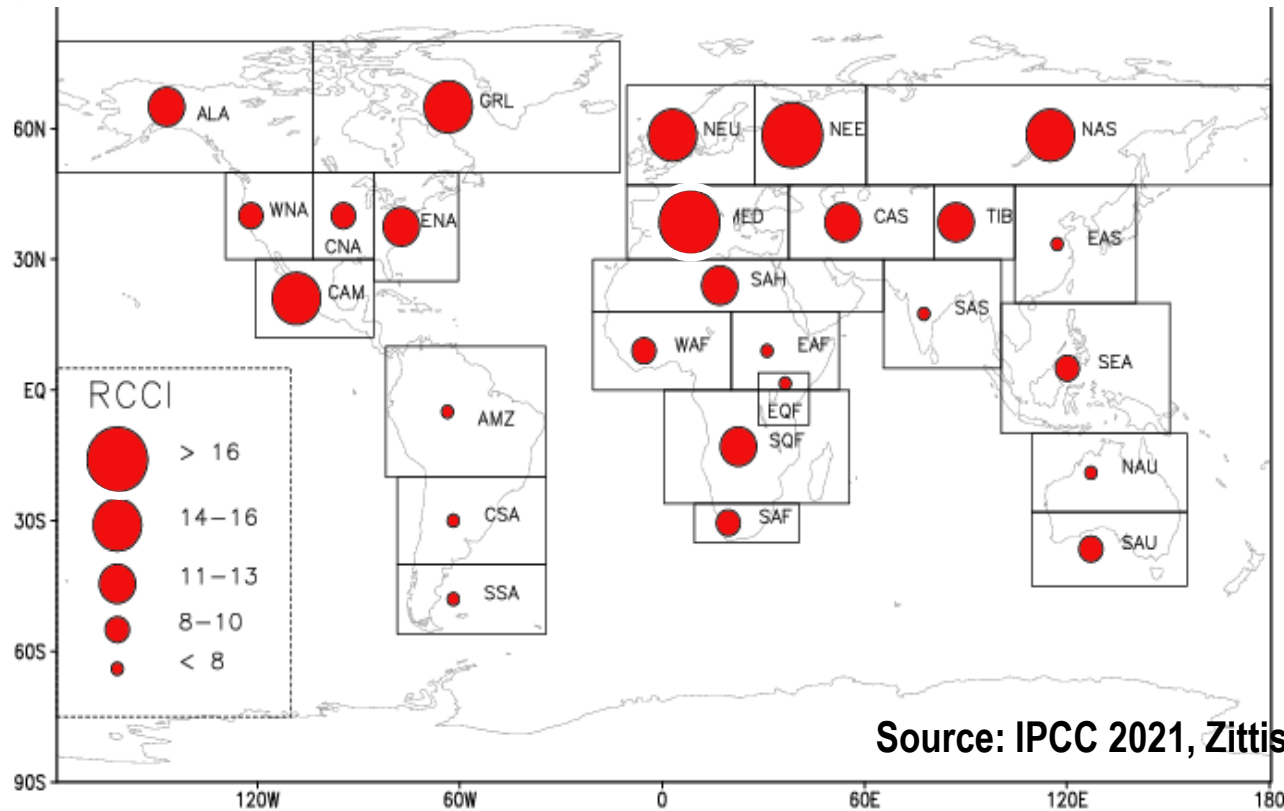


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MEDITERRANEAN “hot spot” CLIMATE CHANGE

Regional Climate Change Index, 20 models, 3 scenarios

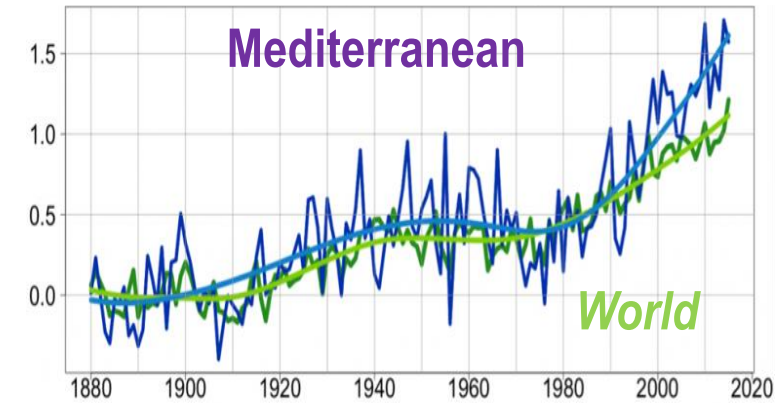


Source: IPCC 2021, Zittis et al., 2022

PRESENT

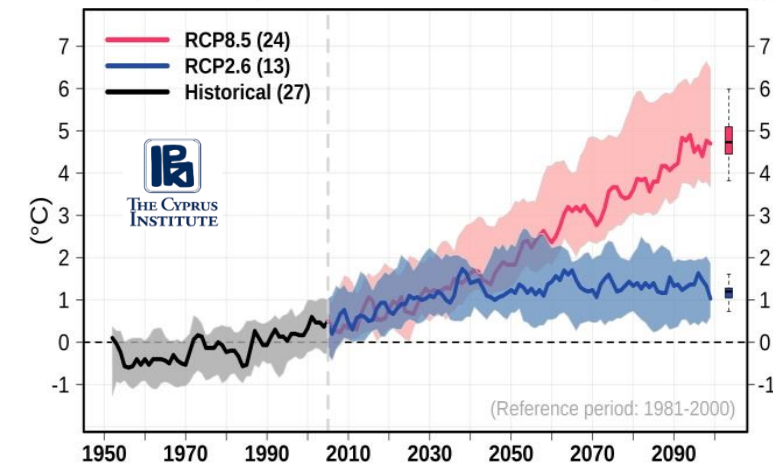
FUTURE

Mean Temperature Anomalies



<http://berkeleyearth.org/>

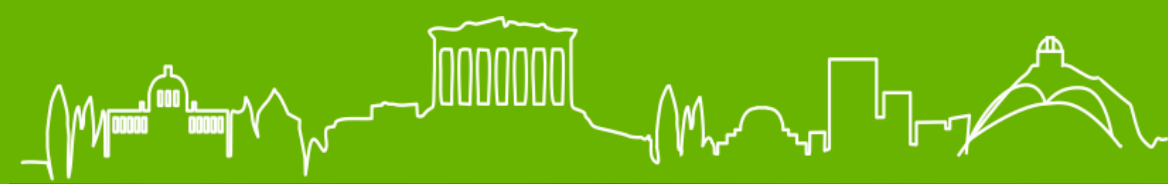
Mean annual temperature anomalies / Mediterranean (land only)



* EMME: Eastern Mediterranean and Middle East

EUROGEO WORKSHOP 2022

ICOS (Integrated Carbon Observation System)
Greece recently join ICOS, hopefully soon ACTRIS

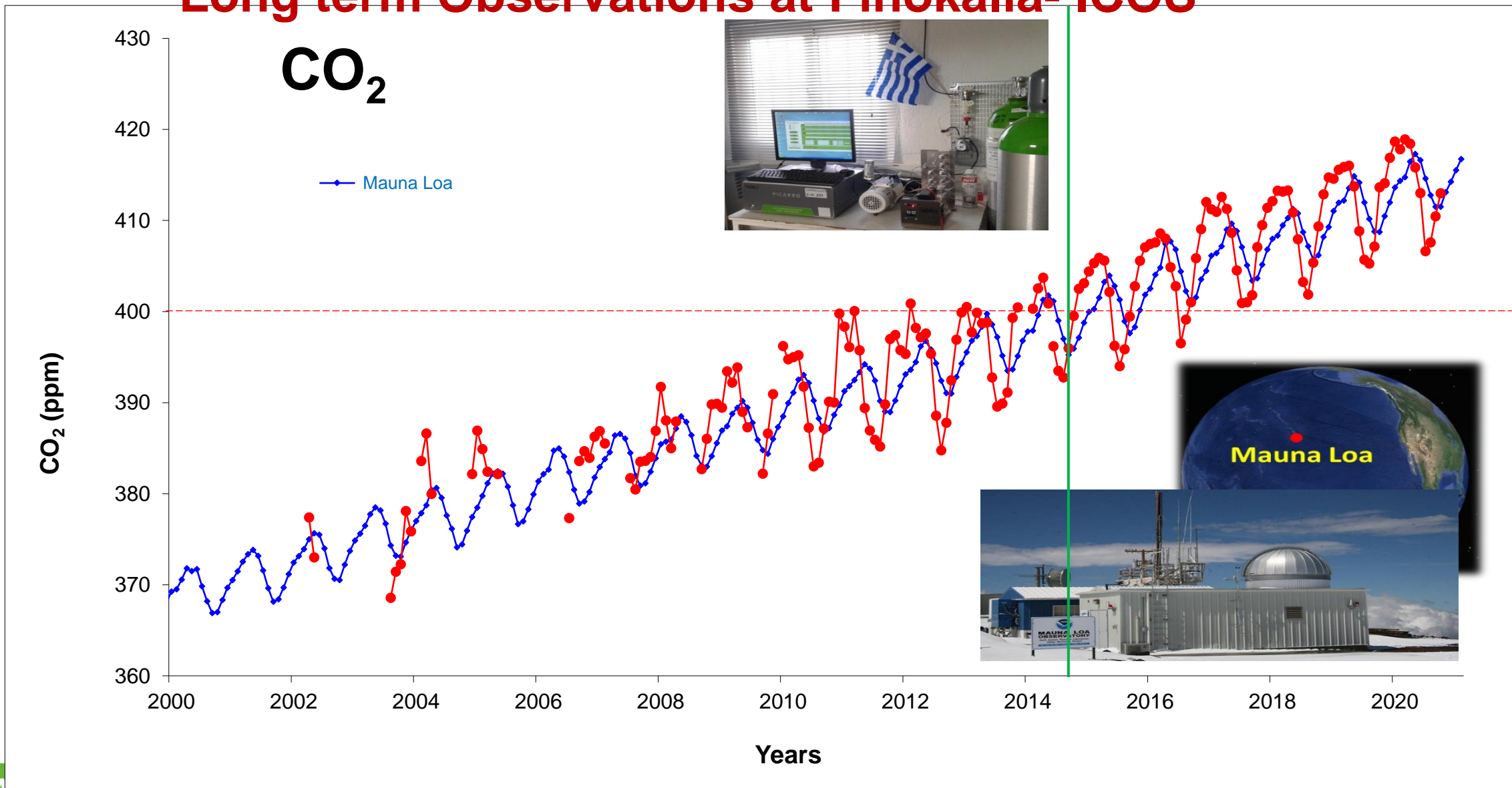


Finokalia

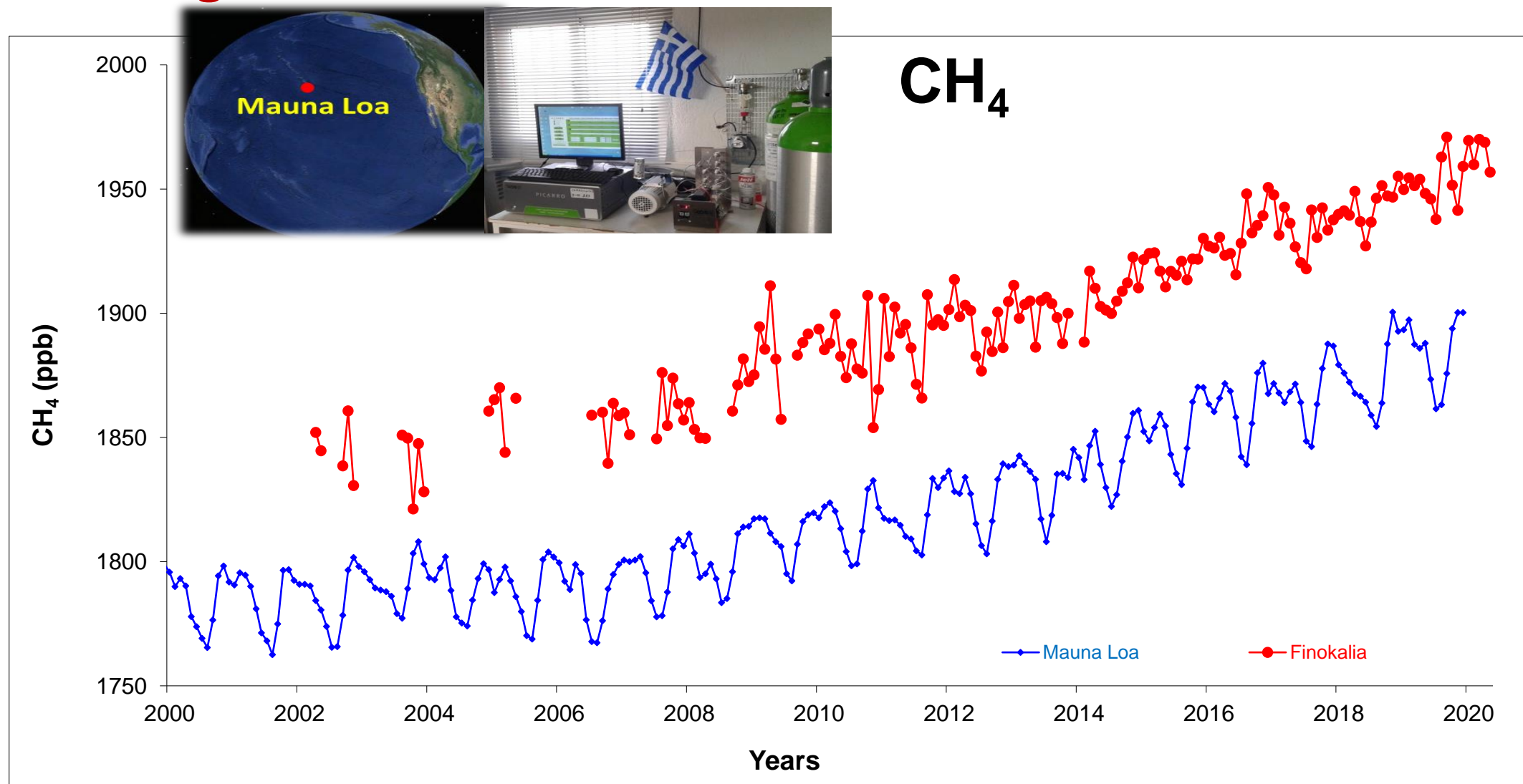




Long term Observations at Finokalia- ICOS

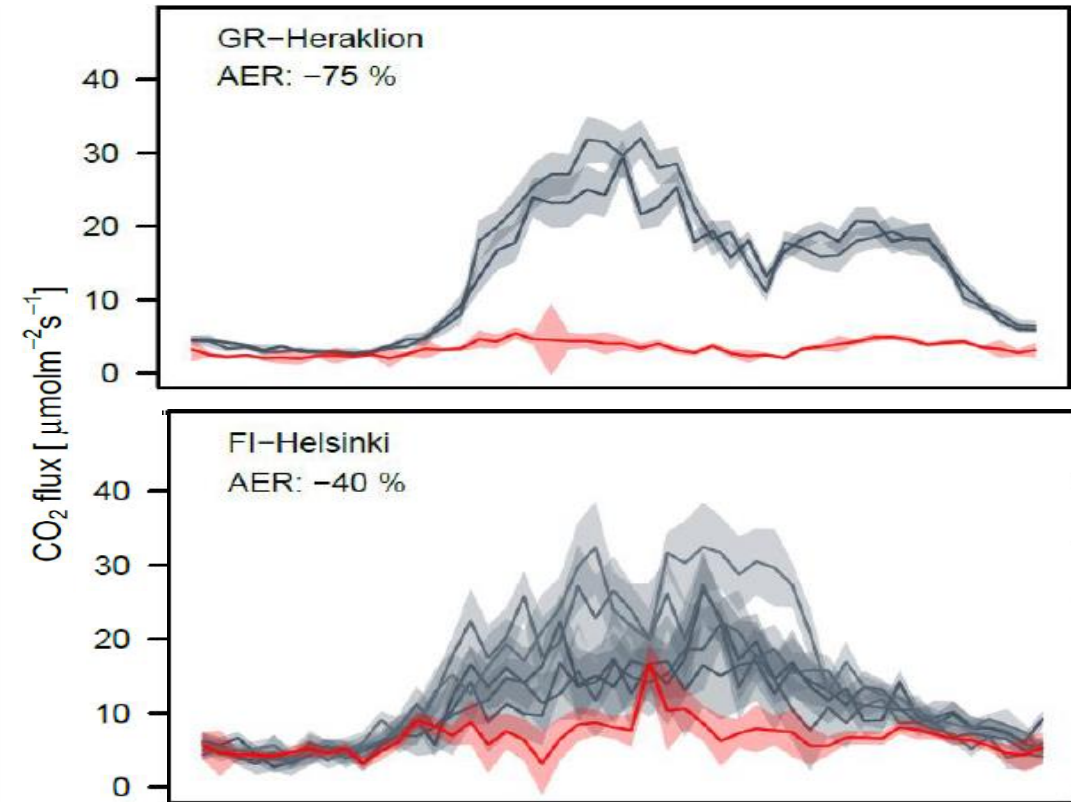
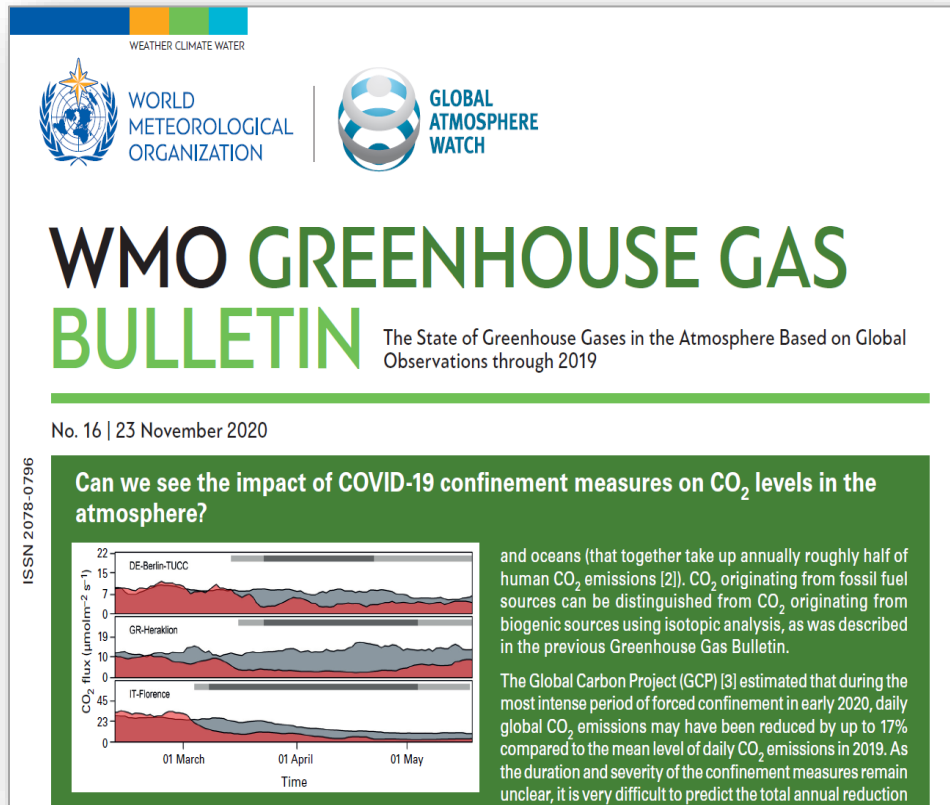


Long term Observations at Finokalia- ICOS





Flux Towers Flux Towers (HECMAS & HECKOR) Heraklion



What was the impact of COVID-19 lockdowns on CO₂ emissions?



PANACEA

- PANhellenic infrastructure for Atmospheric Composition and climatE change
- ΠΑΝελλαδική Υποδομή για τη μελετη της ατμοσφαιρικής σύστασης και της κλιματικής Αλλαγής - ΠΑΝΑΚΕΙΑ



An integrated infrastructure

- PANACEA **integrates all existing national facilities** to create a harmonized high-class innovative research infrastructure, following **ACTRIS** and **ICOS** recommendations.
- **PANACEA is the unique, integrated Research Infrastructure (RI)** for atmospheric composition and climate change not only for Greece, but also for southern Europe and eastern Mediterranean, an area that is acknowledged as a hot spot for climate change.

[illegible]

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Objectives

- Integrate all existing national infrastructures
- Provide **scientific expertise** on
 - **Air quality**
 - **Climate change**
 - **Natural disasters (related to climate change)**
- Provide **innovative solutions** (technical and computational) on air quality and atmospheric sciences.
- Point of reference, certification and calibration (**cal/val satellites**)
- **Bridge** between science, services, industry and entrepreneurship
- Cradle for the **next generation** of researchers in atmospheric sciences
- Improve climate change projections (**model validation**)

EUROG

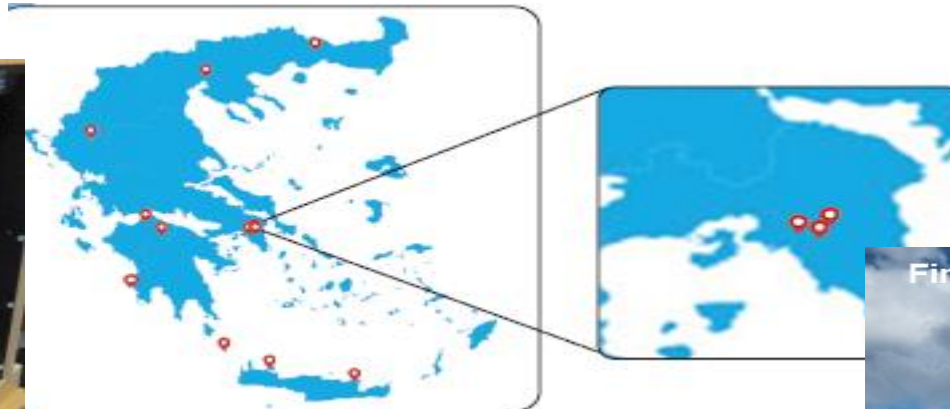


Hemos observatory (HAC²) - Demokritos

Lidar observations in Thessaloniki- LAP- AUTH



ICEHT-FORTH, Patras



PANACEA's Observational network in Greece



Costa Navarino (NEO)- BRFAA



Cimel at PANGAEA NOA



Finokalia observatory, UOC Crete



Co-financed by Greece and the European Union



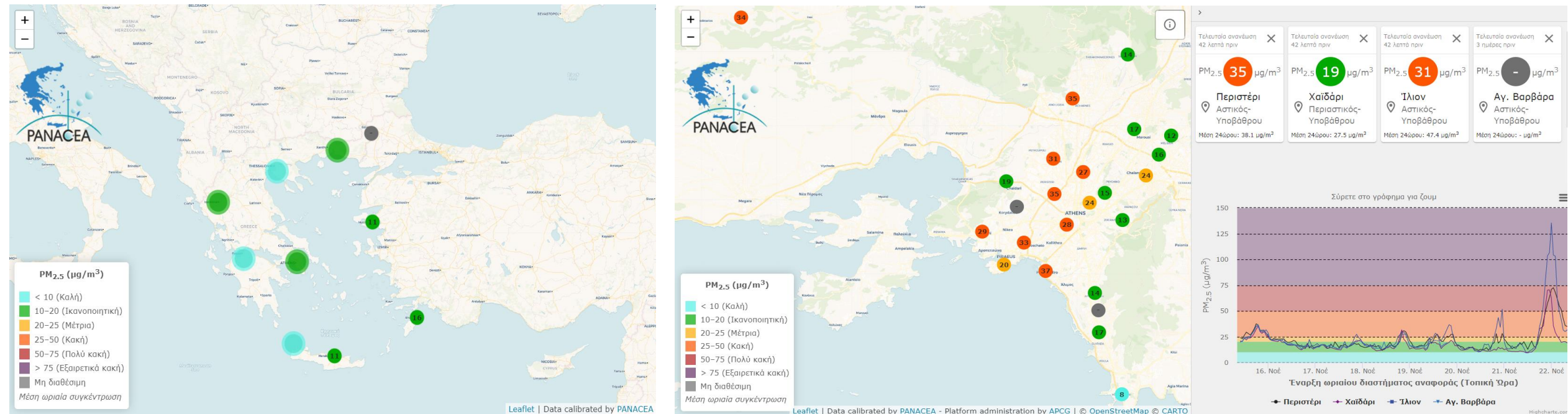
EUROGEO WORKSHOP 2022

Sensors platform of PANACEA / ΠΑΝΑΚΕΙΑ

<https://air-quality.gr>

PM_{2.5} – low cost sensors

Based on sensors technology and IoT (Internet of Things) for real time observations



24 locations in Athens and 83 in Greece

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“CLIMPACT: The Greek Initiative for studying the Climate change and its impacts”





Aims of CLIMPACT

- The creation of a national database through the systematic collection, control and archiving climatic and environmental parameters, data from satellite earth observation systems, models and products, and their free and open use by the Greek and international scientific community.
- Valid and timely dissemination of information to decision-making bodies, cross-sectoral policy design (with emphasis on tourism, agriculture, forests / ecosystems, and civil protection), shielding of citizens, society and economy in general from the effects of Climate Change.



Participants

- National Observatory of Athens (NOA, Co-ordination)
- Academy of Athens
- Aristotle University
- University of Athens
- National Technical University of Athens
- Hellenic center of Marine Research (HCMR)
- Demokritos Research center
- University of Crete
- National technical University of Crete
- Research Center Athena
- National Center for Social Studies

The initiative is open to other Greek Institutes and Universities (23 up to now)



PANGEA: Observatory of Geosciences and Climate Change at Antikythera

Unique for Greece and South-East Mediterranean Prototype superstation with immediate targets:

- (a) the constant monitoring of climate and atmospheric parameters and their evolution (**both in-situ and remote sensing**)
- b) to create a **harmonized** high-class innovative research infrastructure, following ACTRIS and ICOS recommendations.
- (c) to contribute to the **fulfillment** of our National obligations
- d) to address **societal objectives** related to the climate change impact on severe weather and natural disasters etc





Thank you for your attention

View from Finokalia station



Co-financed by Greece and the European Union

