NEONEA

NAVARINO ENVIRONMENTAL OBSERVATORY

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EDITED BY NEO TEAM

TOPICS INSIDE:

During the reporting period, we had the pleasure to welcome several international students and researchers at NEO field station in Greece.

For the coming 3 years, NEO and the Academy of Athens, will be actively engaged in SALAM-MED, a research and innovation project funded by PRIMA foundation. In Messinia, the aim of the project ιs to to assess agri-ecological farming practices for soil quality & water retention improvements.

Happy Reading!

FIELD COURSES & INTERNSHIPS

Another **Physical Geography course** from Stockholm University was organized at NEO in last March. The main goal of this course was for the students to acquire knowledge in a variety of methodologies for environmental research. The study schedule consisted of two phases, the first one was the excursions to different places all around Messenia and Arcadia, and the second one was the field work carried out at four study areas. Topics that were covered were the geomorphology of the area, the impacts of human pressure on ecosystems and how climate change and land use processes might shape the landscape in the future. During the excursions they visited a number of sites mainly in Messenia.

Cultural Heritage Materials & Technologies-CultTech MSc performed its annual visit at NEO, where, Dr. Evangelos Gerasopoulos from NOA and Giorgos Maneas, NEO Station Manager, helped the students understand the relationship between Cultural Heritage and Environmental Studies, through courses in statistics of analytical & environmental data. They were also informed about the activities of NEO and the hydrology of Gialova lagoon. The students visited also the Archaeological sites of Palaiokastro in Gialova, the Castle of Pylos and Methoni, where they learned about the long history of Messinia.

During Spring 2022 NEO hosted 3 diferent internship projects, 2 from Stockholm University and 1 from Haapsalu Vocational Education and Training Centre, Estonia.

Rebecka Wisling, master student in Landscape Ecology (SU), studied the biomass and the nutrient and carbon sequestration of seagrass in Gialova Lagoon. During her 3 weeks at NEO, she:

1. collected 40 samples of seagrass in 4 different seagrass meadows in the lagoon,
2. washed, dried, and weighed the samples at the NEO research station in order to calculate biomass,
3. mapped the occurrence of seagrass in the lagoon using remote sensing applications.

Vincent Süßbauer, master student in Globalization Environment and Social Change (SU), analyzed the Ecosystem Services of the Natura 2000 protected area in Gialova, and during his stay at NEO, he:

1. distributed questionnaires to visitors of the area,
2. interviewed local experts,
3. observed and mapped the area.

Thea Karin Nature Guide student at Haapsalu Kutsehariduskeskus-Vocational Education and Trainig Centre, chose to do her internship at NEO station and her topic was related to the on-going research of the Ecosystem Services of the area and their benefits provided by natural environment.
During her work, she distributed questionnaires to· visitors of the Natura 2000 protected area and Costa Navarino local staff.

WORKSHOPS

Geoarcheologist Hybrid workshop

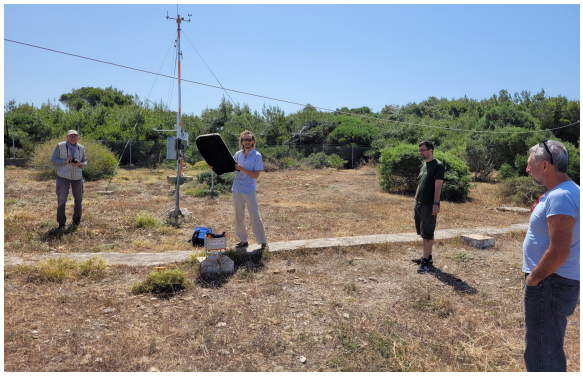
We were pleased to host at NEO, the hybrid WORKshop "**Modeling climate and climate change in the Peloponnese (Greece)**" with 20 participants joining from Germany, Sweden, Switzerland and Greece. The overall aim of, is to shape a new network of scholars from archaeology, ancienthistory, paleoclimatology, and climatemodelling, and thereby provide a platform for exploring human-climate-environmental dynamics. Modelled climate parameters such as temperature and precipitation in tandem with climate reconstructions based on Peloponnesian climate proxy data, are some of the basic tools in order to build a coherent picture of climate variability in the Peloponnese across time. The workshop was organized by Uppsala University and Justus-Liebig-Universität Gießen.

3rd Multi-actor Laboratory

Under the umbrella of the **COASTAL EU project,** NEO in collaboration with Hellenic Centre of Marine Research-HCMR hosted the 3rd Multi-Actor Laboratory (MAL) workshop with local and regional stakeholder participants from Messinia, on March 17 at Costa Navarino facilities. The workshop brought together representatives from key economic sectors of the region and the main purpose was to present models' analysis results, in order to bring up an interactive discussion of the participants in the context of the development and promotion of the natural heritage of local products and alternative tourism of the study area.

FIELDWORK CAMPAIGNS

Methoni's atmospheric station



Pierre Briole, Manuel Pubellier and Simon Bufféral from the École Normale Supérieurein in Paris, recently came to visit NEO's atmospheric station at Methoni and they discovered the multiple instruments installed there and discussed the ways of sharing the recorded data to improve international scientific knowledge and collaboration. They are currently working on the large-scale deformation affecting the western coast of the Peloponnese, studying the tectonic movements. During their visit, they had the opportunity to measure the gravitational acceleration using GPS and recorded the data for future experiments.

Gialova's project

Gialova's project is going on! NEO scientists are working together with colleagues from Greek institutions, environmental managers, local authorities and foundations in order to bridge the research gap of Gialova's lagoon management. During last semester the engaged researchers initiated a series of sampling campaigns, aiming to collect sediment and water samples for further laboratorial analysis.

The generated data, will be used to support future decision-making processes to improve hydrological, environmental and ecological conditions, as well as to enhance various ecosystem services on the Gialova wetland landscape. Such data will also support future research projects and students' thesis conducted at NEO.

NEO's monitoring network

On a monthly basis NEO researchers are conducting field work research at Gialova's lagoon which contains:

- in situ measurements of water quality
- downloading data from the installed sensors
- groundwater and surface water sampling
- chemical analysis of the samples at NEO's lab
- maintainance of the instruments
- making observation at the wetland

SALAM-MED

SUSTAINABLE APPROACHES TO LAND AND WATER MANAGEMENT IN MEDITERRANEAN DRYLANDS

PRIMA FOUNDATION

Topic:
Water management
Duration:
36 months
NEO partner:
Academy of Athens

The aim of our project is to assess agri-ecological farming practices for soil quality & water retention improvements. To enhance olive grove water retention and mitigate soil degradation, management practices such as reduced tillage/ no-tillage and cover crops will be assessed in the hilly slopes of Messinia, Greece.

Soil surveys will determine soil physical (bulk density, aggregate stability, infiltration capacity), chemical (soil organic matter, nitrogen, and phosphorus) and biological properties to assess soil quality and water retention improvements.

Integrating these data with climate and water management modelling (WRF model) SALAM-MED will provide decision support to the identification of effective water-based practical and policy solutions, structurally coupled with increased resilience and recovery of degraded land.

Future climate variables (e.g.,temperature,precipitation, relative humidity, solar radiation) will be also downscaled in order to identify the effects of climate change in local temperature, precipitation and evapotranspiration.

Read more about the project in the link below:
https://www.salam-med.org/

NEW PUBLICATIONS

Peer reviewed journal publications

- Gerasopoulos E. et.al, 2022. Earth observation: An integral part of a smart and sustainable city. Journal of Environmental Science and Policy, 132(22), 296-307.
- Mitsos D. et.al, 2022. Characterization of black crust on archaeological marble from the Library of Hadrian in Athens and inferences about contributing pollution sources. Journal of Cultural Heritage, 53, 236-243.
- Ferreira C. et.al, 2022. Soil degradation in the European Mediterranean region: Processes, status and consequences, Science of The Total Environment, 805, 150106.