

NAVARINO ENVIRONMENTAL OBSERVATORY

NEO Management

Monday, 11 November 2013

NEO NEA #10 (July - September, 2013)

NEO stands for Navarino Environmental Observatory. But NEO in Greek (νέο) means news as well and NEA is its plural. So this is our news!

Foreword

Greetings from NEO!

At Gialova lagoon the flamingos have already arrived and the locals are saying that this is probably a sign of a cold winter coming earlier than expected. Despite the rainy weather, NEO researchers have managed to accomplish two major tasks this September: Moving the atmospheric station to a new, more promising place and completing a sediment coring campaign at two sites in Messinia!!!



Flamingos at Gialova Lagoon (winter is coming)

Activities

Research

- On August 15 - 20, NEO researcher from the National Observatory of Athens (NOA) Dr. Vassilis Amiridis visited NEO in order to conduct maintenance work on the Multifilter Rotating shadowband radiometer (MFR) operating at the Spectroradiometric station located at Costa Navarino. On August 19, PhD student Vassilis Salamalikis from the University of Patras also visited NEO in order to conduct maintenance work on the Pyranometer operating at the Spectroradiometric station.
- A major effort for moving the Atmospheric Station from the Library Tower at Costa Navarino to the Hellenic National Meteorological Station (HNMS) premises at Methoni, took place in late September. From early September, under the co-ordination of the Giorgos Maneas, work began at Methoni to prepare the transport of instrumentation to the container donated by TEMES. The work included, among others, the replacement of a fence for security reasons, weeding and cleaning of the surface and electrical work for adequate and secure power supply. Thereafter Vangelis Gerasopoulos, Radek Krejci, Peter Tunved and the former station manager Nikos Kalivitis dismantled all equipment from Costa Navarino and started with setting up the new station at Methoni. This proved to be a quite demanding task under the hot sun of Messinia. A few days later, HC Hanson joined the group and the transport of the station was successfully completed. The new NEO atmospheric station is now up and running!



Figure 1: NEO Atmospheric Lab at Methoni HNMS premises.

- On the 28th and 29th of September, Karin Holmgren and PhD candidate Meighan Boyd participated in field work at Alepotrypa Cave, Laconia, Greece. Alepotrypa Cave is the site of a decades-long, extensive, archeological excavation of a major Neolithic settlement which was destroyed around 5000 years B.P during an earthquake which collapsed the cave entrance. Discovered in 1958, the well-preserved habitation areas provide one of the most fantastic records of Neolithic life in Greece. During this field session water samples were gathered from within the cave to aid in the interpretation of the stable isotope data, temperature, CO₂, and humidity readings were taken, and modern calcite was collected. Together with archaeologist Dr. Takis Karkanis of the Ephoreia of Palaeoanthropology-Speleology of Southern Greece, the team explored areas of the cave which are not part of the main mapped and excavated area. A few tight squeezes led to chambers which present new and exciting opportunities for paleoclimate research at the site.



Figure 2: Stalagmite sampling in Alepotrypa.

- Following the preliminary investigation at potential sites for sediment coring for paleoclimatic studies, a coring campaign took place during late September early October. Elin Norström and Christos Katrantsiotis from INK visited NEO during a week, to sample wetlands and lagoons in the western Peloponnese area.



Figure 3: Coring with Russian corer in Ag. Floros.

Coring was performed with Russian corers in Gialova laoon and Agios Floros, a former wetland area north of Kalamata. Prof. Nikos Zacharias from the University of Kalamata, who is one of the research collaborators, will perform OSL dating on selected sequences. He joined Norström and Katrantsiotis in the field during two days, and retrieved samples for OSL with a corer designed for this purpose. Sediment samples were also taken from ancient Lake Lerna, near Argos in the south-eastern part of the peninsula.

- The field campaign for dendrochronological sampling in 2013 resulted in 70 new samples from three different sites. Stem disks or sections were cut from dead and downed logs to provide material that will extend the living tree chronology further back in time. In addition to stem disk samples, living trees were cored to improve the modern portion of all chronologies.

Table 1: The NEO tree-ring collection.

Site	# samples	~ age range AD
Smolikas	49	1000 - 2013
Valia Kalda	59	1000 - 2013
Prophetus Ellis	70	1500 - 2013

During July – September these samples were transported to the laboratory in Stockholm and prepared for dendrochronological analysis. Preliminary estimates suggest many dead trees have been lying on the ground for 500 years!



Figure 4: Tree sampling in Greece.

Scientific Publications

Conferences

NEO was represented in the European Aerosol Conference (Prague Czech Republic 1-6 September, 2013) by Vangelis Gerasopoulos who presented the following two studies:

1. Athanasopoulou E., D. Rieger, C. Walter, H. Vogel, B. Vogel and **E. Gerasopoulos**: Modeling the chemical and radiative effects of aerosol during the wildfires of 2007 in Greece.
2. Liakou E., **Gerasopoulos E.**, Paraskevopoulou D., Zarbas P., Theodosi C., Kalivitis N., Maneas G., Mihalopoulos N., Zerefos C.: Aerosol chemical composition at NEO (Eastern Mediterranean) during the ARGON 2012 summer campaign.

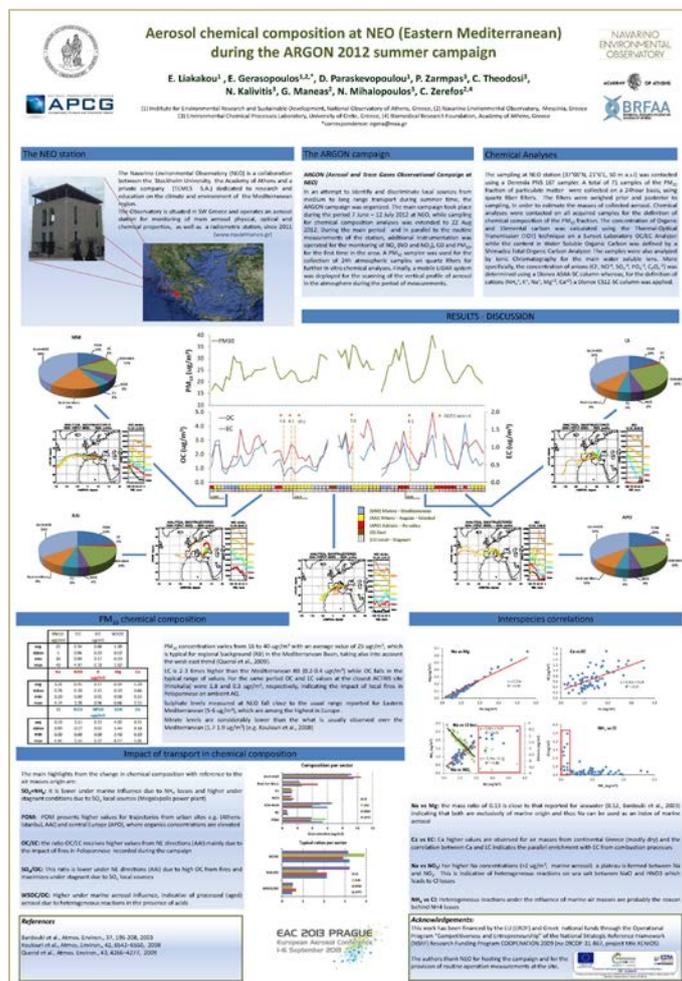


Figure 5: Publication at the European Aerosol Conference

Master Thesis

1. Josefine Klein has finished and presented her master thesis entitled: "**Water resource sensitivity from a Mediterranean perspective**". The thesis work exemplifies how hydrological modelling can be used to explore the combined impacts of climate and land-water management changes in the water-stressed Mediterranean region. The results highlight the importance of environmental monitoring and assessment to inform management and planning in this and other Mediterranean regions where water resources are vital to the economic-feasibility of development.
2. Karin Ekstedt has finished and presented her master thesis entitled: "**Local water resource assessment in Messinia, Greece**". The main objectives were to evaluate the balance between supply and demand, the sustainability of current water consumption, capacity of further land use intensification and to review local water management. The method was dual with both quantitative (water balance calculations and linear modeling) and qualitative (interviews and a questionnaire survey) approaches.

Education

Courses

- Students of the Justus-Liebig University of Giessen (a NEO Associated Member), Germany, visited NEO on 10th to 14th September as part of their-course "Climate, Climate Change Impacts: Greece". Elena Xoplaki and Juerg Luterbacher were course instructors. The aim of the course was to provide interdisciplinary knowledge on the climate of Greece and the Eastern Mediterranean to BSc, MSc and PhD students. The course consisted of three interrelated parts, theoretical, methodological and a field excursion. The students prepared a scientific report combining knowledge acquired from the theory and methods and knowledge obtained during the excursion. The students visited Gialova lagoon, Paleokastro and Archaia Messini with the guidance of Giorgos Maneas and Karin Holmgren. Atmospheric monitoring, demonstration of the NEO atmospheric research station and latest research results were presented by Vangelis Gerasopoulos.

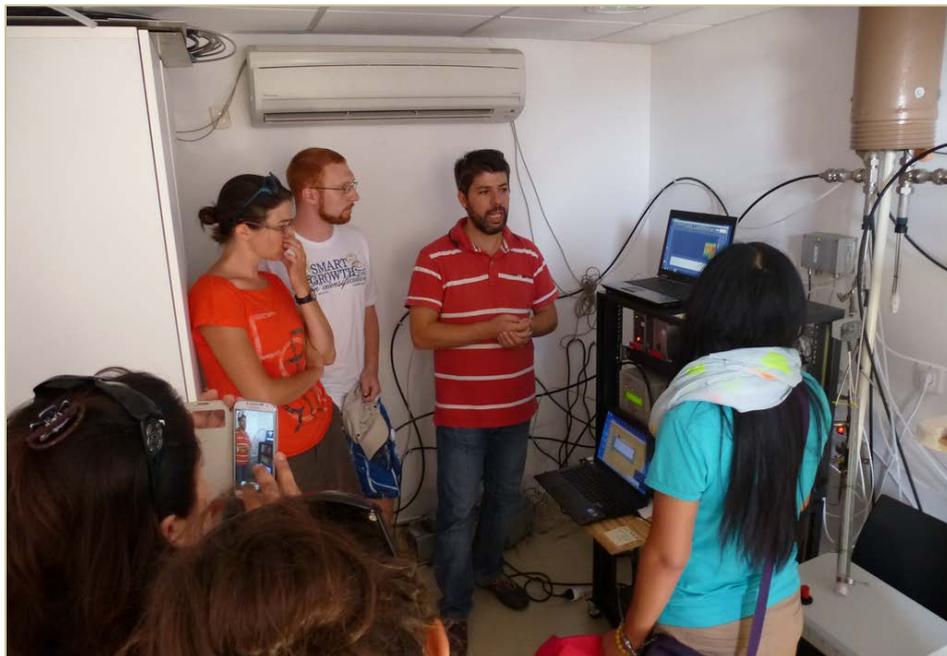


Figure 6: Demonstration of the NEO atmospheric station by Vangelis Gerasopoulos

Finally, the students attended a lecture on caves and speleothems by Karin Holmgren.



Figure 7: A presentation on caves and speleothems by Karin Holmgren

- During the period 21-24 September, Gunnel Forsberg, Department of Human Geography, Stockholm University, Maths Isacson, Department of Economic History, Uppsala University, Åsa Danielson, Water and Environmental Studies, Linköping University and Arto Penttinen from the Swedish Institute of Athens (SIA) visited NEO in order to plan a master course on water management issues from a social science and management perspective. The field course in Greece will be run from 24/11 to 1/12.

Internships

- In August, Aristidis Voliotis and Christos Pantazis - undergraduate students from the Department of the Environment, University of Aegean - implemented their internships at NEO. Mr. Voliotis theme was entitled 'Development of an Algorithm Combining Aerodynamic and Electrical Mobility Size Distribution Data' and he was supervised by Vangelis Gerasopoulos while Mr. Pantazis theme was entitled 'Instrumentation and Monitoring of atmospheric pollutants' and he was supervised by Giorgos Maneas.

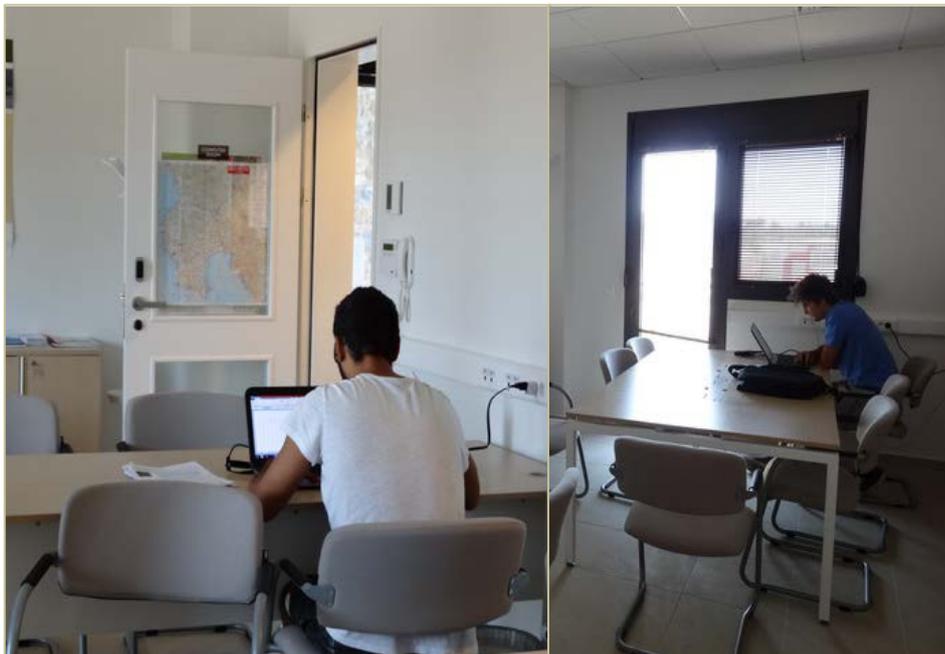


Figure 8: Students working their internships at NEO.

Events

Workshops

- On the 27th of September a one-day-long workshop entitled UOP(University of Peloponnese)@NEO took place aiming at investigating research topics of mutual interest between the research groups of the University of Peloponnese and NEO. Nine groups from the UOP, Department of History, Archaeology and Cultural Resources Management and the Department of Computing and Telecommunications, presented their research areas with focus on environmental issues. Classical Pylos geoarchaeology and marine archaeology of S. Peloponnese were presented by archaeologists of the local Ephorate of Classical and Prehistoric Antiquity and the Ephorate of Underwater Antiquities of Greece while an introduction about the NEO activities was given by K. Holmgren. It was concluded that there are were topics of common research interest and the participants were encouraged to contact relevant NEO researchers for further discussions on plausible collaboration.



Figure 9: Participants following a presentation during the UOP@NEO workshop

Dissemination

- Three groups of scouts visited NEO on July 31, August 1 and August 11. Giorgos gave them a presentation about NEO research and educational activities.



Figure 10: Scouts following a presentation about NEO.

- The 'Astronomy Nights' event, held by Giorgos Maneas, once a week since June has been a great success. Most of the tours given were fully booked by Costa Navarino resort guests and in total more than 140 guests followed the event. The Moon, Saturn and the Great Globular Cluster of Hercules were the visitor's most favorite objects!

Natura Hall

- The volunteers for Natura Hall for the period August-September, Emily Honn, Nick Lampiris and Fanny Tomband arrived on July 27 and departed on September 21. An introduction by Giorgos Maneas, Fotis Stavrianopoulos and the three volunteers Vasiliki Tzimou, Isabella Hammarstrom and Marcus Hagman (who departed on August 3) took place during the training period. Moreover the volunteers visited Archelon's camp in Kyparissia for one night and participated in conservation activities regarding the protection of Caretta-Caretta sea turtle. During their volunteer duties, all volunteers were actively involved in Natura Hall statistics and data collections, which contributed to the publication of the first scientific paper about Natura Hall (see also below).
- The Navarino Natura Hall by Hellenic Postbank was presented at the 1st International Workshop on Virtual Archaeology – Museums and Cultural Tourism at the European Conference Centre of Delphi, 25 – 28 September 2013, by Mrs. Natasa Glaraki, Archaeologist – Museologist employed by TEMES SA. In the paper entitled “The museums' experience as a touristic added value – Navarino Natura Hall by Hellenic Postbank in Costa Navarino” the results from data compiled regarding the visitors view of Natura Hall over the last 2 seasons were presented. The paper will be published in the International Journal of Mediterranean Archaeology & Archaeometry (www.maajournal.com) in January 2014.



Figure 11: The 1st International Workshop on Virtual Archaeology – Museums and Cultural Tourism.

Upcoming

Education

- As part of a one semester Natural Science Specialization course a group of students from the upper secondary school, Värmdö Gymnasium, will visit NEO in October 12-18. The specialization course is aimed at third year students attending the natural science programme with a global perspective, and the course theme is "natural disasters from a natural- and social science perspective". The visit to NEO is highly anticipated, and the week will include visits to geological, biological as well as historical sights of interest. The purpose of the week is to give the students more understanding of how the landscape is shaped through geological processes and what effect these processes have on biological systems.
- The 3rd training course in Air Pollution for 25 undergraduate students from the Physics Department of the University of Patras, Greece will take place in November at NEO. The training course is developed by Assistant Professor Andreas Kazantzidis (Laboratory of Atmospheric Physics, Physics Department, University of Patras, Greece).
- A NEW master course, on water management issues from a social science and management perspective, will be held at NEO in November 2013. The course is organised by Gunnel Forsberg, Professor at Human Geography.

Events - New grants

- Karin Holmgren together with NEO associated members Juerg Luterbacher and Elena Xoplaki, Justus-Liebig University of Giessen, Germany, Marie-Alexandrine Sicre, Lab. des Sciences du Climat et l'Environnement, LSCE, France and Alexandra Gogou, Hellenic Centre for Marine Research, HCMR, Greece applied and received funds for organising an international workshop entitled Mediterranean Holocene Climate and Human Societies. The workshop is open for 60 participants and will be held 23-26 April 2014 at NEO and at the Westin resort. A first call is announced at our web-site www.navarinoneo.gr

Dissemination

- NEO film, 'A dream came true' will be shown at the annual American Geophysical Union meeting December 2013.

NEO management

- NEO Steering Committee will take place on 30 October at TEMES offices in Athens.

Visits to and from NEO

- NEO Director, Karin Holmgren, was at NEO from 22 June- 14 July and from 11 September to 5 October. During her stay she met with:
 - Prof. Dionysia Panagoulia, National Technical University of Athens, School of Civil Engineering, Department of Water Resources and Environmental Engineering, for research discussions.
 - Prof. Kimon Hadjibiros, National Technical University of Athens, for information about NEO activities.
 - Mr. Xenofon Kappas and Dionisis Papadatos from Captain Vassilis Foundation for research discussions.