

NAVARINO ENVIRONMENTAL OBSERVATORY

NEO Management

Monday, 29 July 2013

NEO NEA #9 (April - June, 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!

The summer is half way through! The past three months, April-June, have been full of activities at NEO, as you will recognize from this newsletter! And more is to come! Looking back over the past 6 months we have hosted 2 research workshops, 3 student courses, 1 PhD summer school and 11 individual researchers. In total we have had 126 visitors, together staying 712 nights at NEO!!!



NEO project car

Activities

Past

Research

- On April 6-14, Peter Adler, a bachelor student from Stockholm University, visited Mani Peninsula in order to do fieldwork for his bachelor thesis. The aim of the thesis is to examine geomorphologic processes of the Mani Peninsula and the study is part of a larger NEO-funded research project led by Dr Ingmar Borgström and Professor Johan Kleman at the department of Physical Geography and Quaternary Geology. Peter Adlers contribution to the research is to map an area on the Mani Peninsula, extending from the west coast, over the mountain ridge to the east coast. The geographic setting of the Mani Peninsula, in the south of Peloponnese, Greece, enables an array of interesting landscape forming processes to be studied. With its direct vicinity to the Hellenic arc, the active tectonics affect the Mani peninsula in several ways, in combination with wind, water and temperature that act as land forming agents everywhere.



Figure 1: Peter Adler at Mani Peninsula collecting data for his Bachelor Degree thesis.

- In April, NEO Director Karin Holmgren along with NEO Station Manager Giorgos Maneas visited Gialova Lagoon and Evrotas Delta in Messinia and Lakonia respectively, in order to investigate the potential of these sites for sediment coring for paleoclimatic studies.



Figure 2: View of Evrotas wetland.

- On May 4-7, NEO researchers Johan Kleman and Ingmar Borgström climbed the Taygetos mountain in order to check for moraines as indicators for glaciers. Although the mountain was still covered with snow fields they managed to identify one moraine close to 2000m altitude. NEO Station Manager also joined them.



Figure 3: Johan Kleman and Ingmar Borgstrom climbing Taygetos Mountain.

- On May 20-22, PhD student Meighan Boyd and Dr. Hanna Sundqvist in collaboration with Dr. Panagiotis (Takis) Karkanis from the Ephoreia of Palaeoanthropology-Speleology of Southern Greece surveyed the Alepotrypa cave in Lakonia and marked out stalagmites of interest for paleoclimate studies. Temperature loggers and glass slides collecting modern calcite precipitate left in the cave in early July 2012 were collected during this field work, providing nearly one year of

climate and calcite data. Stones collecting calcite were left in place to continue the modern calcite record. New glass slides were placed out, and drip water was collected for analysis of water chemistry. Measurements of cave humidity, CO₂ levels, and drip rates will were taken in two sites of interest in the cave. A few samples of speleothem material were extracted from the cave under the supervision of the Ephoreia. If of sufficient quality, these will provide insight into local climate during the past five-thousand years.

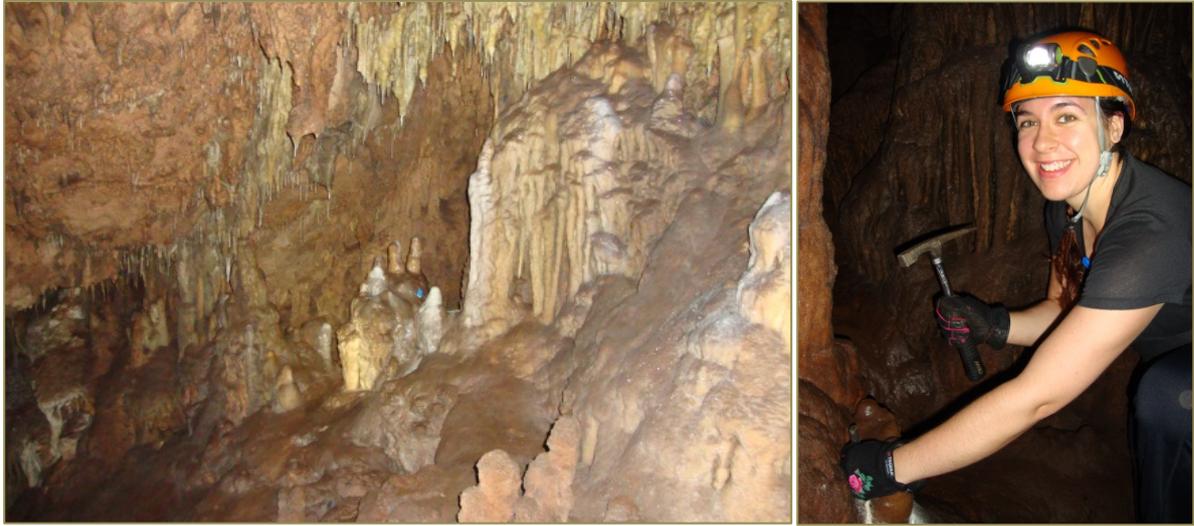


Figure 4: The upper north chamber (right) and happy Meighan taking a sample (left).

- NEO researchers Håkan Grudd and Christos Zerefos along with Konstantinos Eleftheratos, Christos Repapis and Konstantinos Philandras sampled oak trees at Chaironeia as part of a dendroclimatological project in Central Greece.
- On May 24 – June 20 Paul Krusic performed a Dendrochronology Field trip together with Dr. Hakan Grudd, Stockholm University and Sam Williams an undergraduate student from the USA. Sam won a small scholarship from his school allowing him to come to Greece with Paul, to learn about dendrochronology and to see a bit of Europe. So far on the expedition they have driven nearly 6000km, 1000's on small dirt roads in the mountains of Greece.



Figure 5: Ancient living and dead trees in the northern Pindos range of Greece (right). An increment core from a living tree. Coring a tree does not harm the plant yet still provides us with the necessary information for our studies (left).

This year the focus was on finding more sub-fossil wood laying on the ground or in the sediments in the vicinity of the trees that were sampled during the first expedition in 2011. In 2011, 700 year old living trees in the northern Pindos range not far from the small village of Samarina (the highest village in Greece, 1650 m) were luckily found. with the combination of these two archives Paul hopes to be able to reconstruct a history of climate back to the late Roman period.



Figure 6: Dr. Hakan Crudd (Sweden) and Sam Williams (USA) holding cross-sections of cut from a tree trunk that may have fallen on the ground 400 years ago.

Scientific Publications

Two more scientific publications for 2013:

- An insight article has been published at the IOP community website [environmentalresearchweb](http://environmentalresearchweb.org/cws/article/news/53058) following up on our latest NEO paper Mazi et al. (Environmental Research Letters, 2013): Mazi et al., Insight: sea-level tipping points affect groundwater quality near coast, [environmentalresearchweb](http://environmentalresearchweb.org/cws/article/news/53058), 2013 - <http://environmentalresearchweb.org/cws/article/news/53058>
- PAGES 2k Consortium (incl. NEO-researcher Paul Krusic and NEO associated member Dr. Juerg Luterbacher), 2013: Continental-scale temperature variability during the past two millennia. *Nature Geoscience* 6, 339-346.

Education

Courses

- The second Masters course "Plant Biodiversity and evolution - a global perspective", took place at NEO on April 20-27. Catarina Rydin was the instructor of the field course and in total 20 participants from Stockholm University and the Swedish Royal Botany Garden attended the course. During the excursion, they identified more than 250 plant species in a number of different sites mainly in Messinia. Among them, the Gialova/Navarino Bay area, Taygetos mountain, Polylimnio and the surroundings of NEO.



Figure 7: Students and Professors during their visit to Polylimnio waterfalls.

- For a second year, a joint effort between Stockholm University and Cornell University brought together students from the US, Sweden and Greece to explore NEO and its surroundings in an ecohydrologic framework via field experiments and observations. The course 'Ecohydrology: a Mediterranean perspective' took place in June 9-15 and a main focus was to explore interactions between plants and the water cycle. To help develop students' understanding of this dynamic and sensitive region of the Mediterranean, they focused on evaporation and transpiration processes across different spatial scales.



Figure 8: Ecohydrology course at NEO, a group foto.

Summer School

Bolin Centre – NEO, Summer School on the subtropical frontier June 23- July 3, 2013, Navarino Environmental Obs.

- From all over the world came students and faculty to attend an advanced studies, summer school on the subtropical frontier. The tropical regions of the world, which includes the Mediterranean are expanding. How fast and where this expansion will be greatest, and what will the implications to current climate conditions be, was the focus of this course. The course was delivered in a colloquium style where many invited scientists from as far away as Australia and Hawaii came to explain both the basics and current research in the field. The summer school was also well attended by students from all around the world, including many from Greece.



Figure 9: Bolin Centre – NEO Summer school on the sub-tropical frontier, June 23rd to July 3rd, 2013.

The summer school was a joint collaboration between the Bolin Centre's Research Education division and NEO, with support from THEMES and the Navarino Dunes Hotel. By all accounts it was a success and we hope to hold another such summer school in Navarino soon. For more information about the Stockholm University's Bolin Centre and courses provided goto <http://www.bolin.su.se/index.php/postgraduate-courses> .



Figure 10: The lecture hall at Costa Navarino for 'The Subtropical Frontier' Summer School

Events

Workshops

- The 'Central Asia' workshop gathered thirteen researchers working on the glacial history of the Central Asian region at the Navarino Environmental Observatory May 8-12, 2013. Earlier workshops were held in Bishkek, Kyrgyzstan (2011), and at the Tarfala Research Station (2012). This time, researchers came from the USA, Russia and Sweden to discuss results from last years' field season in the Tian Shan, to write a group review paper on the glacial history of the Tian Shan, and to prepare the upcoming fieldwork to the Altai Mountains. The programme was led by Arjen Stroeven, Department of Physical Geography and Quaternary Geology, Stockholm University, and funded through the Swedish Research Council 2012-15.



Figure 11: Participants at the 'Central Asia' workshop

this event. On June 6, six journalists from UK, joined the ‘Astronomy Night’ while on June 13 Giorgos was interviewed by Mrs Binder from Freundin Donna magazine.

- In parallel with the Summer School, which was held at NEO 23 June – 3 July and organised by the Bolin Center for Climate Research, 4 open lectures about Climate Change were offered for the visitors of Costa Navarino.

NAVARINO ENVIRONMENTAL OBSERVATORY

The Subtropical Frontier
A summer school on climate trends, variability and extremes in the subtropics
Navarino Environmental Observatory, Messinia, Greece
June 23 – July 3, 2013

Would you like to hear more about climate change? Join us for a series of open lectures
20:15 Synergy Room at The House of Events

27 June **"The "Hockey Stick" - So What Is All The Controversy About?" (in English)**
by Dr. Edward Cook, Columbia University, USA

28 June **"Climate change and extreme events in Eastern Mediterranean! What does the future hold?" (in Greek)**
by Dr. Elena Xoplaki, University of Giessen, Germany

29 June **"A view to the past. How was climate in the Mediterranean during the last centuries?" (in English)**
by Dr. Juerg Luterbacher, University of Giessen, Germany

30 June **"From Forest to Farmland and Meadow to Metropolis: Climate, Humanity and the Story of Our Planet" (in English)**
by Dr. Jed O. Kaplan, University of Geneva, Switzerland

The **Bolin Centre for Climate research** at Stockholm University is a pioneering institute within the field of climate and environmental research. The Centre is developing an extensive research program on natural climate evolution and variability, as well as changes imposed by man's ever-increasing impact on the climate system through emission of greenhouse gases and aerosols, and changes in land-use, vegetation and hydrology.
More information: www.su.se, www.bbcc.su.se
Navarino Environmental Observatory (NEO), a cooperation between Stockholm University, the Academy of Athens and TEMES S.A., is dedicated to research and education on the climate and environment of the Mediterranean region.
More information: <http://navarinoneo.geo.su.se/index.php/gr/>

Stockholm University | BRFAA | TEMES OF COSTA NAVARINO
www.su.se | www.bioacademy.gr | www.costanavarino.com

Figure 13: The program of the Open lectures.

Natura Hall

- The volunteers for Natura Hall for the period June-July, Vasiliki Tzimou, Isabella Hammarstrom and Marcus Hagman arrived on 1 June. An introduction by Giorgos Maneas, Vasilis Karakousis, Fotis Stavrianopoulos took place 3-6 June.

NEO management

- NEO Steering Committee was held on 23 – 24 April at TEMES offices in Athens. In connection to the meeting, the new Vice-Chancellor of Stockholm University, Prof. Astrid Söderbergh Widding, came to Athens to meet with Mr. Achilles Constantakopoulos, President of TEMES.

Associated members

Two new associated members have joined NEO family:

- The Laboratory of Archaeometry, of the Department of History, Archaeology and Cultural Resources Management - University of Peloponnese, running under Prof. Nikolaos Zacharias.
- The Soil and Water Lab within the Department of Biological and Environmental Engineering at Cornell University.

Upcoming

Research

- Karin Holmgren along with Elin Norström, Nikos Zacharias and Giorgos Maneas will visit field sites that are to be included in Karin's new research project, for a second inspection and planning purposes before the major field campaign to take place in early October.
- HC Hansson, Peter Tunved and Radovan Krejci from ITM (Stockholm University) and Vangelis Gerasopoulos from NOA (National Observatory of Athens) will visit NEO in order to move part of the atmospheric instrumentation from the Library Tower to Methoni meteorological station.

Education

- A NEW course, organised by Justus-Liebig-University of Giessen will be held at NEO in September 2013. The course is organised by Dr. Elena Xoplaki and Dr. Juerg Luterbacher.
- Gunnel Forsberg, Professor at Human Geography department, will visit NEO in September in order to meet with NEO management and organise a NEW course about water management from a social science perspective.
- For the first time, two students from the Aegean University will implement their internship at NEO. The themes will be based on the Atmospheric research held at NEO. Dr. Vangelis Gerasopoulos and Mr. Giorgos Maneas will be their supervisors.

Visits to and from NEO

- NEO Director, Karin Holmgren, will be at NEO from 22 June- 14 July and from mid-September to early October.
- NEO Station Manager, was in Stockholm on May 18-25 and had a series of meetings with colleagues from Stockholm University.