LTER-GREECE: THE LONG-TERM ECOSYSTEM RESEARCH NETWORK OF GREECE

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ABSTRACT

The Greek Long-term Ecosystem Research Network (LTER-Greece) is a collaborative network of scientists and their stakeholders engaged in long-term, site-based ecological, social and economic research in Greece. The vision of LTER-Greece is to improve the quality of life of all citizens through the application of long-term, large-scale research to the preservation and sustainable use of ecosystems. LTER-Greece was established in October 2016 and it initially consists of 8 Observatories (Figure 1):

- Koiliaris Critical Zone Observatory, Technical University of Crete
- Hydrologic Observatory of Athens, National Technical University of Athens
- Finokalia Atmospheric Observatory, University of Crete
- Pinios Hydrologic Observatory, Hellenic Agriculture Organisation
- Lesvos Biodiversity Observatory, Aegean University
- Navarino Environmental Observatory, Costa Navarino and University of Stockholm
- Samothraki Nature Observatory, Hellenic Centre for Marine Research
- Samaria Gorge Observatory, Samaria National Park

LTER-Greece is a national network, member of the European Long Term Ecological Research Network (LTER-Europe) and of the International Long Term Ecological Research Network (ILTER). The mission of LTER-Greece is to deliver to the scientific community, policy makers, and society in general, sound scientific information and predictive understanding of ecological and socio-economic processes and to inform solutions to current and future environmental problems at local, national, European and global scales. The goals of LTER-Greece are:

- to foster collaboration and coordination among long-term ecosystem researchers and research networks at local, regional, continental and global scales;
- to improve comparability of long-term ecological, social and economic data from sites around the world, and facilitate exchange and preservation of these data;
- to deliver scientific information to scientists, policymakers and the public to meet the needs of decision makers at multiple scales.
- to facilitate education of the next generation of long-term scientists.

An LTER-Greece member is defined as a site/observatory instrumented and managed by academic and research institutions whose scientists have agreed to conduct scientific research according to the LTER-Greece vision, mission and goals. The LTER-Greece characteristics of the sites/observatories are:

- Site-based research – In-situ regular monitoring and research of broad spectrum of environmental variables at a local level (LTER Sites) and of environmental as well as socio-economic variables at a sub-regional level (LTSER platforms) that continuously feeds scientific analyses, up-scaling, synthesis and theory development.
- Long term – Consistent research and monitoring with the time horizon of decades.

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- System approach – a target of LTER-Greece research is to better understand complexity of ecological and socio-ecological systems, dynamics of abiotic and biotic variables, role and dynamics of system components, and interrelations between them.
- Process-oriented research – tracing dynamics of interactions between different components of socio-ecological systems LTER-Greece aims at understanding complex cause-effect relationship and their dynamics in time.

In the long run, LTER-Greece will contribute to addressing the most global sustainability challenges identified by Future Earth by providing basic research infrastructures and data that contribute to Europe's goals for: Water, energy and food supply for all; Reducing carbon emissions; Creating cities that offer a healthy environment, resilient to natural disasters and a conducive environment to productivity; Improving human health; and Increasing the ecological and social resilience to environmental change through the development of early warning systems. In the short term, the LTER-Greece network will focus on issues related to the management of our natural capital as well as the challenges of "safeguarding the territorial and aquatic natural resources that support the well-being of humans" as well as of 'promoting sustainable rural and urban development'. It will contribute to the understanding of management and policy options by providing integrated services for modeling environmental changes to the ecosystems and services they offer. LTER-Greece will contribute directly in identifying solutions to two major environmental challenges that Greece is currently facing:

- Adaptation to climate change - Greece and the eastern Mediterranean are "in the eye of the storm" in relation to the effects of climate change. It is expected that the available water resources will be reduced by 15-20% in 2030-2050 and by 40-50% in the 2050-2070 period compared to the current averages. LTER will contribute towards this direction also by proposing novel and effective ways of managing irrigation water as a common good, through bottom-up collective approaches and the introduction of a system-thinking perspective.
- Rural Development. LTER envisages the introduction of monitoring agricultural socio-ecosystems also from a socioeconomic point of view. This way, LTER will contribute to the debate regarding the support of the overall resilience of such ecosystems. LTER will expand data existing collection mechanisms (farm management surveys) with regards to sociodemographic characteristics of farmers, gross value of main products, estimation of variable production costs, rival and/or competitive land uses.

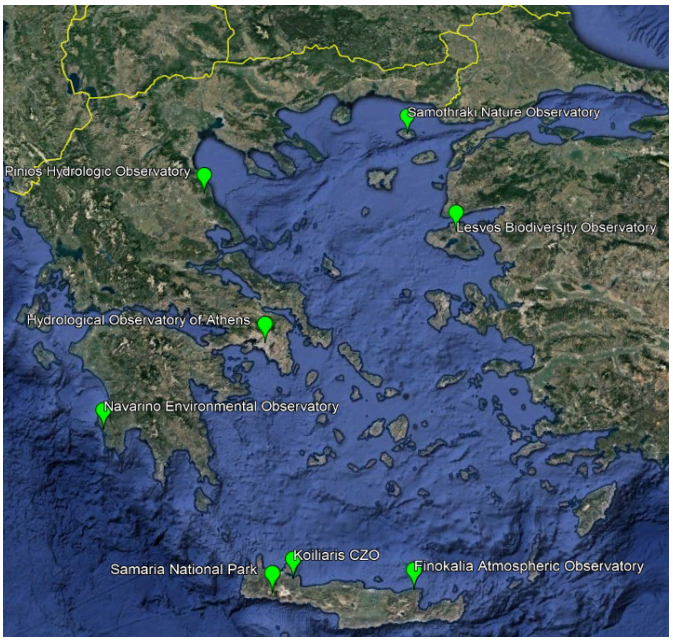

Figure 1. Location of the LTER-Greece Network observatories

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