

Acid Deposition Monitoring Network in East Asia (EANET) was established as a regional cooperative initiative in 1998 and started its regular-phase activities in 2001. Currently, thirteen countries in Northeast Asia and Southeast Asia participate in the network. In the case of EANET, not only monitoring on atmospheric deposition in 62 sites but also monitoring on ecosystem components in forest area, including soil, vegetation, and inland water, have been carried out in the same network. Although the number of the regular monitoring sites is not many in forest area, 31 forest plots, 19 lakes/streams, and 2 forest catchments, the observational data have been accumulated for more than 15 years in many of sites. According to the Third Periodic Report of State of Acid Deposition in East Asia (PRAD3) published by EANET in 2016, no clear trend was found in soil chemical properties and forest growth rates in most of the sites, while a few sites on inland water showed acidification. However, the updated data suggested recovery from acidification, which might reflect reduction of atmospheric deposition. The long-term data since the 1980s also showed that biogeochemical processes in a forest catchment in Japan sensitively responded to changing atmospheric deposition and climate. Application of isotopic analysis to the existing monitoring samples showed new views on possible mechanisms. Acknowledgements: The authors thank all the surveyors on EANET and Japanese national monitoring, the current/previous ACAP colleagues for their data compilation, and the scientists contributed to the isotopic analysis.


The Tropical managed Forests Observatory: a research network addressing the future of tropical logged forests

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While attention to logging in the tropics has been increasing, studies on the long-term effects of silviculture on forest dynamics and ecology remain scarce and spatially limited. Indeed, most of our knowledge on tropical forests arise from studies carried out in undisturbed tropical forests. This bias is problematic given that logged and disturbed tropical forests are covering now a larger area than the so-called primary forests. The Tropical managed Forests Observatory (TmFO), a new network of permanent sample plots in logged forests, aims to fill this gap by providing unprecedented opportunities to examine long-term data on the resilience of logged tropical forests at regional and global scales. TmFO currently includes 24 experimental sites distributed across three tropical regions, with a total of 536 permanent plots and about 1200 ha of forest inventories. In this paper we will present the main results generated by the network on the impact of logging on Carbon and timber recovery, as well as biodiversity changes in the Amazon basin and South East Asia.

Long-term growth records of *Cryptomeria japonica* plantations at the University of Tokyo Forests, Japan: towards a network of experimental plots in East Asia

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Long-term experimental plots can provide reliable and consistent tree growth data as a quantitative basis for sustainable forest management. The Europe-wide network of long-term experimental plots is currently used for quantifying and characterizing changes in forest stand growth dynamics, while Asian-wide networks of long-term experimental plots especially for plantations are still limited. *Cryptomeria japonica* D. Don is one of the important plantation species in East Asia including Japan, Taiwan, and South Korea. *C. japonica* plantations cover ca. 4.1 million ha, comprising about 41% of total plantations of Japan. It is an important plantation species covering about 41,000 ha, equivalent to 14.7% of the total plantation area of Taiwan. *C. japonica* was widely planted in the 1920s throughout the southern regions of South Korea. It is desirable to promote international collaborative research focusing on long-term *C. japonica* growth. We are aiming to create an extensive network of long-term experimental plots for *C. japonica* plantations with counterpart universities in East Asia. In Japan, the University of Tokyo Forests has established experimental forest plots in *C. japonica* plantations since the early 20th century. Long-term growth records on these plots are valuable to model forest growth and yield, to quantify the effects of silvicultural interventions (e.g., thinning), and to assess the ability to sequester carbon. We present the site and plot information, summary of long-term growth records, and previous studies in the oldest experimental forest plots at the University of Tokyo Chiba Forest (UTCBF) and Chichibu Forest (UTCF).

Popa (Peld do Oeste do Pará) LTER: reconciling long-term ecological research and communities in central Amazonia to understand effects of environmental changes in biodiversity

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The Amazon poses as containing the world's largest continuum of tropical rain forest and its rich biodiversity has captured the attention of scientists for centuries. Although it is mostly known for its astonishing forests, the domain is in fact a complex mosaic of formations and ecosystems, including savannah-like formations. This complexity is for sure associated with its rich biodiversity, but how these ecosystems interact is poorly known, as is its biota itself. Nevertheless, as population grows, large areas of the domain are rapidly transformed, especially in Brazil, being mostly converted to agricultural areas. This "against-the-odds" situation brought the idea of a long-term ecological research (LTER) in a populated area and involving the communities to light. The POPA LTER aims to monitor biodiversity along a continuum of forest and savannah-like formations in the lower Tapajós river basins close to Santarém, PA, Brazil, in protected areas of sustainable use. We maintain 64 permanent plots (RAPELD model) in pristine and disturbed formations, far and close to riverine communities, seeking a bigger picture of the natural and human-induced dynamics of the areas monitored. The riverine population is encouraged to participate in the research, seeking scientific literacy and awareness of how changes in land use can impact the availability of natural resources. Also, part of the plots structure is dedicated to fostering a scientific tourism to be maintained by the community, while short-term courses are offered, as a pilot idea of knowledge transfer and promoting conservation through a community-based ecological tourism.