**La Castanya (Montseny): a long term atmospheric deposition site for the study of effects to forested catchments.**

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La Castanya Biological Station in the Montseny mountain range started as site for biogeochemical studies in 1979. Since then and until today precipitation chemistry has been measured with the aim of: 1) tracking the effects of pollutant emission changes in rain chemistry and deposition, and 2) studying the contribution of atmospheric deposition to the biogeochemistry of the forest ecosystem. Throughfall, litterfall, litter decomposition, soil water chemistry, soil chemistry and streamwater chemistry and fluxes were also measured for shorter periods within this long-term span. Structural characteristics of the forest, such as aboveground and root biomass and mineralomasses, net primary production, LAI, basal area have also been determined. This provides an excellent ground for the study of the effects of air pollution and climate change on unperturbed forest ecosystems in the Mediterranean area.

La Castanya site is 40 km distant from Barcelona. Comparisons of deposition fluxes and exposure to pollutants have been made for holm oak forests lying at different distances from the Barcelona metropolitan area and have shown differences related to pollutant exposure.

Total N deposition in Montseny is in the range 15-20 kg N ha-1y-1, well above threshold values (e.g 10 kg N ha-1y-1) reported as starting nitrogen saturation symptoms in forest ecosystems in Europe. One symptom of N saturation is the increase of nitrate leaching through the drainage waters. A comparison of streamwater chemistry surveys in undisturbed catchments in Montseny carried out during 1981-1984 and in 2007 showed higher nitrate, alkalinity, and base cation streamwater concentrations in the recent survey, and lower sulphate concentrations. This likely reflects changes in atmospheric deposition, though the effect of increasing temperatures (leading to accelerated weathering rates and thus higher alkalinity and base cations) may also have a role.