

DEPOSITION AND STREAMWATER CHARACTERISTICS IN THREE FORESTED EXPERIMENTAL WATERSHEDS IN GREECE

G. NAKOS, Dep. of Forest Soils, Forest Research Institute of Athens 115 28, Greece;

P. MICHPOULOS,* Dep. of Forest Soils, Forest Research Institute of Athens 115 28, Greece;

G. BALOUTSOS Dep. of Forest Hydrology, Forest Research Institute of Athens 115 28, Greece;

A. ECONOMOU, Dep. of Forest Soils, Forest Research Institute of Athens 115 28, Greece.

*To whom all correspondence should be addressed, Phone: ++301-7784240,
Fax:++301-7784602, e-mail:naoimiar@compulink.gr

ABSTRACT

The quantity and quality of bulk precipitation and their changes as it passes through the forest canopy into the stream, were studied for two consecutive hydrological years in three experimental watersheds with Mediterranean broadleaved evergreens (*maquis*), fir (*Abies cephalonica*) and beech (*Fagus moesiaca*) forest vegetation in Greece. Interception losses of bulk precipitation were about 12, 27 and 40%, respectively, in the beech, fir and maquis watersheds. Conversely, streamflow ranged from 64% in the beech to 34% in the maquis of the bulk precipitation. Bulk precipitation was moderately acid with mean pH decreasing from 5.5 in western and central to about 4.9 in eastern Greece. For the sites near the sea precipitation was characterized by relatively high concentrations of the marine-derived cations Na^+ and Mg^{2+} . Broadleaves neutralized acidity in bulk precipitation more effectively than conifers. Concentration of all ions except NH_4^+ were higher in throughfall, and even higher in stemflow, than in bulk precipitation. Throughfall concentration enrichment of the various ions measured was highest in the fir and lowest in the beech. Streamwater mean annual pH values ranged from 7.3 to 8.0 and the relatively large concentrations especially of Ca^{2+} , Mg^{2+} and Na^+ observed were related to the amounts of base cations of the soil and the type of geology of the watersheds and not to the chemistry of bulk precipitation.