practices, are situated in different climatic zones, and are exposed to a broad spectrum of acid loadings. The following effects of acidic deposition probably occur and in some cases are supported by observation, although the number of field situations where investigators have been able to attribute acidity to precipitation or to compare present with former soil pH value is small.

On soils derived from calcareous parent materials, the effects of acidic deposition will lead to only insignificant increases in lime requirement, except in situations near strong point emitters. Heavy metal deposition from these same point source emitters may also cause soil toxicities.

On acid soils, the absence of clear effects upon tree growth from radial-increment measurements covering several decades suggests there will be no short-term effects attributable to acidic deposition.

From the few field situations where earlier investigations permit a comparison over a reasonable time-frame, there is evidence that less acutely acid soils increase in acidity and lose bases at a faster than normal weathering rate. For acutely acid soils, pH may show only minor changes, while over the same period moderate to appreciably larger amounts of soil aluminum are mobilized. These depend upon whether the forest cover is deciduous (e.g., beech) or coniferous (e.g., spruce).

From one comprehensive field investigation, it has been suggested that the additional amounts of aluminum brought into solution kill feeding roots and permit the invasion of fungi causing tree "dieback", but it is not known whether this phenomenon would occur on other sites and soils. What appears well established from a variety of hydrological, limnological and catchment studies is that acidic deposition can lead to the release of additional amounts of soluble aluminum, thus disturbing previous aluminum/calcium ratios in soils, sediments and streamwaters. An eventual reduction in base status and fertility is suggested.

The sulphate component of acidic deposition appears to be adsorbed by soils containing active aluminum and iron oxides, but where these are absent or present in limited amounts, sulphate functions as a balancing anion, leading to the leaching loss of bases and other cations.

The fate of the nitrate component depends upon wet precipitation/snowmelt characteristics. Nitrate, reaching the surface organic horizons of acid forest soils is held there for assimilation by tree roots during the growing season. There are, however, forested catchments in the northeast where nitrate is passed to water bodies.

The lack of appropriate experimental approaches from which the effects of acidic deposition on soil might be assessed and safe deposition ceilings estimated, has caused scientists to exploit