

RESEARCH ABSTRACT

**Principal Investigator(s):** Joseph E. Means (Deceased)

USDA Forest Service

Pacific Northwest Research Station

3200 Jefferson Way

Corvallis, OR 97331

(503) 750-7352

**Study Title:** Soil nitrogen along a disturbance gradient.

**Key Words:** chemical            physical            terrestrial            soil            nitrogen  
nutrient            inorganic            upland            pyroclastic flows    blowdown zone  
ashfall zone            archives

**Abstract:** Soils were studied along a disturbance gradient: Pumice Plain, Timberline parking lot, Harmony, Bismark Mtn., Elk Pass, and Fossil Creek Ridge. NO<sub>3</sub>, NH<sub>4</sub>, N, P, K, Ca, Mg, C were assayed. NO<sub>3</sub> and NH<sub>4</sub> were also analyzed from resin bags buried at 15 and 30 cm. Soil samples were collected in 1985. Resin bags were buried for 1 year: 1985 - 86, and 1986 -87.

**Conclusions:** Total nitrogen and nitrogen in soil solution were found in greater concentrations as disturbance decreased along the gradient. Concentrations of other nutrients measured were consistent with this pattern as well. Soil profiles indicate that soils most heavily disturbed and with the thickest deposits from the 1980 eruptions had generally been most heavily disturbed and received thickest deposits from previous eruptions.

**Type of Measurement(s):** Total N, Total C, extractable: P, K, Ca, Mg, NO<sub>3</sub>, NH<sub>4</sub>; and NO<sub>3</sub>, NH<sub>4</sub> on resin bags.

**Frequency of Measurement(s):** 1985, 1986, 1987 Not all each year.

**Data Storage:** Lab data is in flat ASCII files on floppy disks.

**Long-term plans:** Data available for collaborative efforts: This study is over. The soil pits are marked with wooden stakes and on maps in the Forestry Sciences Lab in Corvallis. There is certainly an opportunity for others to return later, assay nutrients and look at changes. All data is available on request.

There is a manuscript describing this study in progress (1990).