

RESEARCH ABSTRACT

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Study Title: Distribution of plant detritus and recovery of plants in deposits of May, 1980 eruption of Mount St. Helens

Key Words: terrestrial plant vegetation recovery revegetation
Blowdown zone blast 1980 deposits pyroclastic flow debris avalanche lahar
mudflow volcanic ash archives

Abstract: This study seeks to identify types and sizes of plant material and distance and means of deposition in the May 1980 blast of Mount St. Helens. Types of plant material included pieces of moss, leaves, stems, roots, tree branches and trunks. Four types of transport were identified. The debris avalanche deposited plant material 23 km away. Mudflows (lahars) carried material 75 km to the Columbia River. The pressure blast removed vegetation in a 500 km² area. Pyroclastic flows in conjunction with the plinian column spread plant debris for at least 75 km in a 110° arc to the north and east. These results are being compared with fossilized records of volcanic eruptions worldwide but especially those from Tertiary western United States.

Also studied is recovery of plants in various types and thicknesses of volcanic extrusives. Four types of extrusives identified were pressure blast, mudflows, hot gases, and tephra. Recovery is taking the most time where entire removal or burial by several meters occurred. Vegetative recovery was most successful within the first five years in tephra covered sites. In areas of even cover, less than 10 cm of ash did not remarkably affect plant growth. The depth of ash that affected plant recovery was variable and usually greater than 10 cm on hillsides and where cover was uneven such as in the blowdown area.

Type of Measurement(s): Particle type and size in deposits, distance of deposition and speed of deposition for each of the four identified types of transport. Thickness of deposit (cm or meters) within a 1 meter square plot and number of individual plants recolonizing plot were measured in areas of four identified types of burial.

Frequency of Measurement(s): Sampling conducted in 1985, 1987, 1991(?)

Data Storage: As of November 1990 data exists only in field notebooks and lab notebooks and on maps all on file in Department of Geological Sciences, Michigan State University.

Long-term plans: Data available for collaborative efforts: No permanent plots have been constructed. The sites previously sampled will be sampled again in 1991, and a final report subsequently published.