

EVENING MEETING—JUNE 18, 1981

ALLEN J. FIKSDAL—Biographical Sketch



Allen Fiksdal is a native of the Puget Sound region of Washington. He received a BA degree in geology from Portland State University. Mr. Fiksdal has worked for the State of Washington, Department of Natural Resources, since 1972, mapping regional geologic hazards throughout the state. He is currently conducting studies of the hazards and sedimentation of Mount St. Helens volcano.

THE ERUPTION OF MOUNT ST. HELENS (Abstract)

Numerous small seismic events on March 20, 1980, indicated the reawakening of Mount St. Helens in southwest Washington State after a 125-year dormancy. A phreatic eruption one week later began a 62-day period of steam and ash venting, with periodic snow and ash avalanches. In early April, a bulge growing at the rate of about 5 feet per day was detected on the north side of the mountain. By mid-May the bulge had swollen an estimated 250 feet out from the original mountainside. Residents of the valley below were warned of possible debris and mudflows owing to failure of the bulging mountain flank.

At 8:32 AM Sunday, May 18, 1980, an earthquake of magnitude 5.0 probably caused the bulging north flank of Mount St. Helens to slide into the valley below, uncovering a gas-charged magma chamber. The resulting catastrophic explosion ripped away the remaining north flank and destroyed approximately 125 square miles of conifer forest in a 130° arc north of the mountain. The debris flow that resulted from failure of the bulging north flank flowed down the North Fork of the Toutle River, filling the valley with hundreds of feet of debris. Subsequent mudflows continued down the valley, finally emptying the Columbia River after destroying hundreds of homes and buildings and filling the floodplains of the Toutle and Cowlitz Rivers with thick mud deposits. Throughout the day the mountain continued to erupt, sending plumes of ash as high as 62,000 feet into the atmosphere; and the eruption spread pyroclastic ash eastward, covering parts of eastern Washington 150-200 miles away with 2 to 3 inches of ash. The ash continued across the United States and eventually circumnavigated the world.

Continuing seismic activity (including harmonic tremors), steam and gas venting, dome formation, periodic major eruptions, and pyroclastic flows keep residents, officials, and scientists speculating as to what Mount St. Helens may do in the future. Expectations are that Mount St. Helens may continue erupting for the next two decades.