Mount St. Helens—A bibliography of geoscience literature, 1882-1986

by

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CONTENTS

Introduction ......................................................................... 1
Bibliography ......................................................................... 3
Subject Index ......................................................................... 101
List of Index Terms ............................................................... 197
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INTRODUCTION

On May 18, 1980, Mount St. Helens in southwestern Washington erupted, producing a forest-leveling blast, a giant plume, widely distributed ashfalls, extensive lahars, flooding, and considerable property damage, and causing a tragic loss of life. This was the first major volcanic eruption in the conterminous United States since the Lassen Peak eruption of 1915.

Mount St. Helens' last major eruptive period was in the mid-nineteenth century, but the eruption of May 1980 did not come as a surprise. In a 1978 report, USGS scientists termed the possibility of a future eruption a "near certainty" (Crandell and Mullineaux, 1978, p. 22). In March 1980 scientists detected increased seismic activity followed by releases of ash and by other changes in the volcano, which culminated in the explosive eruption of May 18th. The location of Mount St. Helens in a fairly accessible area provided an unusual opportunity for physical, life, and social scientists to study at close range this catastrophic eruption and its widespread effects.

Scientists had studied Mount St. Helens and its environs before the May 1980 eruption; this bibliography includes about 100 works published between 1882 and 1979. More than 1,500 reports, maps, books, and articles on Mount St. Helens were published in the 6 years following the 1980 eruption, making this one of the most heavily studied geologic events in history.

The libraries of the U.S. Geological Survey in Reston, Virginia, and the Washington Division of Geology and Earth Resources in Olympia, Washington, recognized the need to bring together this vast amount of material and undertook a cooperative project to compile this bibliography and index of the literature on Mount St. Helens from historical times to the present.

SCOPE

Our primary intention was to collect the research done on the eruption-related geology and hydrology of Mount St. Helens through 1986. We focused on Washington State but expanded geographically to provide adequate coverage of ashfall and meteorological, acoustical, climatic, and other far-ranging effects. Quaternary eruptions of Mount St. Helens produced widely-dispersed ash, commonly used as stratigraphic markers. Some of these studies have been listed, particularly when applicable to Washington State, but no attempt was made to reference all such reports.

In addition, we have included many overviews and summary treatments, which can be found under the headings "General Works" and "Chronology and History of the 1980 Eruption." We have also selected examples of the types of research being done in related disciplines such as biology, forestry, medicine, and the various social sciences, to illustrate the broader consequences of a geologic hazard.

The bibliography consists mainly of references to monographs, maps, journal articles, conference papers, abstracts, theses, and open-file reports. Purposely excluded were newspaper and news-magazine accounts, audiovisual materials, and ephemera.

The bibliography was compiled from the collections and files of the two libraries. Additional references were gathered from database searches on GeoRef, Geocache, Water Resources Abstracts, National Technical Information Service, Dissertation Abstracts Online, and Meteorological and Geoastrophysical Abstracts. All items in the bibliography have been examined by the compilers.

ORGANIZATION

1. BIBLIOGRAPHY: Each citation is given in full. Works are listed alphabetically and chronologically by author, with an author's individual works preceding co-authored works. Joint author cross-references are interfled alphabetically.

2. SUBJECT INDEX: References are grouped alphabetically under headings that provide either subject or geographic access. Only the author(s), date, and title are given, and reference must be made to the Bibliography for the full citation. Appropriate cross-references are provided. Repeated citations, from multiple publications and/or
abstracts, are given once and marked with an asterisk (*). Particular attention has been given to specific geographic locations in Washington State, including named lakes, streams, cities, and counties.

3. LIST OF INDEX TERMS: All index terms and cross-references used in the Subject Index are listed alphabetically. Scanning this list should be helpful in suggesting subject approaches.

BIBLIOGRAPHIES

In addition to this bibliography, the user might wish to consult the following previously published bibliographies on Mount St. Helens:


ACKNOWLEDGMENTS

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SUBJECT INDEX

Acoustics, see BLAST - ACOUSTICS

Aerial photography, see REMOTE SENSING

Agriculture, see BIOLOGY - FLORA - AGRICULTURE

Animals, see BIOLOGY - FAUNA

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see also LIMNOLOGY


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EMERGENCY RESPONSE

Note: Describes plans or actions to deal with potential or existant problems from eruption activity.

see also

COWLITZ RIVER-PLANNING AND EMERGENCY RESPONSE
GEOLIGIC HAZARDS PLANNING
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146 LAKES - COLDWATER LAKE

LAKES - COLDWATER LAKE


LAKES - COWLITZ CO., WASH.

see also
LAKES - COLDWATER LAKE
LAKES - FAWN LAKE
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LAKES - SKAMANIA CO., WASH.

see also

LAKES - COLDWATER LAKE
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Lakes - Yakima Co., Wash., see LAKES - BUMPING LAKE

Landfills, see VOLCANIC ASH - ENGINEERING ASPECTS

Landslide-induced dams, see DEBRIS DAMS

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North Coldwater Lake, see LAKES - NORTH COLDWATER LAKE

Nuclear facilities, see TROJAN NUCLEAR SITE [OREGON]

Petrology, see IGNEOUS PETROLOGY

Physiographic diagrams, see MAPS - PHYSIOGRAPHIC DIAGRAMS

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PINE CREEK AND PINE CREEK BASIN


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MASS MOVEMENTS - AVALANCHES AND LANDSLIDES

MASS MOVEMENTS - LAHARS AND MUDFLOWS

SOILS

STREAM SEDIMENTS

VOLCANIC ASH

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SHULTZ CREEK


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HYDROLOGY

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see also SOILS


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see also STRATIGRAPHY


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Water quality, see HYDROLOGY - IMPACTS OF THE ERUPTIONS ON WATER QUALITY

Water supplies, see HYDROLOGY - IMPACTS OF THE ERUPTIONS ON MUNICIPAL WATER SYSTEMS

West Castle Creek Lake, see LAKES - WEST CASTLE CREEK LAKE

Williams Lake, see LAKES - WILLIAMS LAKE
LIST OF SUBJECT HEADINGS

Acoustics, see BLAST — ACOUSTICS
Aerial photography, see REMOTE SENSING
Agriculture, see BIOLOGY — FLORA — AGRICULTURE
Animals, see BIOLOGY — FAUNA
AREAL GEOLOGY (BEFORE 1980)
AREAL GEOLOGY (1980)
AREAL GEOLOGY (POST 1980)
Avalanches, see MASS MOVEMENTS — AVALANCHES AND LANDSLIDES
BEAN CREEK
BIBLIOGRAPHY
BIOLOGY [GENERAL WORKS]
BIOLOGY — FAUNA
BIOLOGY — FAUNA — AQUATIC
BIOLOGY — FAUNA — TERRESTRIAL
BIOLOGY — FLORA
BIOLOGY — FLORA — AGRICULTURE
BIOLOGY — FLORA — FORESTRY
BLAST
BLAST — ACOUSTICS
Blast — Biological effects, see BIOLOGY
Blast — Deposits, see MASS MOVEMENTS — AVALANCHES AND LANDSLIDES
MASS MOVEMENTS — LAHARS AND MUDFLOWS
PYROCLASTIC FLOWS AND DEPOSITS
BLAST — THERMAL SURVEYS
Botany, see BIOLOGY — FAUNA
BULGE
BULL RUN WATERSHED
Bumping Lake, see LAKES — BUMPING LAKE
Carbon dating, see GEOCHRONOLOGY
CASTLE CREEK
Castle Creek Lake,
see LAKES — SOUTH FORK CASTLE CREEK LAKE
LAKES — WEST CASTLE CREEK LAKE
CASTLE ROCK, WASH.
CAVES
Channel morphology, see RIVER MORPHOLOGY
CHRONOLOGY AND HISTORY BEFORE 1980
see also GEOCHRONOLOGY
CHRONOLOGY OF THE 1980 ERUPTION ACTIVITY
Clays, see VOLCANIC ASH — MINERALOGY
CLEARWATER CREEK
CLIMATIC EFFECTS
CLIMATIC EFFECTS OF VOLCANIC ASH
COLDWATER CREEK
Coldwater Lake, see LAKES — COLDWATER LAKE
COLUMBIA RIVER — BIOLOGY
see also LIMNOLOGY
COLUMBIA RIVER — ENGINEERING GEOLOGY
COLUMBIA RIVER — LAHARS, MUDFLOWS AND STREAM SEDIMENTS
Cowlitz Co.

Note: The 1980 eruption of Mount St. Helens impacted much of Cowlitz County. See specific aspects, e.g.: 

HYDROLOGY
MASS MOVEMENTS — AVALANCHES AND LANDSLIDES
MASS MOVEMENTS — LAHARS AND MUDFLOWS
VOLCANIC ASH — DISTRIBUTION

COWLITZ RIVER — BIOLOGY

see also LIMNOLOGY

COWLITZ RIVER — ENGINEERING GEOLOGY

COWLITZ RIVER — GUIDEBOOKS

COWLITZ RIVER — HYDROLOGY

COWLITZ RIVER — LAHARS, MUDFLOWS AND STREAM SEDIMENTS

COWLITZ RIVER — PLANNING AND EMERGENCY RESPONSE

COWLITZ RIVER — RIVER MORPHOLOGY

see also RIVER MORPHOLOGY

CRAB CREEK

CRATER

see also DOME

Dams, see DEBRIS DAMS

Dating, see GEOCHRONOLOGY

Davis Lake, see LAKES — DAVIS LAKE

DEBRIS DAMS

Dendrochronology, see GEOCHRONOLOGY

Disaster planning,

see EMERGENCY RESPONSE GEOLOGIC HAZARDS PLANNING

DOME

see also CRATER

DREDGING

EARTQUAKES AND SEISMOLOGY [GENERAL WORKS]

EARTQUAKES AND SEISMOLOGY (BEFORE 1980)

EARTQUAKES AND SEISMOLOGY (1980)

EARTQUAKES AND SEISMOLOGY (POST 1980)

ECOLOGY

ECONOMIC EFFECTS

Economic geology, see MINERAL RESOURCES

Electrical surveys, see GEOPHYSICS — ELECTRICAL SURVEYS

Elk Lake area, see MOUNT ST. HELENS SEISMIC ZONE

EMERGENCY RESPONSE

Note: Describes plans or actions to deal with potential or existant problems from eruption activity.

see also

COWLITZ RIVER — PLANNING AND EMERGENCY RESPONSE GEOLOCIC HAZARDS PLANNING TOUTLE RIVER SYSTEM — PLANNING AND EMERGENCY RESPONSE

ENGINEERING GEOLOGY

see also

COLUMBIA RIVER — ENGINEERING GEOLOGY

COWLITZ RIVER — ENGINEERING GEOLOGY

DEBRIS DAMS DREDGING FLOOD HAZARDS GEOLOGIC HAZARDS HYDROLOGY — IMPACTS OF THE Eruptions ON WATER QUALITY
LIST OF SUBJECT HEADINGS

TOUTLE RIVER SYSTEM — ENGINEERING GEOLOGY
TUNNELS
VOLCANIC ASH — ENGINEERING ASPECTS

ENVIRONMENTAL IMPACT STATEMENTS

Erosion

see

GEOMORPHOLOGY
VOLCANIC ASH — EROSION

Eruption history

see

CHRONOLOGY AND HISTORY BEFORE 1980
CHRONOLOGY OF THE 1980 ERUPTION ACTIVITY

ERUPTION PREDICTION

Fargher Lake, see LAKES — FARGHER LAKE
Fawn Lake, see LAKES — FAWN LAKE

Financial effects, see ECONOMIC EFFECTS

Findley Lake, see LAKES — FINDLEY LAKE

Fish, see BIOLOGY — FAUNA — AQUATIC

FLOOD HAZARDS

see also

ENGINEERING GEOLOGY
GEOLeGIC HAZARDS

Forestry, see BIOLOGY — FLORA — FORESTRY

FUMAROLES

GENERAL WORKS

Note: Includes materials, whether scientific or popular works, which are overall descriptions of Mount St. Helens.

GENERAL WORKS (BEFORE 1980)

GENERAL WORKS (1980 AND POST 1980)

GENERAL WORKS (1980) — PICTORIAL

Geochemistry

see

IGNEOUS PETROLOGY — GEOCHEMISTRY
LAKES — GEOCHEMISTRY
MASS MOVEMENTS — LAHARS AND MUDFLOWS — GEOCHEMISTRY
VOLCANIC ASH — GEOCHEMISTRY
VOLCANIC GASES — GEOCHEMISTRY
VOLCANIC PLUME — GEOCHEMISTRY

GEOCHRONOLOGY

see also

CHRONOLOGY AND HISTORY BEFORE 1980
CHRONOLOGY OF THE 1980 ERUPTIVE ACTIVITY

GEOLeGIC HAZARDS

see also

DEBRIS DAMS
ENGINEERING GEOLOGY
FLOOD HAZARDS
MASS MOVEMENTS — LAHARS AND MUDFLOWS

GEOLeGIC HAZARDS (BEFORE 1980)

GEOLeGIC HAZARDS (1980)

GEOLeGIC HAZARDS (POST 1980)

Geologic hazards — Social aspects, see SOCIAL ASPECTS

Geologic maps, see MAPS — GEOLOGIC
LIST OF SUBJECT HEADINGS

GEOMORPHOLOGY

see also

MASS MOVEMENTS — AVALANCHES AND LANDSLIDES
MASS MOVEMENTS — LAHARS AND MUDFLOWS
RIVER MORPHOLOGY
VOLCANIC ASH — EROSION

Geomorphology maps, see MAPS — GEOPHYSICAL

GEOPHYSICS [GENERAL WORKS]

Geophysics — Acoustics, see BLAST — ACOUSTICS

GEOPHYSICS — ELECTRICAL SURVEYS

GEOPHYSICS — GRAVITY SURVEYS

GEOPHYSICS — MAGNETIC SURVEYS

GEOPHYSICS — RADIOACTIVITY SURVEYS

GEOPHYSICS — SEISMIC SURVEYS

GEOPHYSICS — THERMAL SURVEYS

see also

BLAST — THERMAL SURVEYS
GEOTHERMAL RESOURCES

GEOPHYSICS — TILT SURVEYS

GEOTHERMAL RESOURCES

see also GEOPHYSICS — THERMAL SURVEYS

Gifford Pinchot National Forest

Note: The 1980 eruption of Mount St. Helens impacted much of the Gifford Pinchot National Forest (which includes most of Skamania County and the eastern part of Lewis County). See specific aspects, e.g.,

BLAST
HYDROLOGY
LAKES
MASS MOVEMENTS — AVALANCHES AND LANDSLIDES
MASS MOVEMENTS — LAHARS AND MUDFLOWS

GLACIER AND SNOW SURVEYS

Gold, see MINERAL RESOURCES

Gravity surveys, see GEOPHYSICS — GRAVITY SURVEYS

GREEN RIVER

GUIDEBOOKS

see also

COWLITZ RIVER — GUIDEBOOKS
STUDY GUIDES
TOUTLE RIVER SYSTEM — GUIDEBOOKS

Hazards, see GEOLOGIC HAZARDS

HEALTH EFFECTS

History, see CHRONOLOGY AND HISTORY BEFORE 1980

Human effects, see SOCIAL ASPECTS

HYDROLOGY

see also

COWLITZ RIVER — HYDROLOGY
DEBRIS DAMS
DREDGING
FLOOD HAZARDS
LAKE SEDIMENTS
LAKES
LIMNOLOGY
RIVER MORPHOLOGY
STREAM SEDIMENTS
TOUTLE RIVER SYSTEM — HYDROLOGY

see also

Names of rivers, creeks, and watersheds

HYDROLOGY — IMPACTS OF THE ERUPTIONS

HYDROLOGY — IMPACTS OF THE ERUPTIONS ON MUNICIPAL WATER SYSTEMS

HYDROLOGY — IMPACTS OF THE ERUPTIONS ON WATER QUALITY

IGNEOUS PETROLOGY (BEFORE 1980)
IGNEOUS PETROLOGY (1980 AND POST 1980)

IGNEOUS PETROLOGY — GEOCHEMISTRY (BEFORE 1980)

IGNEOUS PETROLOGY — GEOCHEMISTRY (1980 AND POST 1980)

IGNEOUS PETROLOGY — PHYSICAL MEASUREMENTS

INDIAN HEAVEN AREA

Insects, see BIOLOGY — FAUNA — TERRESTRIAL

IRON CREEK

KALAMA RIVER VALLEY

Lake Lenore, see LAKES — LAKE LENORE

LAKE SEDIMENTS

Lake Washington, see LAKES — LAKE WASHINGTON

Lakes — Biological aspects, see LIMNOLOGY

LAKES — BUMPING LAKE

Lakes — Clark Co., Wash., see LAKES — FARGHER LAKE

LAKES — COLDWATER LAKE

LAKES — COWLITZ CO., WASH.

see also

LAKES — COLDWATER LAKE
LAKES — FAWN LAKE
LAKES — MCBRIDE LAKE
LAKES — MERRILL LAKE
LAKES — SILVER LAKE

LAKES — DAVIS LAKE

LAKES — FARGHER LAKE

LAKES — FAWN LAKE

LAKES — FINDLEY LAKE

Lakes — Geochemistry, see LIMNOLOGY

Lakes — Grant Co., Wash.

see

LAKES — LAKE LENORE
LAKES — SOAP LAKE

Lakes — King Co., Wash, see LAKES — LAKE WASHINGTON

LAKES — LAKE LENORE

LAKES — LAKE WASHINGTON

Lakes — Lewis Co., Wash., see LAKES — DAVIS LAKE

LAKES — MCBRIDE LAKE

LAKES — MERRILL LAKE

LAKES — META LAKE

LAKES — NORTH COLDWATER LAKE

LAKES — RYAN LAKE

LAKES — ST. HELENS LAKE

LAKES — SILVER LAKE

LAKES — SKAMANIA CO., WASH.

see also

LAKES — COLDWATER LAKE
LAKES — META LAKE
LAKES — RYAN LAKE
LAKES — ST. HELENS LAKE
LAKES — SOUTH FORK CASTLE CREEK LAKE
LAKES — SPIRIT LAKE

LAKES — SOAP LAKE

LAKES — SOUTH FORK CASTLE CREEK LAKE

LAKES — SPIRIT LAKE

LAKES — SPOKANE CO., WASH.

see also

LAKES — FINDLEY LAKE
LAKES — WILLIAMS LAKE

LAKES — VENUS LAKE

LAKES — WEST CASTLE CREEK LAKE
LIST OF SUBJECT HEADINGS

LAKES — WILLIAMS LAKE
Lakes — Yakima Co., Wash., see LAKES — BUMPING LAKE

Landfills, see VOLCANIC ASH — ENGINEERING ASPECTS

Landslide-induced dams, see DEBRIS DAMS

Landslides, see MASS MOVEMENTS — AVALANCHES AND LANDSLIDES

Lava tubes, see CAVES

LAWS AND LITIGATION

Legionnaire’s Disease see HEALTH EFFECTS

LEWIS RIVER

LIMNOLOGY

Machine effects, see VOLCANIC ASH — MACHINE EFFECTS

MAGMA CHAMBER

Magnetic surveys, see GEOPHYSICS — MAGNETIC SURVEYS

MAPS — GEOLOGIC

MAPS — GEOPHYSICAL

MAPS — PHYSIOGRAPHIC DIAGRAMS

MAPS — TOPOGRAPHIC

Note: The various standard topographic maps of the Mount St. Helens area prepared by the U.S. Geological Survey over the years have not been included in this index.

see also TOPOGRAPHY

MASS MOVEMENTS — AVALANCHES AND LANDSLIDES

MASS MOVEMENTS — LAHARS AND MUDFLOWS [GENERAL WORKS]

Mass movements — Lahars and mudflows — Biological effects, see BIOLOGY

MASS MOVEMENTS — LAHARS AND MUDFLOWS — COLUMBIA RIVER

MASS MOVEMENTS — LAHARS AND MUDFLOWS — COWLITZ RIVER

Mass Movements — Lahars and mudflows — Economic effects, see ECONOMIC EFFECTS

Mass movements — Lahars and mudflows — Geochemistry, see HYDROLOGY — IMPACTS OF THE Eruptions ON WATER QUALITY

MASS MOVEMENTS — LAHARS AND MUDFLOWS — LEWIS RIVER

MASS MOVEMENTS — LAHARS AND MUDFLOWS — MUDDY RIVER

MASS MOVEMENTS — LAHARS AND MUDFLOWS — PHYSICAL PROCESSES

MASS MOVEMENTS — LAHARS AND MUDFLOWS — PINE CREEK

MASS MOVEMENTS — LAHARS AND MUDFLOWS — TOUTLE RIVER SYSTEM

McBride Lake, see LAKES — MCBRIDE LAKE

MERCURY

Merrill Lake, see LAKES — MERRILL LAKE

Meta Lake, see LAKES — META LAKE

MINERAL RESOURCES

MINERALOGY

see also VOLCANIC ASH — MINERALOGY

MOUNT ST. HELENS NATIONAL VOLCANIC MONUMENT

MOUNT ST. HELENS SEISMIC ZONE

see also EARTHQUAKES AND SEISMOLOGY

MUDDY RIVER

Mudflows, see MASS MOVEMENTS — LAHARS AND MUDFLOWS

National Volcanic Monument, see MOUNT ST. HELENS NATIONAL VOLCANIC MONUMENT
North Coldwater Lake, see LAKES — NORTH COLDWATER LAKE

Nuclear facilities, see TROJAN NUCLEAR SITE [OREGON]

Petrology, see IGNEOUS PETROLOGY

Physiographic diagrams, see MAPS — PHYSIOGRAPHIC DIAGRAMS

Pictorial works, see GENERAL WORKS (1980) — PICTORIAL

PINE CREEK AND PINE CREEK BASIN

PINE CREEK ASSEMBLAGE

PLANNING

see also EMERGENCY RESPONSE

Plants, see BIOLOGY — FLORA

Plate tectonics, see STRUCTURAL GEOLOGY

Plume, see VOLCANIC PLUME

Prediction of eruption, see ERUPTION PREDICTION

PYROCLASTIC FLOWS AND DEPOSITS (BEFORE 1980)

PYROCLASTIC FLOWS AND DEPOSITS (1980)

PYROCLASTIC FLOWS AND DEPOSITS (POST 1980)

Quaternary,

see

GEOCHRONOLOGY

VOLCANIC ASH — STRATIGRAPHY

Radioactivity surveys, see GEOPHYSICS — RADIOACTIVITY SURVEYS

Radiocarbon dating, see GEOCHRONOLOGY

REMOTE SENSING

see also GEOPHYSICS

RIVER MORPHOLOGY

Rivers — Biological effects, see LIMNOLOGY

Ryan Lake, see LAKES — RYAN LAKE

St. Helens Lake, see LAKES — ST. HELENS LAKE

St. Helens mining district, see MINERAL RESOURCES

Sediments

see

LAKE SEDIMENTS

MASS MOVEMENTS — AVALANCHES AND LANDSLIDES

MASS MOVEMENTS — LAHARS AND MUDFLOWS

SOILS

STREAM SEDIMENTS

VOLCANIC ASH

Seismic surveys, see GEOPHYSICS — SEISMIC SURVEYS

Seismology, see EARTHQUAKES AND SEISMOLOGY

SHULTZ CREEK

Silver, see MINERAL RESOURCES

Silver Lake, see LAKES — SILVER LAKE

Skamania Co.

Note: The 1980 eruption of Mount St. Helens impacted much of Skamania County. See specific aspects, e.g.:

HYDROLOGY

MASS MOVEMENTS — AVALANCHES AND LANDSLIDES

MASS MOVEMENTS — LAHARS AND MUDFLOWS

VOLCANIC ASH — DISTRIBUTION

SMITH CREEK

Snow surveys, see GLACIER AND SNOW SURVEYS

Soap Lake, see LAKES — SOAP LAKE

SOCIAL ASPECTS

SOILS

see also VOLCANIC ASH — SOIL EFFECTS
South Fork Castle Creek Lake, see LAKES — SOUTH FORK CASTLE CREEK LAKE

Spirit Lake, see LAKES — SPIRIT LAKE

Spirit Lake outlet tunnel, see TUNNELS

SQUAW CREEK

STRATIGRAPHY

see also VOLCANIC ASH — STRATIGRAPHY

STREAM SEDIMENTS, see also MASS MOVEMENTS — LAHARS AND MUDFLOWS

STREAM SEDIMENTS (1980)

STREAM SEDIMENTS (POST 1980)

Stream sediments — Biological aspects, see BIOLOGY

STRUCTURAL GEOLOGY

STUDY GUIDES

see also GUIDEBOOKS

SWIFT CREEK

SWIFT CREEK ASSEMBLAGE

SWIFT RESERVOIR

Tectonics, see STRUCTURAL GEOLOGY

Tephra,

see

PYROCLASTIC FLOWS AND DEPOSITS VOLCANIC ASH

Tephrochronology, see GEOCHRONOLOGY

Thermal surveys

see

BLAST — THERMAL SURVEYS

GEOPHYSICS — THERMAL SURVEYS

GEOTHERMAL RESOURCES

Thorium, see GEOCHRONOLOGY

Tilt surveys, see GEOPHYSICS — TILT SURVEYS

Topographic maps, see MAPS — TOPOGRAPHIC

TOPOGRAPHY

see also MAPS — TOPOGRAPHIC

TOUTLE RIVER SYSTEM — BIOLOGY

see also LIMNOLOGY

TOUTLE RIVER SYSTEM — ENGINEERING GEOLOGY

TOUTLE RIVER SYSTEM — GUIDEBOOKS

TOUTLE RIVER SYSTEM — HYDROLOGY

TOUTLE RIVER SYSTEM — LAHARS, MUDFLOWS AND STREAM SEDIMENTS

TOUTLE RIVER SYSTEM — PLANNING AND EMERGENCY RESPONSE

TOUTLE RIVER SYSTEM — RIVER MORPHOLOGY

see also RIVER MORPHOLOGY

TOUTLE, WASH.

TROJAN NUCLEAR SITE [OREGON]

TUNNELS

Uranium, see GEOCHRONOLOGY

VANCOUVER, WASH.

Vehicle effects, see VOLCANIC ASH — MACHINE EFFECTS

Venus Lake, see LAKES — VENUS LAKE

VIDEO STUDIES

VOLCANIC ASH [GENERAL WORKS]

Volcanic ash — Biological aspects, see BIOLOGY

Volcanic ash — Climatic effects, see CLIMATIC EFFECTS OF VOLCANIC ASH

Volcanic ash — Disposal, see VOLCANIC ASH — ENGINEERING ASPECTS
<table>
<thead>
<tr>
<th>Subject Heading</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLCANIC ASH — DISTRIBUTION (BEFORE 1980)</td>
<td>VOLCANIC ASH — PHYSICAL MEASUREMENTS</td>
</tr>
<tr>
<td>VOLCANIC ASH — DISTRIBUTION (1980 AND POST 1980)</td>
<td>Volcanic ash — Social aspects, see SOCIAL ASPECTS</td>
</tr>
<tr>
<td>Volcanic ash — Economic effects, see ECONOMIC EFFECTS</td>
<td>VOLCANIC ASH — SOIL EFFECTS</td>
</tr>
<tr>
<td>Volcanic ash — Emergency response, see EMERGENCY RESPONSE</td>
<td>see also SOILS</td>
</tr>
<tr>
<td>VOLCANIC ASH — ENGINEERING ASPECTS</td>
<td>VOLCANIC ASH — STRATIGRAPHY (BEFORE 1980)</td>
</tr>
<tr>
<td>see also ENGINEERING GEOLOGY</td>
<td>see also STRATIGRAPHY</td>
</tr>
<tr>
<td>see also GEOMORPHOLOGY</td>
<td>Volcanic ash — Tephrochronology, see GEOCHRONOLOGY</td>
</tr>
<tr>
<td>VOLCANIC ASH — EROSION (POST 1980)</td>
<td>Volcanic ash — Vehicle effects, see VOLCANIC ASH — MACHINE EFFECTS</td>
</tr>
<tr>
<td>Volcanic ash — Geologic hazards, see GEOLOGIC HAZARDS</td>
<td>VOLCANIC GASES — PHYSICAL MEASUREMENTS</td>
</tr>
<tr>
<td>Volcanic ash — Geochronology, see GEOCHRONOLOGY</td>
<td>VOLCANIC PLUME [GENERAL WORKS]</td>
</tr>
<tr>
<td>VOLCANIC ASH — GEOPHYSICS</td>
<td>VOLCANIC PLUME — GEOCHEMISTRY</td>
</tr>
<tr>
<td>Volcanic ash — Glacier and snow effects, see GLACIER AND SNOW SURVEYS</td>
<td>VOLCANIC PLUME — PHYSICAL MEASUREMENTS AND TRAJECTORY (1980)</td>
</tr>
<tr>
<td>Volcanic ash — Health effects, see HEALTH EFFECTS</td>
<td>Volcanism, see specific aspects of Mount St. Helens volcanism, e.g., EARTHQUAKES AND SEISMOLOGY, MASS MOVEMENTS, VOLCANIC ASH, etc.</td>
</tr>
<tr>
<td>Volcanic ash — Hydrologic impacts, see HYDROLOGY</td>
<td>Water quality, see HYDROLOGY — IMPACTS OF THE ERUPTIONS ON WATER QUALITY</td>
</tr>
<tr>
<td>VOLCANIC ASH — MACHINE EFFECTS</td>
<td>Water supplies, see HYDROLOGY — IMPACTS OF THE ERUPTIONS ON MUNICIPAL WATER SYSTEMS</td>
</tr>
<tr>
<td>VOLCANIC ASH — MINERALOGY (BEFORE 1980)</td>
<td>West Castle Creek Lake, see LAKES — WEST CASTLE CREEK LAKE</td>
</tr>
<tr>
<td>see also MINERALOGY</td>
<td>Williams Lake, see LAKES — WILLIAMS LAKE</td>
</tr>
<tr>
<td>VOLCANIC ASH — MINERALOGY (1980 AND POST 1980)</td>
<td></td>
</tr>
</tbody>
</table>