



Bibliography of literature from 1990-1997 pertaining to Holocene and fumarolic Pleistocene volcanoes of Alaska, Canada, and the conterminous United States

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Open File Report 00-017

2000

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URL: <http://wrgis.wr.usgs.gov/open-file/OF00-017>

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Introduction

The 1980's and 1990's were marked by frequent worldwide destructive volcanic eruptions. Significant loss of life and property during eruptions, and extensive media coverage of volcanic events around the globe have brought volcanic processes and hazards increasingly to the forefront of scientific, governmental, and public attention (*e.g.*, Casadevall, 1994; Pringle, 1994).

A result of these circumstances has been an increasing number of scientific and popular publications dealing with active volcanism. The purpose of this bibliography is to provide a comprehensive source of literature published between 1990 and 1997 relevant to all of the Holocene and fumarolic Pleistocene volcanoes in Alaska, the conterminous United States, and Canada. The period between 1990 and 1997 was chosen for two reasons. First, it was necessary to define a precise period of time to keep the work tractable. Second, research for this project began during the summer of 1996 and lasted through 1998, with minor additions into 1999. Thus, 1997 was chosen as the younger cut-off and 1990 for the older cut-off. Literature pertaining to Hawaiian volcanoes has been assembled into a database maintained by the Hawaiian Volcano Observatory (Wright and Takahashi, 1984; Wright and Takahashi, 1998) and has been excluded from this work.

We hope that this work will be useful in three ways. First, researchers interested in a specific volcano can use the search capability of the electronic version to readily find literature relevant to their work or determine what aspects of the volcano are in need of study. Second, references cited within the included references are guides to older literature. Third, during times of volcanic crisis this reference list can save time for responding scientists.

Methods

Names of volcanoes in this bibliography follow those of Simkin and Siebert (1994). For location maps of the included volcanoes see Simkin and Siebert (1994) or visit the Global Volcanism Network web site (www.volcano.si.edu/gvp). Also, some locations and short overviews of available data can be found in Miller and others (1998) for Alaska volcanoes and Wood and Kienle (1990) for the entire region covered in this work. However, in some cases nomenclature in Wood and Kienle (1990) varies from that used here.

Some specific cases where our nomenclature deviates from Simkin and Siebert (1994) deserve mention. Synonyms are used in conjunction with three of the names assigned by Simkin and Siebert (1994). For instance, Simkin and Siebert (1994) use the name Potato Butte for a small northern California volcano. Potato Butte is one of multiple vents for the more commonly referred to Hat Creek basalt flows. Muffler and others (1994), however, make no specific mention of Potato Butte, rather they discuss the synonymous Hat Creek basalt. Thus, for Potato Butte/Hat Creek (California), Lavic Lake/Pisgah (California), and Frosty/Cold Bay (Alaska Peninsula) volcanoes, both names have been used.

Simkin and Siebert (1994) list Sunset Crater (Arizona) and Valles caldera (New Mexico) as individual vents. However, both are the youngest manifestations of the San Francisco (Wolfe, 1990) and Jemez (Self, 1990) volcanic fields, respectively. Thus, the names used in this work are Sunset Crater/San Francisco and Valles/Jemez, and the bibliography has been expanded to include references on volcanism throughout the history of the volcanic fields.

References were compiled for this work in three ways. First, applicable journals, such as the *Journal of Volcanology and Geothermal Research* and the *Bulletin of Volcanology*, were searched issue by issue for pertinent articles. Also, abstracts from the annual meetings of the American Geophysical Union and Geological Society of America were perused in the same fashion. Second, reference lists from journal articles and professional reports were searched and relevant references were entered into the bibliography. Third, the on-line geologic information database GEOREF[®] was used to help find references.

For references to be included into this bibliography they must contain information relating directly to an included volcano, such as geological, geodetic, geophysical, hydrological, seismological, or geochemical data. Literature on volcanic hazards, hazards mitigation, and volcano monitoring is included if the information is applied to or indicates a specific risk at an included volcano. Gray literature, in the form of articles from narrowly distributed journals and field guides, is included, and in some rare cases literature on either older or non-included volcanic systems is reported if an included volcano is used for comparative purposes (*e.g.*, Rose and Criss, 1993; Talbot and others, 1994). Because of the tremendous amount of literature there are qualified references that we have accidentally missed. This is especially true for references that contain geochemical analyses or experimental petrology using rocks from an included volcano (*e.g.* Hurwitz and Navon, 1994). Also, many papers making reference to tephrostratigraphic data may be missing. This is due to the wide geographic distribution of some tephra layers (*e.g.* the Bishop and Mazama tephra) and their use in a variety of scientific endeavors.

EndNote[®] Reference Database

The reference database is maintained in the EndNote[®] program and is searchable by author, year, title, journal, publication type, keywords, or Catalog of Active Volcanoes of the World (CAVW) number (see Simkin and Siebert, 1994). For the sake of simplicity keywords are limited to; volcano name, state or province, physiographic location (*e.g.* “Alaska Peninsula”, or “Cascades”) (table 1), and a group of 19 one word discipline descriptions (*e.g.* “geochemistry”, or “deformation”) (table 2). More than one discipline may be listed for a single reference; for instance, if a paper contains seismic tomography data it will have both “seismology” and “geophysics” listed as keywords. References that lack a specific discipline, overviews of available data, or descriptions of an eruptive event, are listed under the “descriptive” discipline keyword. Prefixes to volcano names such as Mount and Mt. have not been included and should not be used when searching. A complete listing of physiographic location and discipline keywords can be found in tables 1 and 2, respectively. To avoid confusion when searching for keywords it is generally beneficial not to use the “any field” search capability of EndNote[®]. For example, searching for the volcano Dutton using “any field” will also yield references with authors named Dutton.

Table 1.—List of geographic province keywords used for searching the electronic version of this bibliography.

| Physiographic Keywords | |
|-------------------------------|-----------|
| Alaska Peninsula | Aleutians |
| Canada | Cascades |
| Cook Inlet | |

Table 2.—List of the discipline keywords to be used for searching the electronic version of this bibliography.

| Discipline Descriptions | |
|--------------------------------|----------------|
| Atmosphere | Deformation |
| Descriptive | Drilling |
| Geochemistry | Geochronology |
| Geology | Geomorphology |
| Geophysics | Geothermal |
| Hazards | Hydrology |
| Modeling | Monitoring |
| Petrology | Remote Sensing |
| Seismology | Stratigraphy |
| Tectonics | |

To search this bibliography via CAVW number it is necessary to use the numbering scheme presented in the second edition of *Volcanoes of the World* (Simkin and Siebert, 1994) rather than the first edition (Simkin and others, 1981) due to numbering changes in some

geographic areas. Also, minor changes have been made to the CAVW numbers of four volcanoes in this bibliography to avoid confusion. As an illustration of the problem, the CAVW number for Kanaga (Aleutians) is 1101-11, however, the CAVW number for the neighboring volcano, Moffett, is 1101-111. Thus, searches for Kanaga will also yield references for Moffett. We have added zeros to the end of the CAVW numbers for Kanaga (1101-110), Makushin (1101-310), Cold Bay/Frosty (1102-010), and Wrangell (1105-020) so that this problem may be avoided.

In the case of Parkview Mountain, Colorado, no official CAVW number exists (Nelson and Oelfke, 1996). Thus, for the purposes of this work, the unofficial number 1208-02 has been assigned. Also, CAVW numbers are listed under the "custom 1" category of the EndNote[®] reference format.

Formatted Version

The formatted version of this work is available in Adobe Portable Document Format (.pdf) and has been organized according to geographic location roughly following Simkin and Siebert (1994). The main regions are; Alaska, Canada, Pacific Coast, and interior U.S. These regions have been further divided into states and provinces with the exception of Alaska. Alaska has been split into the four following physiographic sub-regions; Aleutian Islands, Alaska Peninsula, Cook Inlet, and western, eastern, and southeastern Alaska. Volcanoes have been listed in the bibliography according to CAVW number, and alphabetically in appendix 1.

The interrelated Long Valley caldera, Mono Lake, Mono Craters, Inyo Craters, and Red Cones volcanic fields are listed separately by Simkin and Siebert (1994), and are treated individually in this work. However, these volcanic fields are both spatially and genetically related and many references pertain to more than one field causing ambiguity (*e.g.* Hill and Bailey, 1990). Thus, in this work references are listed and keyworded (for the EndNote[®] version) under the Mono Lake, Mono Craters, Inyo Craters, and Red Cones volcanic fields only if they present data that applies directly to the field (*e.g.* Hu and others, 1994). Whereas, references containing general data for the Long Valley region that is non-specific to a single volcanic field is listed under the Long Valley heading (*e.g.* Iwatsubo and Swanson, 1992).

Ambiguity also exists in the references pertaining to the volcanoes within Katmai National Park and Preserve. A total of 14 volcanoes are contained within the park and preserve boundaries, including five that have been historically active (Simkin and Siebert, 1994). Thus, in a fashion similar to Long Valley, references are listed and keyworded separately only if they specifically deal with a particular volcano. Non-specific studies within Katmai National Park and Preserve are listed under the Katmai section, and references pertaining to the 1912 eruptions of Novarupta dome and Mount Katmai (the majority of references in these sections) are listed under both volcanoes.

Reference Distribution

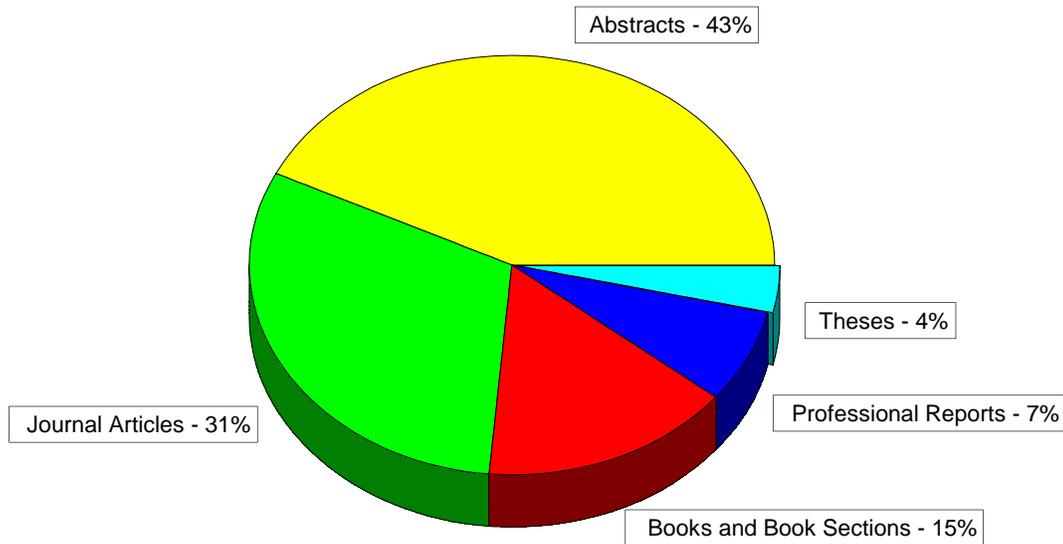


Figure 1.—Pie chart showing the distribution of reference types.

Discussion

A total of 3,328 references are reported in this work. References are categorized as abstracts, journal articles, books and book sections, professional reports, and theses (Fig. 1). Abstracts make up the majority (43%) of the references closely followed by journal articles (31%). Book and book sections compose 15% of the references, and the remaining 11% are professional reports and theses. Interestingly, this distribution of reference types closely resembles that found for Hawaiian literature by Wright and Takahashi (1998), with one exception; they found that the dominant reference type is journal articles rather than abstracts. However, they reported abstracts from the American Geophysical Union and Geological Society of America meetings as journal articles rather than abstracts. In this work abstracts from both of these groups of meetings are reported as abstracts, and compose the majority of the references (76%) in the abstract section. Thus, if this difference is accounted for the trend found by Wright and Takahashi (1998) is similar to the trend in this work.

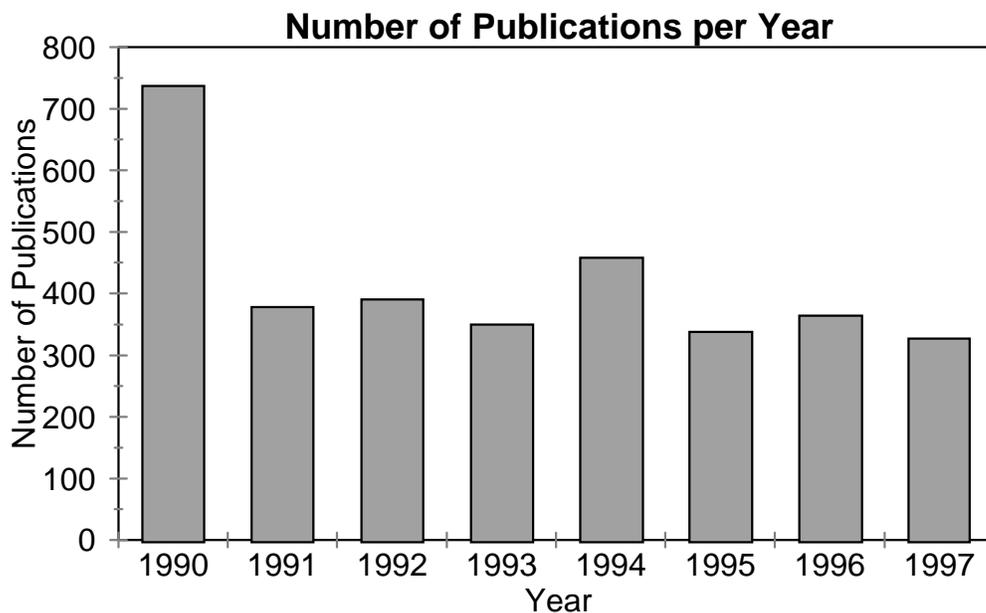


Figure 2.—Graph showing the yearly distribution of references. Note the significant peaks at 1990 and 1994.

The reference distribution during the eight years covered is stable throughout most of the years, with an average of 418 references published per year (Fig. 2). However, two significant peaks exist at 1990 and 1994. Three publications can help explain the large number of references during 1990. The Geoscience Canada volume commemorating the 10th anniversary of the Mount St. Helens eruption (Hickson and Peterson, 1990), the Geological, Geophysical, and Tectonic Settings of the Cascade Range Special Section of the Journal of Geophysical Research (Muffler, 1990), and the comprehensive volume “Volcanoes of the North America” (Wood and Kienle, 1990) were all published during 1990, bolstering the average amount of publications by a significant amount. If the 1990 peak is removed the average number of publications per year drops to 372. The 1994 peak can be explained by the publication of both the Redoubt special volume of the Journal of Volcanology and Geothermal Research (Miller and Chouet, 1994), and U.S. Geological Survey Bulletin 2047, “The Proceedings of the First International Symposium on Volcanic Ash and Aviation Safety” (Casadevall, 1994).

The distribution of references among the 181 included volcanoes is not balanced and varies from 424 references for Long Valley to zero references for five volcanoes. Nine well studied volcanoes (table 3), each having 100 or more references, can be broken into two groups and a single volcano. The first group is made up of St. Helens, Redoubt, Augustine, and Spurr. These volcanoes have all had recent eruptions that have effected large populations, are relatively easy to access, and are proximal to volcano observatories. This first group of volcanoes have served as backyard laboratories for many scientists to carry out process-related research and to test and develop new volcano monitoring techniques.

Table 3.—List of the nine volcanoes with 100 or more references.

| Volcano | Number of References |
|----------------|-----------------------------|
| Long Valley | 424 |
| St. Helens | 411 |
| Yellowstone | 369 |
| Valles | 287 |
| Redoubt | 250 |
| Spurr | 141 |
| Rainier | 137 |
| Crater Lake | 121 |
| Augustine | 100 |

The second group consists of four large calderas: Long Valley, Yellowstone, Valles, and Crater Lake. Extensive research in many disciplines has been done at these calderas, including on-going monitoring, geothermal exploration and development, hazards mitigation, and investigations of the proximal deposits. Also, all of these calderas have produced widely dispersed pyroclastic fall deposits that form important horizons throughout the Pleistocene and Holocene stratigraphy of western North America.

The single remaining volcano is Mount Rainier. Mount Rainier has been designated a “Decade Volcano” by the International Association of Volcanology and Geochemistry of the Earth’s Interior, indicating that the volcano poses a significant risk to a large population and was not well studied at the time of designation (Swanson and others, 1992; National Research Council, 1994). Thus, Mount Rainier has been the subject of increased study since the early 1990's.

Volcanoes that have only a few or no references in the 1990-1997 time period are generally small, remote, dormant, or are otherwise unexceptional. Buldir Island located in the far western extremity of the Aleutian Islands is a good example. Only three references were found pertaining to Buldir; two of these were general maps showing the location (Motyka and others, 1993; Nye, 1995), and the third was a small synopsis of the location and previous studies (Marsh, 1990). Several examples of small volcanoes that do not have any references published between 1990-1997 are Brushy Butte, Big Cave, and Twin Buttes volcanoes in northern California.

In several cases, numerous references from a single scientific discipline exist for a volcano, but no other areas of investigation have been covered. For instance, the Lunar Crater (Nevada) and Lavic Lake/Pisgah (California) volcanic fields have a significant number of remote sensing references related to the national space program (*e.g.*, Campbell and others, 1993), but a general lack of physical volcanology references.

It is important to keep the time scale involved with this work in mind, as some of the included volcanoes have been the subject of numerous studies prior to 1990. For instance, extensive basic geological research was carried out in the Aleutian Islands during the 1950's and was published as the U.S. Geological Survey Bulletin 1028 series (*e.g.*, Byers, 1959). The references cited within the references in this bibliography can be used to lead the reader back to any "landmark" studies published before 1990. Also, pertinent literature is continuing to be published after the cut off date for this bibliography (*e.g.* Miller and others, 1998).

Thus, we hope to extend this bibliography both backward and forward in time with the goal of creating a truly comprehensive bibliography of relevant volcanological literature for Alaska, the conterminous United States, and Canada.

Conclusion

In conclusion, the most relevant use of this report will be as a reference tool in the event of volcanic unrest at one of the included volcanoes. Responding scientists may be able to save time by having an on-hand list of current literature pertaining to the restless volcano. However, during periods of quiescence this work will be a useful aid to researchers in their scientific pursuits. The EndNote[®] reference database allows easy searching and can be used to highlight disciplines in need of further examination.

Both the formatted .PDF and EndNote[®] versions of this bibliography are available on-line through the USGS Western Region geologic information server (<http://wrgis.wr.usgs.gov/open-file/of00-017>). For those people who do not have the EndNote[®] program, a free trial version is available at <http://www.endnote.com/>.

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