

## **Special Symposium Commemorating the 10th Anniversary of the Eruption of Mount St. Helens, May 18, 1980**

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# Articles



## Special Symposium Commemorating the 10th Anniversary of the Eruption of Mount St. Helens, May 18, 1980

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In planning for the 1990 annual general meeting of the Geological Association of Canada (GAC) and the Mineralogical Association of Canada (MAC), a fortuitous confluence of dates and locality was noticed. The final day of the meeting would fall precisely on the tenth anniversary of the great eruption of Mount St. Helens, and Vancouver is only a few hundred kilometres from the volcano. Plans for a special symposium were formulated, and potential speakers representing a wide range of disciplines were invited to participate. The response was enthusiastic, and an excellent program took shape.

The resulting symposium was held on May 18, 1990; it included nine papers highlighting the research and monitoring of Mount St. Helens and six papers dealing with studies at other volcanoes in the Cascade Range and elsewhere in western North America. The announcement of the symposium attracted additional volcanological contributions which were presented at a lively poster session that followed the oral presentations.

C.J. Hickson opened the symposium by recalling personal observations of the early part of the eruption, incorporating these into some of the subsequent analyses of the eruptive and transport mechanisms, and emphasizing the vital role that visual observations play in interpreting the deposits of the erupted products. C.A. Hopson reviewed the history of the pre-1980 volcanic centre at Mount St. Helens, based on his own studies and those of D.R. Crandell and D.R. Mullineaux. The pre-1980 theme continued as B.P. Hausback presented the work that he and D.A. Swanson had done on prehistoric avalanches on the north flank of the volcano. M.M. Brugman recounted how her studies of the glaciers on Mount St. Helens were interrupted by the 1980 eruption, which changed the direction of her research to emphasize the interaction between the glaciers and the eruption. S.D. Malone reviewed seismic studies at the volcano since 1972, describing the seismicity characteristic of various types of volcanic activity as well as the intervening periods of quiescence.

H. Glicken's summary of the great rock-slide-debris avalanche of May 18 was delivered for him by C.A. Hopson; this eruption provided the first opportunity to correlate visual observations, photo documentation, and stratigraphic studies of the resultant avalanche deposits to yield improved understanding of the mechanism for what is now recognized as a common process at volcanoes. R.P. Hoblitt reviewed the various alternative mechanisms proposed for the powerful lateral blast that was a major destructive agent of the eruption; he cited evidence favouring multiple explosions. D.A. Swanson described the complex growth of the lava dome within the 1980 crater and speculated on the uncertain future course of eruptive activity. C.S. Weaver, in a presentation co-authored with R.D. Norris and C. Jonientz-Trisler, reviewed the seismological monitoring that has been in progress throughout the Cascade Range during the last few decades and the diverse geological phenomena associated with different seismic signatures. D.W. Peterson summarized the components of the eruption and reviewed the relationships among the scientific, social, and economic impacts of the event.

P.B. Read described the geology of the Mount Meager volcanic complex, part of the

Garibaldi belt, the Canadian extension of the Cascade Arc, and the most recently documented explosive volcanic eruption in Canada. N.L. Green described the geologically young volcanism in the vicinity of Mount Garibaldi and discussed the petrology of the eruptive products and the magmatic evolution in relation to the tectonic setting of southwestern British Columbia. R.A. Bailey reviewed the ongoing volcanic unrest at the Long Valley caldera of eastern California, which began just a week after the May 18, 1980, eruption of Mount St. Helens; he focused on the wide range of potential hazards posed by possible renewed magmatism. W.E. Scott discussed the patterns of post-15-ka volcanism of the entire Cascade arc, identifying periods of more prevalent and less prevalent activity throughout the arc during this time. C.D. Miller summarized the volcanic hazards of the American segment of the Cascade Range, which has averaged about two eruptions per century for the past several thousand years.

*Geoscience Canada* offered the symposium contributors an opportunity to publish a longer version of their work than could be provided by their abstracts. Most authors have taken advantage of this opportunity, and this issue contains a collection of representative papers describing current work at Mount St. Helens and several other volcanic centres of western North America. An additional abstract by R.C. Everts discusses the geology of the region around Mount St. Helens; he was initially invited to contribute to the symposium, but was unable to attend.

The editors express their grateful appreciation to all the authors who met the rigid, tight deadline, to reviewers who met the urgent need for rapid turnaround, to Bev Vanlier who did an excellent job of retyping some of the manuscripts and tidying up loose ends in others, and to Tonia Oliveric who shepherded many of the diagrams through drafting and final corrections. The artistic rendition of Mount St. Helens gracing the top of each article was drawn by Tonia Oliveric, Geological Survey of Canada. M.G. Easton has provided expertise, guidance and tolerance in bringing this collection of papers through to final production.

Mount St. Helens Special Session articles accepted 19 June 1990.