

Book Review

VOLCANO WEATHER The Story of the Year Without a Summer, 1816

Henry Stommel and Elizabeth Stommel
Seven Seas Press, Newport, R.I.
1983, 175 pp., \$15.00

Reviewed by
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Volcano Weather presents a fascinating glimpse into the culture and lifestyles of the people of 1816, and how the severe summer weather of that year disrupted their lives. Written by a world-renowned physical oceanographer and his wife, an organist and clothes designer, the book also attempts to link the weather of this unusual year with forcing due to the enormous eruption of the Tambora volcano in the previous year. In the first goal, the book is enormously successful. In the second, a slightly out-of-date and uncomprehensive review of volcano-climate connections presents a tantalizing but incomplete argument. Nevertheless, I can heartily recommend the book to anyone with an interest in the subject, including researchers in the volcano and climate fields.

Among the many interesting items in this book are reproductions of the actual weather diaries that recorded the unusual events, including the one by Thomas Jefferson. The failures of the corn and wheat crops in the marginal farming area of New England due to several mid-summer frosts are documented, with their ensuing effects on the grain and livestock markets. While the prices of grain soared, the prices of livestock plummeted as farmers sold animals they were unable to feed. The remarkable summer weather of 1816 inspired many tall tales, which perhaps have exaggerated its importance. The Stommels point out that the Old Farmer's Almanac did not forecast the events, but later got an undeserved reputation for having done so.

In the United States, the effects seemed to have been confined mostly to New England. The extreme weather helped to spur the ongoing westward migration to record proportions. The Erie Canal was started in 1816 in response to the demand for better transportation. I was reminded of the Sesquicentennial Celebration that took place in 1966 when I was a Hoosier high school

student, commemorating the entrance to the Union of the State of Indiana in 1816.

A rather stable long wave pattern in the atmospheric circulation apparently produced similar weather in Western Europe during the same summer, but it was less noticed due to the social and political upheaval then being experienced there. One notable effect was that Mary Shelley, confined to a villa on the shores of Lake Geneva during the cold rainy weather, wrote Frankenstein in 1816.

The 1815 eruption and subsequent studies of Tambora are well described in the first chapter. It is often forgotten, and not mentioned in this book, that the four years preceeding Tambora each had significant volcanic eruptions (Sabrina in 1811, Soufriere and Awu in 1812, Vesuvius in 1813 and Mayon in 1814), and therefore if the weather effects were caused by volcanoes, they may have been due to the cumulative effects of a stratospheric aerosol loading lasting several years. As to the discussion of the actual causes of the climate change, I feel the Stommels give too much weight to the possible solar influence, basing their hypothesis on an old theory of Eddy which has since been retracted. While I am flattered to have one of my old papers so extensively quoted, much has been done in the volcano-climate modelling and data analysis area in the meantime. Current work, based on both numerical model simulation and observations for the past 100 years, indicates that the cooling response to volcanic eruptions is largest in the winter, and that there may even be a slight warming in the summer. The weather of the summer of 1816 in New England and Western Europe, which together comprise less than 1% of the total surface area of the world, may have in large part been due just to the random fluctuation of weather discussed in Chapters 11 and 12.

I have a few minor quibbles. On pp. 10, 11 and 13 we are treated to a mishmash of English and SI units - km³, mi³, ft., m, miles and km. It would be nice to use one system exclusively or provide conversions. The "p. xx" on p. 130 should be "p. 23" and "(Murray)" on p. 131 should be "(Mitchell)." What are the solid and dashed lines on the figure on the bottom of p. 131? Landsberg and Albert (p. 140) are at the University of Maryland and the Oliver paper (p. 169) was published in 1976, not 1977.

Henry Stommel this year received the prestigious Crafoord Prize along with Edward

Lorenz for "fundamental contributions in the field of geophysical hydrodynamics..." In this book, along with Elizabeth Stommel, he has also contributed an anecdotal history of the weather of the summer of 1816 and its human effects that is a pleasure to read for both specialists and general readers.

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ANNUAL MEETING - CALL FOR PAPERS

The annual meeting of the National Weather Association will be held in Atlanta GA on November 12-15, 1984. The meeting will be hosted by The Weather Channel. Presentations will begin 12:30 pm on Monday and will be allotted 20-30 minutes including questions and answers. Written manuscripts are not required; however, abstracts are needed since they will be published and distributed to conference attendees. Those wishing to make a presentation should send an abstract to:

Vincent J. Oliver
NWA
4400 Stamp Road, Rm. #404
Temple Hills, MD 20748

The abstract should be sent no later than Mid-August so that sessions can be planned.

Meetings will be held at the Ramada Inn 2255 Delk Road, Marietta GA 30067 where a block of rooms has been reserved. A special daily

room rate of \$32 for a single or a double has been negotiated; suites will be available at \$50 daily. Be sure to mention your NWA affiliation.

The registration fee of \$30 will cover the Wednesday luncheon, coffee and pastries at break times, a copy of the abstracts and other materials and services. A cocktail party is likely for Monday night and The Weather Channel personnel will arrange some evening tours. Registration instructions will be available in succeeding Newsletters.

Abstracts in the following areas of interest are invited: Agriculture, Aviation, Climatology, Forecasting, Interactive Meteorological Processing, Marine, Operations, Radar, Satellite, Severe Weather, and Weather Broadcasting.

POSITION AVAILABLE

METEOROLOGIST/OCEANOGRAPHER POSITION

A Meteorologist/Oceanographer is required for our Houston Office to carry out desk studies to determine general climate of marine locations and calculate environmental extremes of wind wave and current using probability theories. Successful applicant will be based in Houston after 6 months familiarisation training in London. Salary will be related to qualifications and experience. Applications with detailed C.V. to Capt. A. Blackham, M.N.I., Noble Denton & Associates Ltd., 131 Aldersgate Street, London, E.C.1.