

[X-POSTED REVIEW: de Pomereu on Gornitz, 'Vanishing Ice: Glaciers, Ice Sheets, and Rising Seas'](#)

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Reviewer:

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Vivien Gornitz. *Vanishing Ice: Glaciers, Ice Sheets, and Rising Seas*. New York: Columbia University Press, 2019. Illustrations. 400 pp. \$35.00 (cloth), ISBN 978-0-231-16824-3.

Reviewed by Jean de Pomereu (Scott Polar Research Institute) **Published on** H-Environment (January, 2023) **Commissioned by** Daniella McCahey (Texas Tech University)

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With the future of ice on earth now a central concern for scientists, governments, and wider society, *Vanishing Ice: Glaciers, Ice Sheets, and Rising Seas* offers a nuanced, comprehensive, and timely synthesis of scientific knowledge pertaining to the cryosphere. Its author, Vivien Gornitz, a geologist and former research scientist at Columbia University and NASA's Goddard Institute for Space Studies, has spent decades researching sea level rise and its impacts across coastal regions and timescales. Extending well beyond her career focus, however, *Vanishing Ice* is a tribute to her broad interest and perspective on the cryosphere.

Written in an engaging and accessible style that occasionally feels a little too close to that used in textbooks, *Vanishing Ice* is suited to a broad readership that includes university students, educators, policymakers, and earth scientists interested in broadening their understanding of the cryosphere beyond their specialties. Across a total of nine chapters, its scope extends from ice crystal to ice sheet and from the Arctic to the Antarctic via tropical and mid-latitude glaciers.

The book's first chapter provides a short overview of some of the most significant stories of polar exploration, along with recent trends and transformations in the cryosphere. Chapters 2 to 6 each focus on a particular aspect of H₂O in its solid form, including floating ice (ice shelves, icebergs, and sea ice), permafrost, mountain glaciers, ice caps, and ice sheets. Chapters 7 and 8 concentrate on glacial cycles and the unfolding effects of anthropogenic warming on the icy world. The ninth and final chapter reminds us why ice is so critically important to the earth's ecosystems and humanity at large, as well as why it is so urgent that anthropogenic global warming should be addressed and mitigated.

Gornitz's text is aided by a rich and engaging array of visual illustrations that include, for example, paintings, graphs, maps, diagrams, tables, and photographs. Not only do these illustrations help to

bring the text to life, but they also make the book more accessible and constitute a useful visual reference in its own right. The same is true with the many well-chosen quotes by scientists, leaders, and writers (for example, Sir Walter Scott and Aldous Huxley) that are sprinkled throughout the book, heading individual chapters and subsections. While some of these are intended to drive the message through their hard-hitting urgency, others are of a more poetic or evocative nature.

Also adding to the book's usefulness as a work of reference are the appendices; a glossary of glaciological, geographical, and environmental terminology; and a sizable bibliography. The three appendices relate to future climate change and remote sensing and geological timescales, and also include a set of useful tables. Overall, the book is attractively produced and designed, with no (or very few) textual errors.

A key aspect of cryospheric knowledge almost entirely left out of the book is indigenous ice knowledge; the effects of climate change and ice melt on indigenous Arctic and mountain communities (for example, Andean and Himalayan) are addressed only fleetingly. Even though *Vanishing Ice* does not claim to be a work of social science, this is nevertheless surprising at a time when the value of local knowledge is emerging from historical neglect to being rightfully recognized by scientists and thus increasingly taken into account in the analyses and findings of Western-dominated climate and glaciological research.

In an increasingly crowded field of books focusing on our understanding of the cryosphere, however, *Vanishing Ice* stands out for its straightforward, balanced, and informed mix of encyclopedic comprehensiveness and introductory accessibility. This makes it a useful tool and reference for specialists to contextualize, for educators to transmit, and for nonspecialists to extend their understanding of the cryosphere at a critical juncture in its history and interdependence with the rest of the earth system.

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