

**Dr. Robert Bindschadler**  
**Emeritus Scientist**  
**Hydrospheric and Biospheric Sciences Laboratory**

**BIOGRAPHY**

Dr. Robert Bindschadler's career spanned more than 30 years at NASA where he retired in 2010 as the Chief Scientist of NASA's Hydrospheric and Biospheric Sciences Laboratory and a Senior Fellow of the Goddard Space Flight Center. He is a Fellow of the American Geophysical Union and a past President of the International Glaciological Society and currently a Senior Research Scientist at the University of Maryland Baltimore County. He maintains an active interest in glaciers and ice sheets and has led 15 Antarctic field expeditions to study dynamics of the West Antarctic ice sheet. During his NASA career, he has developed numerous unique applications of remote sensing data for glaciological research including measuring ice velocity and elevation using both visible and radar imagery, monitoring melt of the ice sheet by microwave emissions, and detecting changes in ice-sheet volume by repeat space-borne radar altimetry. He has testified before Congress, briefed the U.S. Vice President, published over 140 scientific papers, including numerous review articles and is often quoted commenting on glaciological impacts of the climate on the world's ice sheets and glaciers.

**TITLE**

**Waking Giants: Ice Sheets in a Warming World**

**ABSTRACT**

The great ice sheets of Greenland and Antarctica are shrinking faster and faster, increasing the rate of sea level rise. Observations of this accelerating ice loss have surprised the experts and confounded the predictive models that policy makers might rely on to take action. The distant future is easy to forecast—less ice on Earth—one million years of paleoclimate data say so, but more detail is needed. Direct field studies have identified a number of causes for the sudden awakening of the ice sheets. Whether it is ponded meltwater that destroys thick floating ice shelves, flowing meltwater that cascades through nearly a mile of ice to lubricate the base of the ice sheet, or warmer water circulating underneath floating ice shelves to thin them allowing a faster release of grounded ice, water is the primary agent of change. In a warmer world, ice sheets will be forced to respond to more water. The analogue of tidewater glacier retreat casts a disheartening picture that continued ice sheet mass loss may well be irreversible.

**CONTACT INFORMATION**

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