

## Preface

SEASAT, the first satellite designed to assess the value of microwave sensors for remote sensing of the world's oceans, was launched on June 27, 1978. The satellite operated successfully until October 10, 1978, when a power failure brought transmission to a stop. Despite its short lifetime, SEASAT acquired a wealth of data on sea-surface winds and temperatures, ocean wave heights, internal waves, atmospheric water content, sea ice, topography of the ocean surface, and shape of the marine geoid. Analysis of these data has demonstrated the success of SEASAT in accurately measuring, on a global scale, important oceanographic parameters from space.

The SEASAT sensors included a radar altimeter, a scanning multi-channel radiometer, a synthetic aperture radar, a windfield scatterometer, and a visual and infrared radiometer. From these instruments have come the first global maps of the variability of ocean currents, surface wind speed, surface temperature, wave height, and water vapor in the atmosphere. The success of SEASAT has been the major impetus for plans in the United States, Europe, and Japan to launch microwave ocean monitoring satellites in the late 1980s.

This is the second of two special issues of the *Journal of Geophysical Research* dedicated to the SEASAT mission. The first issue (vol. 87, no. C5, April 30, 1982) focused on the processing algorithms used for converting sensor data into geophysically useful information. This issue emphasizes scientific results from the SEASAT sensors. Scientists from numerous government centers and universities from the United States and abroad have performed oceanographic and geodetic studies with SEASAT data. However, much research still remains to be done, particularly in the application of the global scatterometer windfields to weather prediction and the use of altimeter data to refine knowledge of the marine geoid and global ocean circulation patterns.

This issue is a demonstration of the increasingly important role that satellites play in oceanography and geodesy. The papers were processed through normal JGR review procedures. We thank the authors, associate editors, and reviewers for their contributions and assistance in preparing this issue.

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