

## Preface

This special section of the *Journal of Geophysical Research on Atmospheres* describes the results and achievements of the Smoke, Clouds, and Radiation–Brazil (SCAR-B) field project, which took place in the Brazilian Amazon and cerrado regions in August–September 1995. SCAR-B was focused on the study of biomass burning, with emphasis on measurements of surface biomass, fires, smoke aerosol and trace gases, clouds, and radiation and on the climatic effects of the smoke. It included aircraft and ground-based in situ measurements of smoke emissions; the compositions, sizes, and optical properties of the smoke particles and their evolution during transport to regional scales; studies of the formation of ozone; and smoke interactions with water vapor and clouds.

Remote sensing from aircraft (MAS and AVIRIS on the ER-2 and CAR on the C-131A), satellites (GOES, AVHRR, GOMES), and from the ground (Sun photometers) was critical to the success of SCAR-B. The coordinated use of the NASA ER-2, the University of Washington C-131, and the INPE Bandeirante aircraft provided regional-scale measurements over Amazonia. Direct and indirect radiative forcing were measured and modeled using various approaches. The use of the MODIS airborne simulator (MAS) aboard the high-altitude ER-2 aircraft was important in testing the algorithms developed for the reduction of data from the spaceborne MODIS instrument in the field. The close collaboration between Brazilian and American scientists, from universities and governmental laboratories, was also critical to the success of SCAR-B.

Much still remains to be done to understand the full effects of tropical biomass burning on the atmosphere. However, SCAR-B provides an important step forward, particularly in improving our understanding of the evolution of biomass burning aerosols and the role they play in the radiative forcing of the atmosphere.

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