

*Diagnosis of the radiative heating over the eastern hemisphere
in relation to the summer monsoon**

JAY S. WINSTON and ARTHUR F. KRUEGER

*National Oceanic and Atmospheric Administration
National Environmental Satellite Service*

ABSTRACT

Seasonal and monthly global patterns of outgoing longwave radiation, albedo, absorbed solar radiation, and net radiation have been derived from scanning radiometer observations aboard the NOAA polar orbiting satellites since June 1974. These patterns, along with patterns of interannual differences, in seasonal and monthly heating, are examined for the two summers of 1975-76 over the eastern hemisphere in relation to the variations in the summer monsoon and the major circulation features. During portions of the summer of 1975 the monsoon was more active than in 1976, as evidenced by increased albedo and decreased longwave radiation over large sections of India, the Indian Ocean, southeast Asia, and the western Pacific. The role of clouds, snow cover, and other surface characteristics in modulating the radiation balance and circulation is discussed. The pre-monsoon radiative heating in spring is examined with respect to monsoon onset and intensity in the two years.

COMMENTS

(Paper presented by A. F. Krueger)

JAGDISH BAHADUR : 1. Glaciers interact with climate and are known to be very sensitive indicators of climatic change. Studies on glaciers have been made to study past climatic changes.

2. As regards complex interactions of clouds, snow-cover, physical and topographic features of local and neighbouring terrain on the radiation balance of Himalayan environment, it may be said :

(i) That the maximum discharges in Himalayan rivers occur in July-August due to increased melting of snow and glacier due to increased insolation. This when coincides with the increased sub-flows due to southwest monsoon results in large flooding of north Indian Plains.

(ii) That the altitude of permanent snowline, perhaps, affects the amount and onset of monsoon. More detailed investigations are needed to study the heat and water balance of Himalayan region.

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