Temporal Variability of R-factor Values. (S06-hollinger123453-Oral)

Authors:

- S.E.Hollinger* - *Illinois State Water Survey*
- J.R.Angel - *Illinois State Water Survey*
- M.A.Palecki - *Illinois State Water Survey*

Abstract:

The R-factor was computed for the entire U.S. using 15-minute rainfall data for the period of 1970 to 1999. R-factors were evaluated to determine the decadal-scale trends and temporal variability of the R-factor, and the variables that make up the R-factor in the context of larger scale interannual climate variability and ocean-atmosphere teleconnections. Interannual and interdecadal circulation variations showed an influence on the R-factor. El Nino events increased storm precipitation total, storm maximum 30-minute intensity, and number of storms in southern California, leading to an increase in the R-factor during those years. The positive mode of the Pacific/Decadal Oscillation was associated with fewer storms and decreased individual storm erosivity in the eastern U.S. during winter and spring, resulting in a decrease in the R-factor. The recent return of the PDO to a negative state may indicate a possibility for increased R-factors in the eastern U.S. The effect of the Pacific/North America mode was weak, but had its greatest effect in the Tennessee Valley region. Interannual variations in erosion are quite normal, but changes in the frequency of atmospheric circulation modes result in complex patterns of non-stationarity of the R-factor over large portions of the U.S.

Corresponding Author Information:

Steven Hollinger
Illinois State Water Survey
2204 Griffith Drive
Champaign, IL 61820

phone: 217-244-2939
fax: 217-244-0220
e-mail: hollingr@uiuc.edu

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