



Rainfall events: importance of the criteria used for their identification in pluviograph records.

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Rainfall is routinely reported as falling in ‘events’ or ‘storms’ whose beginning and end are defined by rainless intervals of a nominated duration (minimum inter-event time, MIT). Rain events commonly exhibit fluctuations in rain rate as well as periods when rain ceases altogether. Event characteristics such as depth, mean rain rate, the surface runoff volume generated, are defined in relation to the length of the rain event. These derived properties are dependent upon the criteria adopted to define the event, and the literature contains a wide range of criteria. Surprisingly little attention has been paid to this dependency, and to the diversity of approaches to defining events that is in use. The diversity of definitions limits the inter-comparison of results in published work. Furthermore, it limits the usefulness of historical studies where statistical data on event durations, rain rates, etc., are published as a guide to how these properties change temporally and with global environmental changes. A brief review illustrates the range of approaches used in the recognition of rain events. A 5 y, high time resolution pluviograph record from an arid location is analysed using a range of MIT criteria. Changing MIT from 15 min to 24 h (lying within the range of published criteria) alters the number of rain events from 550 to 118. The mean rain rate declines from 3.26 mm/h to 1.97 mm/h, and the mean event duration rises from 0.19 h to 9.55 h. This wide variation in the properties of rain events indicates that more attention needs to be paid to the choice and reporting of event criteria in studies that adopt event-based data analysis.