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Monsoon definition discrepancies in Bangladesh

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This study applies different definitions of what previous authors have called the monsoon over Bangladesh. The aim is to identify the definitions that most resemble the perceptions of the local rural communities and how they define the monsoon. Considering how the local communities define the monsoon is extremely important since these populations are most vulnerable to future changes in climate and more specifically monsoon rainfall.
It has been pointed out previously that the monsoon research community had not reached a consensus on a unified definition of the monsoon rainy season. This problem seems to be profound in Bangladesh where results from the application of different definitions show very large discrepancies. Since these discrepancies exist, confusing terms such as monsoon, summer rainy season, and monsoon rainy season can have large implications for impact studies and interpretations of future climate projections. The results in this paper show that these terms need to be explicitly and carefully defined with regards to Bangladesh.
Wind-, rain- and OLR-based definitions are applied to several different datasets to show how large these discrepancies can be over Bangladesh. Differences in onset dates are found to be around 8-9 pentads (40-45 days) in some regions of the country. The largest differences are seen in the north-east region, where rain-based definitions give much earlier onsets than wind- or OLR-based definitions. The results show that mesoscale phenomena could be influencing the climate in the north-east part of Bangladesh and causing much earlier summer rainfall. According to the results from a previous social study, the local communities in fact consider this early rainfall as the monsoon onset. By identifying the definition that best resembles the local community perceptions through out Bangladesh, then future information can be constructed, so that it is more easily understood by and applicable to the millions of people climate change will affect most directly.
The factors and implications illustrated in this study could also be applicable to other countries in the South-East Asia monsoon region.