



Reconciling societal and scientific definitions for the monsoon

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Science defines the monsoon in numerous ways. We can apply these definitions to forecast data, reanalysis data, observations, GCMs and more. In a basic research setting, we hope that this work will advance science and our understanding of the monsoon system. In an applied research setting, we often hope that this work will benefit a specific stakeholder or community.

We may want to inform a stakeholder when the monsoon starts, now and in the future. However, what happens if the stakeholders cannot relate to the information because their perceptions do not align with the monsoon definition we use in our analysis? We can resolve this either by teaching the stakeholders or learning from them about how they define the monsoon and when they perceive it to begin.

In this work we reconcile different scientific monsoon definitions with the perceptions of agricultural communities in Bangladesh. We have developed a statistical technique that rates different scientific definitions against the people's perceptions of when the monsoon starts and ends. We construct a probability mass function (pmf) around each of the respondent's answers in a questionnaire survey. We can use this pmf to analyze the time series of monsoon onsets and withdrawals from the different scientific definitions. We can thereby quantitatively judge which definition may be most appropriate for a specific applied research setting.