Changes in the Depth-Duration Characteristics of Indian Monsoon Rainfall over the past 50 years

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The spatio-temporal characteristics of the intensity and duration (wet and dry spells) of monsoon (June through September) rainfall for secular changes over the last 50 years has analysed using a gridded (1-degree) daily rainfall dataset. We find that while the number of short duration wet spells shows a significant increase over the last 50 years (~15% change), the number of long duration wet spells shows a significant decrease (~25%). Furthermore, while the number of short duration dry periods has shown a significant increase, the moderate and long duration dry spells do not show an appreciable change. This increase and decrease in the short and long duration wet spells offset each other and consequently the total number of rainy days during the season has not shown any significant change over the past 50 years. Our analysis of the accumulated depth in the wet spells suggests that while the short duration wet spell depth has shown a significant increase (~20%), the depth of rain in the long duration spells has shown a significant decrease (~30%) in the past fifty years.