A combination of low rainfall and high temperature has a more serious impact on society than when these occur separately. The yield of wheat crops decreases substantially when high temperature and low rainfall occur together. In a recent paper published in the journal Scientific Reports, Shialza Sharma and Pradeep Majumdar have examined the concurrent occurrence of heat waves and droughts during the period May to October in India. They used a heat wave magnitude index that combines the duration and magnitude of the heat waves. They have shown that during the period 1951-2010, heat waves with a duration of 3 days have increased in North West, North East, coastal and south India but decreased in the Indo-Gangetic plains. They used the Standardized Precipitation Index to define a meteorological drought. During this period the spatial extent of drought has increased in Central India. The number of concurrent heat waves and droughts increased during 1981-2010 compared to 1951-1980.

Reference: S.Sharma and P.Mujumdar, Increasing frequency and spatial extent of concurrent meteorological droughts and heat waves in India, Scientific reports, 17 November 2017

Trends in the frequency of 85 percentile heat waves in India

Percentage change in concurrent occurrence of heat waves and moderate droughts in 1981-2010 compared to 1951-1980