

**All India Coordinated Research Project on Agrometeorology**  
**CRIDA, Santoshnagar, Hyderabad – 500 059**

Weekly Crop Weather Information during 18<sup>th</sup> to 24<sup>th</sup> June 2019

The crop weather conditions in different states as reported by the cooperating centres of AICRPAM

**Maharashtra**

***Vidarbha Region***

Light rainfall received in Vidarbha region of Maharashtra state during this week. Maximum temperature across the week was 3.2 °C above normal. Minimum temperature across the week was 1.6°C below normal. Agriculture operations like preparatory tillage/cleaning campaign are underway in ensuing kharif fields. Spreading and incorporation of FYM/compost in fields is in progress. Maintenance work of farm pond, contour / drainage lines in fields are being carried out. Nursery sowing of kharif vegetables is being carried out. Nursery sowing of rice underway in eastern Vidarbha rice belt is in progress. Acid lime, sapota, water melon, musk melon and gourds are being harvested stage as per maturity. No major pests and diseases were noticed.

***Marathwada Region***

Light rainfall received in Marathwada region of Maharashtra state during this week. Maximum temperature ranged from 29.5 °C to 39.2 °C and the minimum temperature ranged from 22.0 °C to 27.6 °C. Agriculture operations like land preparation was completed and awaiting for good rainfall for sowing of Kharif crops are in progress. Sugarcane crop is at grand growth stage.. No major pests and diseases were noticed.

***Konkan Region***

Moderate rainfall received in Konkan region of Maharashtra state during this week. The maximum and minimum temperatures ranged from 30.5 to 32.4 and 21.0°C to 25.5°C, respectively. Agriculture operations like land preparation, sowing of rice, fertilizer application in mango, and coconut plants are in progress. rice and finger millet are in seedling stage. Low intensity of army worm in rice crops were noticed.

***Madhya Maharashtra Region***

Dry weather prevailed in Marathwada region of Maharashtra state during this week. Agriculture operations like spread well decompose FYM in field and prepare field for kharif crops are in progress. Summer irrigated groundnut crop is at pod development stage. Moderate intensity of fruit fly in vegetables crops were noticed.

## ***Andhra Pradesh***

Rainfall received in isolated places in coastal Andhra Pradesh during the week. Agriculture operations like summer ploughing are in progress. Summer groundnut is at flowering stage and sugarcane is at tillering stage. Low intensity of sucking pest in groundnut and woolly aphid and early shoot borer in sugarcane crops were noticed.

## ***Assam***

Moderate rainfall received in Assam state during this week. Daily average maximum temperature was 32.8°C which was 0.5°C above normal and the average daily minimum temperature was 25.7°C which was 0.5°C above normal for the week. Agriculture operations like main field preparation, sowing of seeds in nursery bed, pesticides application against leaf hopper, thrips and disease like brown spot, blast in sali rice, harvesting of ahu rice and land preparation for sesamum are in progress. Sali rice is in seedling stage, Ahu rice is in maturity stage and sesamum is in land preparation stage. No major pests and diseases were noticed.

## ***Bihar***

Light rainfall received in Bihar state during this week. Maximum temperature ranged from 35.0 to 40.5°C and the minimum temperature ranged from 26.2 to 28.5°C. Agriculture operations like planting of fruit and woody perennials saplings of trees. Sowing of long and medium duration rice varieties in the nursery. Application of urea in spring planted sugarcane and earthing up in autumn planted sugarcane. Weeding from rice nursery. Harvesting of urd and moong crops are in progress. Summer maize is being harvested and rice is in seedling stage. No major pests and diseases were noticed.

## ***Chhattisgarh***

Light rainfall received in Chhattisgarh state during this week. Agriculture operations like intercultural operations in vegetables. Leafy vegetables sowing and preparation of nursery for other vegetables are going on. Need based application of insecticides in vegetables crops are in progress. Brinjal and tomato are in fruiting and picking stage. Solanaceous vegetables are at flowering/fruiting stage while crucifers are at head formation stage. Low intensity of sucking pests and hopper in tomato, beans, cauliflower, cabbage cowpea and brinjal crops were noticed.

## **Uttar Pradesh**

### ***Eastern Uttar Pradesh***

Light rainfall received in Eastern Uttar Pradesh region of Uttar Pradesh state during this week. Agriculture operations like nursery raising of paddy, intercultural operation/fertilizer application in sugarcane, Direct sowing of paddy in water logged

areas. Filling of pits for new plantation of orchard crops are in progress. Rice is in seedling stage, sugarcane is in vegetative stage, Dhaincha/sunhemp are in early vegetative stage. Summer maize is in dough stage. No major pests and diseases were noticed.

### *Western Uttar Pradesh*

Dry weather prevailed in Western Uttar Pradesh region of Uttar Pradesh state during this week. Agriculture operations like nursery sowing of paddy, maize, pigeonpea, harvesting of zaid urd, zaid moong, plucking, marketing and nursery initiation in brinjal / chillies and cutting, marketing leafy vegetable crops are in progress. Vegetables/ Cucurbits are at flowering to fruiting stage. Low intensity of thrips in urd moong was noticed.

### *Gujarat*

Light rainfall received in Gujarat state during this week. The actual maximum temperature was 0.4 °C higher and actual minimum temperature was 0.5 °C lower as compared to their normal. Agriculture operations like irrigation to all summer crops as and when required, harvest mature crop and store in safe place and land preparation for kharif crops are in progress. Most of the summer crops are in maturity stage. No major pests and diseases were noticed.

### *Haryana*

Light rainfall received in Haryana state during this week. Maximum and minimum temperatures were recorded above the normal during the period except from 23th to 24th June. Agriculture operations like transplanting of rice in prepared field, hoeing in cotton crops for conserving the moisture and removing the weeds. Soil moisture and prepared the field for Bajra and Guar crops are in progress. Cotton is in early vegetative stage. No major pests and diseases were noticed.

### *Himachal Pradesh*

Light rainfall received in Himachal Pradesh state during this week. The maximum temperature ranged between 27.5 to 33.5°C which was almost above normal by 1.7 to 4.7°C and minimum temperature ranged between 16.5 to 21.5°C which was below normal by 0.4 to 3.7°C. Agriculture operations like arrangement of fodder for their cattle and dairy animals. Farmers are preparing their field for kharif crops and transplanting of rice crops are in progress. Rice is in leaf development stage and summer vegetables are in vegetative stage. No major pests and diseases were noticed.

### *Jharkhand*

Dry weather prevailed in Jharkhand state during this week. Maximum and minimum temperatures were 36.4 and 22.6°C against its normal value of 33.2 and 21.4 °C,

respectively. Agriculture operations like summer ploughing for weed control and insect pest control. Harvesting of summer maize and baby corn crops are in progress. Harvesting of mango is in progress like Bombay green, Gulab khas and Dasherri. Harvesting of litchi is completed. Germination of Diancha take place. No major pests and diseases were noticed.

### ***Kerala***

Moderate rainfall received in Kerala state during the week. maximum temperature ranges from 28.2 to 33.1 °C and minimum temperature ranges from 21.9 to 24.0 °C. Agricultural operations like fertilizers and manures can be applied in the open basins of coconut. In Ginger, apply green leaf mulching to prevent soil erosion and to increase the organic matter content in the soil. Proper drainage should be given in the plantation. Provide field sanitation to prevent breeding Rhinoceros beetle in Coconut. Hook out beetle from attacked palms by using beetle hooks. Manuring for Pepper vines is to be done. Transplanting stage in Paddy and coconut. Fruiting stage in Banana. Flowering stage in Arecanut. Moderate intensity of bud rot in coconut, quick wilt in pepper, mealy bugs in coconut, fruit rot in nutmeg and pepper were noticed.

### ***Jammu & Kashmir***

Light rainfall received in Jammu region of Jammu & Kashmir state during this week. Both maximum and minimum temperatures remained variable and ranged between 32.2 to 41.6 0C and 21.3 to 26.6 0C. In Kharif season about 9 % for Paddy, 70 % for Maize, 58 % for bajra 32 % for pulses, 68 % of fodder and 89 % of vegetable has been sown. Agriculture operations like nursery raising of timely transplanted basmati rice. Sowing the recommended var. of maize (Vivek-25, Vivek QOM-9 HM-5 and HQPM-1) and plant protection measures in vegetable and horticulture crops are in progress. Maize is at emergence stage, early transplanted Paddy crop is at nursery sowing and summer fodder is at peak vegetative stage. Light intensity of fruit fly in mango was noticed.

### **Karnataka**

#### ***South Karnataka***

Light rainfall received in Southern region of Karnataka state during this week. State actual rainfall was 27.0 mm as against the normal of 48.0 mm with (-) 44.0 deviation. Whereas SIK received 3.0 mm of rainfall as against the normal of 15.0 mm leading to (-) 82 % deviation. Agriculture operations like ploughing across the slope will make insitu soil moisture conservation Take up land leveling so that more rain water is conserved in the soil. Sowing of kharif crops is under progress.. Kharif crop is under sowing to germination stage. Light intensity of sucking pests in redgram was noticed.

## ***Odisha***

Light rainfall received in Odisha state during this week. Agriculture operations like Summer ploughing Sowing of green manuring crop Land preparation for direct seeded rice Land preparation and nursery sowing of rice Land preparation and sowing of pigeonpea Post -Harvesting of medium pigeon pea. Intercultural operation and plant protection of Sugarcane Land preparation and planting of chrysanthemum Plant protection of tube rose, jasmine, marigold Intercultural operation and Plant protection of Jute Land preparation and sowing of kharif maize, Intercultural operation of zinger and turmeric Intercultural operation of colocasia are in progress. Seedling stage of direct seeded rice. Emerging stage of rice in nursery. Vegetative stage of Green manure crop. Vegetative stage of sugarcane. Harvesting stage of brinjal, okra, cucurbits, cowpea. Vegetative stage of colocasia. Vegetative stage of turmeric, zinger and yam. Post-harvesting stage of summer pulses. Seedling stage of kharif groundnut. Flowering stage of tuberose. Flowering stage of jasmine and marigold and vegetative stage of jute. No major pests and diseases were noticed.

## ***Punjab***

Light rainfall received in Punjab state during this week. The maximum temperature during the week ranged between 32.2 to 39.8°C and minimum temperature ranged between 22.4 to 28.8°C. Agricultural operations like cotton crop in the vegetative stage and transplanting of rice and sowing of Maize crops are in progress. Cotton in vegetative stage and 8-10 leaf stage of maize crop. No major pests and diseases were noticed.

## ***Rajasthan***

Moderate to heavy rainfall was recorded in southern and Eastern part of Rajasthan state during this week. The maximum temperature range from 36.0 to 42.2 °C with mean value of 37.6 °C which was 0.9 °C above the normal value. The minimum temperature range from 23.0 to 28.5 °C with mean value of 25.2 °C which was 0.5°C below the normal. Agricultural operations like and field preparation and sowing of kharif crops are in progress. Fodder maize is at tasseling stage. No major pests and diseases were noticed.

## ***Tamil Nadu***

Dry weather prevailed in Tamil Nadu state during this week. Maximum temperature: 39.3°C (normal 37.4°C), minimum temperature: 27.7°C (normal 24.4°C). Agricultural operations like plant protection measures for controlling pests and diseases are in progress. Cotton is in boll development stage. Sorghum is in grain formation stage. Banana is in vegetative to fruit development stage. Rice is in tillering to booting stage. Citrus is in fruiting stage. Vegetables is in vegetative to fruiting stage. Citrus is in fruiting stage. Moderate Intensity of leaf hopper, whitefly in cotton, thrips in vegetables and canker, scab in citrus was noticed.

## *Uttarakhand*

Light rainfall received in Uttarakhand state during the week. Maximum temperatures was near the normal and minimum temperature was below the normal. Agricultural operation sowing of maize, soybean, amaranth, horse gram, French bean, transplanting of irrigated paddy seedlings, cauliflower, cabbage, capsicum and hot chilli in mid and higher hills, picking of tomato, brinjal capsicum crops are in progress. Growth stage in chaiti dhan, barnyard millet, early sown maize, seedling stage in cauliflower, cabbage, capsicum and chilli, growth stage in potato and brinjal while, fruiting stage in tomato, brinjal, fruit development/maturity stage in temperate fruit crops. No major pests and diseases were noticed.

## *West Bengal*

Light rainfall received in West Bengal state during the week. The maximum temperature ranged between 32.0 to 37.4 °C and minimum temperature ranged between 26.0 to 28.4 °C. Agricultural operation like transplanting operation along with nursery managements kharif rice, intercultural operation jute, intercultural and harvesting operations for vegetables like brinjal, tomato, bitter gourd. Harvesting and threshing of moong and sesame and harvesting of mango are in progress. Kharif rice: Seed sowing in nursery bed. For early sown varieties, transplanting work is going on. sesame: Harvesting. Jute: Vegetative stage. Vegetables including Chilli and pointed gourd: Fruiting stage. Low intensity of powdery mildew in pointed gourd was noticed.

## Weather during 13<sup>th</sup> to 19<sup>th</sup> June 2019

### Significant Weather Features

#### Advance of southwest monsoon

- The Southwest Monsoon has further advanced into some parts of Central Arabian Sea, remaining parts of Kerala, some parts of Karnataka, some more parts of Tamilnadu, most parts of Southwest Bay of Bengal, some more parts of Central & North Bay of Bengal and some parts of northeast India on 14th June 2019. It further advanced into remaining parts of Northeast Bay of Bengal, some more parts of Northwest Bay of Bengal, most parts of northeast India and some parts of West Bengal & Sikkim on 16th June 2019.
- The Northern Limit of Monsoon (NLM) passed through Lat. 12°N/Long. 60°E, Lat. 12°N/Long. 70°E, Kannur, Madurai, Lat. 12°N/Long. 83°E, Lat. 14°N/Long. 86°E, Lat. 17°N/Long. 89°E, Lat. 20°N/Long. 91°E, Aizwal, Lat. 24°N/Long. 93°E and Lat. 25°N/Long. 95°E in the beginning of the week, on 13th June 2019. It passed through Lat. 13°N/Long. 60°E, Lat. 13°N/Long. 70°E, Mangalore, Mysore, Salem, Cuddalore, Lat. 14°N/Long. 86°E, Lat. 20°N/Long. 90°E, Agartala, Lumding, Passighat and Lat. 29°N/Long. 97°E on 14th & 15th June 2019. It passed through Lat. 13°N/Long. 60°E, Lat. 13°N/Long. 70°E, Mangaluru, Mysuru, Salem, Cuddalore, Lat. 14°N/Long. 86°E, Goalpara, Alipurduar, Gangtok and Lat. 28°N/Long. 88°E on 16th and it continued along the same line till the end of the week.

#### Very Severe Cyclonic Storm 'VAYU'

- The Very Severe Cyclonic Storm 'VAYU' moved skirting Saurashtra coast during 13-14 June 2019. After moving away from the coast and entering North Arabian Sea, it weakened into a Severe Cyclonic Storm on 16th early morning and then into a Cyclonic Storm in the night of 16th. After recurring, it weakened into a Deep Depression on 17th morning and into a Depression by the afternoon of 17th. It weakened further and lay as a Well Marked Low Pressure Area over Northeast Arabian Sea and adjoining Saurashtra & Kutch in the night of 17th. It further weakened into a Low Pressure Area and lay over Kutch and adjoining areas in the morning of 18th. It continued to remain as a Low Pressure Area and lay over north Madhya Pradesh and adjoining south Uttar Pradesh towards the end of the week. The Very Severe Cyclonic Storm during its course of movement has caused adverse weather in the coastal districts of Maharashtra & Goa and Gujarat state and intense rainfall /thunderstorm activity and strong winds had been reported accordingly

from these areas. The remnants of the system has caused intense rainfall activity over East Rajasthan, West Madhya Pradesh and Gujarat State.

### **Heavy Rainfall Activity**

- Extremely heavy rainfall had been reported at isolated places over Andaman & Nicobar Islands, Sub-Himalayan West Bengal Assam & Meghalaya and East Rajasthan on one day each during the week.
- Heavy to very heavy rainfall had been reported at isolated places over Assam & Meghalaya and Coastal Karnataka on two days each; over Kerala & Mahe, Sub Himalayan West Bengal & Sikkim, Saurashtra & Kutch, Nagaland, Manipur, Mizoram & Tripura on one day each during the week.
- Heavy rainfall had been reported at isolated places over South Interior Karnataka, Odisha, Konkan & Goa and Andaman & Nicobar Islands on three to four days; over Gangetic West Bengal, Bihar, East Rajasthan, Madhya Maharashtra, Tamil Nadu , Puducherry & Karaikal, Arunachal Pradesh, Assam & Meghalaya, Nagaland , Manipur, Mizoram & Tripura, Sub Himalayan West Bengal & Sikkim, Saurashtra & Kutch, Coastal Karnataka, Chhattisgarh, West Uttar Pradesh, Uttarakhand, Punjab, Telangana, Gujarat Region and West Madhya Pradesh on one or two days during the week.

### **Temperature Scenario & Heat wave**

- Heat wave conditions at many places with severe heat wave conditions at isolated places had been observed over Coastal Andhra Pradesh & Yanam; Heat wave conditions at a few places with severe heat wave conditions at isolated places had been observed over Bihar; heat wave to severe heat wave conditions had been observed at isolated places over West Rajasthan ;on one day each during the week.
- Heat wave conditions had been observed at many places over Vidarbha on three days and over Telangana, Coastal Andhra Pradesh and Yanam on one day each; Heat wave conditions had been observed at some parts over Vidarbha on three days, over Coastal Andhra Pradesh & Yanam on two days and over Jharkhand and Bihar on one day each; Heat wave conditions had been observed at isolated places over Telangana on five days, over West Madhya Pradesh, Chhattisgarh, Gangetic West Bengal, Tamil Nadu, Puducherry & Karaikal on three to four days each and over West Rajasthan, Vidarbha, Coastal Andhra Pradesh & Yanam, Odisha, Jharkhand, East Uttar Pradesh, Marathwada and Bihar on one or two days during the week.

- The highest maximum temperature of 48.00C had been recorded at Phalodi (West Rajasthan) on 13th June 2019 over the plains of the country during the week.

### Meteorological Analysis

- Last week's Very Severe Cyclonic Storm 'VAYU' over Northeast and adjoining Eastcentral Arabian Sea moved north-northwestwards and lay centred at 0830 hours IST of 13th June, 2019 near Lat. 20.4°N and Long. 69.4°E over Northeast & adjoining Eastcentral Arabian Sea, about 160 km south southwest of Diu, 110 km southwest of Veraval (Gujarat) and 140 km nearly south of Porbandar (Gujarat). It moved initially northwestwards then west-northwestwards then westwards and lay centred at 0830 hours IST of 14th June, 2019 near Lat. 21.0°N and Long. 68.3°E over Northeast & adjoining Eastcentral Arabian Sea, about 150 km west-southwest of Porbandar (Gujarat), 210 km west of Veraval (Gujarat) and 270 km west-northwest of Diu. It moved further westwards then west-southwestwards and then nearly westwards and lay centred at 0830 hours IST of 15th June, 2019 near Lat. 20.7°N and Long. 67.2°E over Northeast & adjoining Eastcentral Arabian Sea, about 275 km west southwest of Porbandar (Gujarat), 330 km west southwest of Veraval (Gujarat) and 385 km west of Diu. It continued to move westwards, weakened into a Severe Cyclonic Storm and lay centred at 0530 hrs IST of 16th June 2019 near Lat. 20.7°N and Long. 65.5°E over Northeast and adjoining Northwest & Central Arabian Sea, about 440 km west-southwest of Porbandar (Gujarat), 415 km southwest of Dwarka (Gujarat) and 525 km southwest of Bhuj (Gujarat). It moved nearly westwards and lay centred at 0830 hours IST of 16th June, 2019 near Lat. 20.8°N and Long. 65.2°E over Northeast and adjoining Northwest & Central Arabian Sea, about 470 km west-southwest of Porbandar (Gujarat), 440 km southwest of Dwarka (Gujarat) and 545 km southwest of Bhuj (Gujarat). It moved west-northwestwards then north-northwestwards and then east-northeastwards, weakened into a Cyclonic Storm and lay centred at 2030 hrs IST of 16th June 2019 near latitude 21.1°N and longitude 65.3°E over Northeast and adjoining Northwest and Central Arabia Sea about 450 km west-southwest of Porbandar (Gujarat), 415 km west-southwest of Dwarka (Gujarat) and 520 km west-southwest of Bhuj (Gujarat). It moved initially east-northeastwards and then north eastwards , weakened into a Deep Depression and lay centred at 0830 hrs IST of 17th June, 2019 near latitude 21.9°N and longitude 66.8°E over Northeast Arabian Sea & neighbourhood, about 260 km west southwest of Naliya (Gujarat), 240 km west southwest of Dwarka (Gujarat) and 340 km west southwest of Bhuj (Gujarat). It moved northeastwards and then east-northeastwards, weakened into a Depression and lay centred at 1430 hrs IST of 17th June, 2019 near latitude 22.2°N and longitude 67.4°E over Northeast Arabian Sea &

neighbourhood, about 190 km west-southwest of Naliya (Gujarat), 175 km west-southwest of Dwarka (Gujarat) and 270 km west-southwest of Bhuj (Gujarat).It moved further east-northeastwards, weakened into a Well Marked Low Pressure Area and lay over Northeast Arabian Sea and adjoining Saurashtra & Kutch at 2330 IST of 17th June 2019.It further weakened into a Low Pressure Area and lay over Kutch and adjoining areas of southwest Rajasthan and south Pakistan with associated cyclonic circulation extending upto 3.1 km above mean sea level on 18th;it continued to remain as a Low Pressure Area and lay over north Madhya Pradesh and adjoining south Uttar Pradesh with the associated cyclonic circulation extending upto 3.1 km above mean sea level on 19th June 2019.

- Last week's east-west trough at 0.9 km above mean sea level ran from Punjab to Northeast Bay of Bengal across Haryana, Uttar Pradesh and Gangetic West Bengal on 13th June 2019 and it has become less marked on 14th June 2019.
- Last week's cyclonic circulation over north Bangladesh & neighbourhood between 2.1 and 3.6 km above mean sea level has become less marked on 13th June 2019.
- Last week's cyclonic circulation over Northeast & adjoining Eastcentral Bay of Bengal persisted over the same area and extended upto 3.6 km above mean sea level on 13th June 2019 and it has become less marked on 14th June 2019.
- Last week's Western Disturbance as a trough in midtropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 68°E to the north of Lat 32°N has moved away north eastwards on 13th June 2019.
- Last week's cyclonic circulation at 1.5 km above mean sea level over north Madhya Pradesh & neighbourhood has become less marked on 13th June 2019.
- Last week's offshore trough at mean sea level from Karnataka coast to Kerala coast persisted on 13th June 2019. It ran from Goa coast to north Kerala coast on 14th and has become less marked on 15th June 2019.
- A Western Disturbance as a trough in mid tropospheric westerlies with its axis at 5.8 km above mean sea level lay roughly along Long. 65°E to the north of Lat. 25°N on 13th & 14th June 2019. It lay as a cyclonic circulation over Central Pakistan & neighbourhood between 1.5 and 2.1 km above mean sea level with a trough aloft with its axis at 5.8 km above mean sea level roughly along Long. 68°E to the north of Lat. 28°N on 15th ; it lay as a cyclonic circulation at 3.1 km above mean sea level over Jammu & Kashmir and adjoining Himachal Pradesh with the trough aloft at 5.8 km

above mean sea level running roughly along Long. 76°E to the north of Lat. 28°N on 16th; it has moved away eastwards on 17th June 2019.

- A cyclonic circulation lay over south Assam & adjoining Bangladesh between 1.5 km & 3.6 km above mean sea level on 14th June 2019 and it has become less marked on 15th June 2019.
- A northwest-southeast oriented trough ran from northwest Bihar to Gangetic West Bengal across Jharkhand and extended upto 3.1 km above mean sea level on 15th June 2019; it ran with north-south orientation, from Sub Himalayan West Bengal & Sikkim to north Odisha at 1.5 km above mean sea level on 16th and has become less marked on 17th June 2019.
- A cyclonic circulation extending between 4.5 and 5.8 km above mean sea level lay over Westcentral Bay of Bengal off Andhra Pradesh coast on 15th & 16th June 2019. It lay over Westcentral Bay of Bengal off north Andhra Pradesh coast between 4.5 and 5.8 km above mean sea level on 17th & 18th; it lay over Eastcentral & adjoining Northeast Bay of Bengal between 3.6 & 5.8 km above mean sea level on 19th June 2019.
- A cyclonic circulation extending upto 0.9 km above mean sea level lay over Bangladesh & neighbourhood on 16th June 2019 and has become less marked on 17th June 2019.
- A trough at mean sea level ran from eastern parts of East Uttar Pradesh to west Assam on 16th June 2019 and has become less marked on 17th June 2019.
- A cyclonic circulation lay over Haryana & neighbourhood extending upto 1.5 km above mean sea level on 16th June 2019 and has become less marked on 17th June 2019.
- A trough ran from Sikkim to north Bay of Bengal and extended upto 1.5 km above mean sea level on 17th June 2019 and has become less marked on 18th June 2019.
- A trough extending upto 1.5 km above mean sea level ran from north Pakistan to the Low Pressure Area over Kutch and adjoining areas of southwest Rajasthan and South Pakistan on 18th June 2019 and has become less marked on 19th June 2019.
- A trough at mean sea level ran from northeast Uttar Pradesh to North Bay of Bengal across Bihar, Jharkhand and Gangetic West Bengal on 18th and it persisted on 19th June 2019.

- An upper air cyclonic circulation lay over eastern parts of Jammu & Kashmir and neighbourhood between 5.8 km & 7.6 km above mean sea level on 18th June 2019 and it is moving away northeastwards on 19th June 2019.
- A cyclonic circulation lay over west Assam & neighbourhood and extended upto 0.9 km above mean sea level on 18th June 2019; it lay over south Assam & neighbourhood and extended upto 0.9 km above mean sea level on 19th June 2019.
- A shear zone ran from the cyclonic circulation over Eastcentral & adjoining Northeast Bay of Bengal to Lat.14°N over Eastcentral Arabian Sea, between 4.5 & 5.8 km above mean sea level and it was seen roughly along Lat.11°N at 7.6 km above mean sea level on 19th June 2019.
- A cyclonic circulation at 0.9 km above mean sea level lay over Gangetic West Bengal & adjoining areas of Jharkhand and north Odisha on 19th June 2019.

### **Average rainfall during the week**

The All India area weighted rainfall during the week 25.0 mm was 40 below normal (41.8 mm).

The subdivision-wise weekly rainfall distribution is presented in Fig.1. Rainfall was Large excess in 3, excess in 1 normal in 5, deficit in 12, Large deficit in 15 and no rain in 0 out of 36 meteorological sub-divisions.

### **Cumulative Seasonal rainfall (01<sup>st</sup> June to 19<sup>th</sup> June 2019)**

The cumulative seasonal rainfall during 01<sup>st</sup> June to 19<sup>th</sup> June 2019 over the country as a whole was 50.8 mm which is 43% below normal rainfall of 88.4 mm.

The subdivision-wise seasonal rainfall distribution is presented in Fig. 2. Rainfall was Large excess in 3, excess in 0, normal in 3, deficit in 19 and L. deficit in 11 and no rain in 0 out of 36 meteorological sub-divisions.

### **State-wise distribution of rainfall in number of districts with large excess, excess, normal, deficient, large deficient and no rainfall during southwest monsoon season (01<sup>st</sup> June to 19<sup>th</sup> June 2019)**

In the country, 7% districts received large excess, 4% districts received excess and 11% districts normal rainfall during pre monsoon season so far. However, 31% districts received deficient, 43% districts received large deficient rainfall and 4% districts received no rainfall and 0 districts received no data. (Table-1).

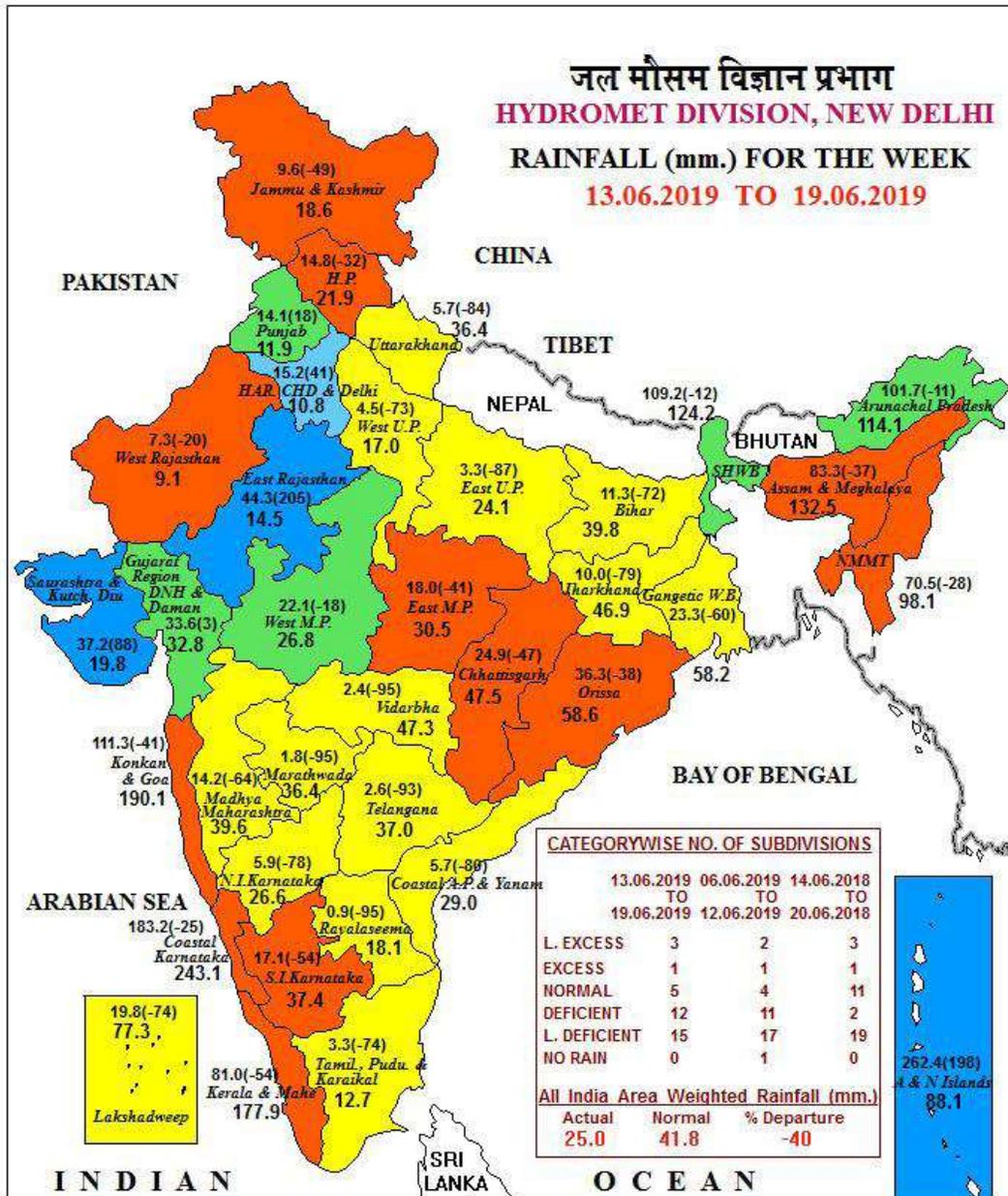
### **Weekly rainfall departure (%) at different IMD subdivisions (2019)**

During the week under report 3 Sub-divisions viz.; East Rajasthan, Saurashtra & Kutch and Andaman & Nicobar Islands received large excess rainfall, 1 Sub-division viz.; Haryana, Chandigarh & Delhi received excess rainfall, 5 Sub-divisions viz.; Punjab,

Gujarat region, West Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim and Arunachal Pradesh received normal rainfall and remaining 26 Sub-divisions received either deficit / large Bengal, deficit / no rainfall. (Table-2).

# भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

## जल मौसम विज्ञान प्रभाग HYDROMET DIVISION, NEW DELHI RAINFALL (mm.) FOR THE WEEK 13.06.2019 TO 19.06.2019



**LEGEND:** ■ L. EXCESS (+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)  
 ■ DEFICIENT (-20% TO -59%) ■ L. DEFICIENT (-60% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

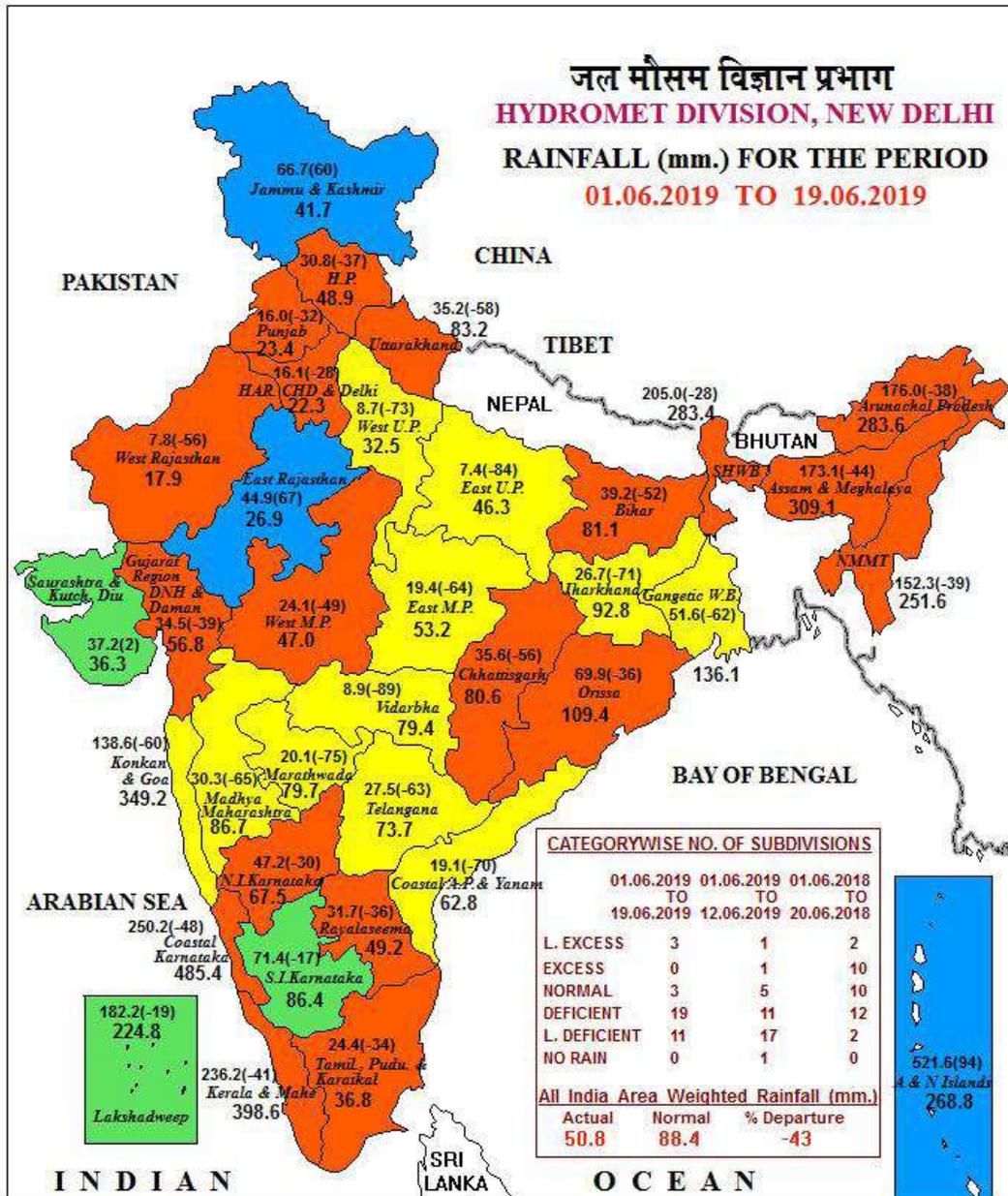
**NOTES:**

- [a] Rainfall figures are based on operational data.
- [b] Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)  
 Percentage Departures of Rainfall are shown in Brackets.

Fig-1

# भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

## जल मौसम विज्ञान प्रभाग HYDROMET DIVISION, NEW DELHI RAINFALL (mm.) FOR THE PERIOD 01.06.2019 TO 19.06.2019



**LEGEND:** ■ L. EXCESS (+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)  
■ DEFICIENT [-20% TO -59%] ■ L. DEFICIENT [-60% TO -99%]  NO RAIN [-100%]  NO DATA

**NOTES:**

- [a] Rainfall figures are based on operational data.
- [b] Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)  
 Percentage Departures of Rainfall are shown in Brackets.

Fig-2

**Table 1. State wise distribution of number of districts with large excess, excess, normal, deficient, large deficient, no rainfall and data inadequate shown (01. 06.2019 to 19.06.2019)**

S.NO.	STATES	PERIOD FROM : 01. 06.2019 TO 19.06.2019							
		LE	E	N	D	LD	NR	ND	TOTAL
1.	A & N ISLAND (UT)	2	1	0	0	0	0	0	3
2.	ARUNACHAL PRADESH	0	1	0	13	2	0	0	16
3.	ASSAM	0	0	5	12	10	0	0	27
4.	MEGHALAYA	0	1	1	3	2	0	0	7
5.	NAGALAND	0	1	5	3	2	0	0	11
6.	MANIPUR	0	0	0	4	5	0	0	9
7.	MIZORAM	0	0	2	5	1	0	0	8
8.	TRIPURA	0	0	0	4	0	0	0	4
9.	SIKKIM	1	0	0	3	0	0	0	4
10.	WEST BENGAL	0	0	0	9	9	1	0	19
11.	ODISHA	0	0	5	21	4	0	0	30
12.	JHARKHAND	0	0	1	3	19	1	0	24
13.	BIHAR	0	2	4	6	21	5	0	38
14.	UTTAR PRADESH	0	1	0	12	43	19	0	75
15.	UTTARAKHAND	0	0	0	6	7	0	0	13
16.	HARYANA	2	0	6	3	10	0	0	21
17.	CHANDIGARH (UT)	0	0	0	0	1	0	0	1
18.	DELHI	0	0	0	1	8	0	0	9
19.	PUNJAB	2	2	3	7	6	0	0	20
20.	HIMACHAL PRADESH	0	2	1	4	5	0	0	12
21.	JAMMU & KASHMIR	12	1	1	1	5	0	2	22
22.	RAJASTHAN	9	3	10	7	4	0	0	33
23.	MADHYA PRADESH	4	3	2	14	28	0	0	51
24.	GUJARAT	6	4	7	3	13	0	0	33
25.	DADRA & NAGAR HAVELI (UT)	0	0	0	0	1	0	0	1
26.	DAMAN & DIU (UT)	1	0	0	0	1	0	0	2
27.	GOA	0	0	0	1	1	0	0	2
28.	MAHARASHTRA	0	0	0	9	27	0	0	36
29.	CHHATISGARH	0	1	1	14	11	0	0	27
30.	ANDHRA PRADESH	0	0	1	5	7	0	0	13
31.	TELANGANA	0	0	4	6	21	0	0	31
32.	TAMILNADU	4	2	4	7	13	2	0	32
33.	PUDUCHERRY (UT)	0	0	0	1	2	1	0	4
34.	KARNATAKA	1	5	10	11	3	0	0	30
35.	KERALA	0	0	1	13	0	0	0	14
36.	LAKSHADWEEP (UT)	0	0	1	0	0	0	0	1
<b>TOTAL</b>		<b>44</b>	<b>30</b>	<b>75</b>	<b>211</b>	<b>292</b>	<b>29</b>	<b>2</b>	<b>683</b>
<b>CATEGORYWISE DISTRIBUTION OF DISTRICTS OUT OF THE 681WHOSE DATA RECEIVED</b>		<b>7%</b>	<b>4%</b>	<b>11%</b>	<b>31%</b>	<b>43%</b>	<b>4%</b>		

**Table 2. Weekly Rainfall Departure (%) at different IMD subdivisions (2019)**

S.No.	Meteorological Sub Division	22 May (21)	29 May (22)	05 Jun (23)	12 Jun (24)	19 Jun (25)
1	Andaman & Nicobar Islands	Orange	Yellow	Orange	Blue	Blue
2	Arunachal Pradesh	Orange	Orange	Yellow	Orange	Green
3	Assam & Meghalaya	Orange	Green	Orange	Orange	Orange
4	Nagaland, Manipur, Mizoram, Tripura	Orange	Green	Orange	Orange	Orange
5	Sub-Himalayan West Bengal & Sikkim	Orange	Green	Orange	Orange	Green
6	Gangetic West Bengal	Yellow	Orange	Orange	Yellow	Yellow
7	Orissa	Orange	Orange	Blue	Yellow	Orange
8	Jharkhand	Yellow	Orange	Green	Yellow	Yellow
9	Bihar	Yellow	Yellow	Blue	Orange	Yellow
10	East Uttar Pradesh	Yellow	Yellow	Yellow	Yellow	Yellow
11	West Uttar Pradesh	Green	Yellow	Yellow	Yellow	Yellow
12	Uttarakhand	Orange	Yellow	Orange	Orange	Yellow
13	Haryana, Chandigarh & Delhi	Blue	Green	Yellow	Yellow	Blue
14	Punjab	Blue	Blue	Yellow	Yellow	Green
15	Himachal Pradesh	Green	Orange	Orange	Orange	Orange
16	Jammu & Kashmir	Blue	Blue	Blue	Blue	Orange
17	West Rajasthan	Blue	Orange	Yellow	Yellow	Orange
18	East Rajasthan	Blue	Yellow	Yellow	Yellow	Blue
19	West Madhya Pradesh	Orange	Yellow	Yellow	Yellow	Green
20	East Madhya Pradesh	Yellow	Yellow	Yellow	Yellow	Orange
21	Gujarat Region	Yellow	Grey	Grey	Yellow	Green
22	Saurashtra, Kutch & Diu	Yellow	Grey	Grey	Grey	Blue
23	Konkan & Goa	Grey	Yellow	Yellow	Yellow	Orange
24	Madhya Maharashtra	Yellow	Yellow	Yellow	Orange	Yellow
25	Marathwada	Yellow	Grey	Yellow	Orange	Yellow
26	Vidarbha	Yellow	Grey	Yellow	Yellow	Yellow
27	Chhattisgarh	Yellow	Orange	Green	Yellow	Orange
28	Coastal Andhra Pradesh	Yellow	Orange	Orange	Yellow	Yellow
29	Telangana	Yellow	Yellow	Green	Orange	Yellow
30	Rayalaseema	Yellow	Orange	Blue	Green	Yellow
31	Tamil Nadu & Pondicherry	Yellow	Orange	Green	Orange	Yellow
32	Coastal Karnataka	Yellow	Yellow	Yellow	Yellow	Orange
33	North interior Karnataka	Orange	Orange	Green	Green	Yellow
34	South interior Karnataka	Orange	Blue	Green	Green	Orange
35	Kerala	Yellow	Yellow	Yellow	Green	Orange
36	Lakshadweep	Grey	Yellow	Yellow	Blue	Yellow

## LEGEND:

<b>L. Excess: (+60 % or more)</b>	
<b>Excess: (+20 % to +59 %)</b>	
<b>Normal: (+19 % to -19 %)</b>	
<b>Deficient: (-20 % to -59 %)</b>	
<b>L. Deficient: (-60 % to -99 %)</b>	
<b>No Rain: (-100 %)</b>	
<b>No Data:</b>	