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Monsoon Update August - September 2018

Report Categories:
Agriculture in the Economy
Agriculture in the News
Climate Change/Global Warming/Food Security
Grain and Feed
Oilseeds and Products
Cotton and Products
Sugar

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Report Highlights:
The cumulative rainfall for the Southwest Monsoon 2018 reported by the Indian Meteorological Department, as of September 23, 2018 was nine percent lower than the fifty-year average. The recovery of monsoon in the second half (Aug and Sep) of the season has improved the pace of planting. *Kharif* 2018/19 planting is 2 percent higher than the normal five-year average, led by increased area under paddy, pulses and cotton.

General Overview
As a whole, India received normal rainfall from June 1 through September 23 with a nine percent downward departure from the long-period average (LPA) for the Southwest Monsoon. The rainfall data reported by the Indian Meteorological Department (IMD) as of September 23, 2018, indicates that 61 percent of the total 662 districts across India have received normal rainfall, while 39 percent districts have received deficit rains. Twenty-six states/union territories have received normal rains, with nine states reporting deficient rainfall. Kerala in the only state reporting excess rains.

Heavy rains expected in Northern India
According to IMD, widespread rainfall is forecast in the next five days (Sep 24-28) in the States of Karnataka, Assam, Meghalaya, Arunachal Pradesh and Kerala. As Southwest Monsoon begins to withdraw during the next week, widespread rains are also expected in the Northern Indian states of Punjab, Haryana, Rajasthan, Uttarakhand and Himachal Pradesh.

IMD forecasts monsoon withdrawal from last week of September
IMD forecasts the withdrawal of the Southwest Monsoon from Northwest India is likely to commence towards the end of September, and will withdraw from the western parts of Rajasthan starting September 29, 2018. The rains usually start withdrawing from early September and the process is usually complete by end of October, signaling the end of the four-month season that starts in June.

Kerala Floods
On August 20, 2018, the Government of India declared heavy rains in the state of Kerala as a natural disaster, which allowed the Government of India to provide monetary assistance. As of September 23, 2018, the rainfall received in the state was almost 25 percent higher than the normal five-year average. The state government declared 981 villages in various districts as flood/landslide affected during the Southwest Monsoon. The districts of Idukki and Pallakad received excess rains (100 percent above normal average) in the first two weeks of the monsoon. The excess rains were followed by continuous rains, and a second spell of heavy rains from mid-August until mid-September. The State Agriculture Department of Kerala is assessing the damage to agriculture areas, and the initial analysis indicates heavy damage of paddy and banana crop in various districts due to submerged fields due to heavy rainfall. Other crops that may be affected include spices and tapioca.

Reservoir Storage
States having better storage than last year for the corresponding period are Jharkhand, Odisha, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, AP&TG (two combined projects in both states), Andhra Pradesh, Telangana, Karnataka, Kerala and Tamil Nadu. The state having equal storage than last year for the corresponding period is Punjab. States having lesser storage than last year for the corresponding period are Himachal Pradesh, Rajasthan, West Bengal, Tripura, Gujarat and Maharashtra. According to the Central Water Commission, there are seventy-seven reservoirs having storage of more than 80 percent, eight reservoirs having storage between 51 – 80 percent, three reservoirs having storage between 31-50 percent and three reservoirs with storage up to 30 percent of normal storage.

Kharif sowing increases due to higher planting of rice and oilseeds from last year
According to the Ministry of Agriculture and Farmers Welfare (MOAFW) September 20, 2018 sowing report, planted area under rice has increased by two percent from last year, while area under oilseeds has increased by three percent from last year. Planted area under rice has increased in the states of

Telangana, Karnataka, Madhya Pradesh, Punjab, West Bengal, and Haryana. Similarly area under oilseeds specifically soybeans has increased by six percent from last year mostly in the states of Rajasthan and Maharashtra. Planted area under pulses has reduced from last year, but is still almost sixteen percent higher than the normal five-year average. Area under the two pulse varieties of black gram (urdbean) and green gram (mungbean) have increased by more than 28 percent and 24 percent respectively as compared to the normal average. Rajasthan, Madhya Pradesh, Jharkand and Karnataka are the leading states where pulse acreage has increased. Planted area under sugarcane is 12 percent higher than the normal five-year average and four percent higher than last year. The increased acreage is mostly in the states of Uttar Pradesh, Maharashtra and Karnataka. While the planted area under sugarcane has increased from last year, it only contributes five percent to the gross cropped area.

Table 1. India: Regional Rainfall Distribution from June 1- September 23, 2018

Regions	2018 Actual (mm)	Normal (mm)*	2018 Percentage Departure from Normal
Northwest India	572.6	597.5	-4%
Central India	904.3	945.5	-4%
Southern Peninsula	667.9	674.1	-1%
East and Northeast India	1039.4	1376.4	-24%
All India	**777.4**	**853.9**	**-9%**

* Normal rainfall is the fifty year average of rainfall from 1951-2000
Source: Indian Meteorological Department

Table 2. India: Southwest Monsoon Monthly Rainfall

Month	2018 Actual (mm)	Normal (mm)**	2018 Percentage Departure from Normal
June	155.3	163.6	-5%
July	272.4	289.2	-6%
August	241.4	261.3	-8%
September*	83.0	125.4	

Source: Indian Meteorological Department
* Rainfall from September 1-23, 2018
** Normal rainfall is the fifty year average of rainfall from 1951-2000

Table 3. India. Storage Status at 91 Major Reservoirs in Billion Cubic Meters (BCM)

Region	Volume on September 20, 2018 (in BCM)	Total Capacity (in BCM)	Percentage of Capacity on September 20, 2018	Percentage of Capacity on September 20, 2017	10-Year Average Capacity Level on September 20
Northern Region	13.87	18.01	77%	84%	83%
Eastern Region	15.85	18.83	84%	62%	70%
Western Region	17.16	31.26	55%	68%	66%
Central Region	33.30	42.30	79%	60%	73%
Southern Region	39.91	51.59	77%	46%	67%
All India	**120.09**	**161.99**	**74%**	**60%**	**71%**

Source: Ministry of Water Resources

Table 4. India. Kharif 2017 Sown Area (in million hectares)

Crop	Area Sown in 2018 on September 20, 2018	Area Sown in 2017 on September 20, 2017	Normal Area on September 20**	Y-o-Y Change	Change from Normal
Rice	38.585	37.696	37.63	2%	3%
Pulses	13.793	13.949	11.88	-1%	16%
Coarse Cereals	17.616	18.334	18.414	-4%	-4%
Oilseeds	17.827	17.291	18.392	3%	-3%
Sugarcane	5.194	4.986	4.636	4%	12%
Jute and Mesta	0.702	0.709	0.764	-1%	-8%
Cotton	12.064	12.172	11.623	-1%	4%
Total	**105.781**	**105.137**	**103.339**	**1%**	**2%**

Source: Ministry of Agriculture and Farmers Welfare, Government of India

** Normal Area is the five year average of the area from 2011-2015

India Meteorological Department
Hydromet Division, New Delhi

STATE-WISE RAINFALL DISTRIBUTION

		Day:23-09-2018				Period:01-06-2018 To 23-09-2018			
S NO	MET. SUBDIVISION/UT/STATE/DISTRICT	ACTUAL (mm)	NORMAL (mm)	%DEP.	CAT.	ACTUAL (mm)	NORMAL (mm)	% DEP.	CAT.
REGION : EAST AND NORTH EAST INDIA									
1	ARUNACHAL PRADESH	8.7	9.7	-10%	N	1145.9	1689.9	-32%	D
2	ASSAM	2.9	10.2	-71%	LD	1144.5	1468.7	-22%	D
3	MEGHALAYA	0.5	13.9	-97%	LD	1634.5	2695.7	-39%	D
4	NAGALAND	3.4	7.7	-56%	D	1086.1	1289.7	-16%	N
5	MANIPUR	0.0	11.8	-100%	NR	575.1	1344.0	-57%	D
6	MIZORAM	0.0	13.9	-100%	NR	1624.4	1629.0	0%	N
7	TRIPURA	2.4	7.7	-69%	LD	1133.6	1429.0	-21%	D
8	SIKKIM	4.2	10.0	-58%	D	2057.3	1730.8	19%	N
9	WEST BENGAL	1.8	8.8	-80%	LD	1082.8	1312.2	-17%	N
10	JHARKHAND	0.9	6.6	-87%	LD	781.5	1044.1	-25%	D
11	BIHAR	0.0	5.4	-99%	LD	769.7	984.7	-22%	D
REGION : NORTH WEST INDIA									
1	UTTAR PRADESH	5.8	3.7	56%	E	748.4	821.1	-9%	N
2	UTTARAKHAND	13.3	4.5	196%	LE	1137.5	1201.5	-5%	N
3	HARYANA	13.5	2.4	462%	LE	369.6	447.4	-17%	N
4	CHANDIGARH (UT)	72.4	3.8	1804%	LE	893.3	809.3	10%	N
5	DELHI (UT)	1.8	2.0	-8%	N	600.9	622.5	-3%	N
6	PUNJAB	54.6	2.7	1922%	LE	442.8	471.0	-6%	N
7	HIMACHAL PRADESH	72.6	4.5	1514%	LE	814.6	798.0	2%	N
8	JAMMU & KASHMIR	29.0	4.1	607%	LE	565.1	514.8	10%	N
9	RAJASTHAN	9.7	1.5	550%	LE	379.3	411.4	-8%	N
REGION : CENTRAL INDIA									
1	ODISHA	1.9	6.6	-71%	LD	1278.9	1109.8	15%	N
2	MADHYA PRADESH	19.4	4.7	313%	LE	868.7	930.7	-7%	N
3	GUJARAT	9.0	2.6	247%	LE	481.1	654.6	-27%	D
4	DADAR & NAGAR HAVELI (UT)	0.0	13.5	-100%	NR	2057.3	2075.8	-1%	N
5	DAMAN & DIU (UT)	0.5	9.1	-94%	LD	1586.2	1559.4	2%	N
6	GOA	0.2	4.7	-96%	LD	2398.8	2903.3	-17%	N
7	MAHARASHTRA	3.8	5.8	-34%	D	914.9	966.5	-5%	N
8	CHHATTISGARH	0.2	6.7	-97%	LD	1097.6	1122.6	-2%	N
REGION : SOUTH PENINSULA									
1	ANDAMAN & NICOBAR (UT)	3.0	10.9	-73%	LD	1525.6	1571.5	-3%	N
2	ANDHRA PRADESH	1.4	5.8	-77%	LD	424.3	463.8	-9%	N
3	TELANGANA	1.9	6.1	-69%	LD	730.4	724.3	1%	N
4	TAMIL NADU	1.8	3.7	-52%	D	245.5	285.2	-14%	N
5	PONDICHERRY (UT)	0.0	3.6	-100%	NR	278.8	328.8	-15%	N
6	KARNATAKA	0.3	6.1	-95%	LD	727.9	787.7	-8%	N
7	KERALA	0.1	8.9	-99%	LD	2446.8	1964.4	25%	E
8	LAKSHADWEEP (UT)	0.5	6.1	-91%	LD	504.7	954.7	-47%	D
	COUNTRY :	9.3	5.2	78%		777.4	853.9	-9%	

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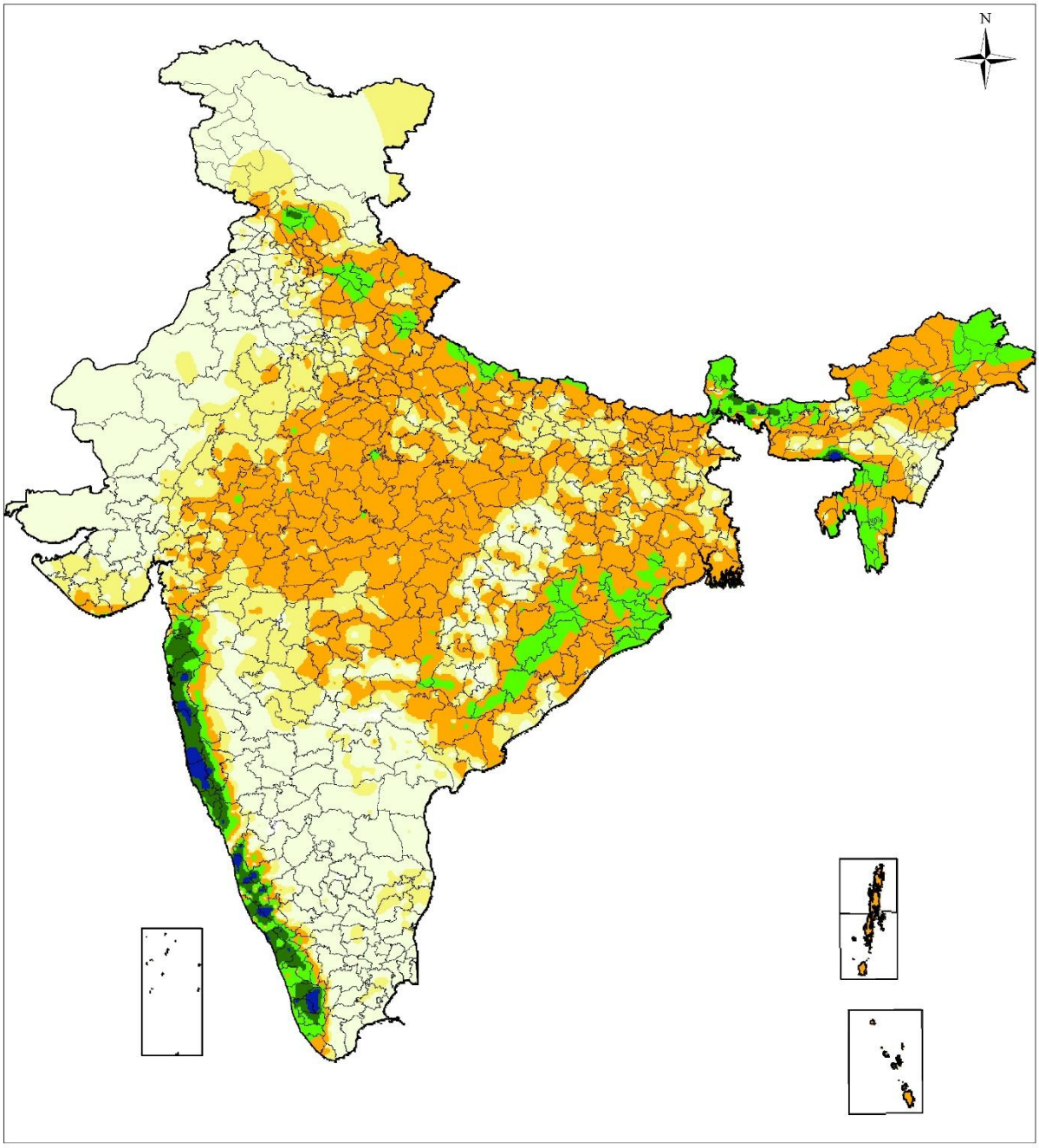
INDIA METEOROLOGICAL DEPARTMENT

जल मौसम विज्ञान प्रभाग, नई दिल्ली
HYDROMET DIVISION, NEW DELHI

SPATIAL RAINFALL ANALYSIS - CUMULATIVE

01-06-2018 TO 24-09-2018



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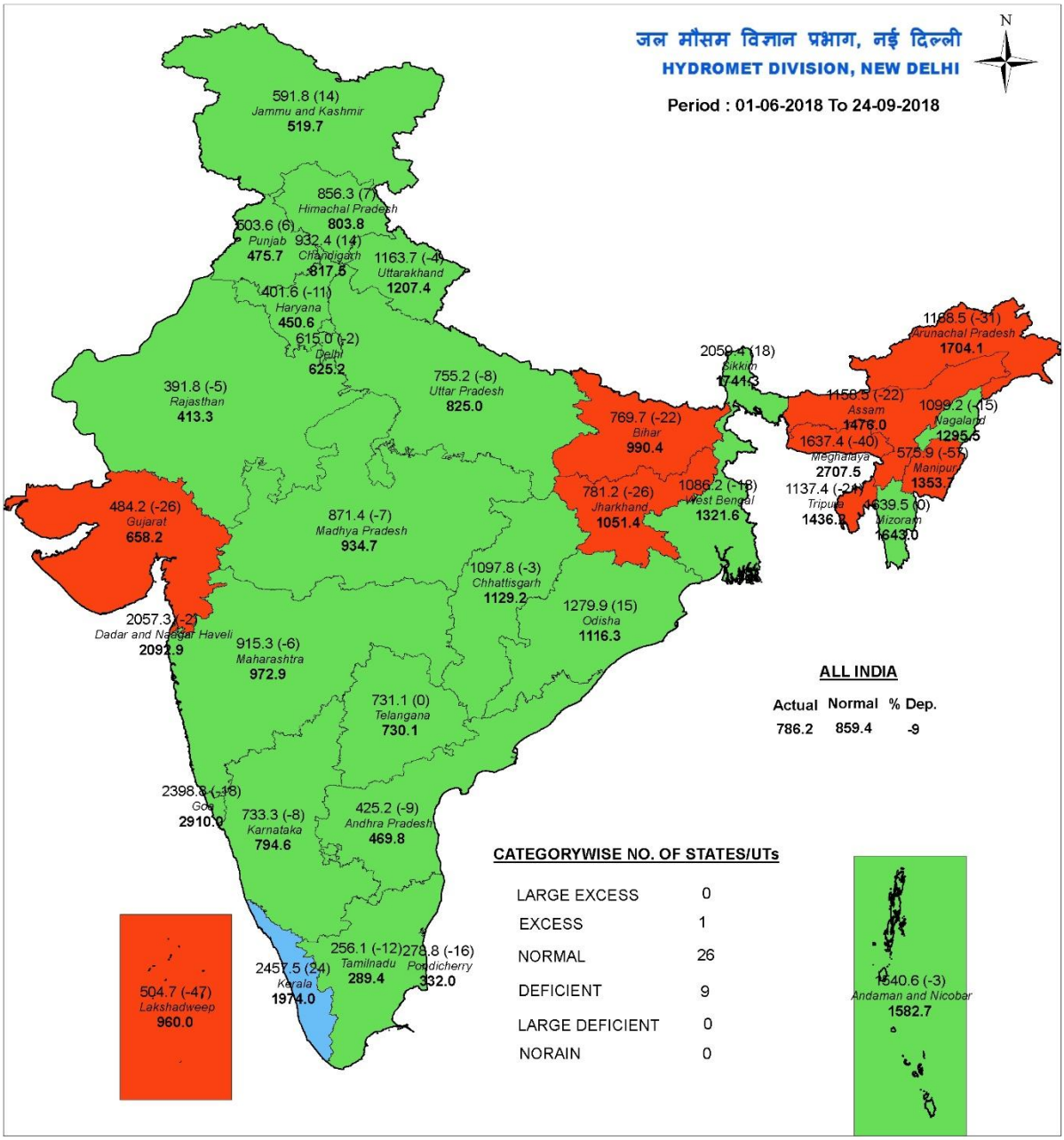
STATE RAINFALL MAP



Legend

Large Excess [60% or more] | Excess [20% to 59%] | Normal [-19% to 19%] | Deficient [-59% to -20%] | Large Deficient [-99% to -60%] | No Rain [-100%] | NO DATA

NOTES :
a) RainFall figures are based on operation data.
b) Small figures indicate actual rainfal (mm), while bold figures indicate Normal rainfall (mm).
c) Percentage Departures of rainfall are shown in brackets.

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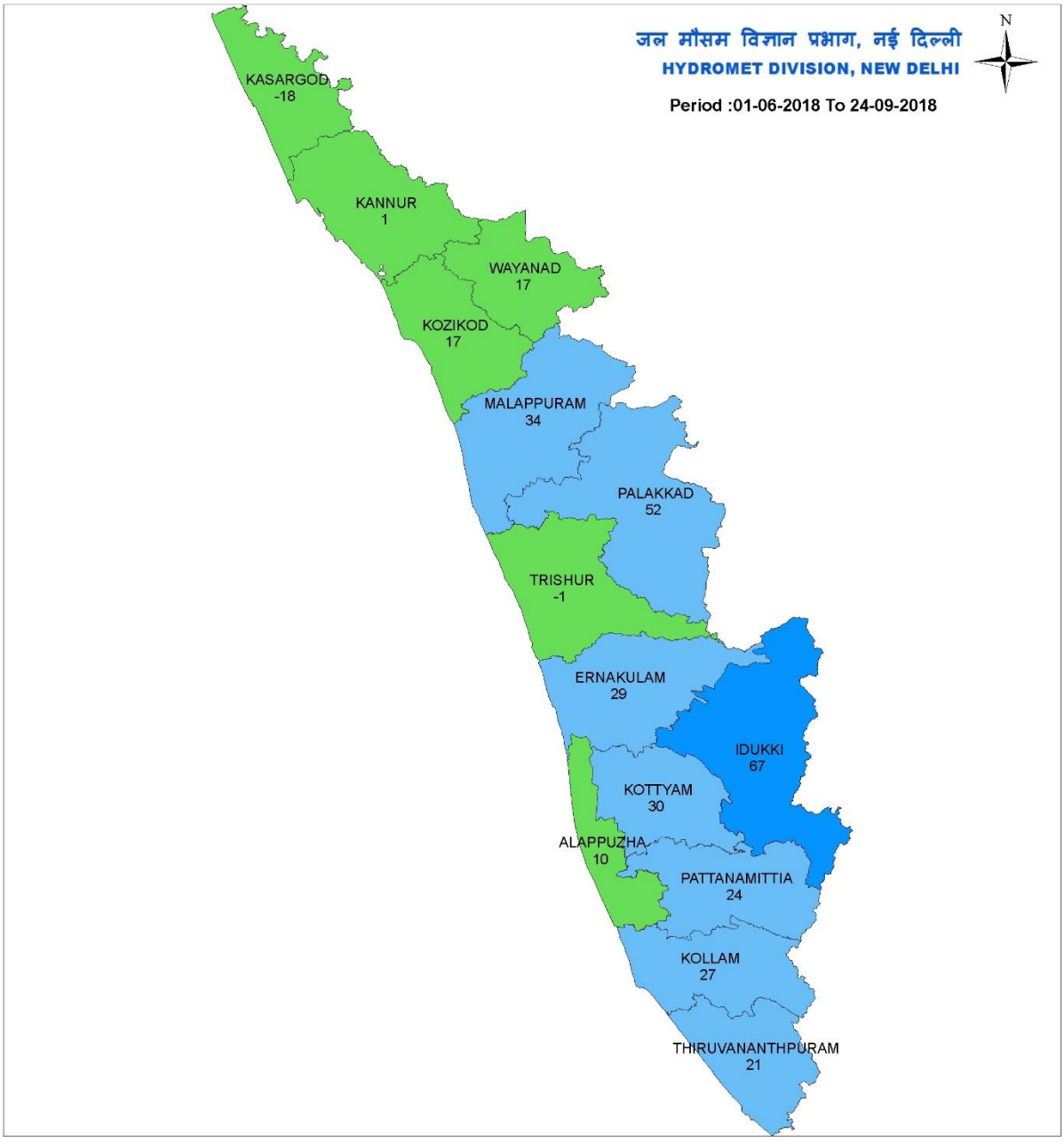
DISTRICT RAINFALL DEPARTURE MAP - KERALA



Legend

Large Excess [60% or more] | Excess [20% to 59%] | Normal [-19% to 19%] | Deficient [-59% to -20%] | Large Deficient [-99% to -60%] | No Rain [-100%] | NO DATA

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दिनांक 19/09/2018

WEEK BY WEEK PERFORMANCE OF SOUTH WEST MONSOON 2018 OVER KERALA

Departure from Normal (%)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17
ALP	34	-15	-6	-1	-15	-13	10	8	11	11	21	29	25	21	16	12	
KNR	-55	31	25	13	1	-1	5	8	2	0	9	10	8	5	4	2	
EKM	-28	23	26	23	6	13	42	39	38	33	38	47	44	40	35	31	
IDK	-60	111	64	33	10	15	46	49	45	41	70	92	84	79	73	69	
KSG	-38	10	-6	-4	-11	-13	-14	-12	-18	-20	-13	-12	-13	-15	-16	-17	
KLM	3	7	11	3	-6	-6	16	10	15	14	38	52	44	39	34	30	
KTM	31	41	40	34	13	21	47	43	40	35	41	51	46	41	36	32	
KZK	-58	20	28	20	5	5	18	20	14	11	22	29	27	23	21	19	
MLP	-24	49	61	36	10	12	25	23	21	20	40	50	45	41	38	36	
PLK	-32	114	92	54	23	32	48	41	40	38	57	73	67	62	58	55	
PTA	-1	11	18	8	-8	-7	15	14	13	14	28	45	38	34	29	26	
TVM	53	25	21	11	-6	-6	1	-5	11	9	37	44	38	33	28	23	
TSR	-41	-9	3	-11	-24	-20	-3	-5	-8	-7	-2	14	10	7	4	1	
WAD	-67	99	76	25	-7	6	14	12	4	2	21	26	24	20	18	17	
KERALA	-27	40	35	19	1	5	21	20	17	15	30	41	36	33	29	26	

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