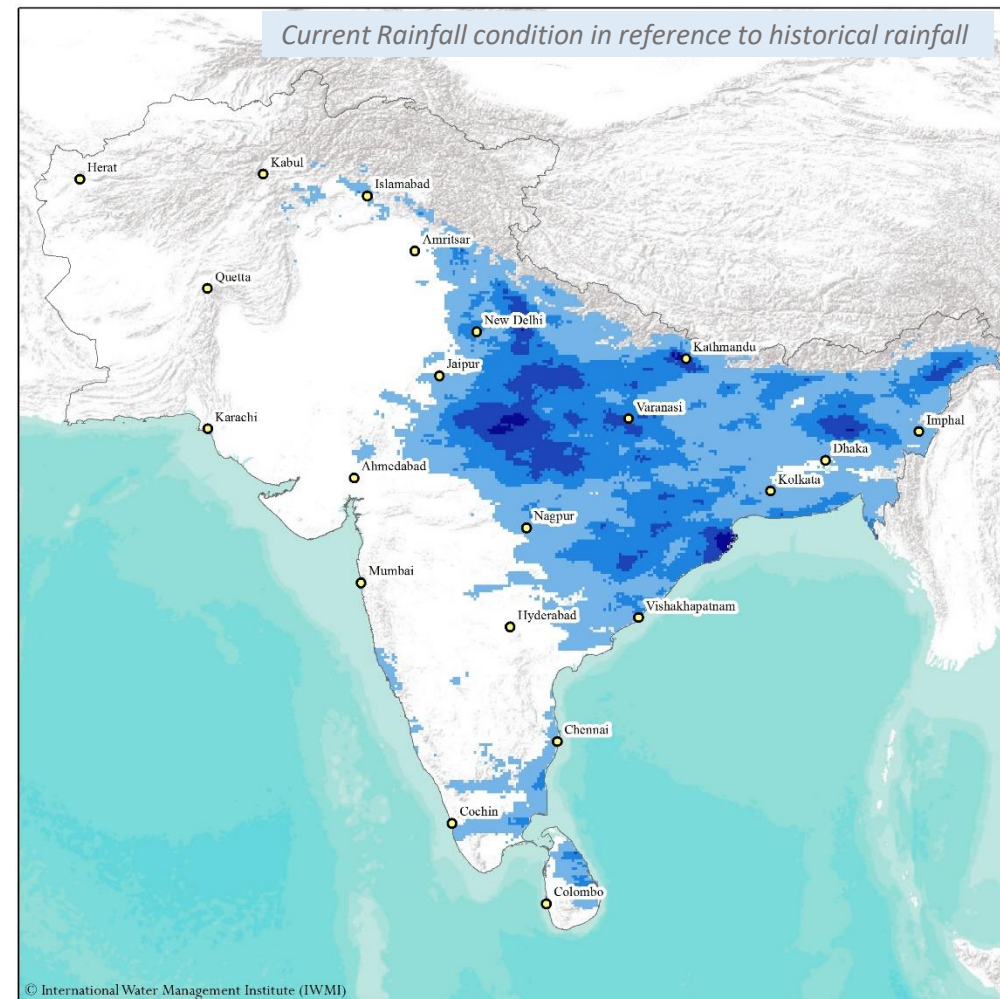
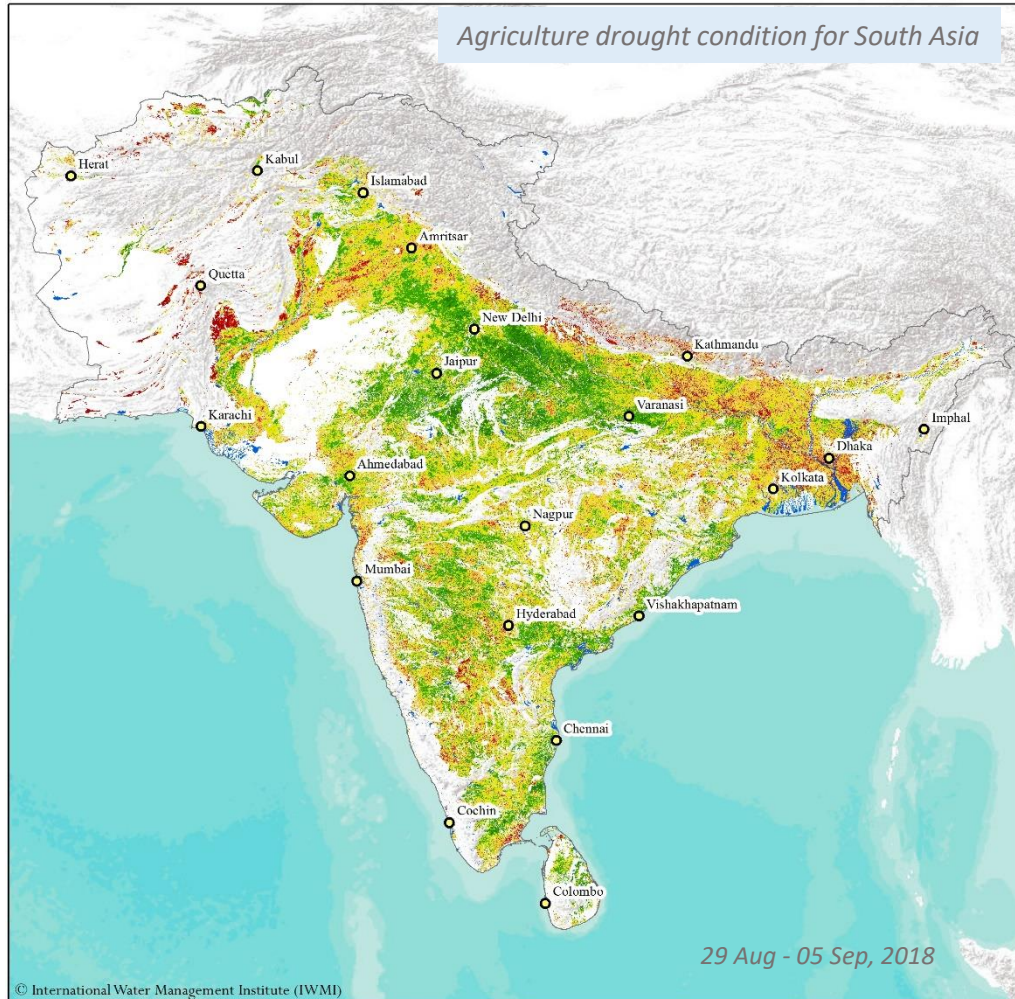


SADMS DROUGHT BULLETIN

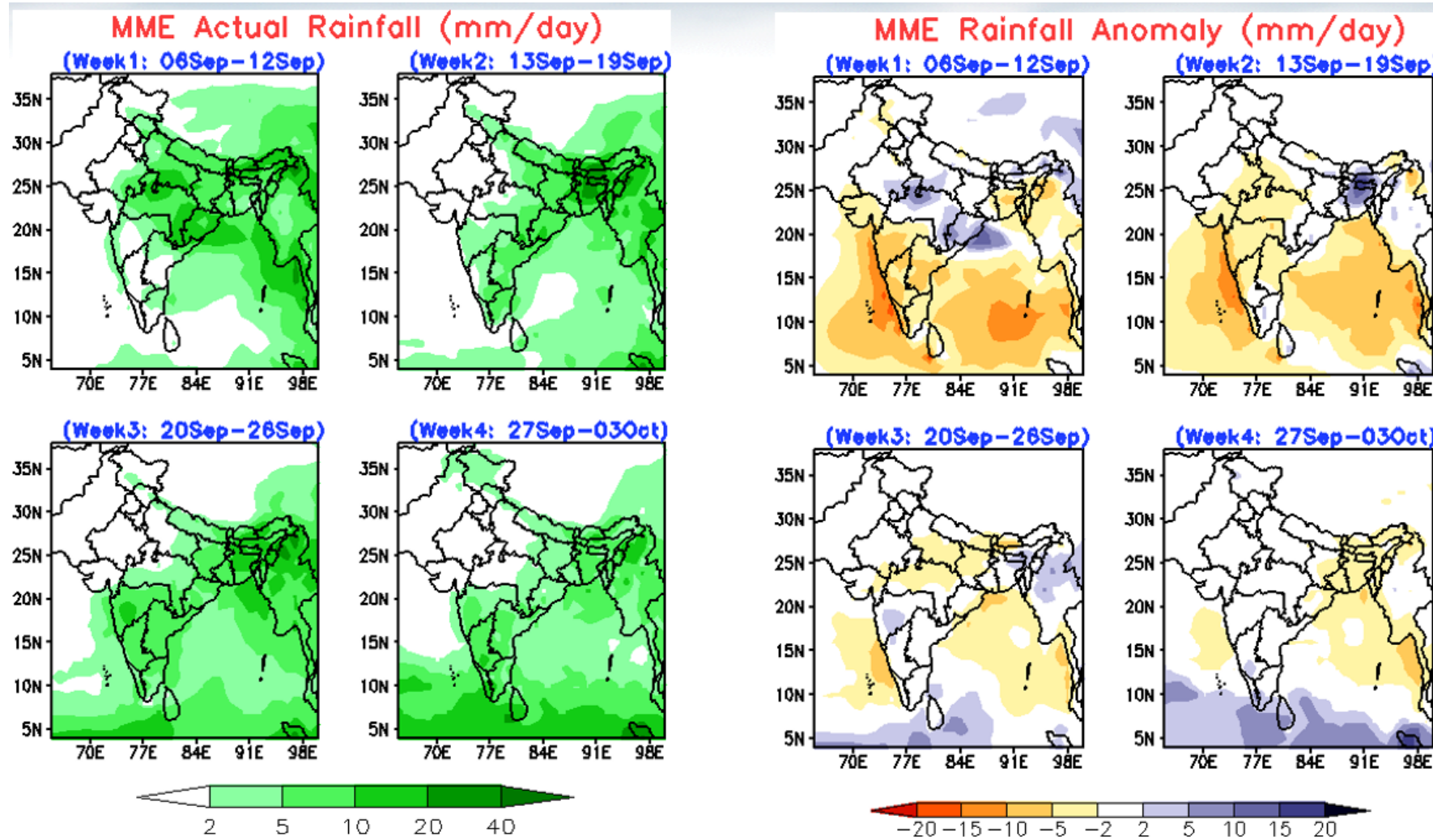
11 Sep 2018 | ISSUE 8



South Asia Drought Monitoring System (SADMS) drought weekly bulletin is produced by International Water Management Institute (IWMI) and is funded by the Indian Council of Agricultural Research (ICAR), the CGIAR Research Program on Water, Land and Ecosystems (WLE) and the Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan. Development of the beta-monitoring system was made possible at this inception through IDMP supported by WMO/GWP. The bulletin supports the government and other users to strengthen the potential use of satellite technology and modeling tools to reduce the impacts on agriculture risks and support in drought contingency plans and mitigation efforts.

Rainfall Summary - Predicted week wise rainfall for South Asia

Multi Model Ensemble (MME) Seasonal Prediction System for 2018 Monsoon Season



- Rainfall condition for North of West Bengal, Sikkim, Tripura, Meghalaya, Manipur, Nagaland, West Assam and Bangladesh except southern part of Bangladesh might increase in the next week; currently, the rainfall is normal in these regions. Arunachal Pradesh might experience a slight decrease in rainfall, however the rainfall anomaly explains deficit rainfall.
- The Eastern States of India and Bangladesh might experience increase in rainfall by mid of September.
- Rajasthan, Haryana, North and central part of MP and UP may experience deficit rainfall, while it may improve for Jammu & Kashmir going by the forecast till 03 Oct.
- Sri Lanka for Southern and Western Provinces explains low rainfall but the condition might improve from mid of September to first week of October.
- Nepal far west and south-east rainfall anomaly explains a slight decrease in rainfall including Bhutan.
- Overall Pakistan shows no anomaly in rainfall.

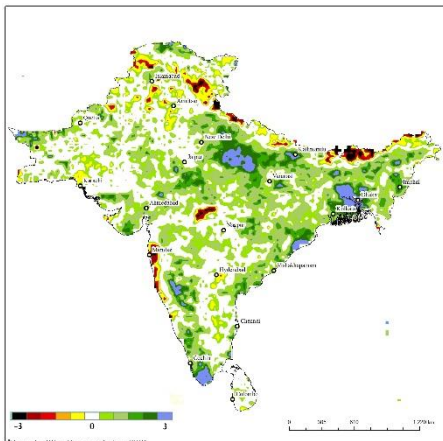
Note: The summary on country specific details described above based on the ERPAS MME information product do not imply the expression of any opinion whatsoever on the part of the IWMI and its partners as well the data provided by IITM.

SOUTH ASIA DROUGHT EARLY WARNING SYSTEM (SADEWS)

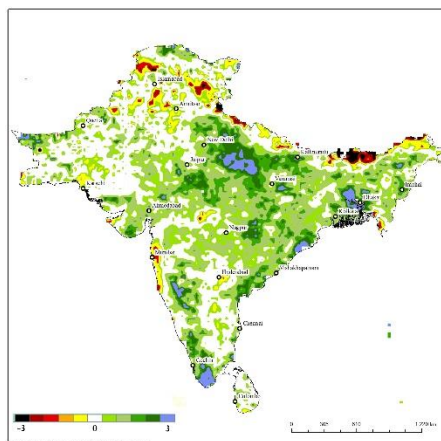
Current Condition: 06 Sep 2018
Forecast Period : 13 Sep and 21 Sep 2018
Standardized Soil Moisture and Runoff Index
for regional drought and early warning

SOIL MOISTURE PERCENTILE (SMP)

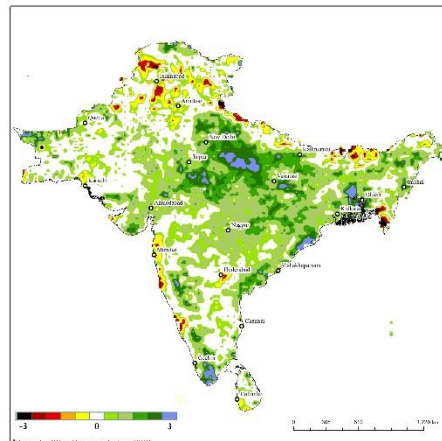
7-day Percentile 06th Sep 2018



7-day Forecast Percentile 13th Sep 2018

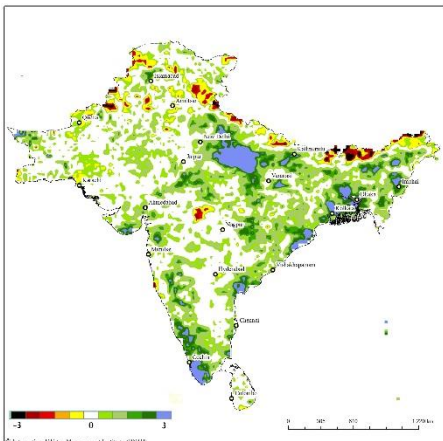


7-day Forecast Percentile 21st Sep 2018

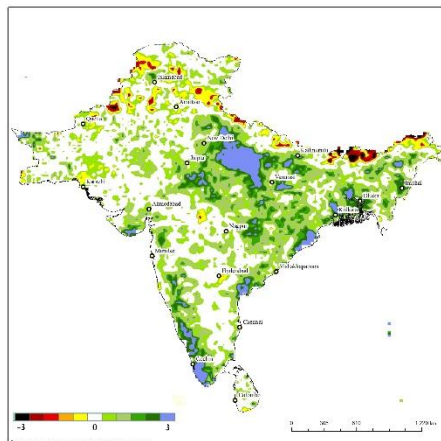


SOIL RUNOFF PERCENTILE (SRP)

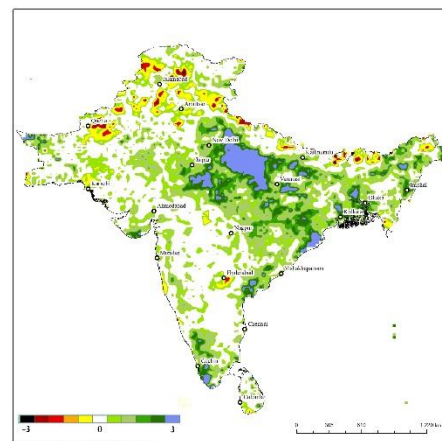
7-day Percentile 06th Sep 2018



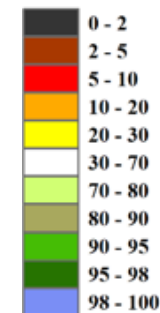
7-day Forecast Percentile 13th Sep 2018



7-day Forecast Percentile 21st Sep 2018



Percentile



SOIL RUNOFF PERCENTILE (SRP)

Summary:

The experimental drought forecast products for research/scientific use based on 6th September 2018 initial condition. These forecast products are based on the real time weekly operational forecast generated by Global ENSEMBLE (GENS), a weather forecast model made up of 21 separate forecasts, or ensemble members developed at The National Centers for Environmental Prediction (NCEP), NOAA.

Drought Forecast Outlook:

- The initial condition of SSI shows slight deficit compared to last week over Maharashtra, Madhya Pradesh, Rajasthan, Uttar Pradesh and North-eastern states, particularly excess soil moisture in north-eastern parts of UP.
- Initial condition on the Soil Runoff Index (SRI) explains similar trend to SSI.
- Dryness is decreasing in the following weeks over central parts of the regions such as northern and western Maharashtra.
- Parts of Pakistan, Jammu & Kashmir, Himachal Pradesh, Uttaranchal and Bhutan are in deficit rainfall condition which may affect the crop productivity and advance need for State and Local authorities for better planning and coordination on water resources management.

The SADEWS is regional scale early warning system developed as a collaborative project between International Water Management Institute (IWMI) and Indian Institute of Technology – Gandhinagar (IIT-GN).

Disclaimer: The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the International Water Management Institute (IWMI) and its partners concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of IWMI.

INDIA – Monthly Rainfall Condition (Actual vs. Anomaly)

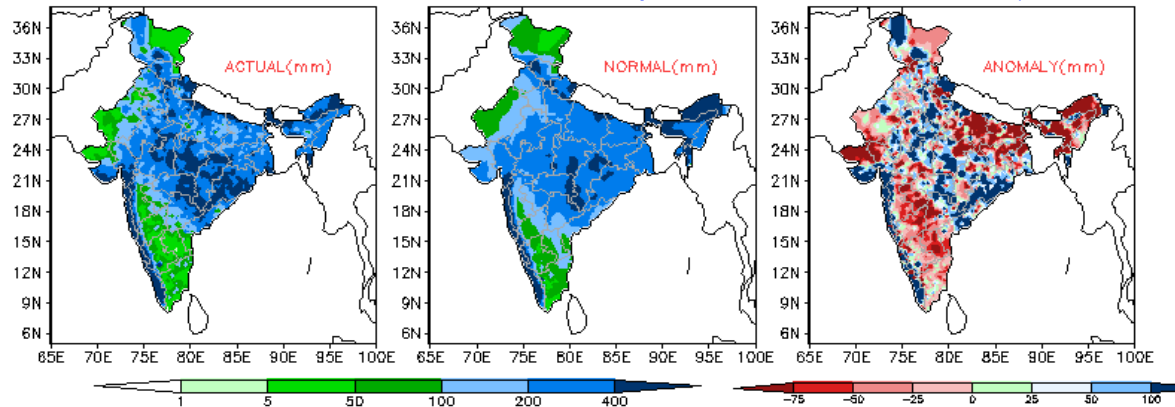
Actual Rainfall – July 2018

RAINFALL OVER THE COUNTRY FOR JUL 2018

ACTUAL – 272.4 mm NORMAL – 289.2 mm (94.2 % of Long Period Average)

(Based on real time data)

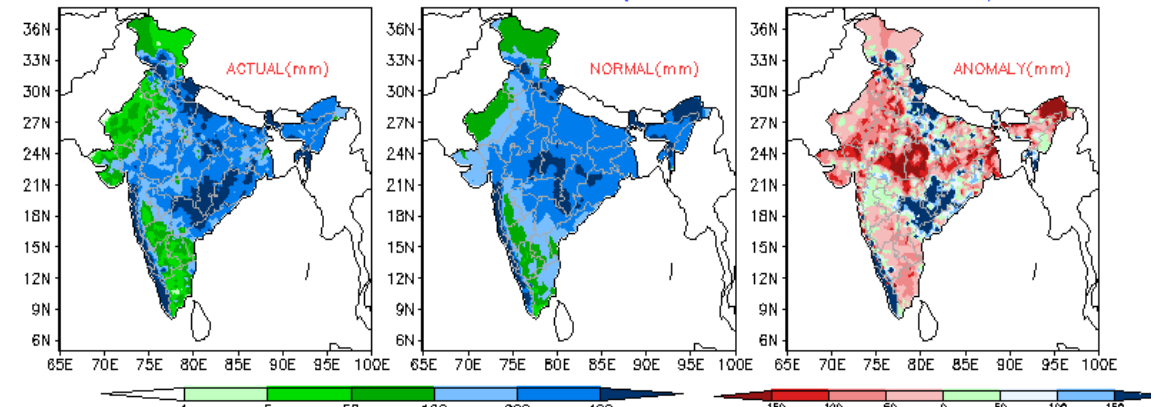
(CLIMATE MONITORING AND ANALYSIS GROUP)



Actual Rainfall – Aug 2018

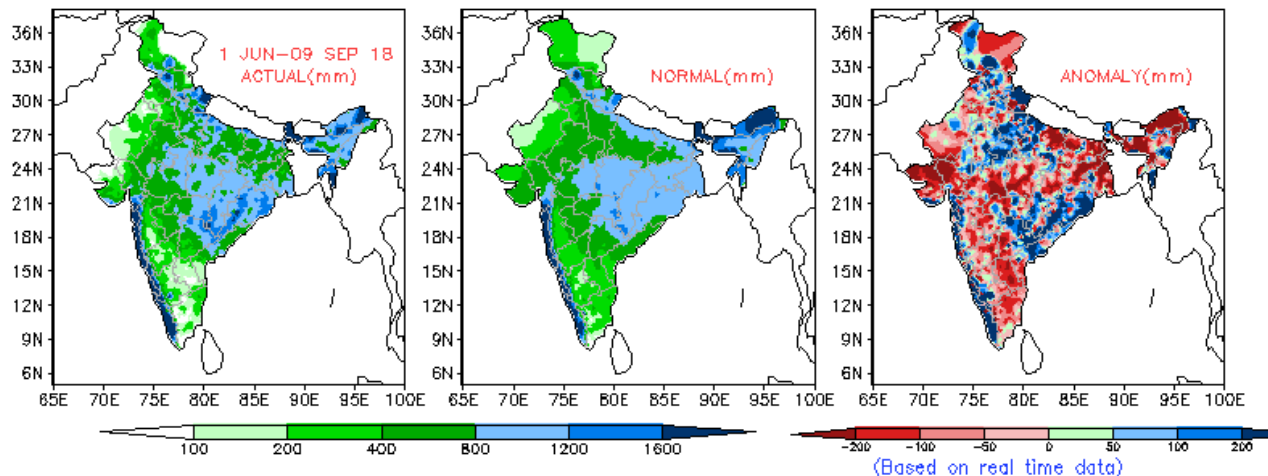
RAINFALL OVER THE COUNTRY FOR AUG 2018

(CLIMATE MONITORING AND ANALYSIS GROUP)



Actual Rainfall – Seasonal 2018

CLIMATE MONITORING AND ANALYSIS GROUP



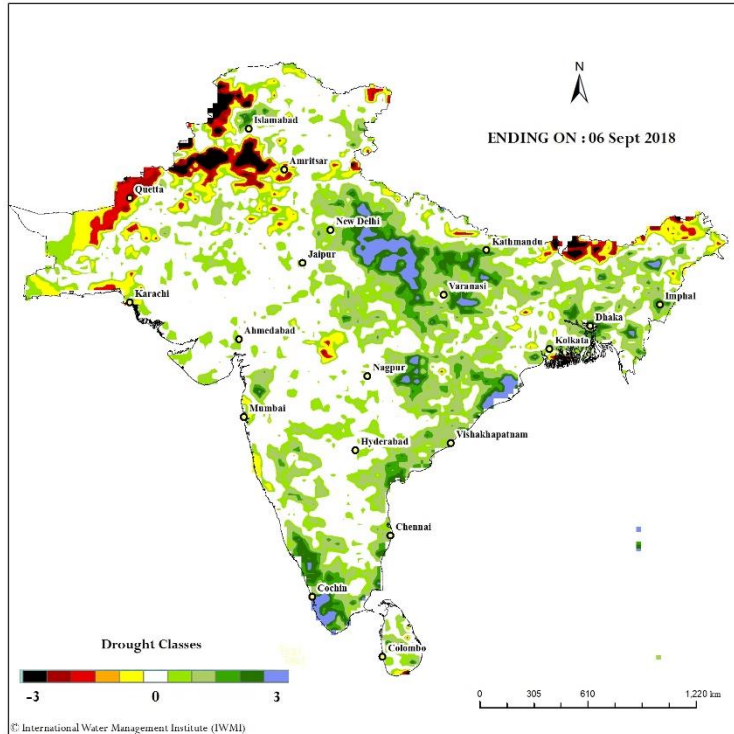
Data Source: IMD

- Overall there is an decrease in rainfall for the month of August compared to the long-term anomaly, however some coastal areas in Kerala, southern Gujarat, Odisha, Chhattisgarh, along with south of Jammu & Kashmir had excess rainfall.
- Month of July has experienced both positive and negative anomalies across India. An excess rain fall was received along the southwest coastal line till Gujarat and some parts of central India (Odisha, Chhattisgarh, MP, UP, Uttaranchal) and isolated patches in northern and southern parts of Jammu & Kashmir.
- There has been a slight reduction in rainfall in the month of August over MP, Rajasthan and Gujarat.
- Overall there has been an excess rainfall along the western coast of India.
- Central, Western and Northeast (except Manipur) parts of the region along with Tamil Nadu are facing serious deficit of rainfall. This might highly affect the crop productivity during this year's Kharif season.

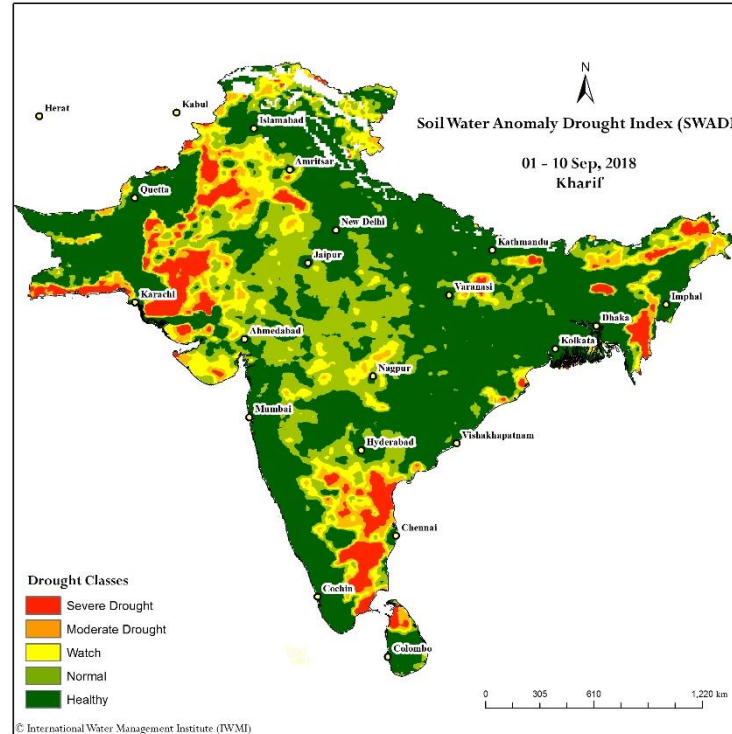
Note: Simple qualitative assessment on the performance on rainfall condition was described here to cross compare with SADMS – IDSI products for evaluation purpose only.

South Asia Drought Indices – A Comparison & Assessment

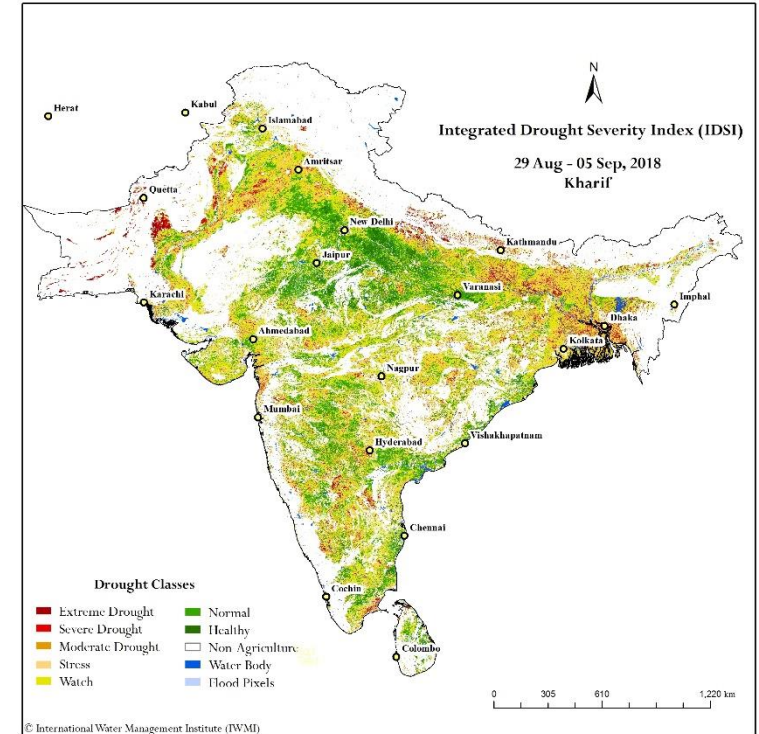
SA-DEWS



SWADI

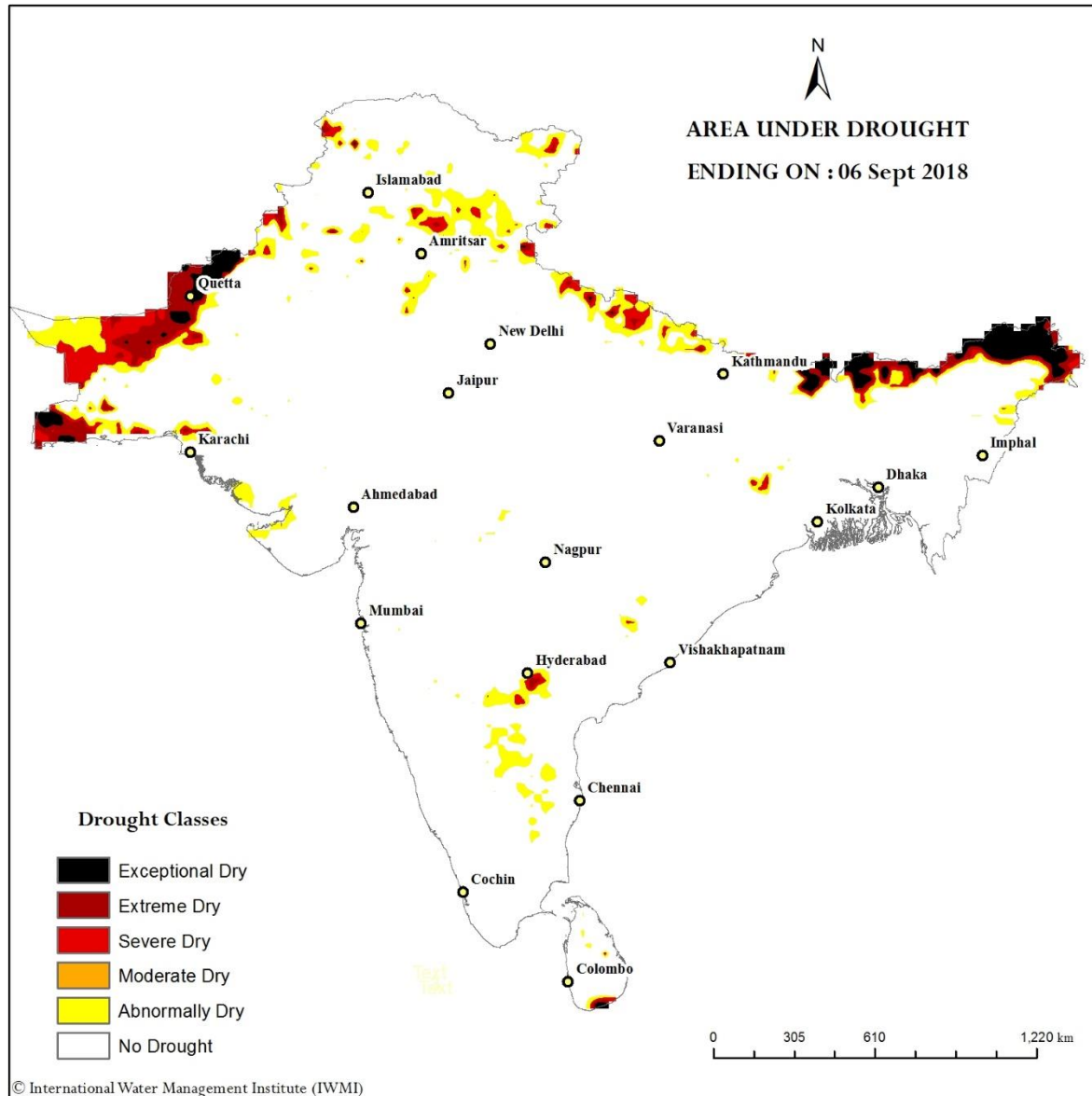


IDS



- South Asia-Drought Early Warning System (SA-DEWS) is an integrated approach based on satellite estimates of rainfall temperature, wind and soil type utilized in VIC model and the derived outputs namely Standardized Precipitation Index (3-Month), Standardized Soil Moisture Index (SSI) and Standardized Runoff Index (SRI).
- Soil Water Anomaly Drought Index (SWADI) is derived from satellite based decadal soil moisture product of ASCAT provided by EUMETSAT.
- Integrated Drought Severity Index (IDS) is an integrated index that has been formulated using VCI, TCI & PCI at 500m resolution for agricultural land-use over South Asia.
- It can be observed, that during this time period, all the three indices shows a good relation with each other. The peninsular India is reviving well from the drought situation, except Tamil Nadu, south and west of AP and Northern parts of Sri Lanka. The regions of Central India has changed from moderate to normal.

South Asia Drought Forecast



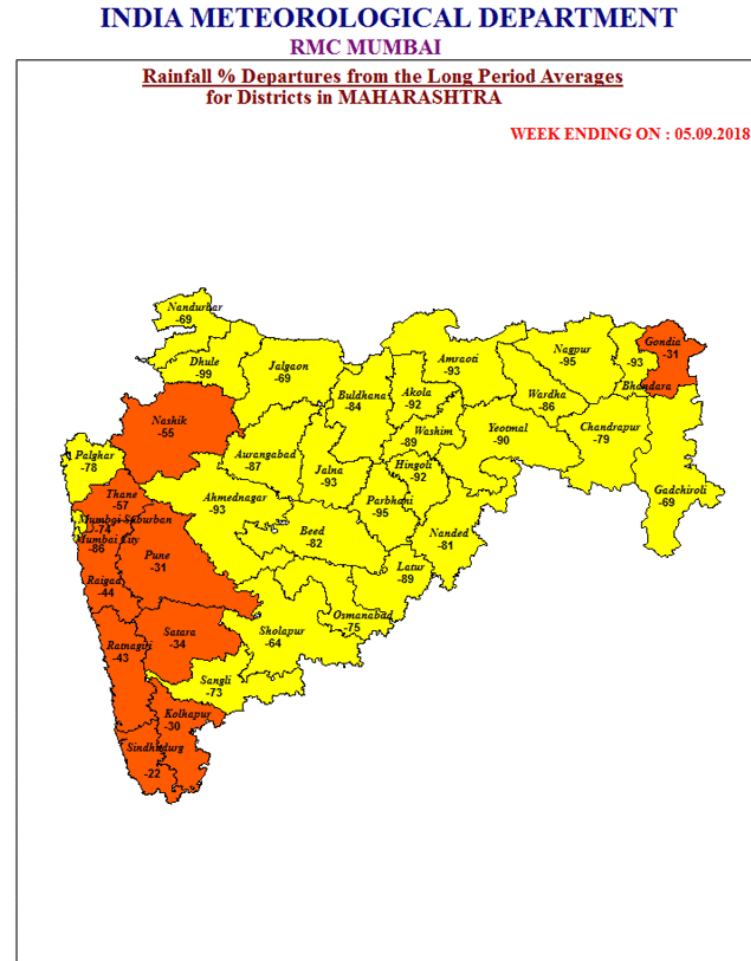
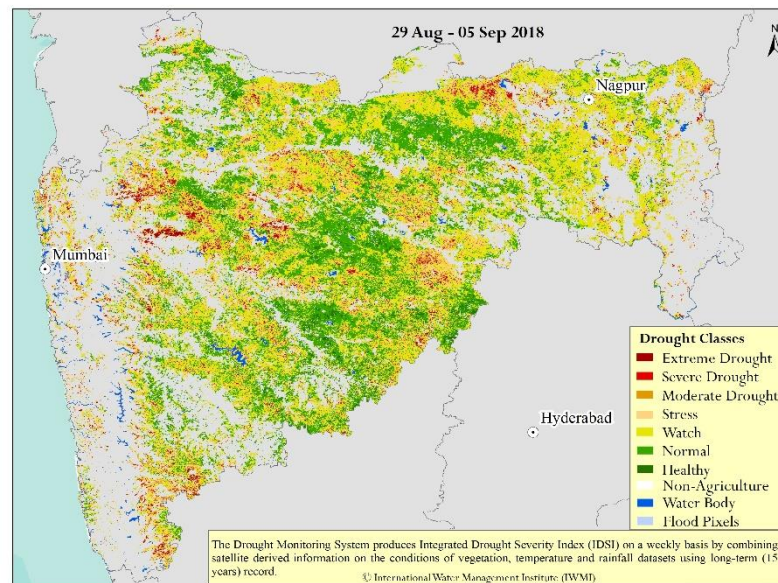
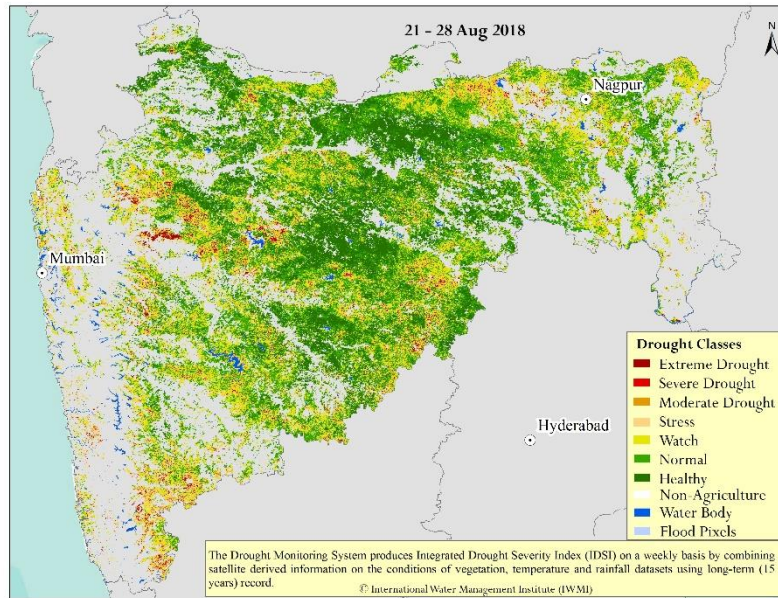
Summary:

- Using the initial condition i.e. 06th September 2018 based on satellite rainfall estimates of 3B42RT daily time-step integrates in the VIC model and the derived outputs namely Standardized Precipitation Index (3-Month), Standardized Soil Moisture Index (SSI) and Standardized Runoff Index (SRI)
- The extreme values of all three conditions are statistically combined to generated areas under drought for entire South Asia
- Extreme dry condition of Tamil Nadu has decreased but abnormally dry condition still remains and severe dry condition in isolated patches of Western AP has increased.
- Jammu & Kashmir, and parts of northeastern belt and small patch of Telangana are observed to have Severe to Extreme/Exceptional dry condition. Also, Bhutan, Pakistan, Nepal and south of Sri Lanka are under extremely/exceptionally severe drought condition.
- *Reference to IMD SPI data is well correlated to the area under drought predicted by drought algorithm.*

India – State wise analysis



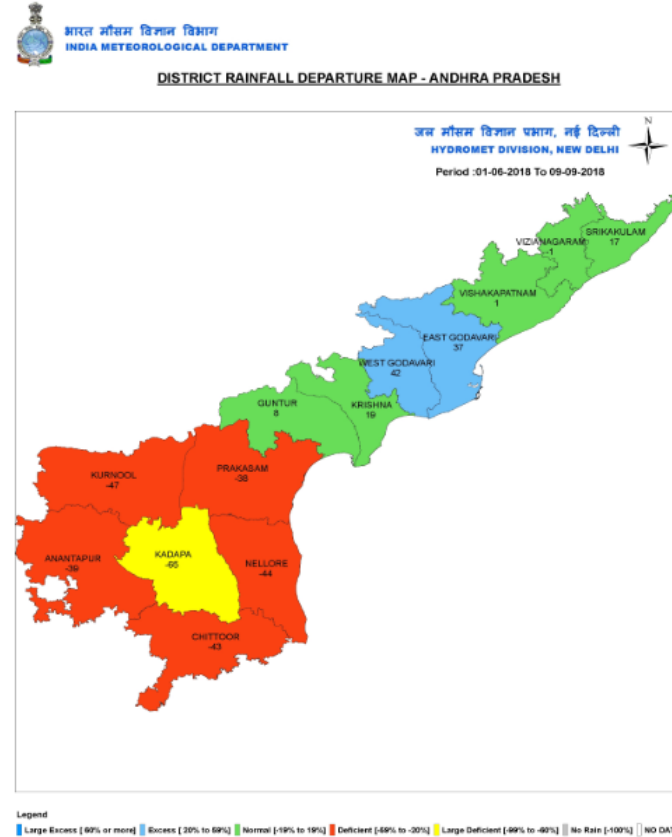
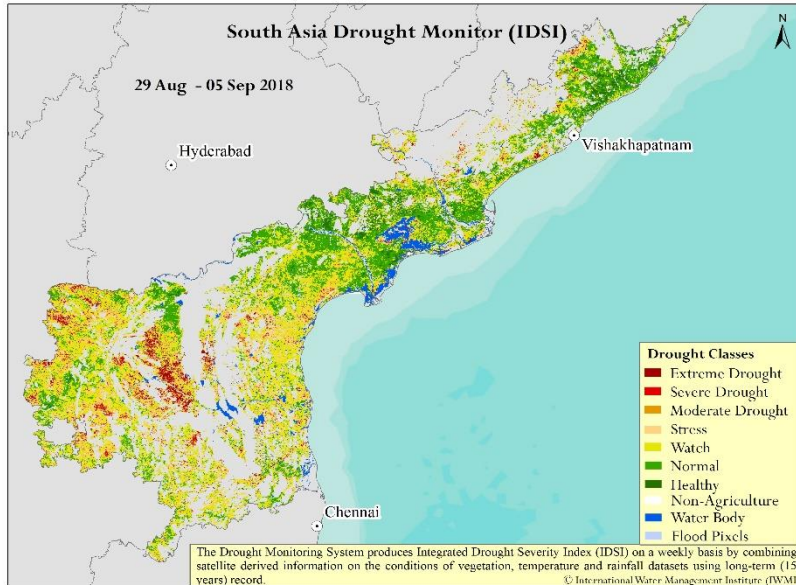
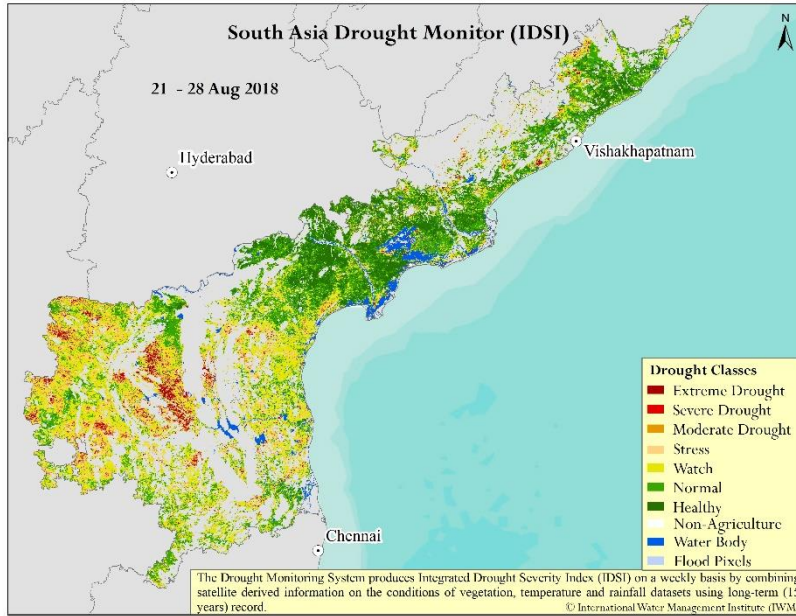
South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Maharashtra)



Summary:

- SADMS framework was applied for the agriculture drought monitoring in Maharashtra for current obtained mainly from satellite remote sensing data. The index (Integrated Drought Severity Index – IDSI), Indian Meteorological Rainfall maps were analysed to understand rainfall deficit which could help in validating the drought maps with the absence of in-situ observations.
- Rainfall deficit in beginning of the month of September has increased the vegetation stress in the agricultural land, which is clearly reflected in the IDSI. Most of the State shows ‘Stress’ drought condition, while isolated patches of Nashik, Ahmednagar and Amravati show severe to extreme drought condition. Similar pattern has been revealed by seasonal rainfall report from IMD.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Andhra Pradesh)



Rainfall Status (Avg from 01-06-2018 to till date)
 Actual **369.7mm**, Deviation **-17.8%**

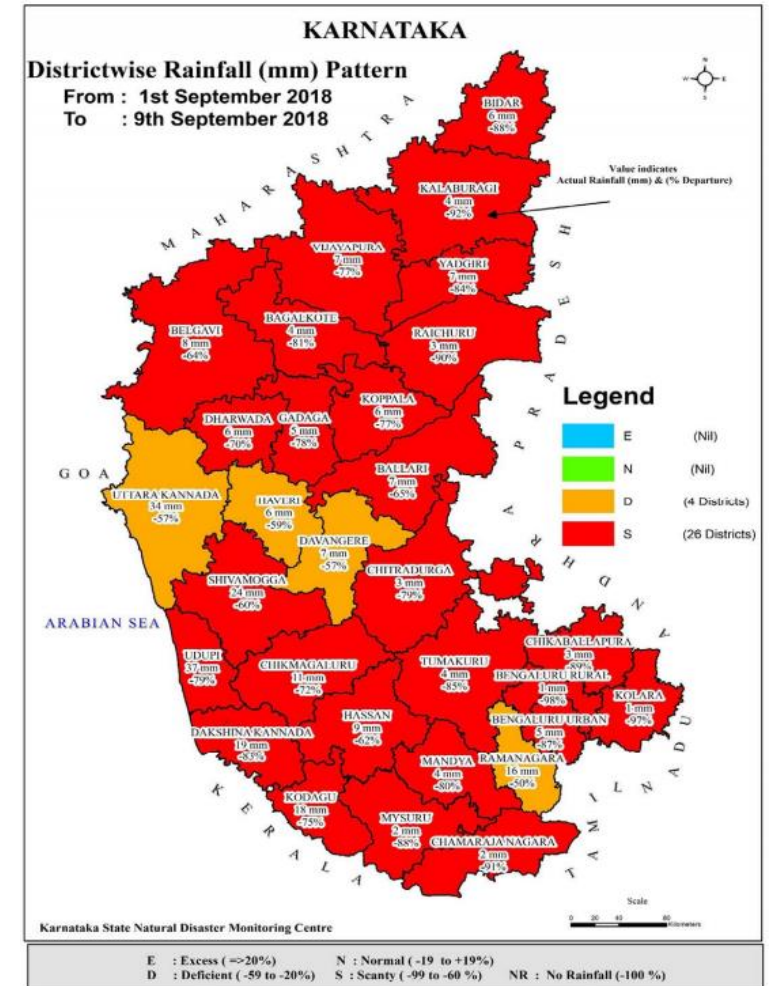
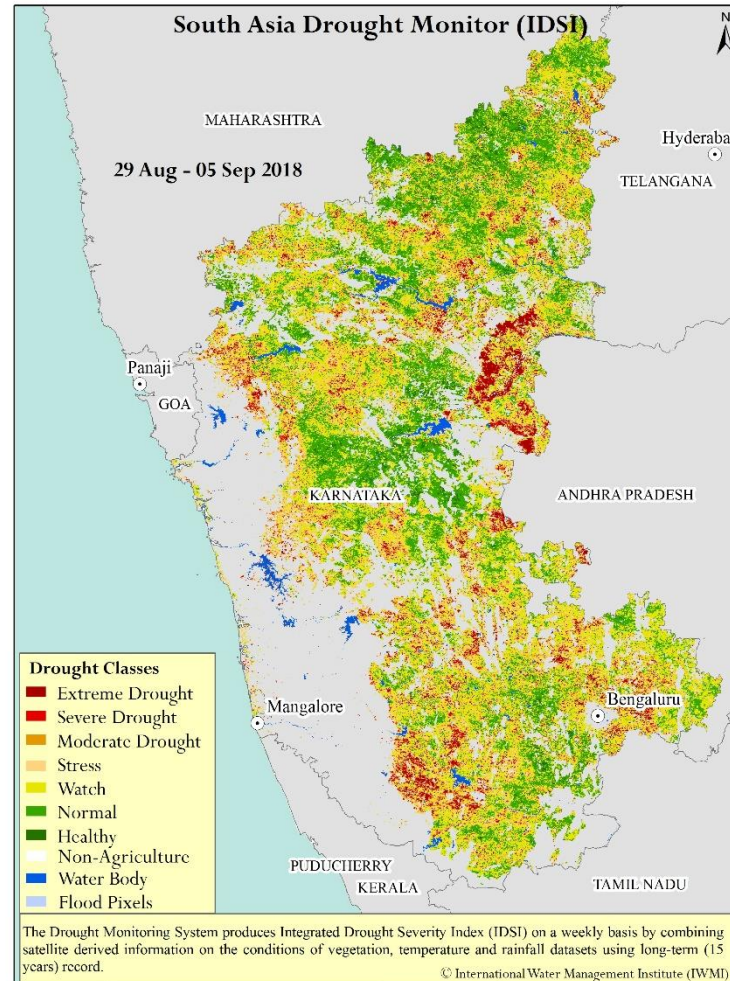
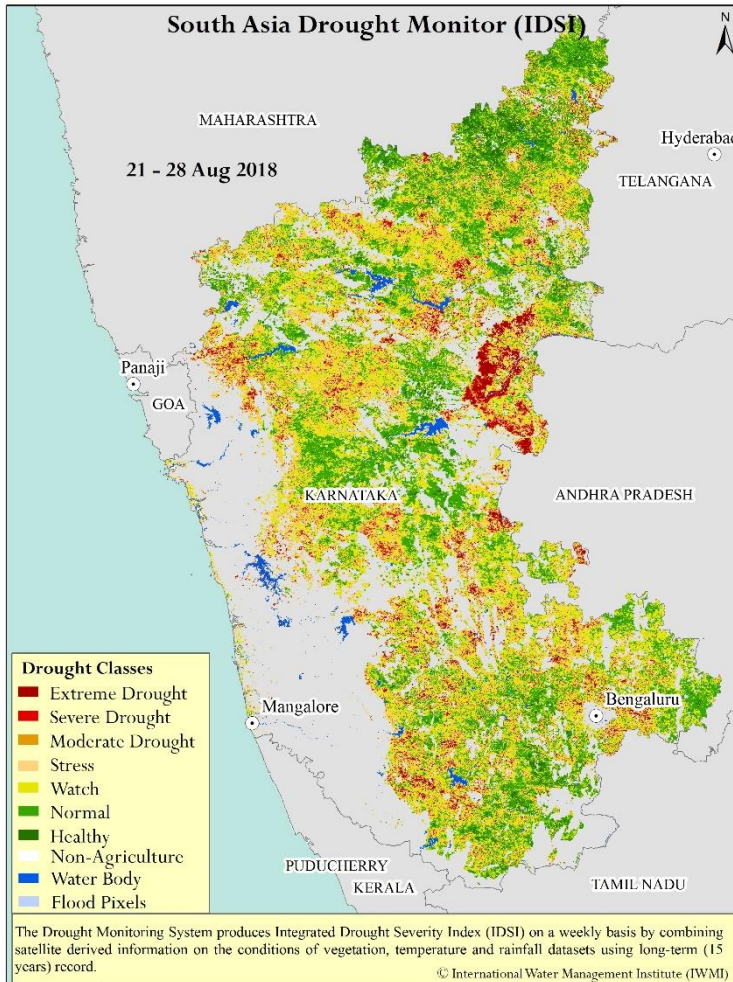
District-Wise, Month-Wise Rainfall Status from 01/06/2018				
District	Actual	Normal	Deviation(%)	Status
Srikakulam	631.6	577.7	9.3	Normal
Vizianagaram	500.5	564.2	-11.3	Normal
Vishakapatnam	546.5	584.7	-6.5	Normal
East Godavari	705.6	639.7	10.3	Normal
West Godavari	819.7	668.6	22.6	Excess
Krishna	601.2	565.8	6.3	Normal
Guntur	354.6	419.9	-15.6	Normal
Prakasham	152.1	288.1	-47.2	Deficient
Nellore	124.8	257.7	-51.6	Deficient
Chittoor	173.3	343.2	-49.5	Deficient
Kadapa	112.5	321.1	-65.0	Scanty
Anantapur	117.9	250.7	-53.0	Deficient
Kurnool	176.4	367.0	-51.9	Deficient
State	369.7	449.9	-17.8	Normal

Data Source: APSDPS

Summary:

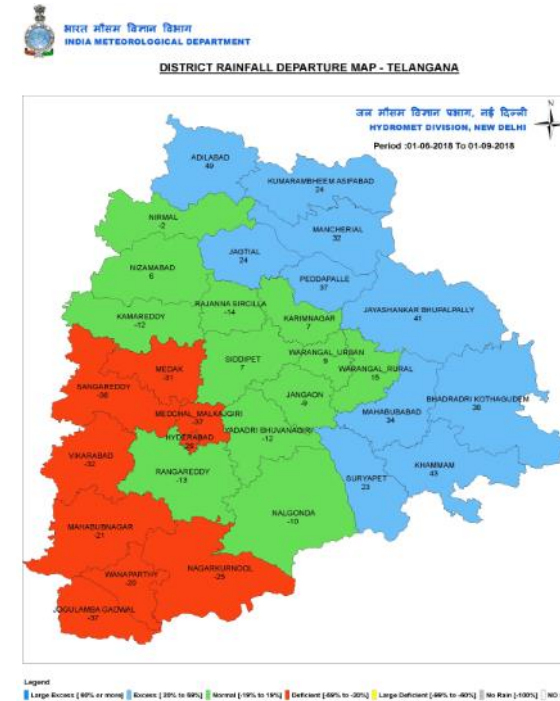
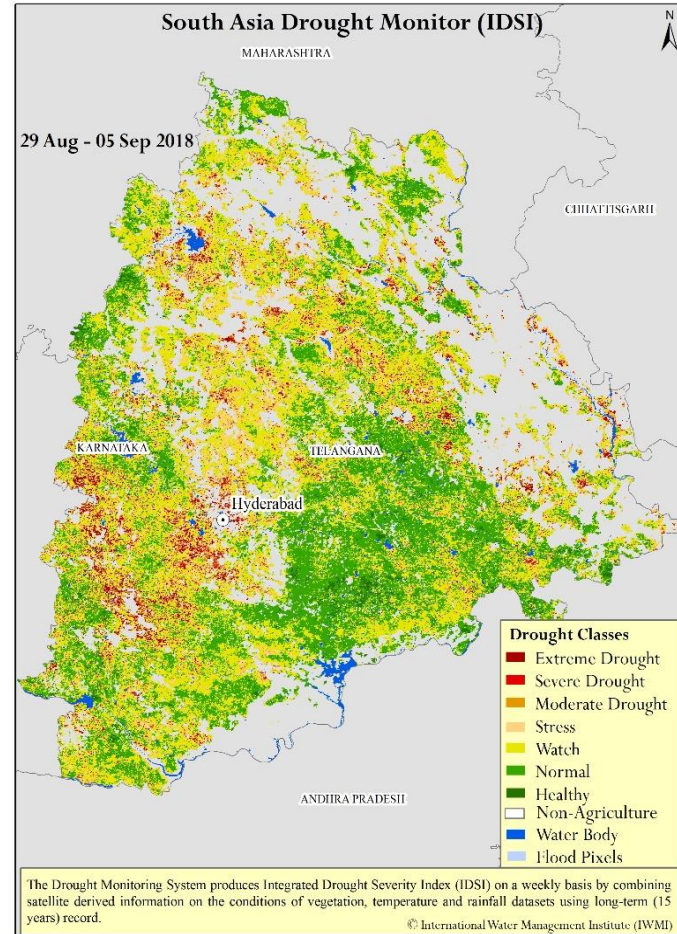
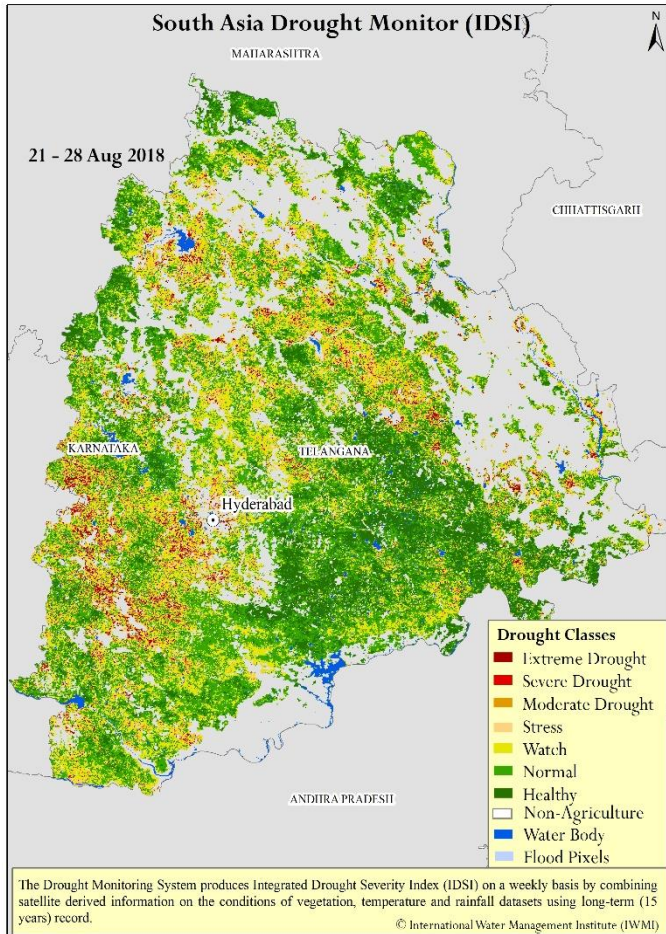
- Out of the 13 districts in A.P., 6 districts had low rainfall (Prakasham, Nellore, Chittoor, Kadapa, Anantapur and Kurnool) from June 1 to 9 Sep 2018;
- From IDSI, South-west districts are in stress category and the northern districts under stress. Healthy category (in dark green) can not be seen over the state unlike the previous week, especially along the eastern belt.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Karnataka)

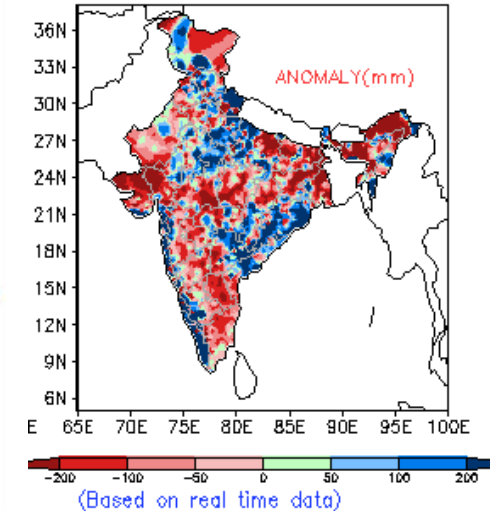


The Integrated Drought Severity Index (IDSI) for Karnataka were assessed at district level. The condition of vegetation has been slightly affected along northern, southern and eastern areas of the State, except normal category for a few patches at the central region. Extreme drought condition in the central eastern districts has not changed drastically.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Telangana)



01 June – 09 Sep 2018

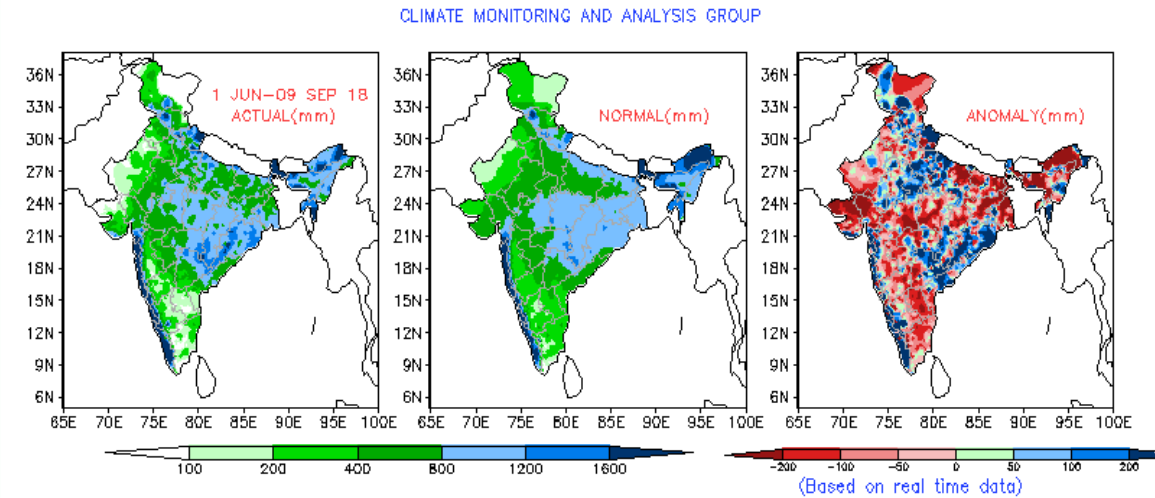
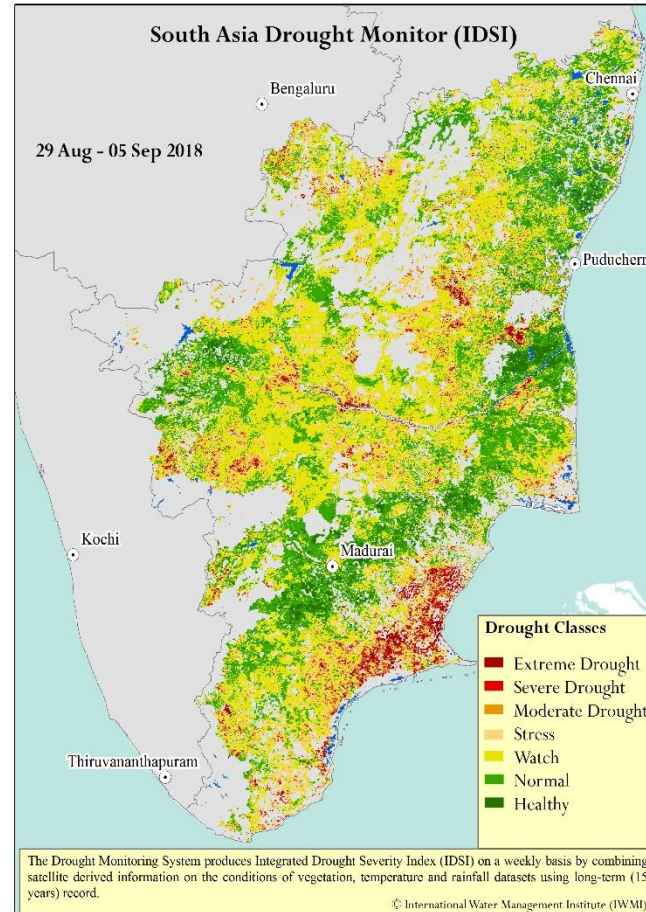
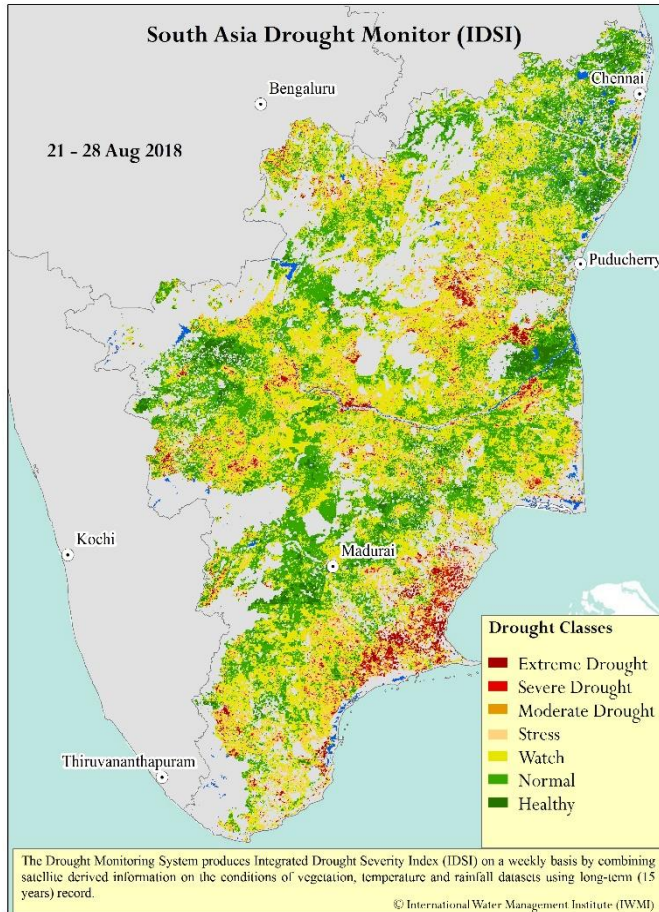


Summary:

The Integrated Drought Severity Index (IDSI) for Telangana was assessed at district level. There seems to be increase in stress levels in the State as shown by the rainfall departure map. Western States are also observed to have moved from normal category to stress, Moderate or severe category, while south eastern part of Telangana moved from healthy to normal/watch category.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Tamil Nadu)

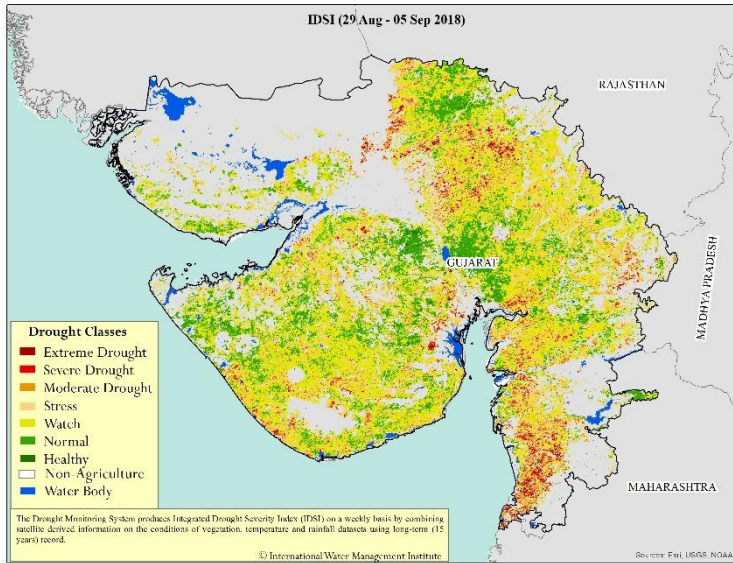
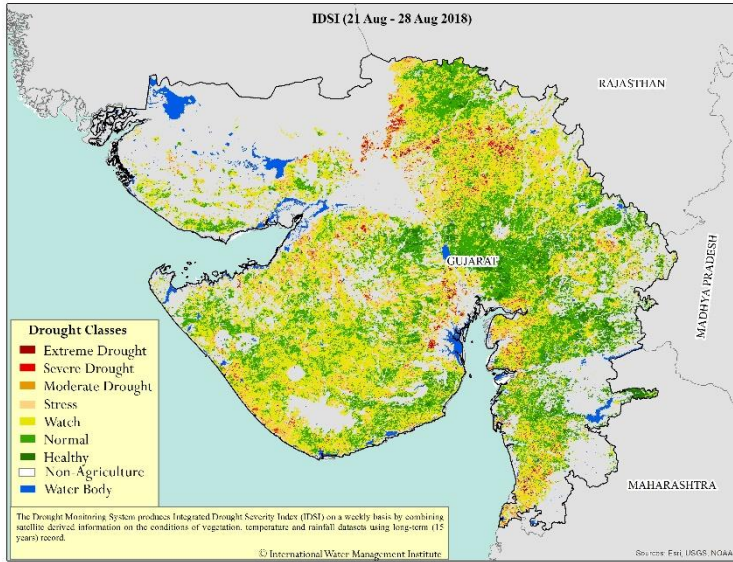
01 June – 09 Sep 2018



Summary:

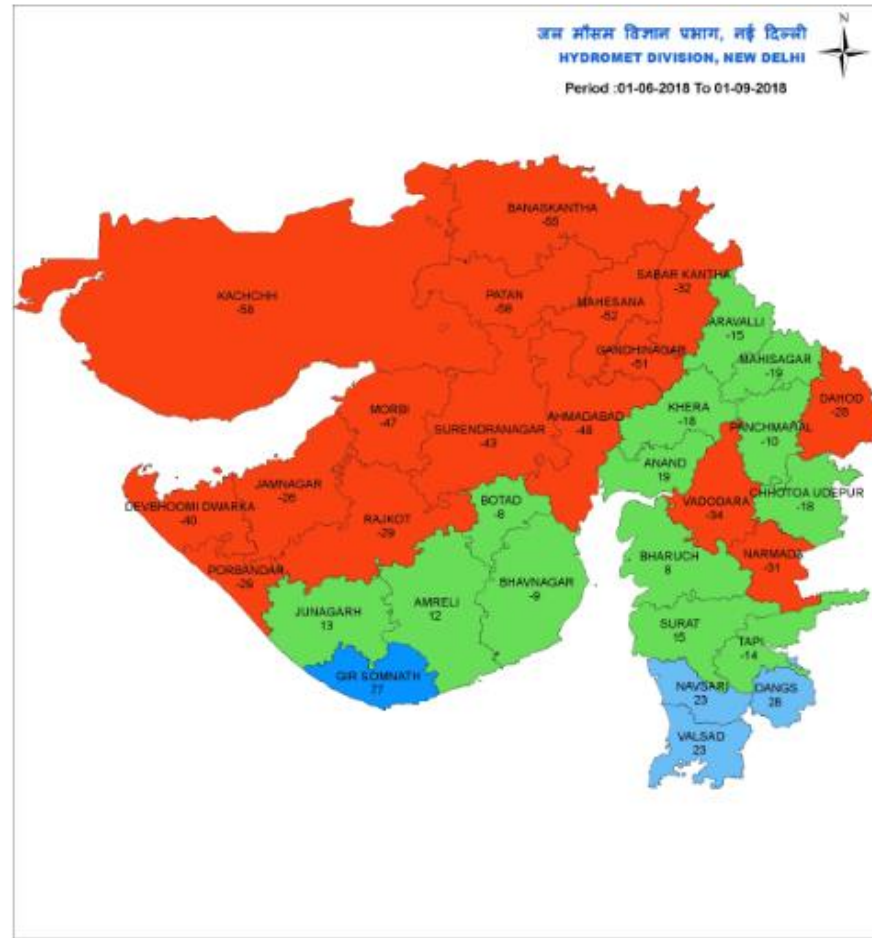
- Overall condition of the stress has increased from previous analysis cycle. Also south-east and north-central parts of Tamil Nadu seem to have higher stress similar to the week ending on 28th of August. Isolated patches of Virudhunagar, Sivaganga, Pudukkottai, Tanjavur and Nagapattinam have slightly moved from watch to normal category.
- Overall, it can be observed that all districts have similar drought classes as compared to the previous week except the locations mentioned above.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Gujarat)



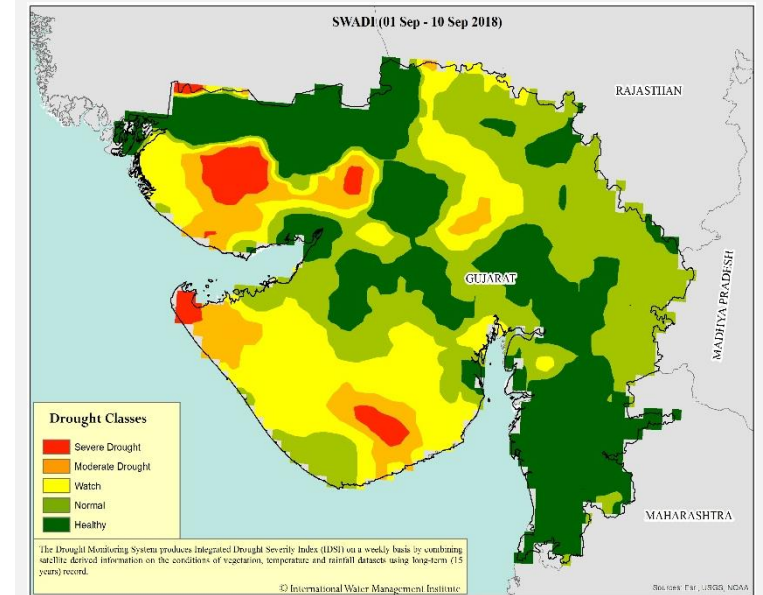
भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

DISTRICT RAINFALL DEPARTURE MAP - GUJARAT



Legend

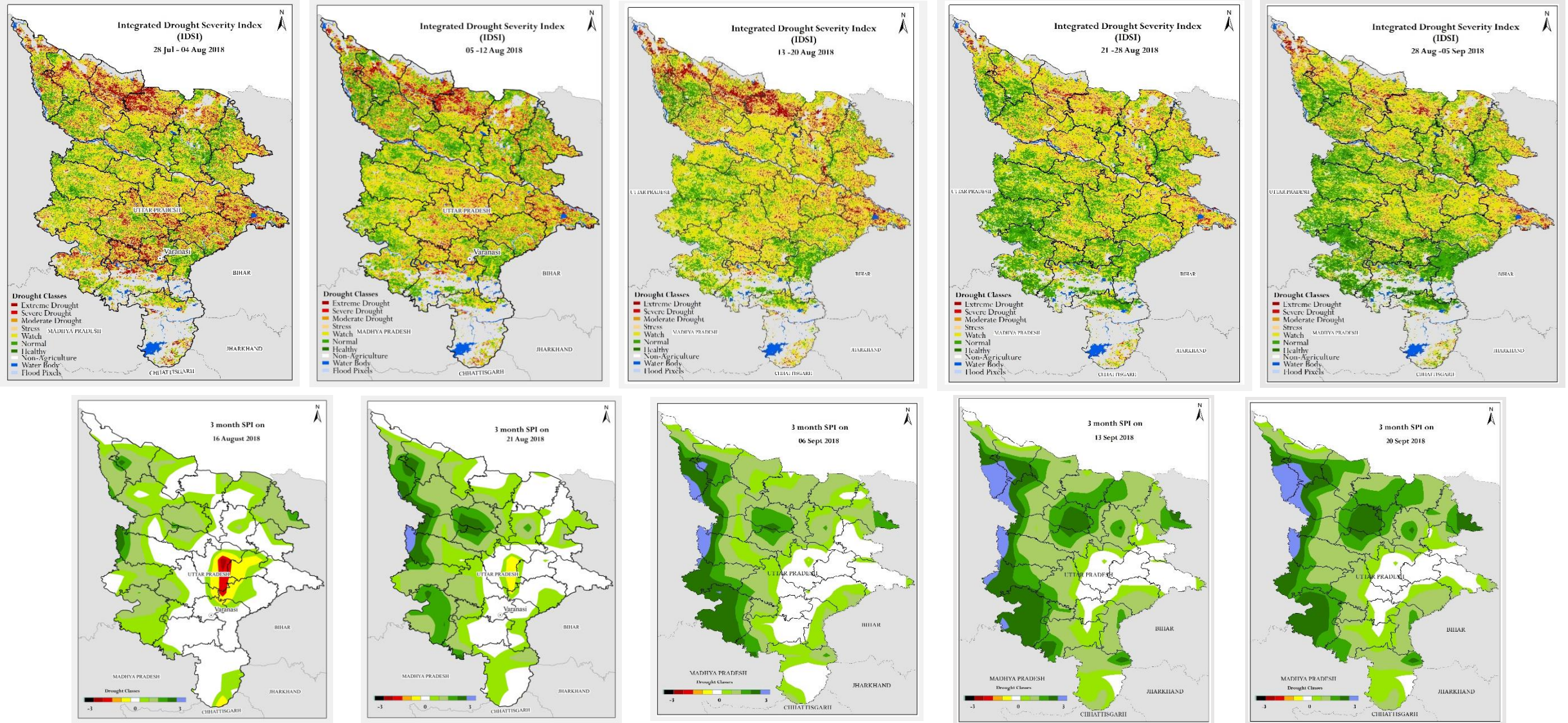
- Large Excess (80% or more)
- Excess (30% to 69%)
- Normal (-19% to 19%)
- Deficient (-49% to -30%)
- Large Deficient (-69% to -89%)
- No Rain (-100%)
- NO DATA



Summary:

- Overall condition of the stress is higher compared to the previous analysis cycle. Also most parts of Gujarat seems to have changed to 'stress' from 'watch' or 'normal' as compared to the week ending on 28th of August.
- Overall, it can be observed that all districts have moved towards higher drought classes as compared to the previous week.

South Asia Drought Monitoring System (SADMS) – Agriculture Assessment (Eastern UP)



Summary:

- There can be seen decreasing of drought condition from 13th August all over the state; Stress condition is expected to decrease further by the last week of September.

Thanks.....

Disclaimer

All content within this bulletin is based upon the most current available data. As the drought is a dynamic situation, the current realities may differ from what is depicted in this document. The product has not been validated and used only the weather forecast and remote sensing observation. We welcome the feedback from the end-users and request you to provide field observations and any other details which can improve the product quality and prediction skills in the near future.

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