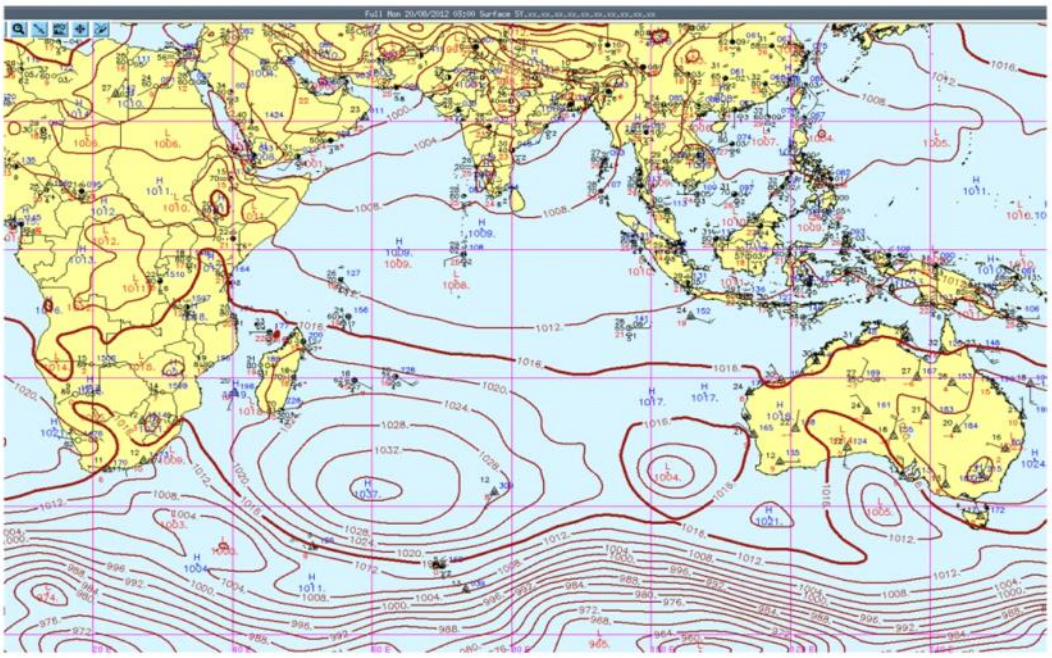
Monday, September 01, 2014
8:06 PM

Monsoon Climatology :

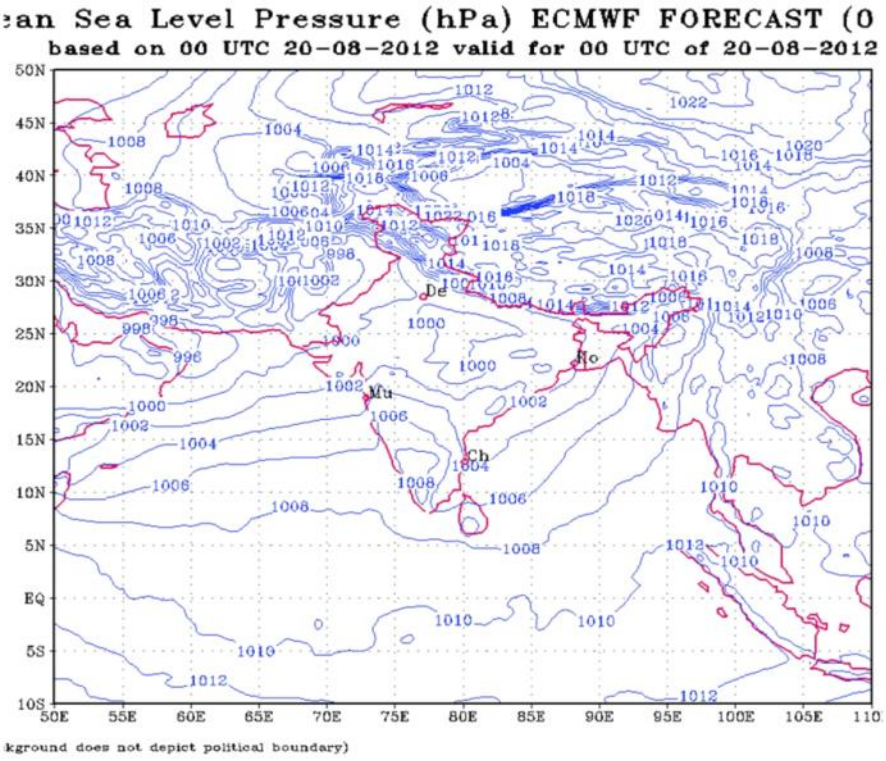
Exercise:

Write a synopsis of southwest monsoon condition on 21. 08. 2012 and predict the location (meteorological subdivision) and intensity of heavy rainfall during next 72 hrs

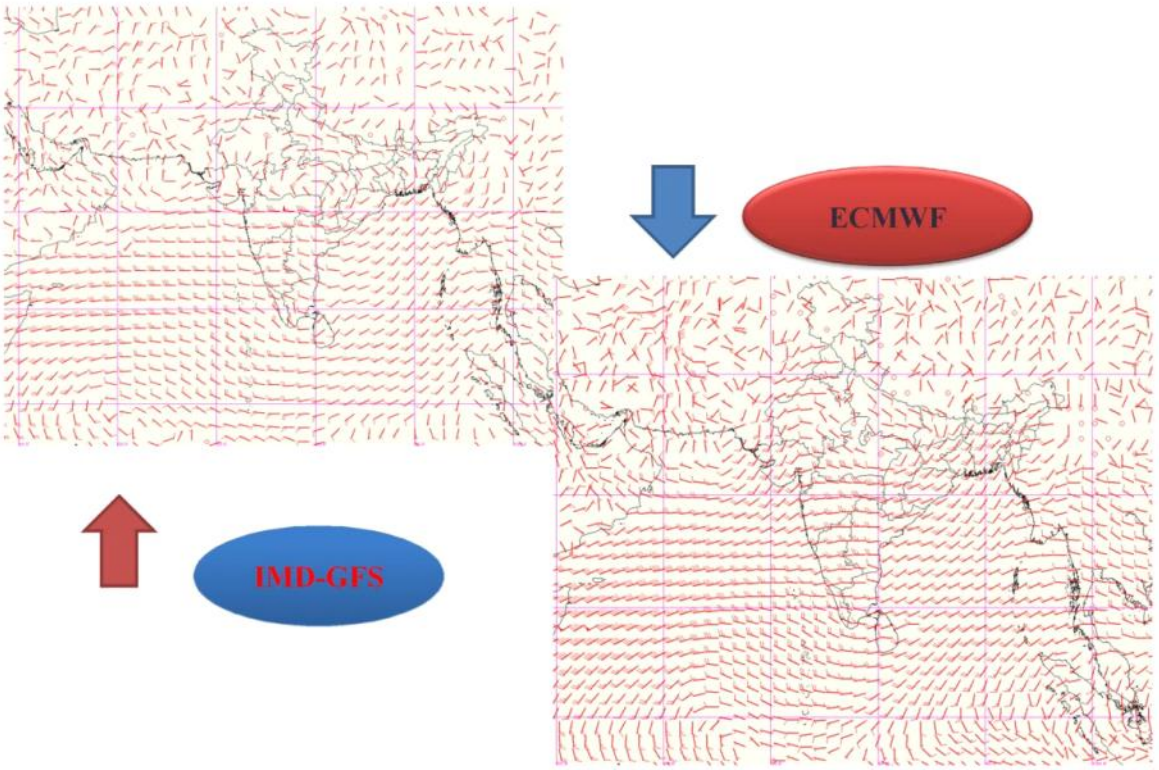
Mean Sea Level Pressure GFS Analysis



Mean Sea Level Pressure ECMWF Analysis



WINDSPEED-850mb 00UTC MODEL ANALYSIS



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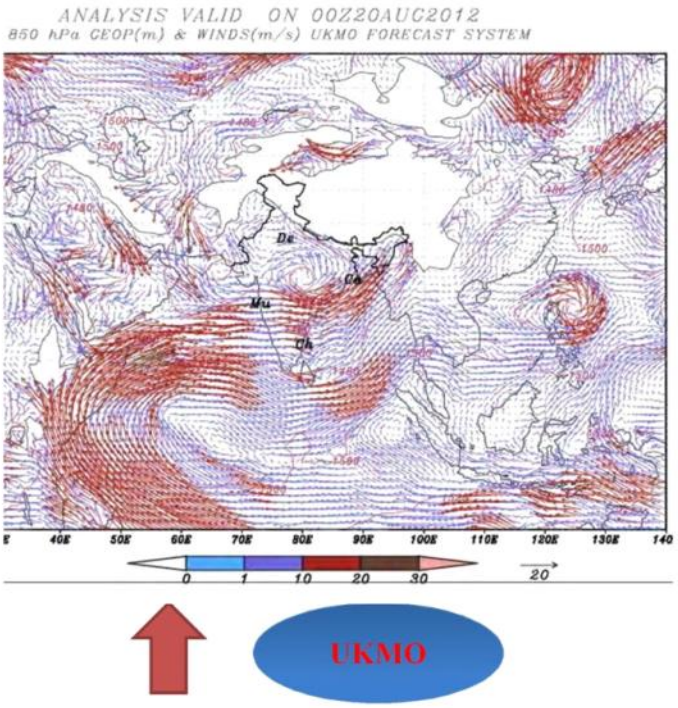

UKMO

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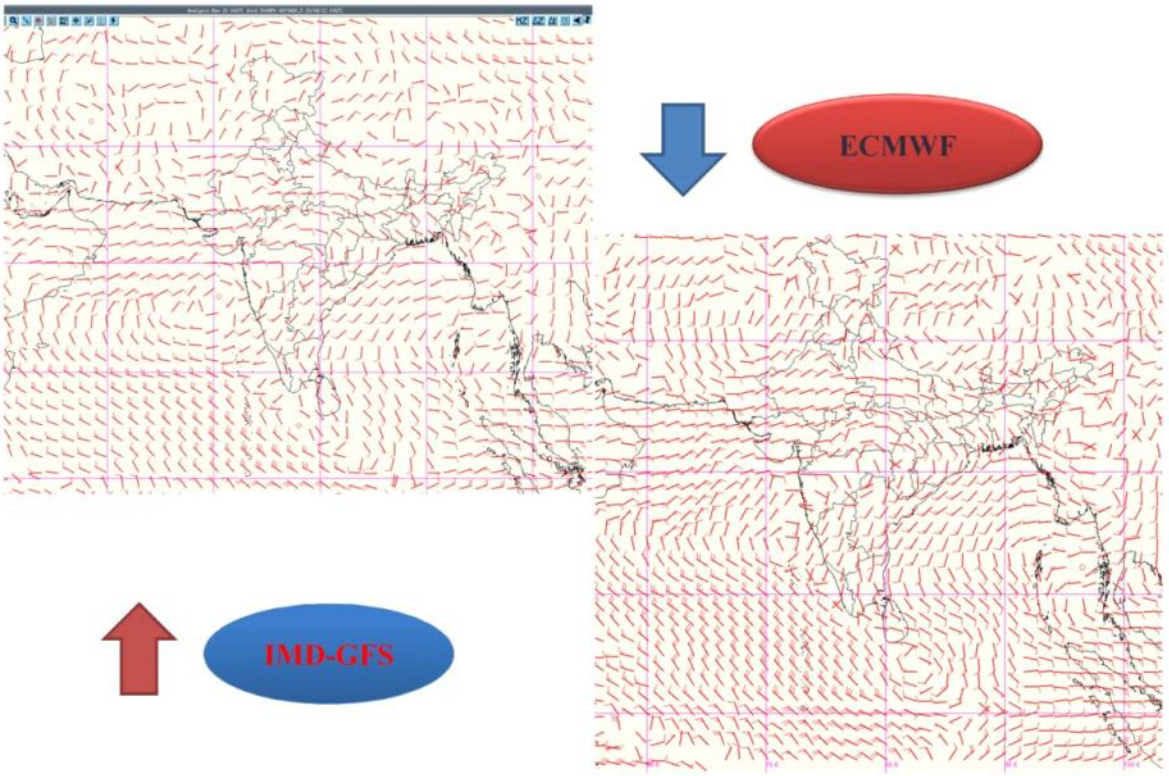

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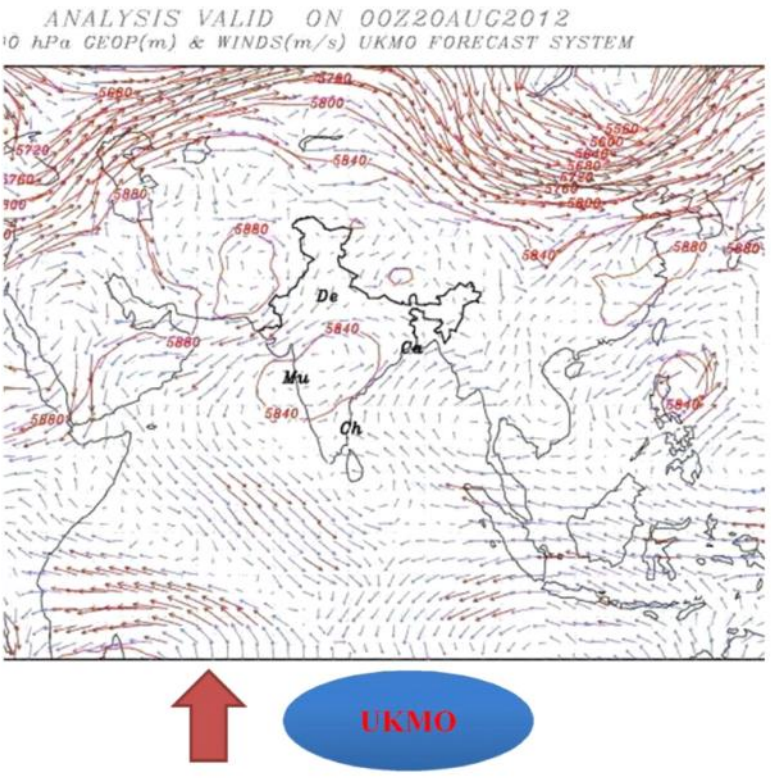

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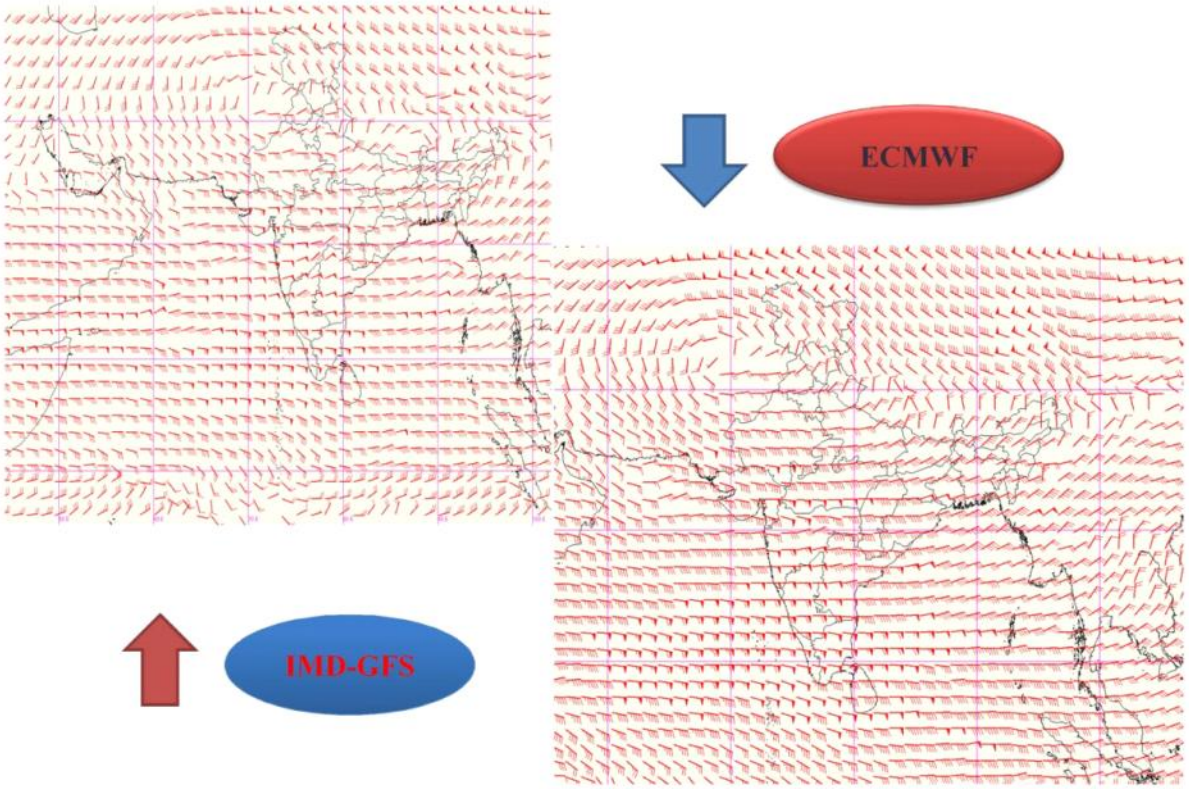

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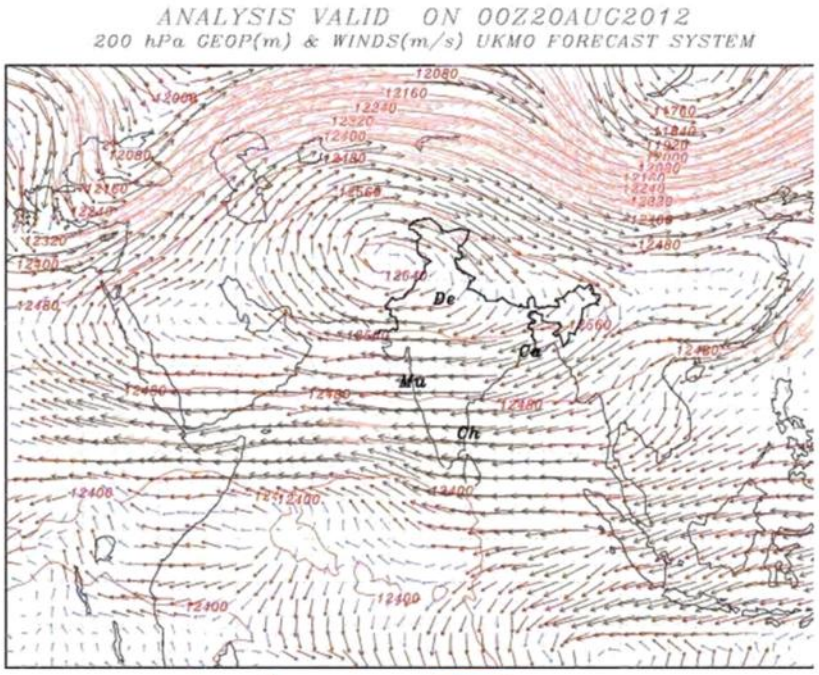


UKMO

Synoptic features on 20th August

➢The southwest Monsoon has been vigorous over Vidarbha and active over Uttarakhand, Himachal Pradesh and Konkan & Goa. It has been subdued over Rayalaseema, Tamil Nadu and north interior Karnataka.

➢ The low pressure area over Chattisgarh and neighbourhood now lies over north Madhya Pradesh and neighbourhood. Associated cyclonic circulation extends upto mid tropospheric levels.

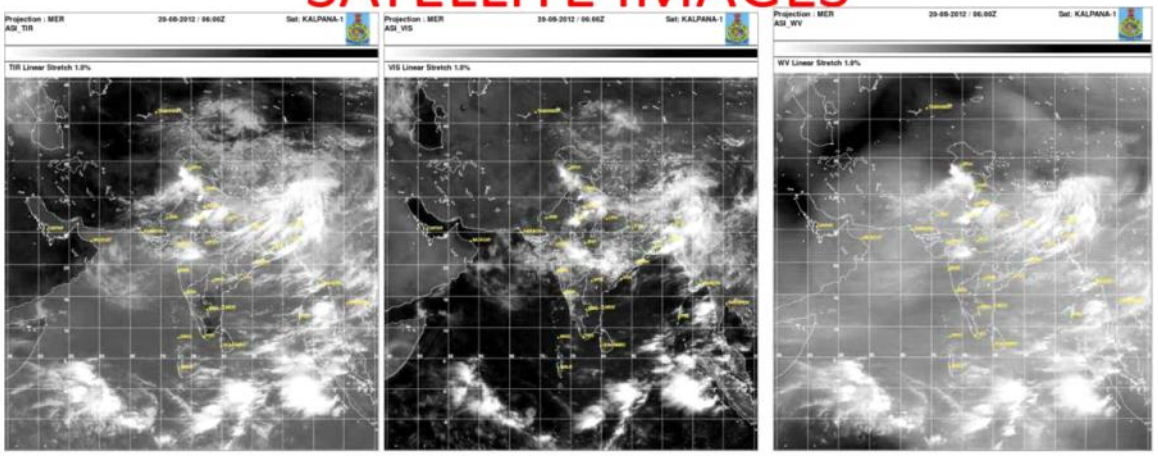
➢ The axis of the monsoon trough at mean sea level now passes through Ganganagar, Narnaul, Shivpuri, centre of the low pressure area (close to Tikamgarh), Pendra, Jharsuguda, Balasore and thence southeastwards to northeast Bay of Bengal. It extends upto 0.9 km a.s.l. Another branch of it extends from north Chattisgarh to Arunachal Pradesh ac ross Jharkhand and Assam & Meghalaya.

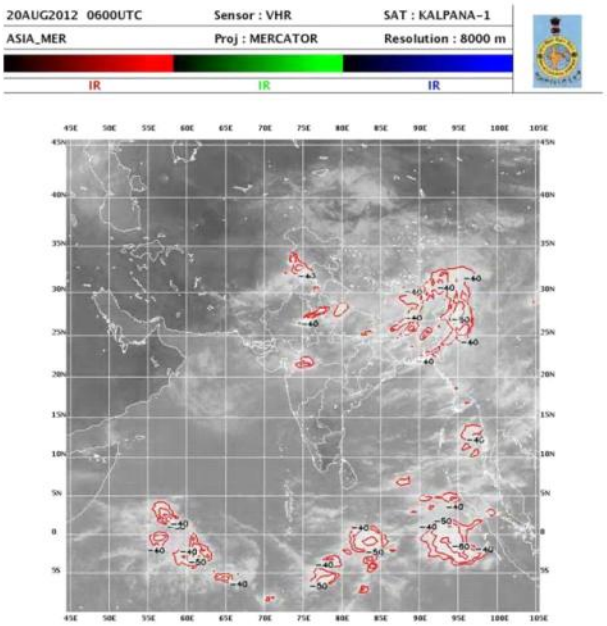
➢ The feeble off-shore trough at mean sea level now runs from south Maharashtra coast to north Kerala coast.

➢A cyclonic circulation lies between 1.5 & 5.8 kms a.s.l. over Gujarat Region and neighbourhood.

➢ The western disturbance as an upper air cyclonic circulation over northern parts of Jammu & Kashmir and neighbourhood has moved away northeastwards

SATELLITE IMAGES




20AUG2012 0600UTC
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SAT : KALPANA-1
ASIA_MER
Proj : MERCATOR
Resolution : 8000 m
IR
IR
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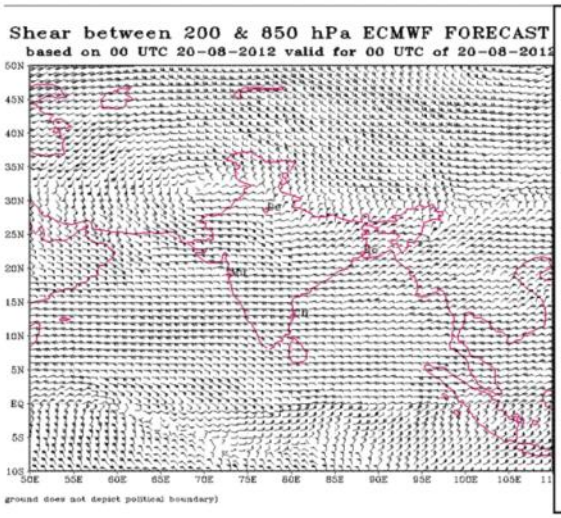
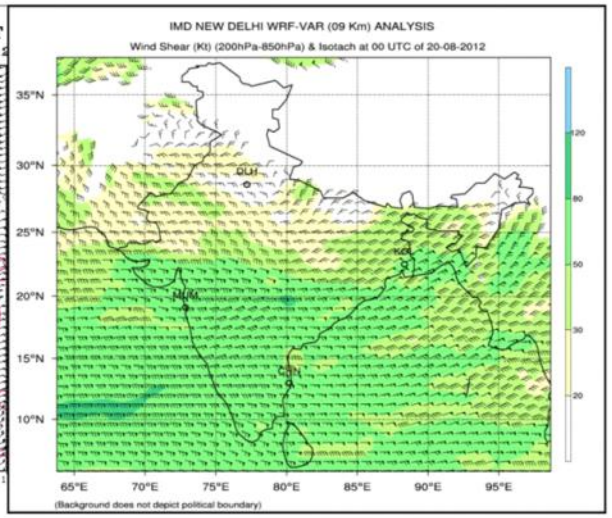
WIND SHEAR

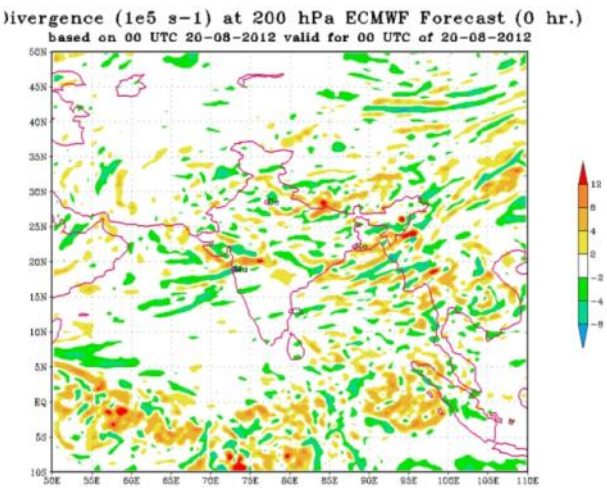




ECMWF

WRF

200mb DIVERGENCE



ECMWF

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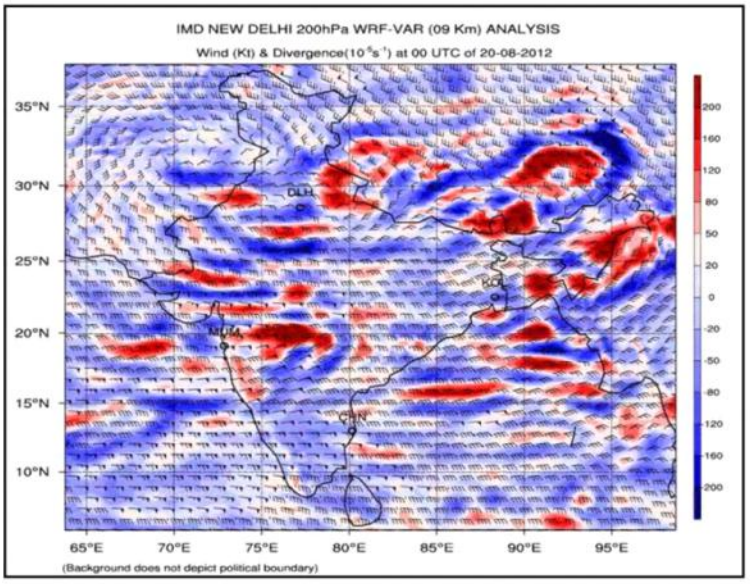
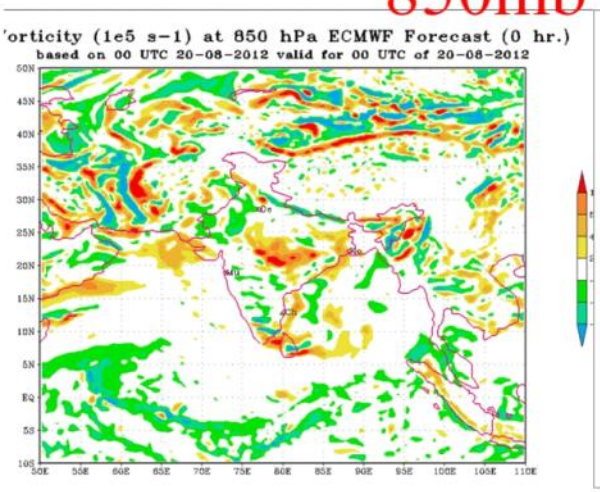
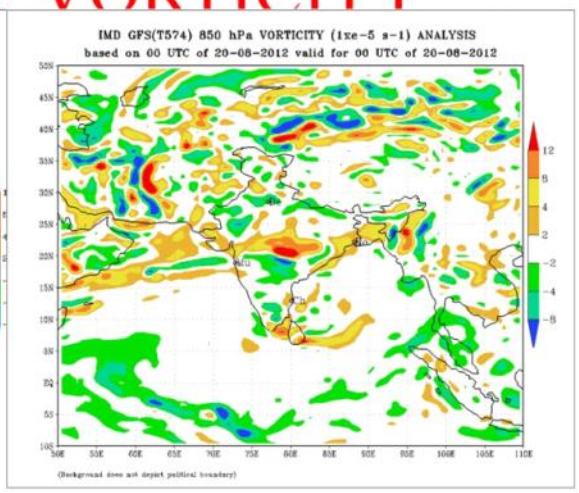


WRF

850mb VORTICITY

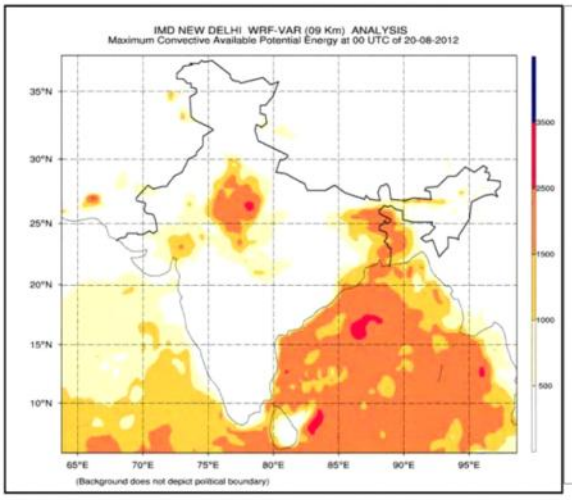


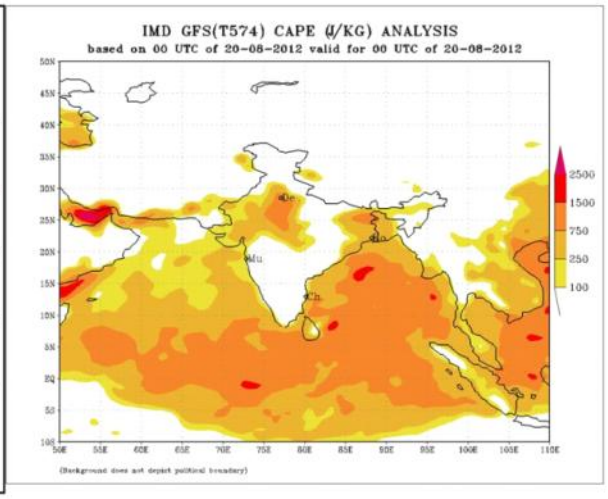


ECMWF

IMD-GFS

CAPE

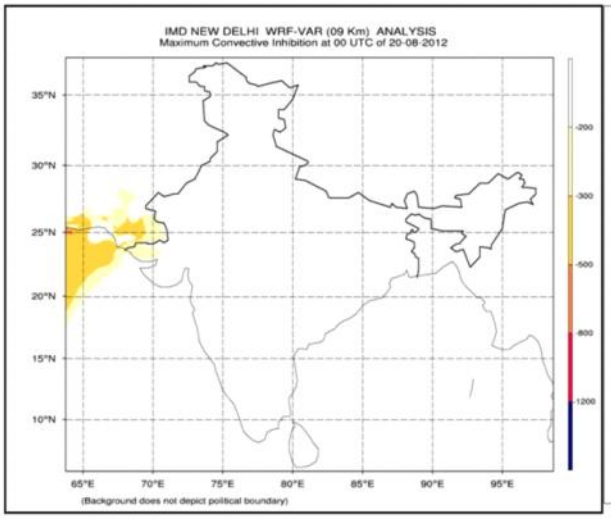


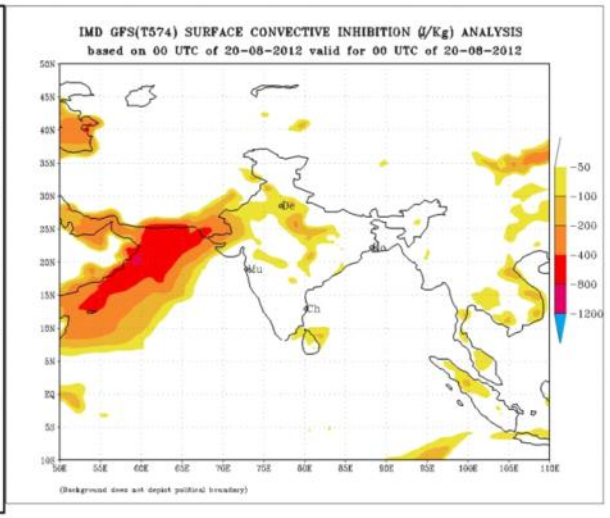


WRF

IMD-GFS

CINE





WRF

IMD-GFS

Daily Analysis of Permanent and semi-permanent features of Monsoon

1. Pressure Gradients:

Trivandrum- Mumbai Pressure Gradient: 5.8mb

Pressure at Mumbai: 1003.9mb

Pressure at Trivandrum:1009.7mb

Kolkata-Portblair Pressure Gradient: 5.5mb

Pressure at Kolkata: 1003.9mb

Pressure at Portblair : 1009.4mb

2. Location axis of Monsoon Trough

	75°E	80°E	85°E
SURFACE	28.5	24.5	21.5

3. Speed of Cross Equatorial Flow at

10°N 55°E: 40 kts

15°N 70°E: 20kts

4. Tibetan Anti-cyclone/Ridge at 200 hPa (Normal Position: 30°N, 88°E): 32N/70E

5. Winds at 200hPa:

STATION	Wind speed	Wind direction
Srinagar	30	NWly
Delhi	25	Ely

6. Winds at 100 hPa:

STATION	Wind speed	Wind direction
BBS	65	NEly
VIZAG	70	Ely
CHENNAI	75	Ely

7. Any low pressure system: Central parts of north Madhya Pradesh

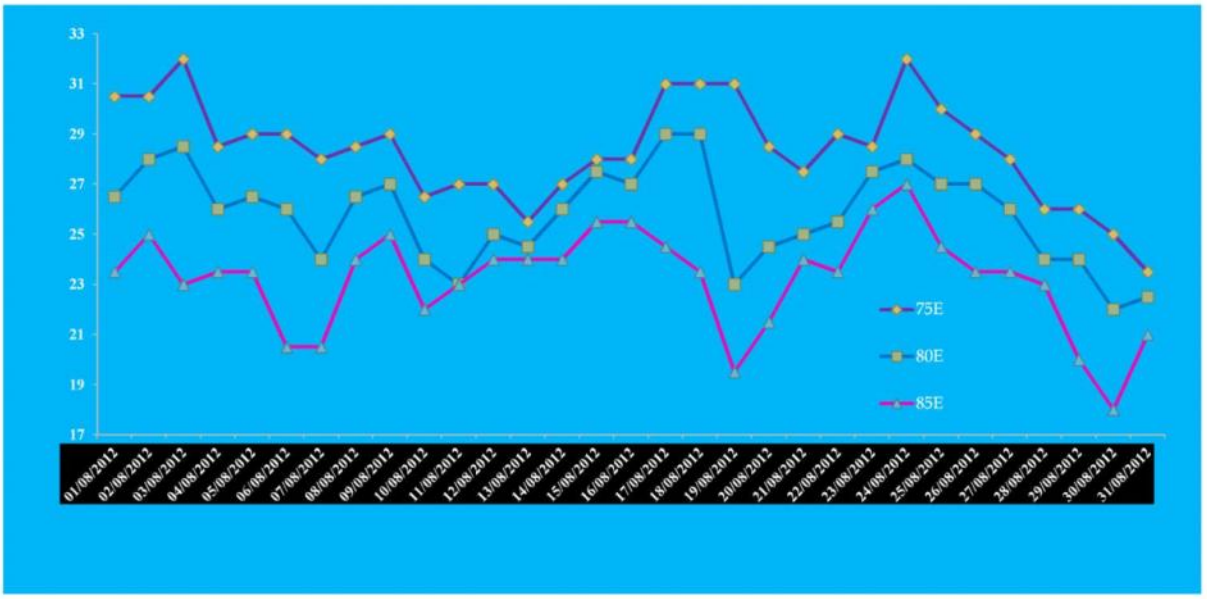
8. Mascarene High (30°S, 50°E.1025 hPa):

Located at 37S/59E (far south of Madagascar) with central pressure 1035hPa

HEAT LOW

DATE	PRESSURE	POSITION	
		^{0}N	^{0}E
01-08-2012	996	31	70
02-08-2012	998	31	68
03-08-2012	992	32	70
04-08-2012	NA	NA	NA
05-08-2012	998	29	70
06-08-2012	1000	28	71
07-08-2012	1000	28	71
08-08-2012	1000	28	67.5
09-08-2012	1000	28	72
10-08-2012	998	25	76
11-08-2012	1000	29	65
12-08-2012	NA	NA	NA
13-08-2012	996	29	67
14-08-2012	1000	29	70
15-08-2012	NA	NA	NA
16-08-2012	1000	28	74
17-08-2012	1000	31	72
18-08-2012	1000	32	70
19-08-2012	NA	NA	NA
20-08-2012	1000	29	70
21-08-2012	1000	31	73

MONSOON TROUGH



LOW LEVEL JET

DATE	10N/55E (KT)	15N/70E (KT)
01-08-2012	35	30
02-08-2012	40	35
03-08-2012	35	40
04-08-2012	45	35
05-08-2012	50	35
06-08-2012	45	40
07-08-2012	45	30
08-08-2012	40	30
09-08-2012	40	35
10-08-2012	40	35
11-08-2012	45	35
12-08-2012	40	35
13-08-2012	40	30
14-08-2012	40	30
15-08-2012	40	25
16-08-2012	35	25
17-08-2012	30	25
18-08-2012	30	25
19-08-2012	30	30
20-08-2012	40	20
21-08-2012	45	20

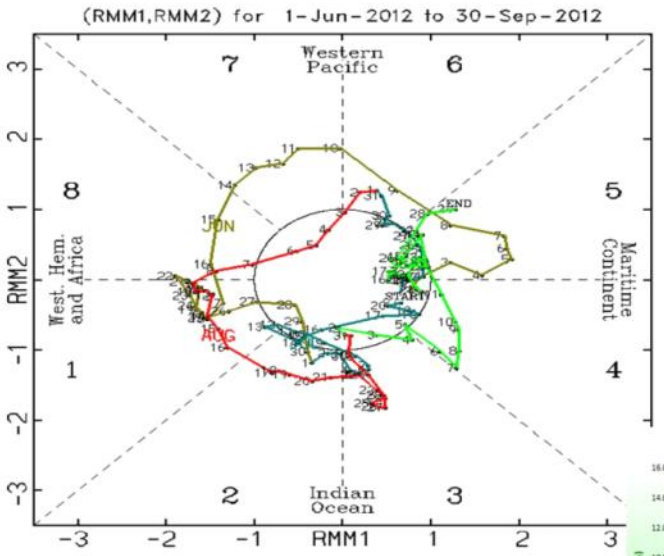
TIBETAN HIGH

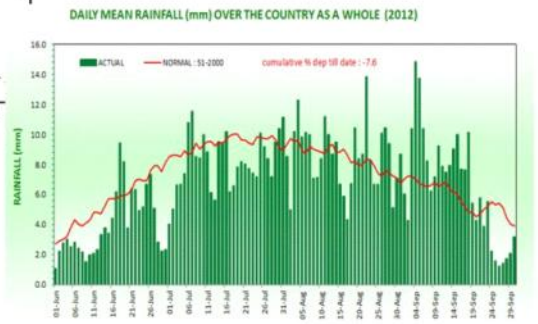
DATE	TIBETAN HIGH POSITION	DEVIATION
01-08-2012	-	-
02-08-2012	31N/68E	West of normal
04-08-2012	30.5N/84.5E	Near normal
06-08-2012	34N/92E	Near normal
07-08-2012	35N/96E	NorthEast of normal
08-08-2012	33.6N/93.8E	NorthEast of normal
09-08-2012	34N/95E	NorthEast of normal
10-08-2012	35N/95E	NorthEast of normal
11-08-2012	34.5N/98.5E	NorthEast of normal
12-08-2012	34N/101E	NorthEast of normal
15-08-2012	31N/98E	NorthEast of normal
16-08-2012	32.25N/91E	Near normal
17-08-2012	31N/90E	Near normal
18-08-2012	30.5N/87E	Near normal
19-08-2012	30.4N/84.49E	West of normal
20-08-2012	32N/70E	West of normal
21-08-2012	32.5N/66E	West of normal

AUGUST

DATE	TEJ SPEED(kts) / DIRECTION					
	BHUBANESWAR		VISAKHAPATNAM		CHENNAI	
	SPEED	DIRECTION	SPEED	DIRECTION	SPEED	DIRECTION
01-08-2012	80	NE	85	NE	55	E
02-08-2012	70	NE	75	ENE	65	E
03-08-2012	60	NE	60	ENE	55	ENE
04-08-2012	50	E	55	E	70	E
05-08-2012	45	E	55	E	60	E
06-08-2012	45	E	60	E	65	E
07-08-2012	`50	ENE	55	ENE	60	E
08-08-2012	30	E	40	E	65	E
09-08-2012	35	E	35	E	60	NE
10-08-2012	50	E	55	E	65	E
11-08-2012	55	E	45	E	65	E
12-08-2012	40	E	50	E	65	E
13-08-2012	40	ENE	45	E	45	E
14-08-2012	55	E	60	E	65	ENE
15-08-2012	40	E	35	ENE	60	ENE
16-08-2012	50	E	40	E	45	E
17-08-2012	70	E	55	E	45	E
18-08-2012	55	E	50	E	60	E
19-08-2012	55	E	65	E	65	E
20-08-2012	65	NE	70	E	75	E
21-08-2012	50	E	60	E	80	E

MJO DURING MONSOON-2012





9. Systems over South China Sea/ Pacific Ocean: Tropical storm TEMBIN located at 18N/124.8E at 0232 UTC with intensity T4.5/T4.5. Another Tropical Storm BOLAVEN developed over west Pacific & located near 17.9N/141.5E with intensity T2.5/T2.5 at 0832 UTC. By 1501 UTC the intensity (T3.0/T3.0) has been increased and located at 18.1N/140.9E the intensity remains same up to 2032 UTC but slight variation in position (18.3N/140.7E).

10. Western Disturbance: 32.5N/67E

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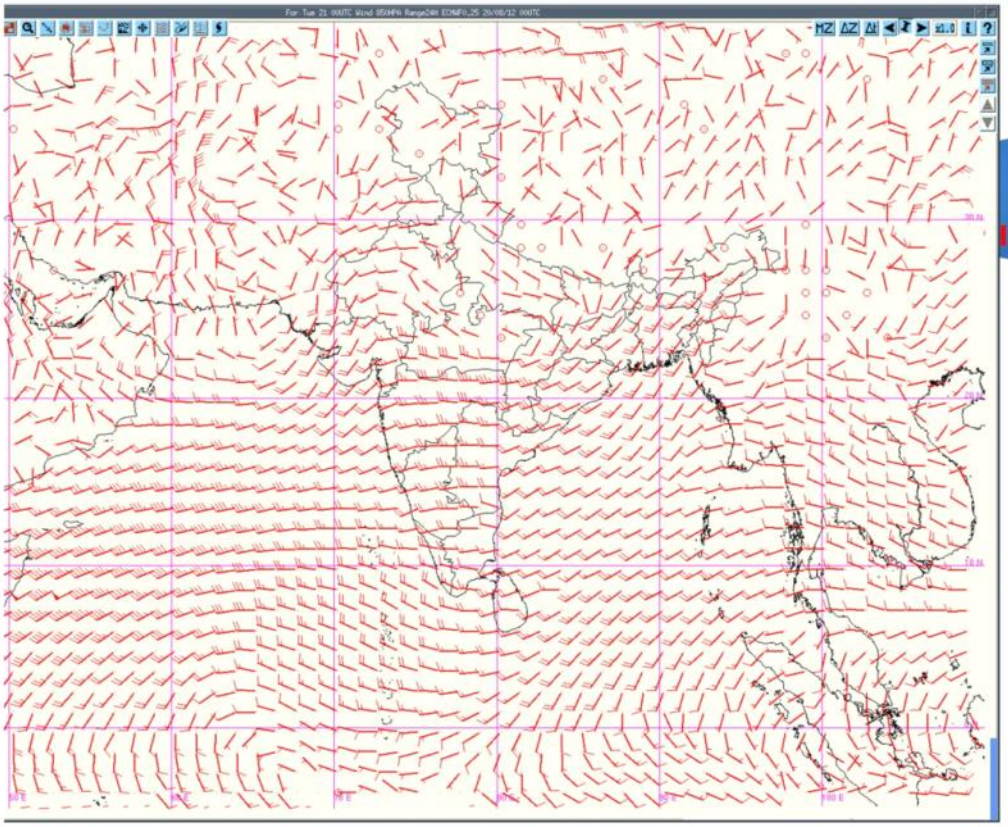
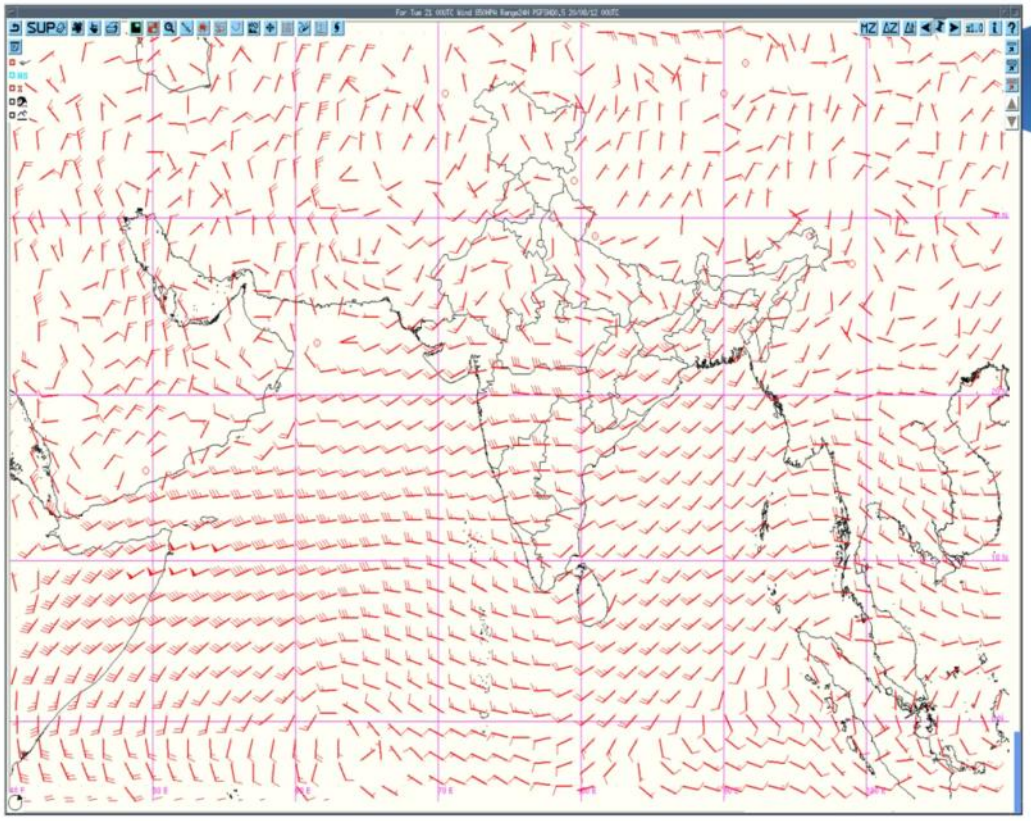


24hr
Forecast
IMD-GFS

WINDSPEED-850mb 00UTC MODEL



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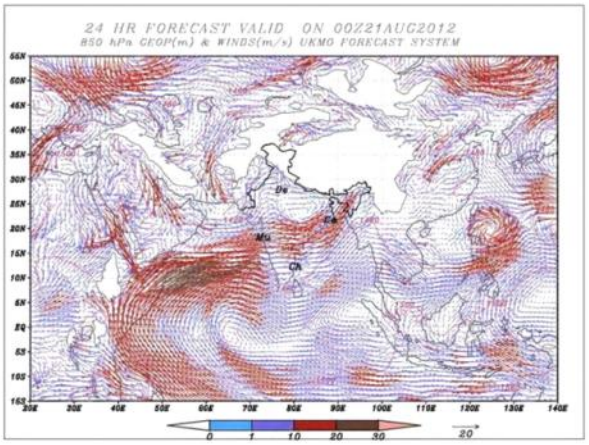
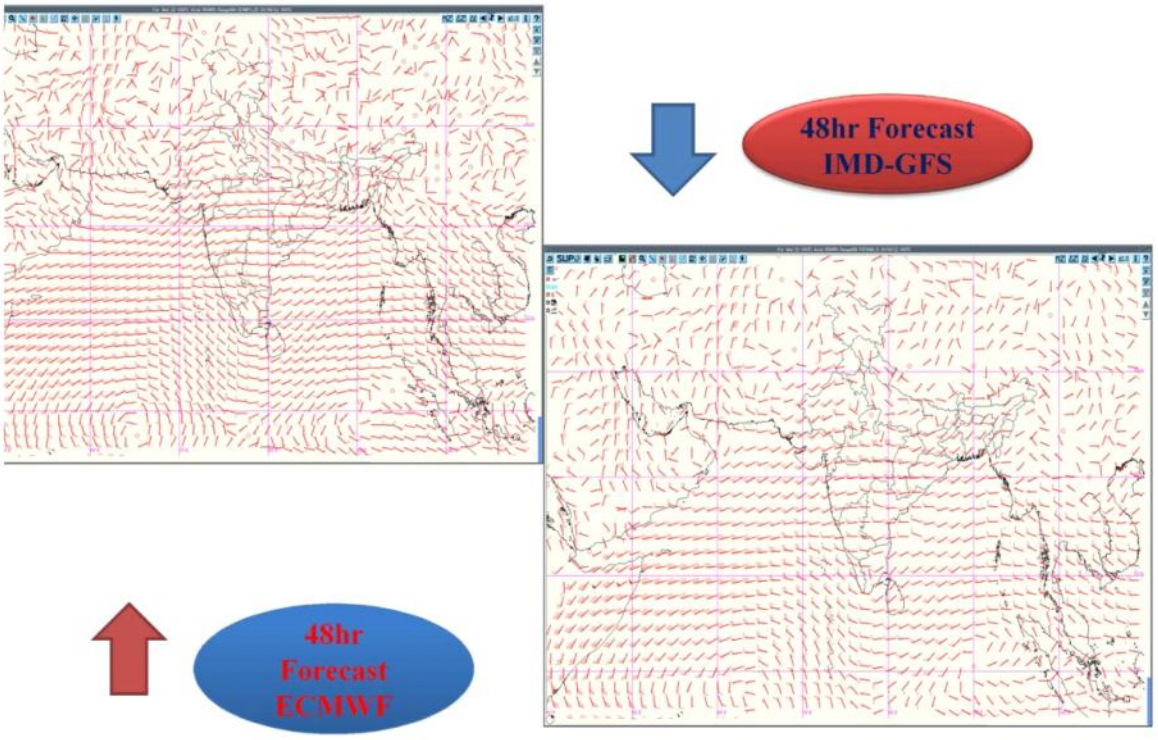
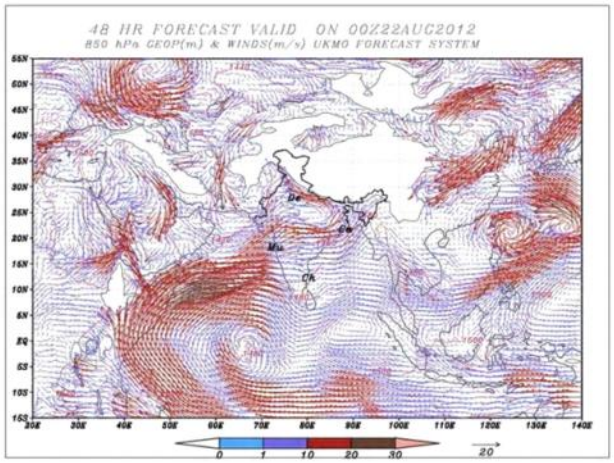


24hr Forecast
UKMO

WINDSPEED-850mb 00UTC MODEL

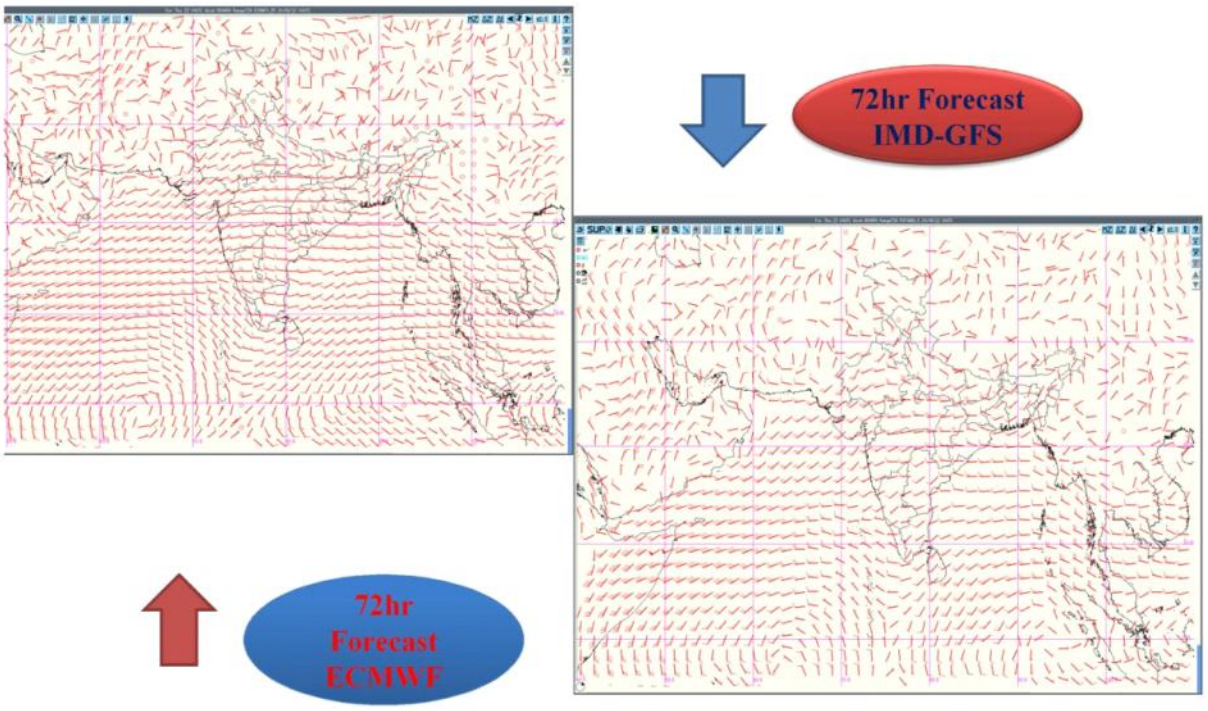


WINDSPEED-850mb 00UTC MODEL ANALYSIS



48hr Forecast
UKMO

WINDSPEED-850mb 000TC MODEL ANALYSIS



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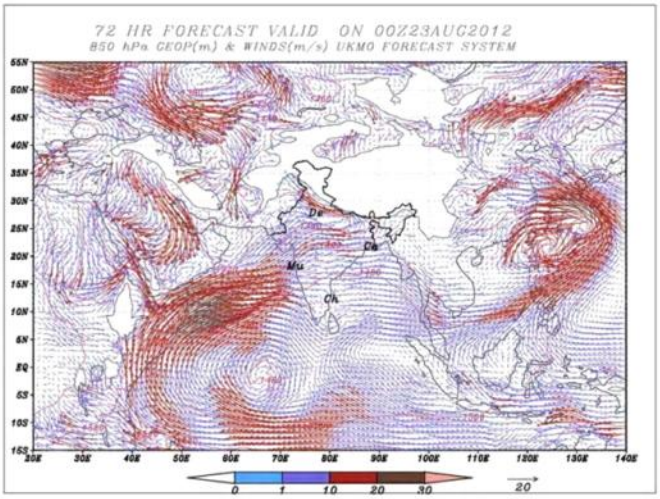
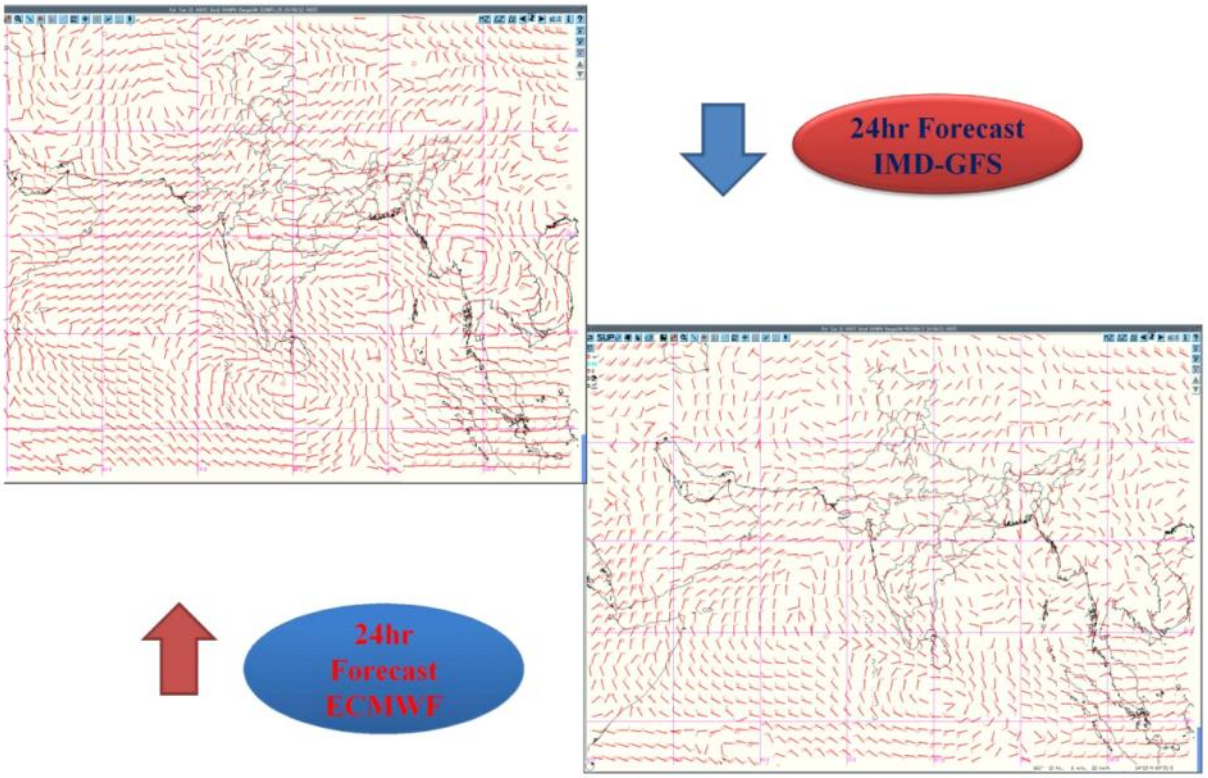


72hr Forecast
UKMO

WINDSPEED-500mb 00UTC MODEL ANALYSIS



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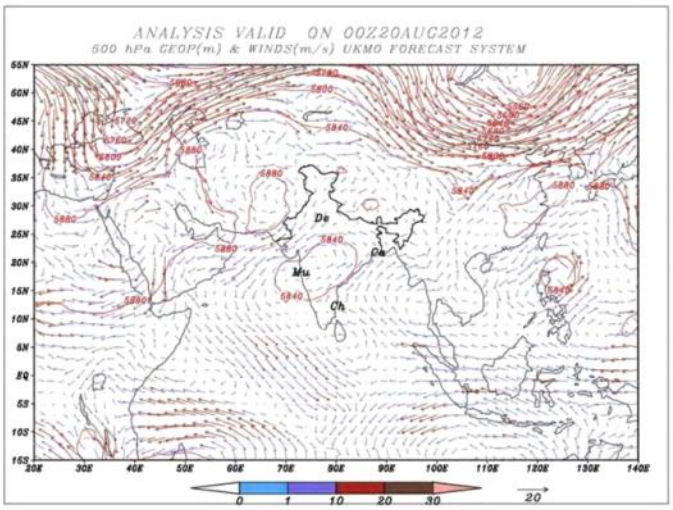
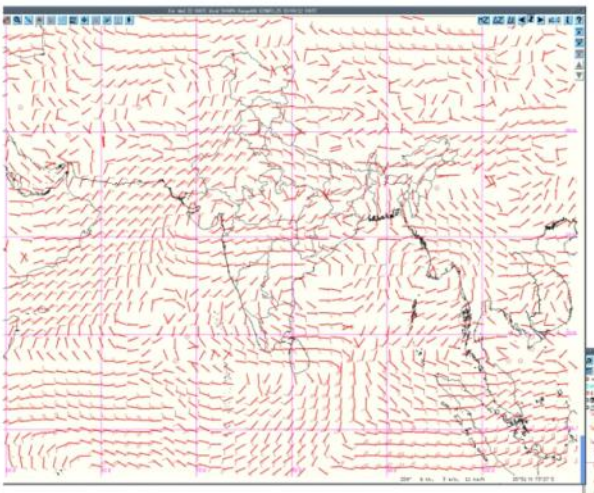


24hr Forecast UKMO

WINDSPEED-500mb 00UTC MODEL



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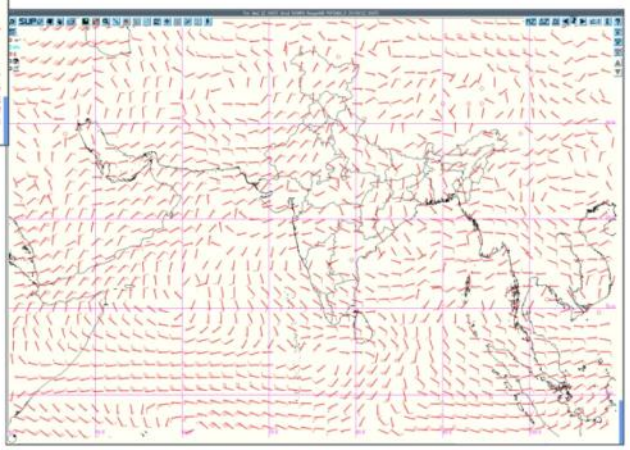
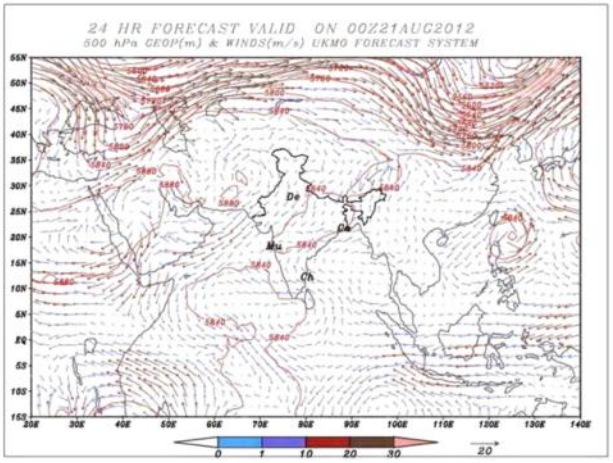
IMD-GFS



48hr
Forecast
ECMWF

WINDSPEED-500mb 00UTC MODEL



48hr Forecast
UKMO

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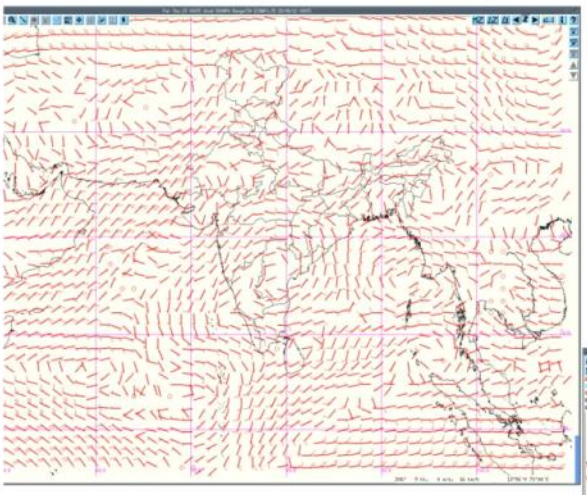
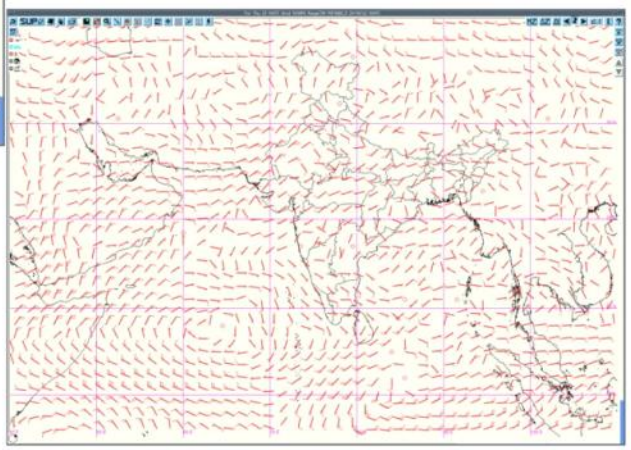


72hr Forecast
IMD-GFS



72hr
Forecast
ECMWF

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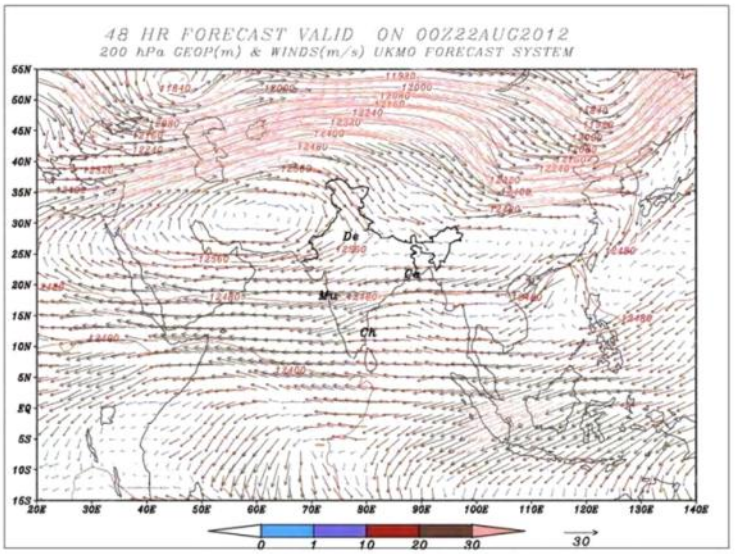

72hr Forecast
UKMO

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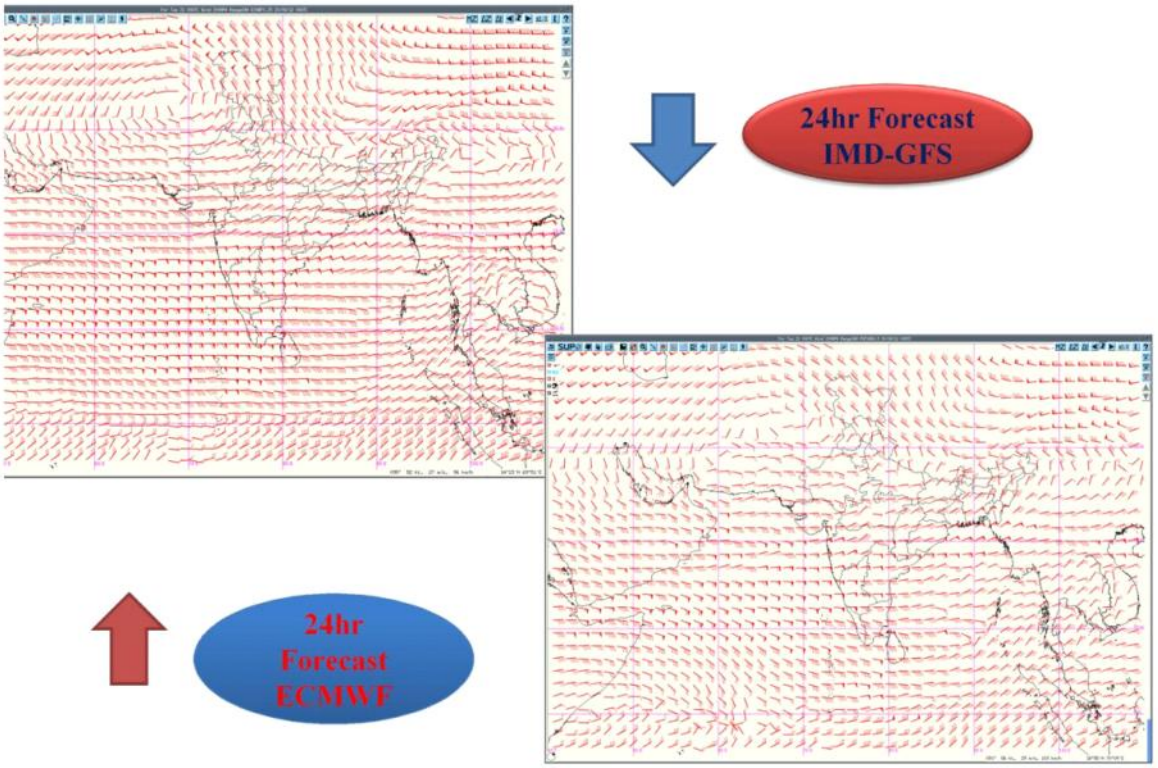
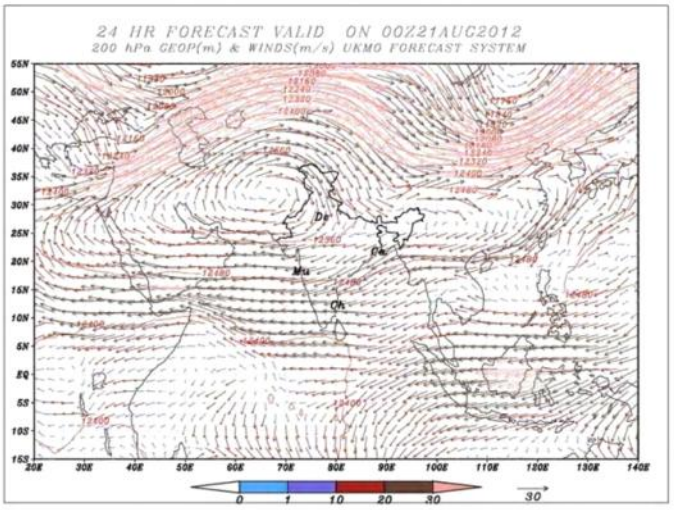
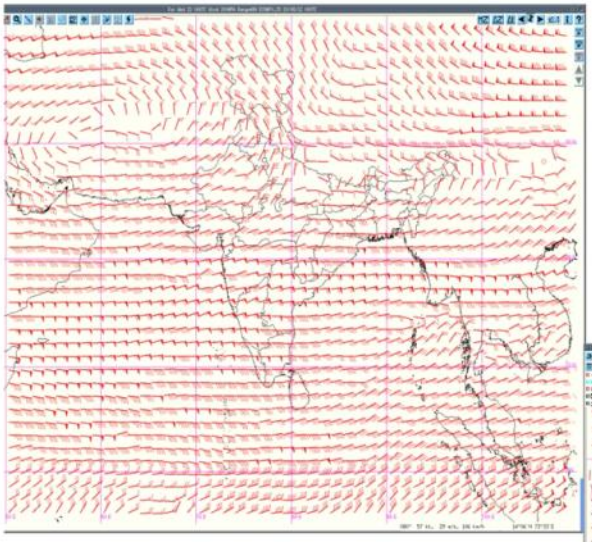


WINDSPEED-200mb 00UTC MODEL

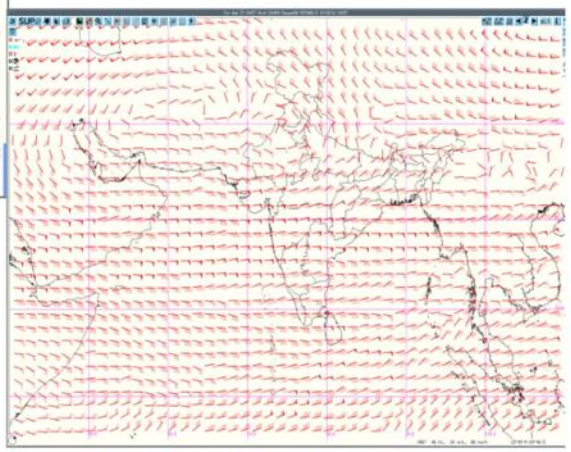


24hr Forecast
UKMO

WINDSPEED-200mb 00UTC MODEL

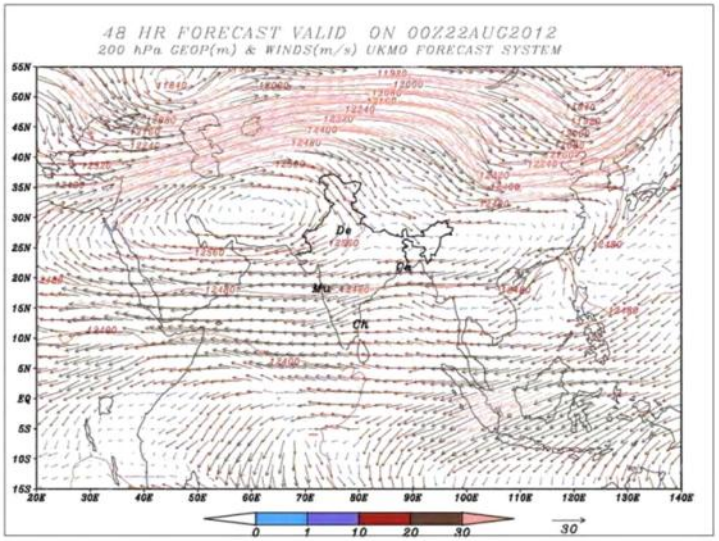


48hr Forecast
IMD-GFS



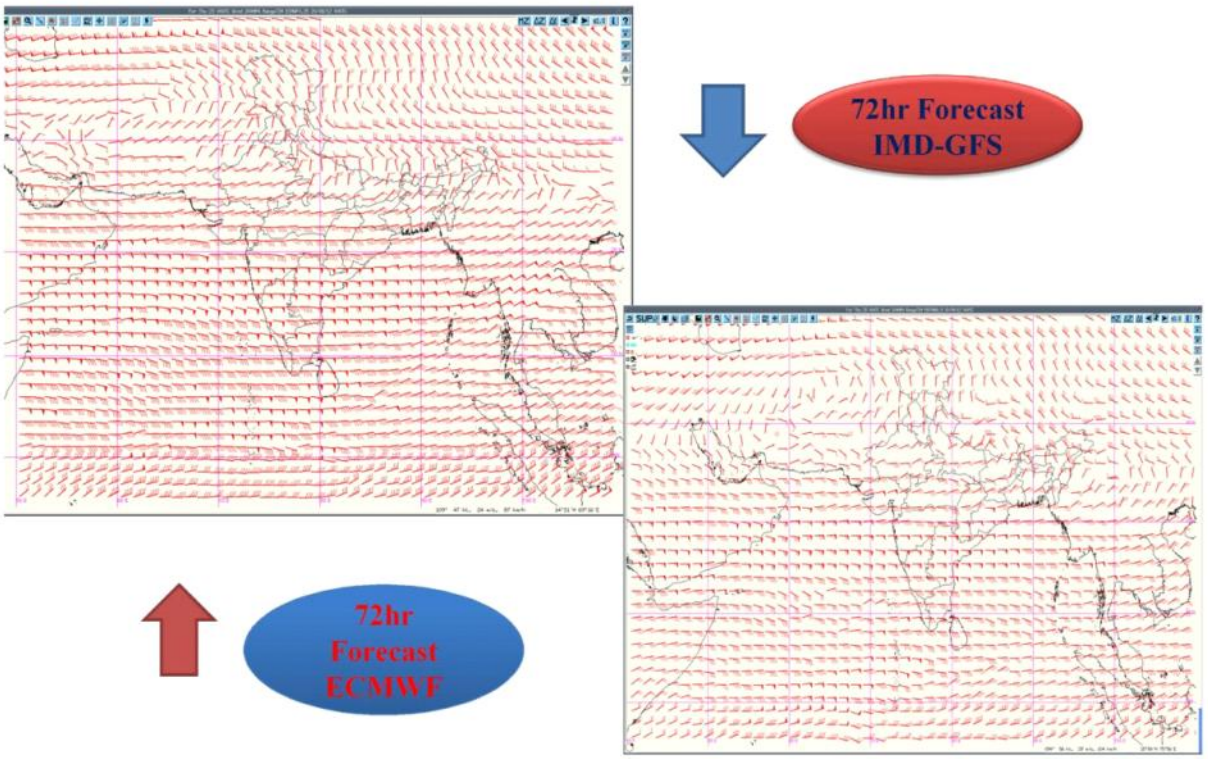
48hr
Forecast
ECMWF

WINDSPEED-200mb 00UTC MODEL

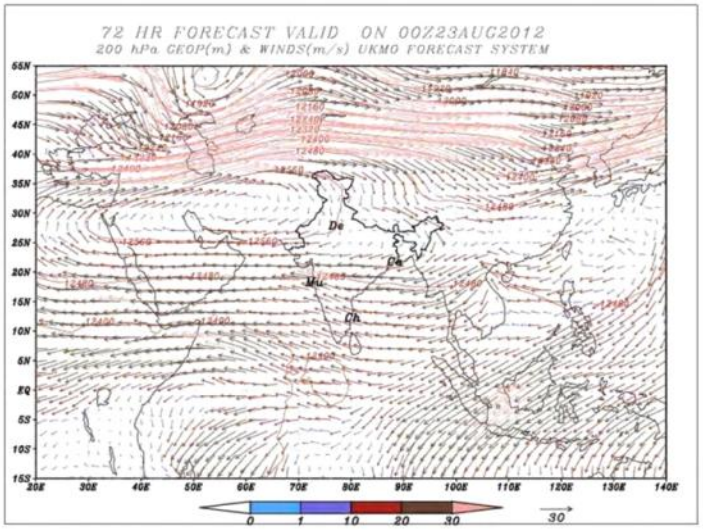


48hr Forecast UKMO

WINDSPEED-200mb 00UTC MODEL ANALYSIS

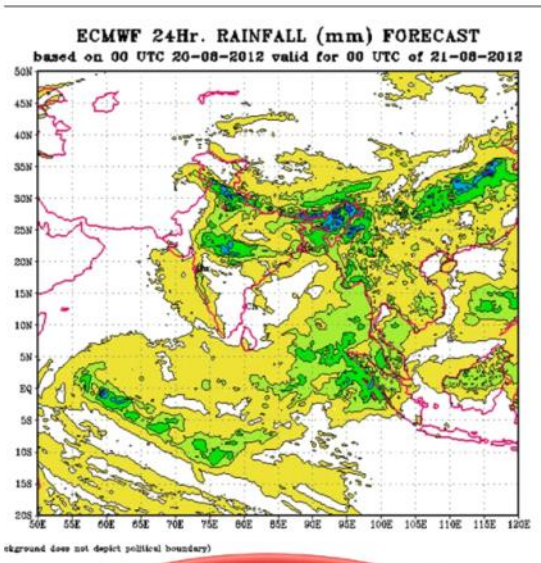


WINDSPEED-200mb 00UTC MODEL

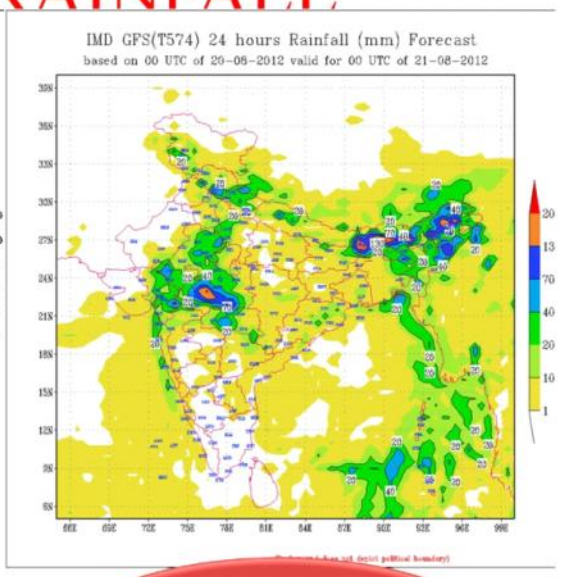


72hr Forecast
UKMO

RAINFALL

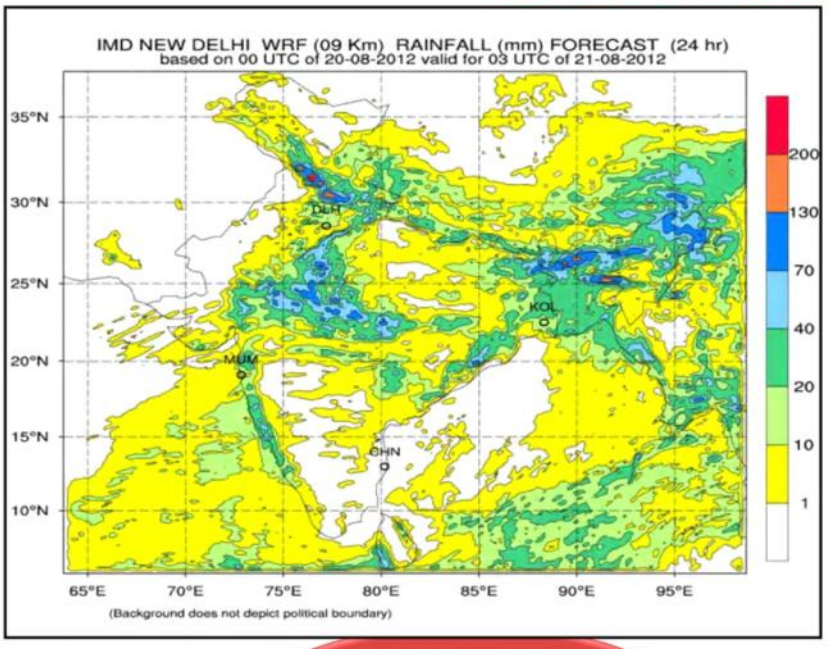


ECMWF



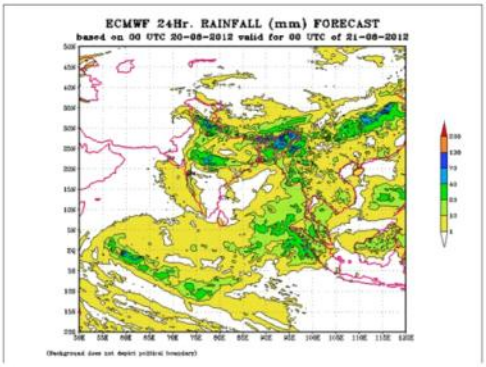
IMD-GFS

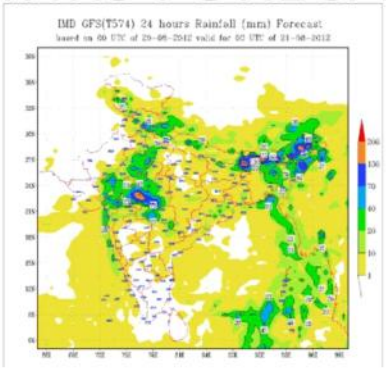
RAINFALL

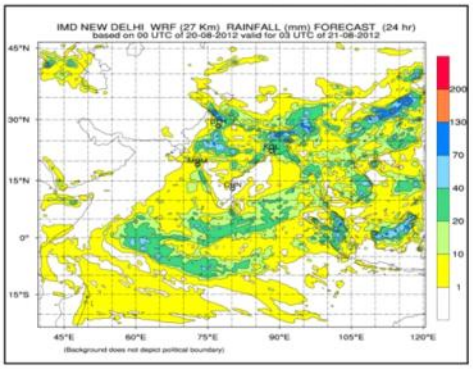


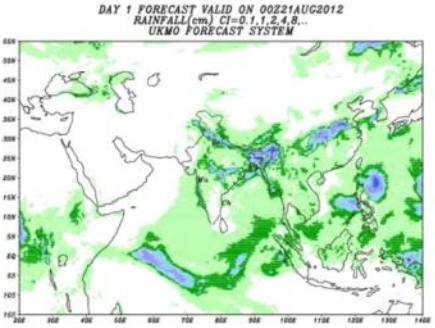
WRF

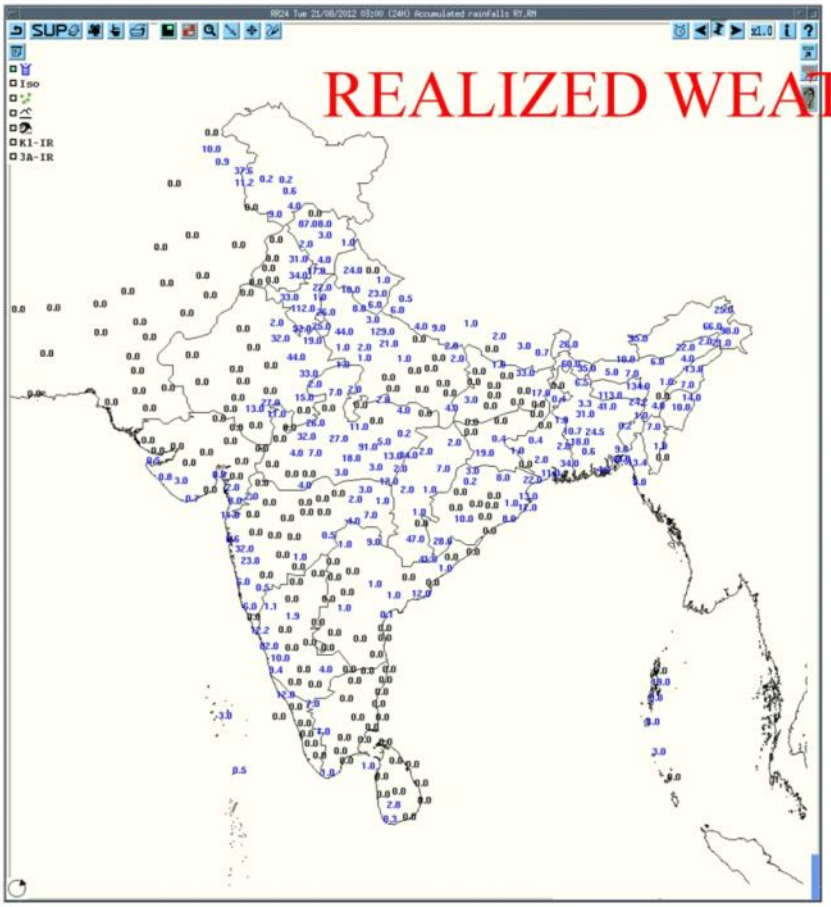
RAINFALL 24HRS FORECAST





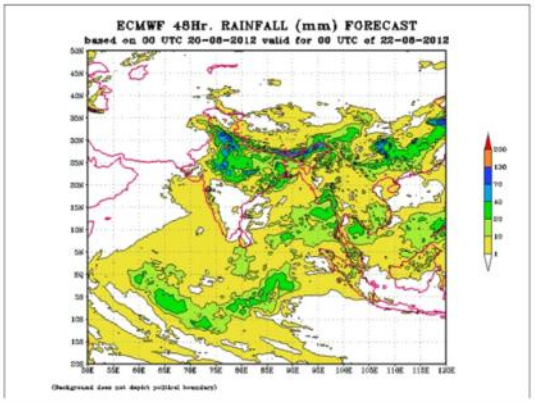


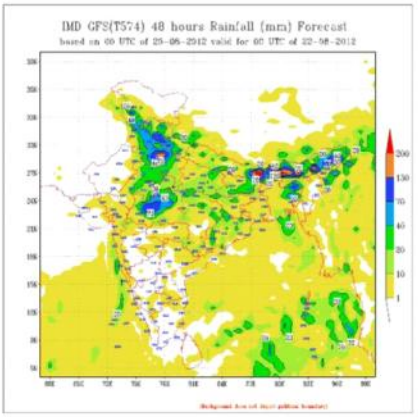


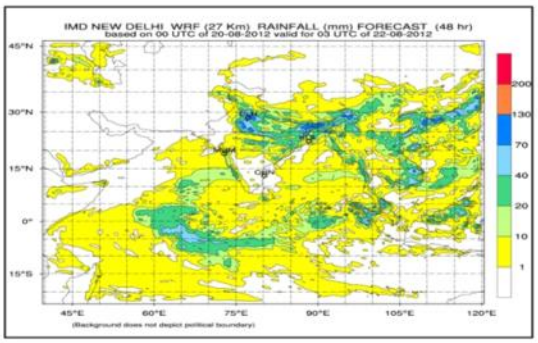


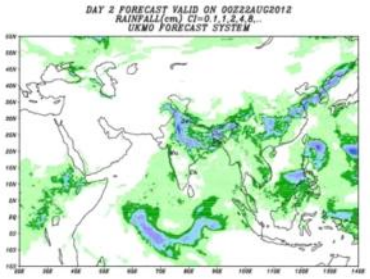
REALIZED WEATHER

RAINFALL 48HRS FORECAST

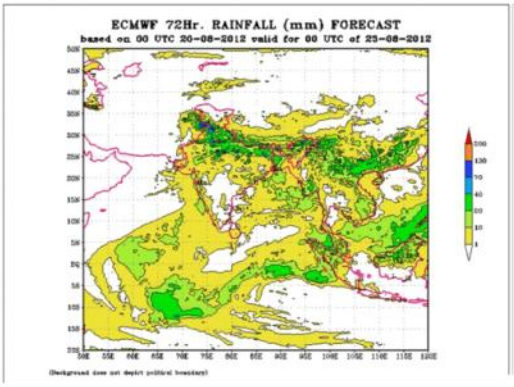


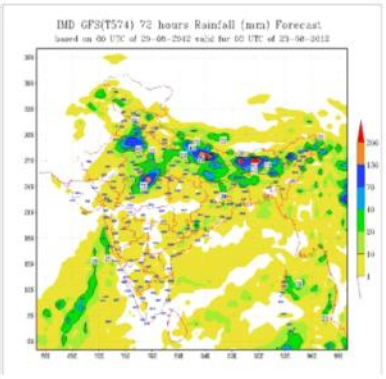


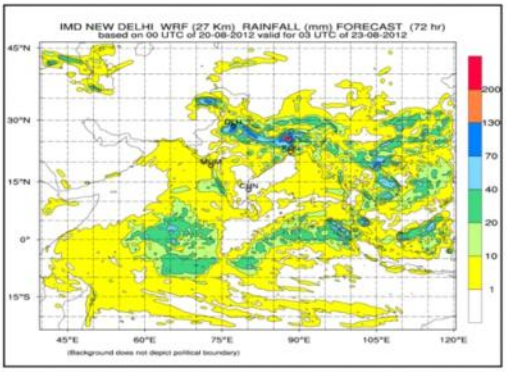


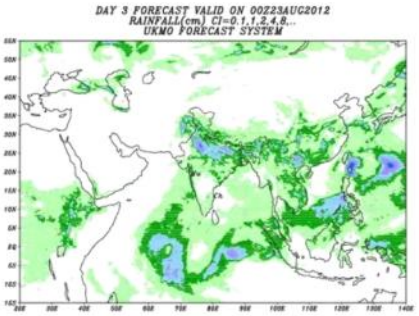


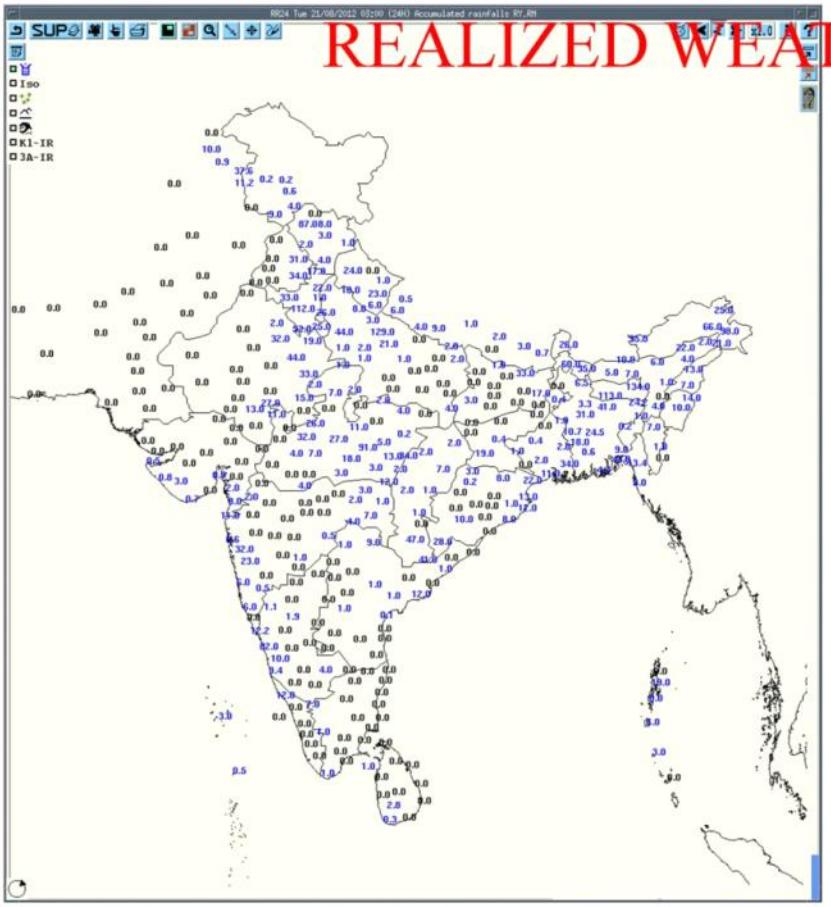
RAINFALL 72HRS FORECAST

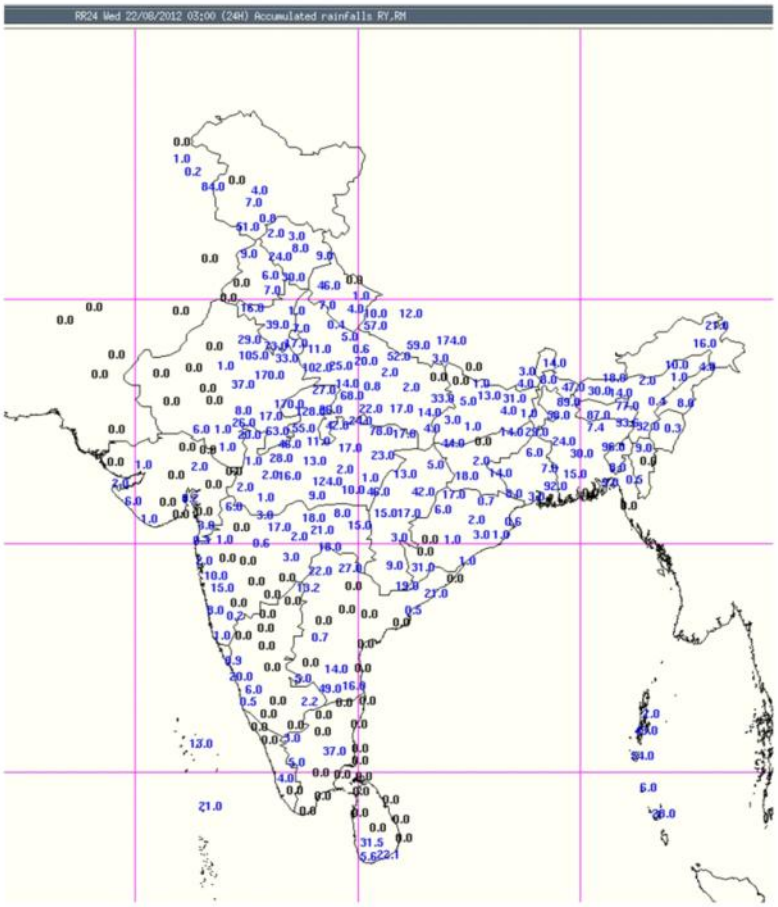




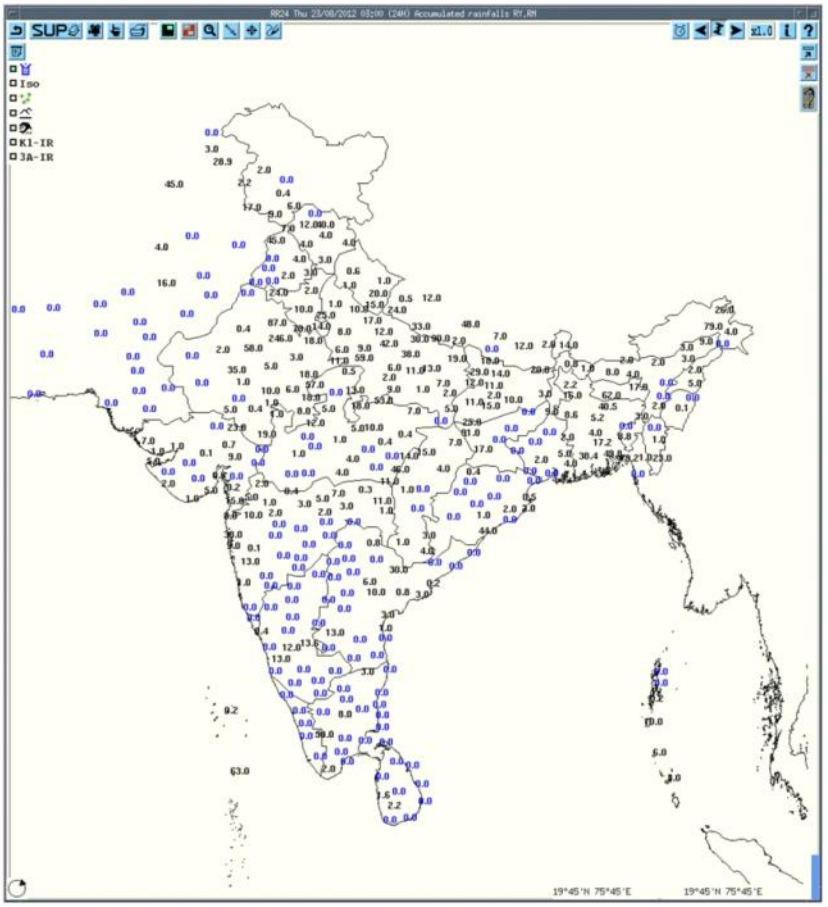








REALIZED
WEATHER



REALIZED
WEATHER

Thank You