Locust Surveillance Using Geospatial Technology

No. 2020/12
Period: 16-31 August.

nrsc

India deployed advanced technologies to control spread of locusts
-- Hon. Prime Minister Narendra Modi, 28th August, 2020

Image courtesy
https://www.electricvehiclesresearch.com

Contents

Locust Surveillance Using Geospatial Technology Bulletin is issued fortnightly by Regional Remote Sensing Centre (West), NRSC/ISRO – Jodhpur. The centre continuously monitors the weather and ecology to provide early warning based on survey and control results from Locust Warning Organisation (LWO), Jodhpur combined with remote sensing inputs.

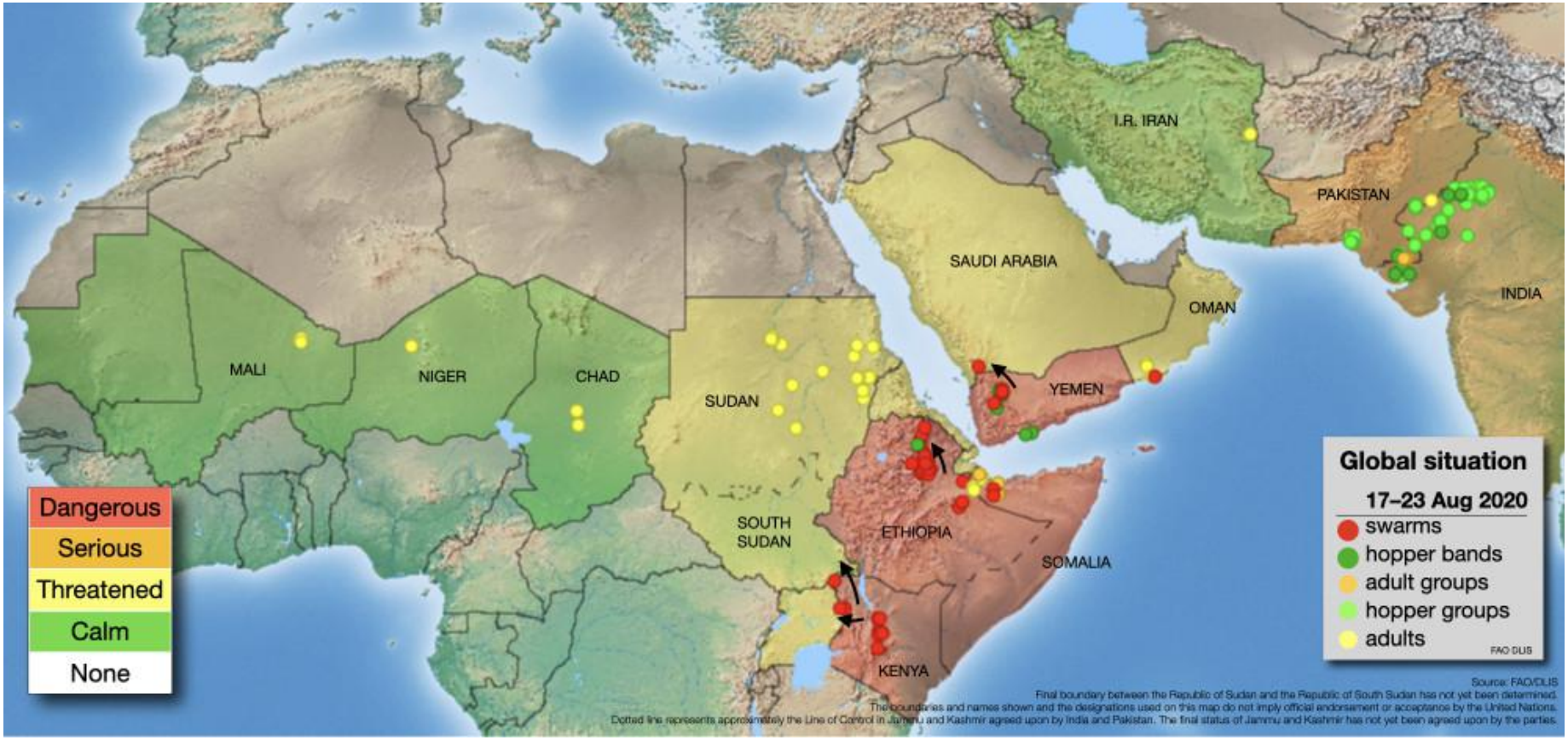
Please send your feedback to
rrsc_w@nrsc.gov.in or ssrao@nrsc.gov.in

Locust Update

Status

In South-West Asia, good progress is being made against the first generation of hopper groups and bands that have formed mainly in Rajasthan, India and to a lesser degree in Tharparkar district in southern Sindh, Pakistan. This is the result of more than 1,000 teams, 750 vehicles and nearly 6,000 staff involved in the ground control campaign in Pakistan and hundreds of teams in India.

(Desert Locust situation update 24 August 2020, FAO Locust Watch)



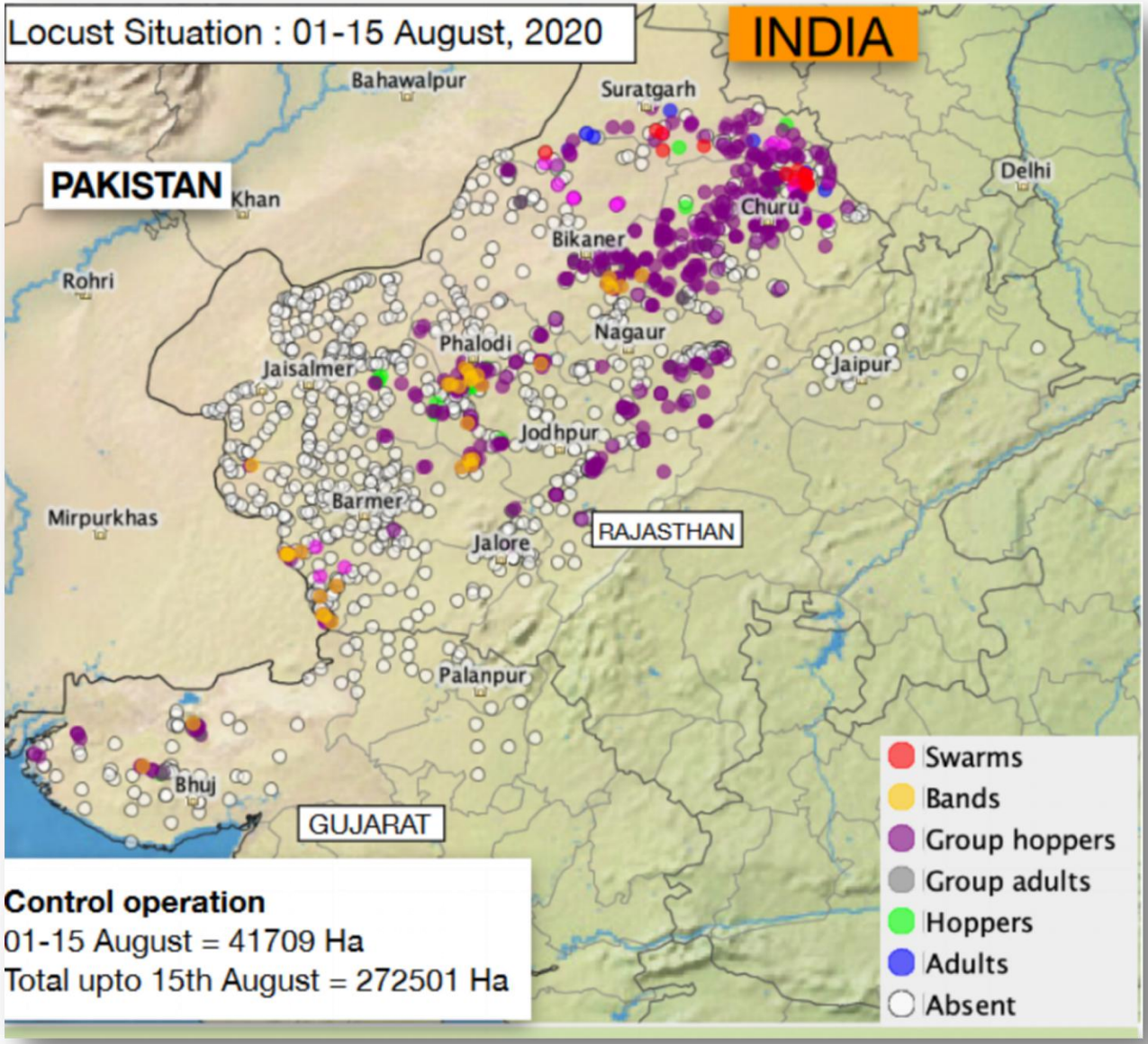
Source: Desert Locust Global Situation update 23rd August 2020 by Food and Agriculture Organisation, UN.

Locust Update

Status

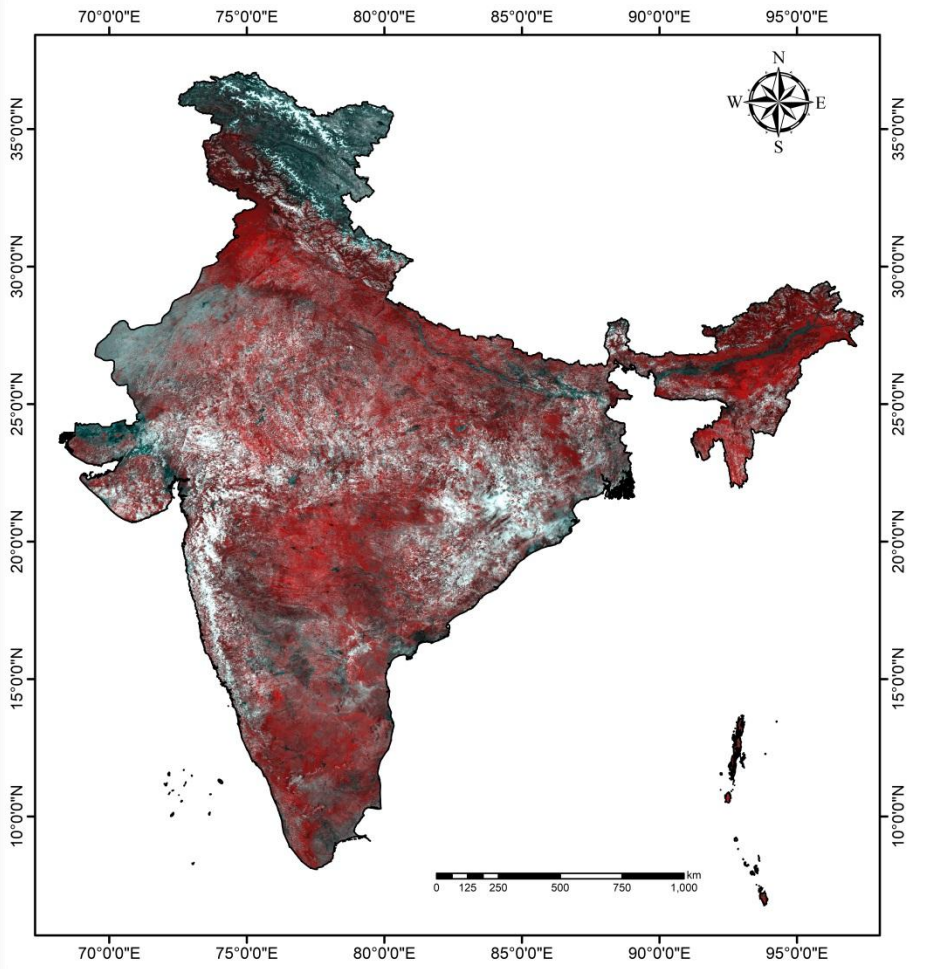
During the 1st fortnight of August 2020, immature, maturing and mature/breeding adult groups/swarms were observed mostly at Churu, Bikaner, Suratgarh, Hanumangarh, Jhunjhnu, Barmer of Rajasthan. I-V instar hoppers were reported in various districts of Rajasthan and Gujarat. Out of 1542 nos. of spots, control operation were undertaken at 517 spots covering 41709 hectare area.

(Desert Locust situation Bulletin. 2020/15, Min. of Agri. & Farmer's Welfare, Govt. of India)



Source: Desert Locust Situation Bulleting, 2020/15, *Min. of Agri. & Farmer's Welfare, Govt. of India*

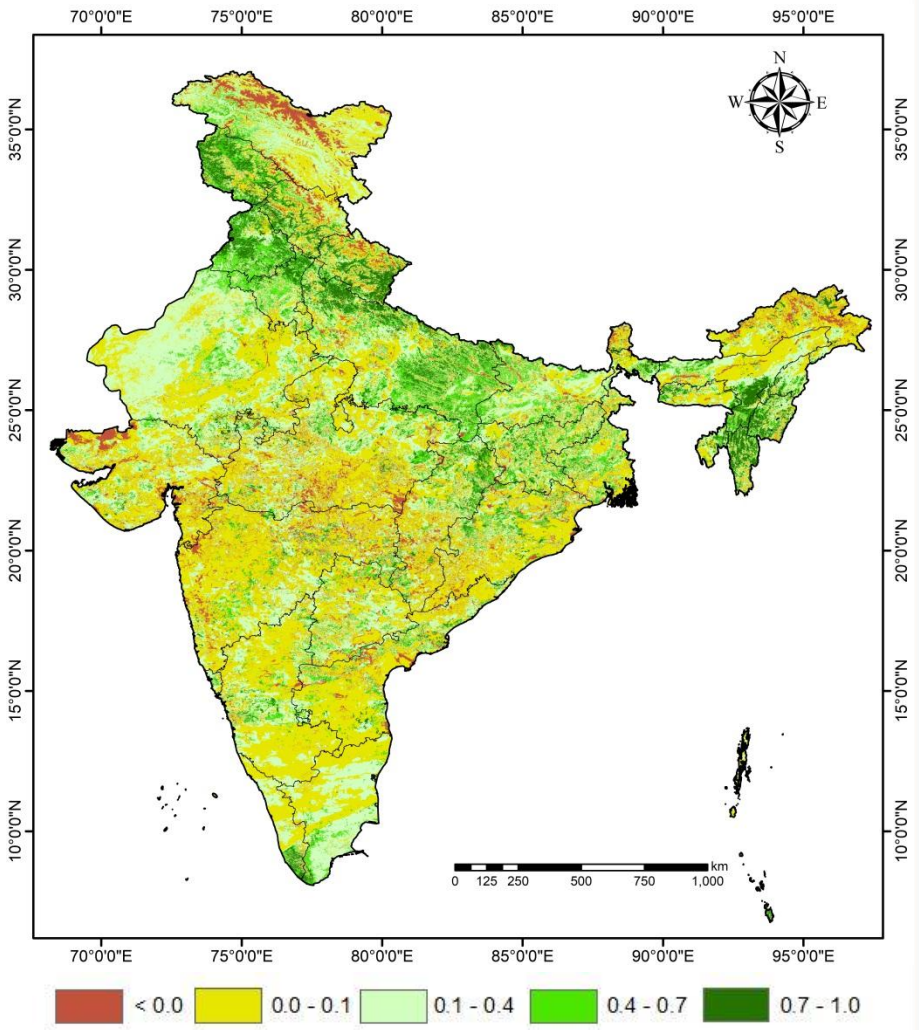
False Color Composite (FCC)



Source: MODIS 8 day Composite

21th - 28th Aug, 2020

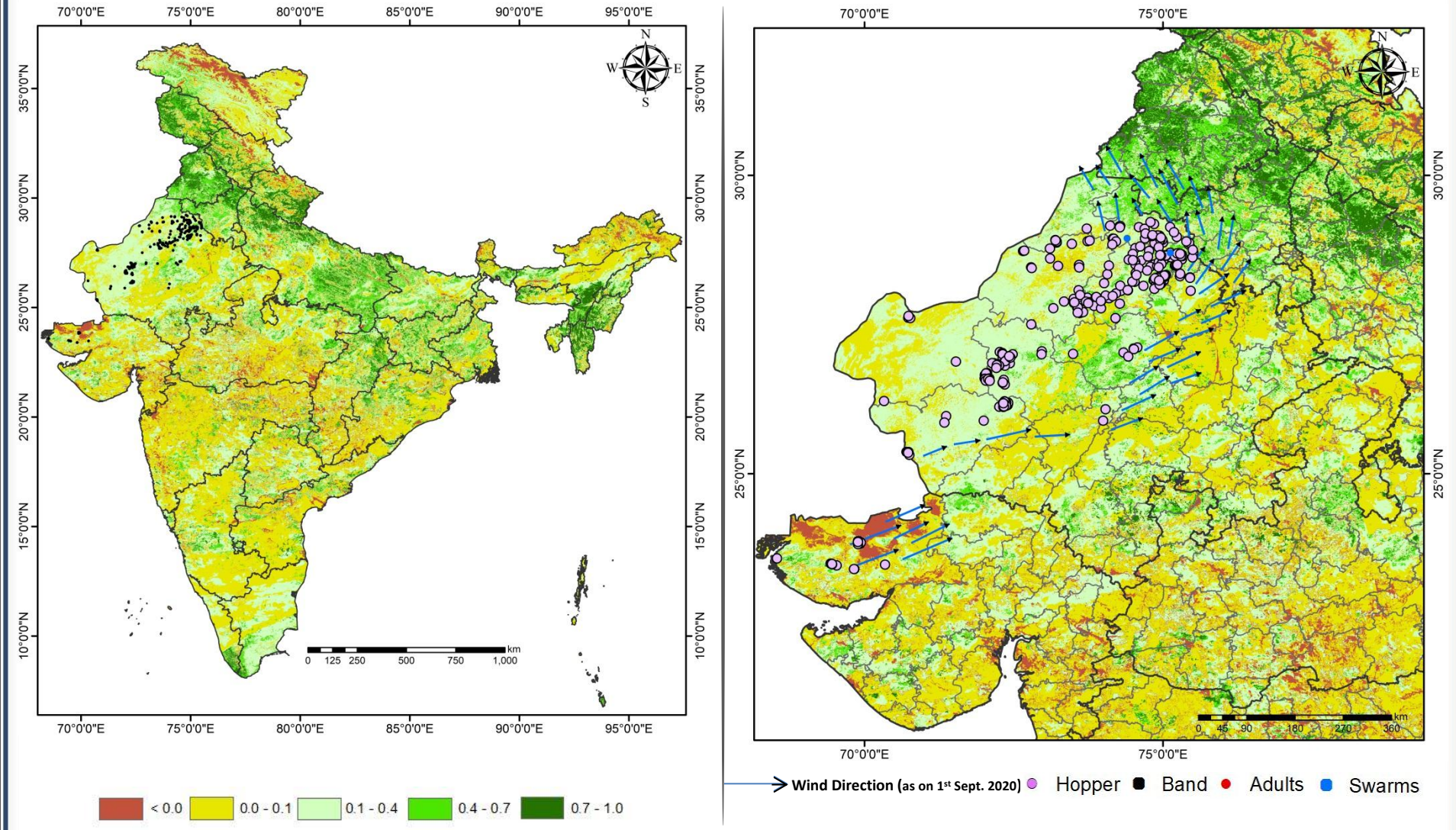
Normalized Difference Vegetation Index (NDVI)



Source: eMODIS Ver. 6

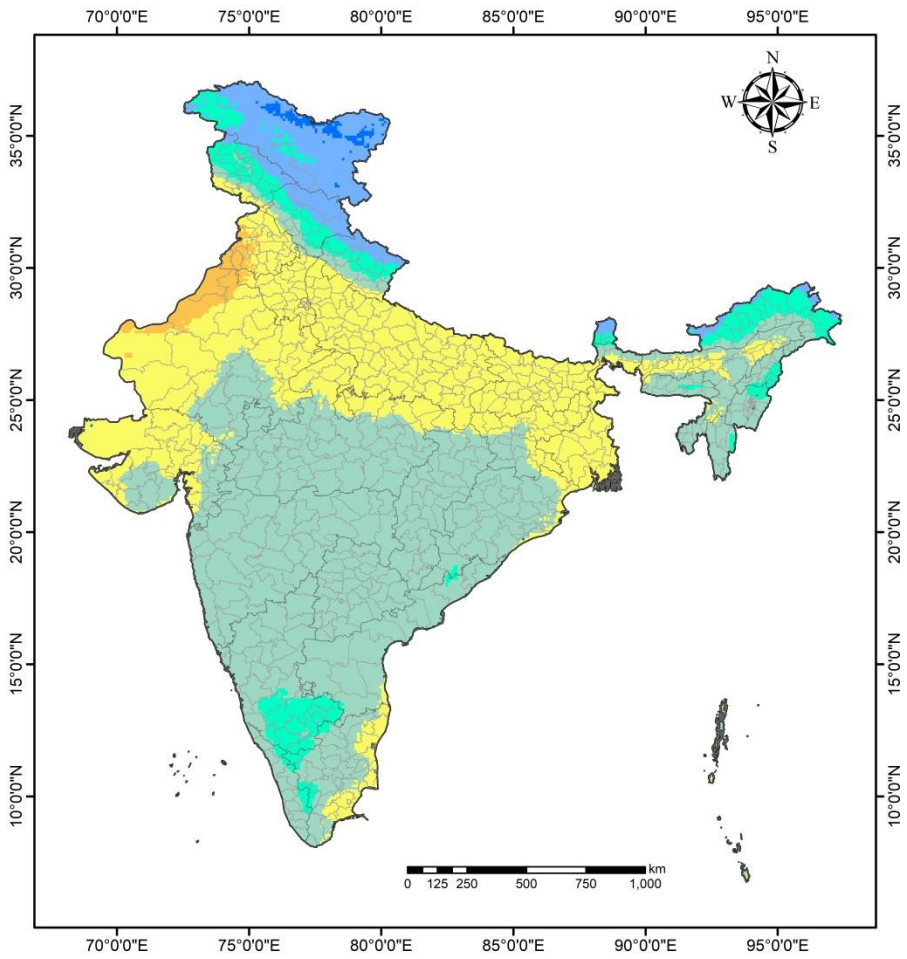
06th Aug - 15th Aug, 2020

Location Map of Locust Hopper, Bands, Adults & Swarms with Wind Vectors and Vegetation Status

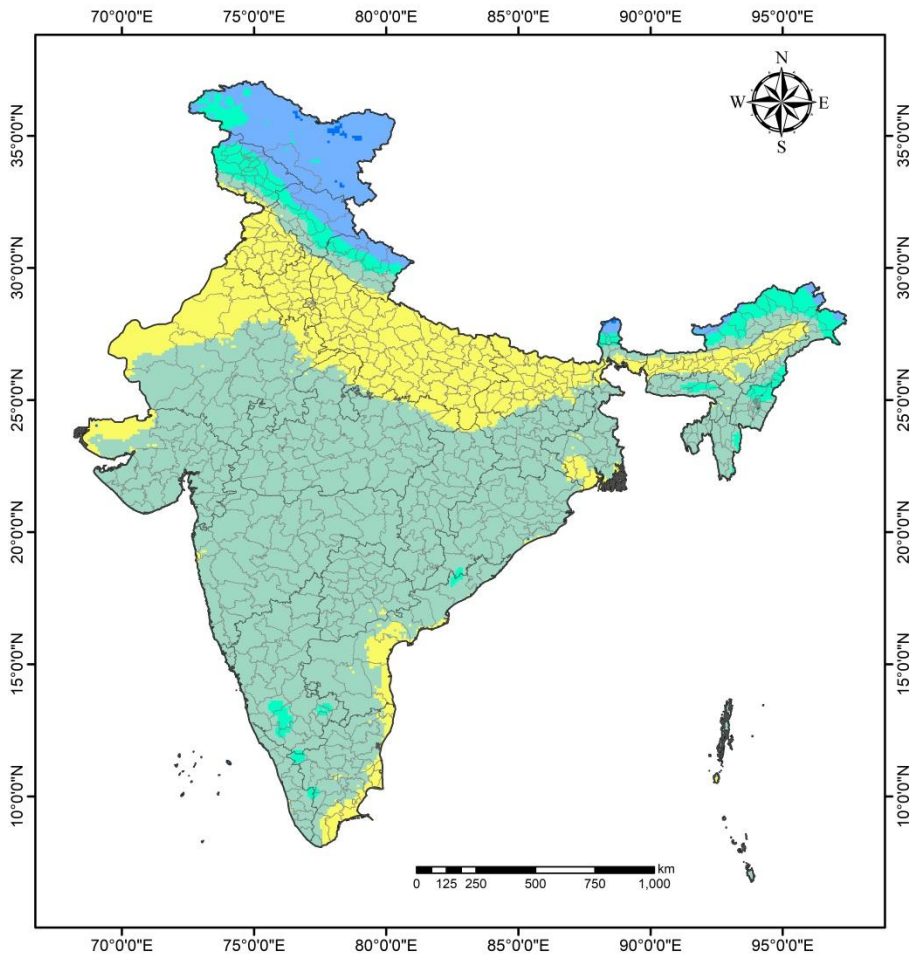


Source: Locust Infestation Point by LWO-Jodhpur, NDVI – EMODIS Ver. 6 and Wind Vectors - MOSDAC

Land Surface Temperature (^{0}C)



19:30 Hrs. of 15th Aug - 2020

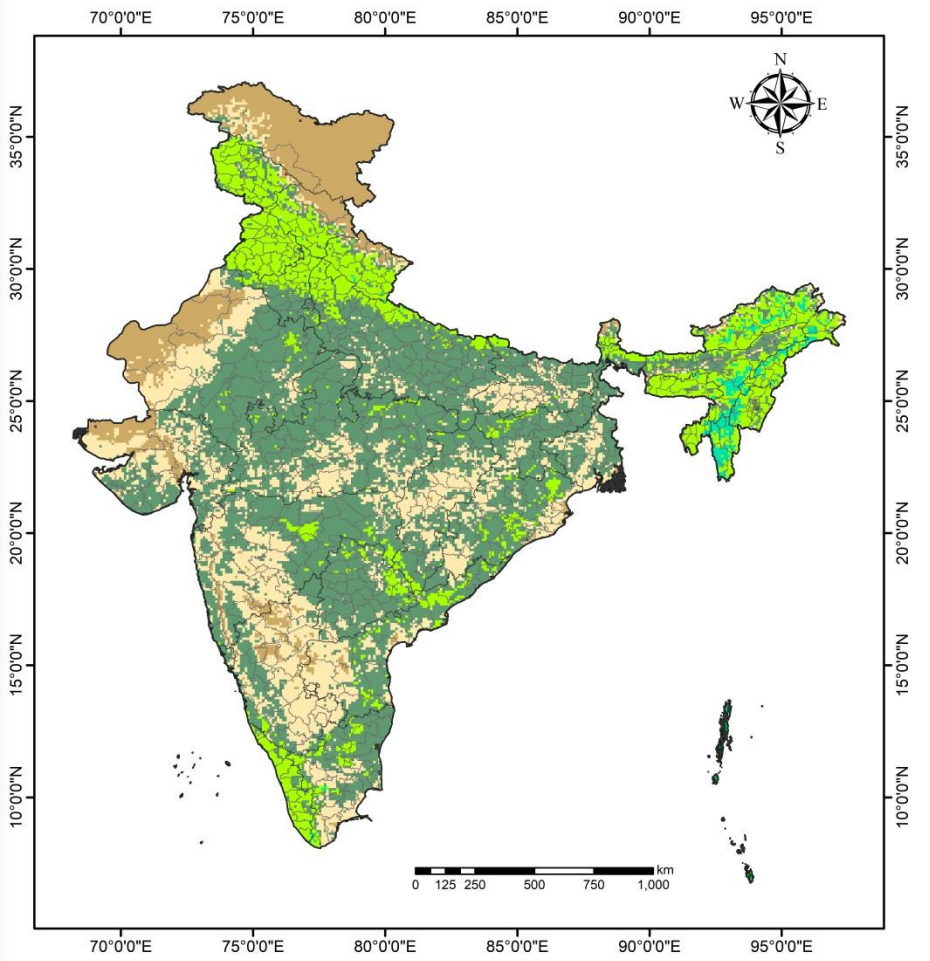


19:30 Hrs. of 26th Aug 2020.

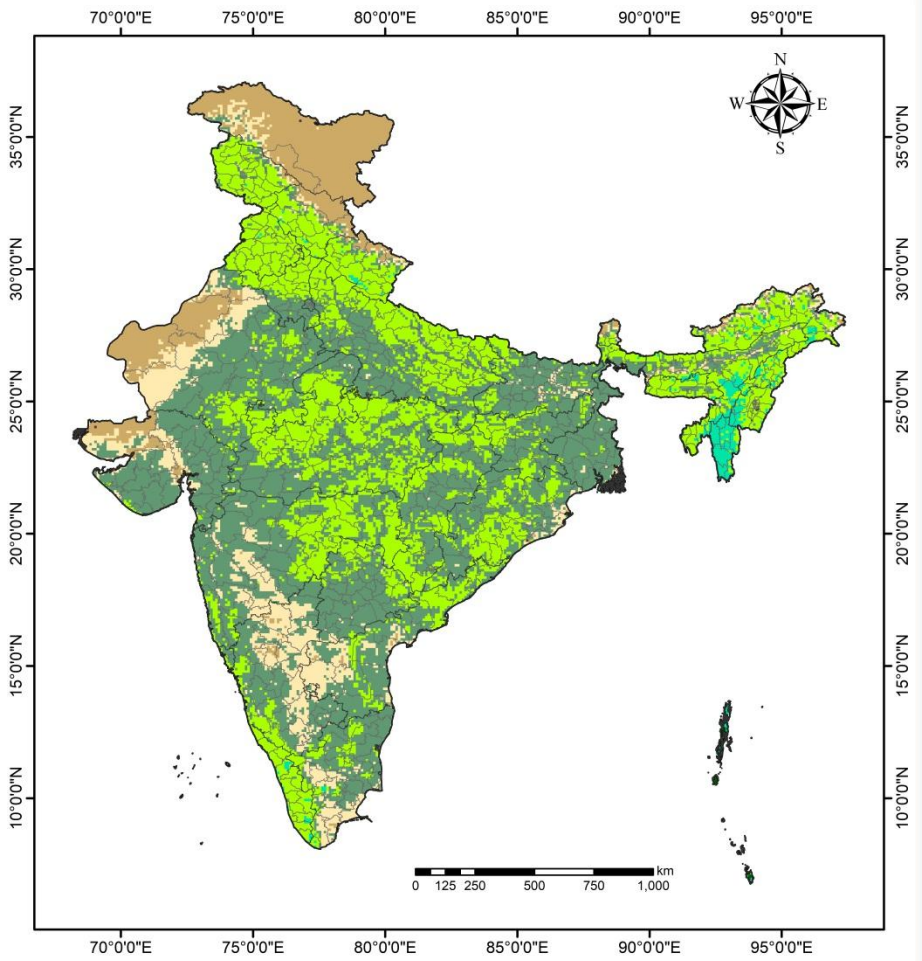
< 0 | 0 - 10 | 10 - 20 | 20 - 25 | 25 - 30 | 30 - 35 | 35 - 40 | 40 - 45 | 45 - 50

Source: SMAP Enhanced L4 Global 3 Hourly 9 km Product

Leaf Area Index (LAI)



19:30 Hrs of 15th Aug 2020.

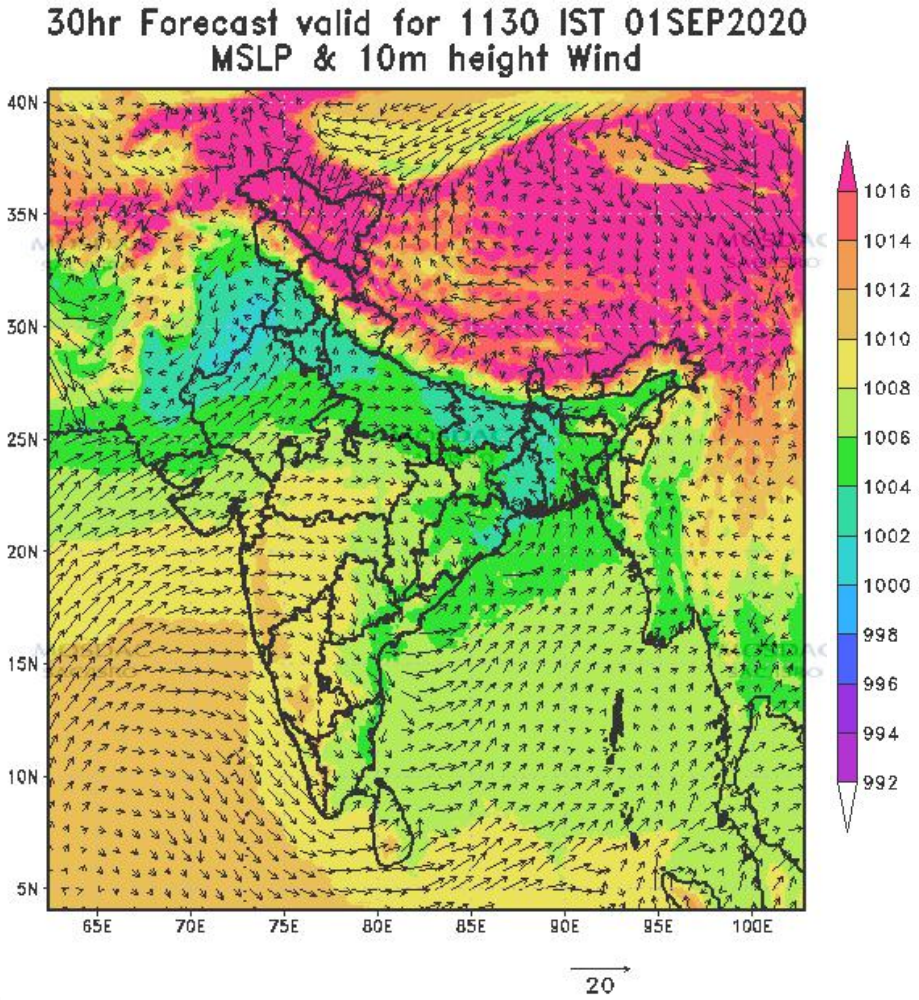


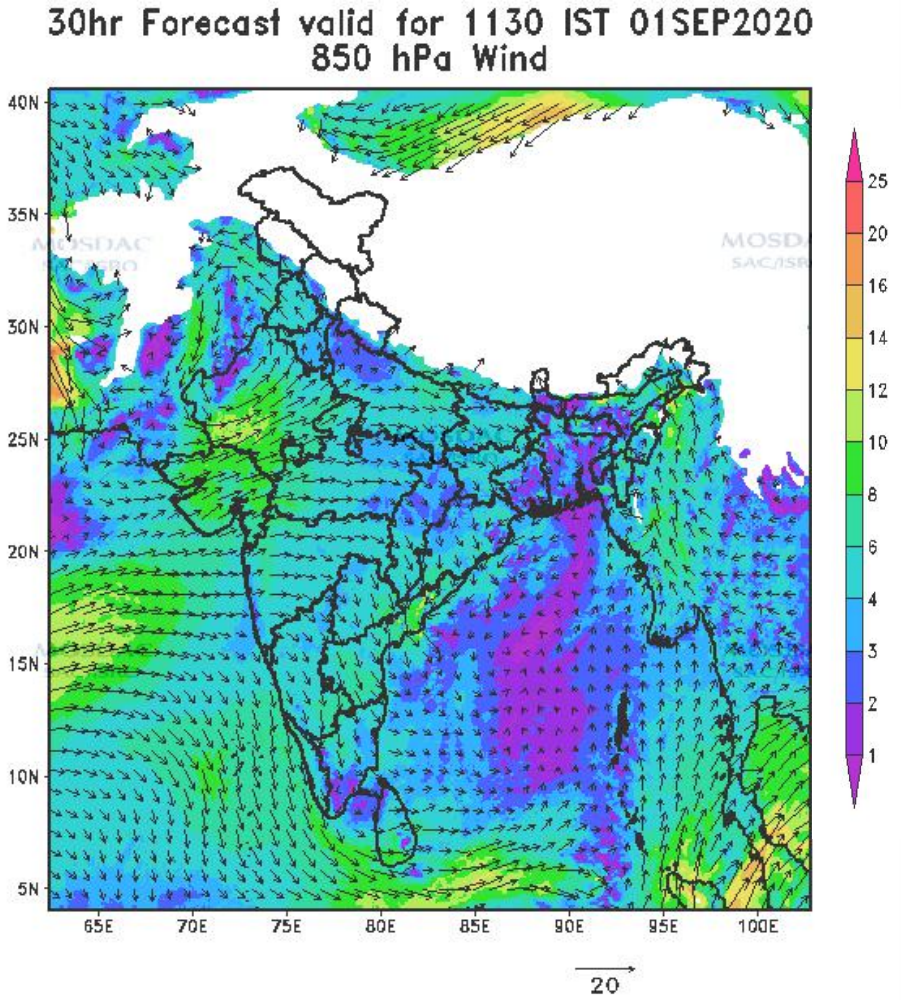
19:30 Hrs of 26th Aug 2020.

< 0 | 0 - 0.25 | 0.25 - 0.50 | 0.50 - 1.00 | 1.00 - 3.00 | 3.00 - 5.00 | 5.00 - 7.00

Source: SMAP Enhanced L4 Global 3 Hourly 9 km Product

Wind Vectors

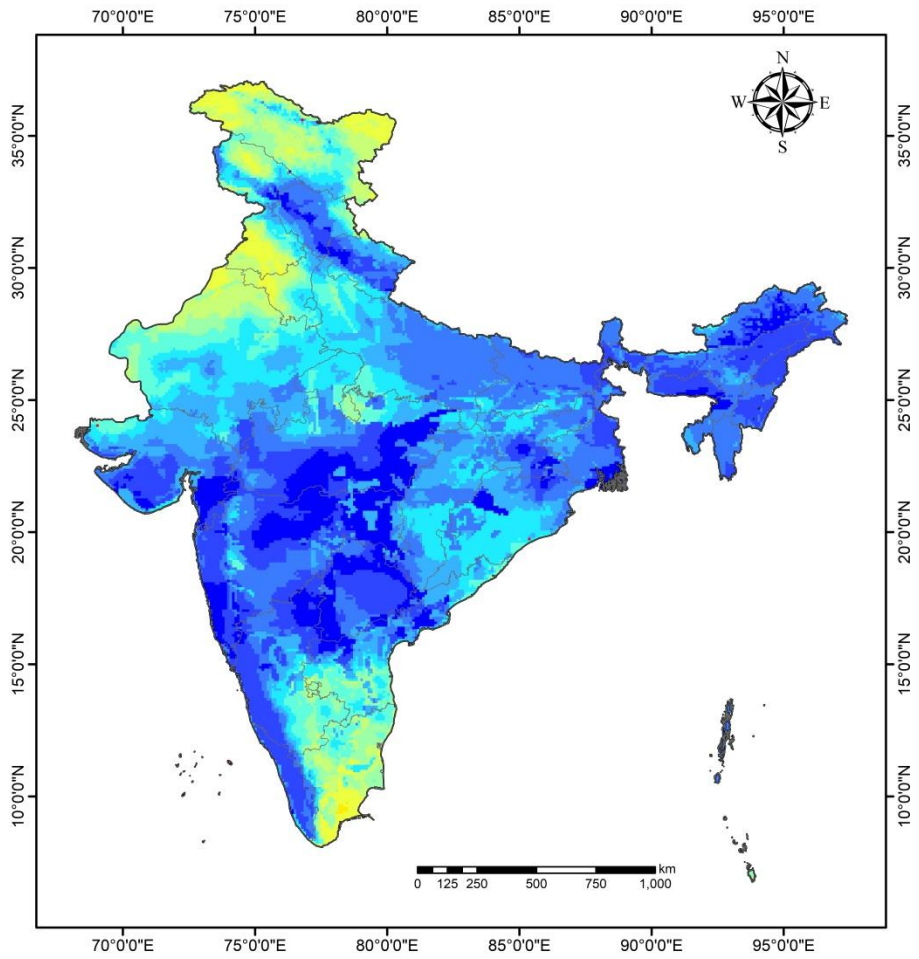




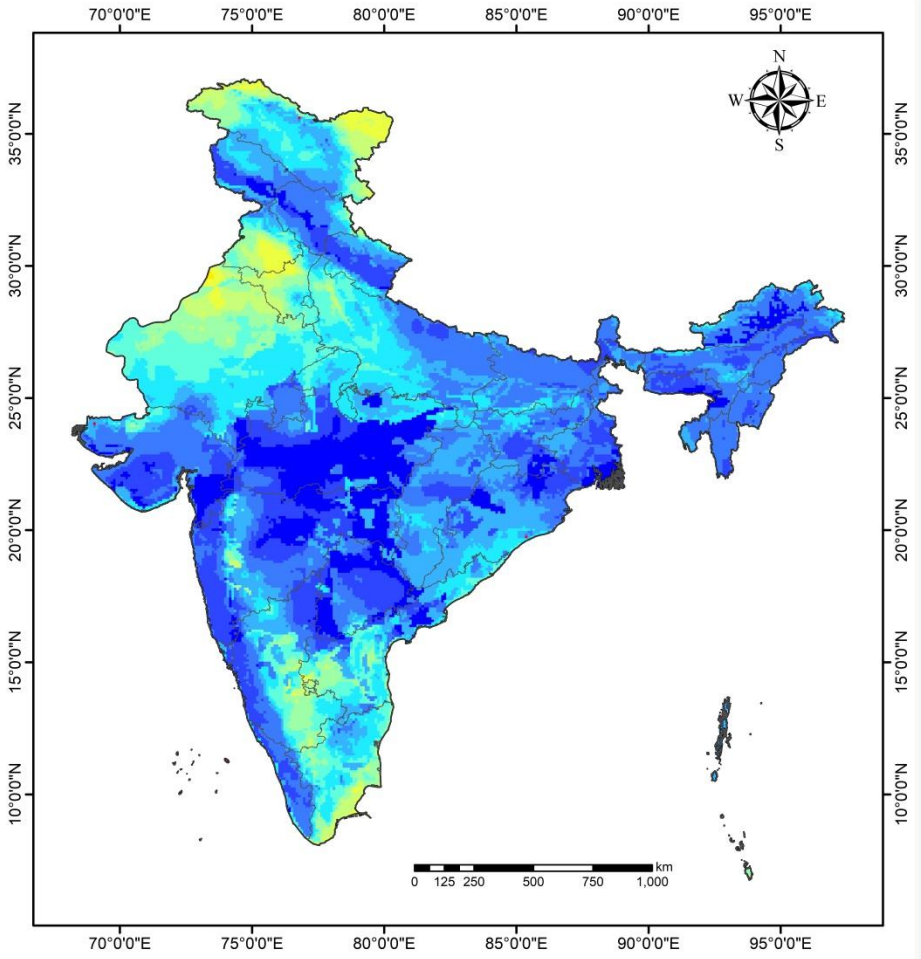
Source: MOSDAC web portal

Wind speed @ 1.46 km from msl.

Surface Soil Moisture Map (%)



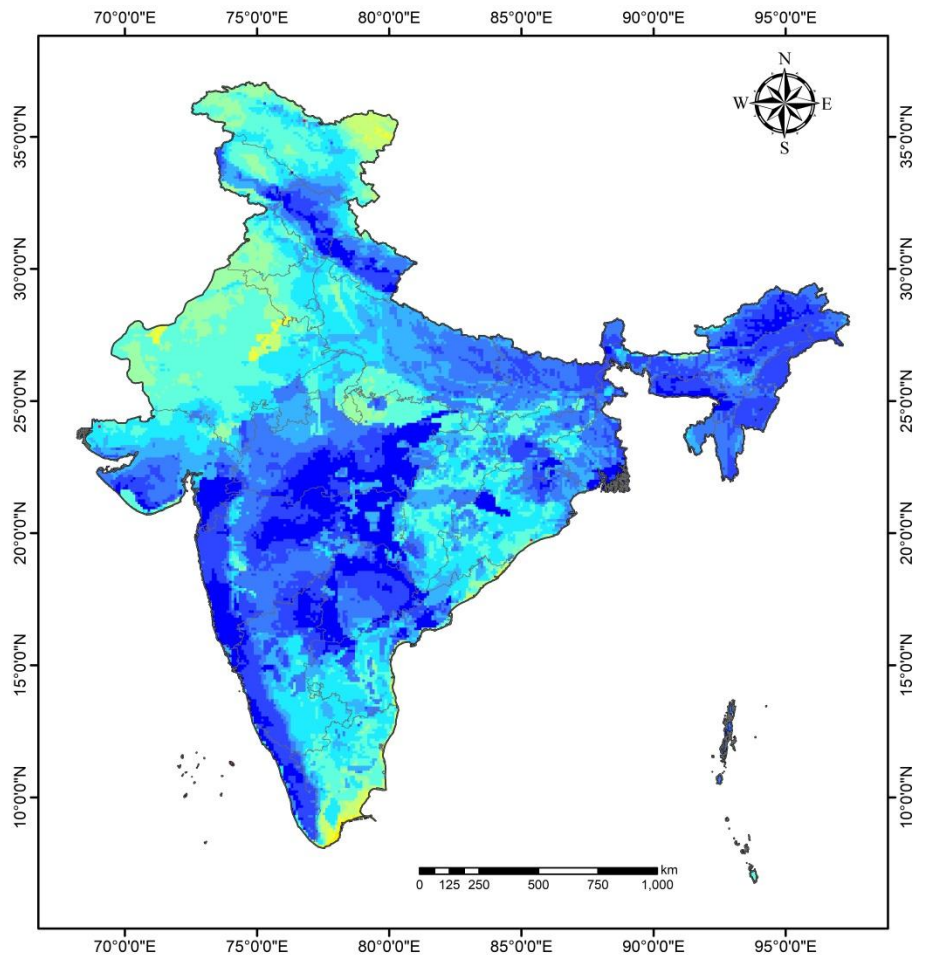
19:30 Hrs. of 15th Aug 2020.



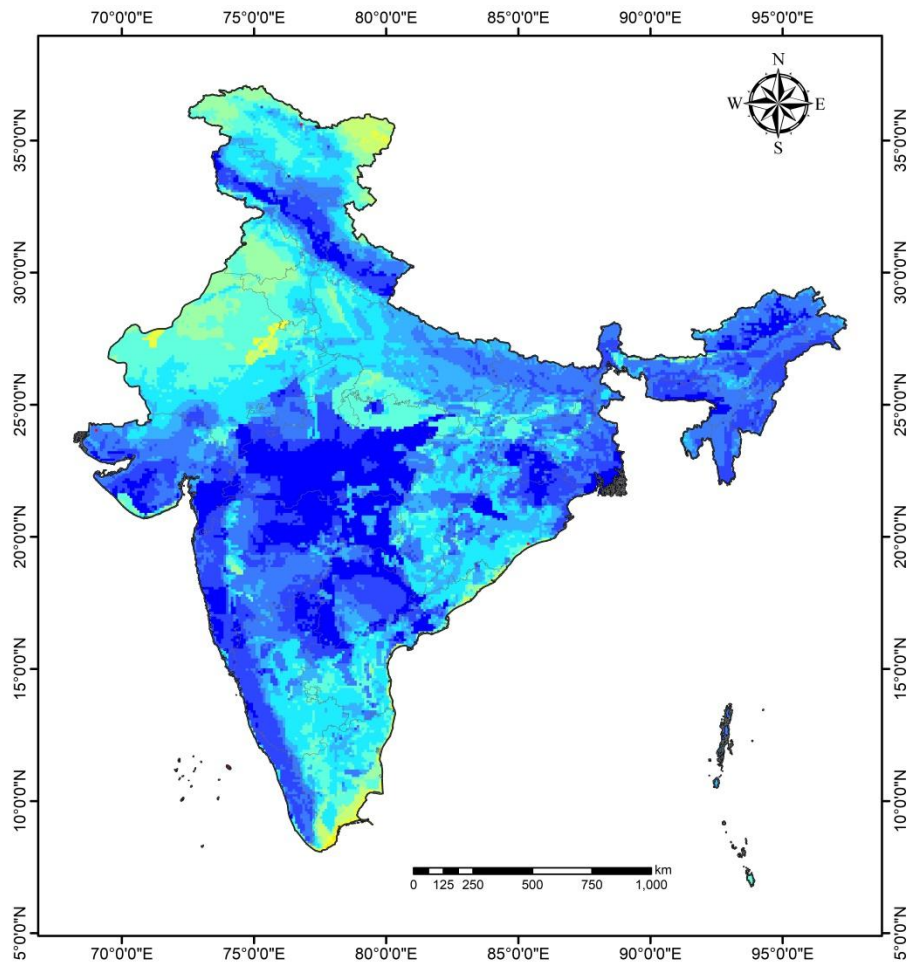
19:30 Hrs. of 26th Aug 2020.

Source: SMAP Enhanced L4 Global 3 Hourly 9 km Product

Root-Zone Soil Moisture Map (%)



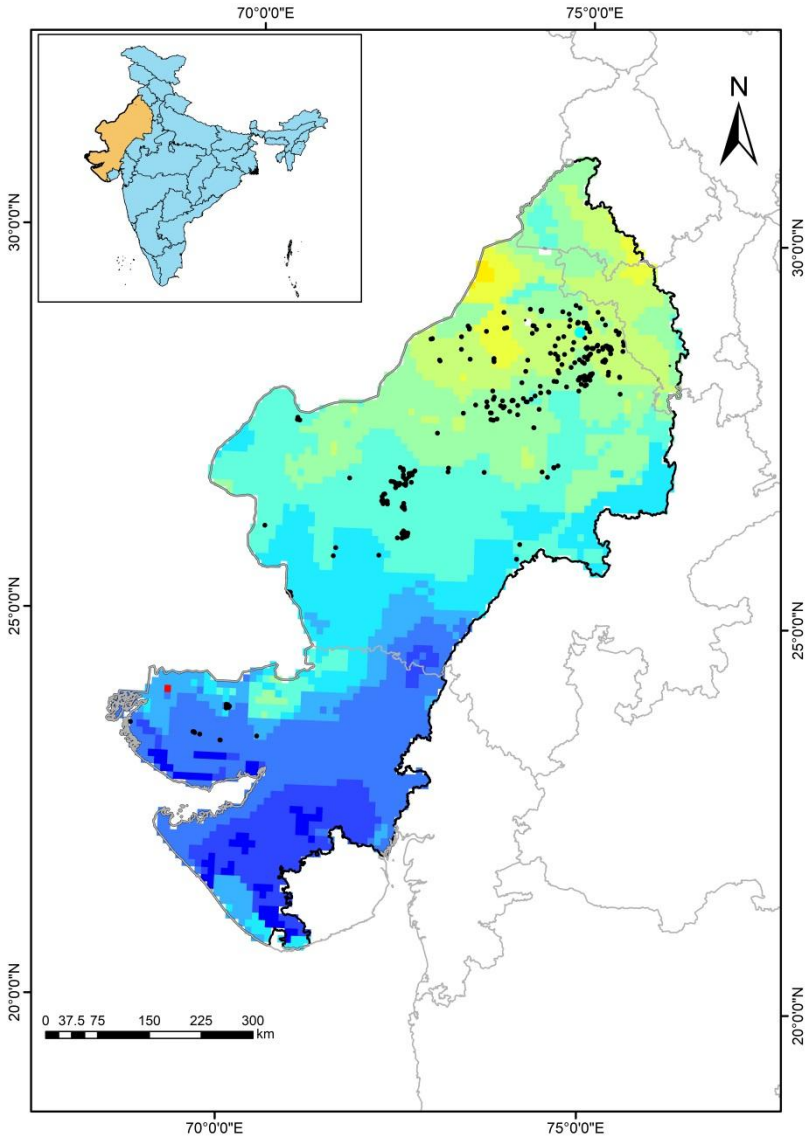
19:30 Hrs. of 15th Aug 2020.



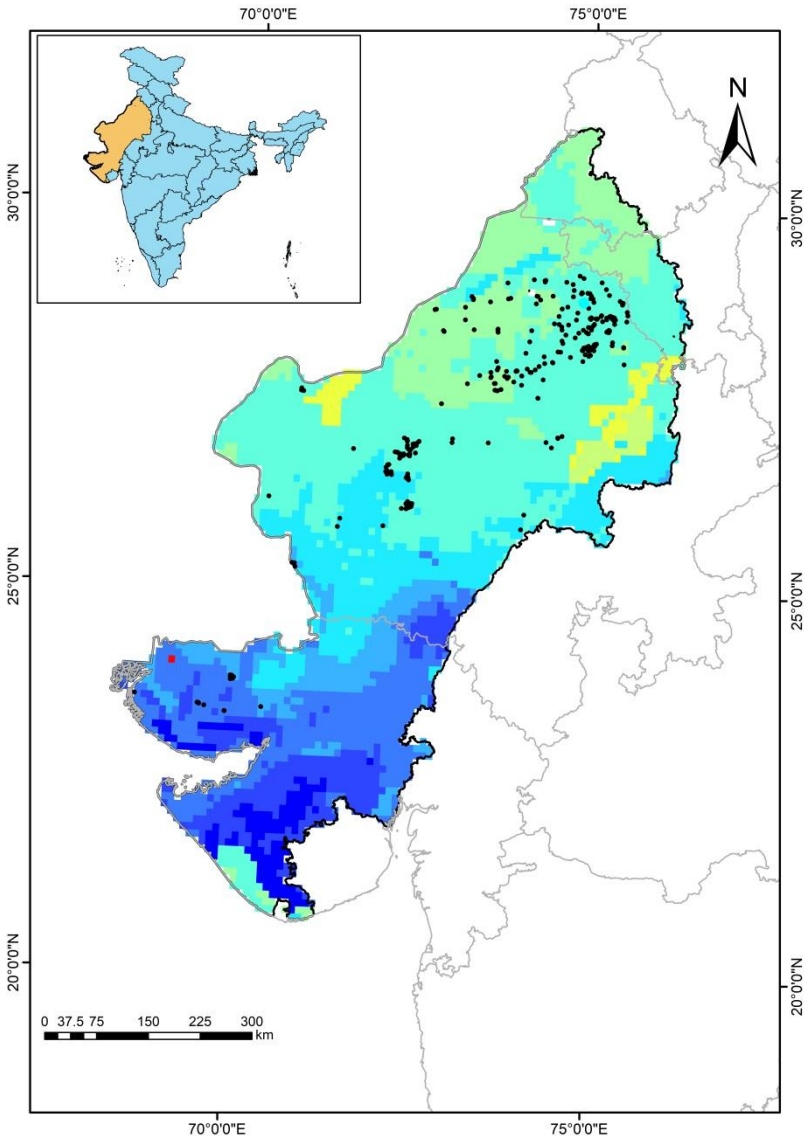
19:30 Hrs. of 26th Aug 2020.

Source: SMAP Enhanced L4 Global 3 Hourly 9 km Product

Hoppers Sites in Thar Desert Region



Surface Soil moisture map 19:30 Hrs. of 26th Aug 2020

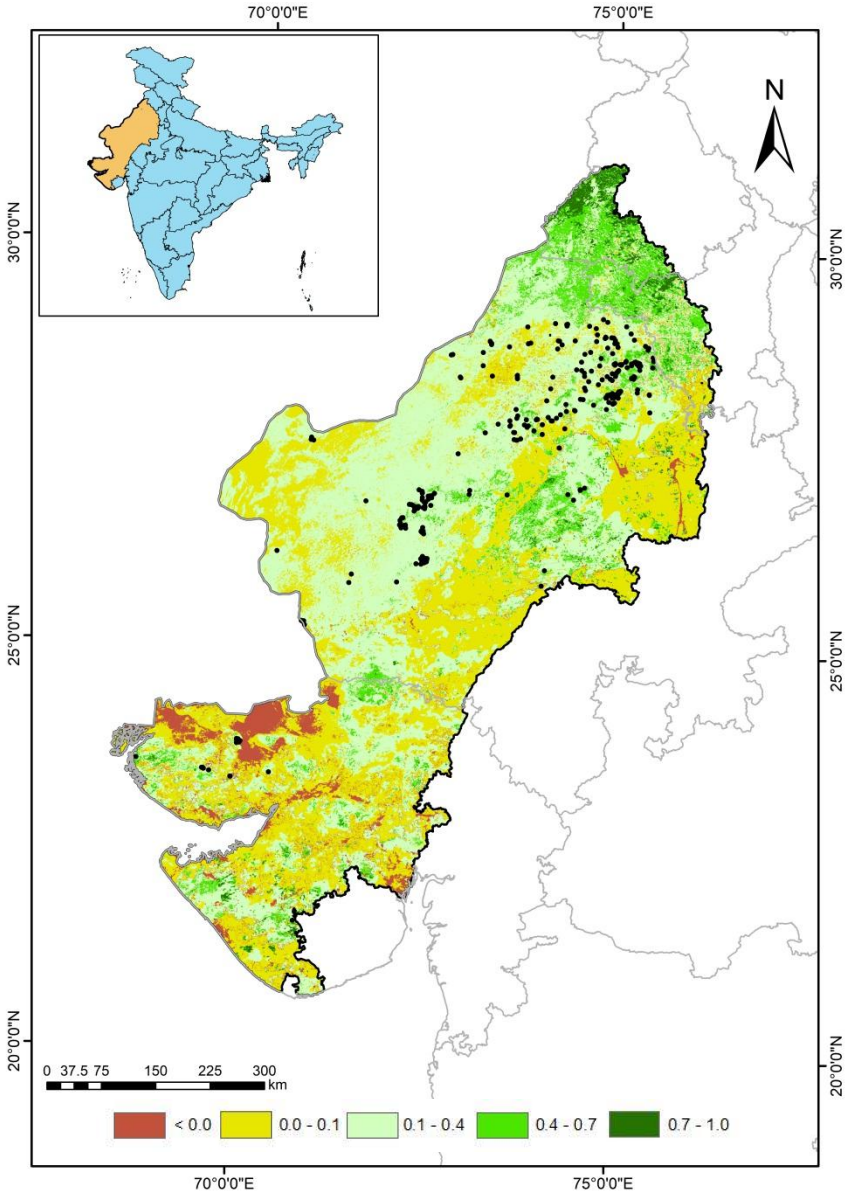


Root-zone soil moisture map 19:30 Hrs. of 26th Aug 2020

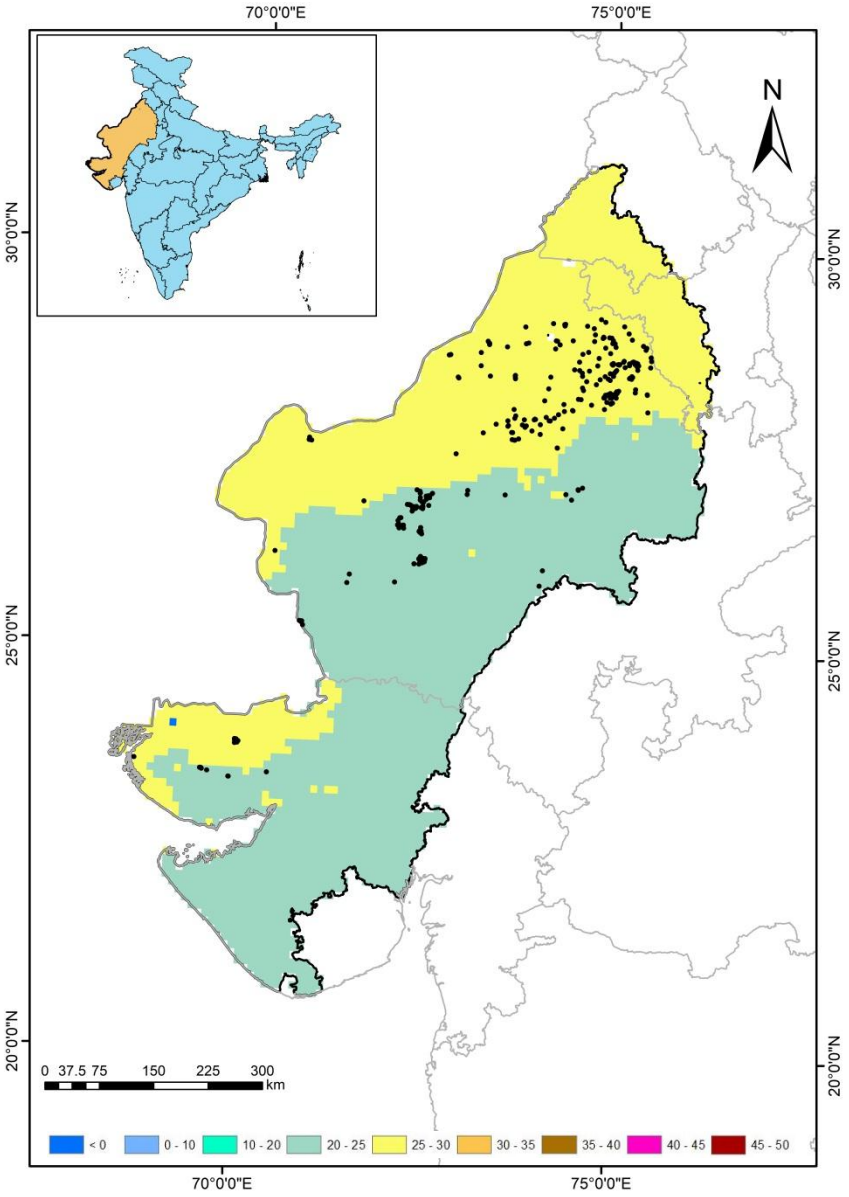
0-1 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | 5 - 10 | 10 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | 30 - 35 | 35 - 40 | 40 - 45 | 45 - 50

Source: Locust Incidents - LWO-Jodhpur; Surface/Root-zone Soil Moisture - SMAP Enhanced L4 Global 3 Hourly 9 km Product

Hoppers Sites in Thar Desert Region



Normalized Difference Vegetation Index

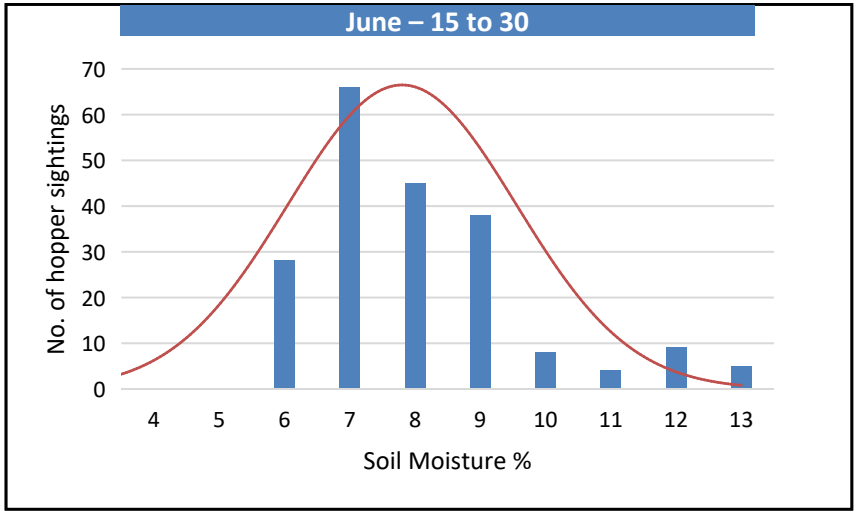


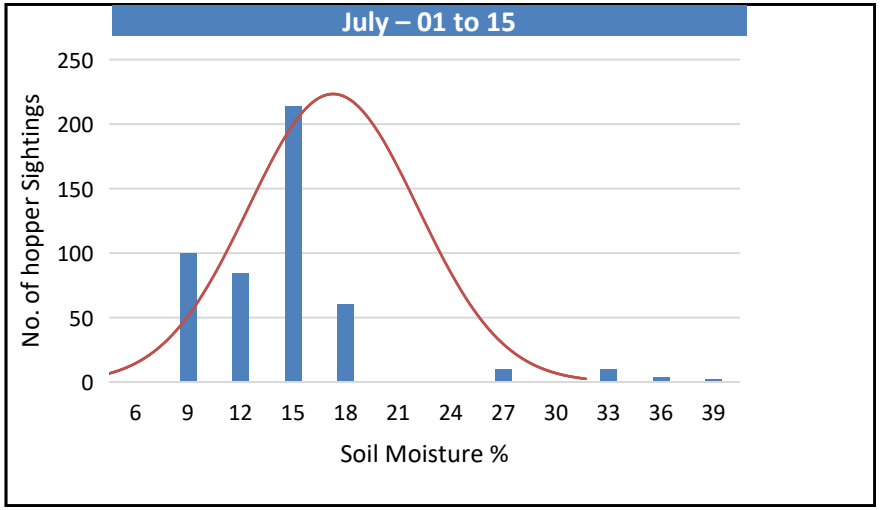
Land Surface Temperature map

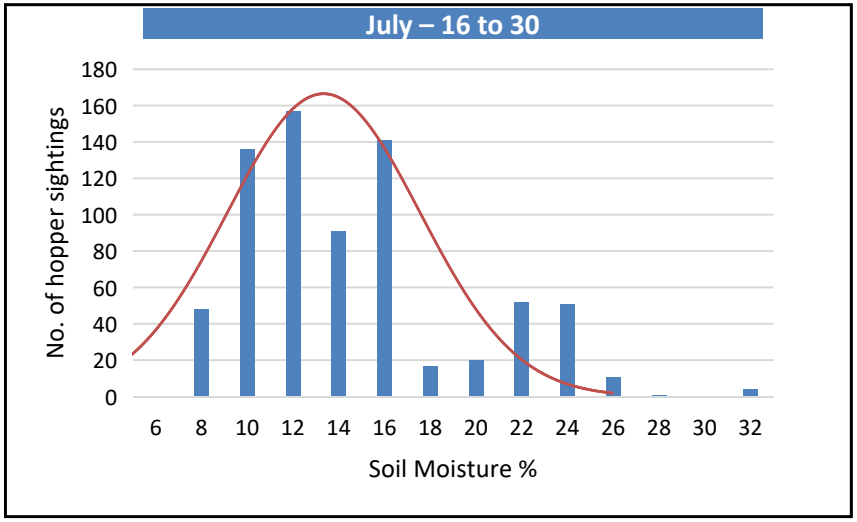
19:30 Hrs. of 9th Aug 2020

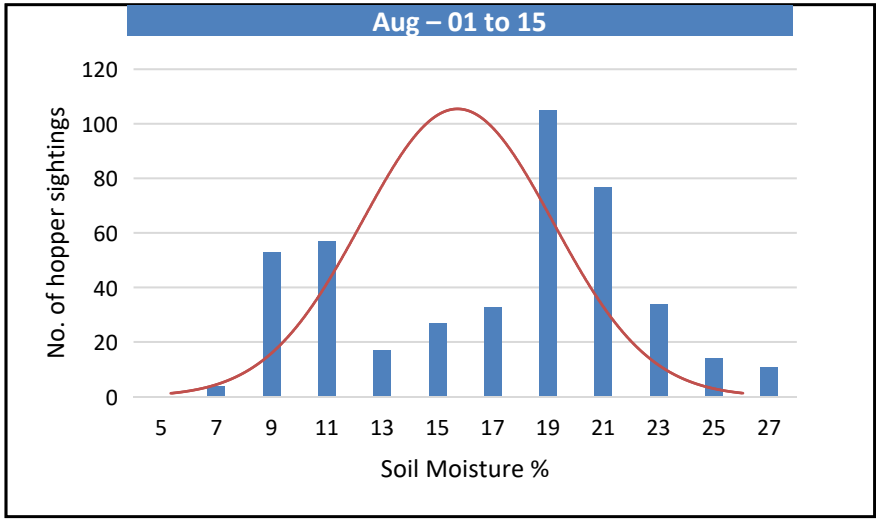
Source: Locust Incidents - LWO-Jodhpur; NDVI – EMODIV Ver. 6; Land Surface Temperature - SMAP Enhanced L4 Global 3 Hourly 9 km Product

Hoppers Variability w.r.t Soil Moistue

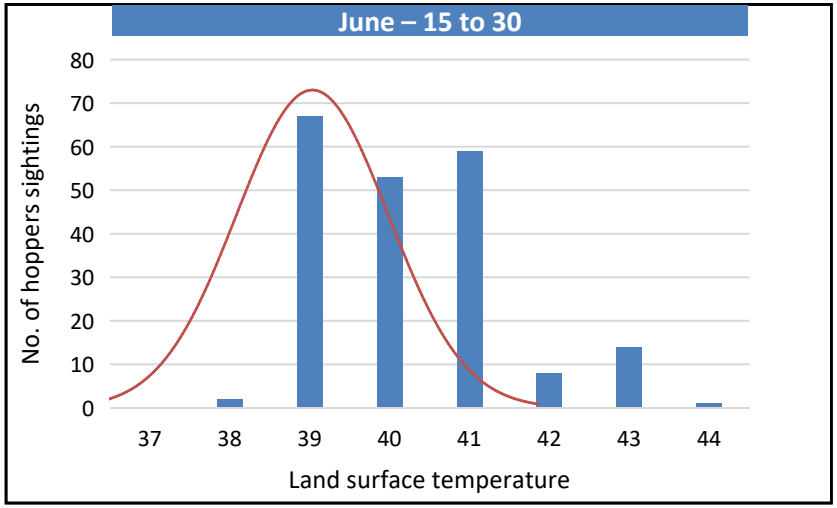


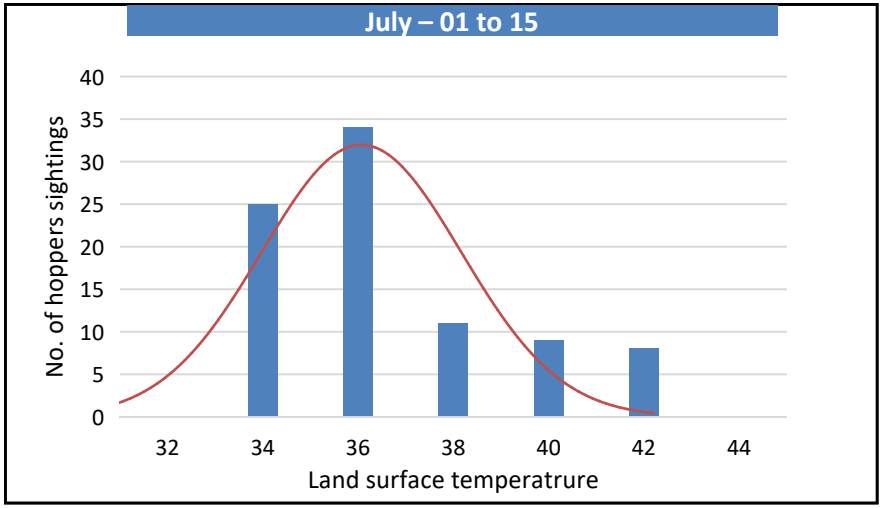


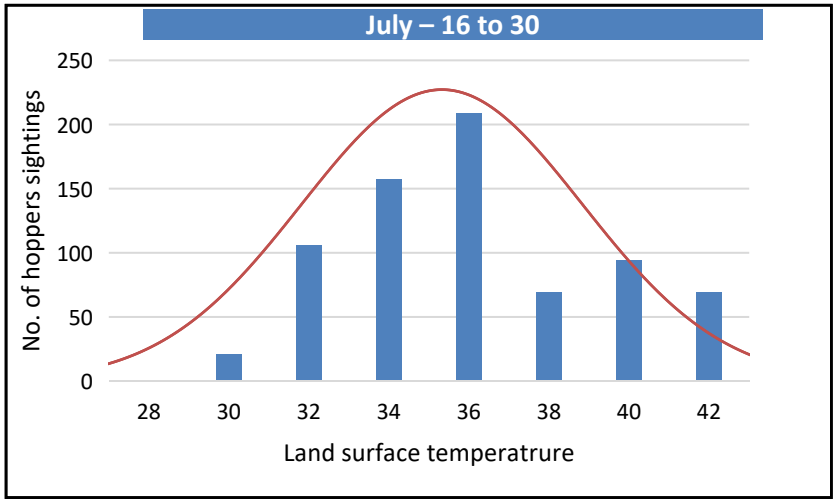


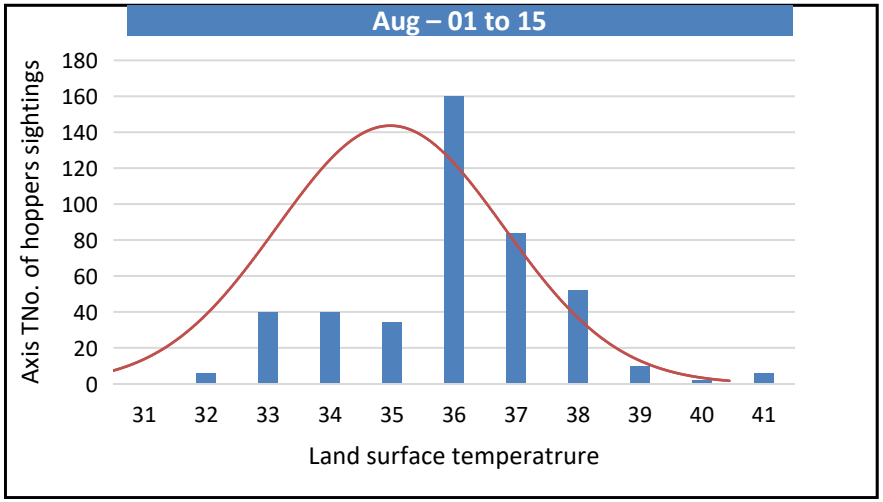


Hoppers Variability w.r.t Land Surface Temperatrure









Hoppers Variability w.r.t Leaf Area Index