Aerospace Information Research Institute (AIR)
Chinese Academy of Sciences (CAS)

Role of AIR in supporting locust monitoring and assessment using aerospace technologies

Wenjiang Huang, Yingying Dong

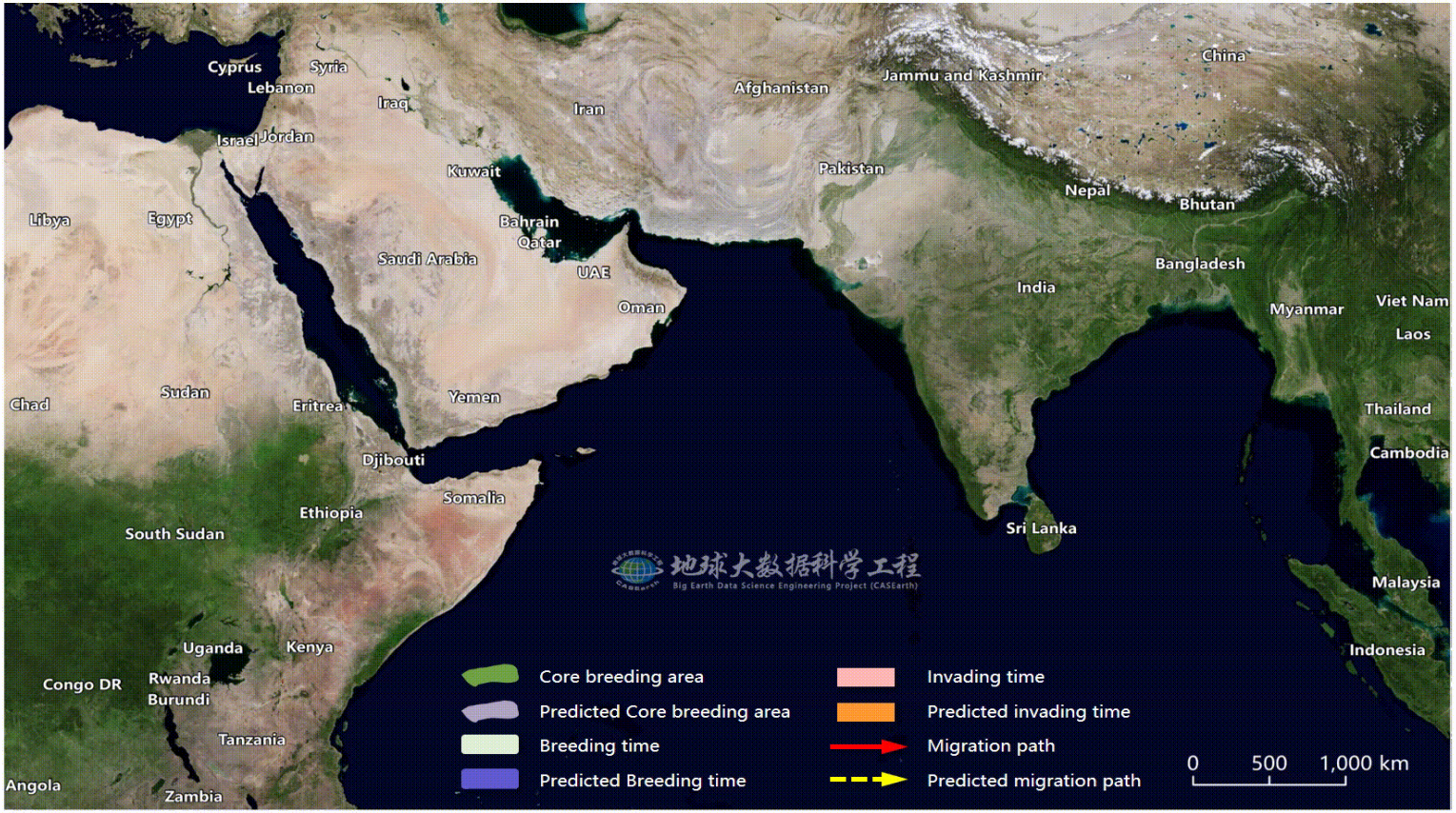
Aerospace Information Research Institute
Chinese Academy of Sciences

Desert Locust

Migration path and prediction of Desert Locust in Africa and Asia (2020.03-07)

We combine multi-source Earth Observation data (including GF series, MODIS and Landsat, and Sentinel series), meteorological data, field data, and self-developed models and algorithms for Desert Locust monitoring and forecasting based on the Digital Earth Science Platform developed by AIR.

- Migration path and prediction of Desert Locust in Africa and Asia
- Monitoring and assessment of Desert Locust in main countries (Pakistan, Ethiopia, Kenya, Somalia, Yemen)

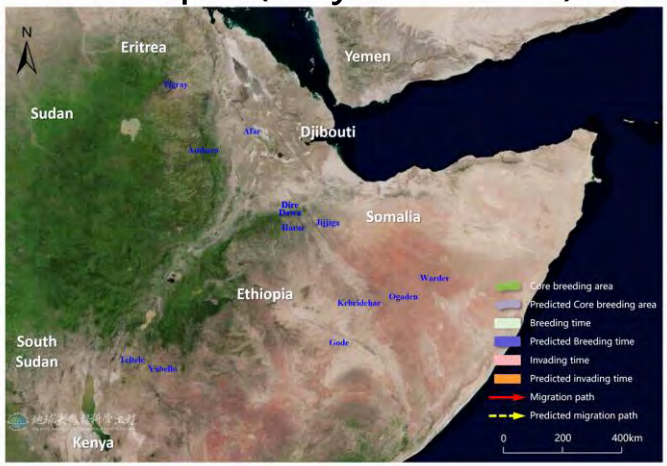


Desert Locust

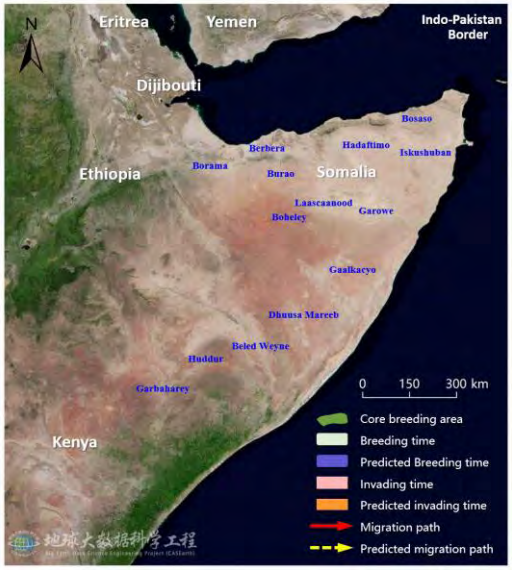
Migration path and prediction of Desert Locust in main countries

Pakistan (27 years worst)

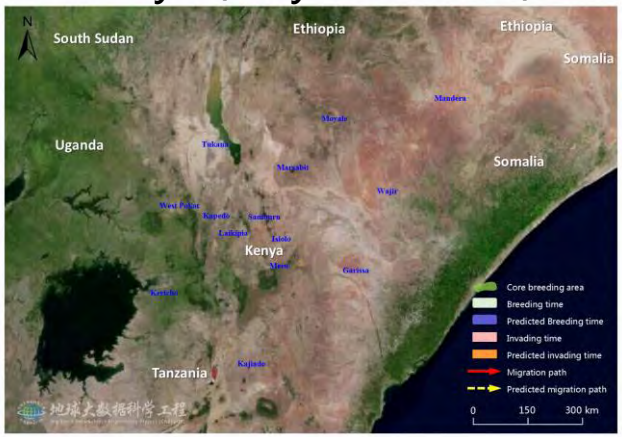
Ethiopia (25 years worst)



Somalia (25 years worst)



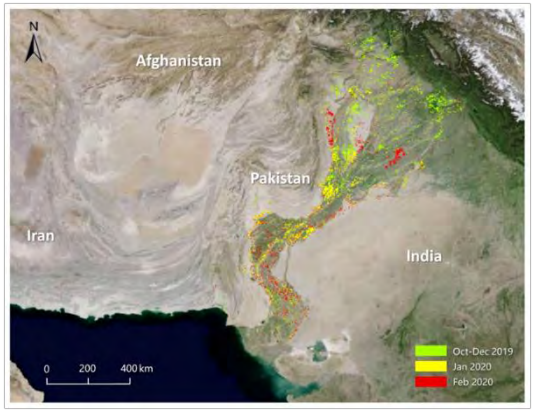
Kenya (70 years worst)

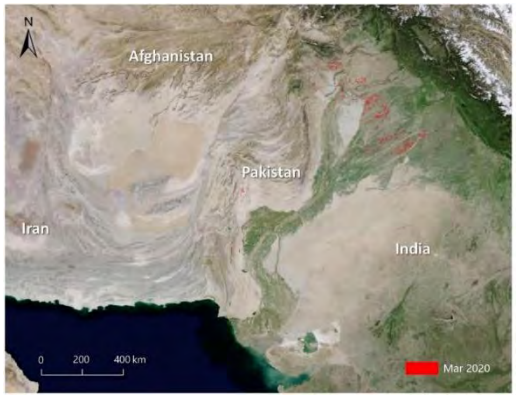


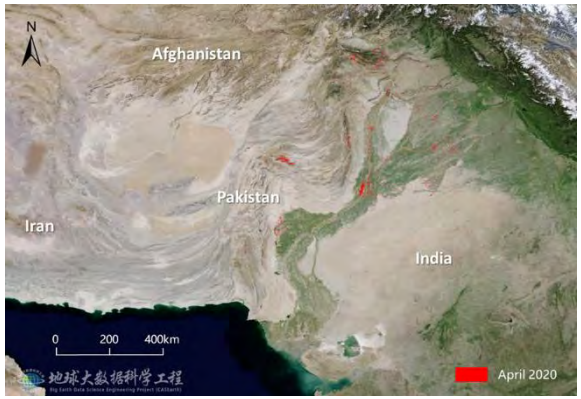
Yemen (27 years worst)

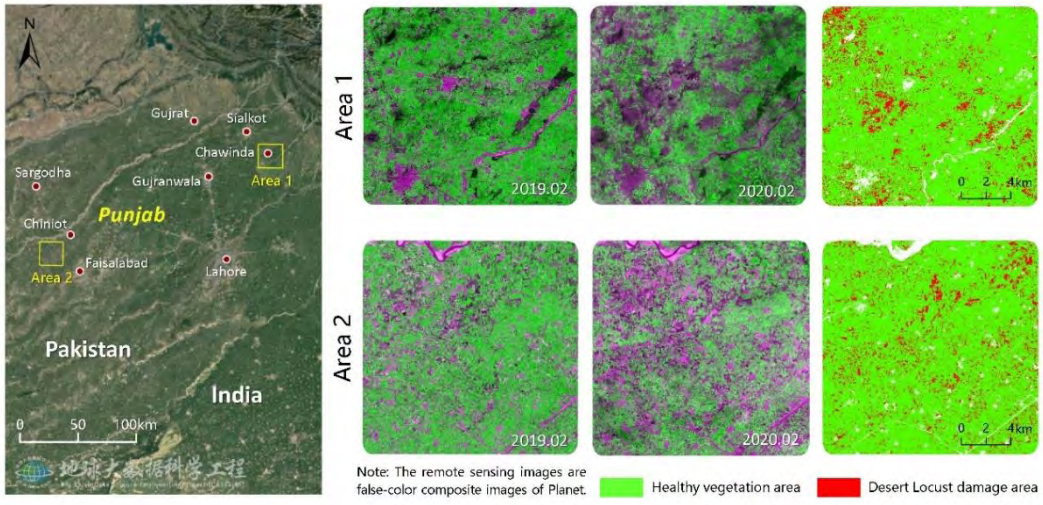
Desert Locust

Monitoring and assessment of Desert Locust in Pakistan





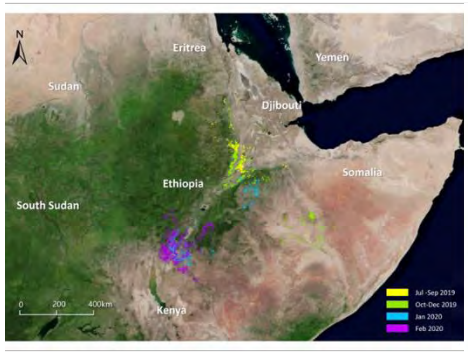


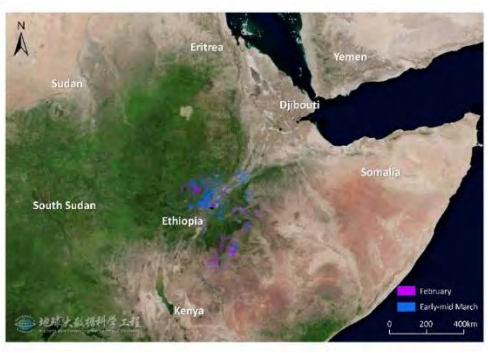


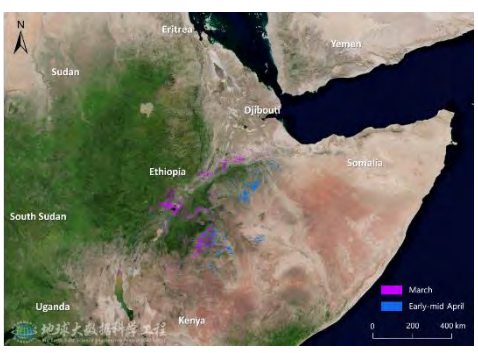
By the end of April 2020, Desert Locust in Pakistan harmed about 431.9 thousand hectares of vegetation area (including 233.0 thousand hectares cropland and 198.9 thousand hectares grassland), mainly distributed in North-central Punjab, northern Baluchistan, southern Khyber-Pakhtunkhwa, central Federally Administered Tribal Areas and Western Sind in Pakistan.

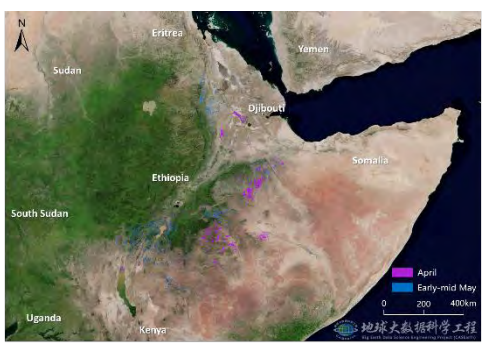
Desert Locust

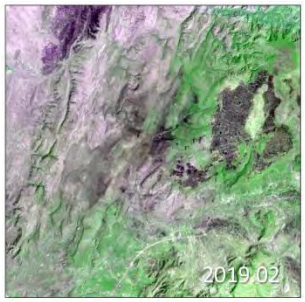
Monitoring and assessment of Desert Locust in Ethiopia

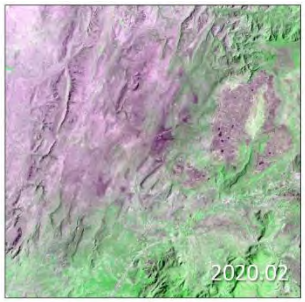


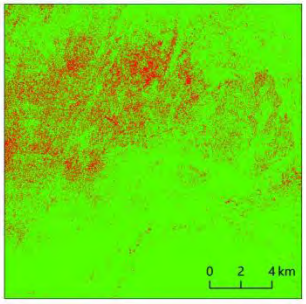












Note: The remote sensing images are false-color composite images of Planet.

Healthy vegetation area

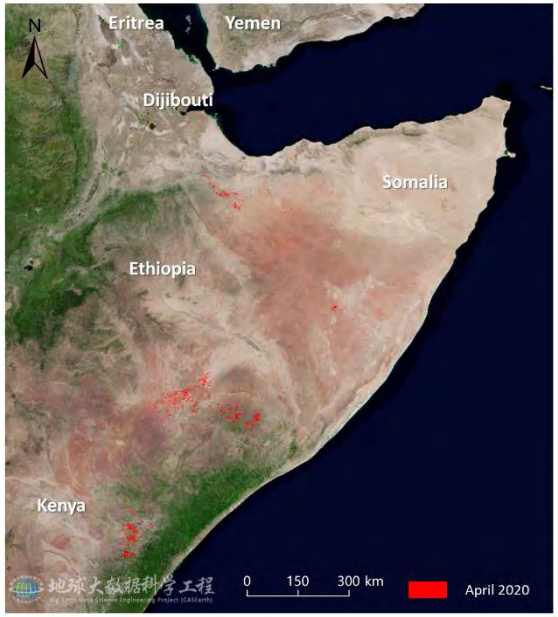
Desert Locust damage area

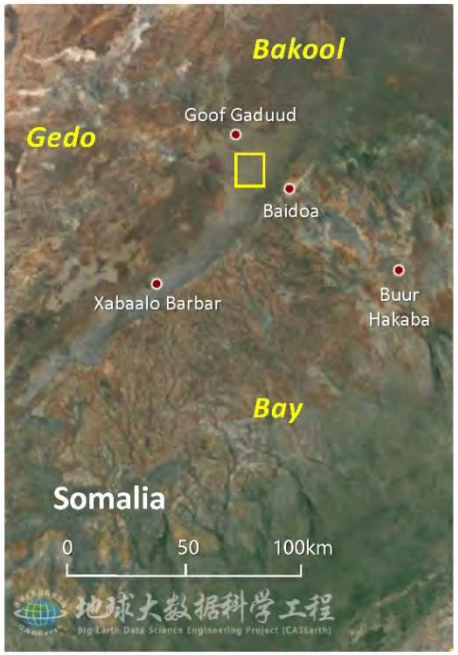
Desert Locust in Ethiopia harmed about 1654.1 thousand hectares of vegetation area from April to mid-May (including 497.0 thousand hectares of cropland, 453.9 thousand hectares of grassland and 703.2 thousand hectares of shrub), mainly distributed in central Afar, western and southern Somalian, eastern Oromia, southern Interracial and eastern Amhara.

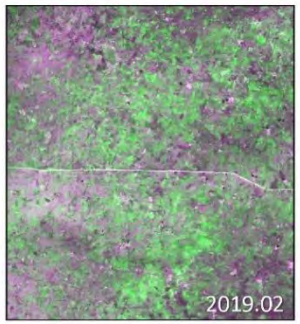
Desert Locust

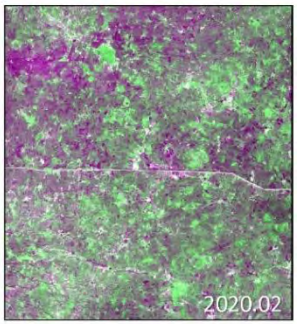
Monitoring and assessment of Desert Locust in Somalia

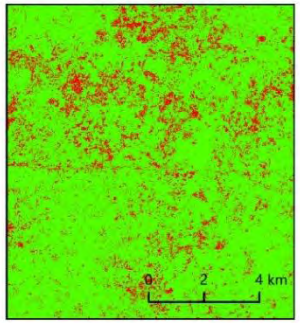
Desert Locust in Somalia harmed about 392.1 thousand hectares of vegetation area in April (including 1.4 thousand hectares cropland, 136.4 thousand hectares grassland and 254.3 thousand hectares shrub), mainly distributed in Jubbada Hoose, Gedo, Bakool and Bay states in southern Somalia, Awdal, Woqooyi Galbeed and Gogdheer states in the northwest and Mudug state in the Middle.











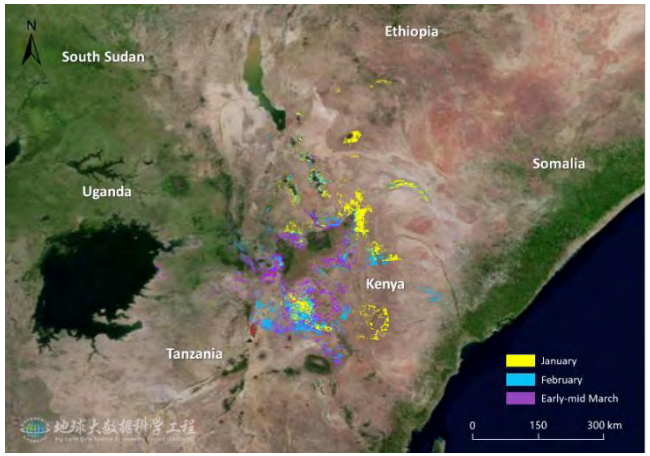
Note: The remote sensing images are false-color composite images of Planet.

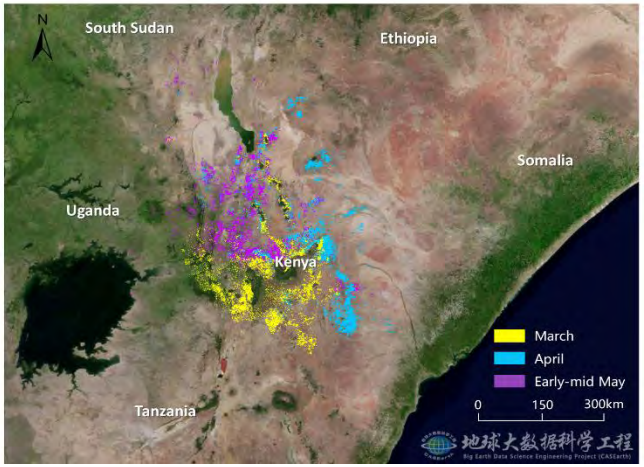
Healthy vegetation area

Desert Locust damage area

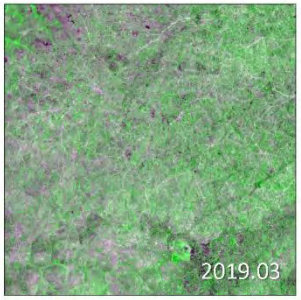
Desert Locust

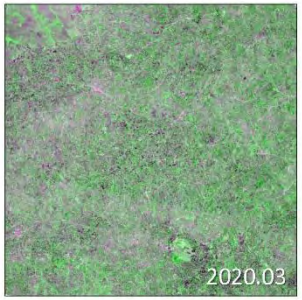
Monitoring and assessment of Desert Locust in Kenya

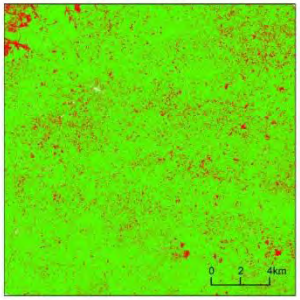




The result showed that from March to mid-May 2020, Desert Locust in Kenya harmed about 3359.2 thousand hectares of vegetation area (including 864.6 thousand hectares of cropland, 1393.8 thousand hectares of grassland and 1100.8 thousand hectares of shrub), mainly distributed in Rift Valley Province and Eastern Province, while Central, Coastal, Northeastern, Western and Nyanza Provinces were less affected.







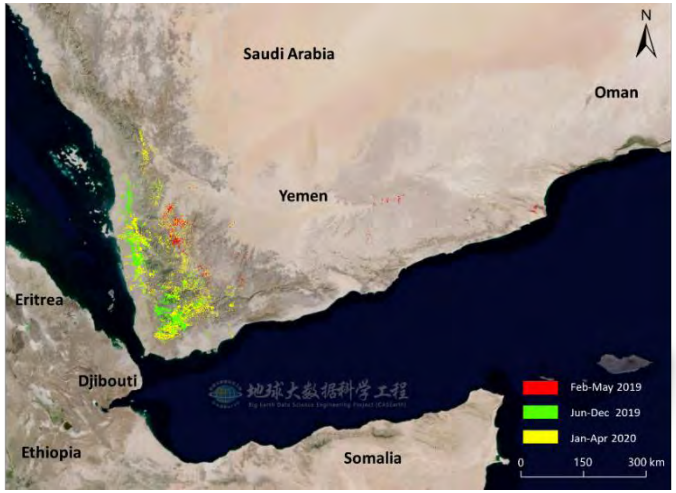
Note: The remote sensing images are false-color composite images of Planet.

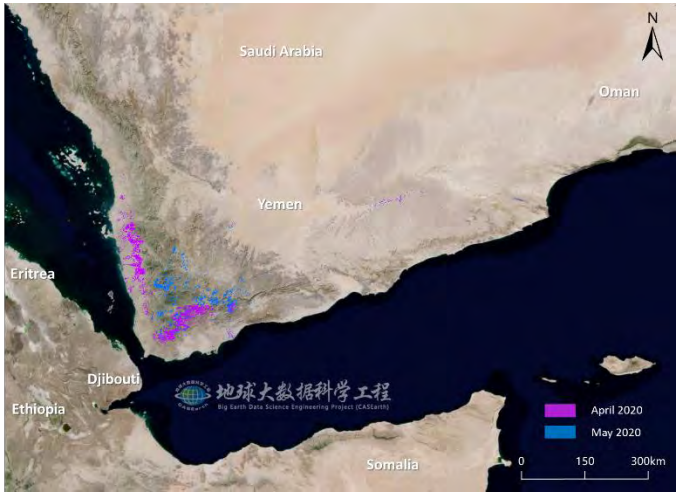
Healthy vegetation area

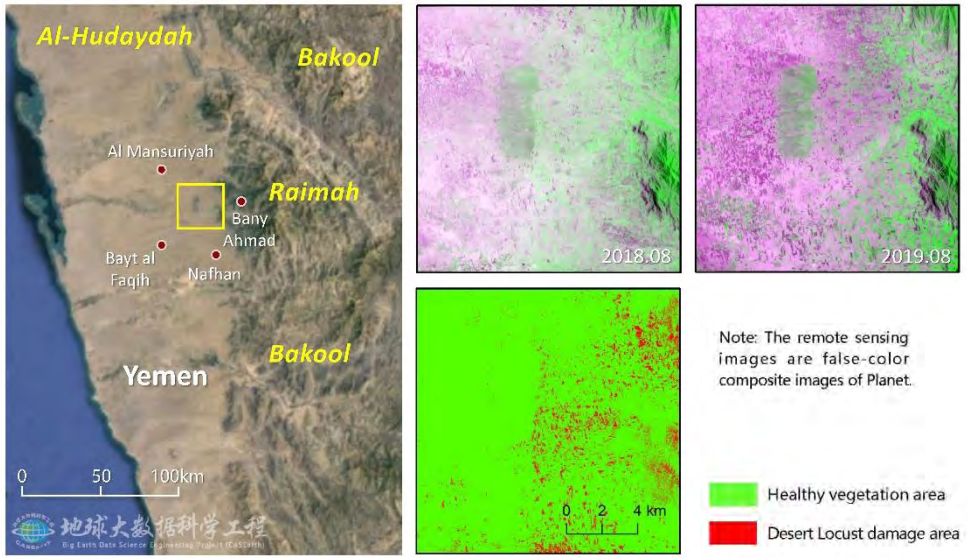
Desert Locust damage area

Desert Locust

Monitoring and assessment of Desert Locust in Yemen







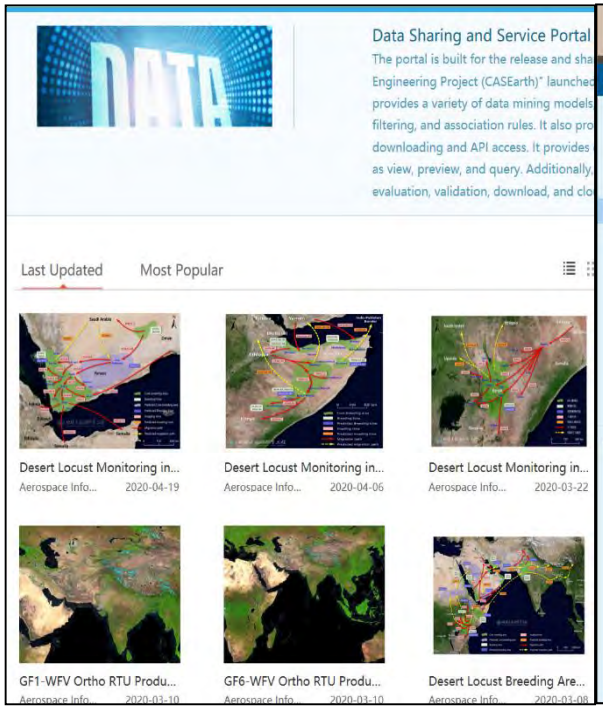
As of mid-April 2020, 20 provinces in Yemen had been harmed since Desert Locust invaded northeastern Yemen in January 2019. The vegetation damaged area is 1535.9 thousand hectares, including 437.3 thousand hectares of cropland, 264.5 thousand hectares of grassland and 834.1 thousand hectares of shrub, accounting for 34.4%, 46.0% and 14.8% of the total cropland, grassland, and shrub in Yemen, respectively. From April to May, the total area of newly increased vegetation damaged by desert locusts in Yemen is 529.3 thousand hectares.

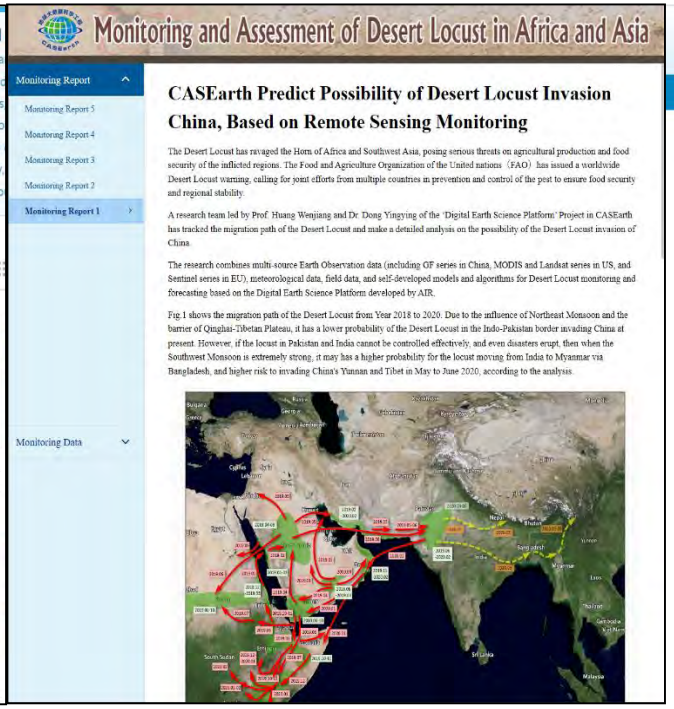
Desert Locust

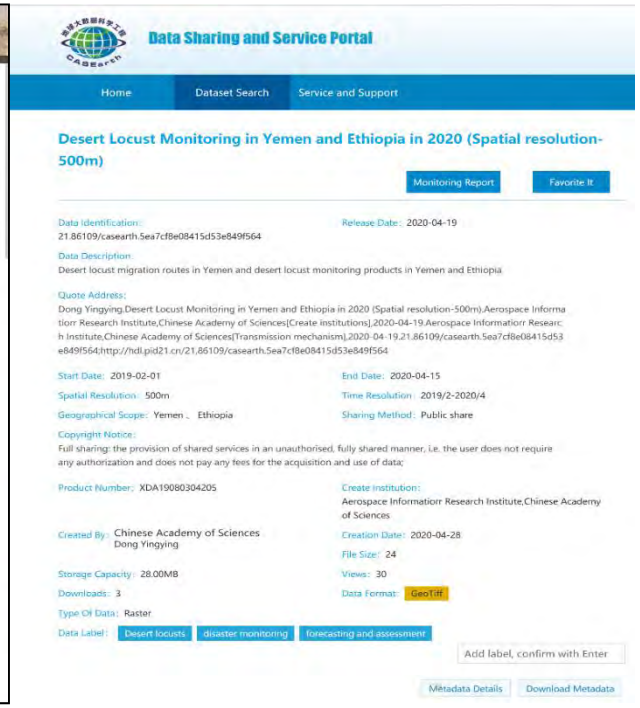
Desert Locust Monitoring and Loss Assessment reports released in 2020

eight reports

The results are provided to the working group of the Ministry of agriculture and rural areas of China in Pakistan to provide decision support for joint pest control.







WeChat: rscrop

E-mail: rscrop@aircas.ac.cn

Data and report: www.data.casearth.cn

Software website: http://www.rscropmap.com/

Research Group: http://www.rscrop.com/