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Big Earth Data Science Engineering Project (CASEarth)

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Report of Monitoring and Assessment of Desert Locust in Africa and Asia

Early June 2021

Desert Locust monitoring and loss assessment in Kenya

Overview

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as GF series in China, MODIS and Landsat series in US, Sentinel series in EU), and self-developed models and algorithms for Desert Locust monitoring and forecasting, the research team constructed the 'Vegetation pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on Desert Locust.

This report focuses on the updates of desert locust monitoring and loss assessment in Kenya from March to May 2021. The results showed that from March to May 2021, desert locusts in Kenya were mainly distributed in the western and central regions. Compared with February, the newly damaged vegetation was 564.3 thousand hectares, including 74.1 thousand hectares of cropland, 260.7 thousand hectares of grassland and 229.5 thousand hectares of shrub. Due to the rain in the Horn

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of Africa at the end of May, the locusts in Ethiopia and Somalia continued to mature and reproduce. They are expected to spread to Kenya in June and July, and the number of locusts in Kenya will increase significantly. The next two months will see the planting season in Kenya. It is still necessary to pay close attention to the dynamics of desert locust in Kenya to prevent losses to agricultural and pasture production. The research results are as follows.

Monitoring and assessment of Desert Locust in Kenya

In March 2021, due to the rainfall, locusts in northern Kenya continue to spawn, reproduce, and mature. Due to ground control operations, the number of locusts in Kenya

decreased. The monitoring results showed that, in March, desert locusts in Kenya harmed about 373.9 thousand hectares of vegetation area, with an increase of 339.0 thousand hectares (including 41.3 thousand hectares of cropland, 141.7 thousand hectares of grassland, and 156.0 thousand hectares of shrub) (Figure 1). In early April, the number of locusts in Kenya continued to decrease due to ground control operations. In mid and late April, locusts in Kenya continued to mature and lay eggs due to the rains. The monitoring results showed that in April, desert locusts in Kenya harmed about 276.4 thousand hectares, with an increase of 144.5 thousand hectares (including 17.7 thousand hectares of cropland, 79.8 thousand hectares of grassland and 47.0 thousand hectares of shrub) (Figure 2). In May, the number of locusts in Kenya decreased significantly because of ground control operations. The monitoring results showed that in May, desert locusts in Kenya harmed about 185.1 thousand hectares of vegetation area, with an increase of 80.8 thousand hectares (including 15.1 thousand hectares of cropland, 39.2 thousand hectares of grassland, and 26.5 thousand hectares of shrub) (Figure 3).

The research results show that, compared with February 2020, desert locusts in Kenya newly harmed about a total of 564.3 thousand hectares of vegetation area from March to May, including 74.1 thousand hectares of cropland, 260.7 thousand hectares of grassland, and 229.5 thousand hectares of shrub, accounting for 1.4%, 1.3% and 0.7% of the total cropland, grassland, and shrub in Kenya, respectively.

The affected areas were mainly located in the central and western parts of Kenya. Among them, Rift Valley Province was the worst affected area (with an affected area of 327.4 thousand hectares), followed by Eastern Province (with an affected area of 198.3 thousand hectares), then Nyanza and Coast provinces (with an area of 1.39 and 10.4 thousand hectares). The affected areas of Central Province, Western Province, Nairobi Special Administrative Region and Northeastern Province were relatively small (with the affected areas of 0.99, 0.38, 0.05, and 0.01 thousand hectares, respectively).

Comprehensive analysis shows that in June 2021, as ground control operations continue, the size and number of desert locust swarms in Kenya have significantly decreased compared to the same period of last year. Forecasts show that desert locusts of Ethiopia and Somalia will continue to mature, breed and lay eggs in June and July, due to rainfall in late May. As the number of locusts increases, locusts of southern Ethiopia and southern Somalia will spread southward into Kenya, leading to a further increase in the number of locusts in Kenya. The next two months will coincide with the planting season in Kenya and we still need to pay close attention to the situation of desert locust in Kenya. If not properly controlled, locusts will bring a major threat to agricultural and pasture production. Ground surveys and control actions are required to safeguard the agricultural and pasture production.

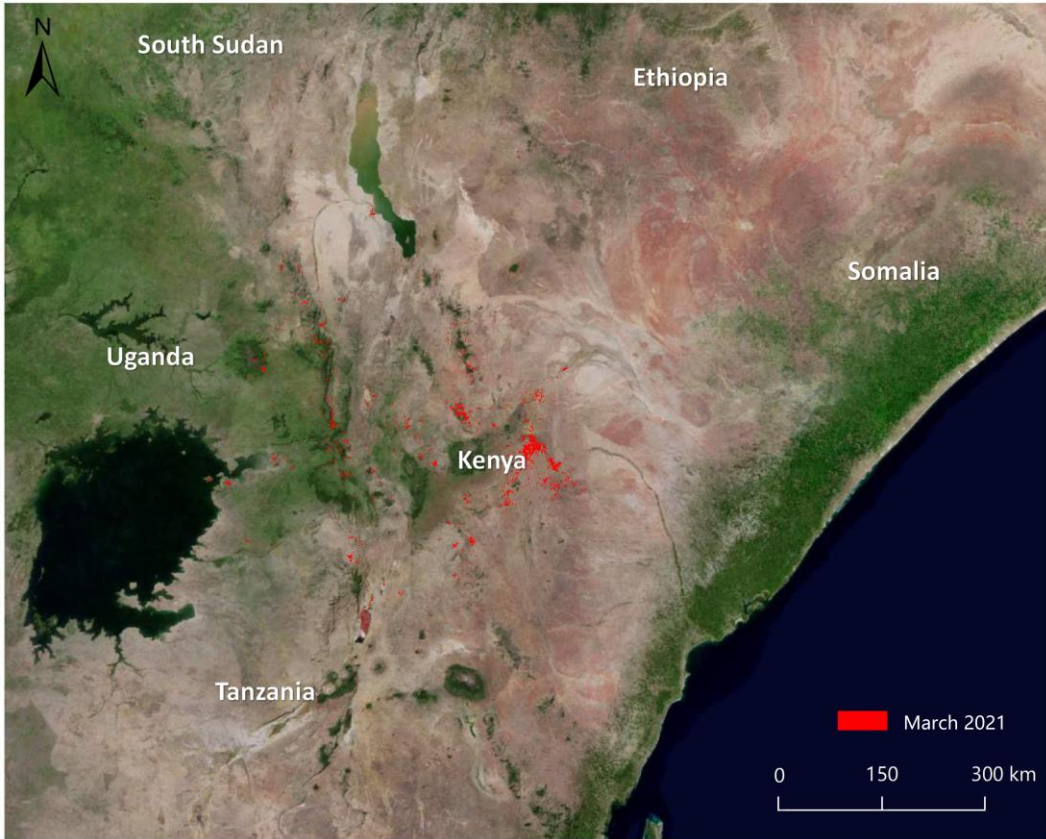


Figure 1 Monitoring of Desert Locust damage in Kenya (March 2021)

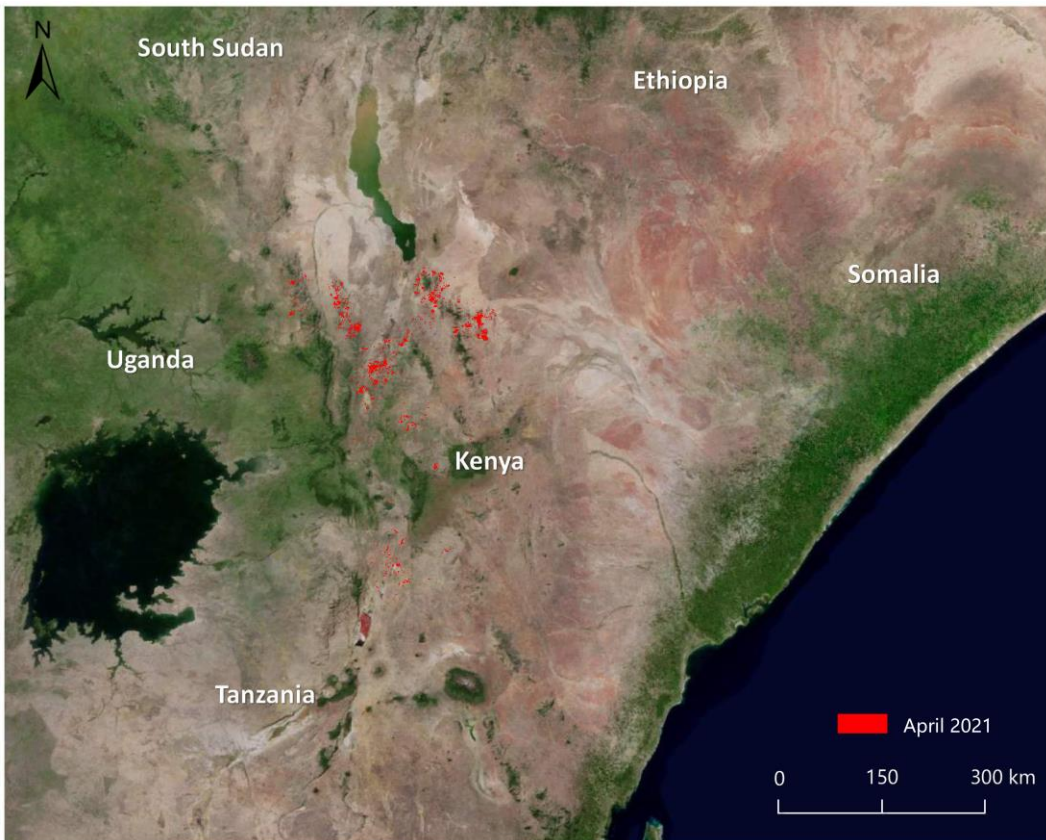


Figure 2 Monitoring of Desert Locust damage in Kenya (April 2021)

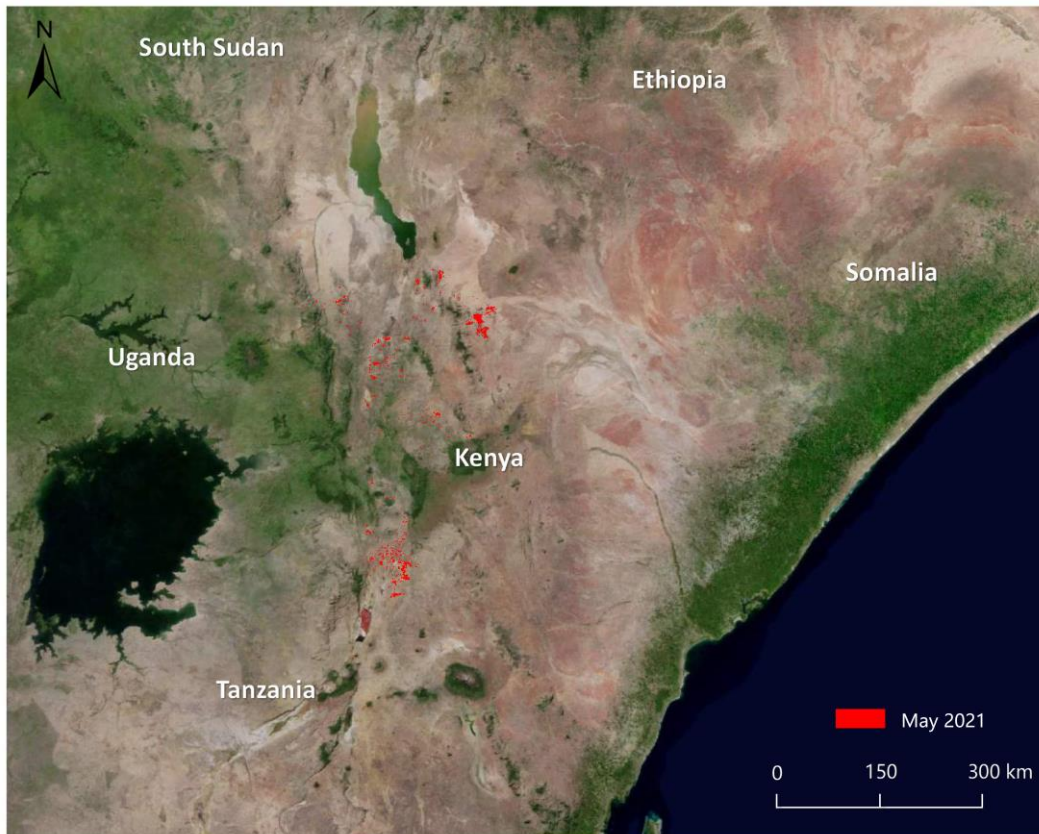


Figure 3 Monitoring of Desert Locust damage in Kenya (May 2021)

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Chinese



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The Vegetation Pests and Diseases Monitoring and
Forecasting system are available under:

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Mission statements: As the science and knowledge service, the Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory is to support independent evidence for crop monitoring.

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