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

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Desert Locust Monitoring and Loss Assessment in Yemen, Ethiopia, and Pakistan

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as MODIS in the US, and 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 dynamics of desert locust monitoring and loss assessment in Yemen, Ethiopia, and Pakistan. The remote sensing monitoring result showed that, the desert locust is mainly found in western Yemen, eastern Ethiopia, and southeastern Pakistan. In June 2022, the total damaged vegetation areas in Yemen, Ethiopia, and Pakistan were 50200, 57000, and 1804.18 hectares, respectively. It is expected that from mid-July to August, there will be a small amount of precipitation in western Yemen, and locusts in the region will further reproduce, leading to an increase in their populations; a small amount of precipitation is expected in the eastern part of the Afar of Ethiopia, and with the growth of green vegetation, some locusts in the Somali will migrate northwest to the Afar during this period, and the populations of locusts in Ethiopia are expected to increase; affected by the monsoon, most of the locusts in southeastern Pakistan will spread to the Indo-Pakistan border and breed, and the number of locusts will increase. This period is an important growing season for crops in Yemen, and the main planting and growing seasons for crops in Ethiopia and Pakistan. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster to prevent repeated losses to its agricultural and pasture production.

■ 1. Desert Locust Monitoring and Loss Assessment in Yemen

In June 2022, locusts in the western region of Yemen spread to the east in a small area with damaged vegetation of 50.2 thousand hectares, including 7.5 thousand hectares of cropland, 4.1 thousand hectares of grassland, and 38.6 thousand hectares of shrub (Fig.1). The comprehensive analysis shows that, a small amount of precipitation is expected in western Yemen from mid-July to August, and the locusts will lay eggs and reproduce, and their numbers will further increase. This period will be the important growing season for crops in Yemen. It is necessary to continue to pay attention to the dynamics of the desert locust disasters, to ensure Yemen's agricultural production and food security.

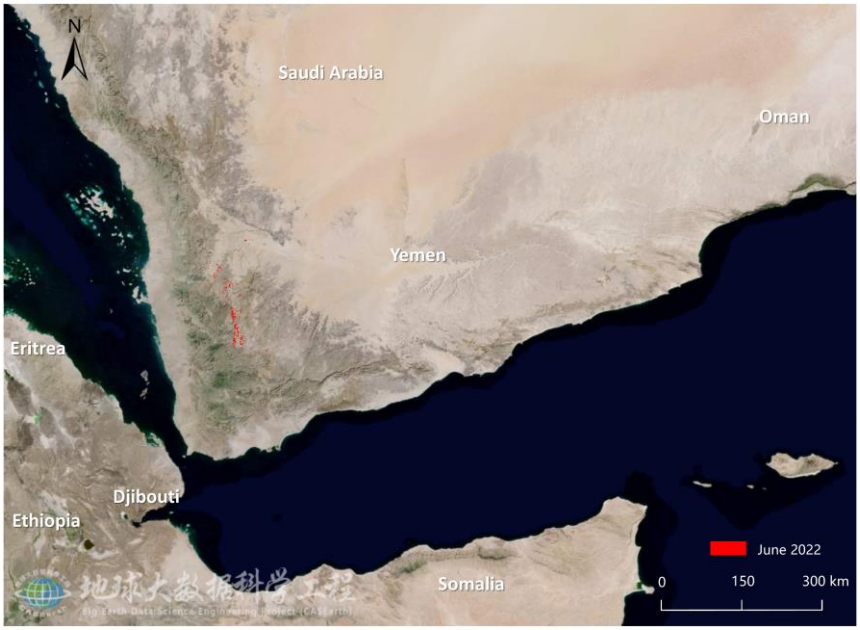

Fig. 1 Monitoring of Desert Locust damage in Yemen (June 2022)

■ 2. Desert Locust Monitoring and Loss Assessment in Ethiopia

In June 2022, locusts in Ethiopia were mainly distributed in the eastern Somali, with a vegetation damage area of 57.0 thousand hectares, including 0.6 thousand hectares of cropland, 13.1 thousand hectares of grassland, and 43.3 thousand hectares of shrub (Fig.2). The comprehensive analysis shows that from mid-July to August, the eastern part of the Afar will receive a small amount of precipitation, and with the growth of green vegetation, it is expected that some locusts from the Somali will migrate northwest to this area and lay eggs and reproduce, and their populations will further increase. This period is the main planting and growing season for crops in Ethiopia. It is still necessary to continue to pay attention to the dynamics of the desert locust disasters, to ensure Ethiopia's agricultural production and food security.

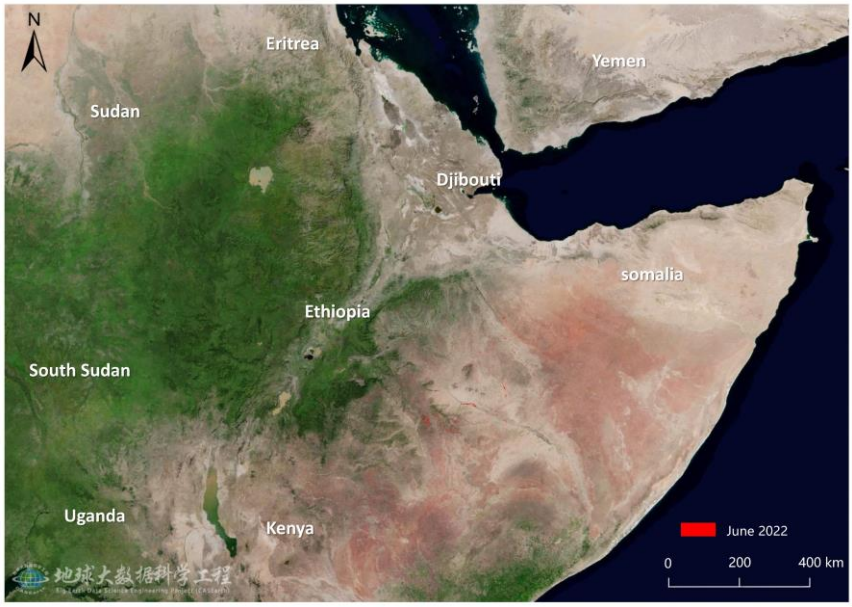

Fig. 2 Monitoring of Desert Locust damage in Ethiopia (June 2022)

■ 3. Desert Locust Monitoring and Loss Assessment in Pakistan

In June 2022, locusts in Pakistan were mainly distributed in the southeast with damaged vegetation of 1804.18 hectares, including 1253.52 hectares of cropland, 437.40 hectares of grassland, and 113.26 hectares of shrub (Fig. 3). Comprehensive analysis shows that from mid-July to August, most locusts in southeastern Pakistan will spread to the Indo-Pakistan border and breed, and locust populations will increase. This period is the main planting and growing season for food crops in Pakistan, and continuous monitoring of locust dynamics is necessary to ensure agricultural production and food security in Pakistan.

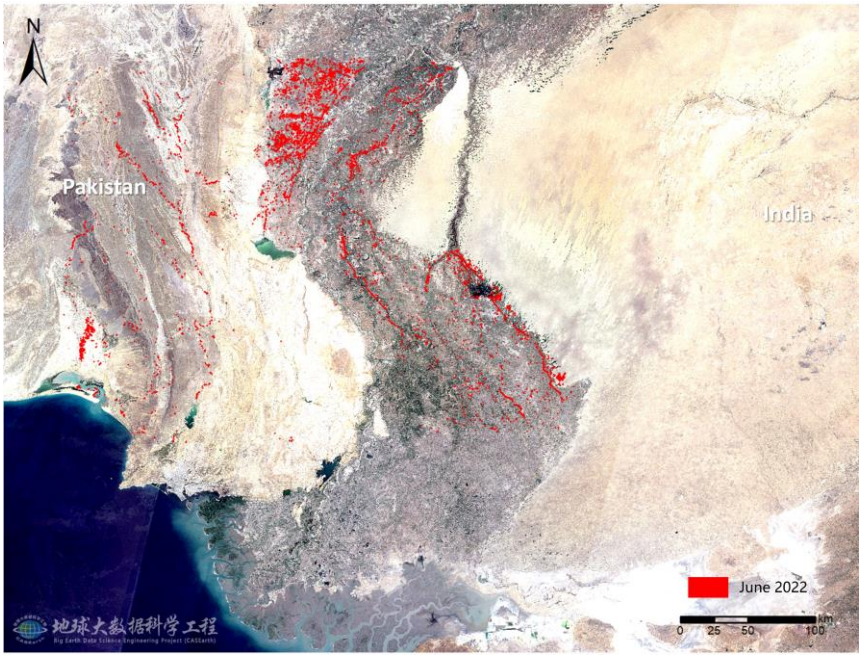

Fig. 3 Monitoring of Desert Locust damage in southeastern Pakistan (June 2022)

This report was released by Professor Wenjiang Huang's and Associate Professor Yingying Dong's research team in Aerospace Information Research Institute, Chinese Academy of Sciences.

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