Report of Monitoring, Early Warning and Assessment of Desert Locust

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Desert Locust Monitoring and Loss Assessment in Egypt, Saudi Arabia and Yemen (April 2025)

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as MODIS in the US, etc), 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.

The remote sensing monitoring results showed that, in April 2025, desert locusts were primarily distributed in the western inland areas and the central Nile Valley of Egypt, the central inland regions of Saudi Arabia, and the western inland provinces of Yemen, affecting 17.7, 19.3, and 17.6 thousand hectares of vegetation, respectively. Over the next two months, rainfall across most parts of Egypt is expected to remain low, leading to a continued decline in locust populations and gradual southward migration. In Saudi Arabia, significant rainfall in inland areas is likely to support ongoing spring breeding in regions such as Hail, resulting in a slight increase in locust numbers. In western mountainous and Red Sea coastal areas of Yemen, rainfall is expected to increase slightly, improving local vegetation conditions and allowing for limited locust breeding, although overall activity will remain low. This period coincides with the main growing and harvest season for food crops in Egypt and Saudi Arabia, and the primary planting and growing season for food crops in Yemen. Therefore, continuous monitoring of desert locust dynamics remains essential to prevent recurring damage to agricultural and pastoral production. The specific results are as follows:

■ 1. Desert Locust Monitoring and Loss Assessment in Egypt

In April 2025, Egypt experienced limited rainfall and generally arid conditions, which were unfavorable for desert locust egg-laying and reproduction. In addition, as locusts gradually migrated southward into northern Sudan, their numbers in Egypt continued to decline, with locusts primarily distributed in the western inland areas and the central Nile Valley. Monitoring results showed that in April, desert locusts affected 17.7 thousand hectares of vegetation in Egypt, including 4.8 thousand hectares of cropland, 7.2 thousand hectares of grassland, and 5.7 thousand hectares of shrubland (Figure 1), accounting for 0.13% of the country's total cropland, 0.53% of its grassland, and 0.71% of its shrubland areas. The New Valley Governorate recorded the most extensive damage, with 8.5 thousand hectares of affected vegetation, followed by Minya with 3.9 thousand hectares. Fayoum, Matrouh, Asyut, and Giza were also affected, with 1.7, 1.4, 1.2, and 1.0 thousand hectares of vegetation damage, respectively.

Fig.1 Monitoring of Desert Locust damage in Egypt (April 2025)

■ 2. Desert Locust Monitoring and Loss Assessment in Saudi Arabia

In April 2025, continued rainfall in inland Saudi Arabia created favorable conditions for desert locust egg-laying and reproduction. Combined with the inland migration of locusts from the Red Sea coastal areas, locust populations continued to increase in the central inland regions of the country. Monitoring results showed that in April, desert locusts affected 19.3 thousand hectares of vegetation in Saudi Arabia, including 5.5 thousand hectares of farmland, 7.8 thousand hectares of grassland, and 6.0 thousand hectares of shrubland (Figure 2), accounting for 2.51% of the country's total farmland, 0.40% of its grassland, and 0.15% of its shrubland areas. The Riyadh region recorded the most extensive damage, with 8.1 thousand hectares of affected vegetation, followed by the Qassim region with 7.2 thousand hectares. The Hail region was also affected, with 4.0 thousand hectares of vegetation damage.

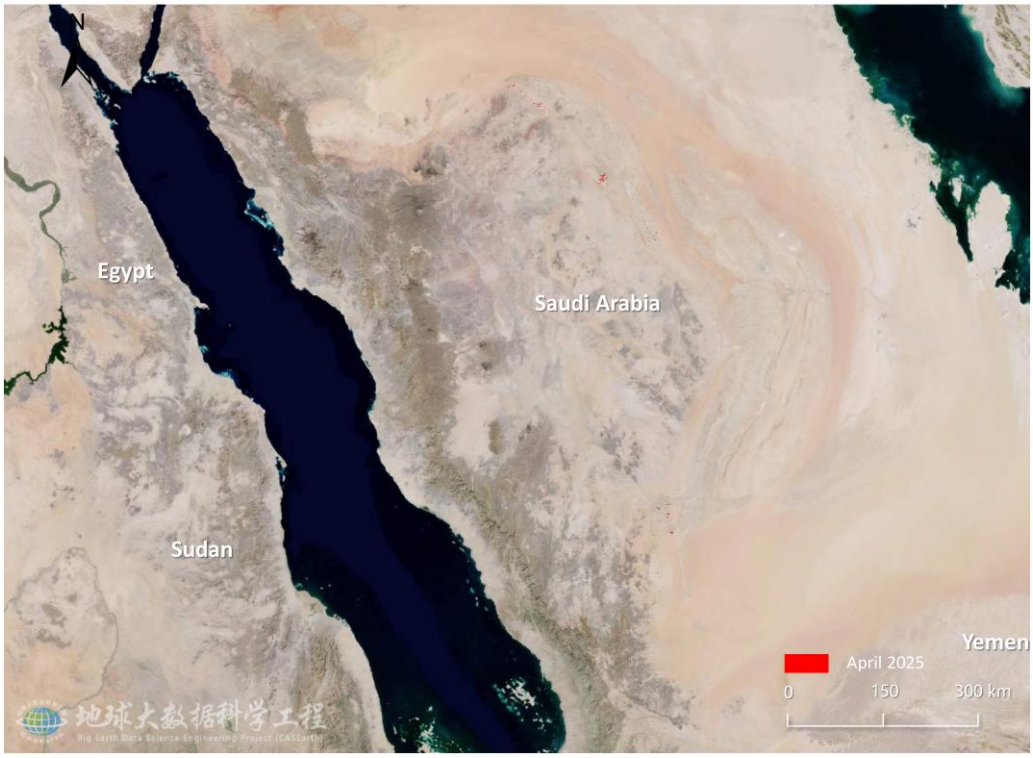

Fig.2 Monitoring of Desert Locust damage in Saudi Arabia (April 2025)

■ 3. Desert Locust Monitoring and Loss Assessment in Yemen

In April 2025, desert locusts in Yemen were mainly distributed in the western mountainous areas, where abundant rainfall and vigorous vegetation growth provided favorable conditions for locust egg-laying and reproduction. Monitoring results showed that in April, desert locusts affected 17.6 thousand hectares of vegetation in Yemen, including 4.2 thousand hectares of farmland, 5.8 thousand hectares of grassland, and 7.6 thousand hectares of shrubland (Figure 3), accounting for 0.85% of the country's total farmland, 0.15% of its grassland, and 0.14% of its shrubland area. The Dhamār Province recorded the largest area of affected vegetation at 7.8 thousand hectares, followed by the Ibb Province with 5.2 thousand hectares. The Raimah, San'ā, and Amrān provinces also suffered damage, with 2.1, 1.4, and 1.1 thousand hectares of affected vegetation, respectively.

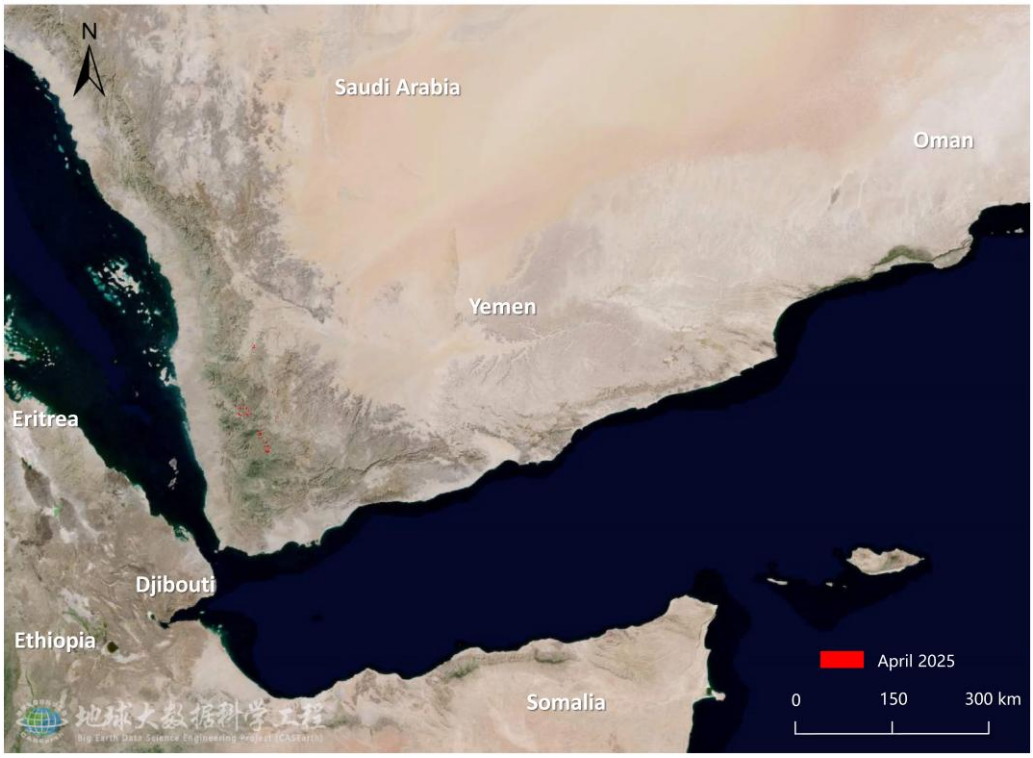

Fig.3 Monitoring of Desert Locust damage in Yemen (April 2025)

The comprehensive analysis suggests that, in the next two months, rainfall across most parts of Egypt is expected to remain low, leading to a continued decline in locust populations and gradual southward migration. In Saudi Arabia, significant rainfall in inland areas is likely to support ongoing spring breeding in regions such as Hail, resulting in a slight increase in locust numbers. In western mountainous and Red Sea coastal areas of Yemen, rainfall is expected to increase slightly, improving local vegetation conditions and allowing for limited locust breeding, although overall activity will remain low. Continuous monitoring of desert locust dynamics in Egypt, Saudi Arabia and Yemen is essential to prevent repeated losses in crop growth and agricultural production.

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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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