



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

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Aerospace Information Research Institute, Chinese Academy of Sciences
Big Earth Data Science Engineering Project (CASEarth)
Key laboratory of Digital Earth Science, Chinese Academy of Sciences
National Engineering Research Center for Agro-Ecological Big Data Analysis & Application
State Key Laboratory of Remote Sensing Science
China Biodiversity Conservation and Green Development Foundation
Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory
Key Lab of Aviation Plant Protection, Ministry of Agriculture and Rural Affairs, P.R. China

Desert Locust Monitoring and Loss Assessment in Yemen (February, 2023)

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as MODIS in the US, and SDGSAT-1 in China, 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.

This report focuses on the dynamics of desert locust monitoring and loss assessment in Yemen. The remote sensing monitoring results showed that, in February 2023, the desert locusts were mainly distributed in the coastal areas of the Red Sea in western Yemen. The total damaged vegetation area in Yemen was 51.1 thousand hectares. It is expected that in the next month, rainfall in western Yemen will increase, which will be favorable for desert locusts to lay eggs and reproduce. The number of locusts in western Yemen will increase. This period is an important planting season for crops in Yemen. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster in Yemen to prevent repeated losses to its agricultural and pasture production. The specific research results are as follows.

In February 2023, the vegetation in the central and northern parts of the coastal area of the Red Sea in western Yemen is more abundant than that in the southern part, so the locusts migrate northward. However, the precipitation in the northern region is insufficient, resulting in a slight decrease in the number of locusts. The monitoring results showed that in February, the total damaged vegetation area was 51.1 thousand hectares, including 8.7 thousand hectares of grassland, and 42.4 thousand hectares of shrub (Figure 1), accounting for 3.01% and 1.06% of the total area of grassland and shrub in Yemen, respectively. Compared with

January 2023, the newly damaged vegetation area in Yemen was 42.0 thousand hectares, including 6.8 thousand hectares of grassland, and 35.2 thousand hectares of shrubs. Among them, Al-Mahwīt province had the largest area of vegetation affected, with 17.0 thousand hectares. Followed by Amrān province, with 13.8 thousand hectares of vegetation affected. And then Al-Hudaydah province, with 13.4 thousand hectares of vegetation affected. The affected areas of vegetation in San'ā and Hajjah provinces are 6.0 and 0.9 thousand hectares, respectively.

This study also used SDGSAT-1 satellite remote sensing data to monitor the desert locust damage in the severely damaged vegetation areas in Western Yemen (Figure 2). The study area is located on the border of the Al-Hudaydah and Al-Mahwīt provinces, 40.0 kilometers from Hajjah in the northeast and 48.2 kilometers from Al-Hudaydah in the southwest. In the study area, the total area of vegetation is 74.20 thousand hectares, and the affected area of vegetation is 12.81 thousand hectares, including 0.65 thousand hectares of grassland, and 12.16 thousand hectares of shrubs, accounting for 18.3% and 17.2% of the total area of grassland and shrubs in the region, respectively.

The comprehensive analysis shows that, in the next month, it is believed that there will be a slight increase in rainfall along the west coast of the Red Sea in Yemen, which will be favorable for the breeding and reproduction of desert locusts, and the number of locusts will also increase. It is still necessary to continue to pay attention to the dynamics of the desert locust disaster in Yemen to prevent repeated losses to its agricultural and pasture production.

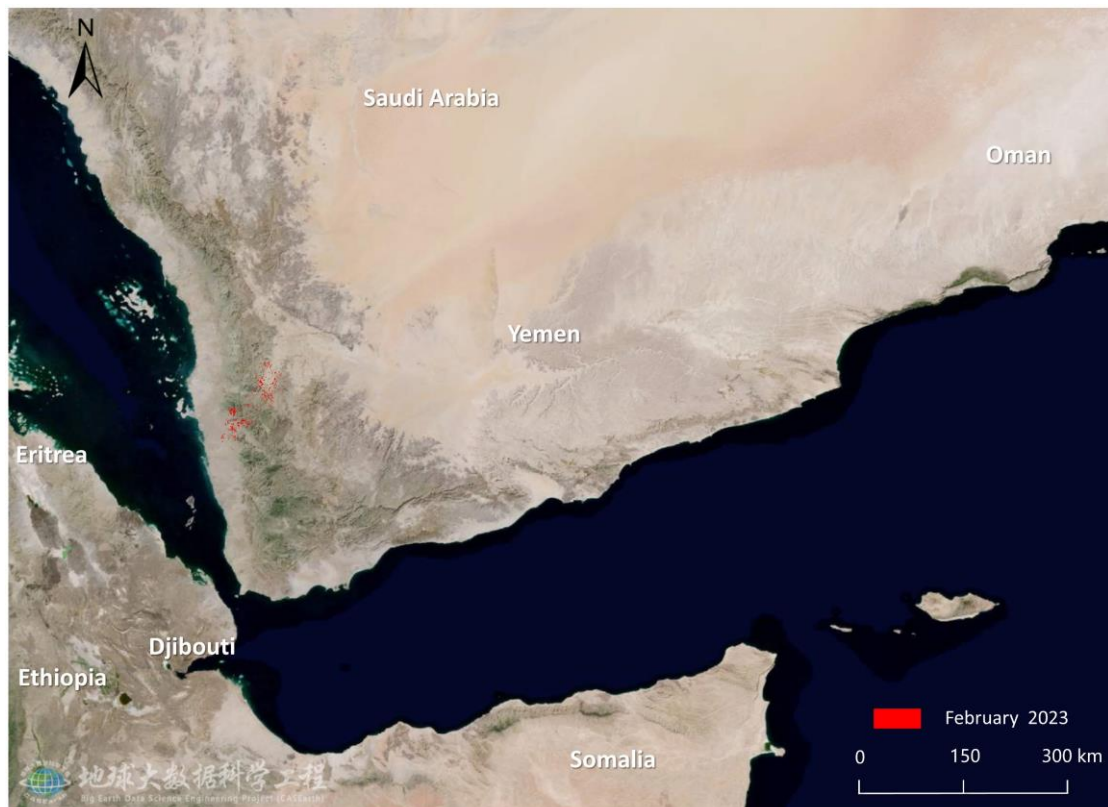


Fig. 1 Monitoring of Desert Locust damage in Yemen (February 2023)

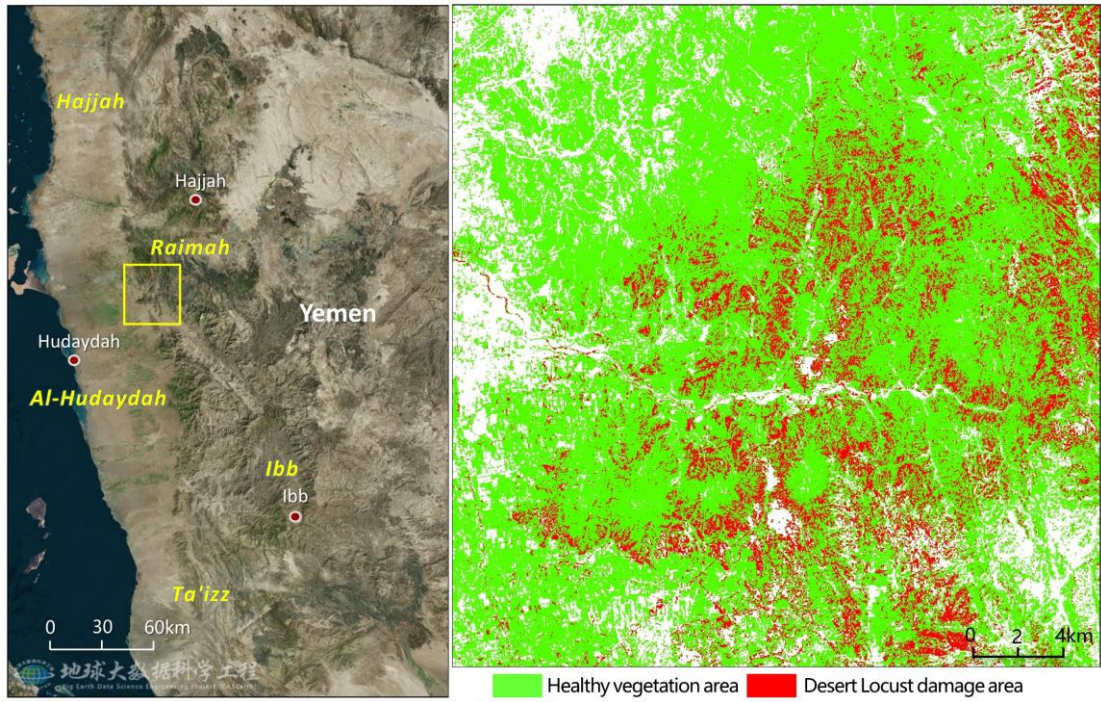


Fig. 2 Monitoring of Desert Locust damage in the key damage areas of Yemen based on SDGSAT-1 images (February 2023)

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.

Chinese Contributors

Wenjiang Huang, Yingying Dong, Longlong Zhao, Huichun Ye, Mingquan Wu, Kun Wang, Xiaoping Du, Changyong Dou, Jun Yan, Jingcheng Zhang, Bei Cui, Linsheng Huang, Dailiang Peng, Huifang Wang, Hong Chang, Yun Geng, Chao Ruan, Huiqin Ma, Anting Guo, Linyi Liu, Naichen Xing, Yue Shi, Qiong Zheng, Yu Ren, Hansu Zhang, Tingguang Hu, Yanru Huang, Yu Jin, Chao Ding, Biyao Zhang, Zhongxiang Sun, Xiangmei Qin, Xueling Li, Ruiqi Sun, Yingxin Xiao, Zhuoqing Hao, Jing Guo, Mingxian Zhao, Kehui Ren, Xiangzhe Cheng, Kang Wu, Yong Liu, Bo Wu, Weiping Kong, Juhua Luo, Jinling Zhao, Dongyan Zhang, Xiaodong Yang, Yanhua Meng, Wenjie Fan, Yue Liu, Gang Sun, Bin Wu, Qing Zhang, Dacheng Wang, Wei Feng, Xianfeng Zhou, Qiaoyun Xie, MUYI Huang, Jing Jiang, Zhaochuan Wu, Cuicui Tang, Fang Xu, Jianli Li, Wenjing Liu, Junjing Lu, Furan Song, Qingsong Guan, Qinying Yang, Chuang Liu, Yunli Han, Yuzhen Zou, Lu Li, Xinyu Chen, Yunlei Xu, Jing Wang, Qibao Lu, Fanchu Kong, Juncheng Shang.

Foreign Contributors

Belinda Luke, Bethan Perkins, Bryony Taylor, Hongmei Li, Wenhua Chen, Pablo Gonzalez-Moreno, Sarah Thomas, Timothy Holmes, Stefano Pignatti, Giovanni Laneve, Raffaele Casa, Simone Pascucci, Martin Wooster, Jason Chapman.

Advisory Experts

Bing Zhang, Gensuo Jia, Jihua Wang, Qiming Qin, Puyun Yang, Guofei Fang, Shouquan Chai, Yuying Jiang, Jingquan Zhu, Jinfeng Zhou, Dongmei Yan, Xiangtao Fan, Jianhui Li, Jie Liu, Tianhua Hong, Yubin Lan, Jingfeng Huang, Huo Wang, Anhong Guo, Zhanhong Ma, Yilin Zhou, Xiongbing Tu, Wenbing Wu, Feng Zhang, Zhiguo Wang, Lifang Wu, Dong Liang, Yanbo Huang, Chenghai Yang, Liangxiu Han, Ruiliang Pu, Jiali Shang, Hugh Mortimer, Jon Styles, Andy Shaw, Jadu Dash.

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Contact Us

Tel: +86-010-82178178 Fax: 010-82178177 Email: rscrop@aircas.ac.cn
Address: No.9 Dengzhuang South Road, Haidian District, Beijing 100094, China
Websites: <http://www.rscrop.com> / <http://desertlocust.rscrop.com> Post Code: 100094

