

Using Satellite Imagery to Improve Crop and Pasture Monitoring Data in Chad

Droughts, floods, and pest infestations occur periodically in Chad and can result in food insecurity or food crises. Until recently, crop production data – an essential factor in food security analysis and early warning – lacked credibility because of the absence of crop surveys. Since 1987, FEWS NET’s support to government ministries in Chad through satellite imagery analysis has played a significant role in the enhancement of crop and pasture monitoring data.

To improve the availability and quality of crop production data in Chad, FEWS NET introduced the use of satellite imagery to monitor and assess the crop-growing season. Scientists from the U.S. Geological Survey (USGS), a FEWS NET science partner, trained participants from Chad’s Food and Early Warning Sustainable Security Information System (SISAAP) on how to analyze and interpret the satellite imagery to identify areas with major agroclimatic anomalies such as drought (Figure 1). The severity, duration, and spatial extent of the anomalies are analyzed to assess the impact on crop and vegetation performance.

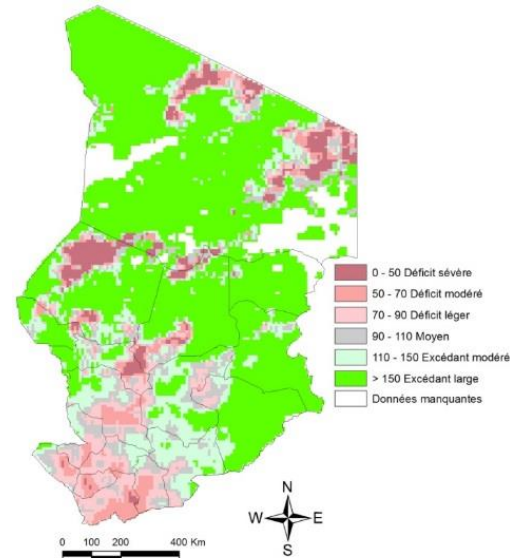
The satellite imagery is also used in the dekadal agrometeorology bulletin, a publication that is jointly produced by four government ministries. The bulletin provides information to farmers and pastoralists on crop/pasture agrometeorological conditions through the analysis of rainfall estimation (RFE), Normalized Difference Vegetation Index (NDVI), Water Requirements Satisfaction Index (WRSI), and start of season (SOS), and other problems that crop and/or pastures may be exposed to, such as crop pests. Whenever possible, the bulletin also issues advice based on the climate outlooks with an emphasis on the usefulness of this information when integrated in farming practices.

To strengthen the credibility of the bulletin, FEWS NET supplies timely satellite imagery and participates in discussions during ground truthing that often take place during the growing season. After publication, the bulletin is summarized and broadcast on National Radio, providing technical recommendations to farmers and pastoralists alike throughout the country.

“Collaboration between FEWS NET and the National Agency for Meteorology is highly appreciated, and I encourage the continuation of this dynamic partnership,” Mr. Mbaitoubam Eli, the director of the Direction Générale de la Météorologie Nationale said. “The various remote sensing data provided regularly by FEWS NET Chad during the growing season are remarkable contributions to the enrichment of the information made available to decision makers and users at the national level,” he added.

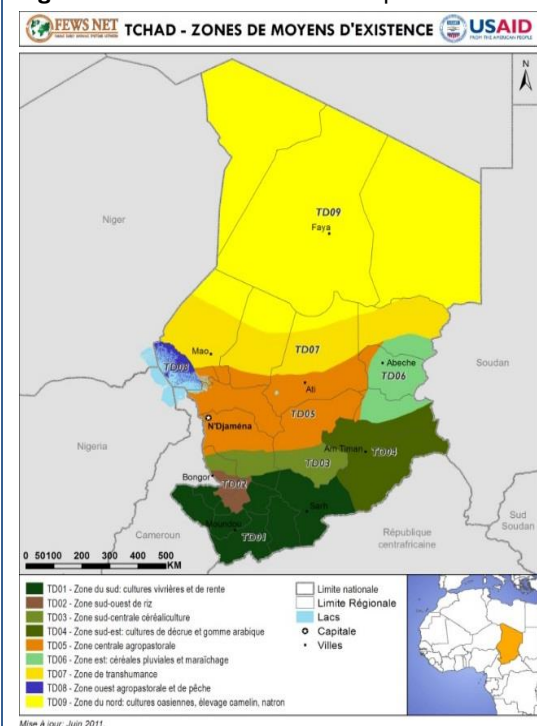
Beginning in 2018, the prime minister recommended that all food security briefings be made to him and his cabinet, further demonstrating the importance of crop production estimation through satellite imagery in decision making. To sustain these benefits, FEWS NET continues to support the Government of Chad in improving the products generated through satellite imagery using on-going capacity building efforts, including hands-on training, and mentoring of SISAAP and other local partners.

Figure 1. Anomalie Cumul RFE 1st dekade April – 2nd dekade of May 2014/average 2008-2012



Source: USGS/NOAA/FEWS NET

Figure 2. Chad Livelihood Zones Map



Source: FEWS NET