



## SERVIR PARTNERS WITH UN FAO ON DATA FUSION PRODUCT TO IMPROVE DESERT LOCUST MONITORING

Working with the UN's Food and Agriculture Organization (FAO), SERVIR is integrating higher resolution satellite and soil moisture data to pinpoint suitable breeding locations for gregarious hoppers (immature locusts) so that the pests can be eradicated with pesticide, bio-pesticide, or mechanical means, all before they take flight.

### Desert Locusts Outbreak

**10**  
COUNTRIES

Swarms spread to ten countries in eastern Africa, threatening food supplies for millions of people.

Ethiopia and Somalia have seen their worst locust infestations in 25 years.

**70k**  
HECTARES

70,000 hectares (173,000 acres) were affected in Kenya.

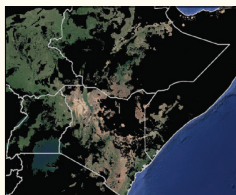
In December 2019, Kenya was facing its worst locust event in 70 years.



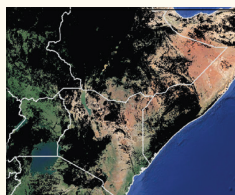
### LOCUST PREDICTION AND MONITORING

Locusts like moist, sandy soil. Catching locusts in adolescent phases (hoppers) is critical for effective control measures. Once in flight, it is nearly impossible to eradicate locusts safely and effectively through spraying or by other means. SERVIR is combining soil type and modeled soil moisture data to create maps identifying where locusts are most likely to breed. This information is proving critical to the efforts of ground survey teams, especially in areas where there is little national capacity or institutional memory to address swarms.

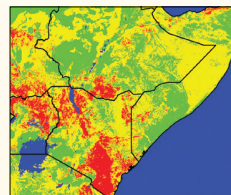
Overlaying locusts' optimal soil moisture with their preferred soil type to identify where the next invasion may occur.



Soil Moisture Mask  
0.15 < sm < 0.25



Soil Type Mask  
%60 < sand < %80



Optimal soil condition  
for hoppers.

Legend:  
Red = optimal suitability  
Yellow = low suitability  
Green = unsuitable

Using SERVIR soil and moisture maps in combination with vegetation data and broader wind direction and trajectory information, scientists can forecast where the potential for invasion exists (i.e. if the locust will land and breed or keep moving) and help the FAO and national governments plan accordingly.

One square kilometer of a dense locust swarm consumes as much vegetation as 35,000 people in a day.



SERVIR connects space to village by helping developing countries use satellite data to address critical challenges in food security, water resources, weather and climate, land use, and natural disasters. A partnership of NASA, USAID, and leading technical organizations, SERVIR develops innovative solutions to improve livelihoods and foster self-reliance in Asia, Africa, and the Americas



#### Contact information:

Dr Paul Bartel, Chief of Party. Email: [Paul.Bartel@icrisat.org](mailto:Paul.Bartel@icrisat.org)  
Dr Idrissa Maiga. Email: [idrissa.maiga@cilss.int](mailto:idrissa.maiga@cilss.int)