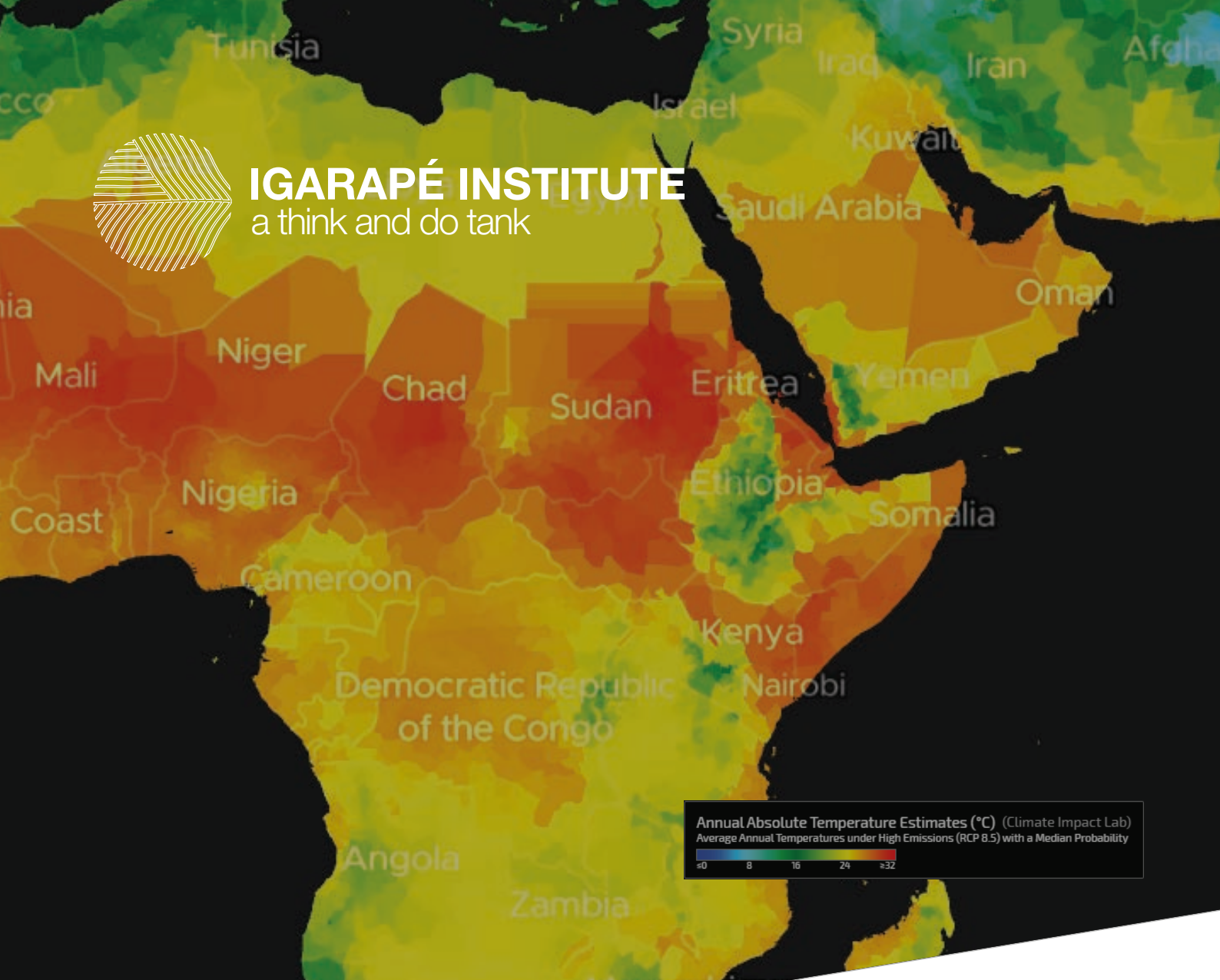




IGARAPÉ INSTITUTE
a think and do tank



THE GREATER HORN ON THE EDGE: VISUALIZING CLIMATE STRESS AND INSECURITY



Climate change exacerbates conditions linked to conflict. This is especially the case in countries characterized by pre-existing conflict, poverty and low agricultural productivity.¹ Climate adaptation and conflict resolution initiatives must consider the complex relationships between climate change and conflict in order to secure a sustainable and safe future in the Greater Horn of Africa.

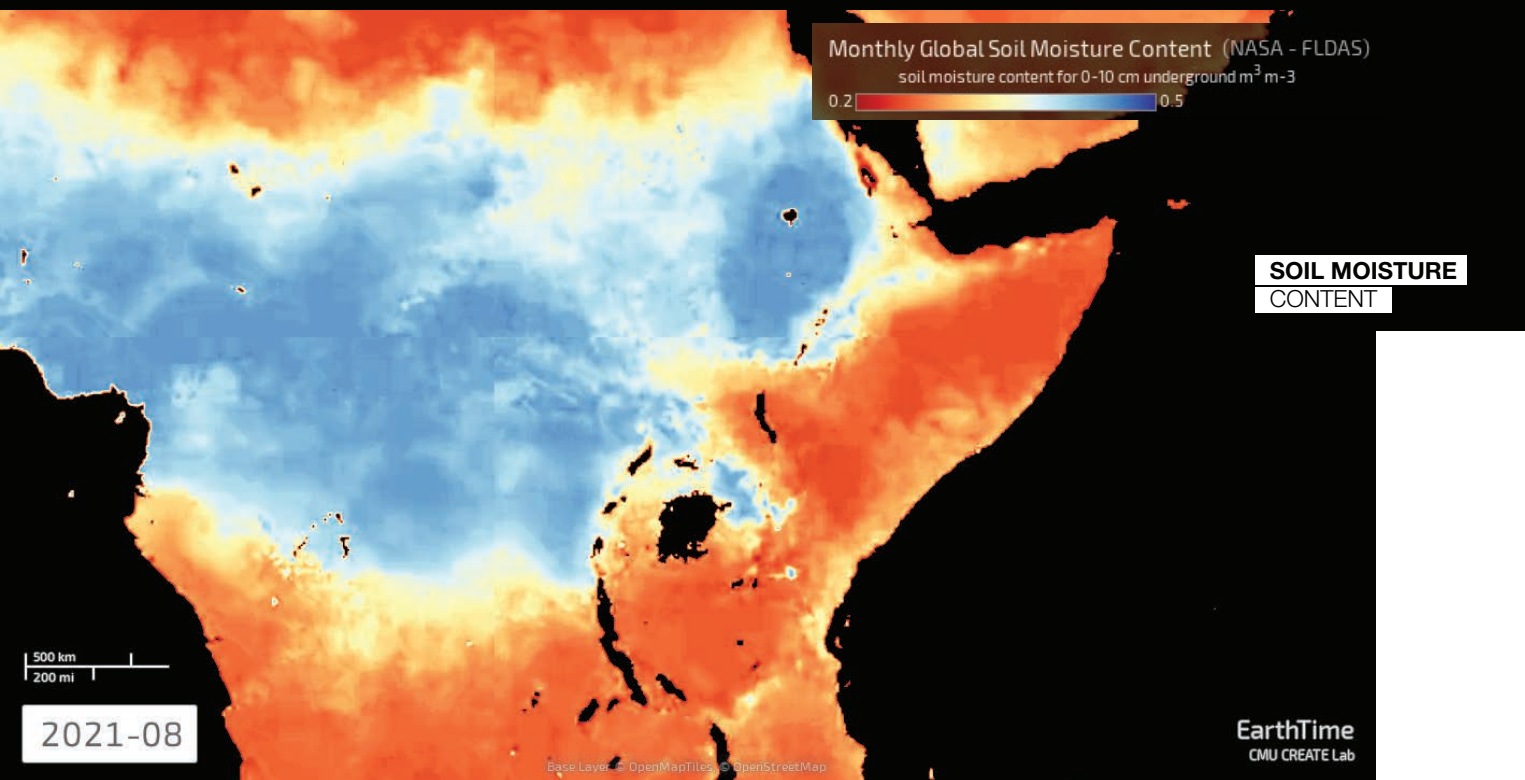
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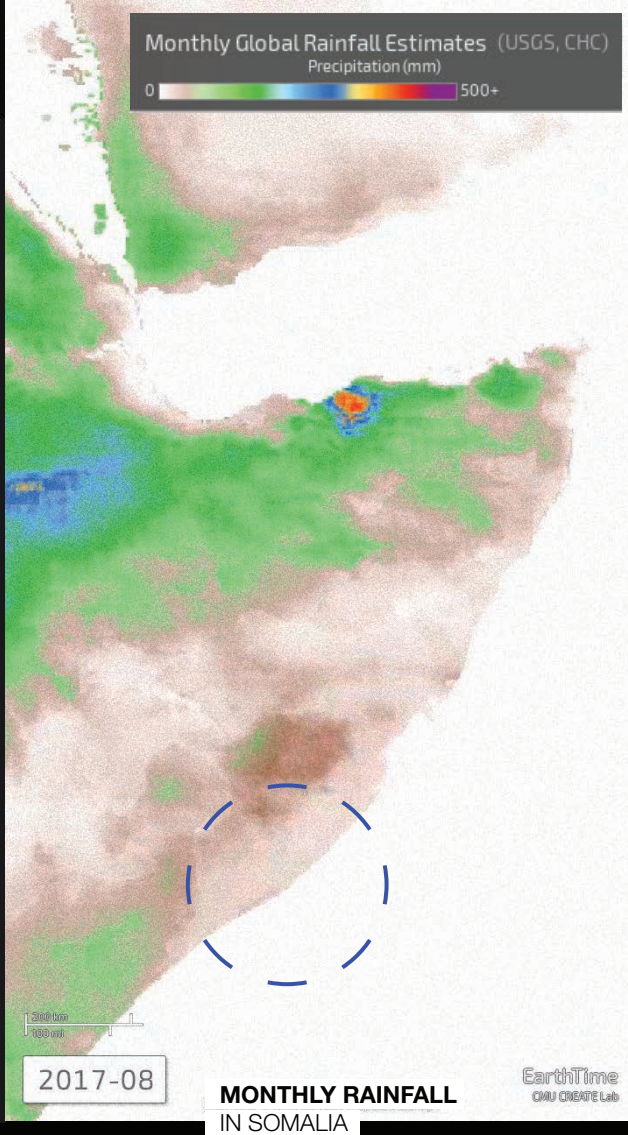
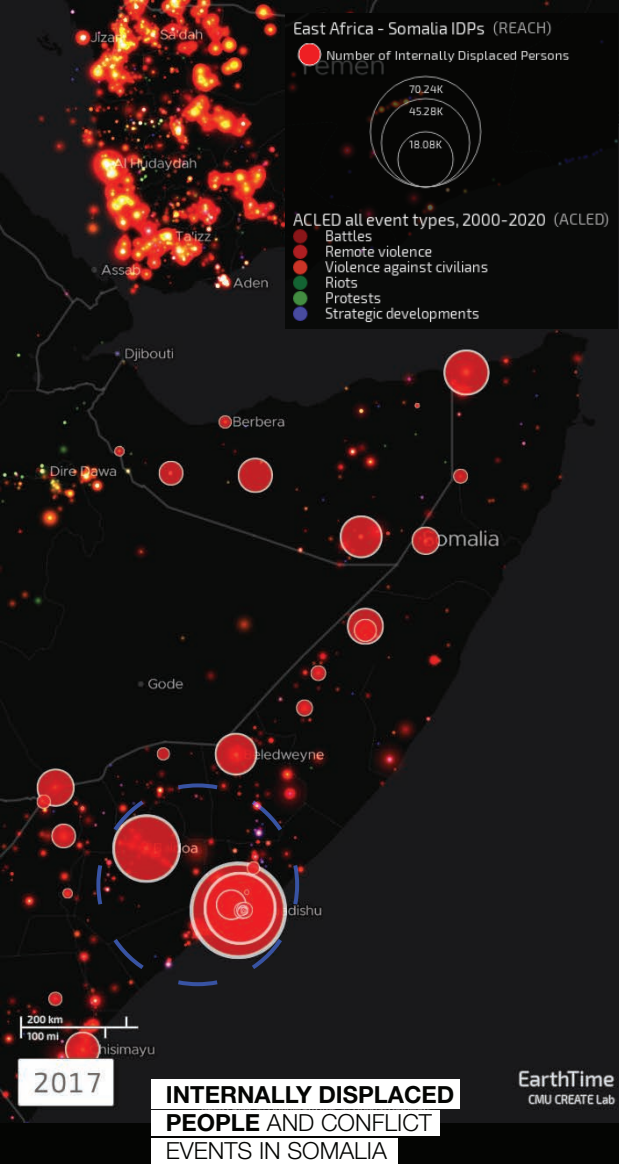
THE GREATER HORN ON THE EDGE: VISUALIZING CLIMATE STRESS AND INSECURITY

The Greater Horn of Africa is one of the world's most vulnerable regions to climate change. Many of the 11 countries there are warming faster than virtually any other part of the planet.² Mean temperatures are expected to rise faster than the global average - some 2.5°C by 2050 and nearly 5°C by 2100.³ The Horn is also getting wetter. Precipitation extremes are becoming more unpredictable, with growing risk of droughts and floods.⁴ Changes in weather patterns are connected to the spread of invasive species, including devastating desert locust outbreaks.⁵



More frequent and extreme climate shocks and stresses are acting as “risk multipliers” across the Greater Horn of Africa. Recurrent droughts and flash floods are undermining agricultural and livestock production, disrupting fisheries in major lakes, and deepening tensions between communities that are already on the edge.^{6 7 8} Increased population displacement is generating negative feedback loops while armed groups across the region are profiting from instability to expand their influence.

The Igarapé Institute, together with Kenya and Switzerland, draws on remote sensing and scientific literature to describe the ways the climate-security connection is shaping the Greater Horn of Africa.⁹ These visual tools highlight how massive changes in the climate are precipitating both competition and collaboration in Somalia, Sudan and South Sudan. They help identify the tremendous risks facing the region, as well as the remarkable resilience of local communities operating in some of the most adverse climates on earth.



Rainfall variability in Somalia

Somalia is one of the most vulnerable countries in the world to climate change.¹⁰ Less than 2 percent of the total land area is under cultivation while almost 70 percent is permanent pasture.¹¹ Daily temperatures average near 30° C and reach as high as 40° C.¹² Even minor shifts in seasons and weather patterns have dramatic implications for livelihoods. Persistent conflict, coupled with water shortages and flooding, are generating new uncertainties and undermining livelihoods. Somalia has suffered from over 30 climate-related shocks since 1990, including 12 droughts and 19 floods.¹³ Low rainfall in 2020 and 2021 hastened livestock losses in northern and central Somalia and contributed to crop losses and lower agricultural labor income.¹⁴

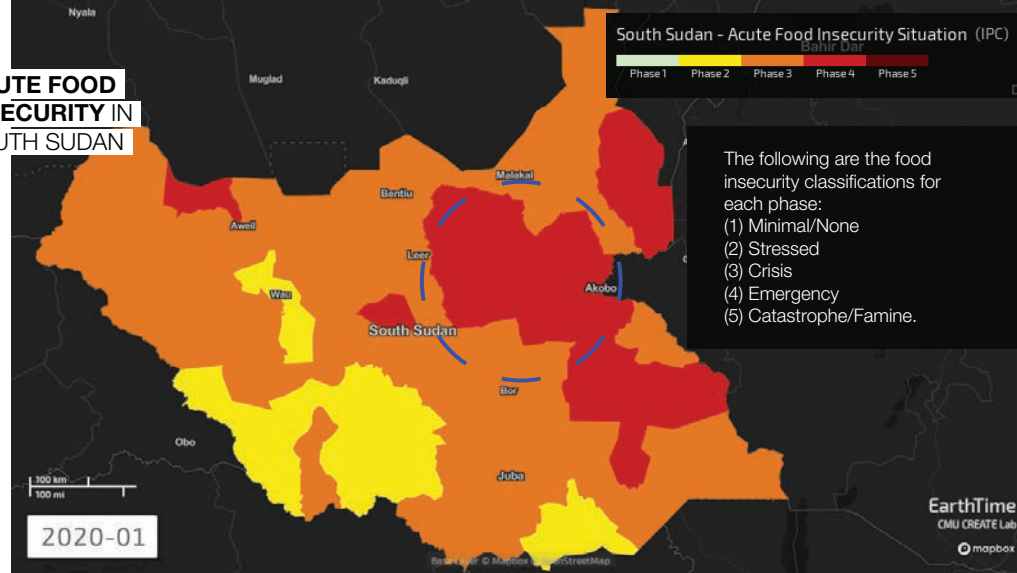
Displacement and farmer-herder conflicts in Somalia

Rainfall variability is disrupting traditional grazing routes and migration patterns. Droughts are especially threatening since water scarcity is already acute: mean rainfall is just 280 mm, with rainfall as low as 50 mm per year in the northern coastal regions.¹⁵ Some 575 thousand people were internally displaced (IDPs) in 2021, many of them due to drought.¹⁶ Climate-induced displacement is thus pushing people into informal settlements and camps where poor conditions, limited social services and extremist group recruitment efforts increase the risk of radicalization.¹⁷ Recurrent shocks are also limiting the ability of herders and farmers to recover. Predatory activities by Al-Shabaab, including extortion, mean that many locals struggle to adapt.¹⁸ Herder-farmer conflicts are more common as populations compete over diminishing resources.¹⁹

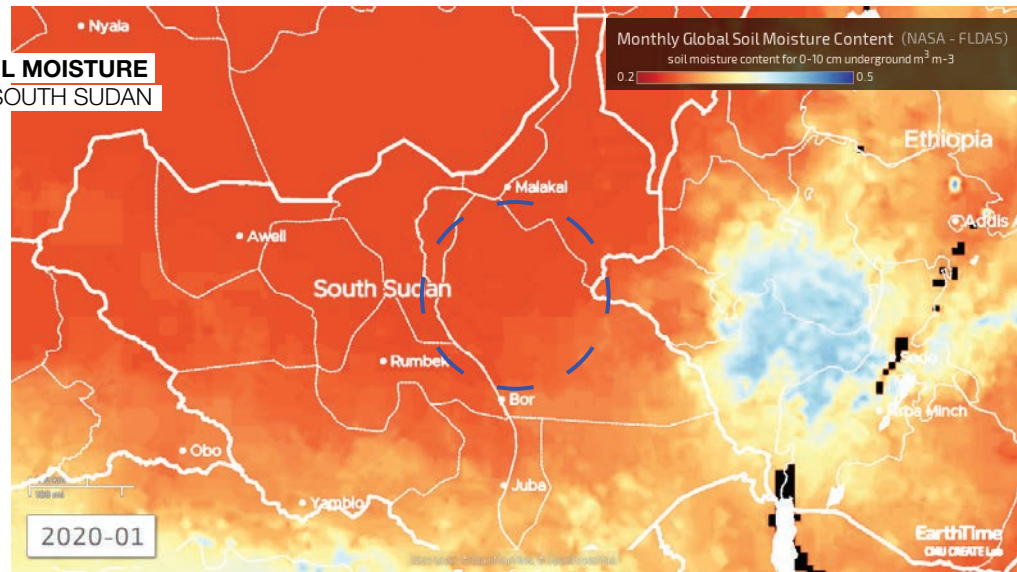
Floods in the Sudans are undermining livelihoods

Sudan and South Sudan have long faced a dangerous confluence of climate change, economic hardship and conflict. Excessive rainfall is contributing to flash floods in Sudan and South Sudan.²⁰ The combination of “wetter than usual” rainy seasons and population growth have exposed populations living next to the White Nile tributary. Floods in fourteen states across the country have displaced over 100 thousand people and destroyed over 15 thousand homes.²¹

ACUTE FOOD INSECURITY IN SOUTH SUDAN



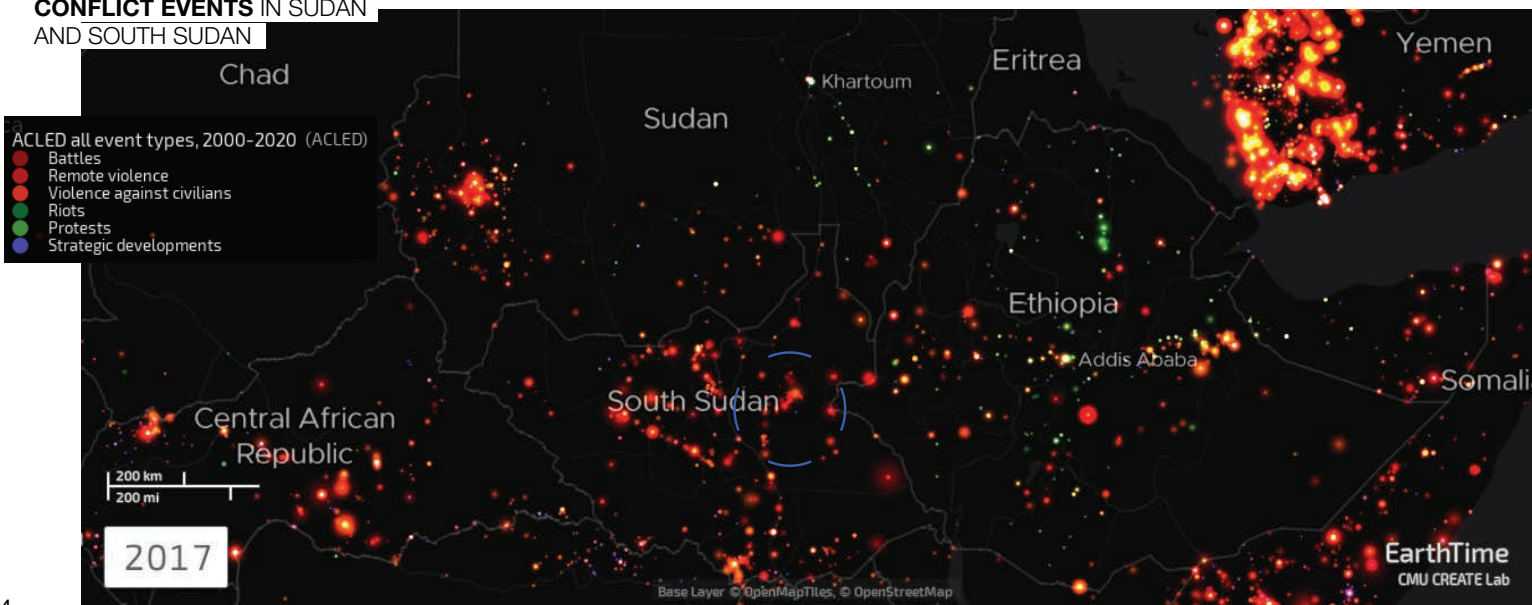
SOIL MOISTURE IN SOUTH SUDAN



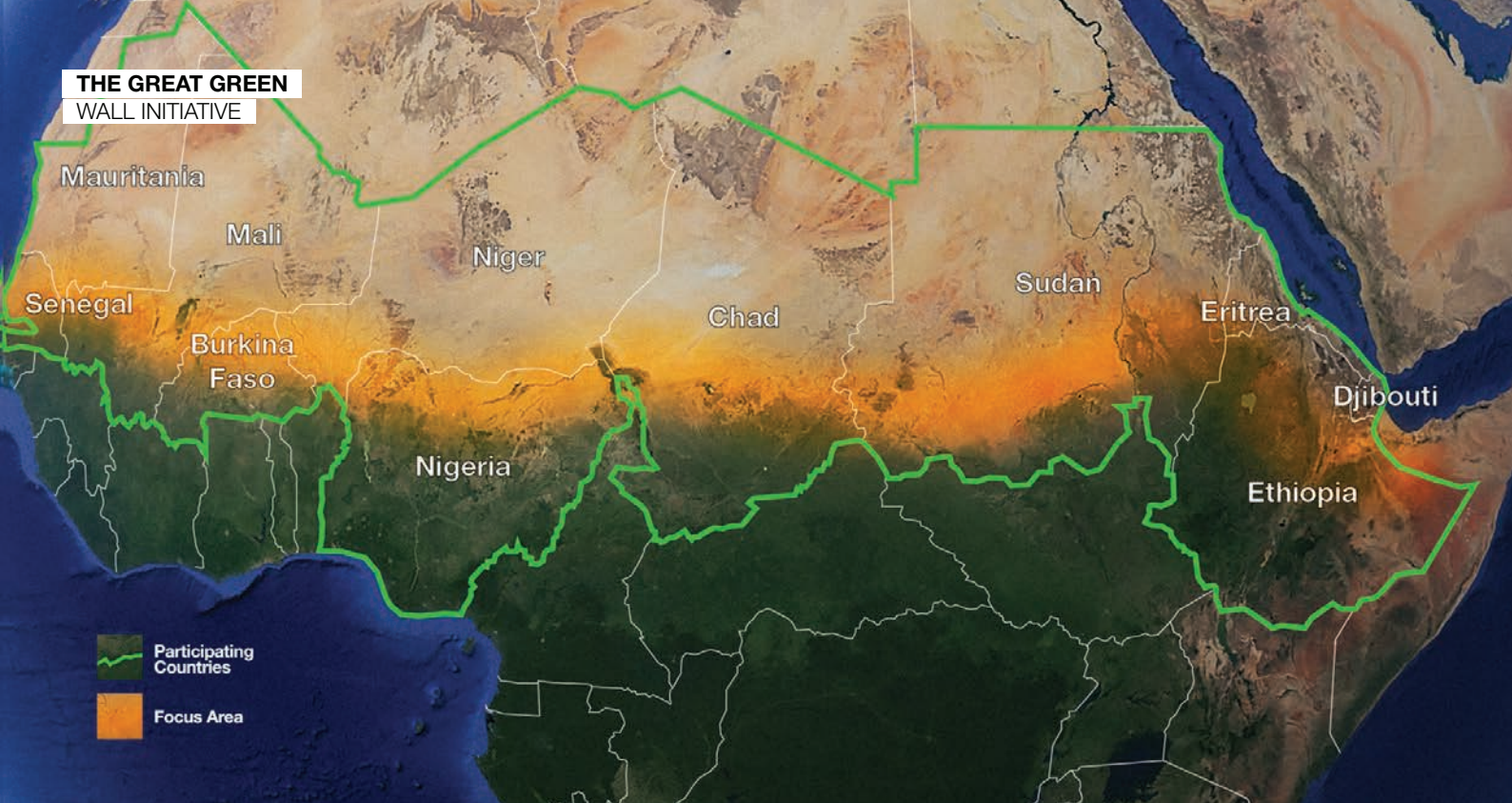
Deepening food insecurity in the Sudans is associated with violent tensions

More frequent and intense flooding and droughts are affecting food security and undermining the ability of agriculturally-dependent population groups to adapt. Violent tensions are common between farmers and herders competing over scarce land. Cattle raiding is also more frequent in a context of extreme climate, which exacerbates existing rivalries. Flooding has affected agricultural yields. As of 2021, 9.8 million people in Sudan are severely food-insecure.²² Meanwhile, over 1.6 million South Sudanese are displaced due to a combination of conflict and extreme weather events.²³ For the Sudanese and South Sudanese governments, it is difficult to define effective responses to flash floods. As in Somalia, some actors sought to consolidate power in the wake of repeated disasters.

CONFLICT EVENTS IN SUDAN AND SOUTH SUDAN



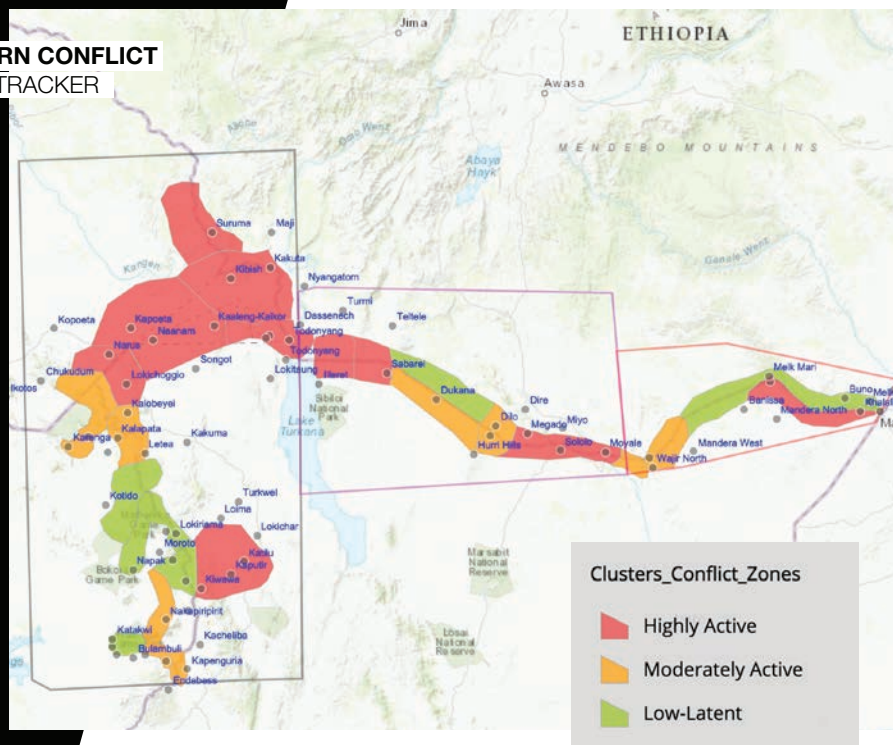
THE GREAT GREEN WALL INITIATIVE



Solutions are emerging from the Greater Horn

Early warning systems are critical. Support is needed to strengthen prediction and response capacities, including the African Union Continental Early Warning System (CEWS) and IGAD's Conflict Early Warning and Response Network (CEWARN).^{24 25} Strengthening local capacities to adapt to climate change and manage tensions peacefully is critical. A positive example is the IGAD-FAO Building Resilience for Agro-Pastoralist Communities initiative in the Mendera Triangle region spanning Somalia, Ethiopia and other countries.²⁶ The East African Community (EAC) launched a transborder initiative to strengthen resilience through policy, adaptation, research and economic development and could help foster collective action by improving economic cooperation and encouraging shared management of freshwater ecosystems. By 2018 the EAC initiative had improved natural resource management practices in over 510,000 hectares of land.²⁷ And the Great Green Wall, a multi-billion dollar international reforestation program spanning 250 million acres, offers an example of bold programs to pull CO₂ from the atmosphere and foster climate resilience.²⁸

CEWARN CONFLICT ZONE TRACKER



Earth Time story visualization

- + [Climate Security Nexus in the Greater Horn of Africa: threats and solutions](#)
- + [Climate Security Nexus in the Greater Horn of Africa: case studies](#)

End notes

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