

# The impact of 2011 drought in East Africa (border area between Kenya, Somalia, and Ethiopia)



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# Outline

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- Introduction
- Study area.
- Drought Indices and variables.
- Causes
- Impacts
- Responses
- Way forward



# Introduction

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- The total failure of the October to December 2010 rains and poor performance of the April to June 2011 rains

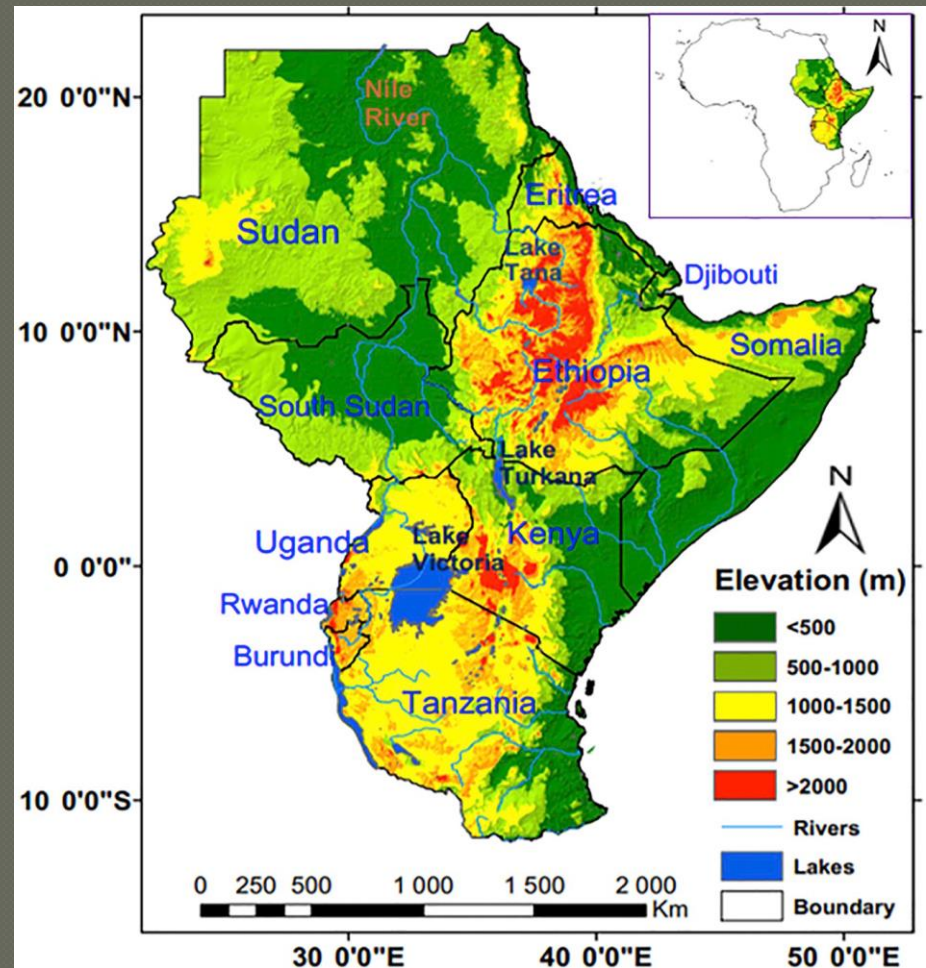
[https://en.wikipedia.org/wiki/2011\\_East\\_Africa\\_drought](https://en.wikipedia.org/wiki/2011_East_Africa_drought)

- Drought was "the worst in 60 years"
- That threatened the livelihood of 9.5 million people
- Prices increased in South east Ethiopia by 117%, and in Somalia by 240%, and in Kenya by 58 %.

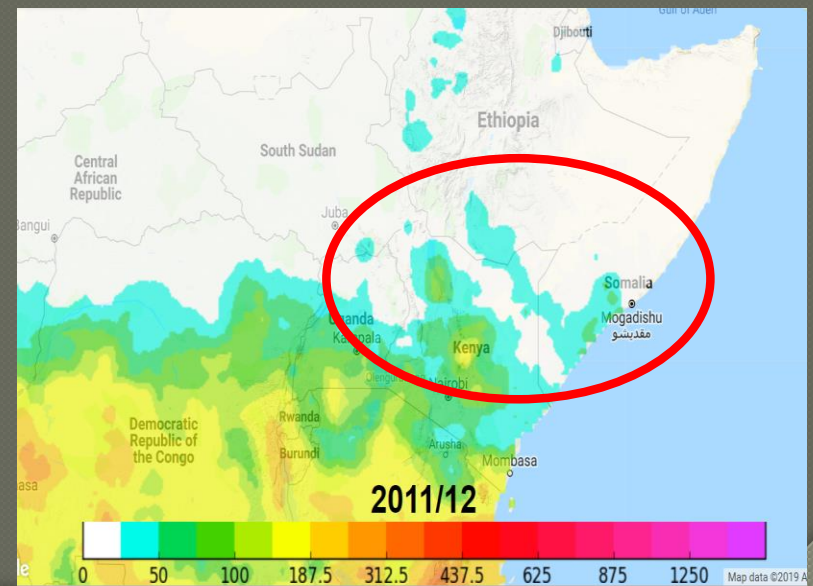
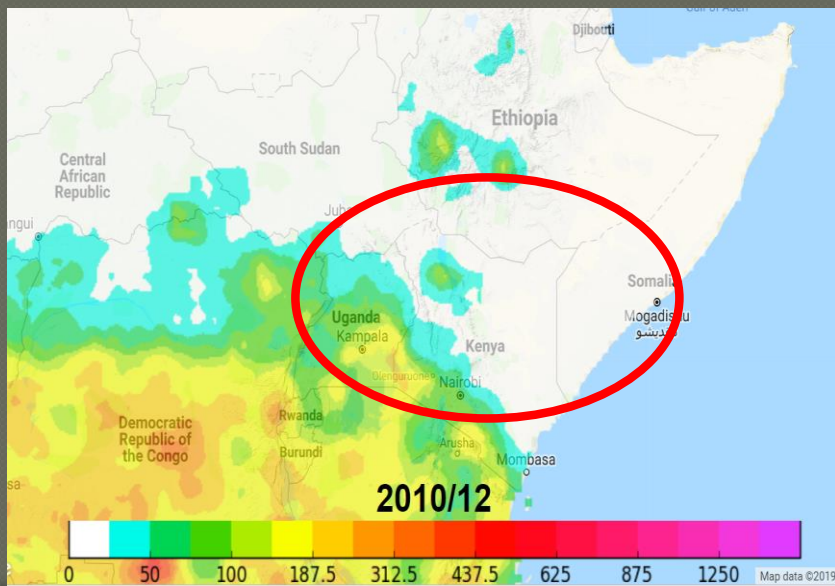
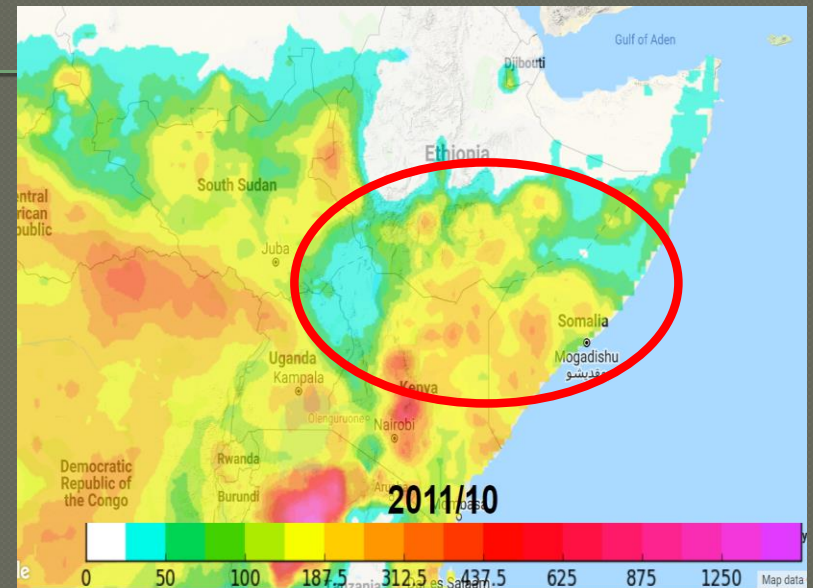
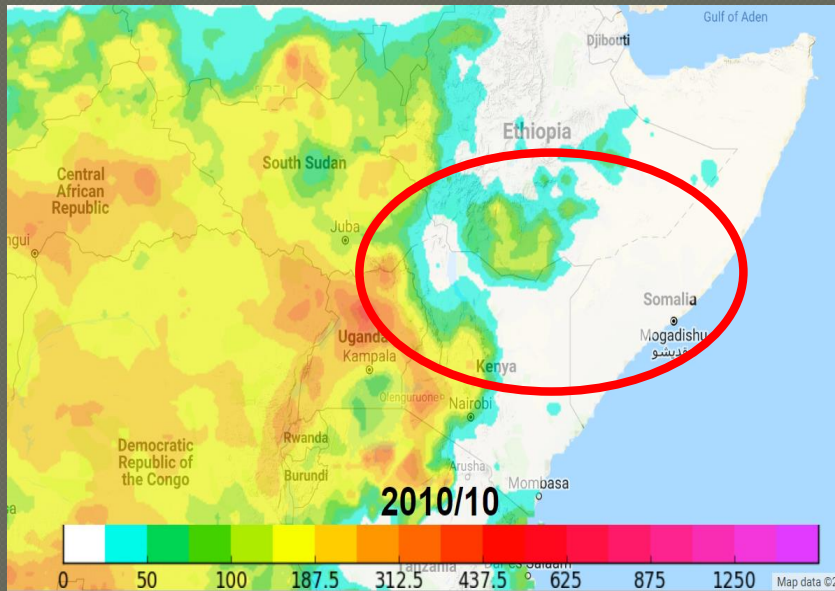
# Study area

2011 Drought - Somalia, Djibouti, Ethiopia and Kenya

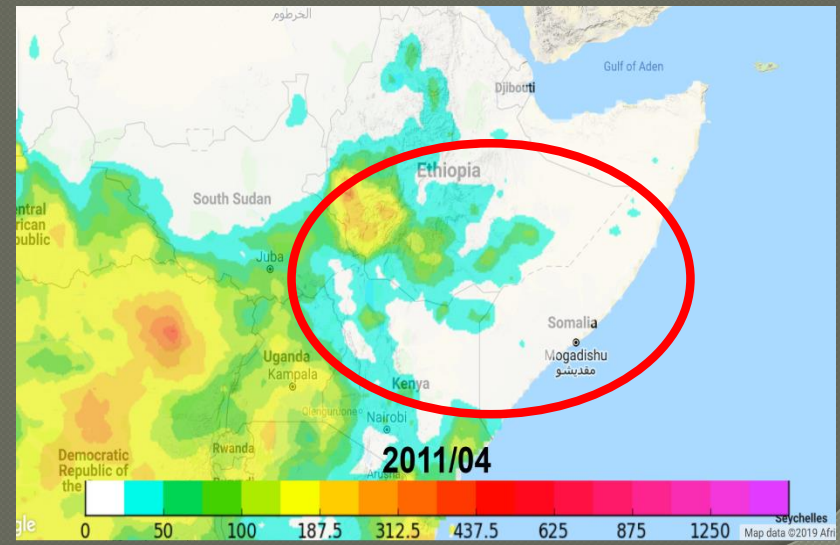
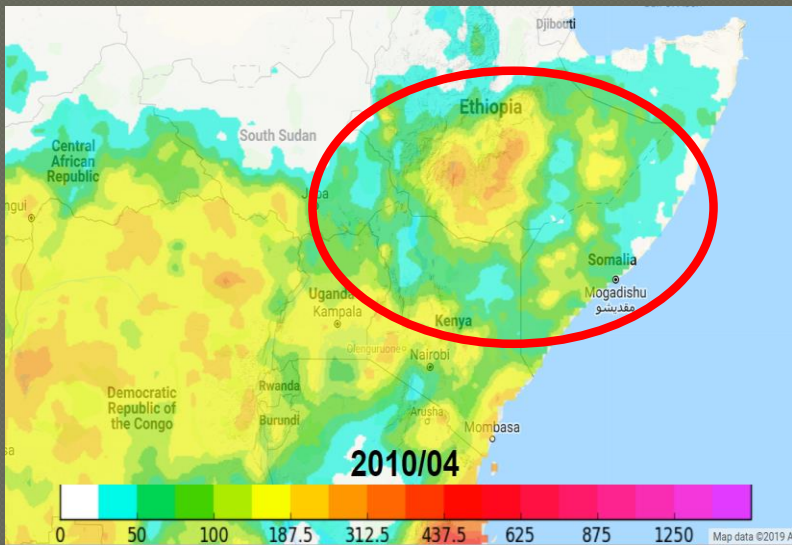
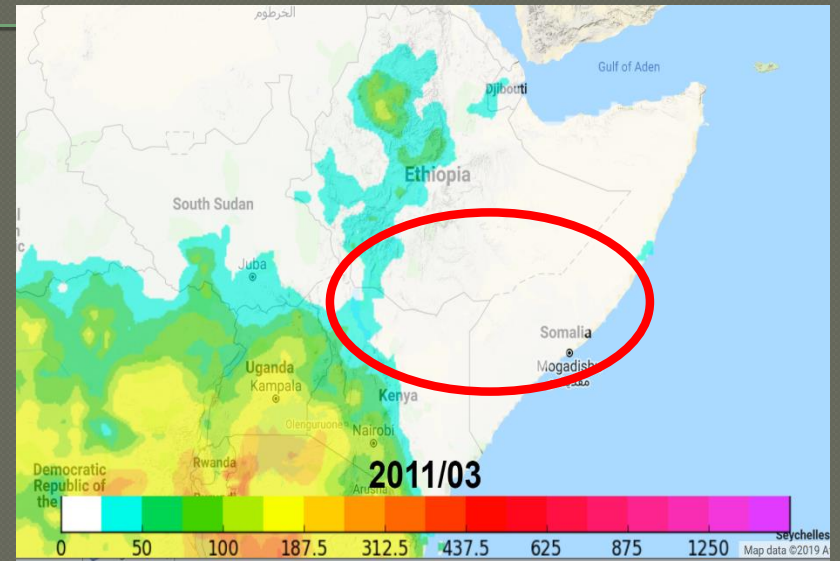
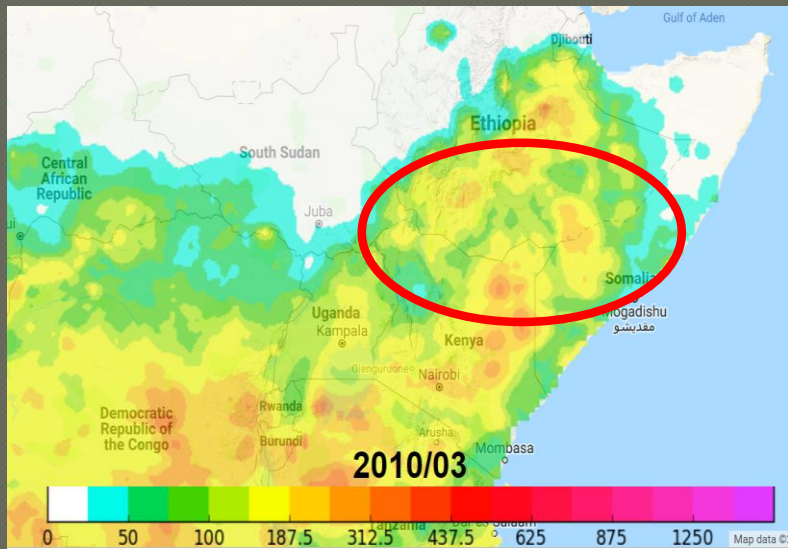
Border area between Kenya, Somalia, and Ethiopia)



# Total monthly precipitation (mm)



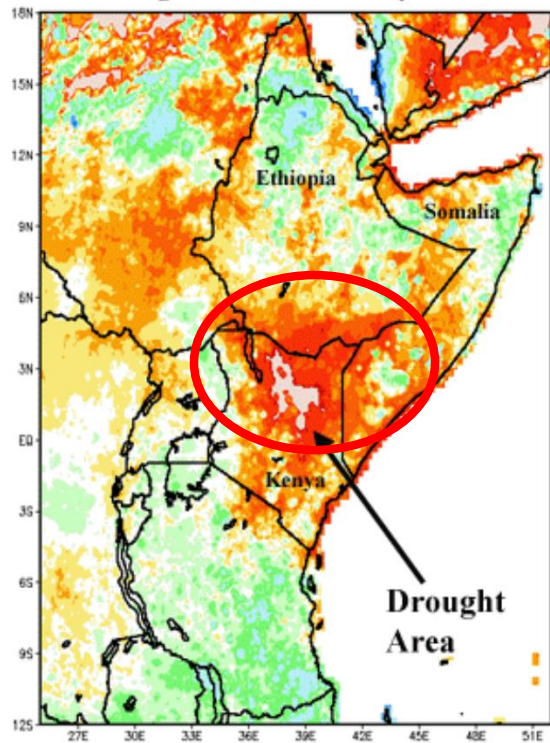
# Total monthly precipitation (mm)



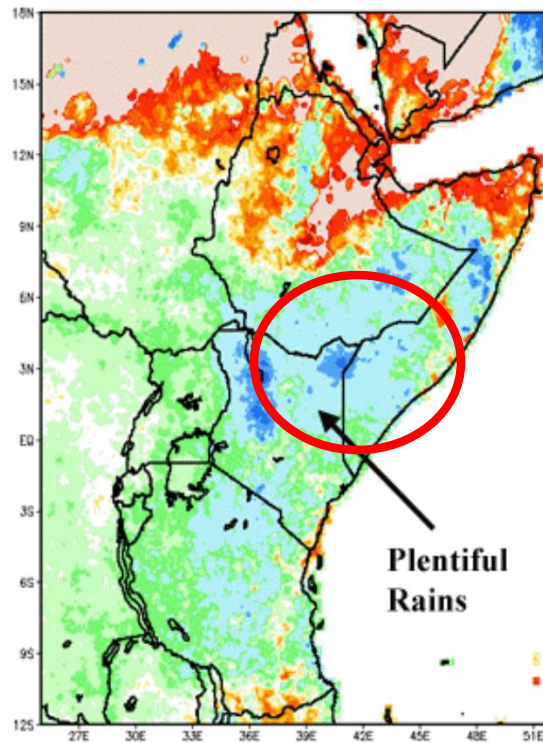
# Percent of Normal Index

## Percent of normal precipitation in East Africa, 2011

“Long Rains”, March - May 2011



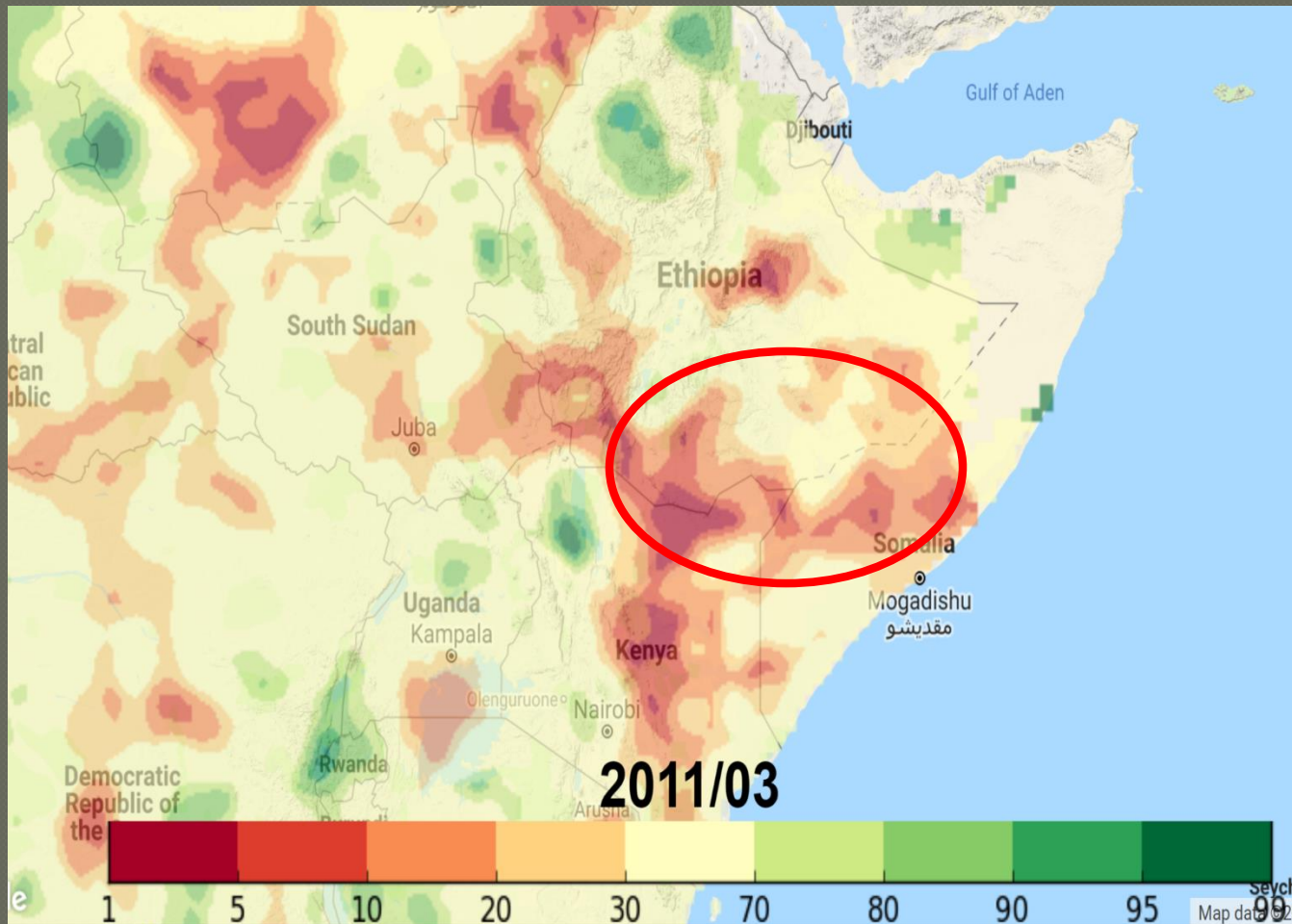
“Short Rains”, October - December 2011



1 5 25 50 70 90 110 140 180 400 600  
Percent of normal rainfall

Calculated by dividing actual precipitation by normal precipitation for the time being considered and multiplying by 100.

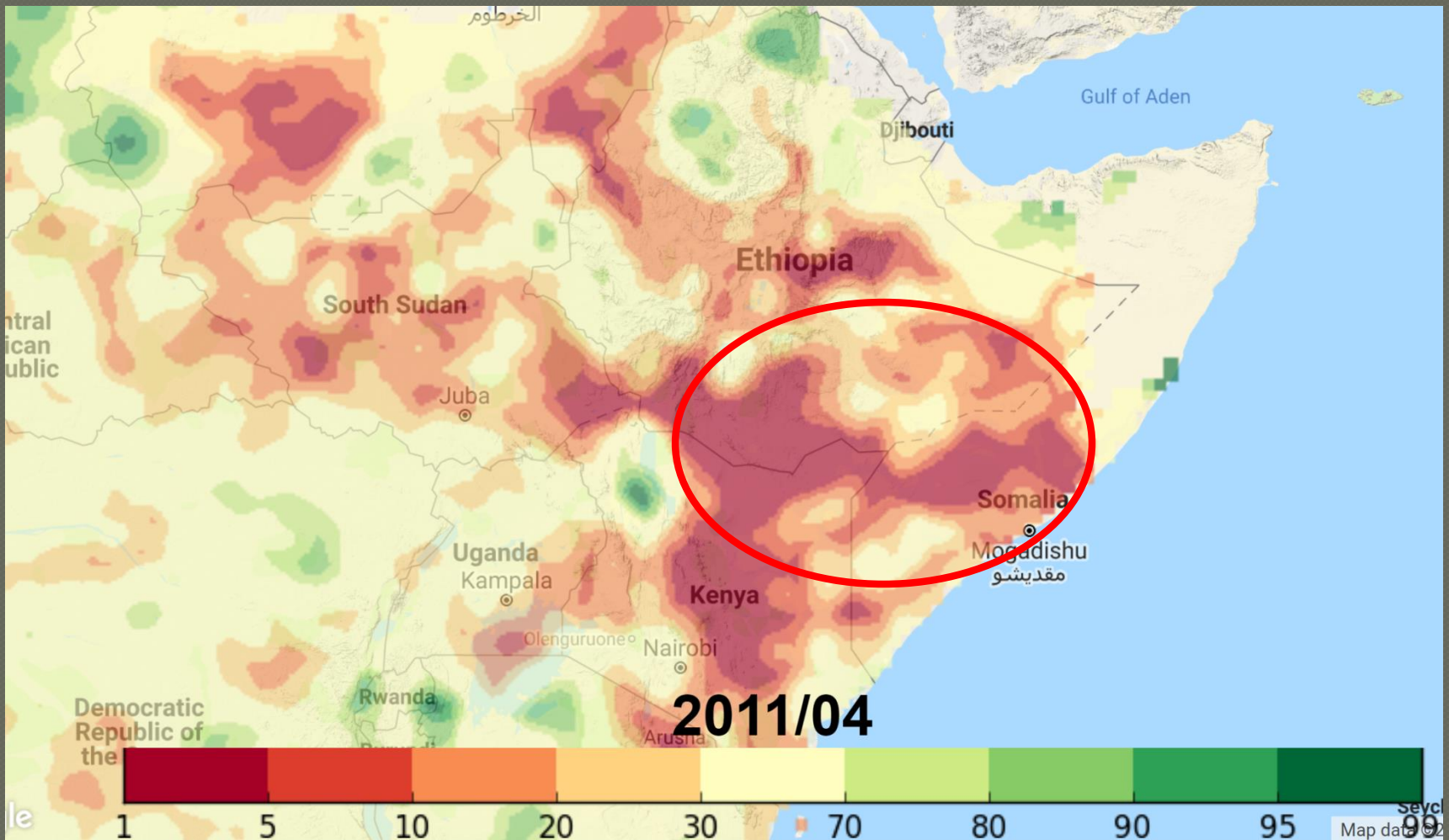
# Drought Index



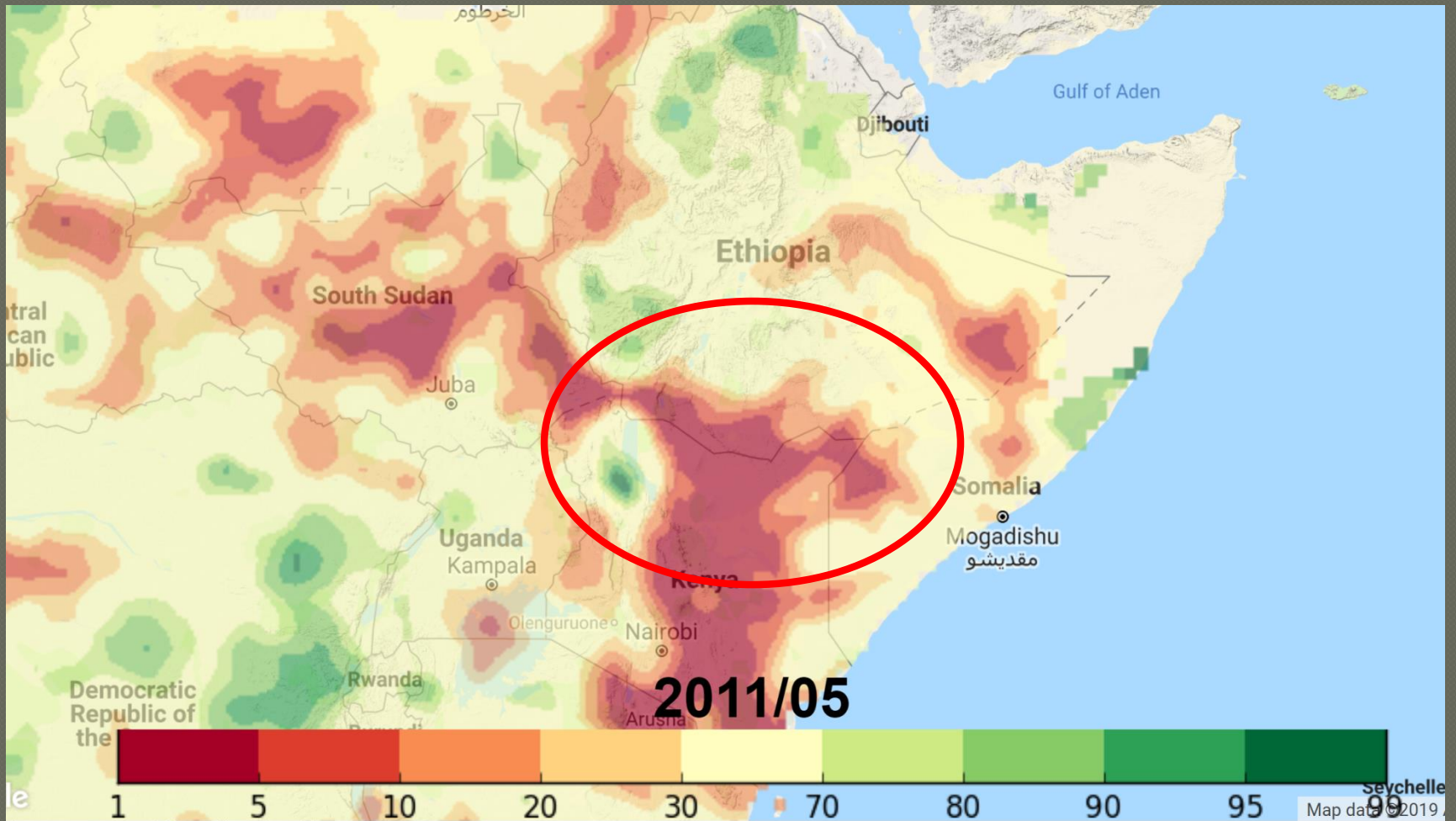
- Measure of severity of drought in soil moisture
- Low values indicate drought conditions



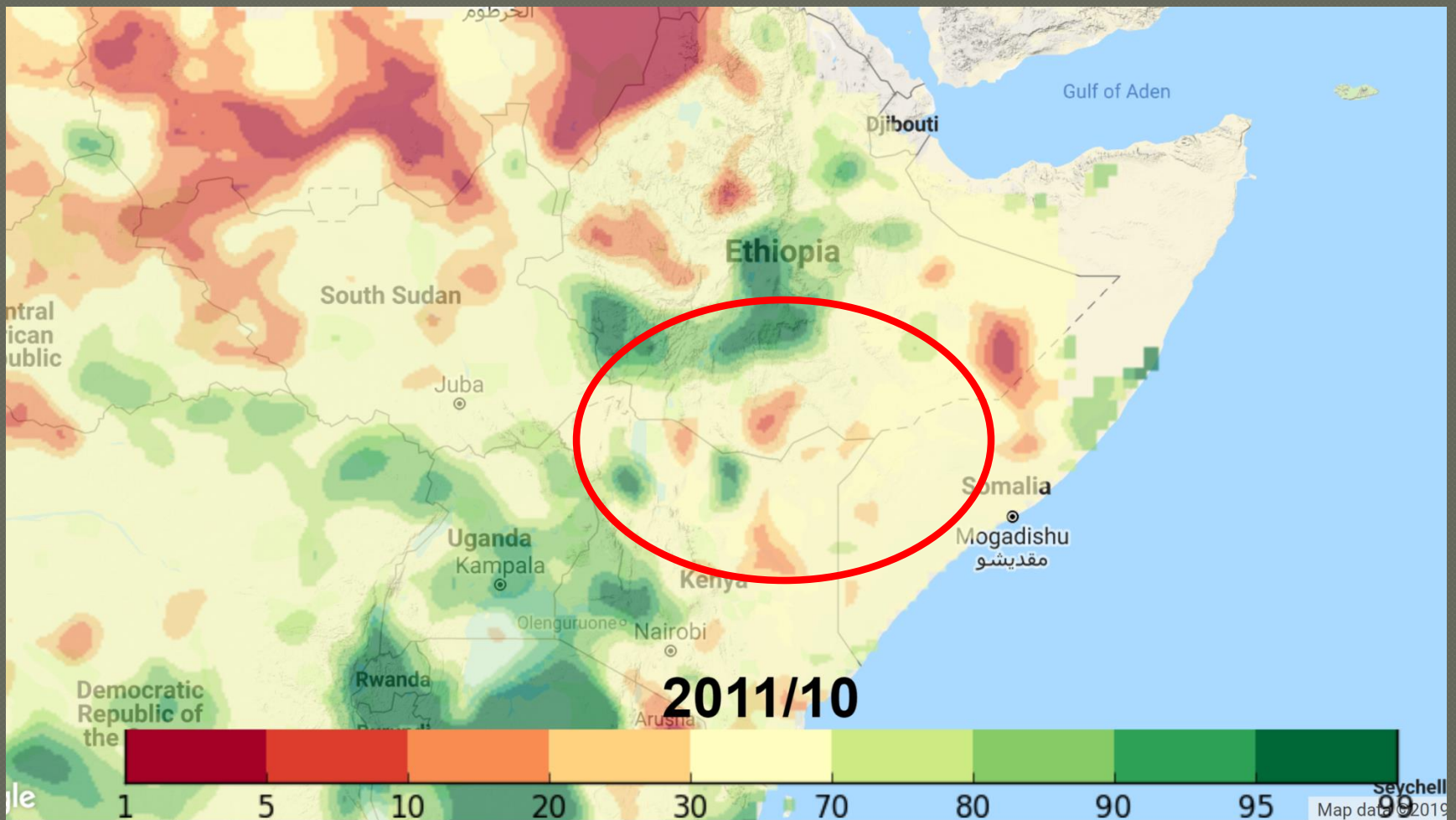
# Drought Index



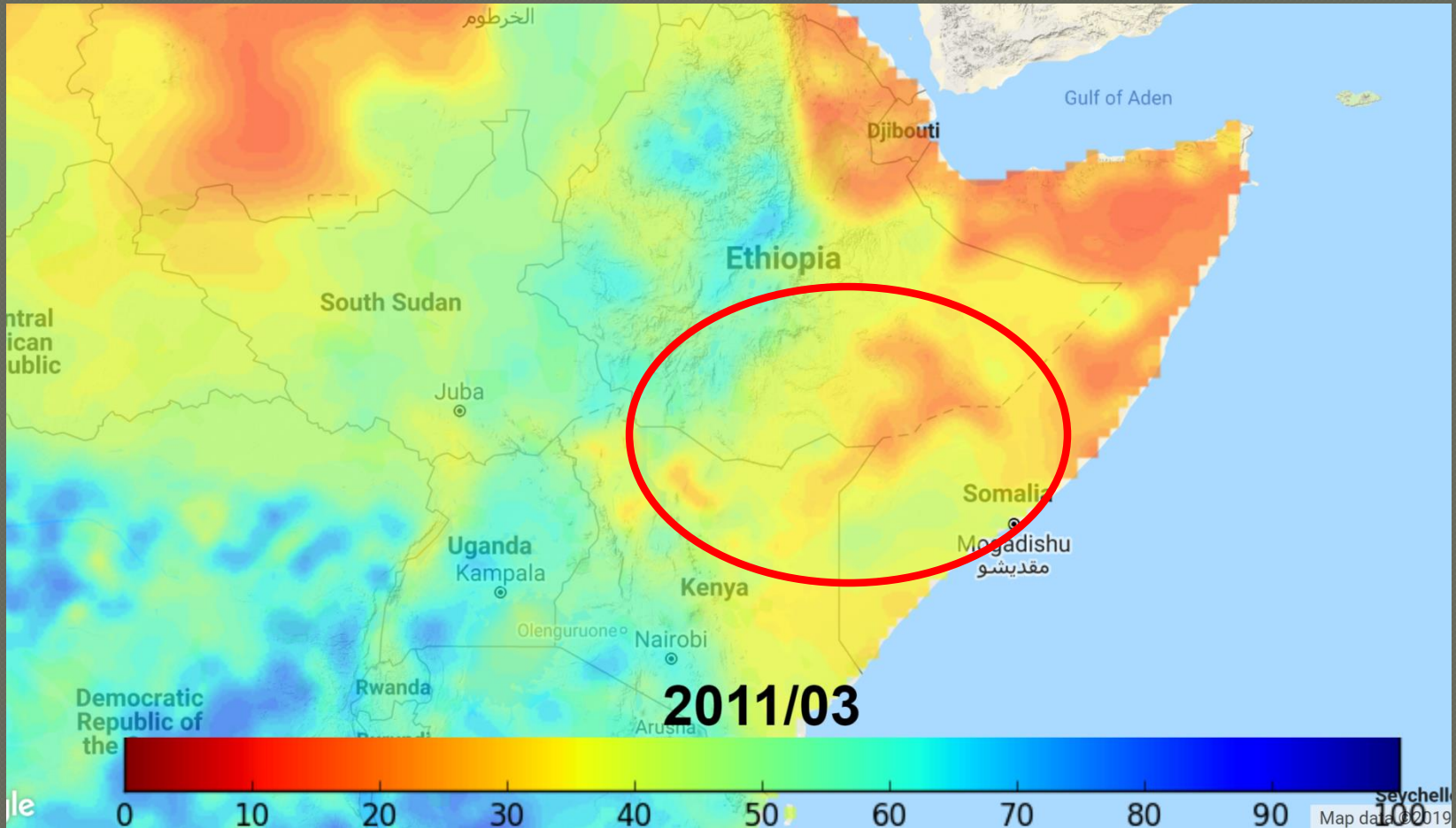
# Drought Index



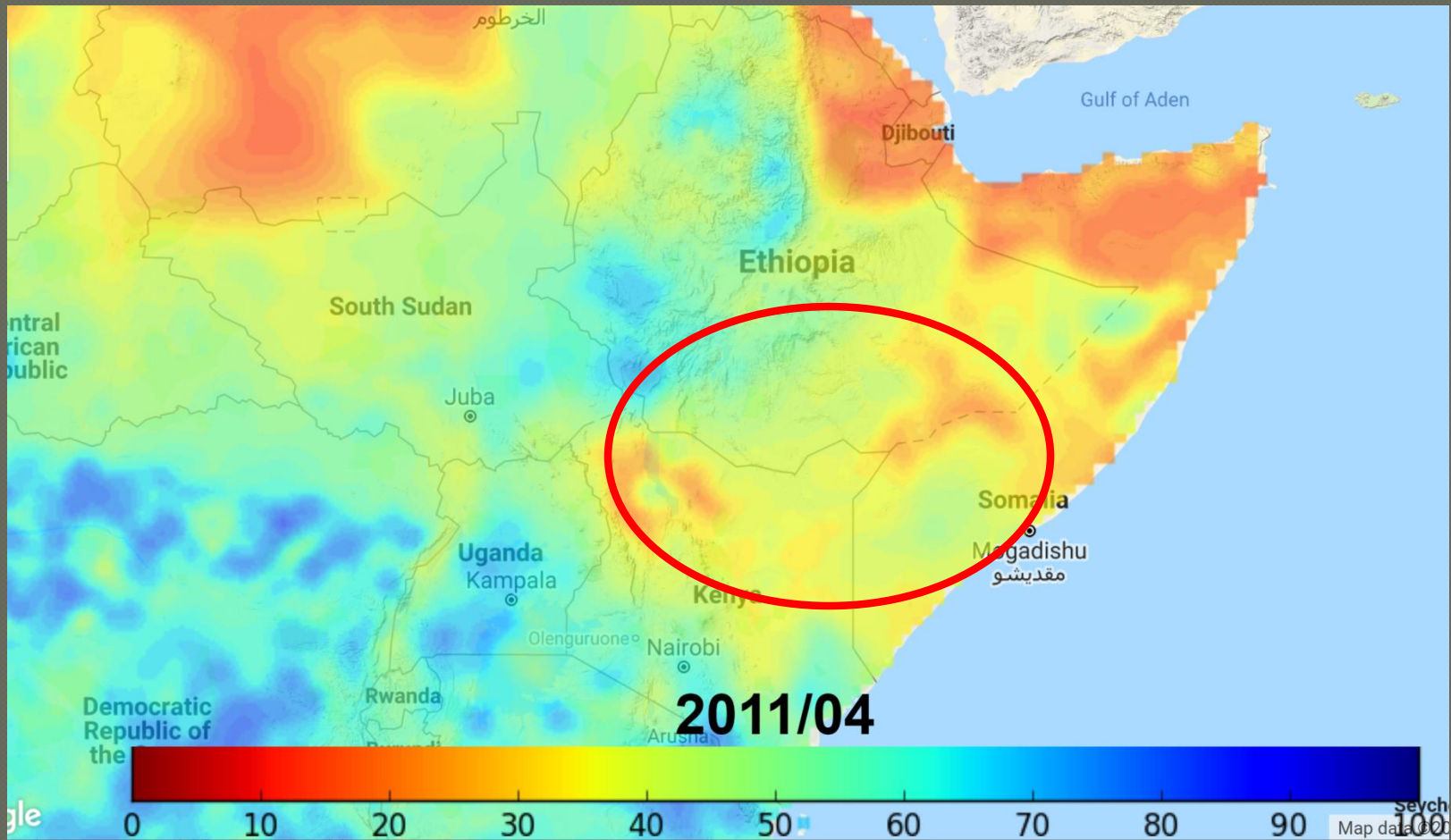
# Drought Index



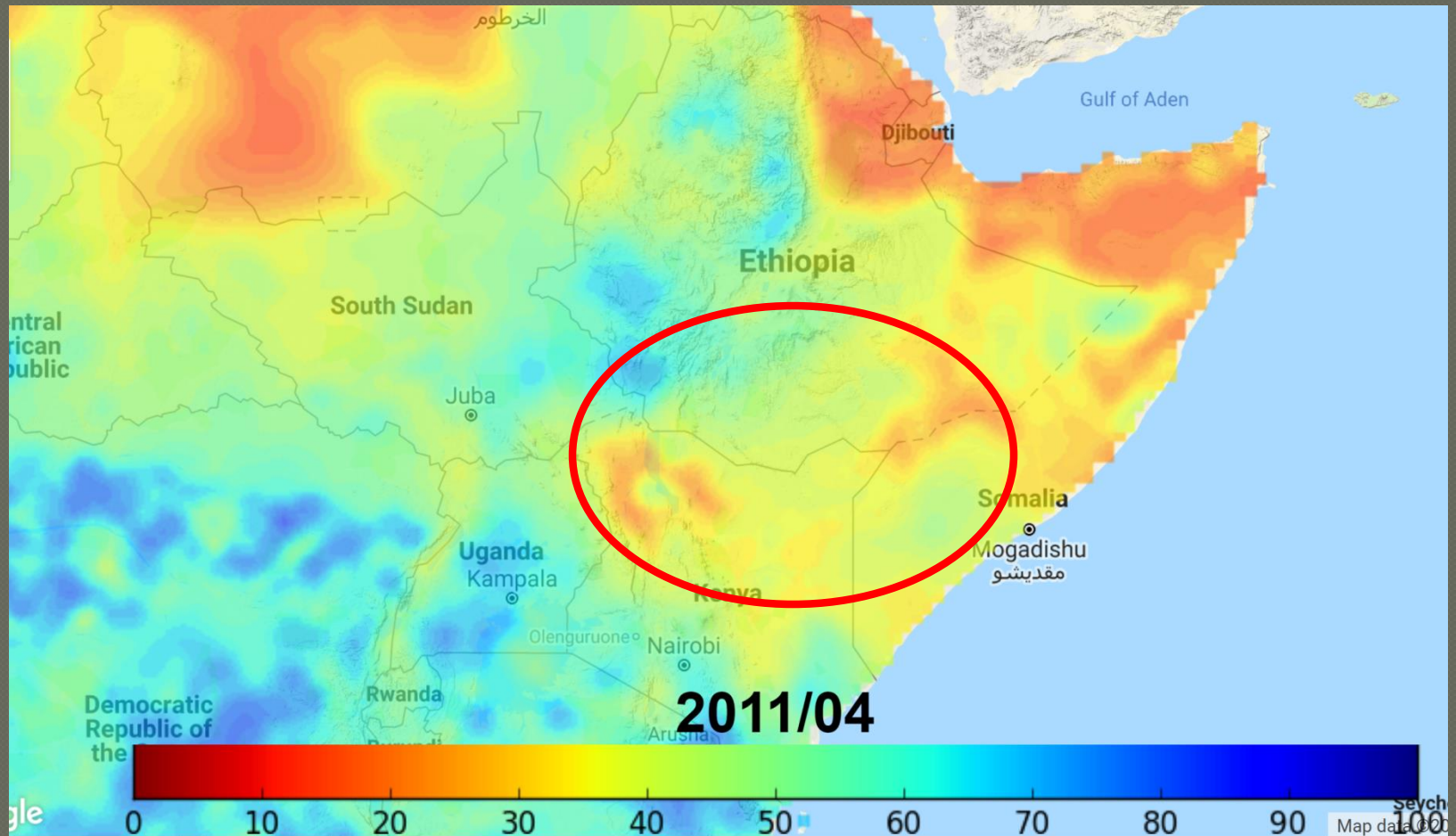
# Soil moisture



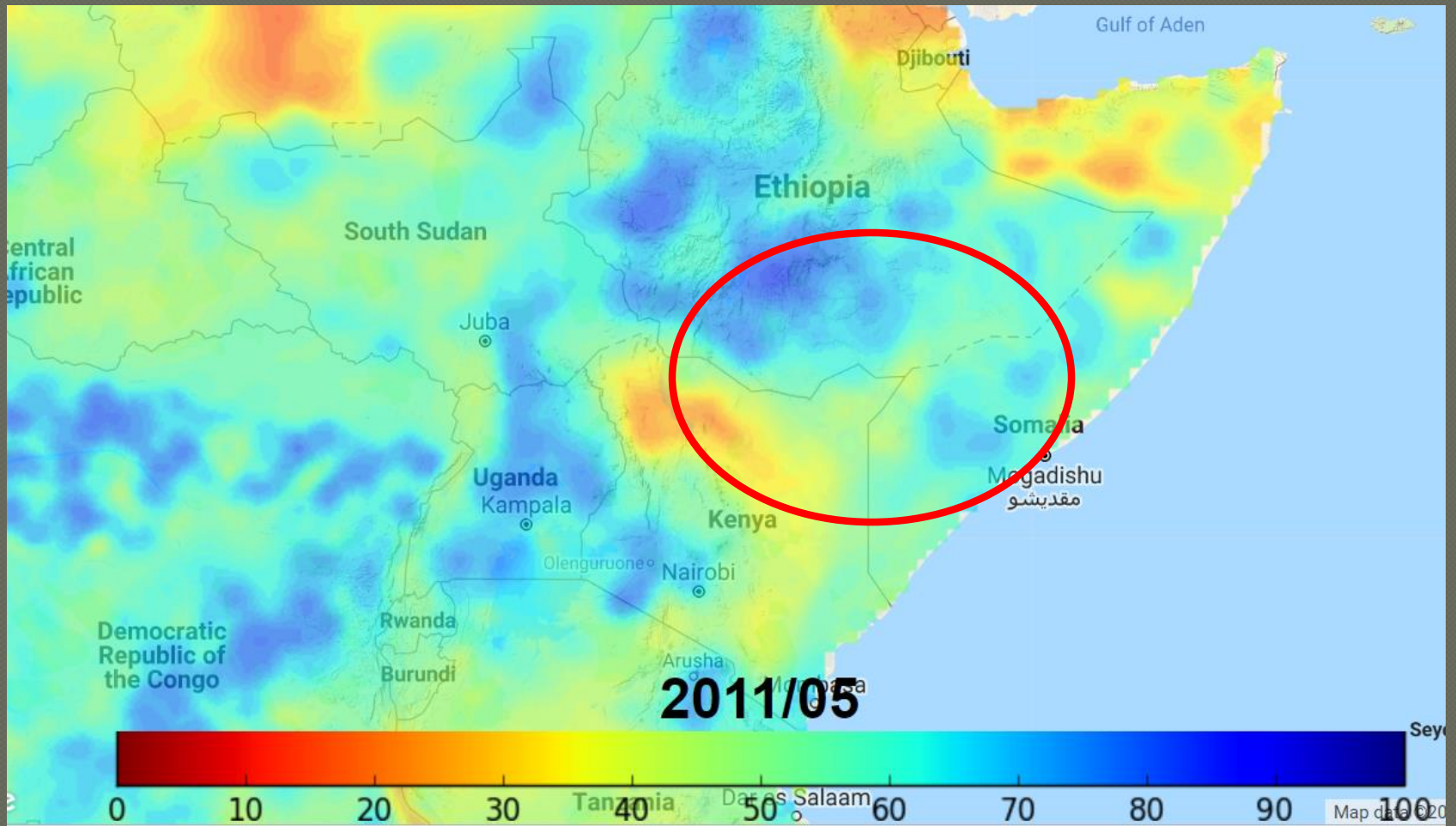
# Soil moisture



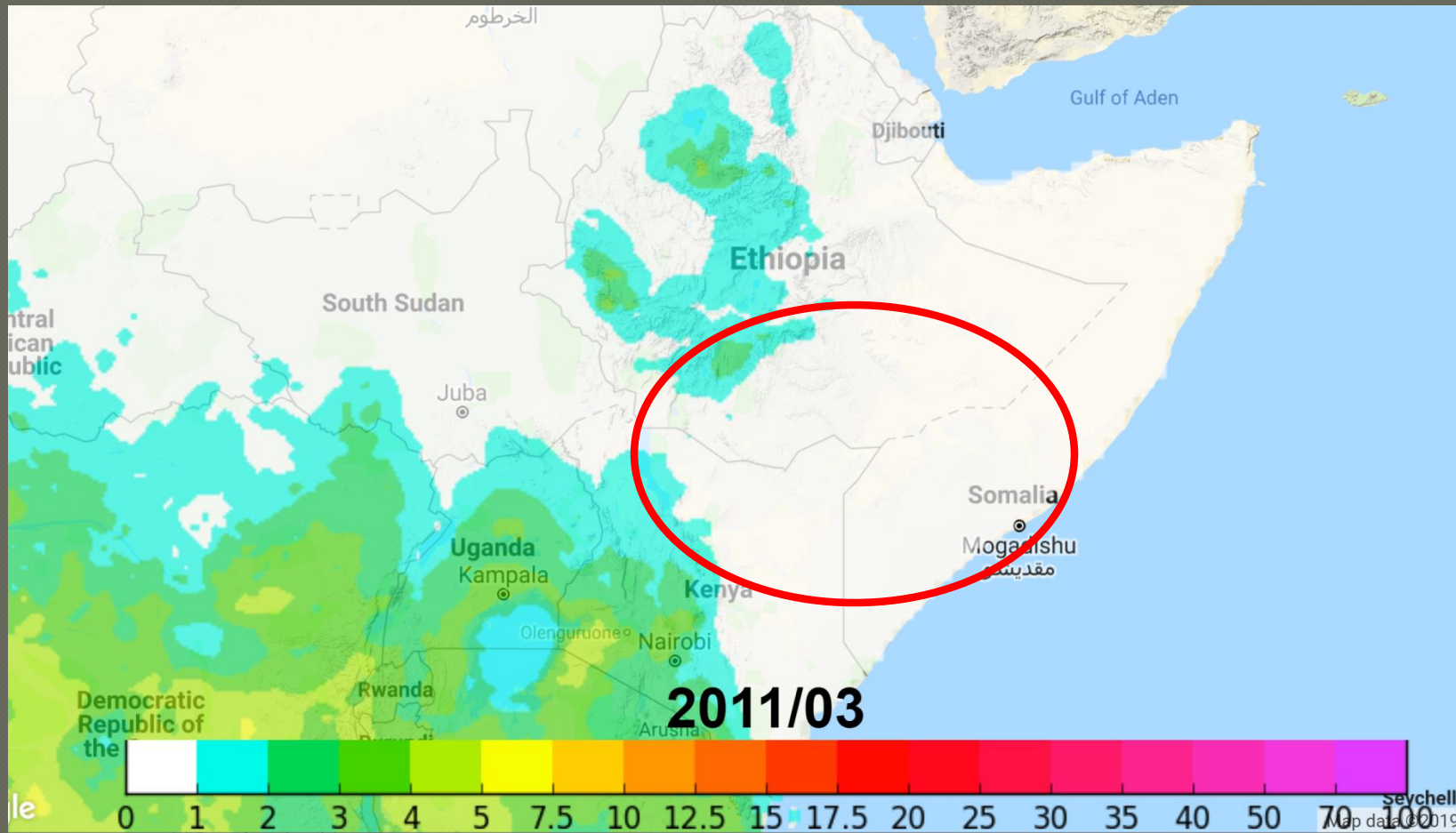
# Soil moisture



# Soil moisture



# Evaporation





# Causes

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- ❑ Climate variability.
  - ❖ high seasonal and inter-annual variability of the climate system.
  - ❖ The effect of El Nino.
  
- ❑ Anthropogenic effects.
  - ❖ Expansion of cultivation and grazing lands,
  - ❖ over exploitation of water resources,
  - ❖ new settlement and urbanization,
  - ❖ large scale development projects.
  
- ❑ The combined effect

# Impacts on water resources

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- ◉ Reducing water supply
- ◉ Deterioration of water quality.
- ◉ Range productivity reduction.
- ◉ Diminishing power generation.
- ◉ Crop failure.
- ◉ Riparian habitats disturbance.
- ◉ Suspension of socio-economic activities

# Impacts on agriculture

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- ⦿ Reduce income for farmers.
- ⦿ Increase food prices.
- ⦿ unemployment.
- ⦿ migration.
- ⦿ Reducing crop yield.

# Responses

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- **Short-term response**

- Emergency preparedness plan.
- List humanitarian organizations (contact them early enough).

- **Mid-term response**

- Rehabilitation plan
- Adopt new irrigation methods (drip irrigation)

- **Long term response.**

- Recovery and reconstruction
- build wells, rainwater collection.
- Working with farmers in improved crop production techniques to build drought resilience.

# Way forward

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- ◉ Promote farmers access to climate information services (rainfall and temperature)
- ◉ Strengthen early warning system (drought monitoring and forecast).
- ◉ Government should adopt policies for disaster risk reduction.



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**Thank you**