

Climate Change, Humanitarian Risks, and Social-Political (In)stability Along the Gulf of Aden:

Expert Elicitation for the Case of Somalia and Yemen

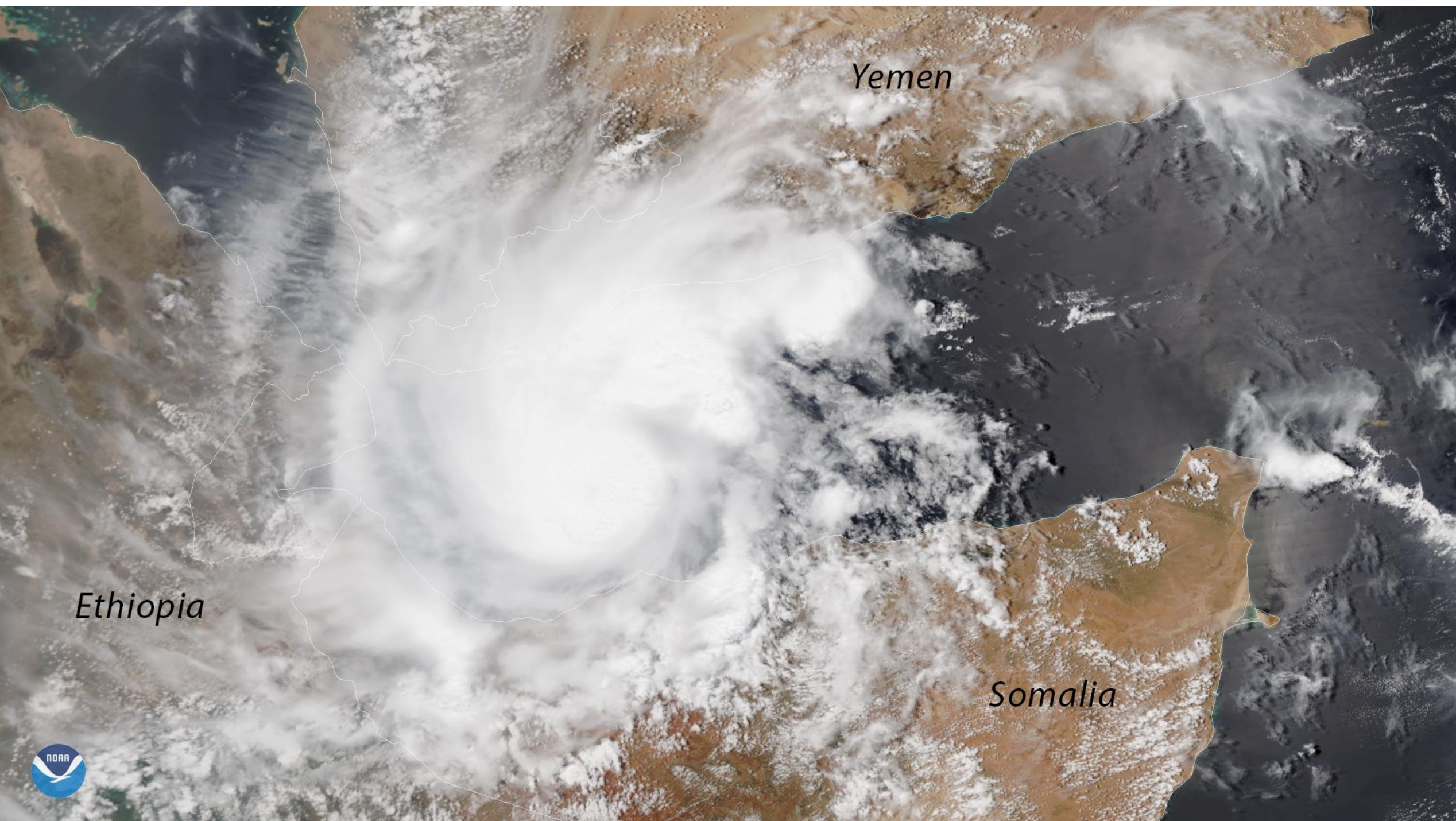
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INTRODUCTION



The NOAA-20 polar-orbiting satellite captured this image of 'Sagar' in the Gulf of Aden, between Yemen and Somalia, on May 18, 2018. According to [NOAA's historical hurricane tracks database](#), Sagar was only the third tropical storm seen in the Gulf of Aden since satellites began tracking storms from space in 1966.

Somalia and Yemen are two 'Least Developed Countries' severely affected by armed conflicts, pre-war low levels of human development index, widespread water-borne diseases, and an increase in frequency of extreme environmental events (EEEs). On May 18, 2018, the 'Sagar' tropical cyclone generated numerous casualties and heavy destruction in parts of the Middle East and Horn of Africa, making history as the strongest tropical storm ever recorded in Somalia and as the first of three tropical cyclones that brought devastation to war-torn Yemen in a single year (along cyclones Mekunu and Luban). These events are consistent with the literature on climate change (CC) in the North Indian Ocean that has been recording an increase in magnitude and frequency of tropical cyclones (see e.g. [Bajali et al., 2018](#)) and other EEEs like coastal flooding ([Vitousek et al., 2017](#)).

Amidst a context of donor fatigue towards humanitarian crises in these two countries, **this research investigates how significant is expected to be the impact of CC in the medium to long term in these countries that border the poorly researched Gulf of Aden waterway.**

METHODOLOGY

We used an expert elicitation method to anticipate the impact of change in key environmental parameters (i.e., temperature, precipitation, droughts, and floods) on six environmental, social, and political issues in Somalia and Yemen: freshwater scarcity, food security, public health, social conflict, displacement, and political stability.

With the interview of a panel of experts in complementary fields, expert elicitation enables researchers to better forecast the possible impacts and significance of some complex problems for which there are too few data, such as climate change in countries where climate data have been poorly or scarcely collected and where datasets are not sufficient, comprehensive, or complete enough ([Slottje, Sluijs, & Knol, 2008](#)).

Experts interviewed by	Experts contacted	Experts interviewed
Academia	13	4
International organizations and NGOs	17	6
Total	20	10

RESULTS

Following the protocol, the panel has provided the following elicitation:

- **Most experts anticipated that CC-induced droughts are very likely to have a very negative impact on water and food security** in both Somalia and Yemen in the short and long term.
- **Most anticipate cascading effects on public health, social tensions, and displacement** over the next three decades (i.e., 2020-2050) in both.
- **For the long term (i.e., 2020-2100), experts consistently formed a consensus that CC issues are very likely to profoundly disrupt the economy and society, with an adverse to very adverse impact on social conflicts and political tensions** in both Somalia and Yemen.

CONCLUSION

The findings indicate that there is cause for significant concern and need for increased action by the research community and the international donor community.

CC is assessed by all interviewees - irrespective of their background - as at least *very likely* to hold a *negative* to a *devastating* impact on water and food security, public health, social conflicts, population displacement, political stability, and to strongly worsen the humanitarian situations in Somalia and Yemen, both in the medium-term (i.e., 2020-2050) and the long-term (i.e., 2020-2100).

The authors call on the international community to proactively and urgently help the local populations and relevant authorities to strongly build up their adaptation capacities, especially in the niches of coastal Disaster Risk Reduction (DRR) and water security.

The authors also call on the scientific community to further research the issue of climate change in the understudied area of the Gulf of Aden, and particularly on the issues of tropical cyclones and flooding.

This expert elicitation should serve as a provisional basis for policy until further research has been carried out.

Bajali, M., Chakraborty, A., & Mandal, M. (2018). Changes in tropical cyclone activity in north Indian Ocean during satellite era (1981-2014). *International Journal of Climatology*, 38(6), 2819-2837.

Slottje, P., van der Sluijs, J. P., & Knol, A. B. (2008). *Expert Elicitation: Methodological suggestions for its use in environmental health impact assessments*, National Institute for Public Health and the Environment.

Vitousek, S., Barnard, P. L., Fletcher, C. H., Frazer, N., Erikson, L., & Storlazzi, C. D. (2017). Doubling of coastal flooding frequency within decades due to sea-level rise. *Scientific reports*, 7(1), 1-9.

