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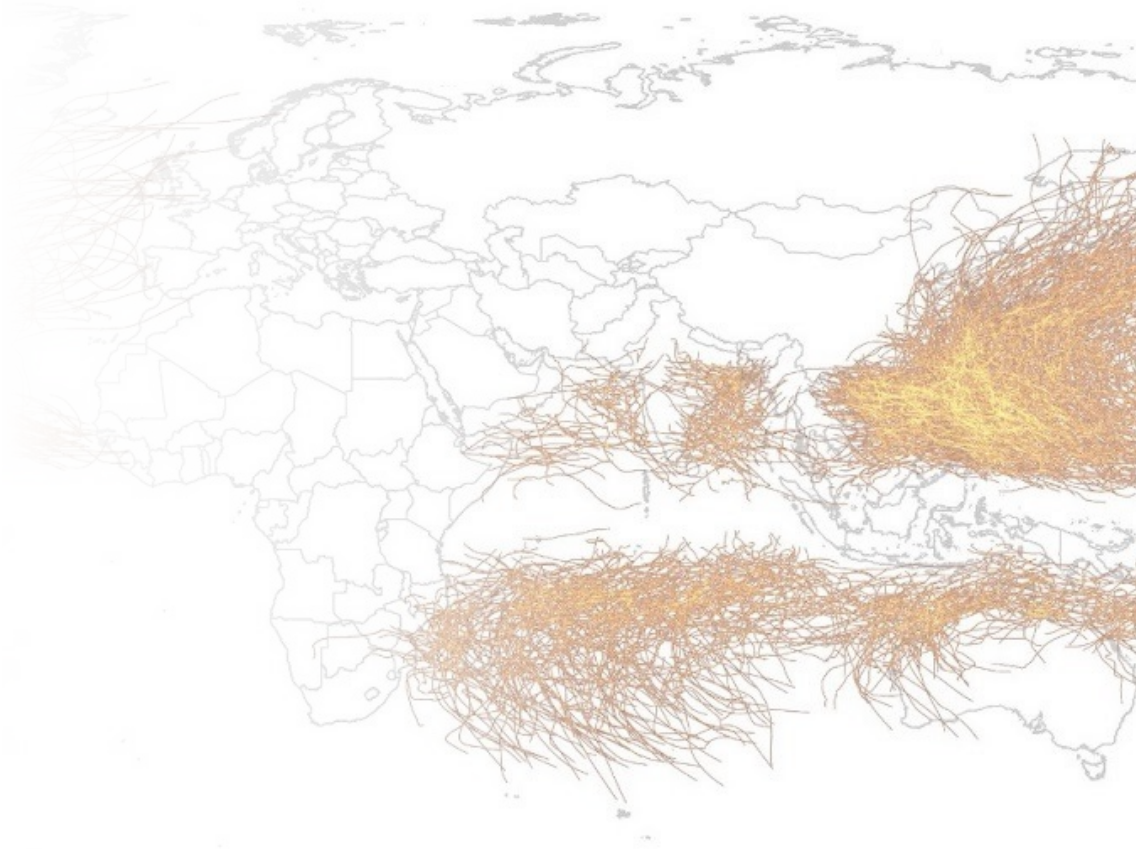


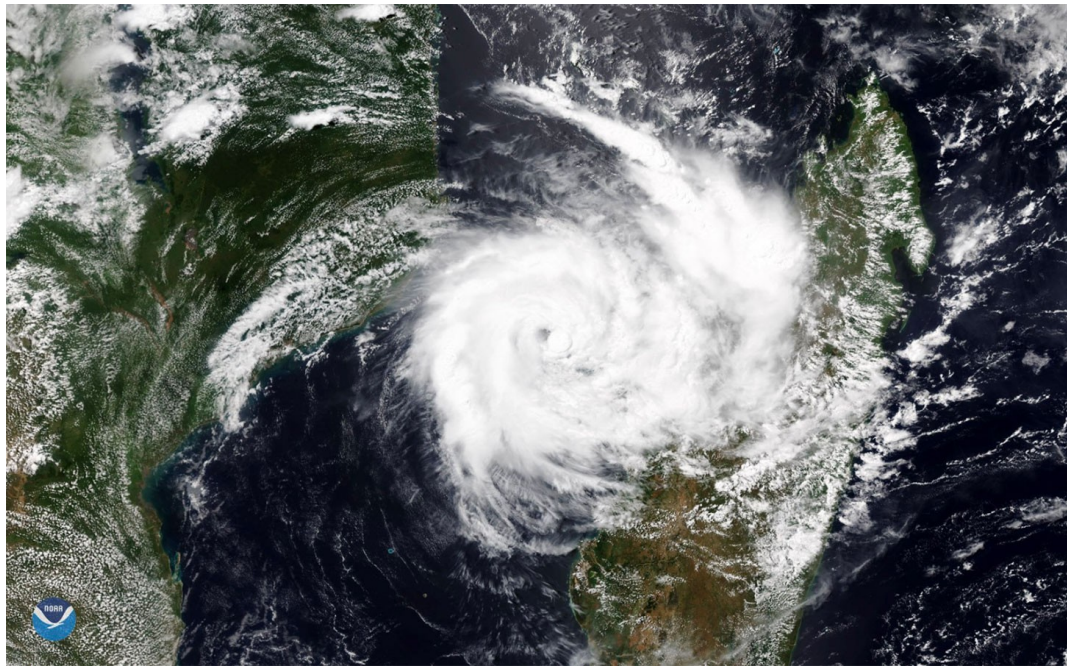
A fully-open approach to modeling TC storm surge on a global scale

Thomas Vogt, Simon Treu, Matthias Mengel, Katja Frieler, and Christian Otto

EGU General Assembly, 2022-05-25
Session NH5.4: Natural hazards and climate change impacts in coastal areas

Leibniz Association

Tropical Cyclones



NOAA

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Our approach to tropical cyclone storm surge modeling

Easy-to-use model for globally consistent inundation maps from tropical cyclone storm surge

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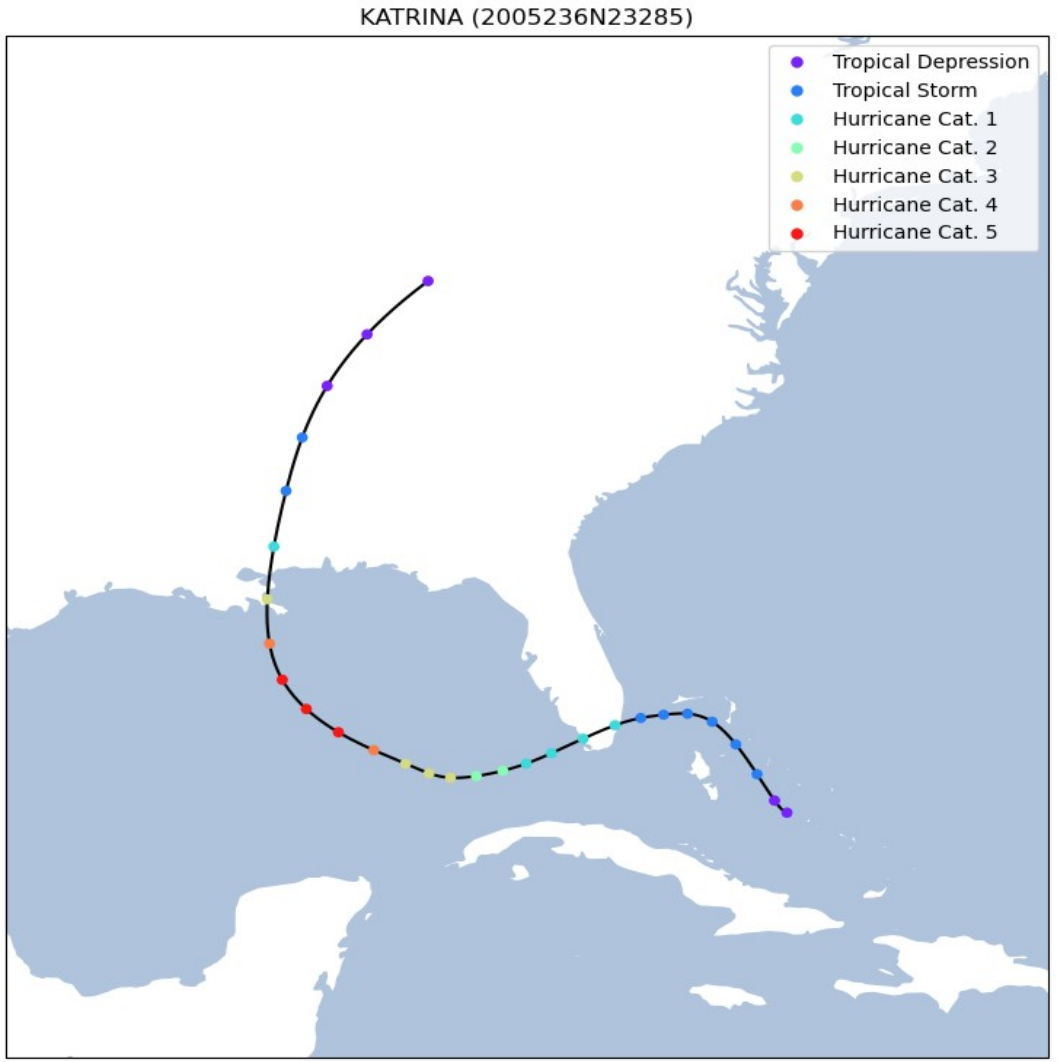

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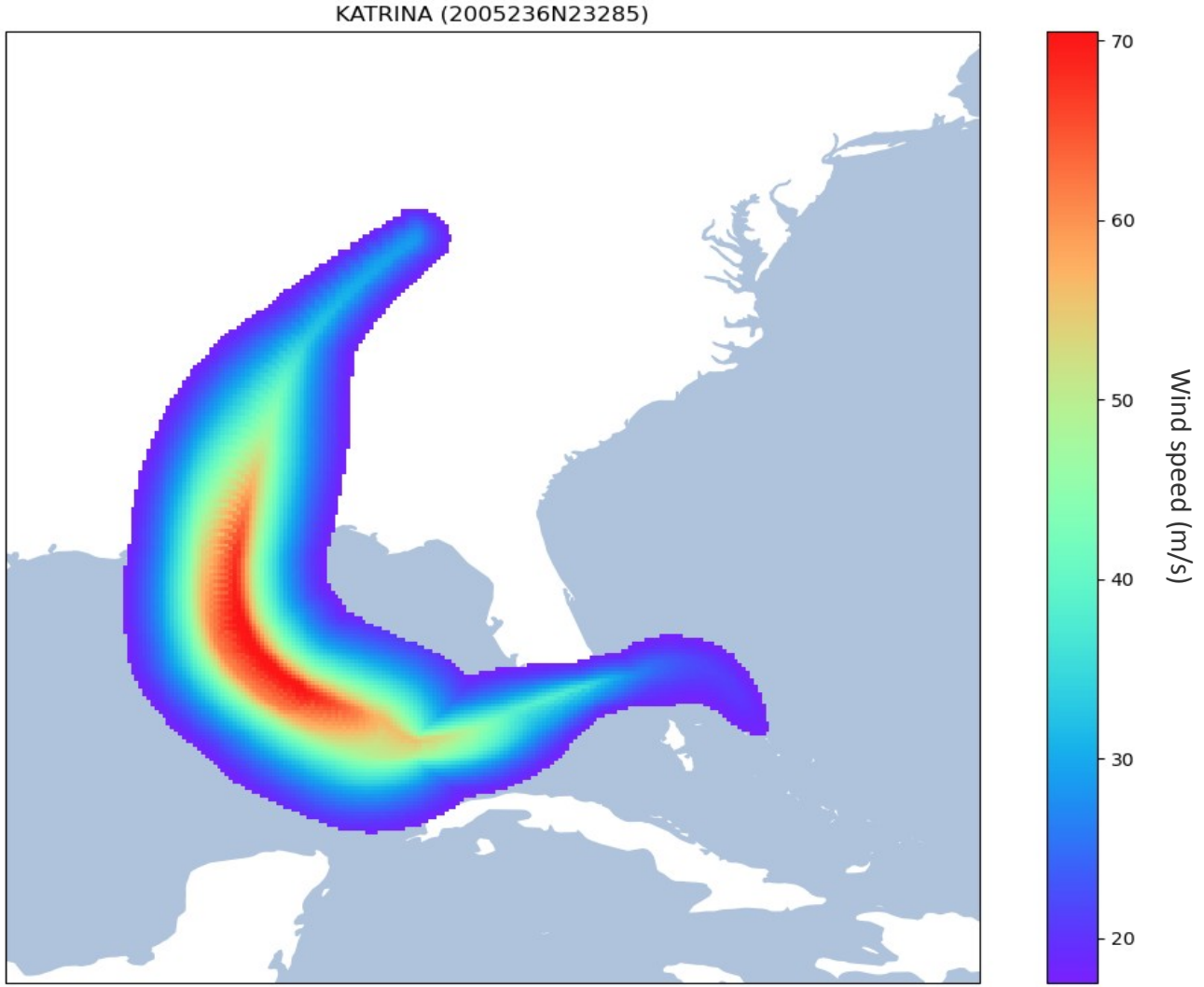

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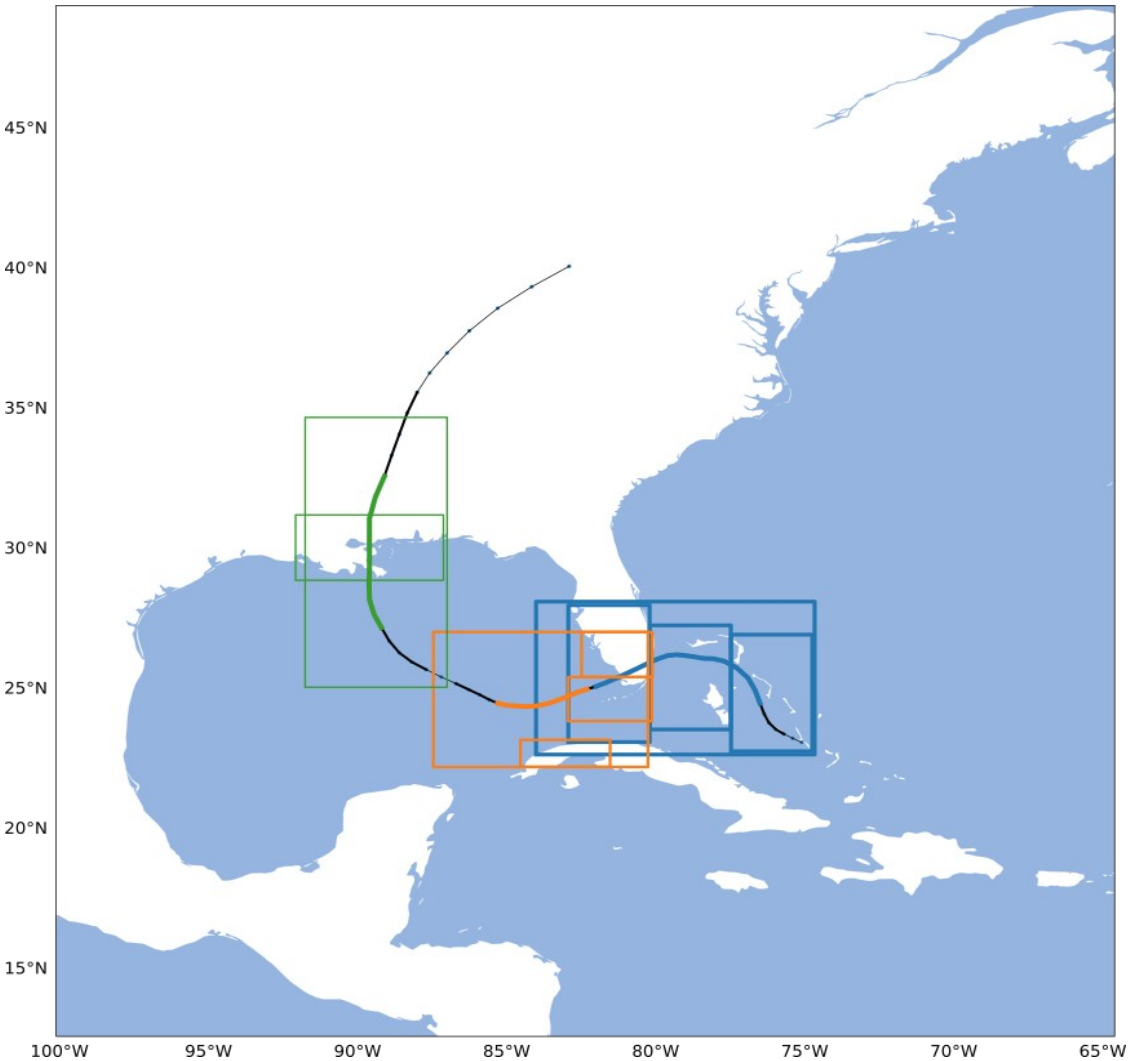

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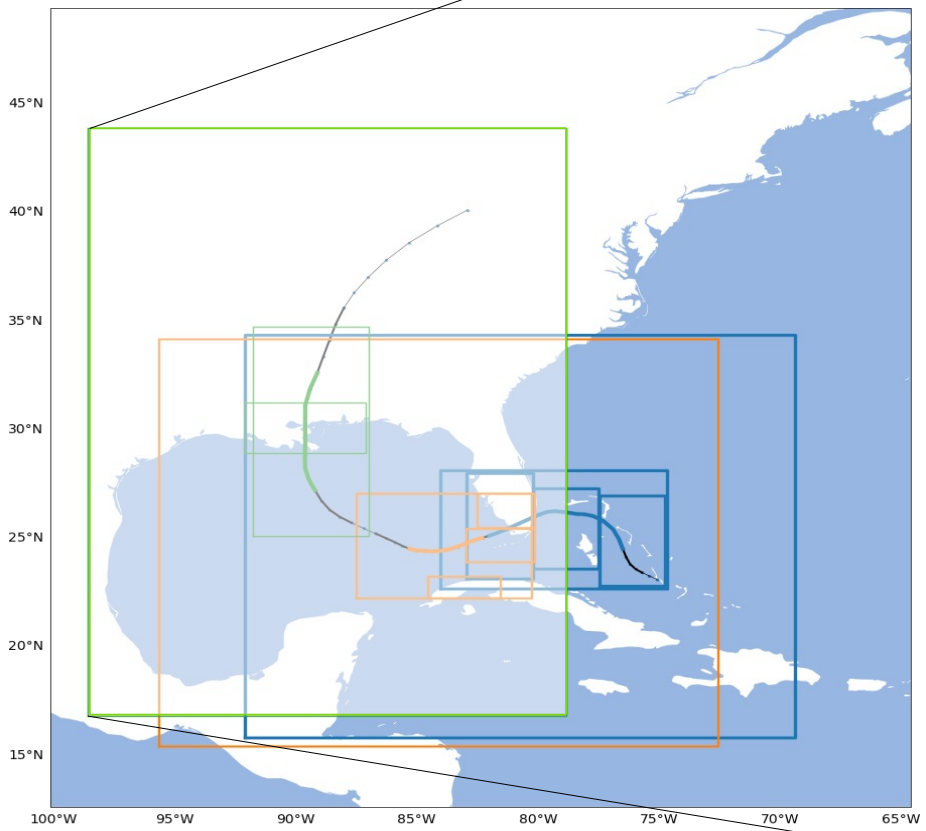
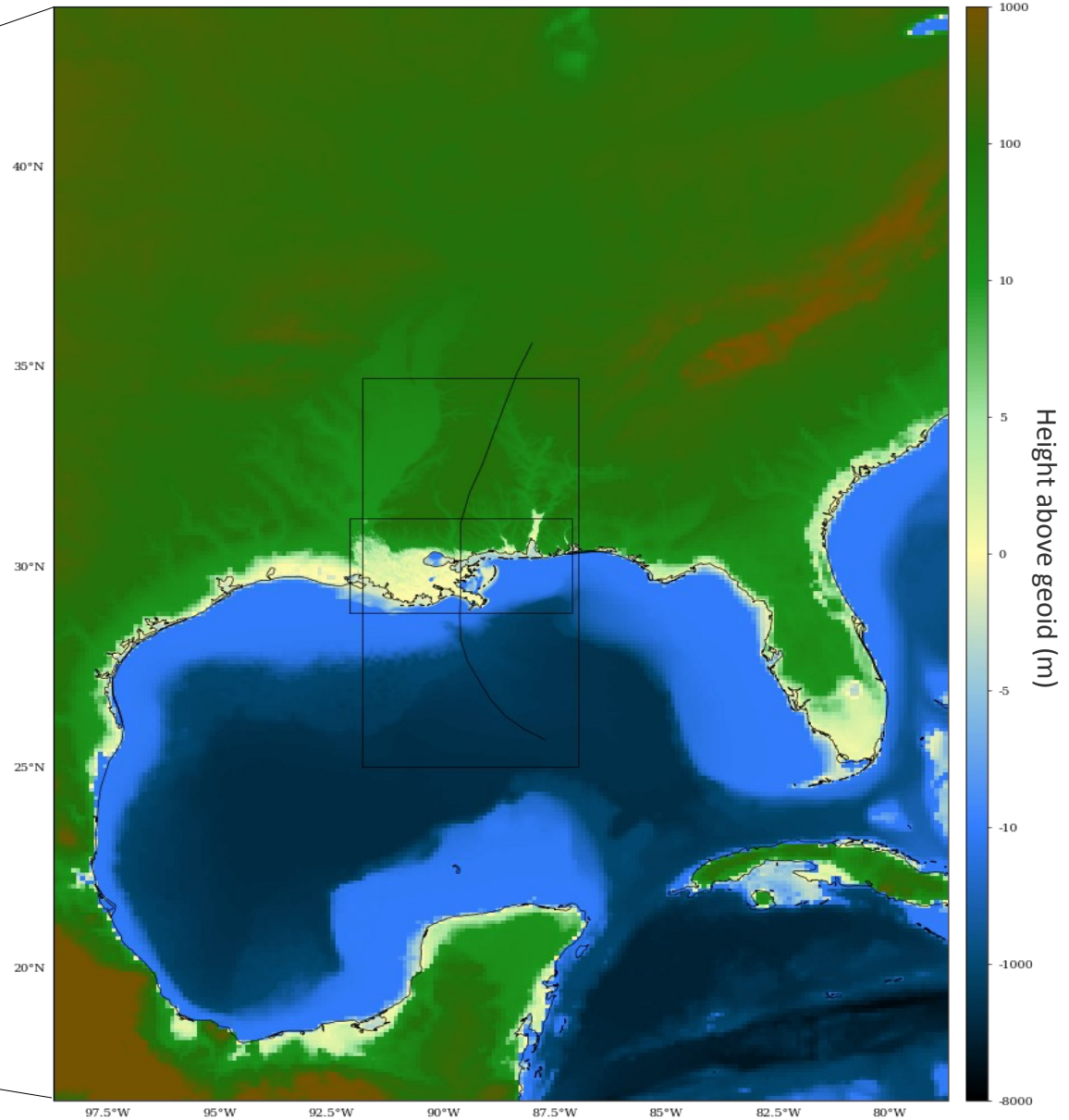
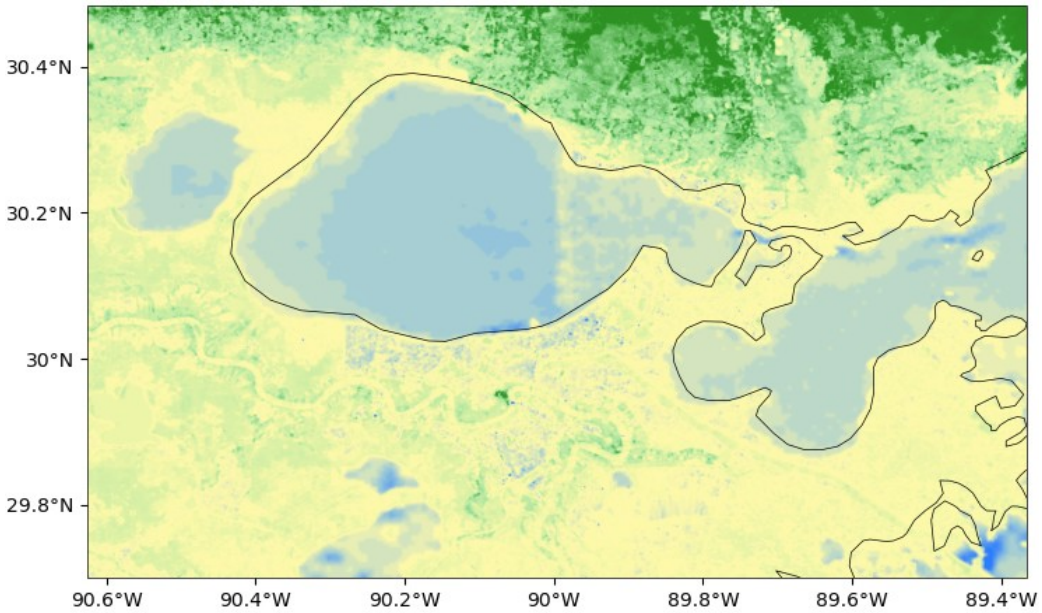


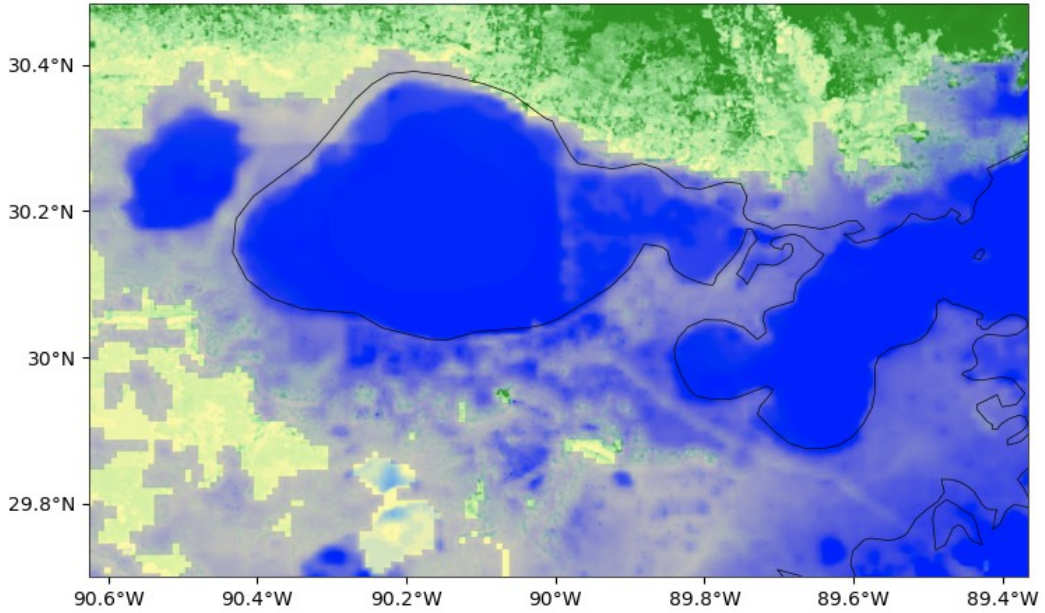


Tropical Cyclone Surge Modeling

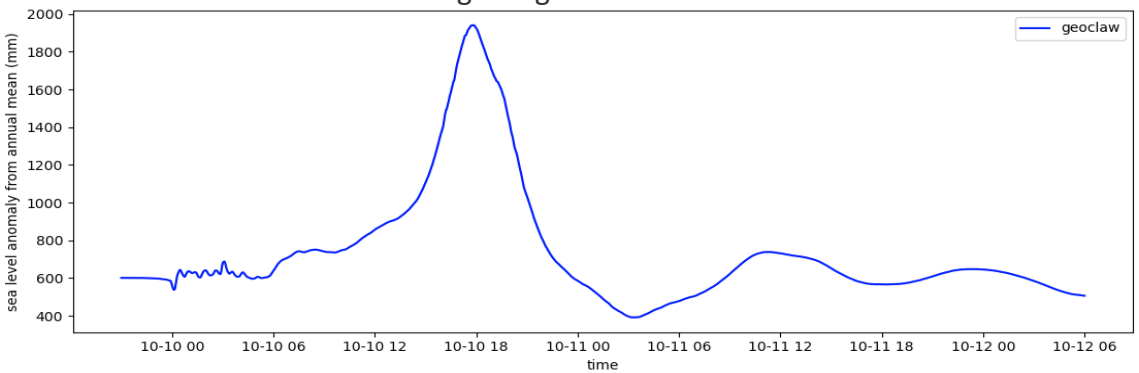
Digital elevation model (DEM)



Inundation map



Surge height at fixed location



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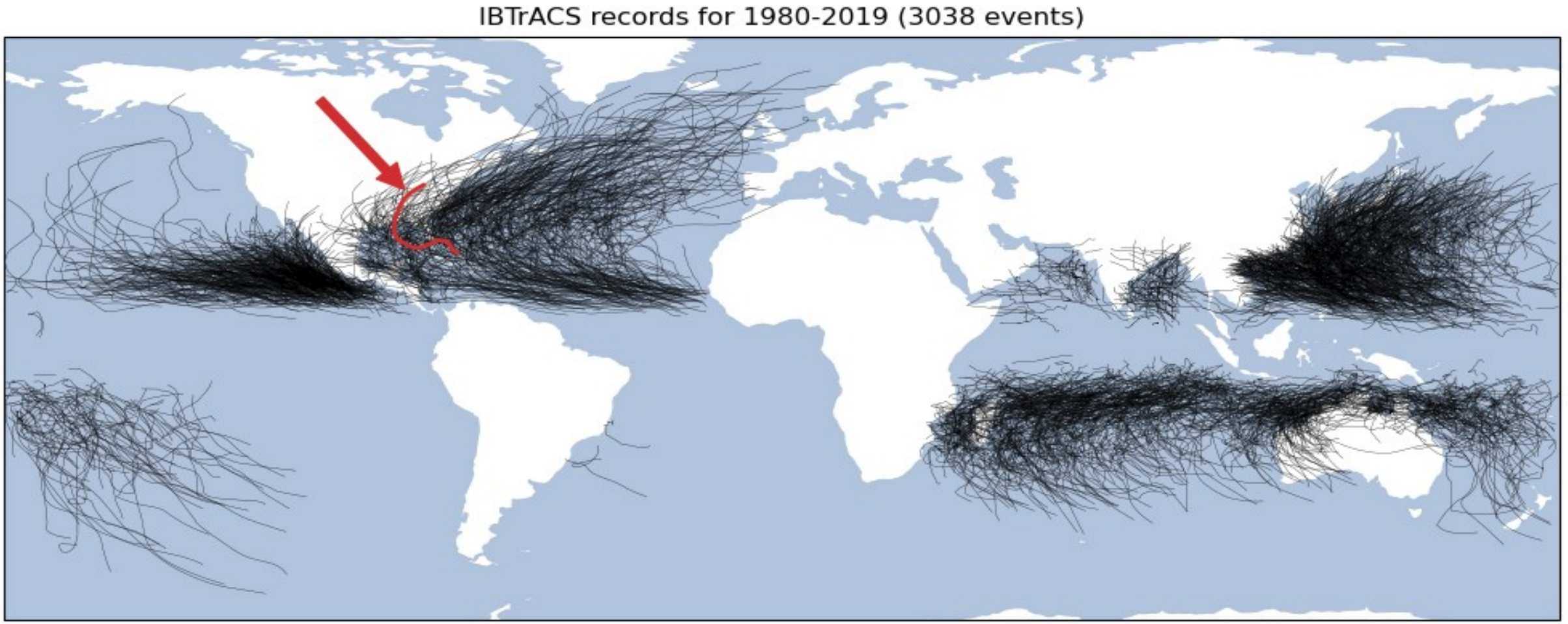
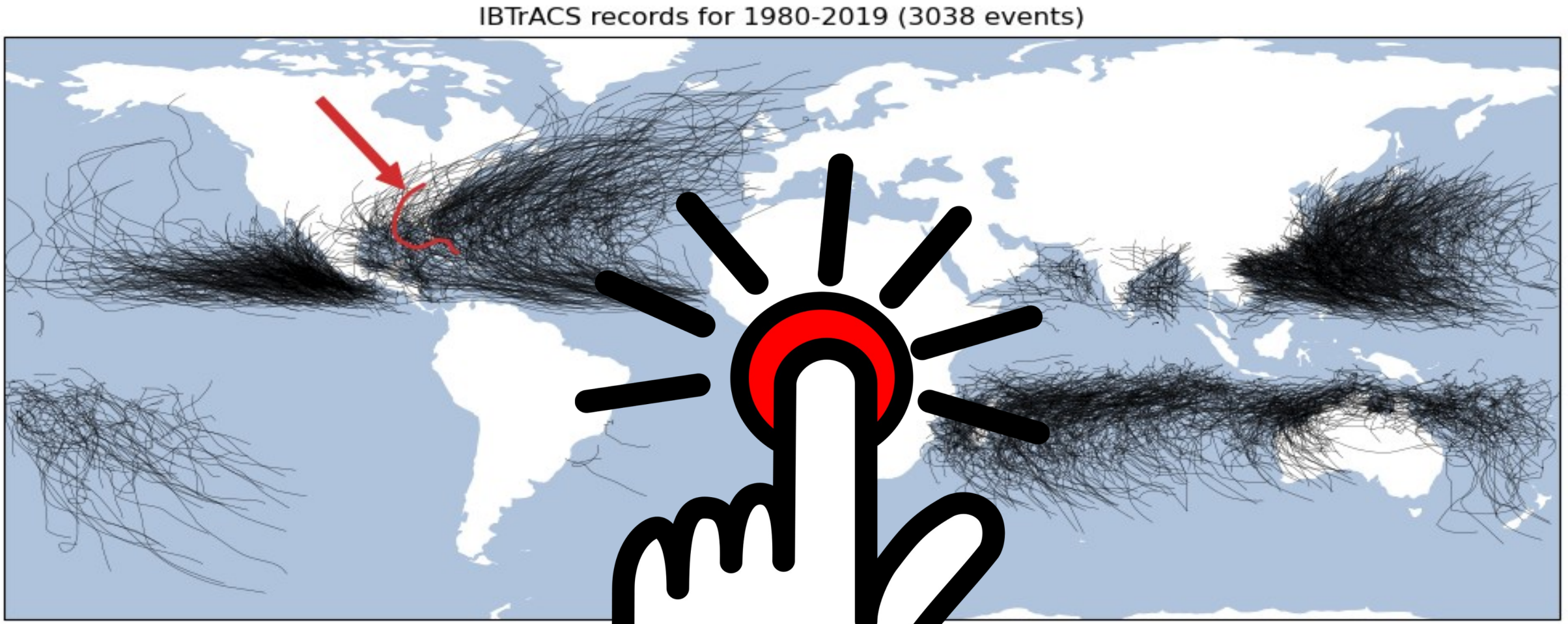


Data from the IBTrACS database (Knapp et al., 2010)

Tropical Cyclone Surge Modeling at the Push of a Button



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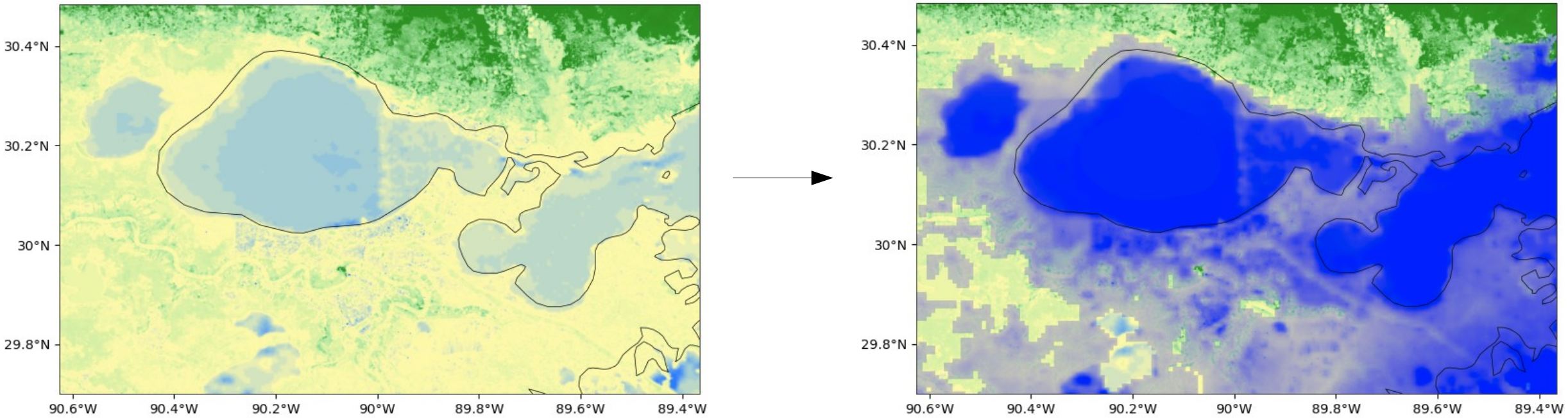
Tropical Cyclone Surge Modeling



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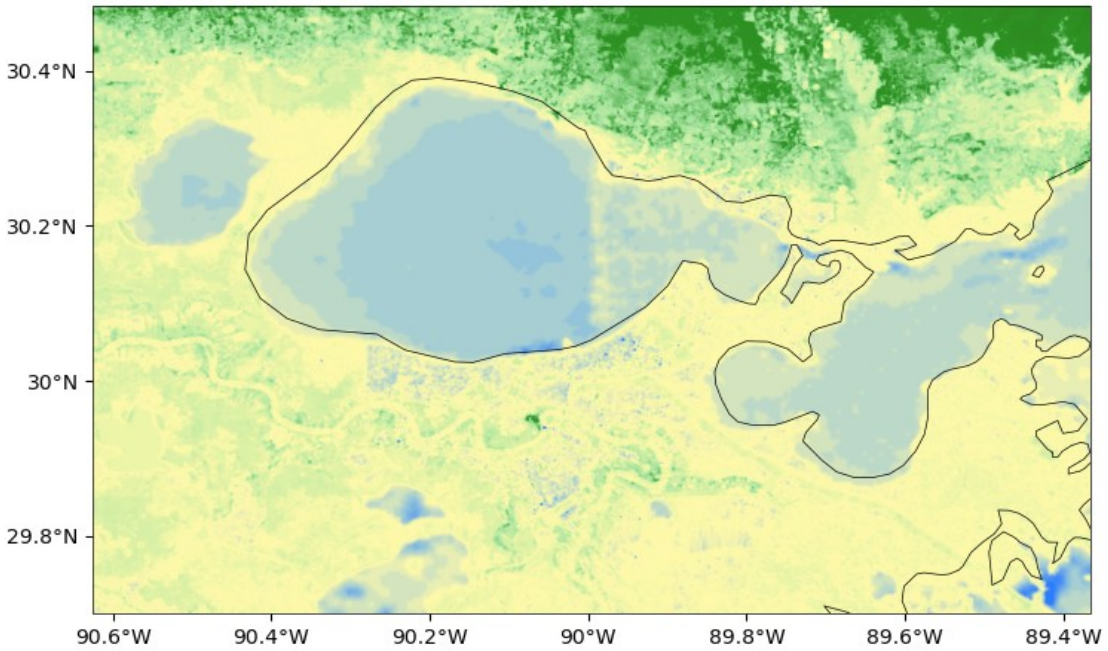
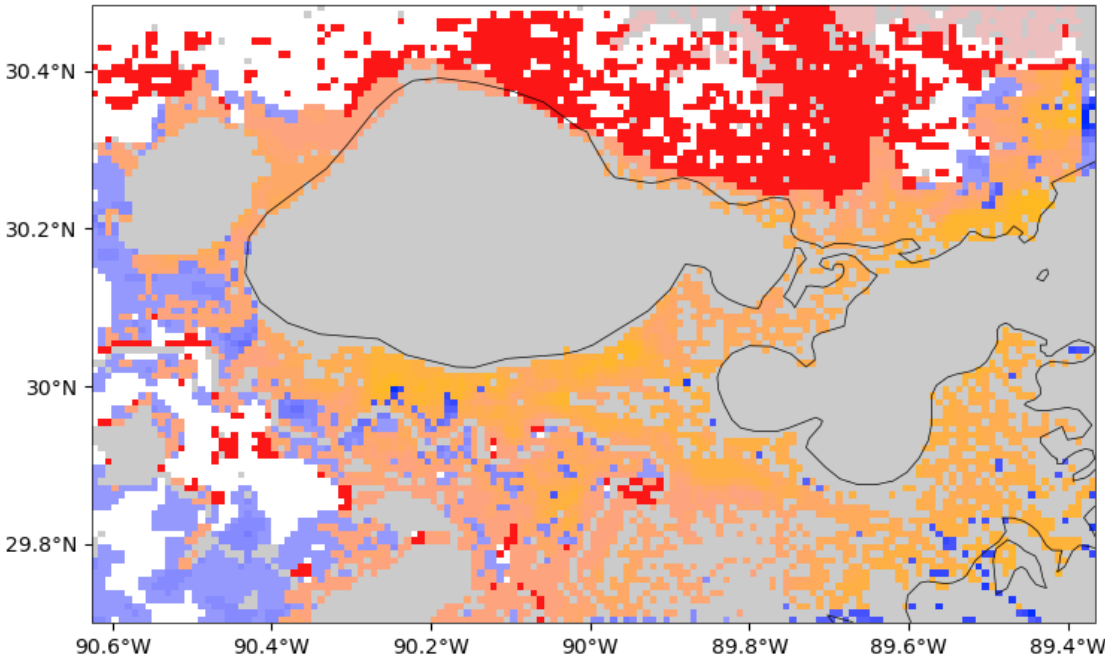


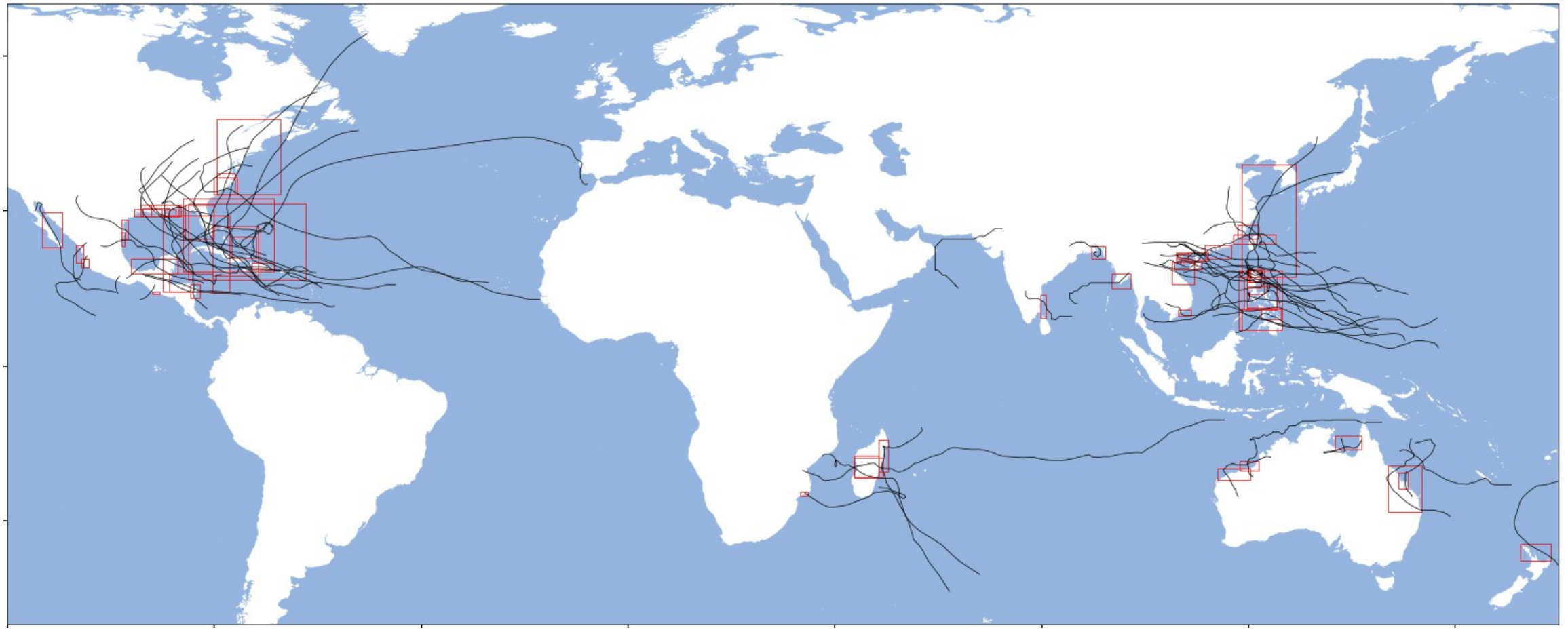


Flooding according to satellite observations, storm surge simulations or both.

Permanent water and non-coastal areas in gray.

Tropical Cyclone Surge Model Evaluation

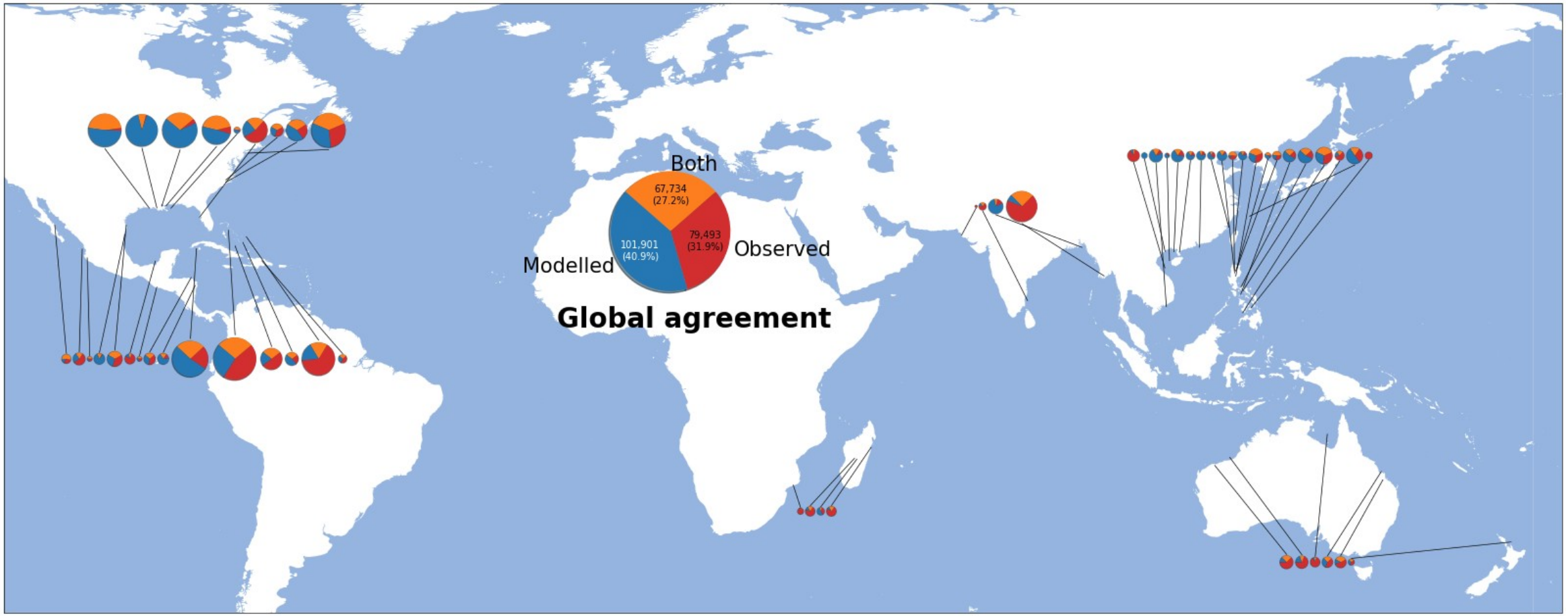
Tropical cyclone tracks and landfall areas covered by 61 satellite flood maps



Data from IBTrACS (Knapp et al., 2010) and Global Flood database (Tellman et al., 2021)

Tropical Cyclone Surge Model Evaluation

Agreement (orange) between modelled (blue) and observed (red) flood extents



Vogt et al., 2022 (in prep.)

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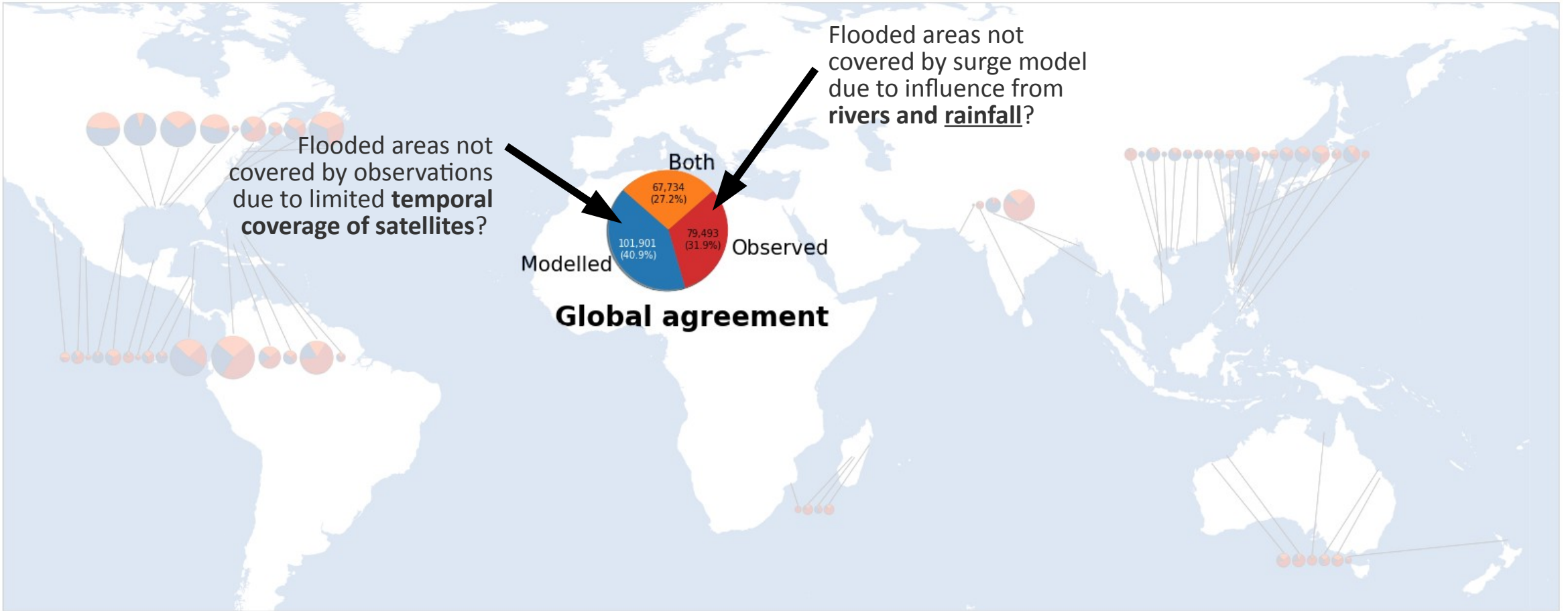

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Acknowledgements

CHIPS
Climate Change Impacts and Policies in Heterogeneous Societies

FONA
Research for sustainability

CLIMXTREME
Climate Change and Extreme Events

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Thanks for your attention!

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