



# FUTURE COASTAL OCEAN CLIMATES

FLAME

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**CoastPredict**

with The Global Ocean Observing System



[projects.noc.ac.uk/flame/](http://projects.noc.ac.uk/flame/)

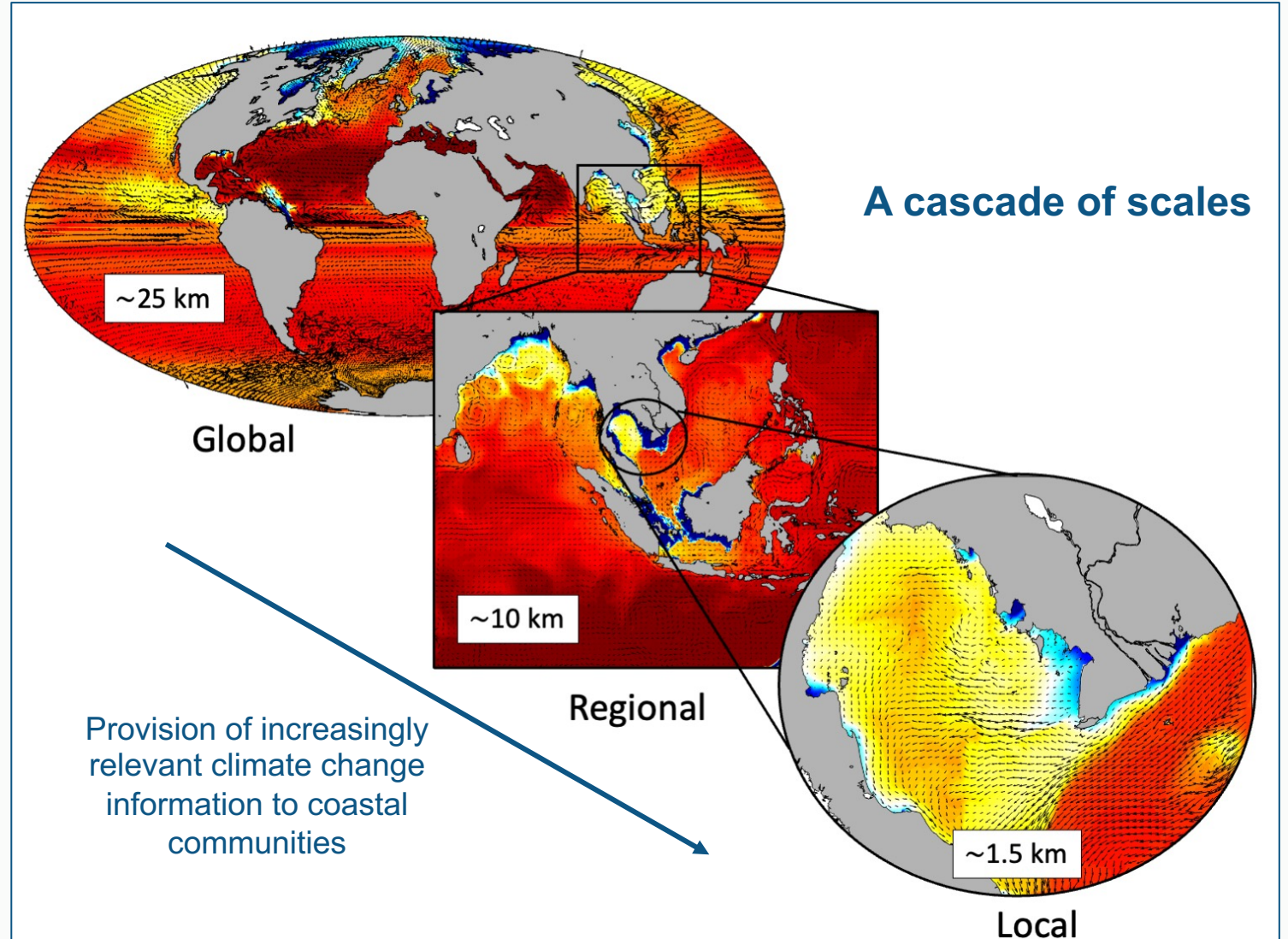


# Future Coastal Ocean Climates

Climate change is increasingly better understood and modelled on global scales, but....

- responses are not globally uniform and,
- the impacts are mostly acutely felt on small, local scales

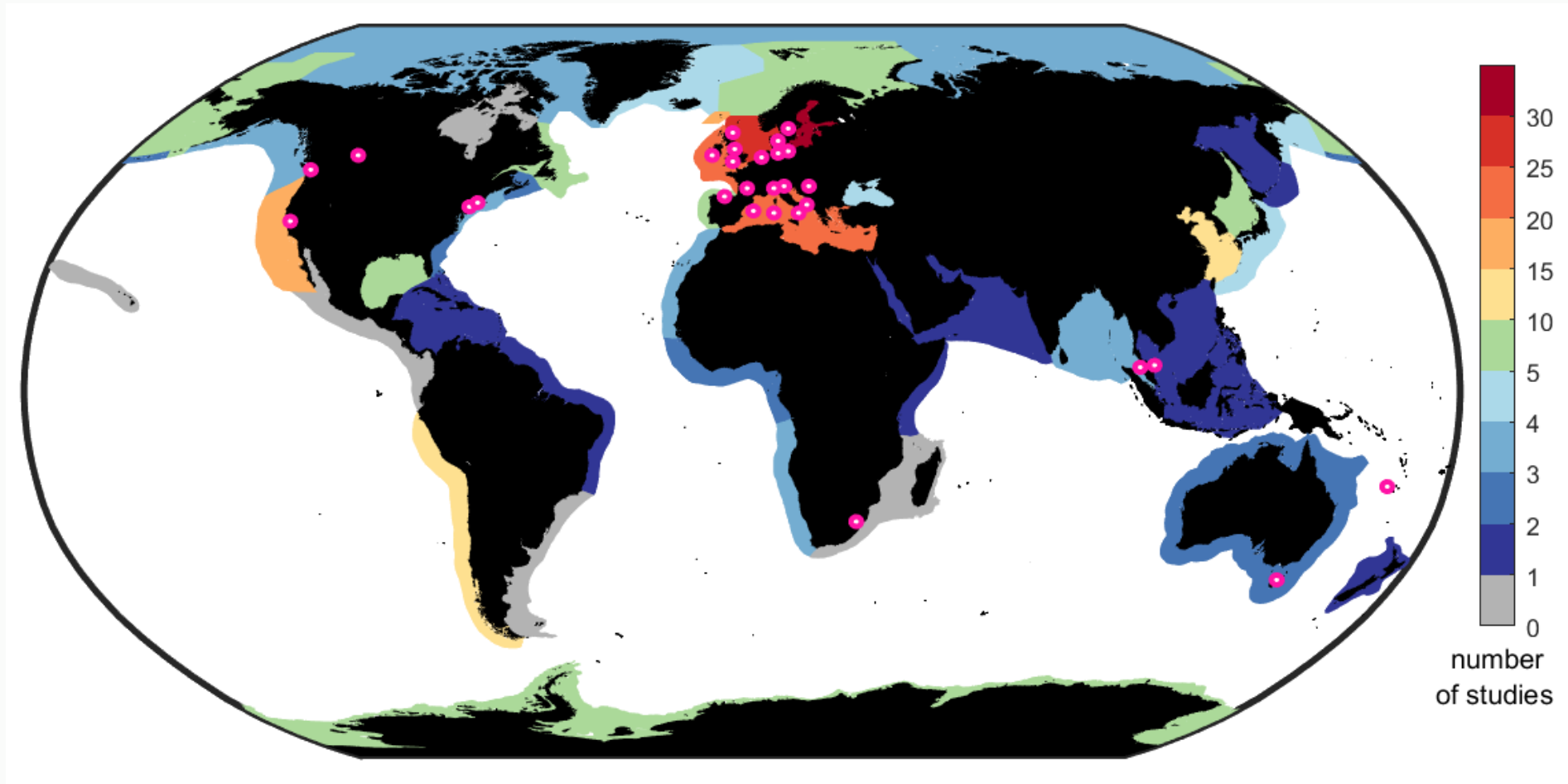
There is a gap in what global climate models can reliably provide due to scale and process representation





# Distribution of future downscaling studies

Number of regional downscaling studies per Large Marine Ecosystem



*Map based on Drenkard et al, 2020 & Holt et al., 2023 + recent updates*



# FLAME Objectives

## Improve

To make better decadal-centennial scale projections of the coastal ocean under future climate at local, regional and global scales, to elucidate the primary drivers of change

## Identify

To recognise and understand the local to global scale impacts of future coastal ocean change on coastal hazards, and the health, vulnerability, resilience and adaptability of coastal ecosystems, habitats and human populations.

## Provide

To produce next-generation coastal ocean projections, downscaling and bias correction approaches, predictive, hazard and vulnerability assessment tools that better inform decision making and management strategies, and that support adaptation and mitigation solutions on local-regional scales

## Establish

To create a co-ordinated community of future coastal ocean model practitioners and analysts who will work towards a Global Coastal Ocean Model Intercomparison Programme (CO-MIP) that will provide climate change impacts and hazard assessments to the IPCC and coastal communities

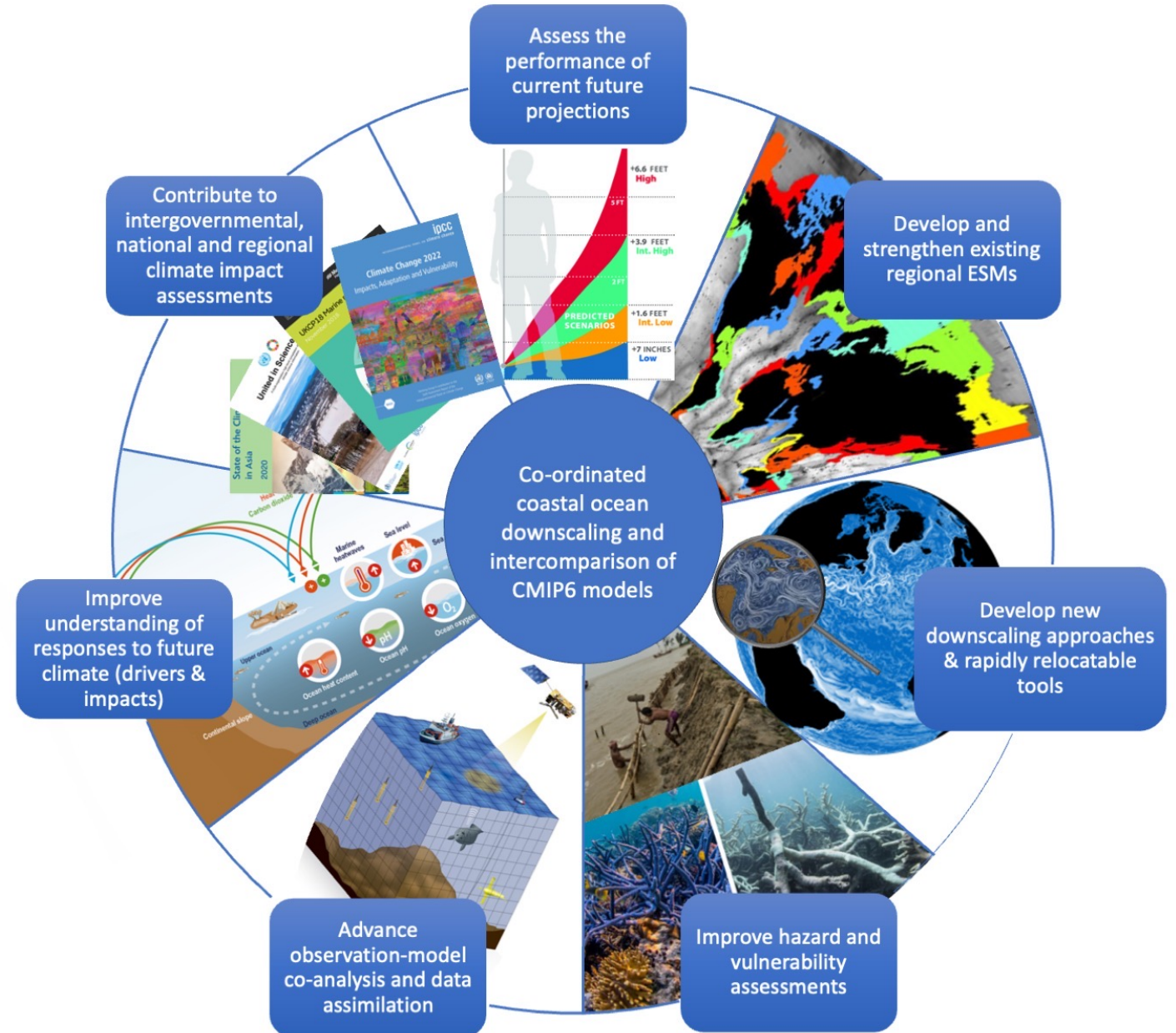




# Priority Activities

Interlinked activities to be collectively addressed in multiple coastal ocean environments

See website for more details





# FLAME Community Workshop

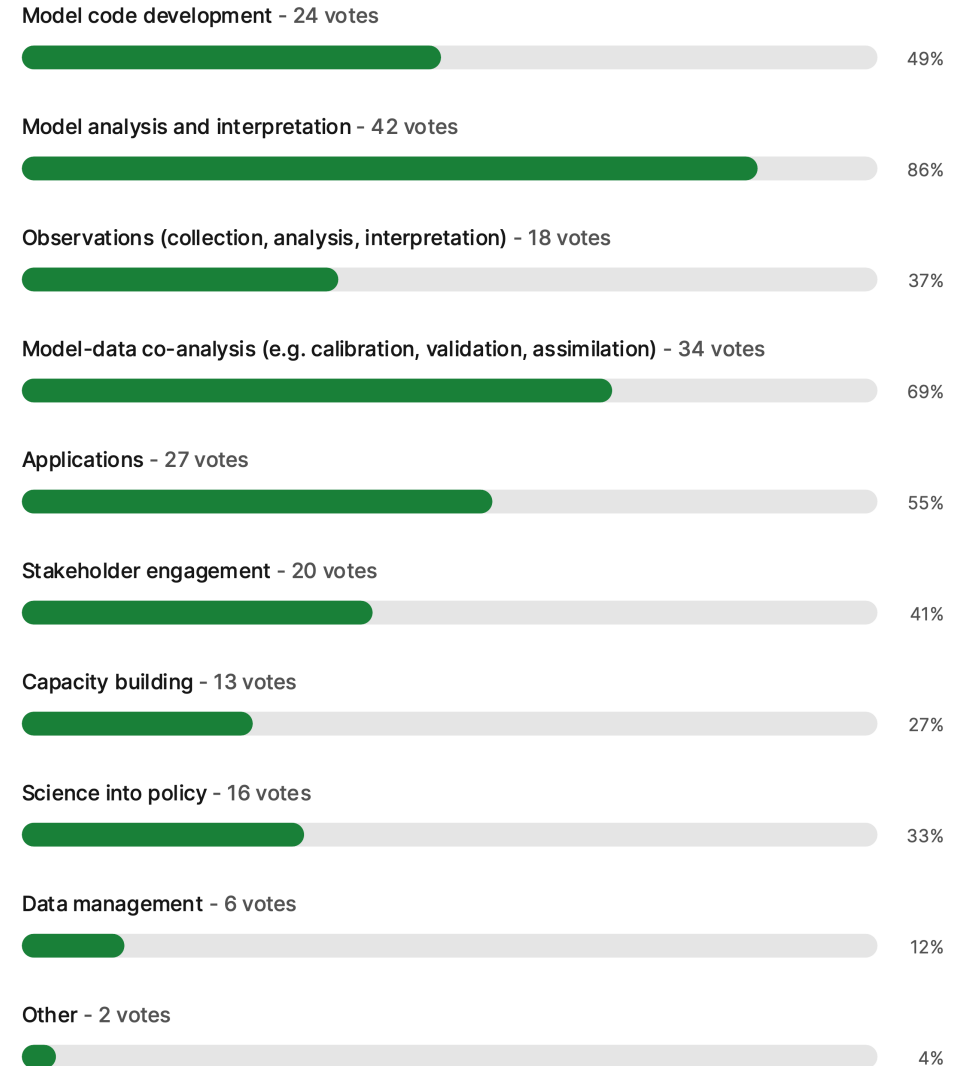


60 participants from 36 different institutes



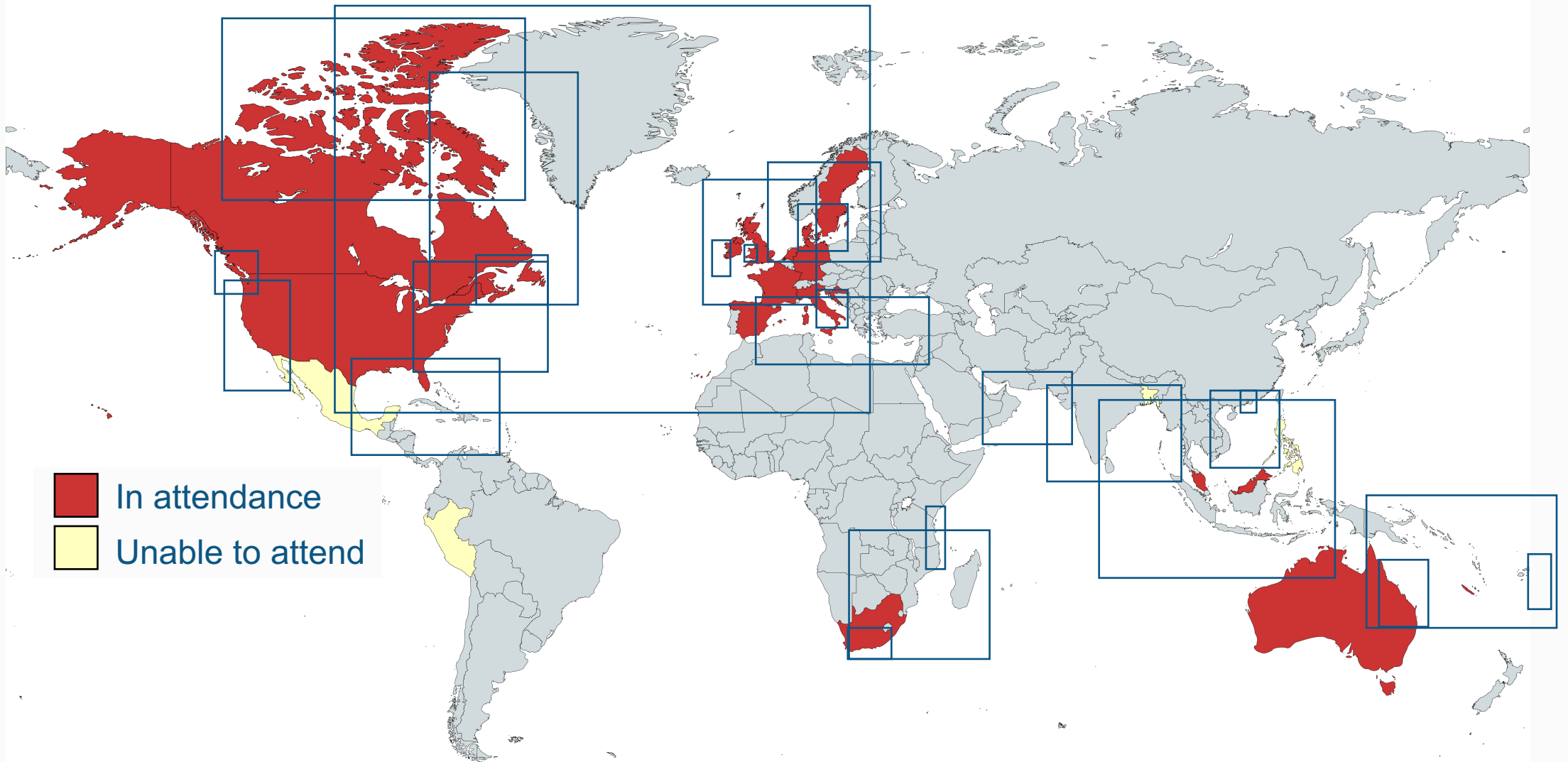
- Climate projections for ecosystem services
- Climate projections for coastal hazards and resilience
- Internationally coordinated future coastal ocean projections

## What do you do?





# Workshop participants and regions of focus

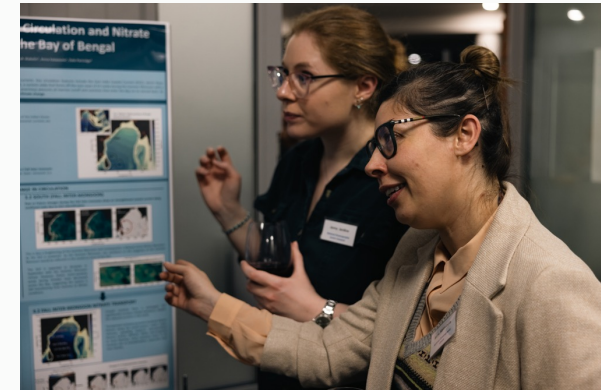




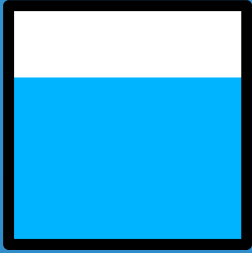


# Ways forward

- Active and engaged coastal ocean climate community of practice in FLAME
  - Community paper in prep. “*Challenges of developing a consistent view of future climate projections in the global coastal ocean*”
  - Early Career Network building
  - Expand the community, esp. into underrepresented groups (more online + hybrid events)
- Decide on common model experiments and protocols, applicable to all coastal ocean regions
  - Including ways to capture and share model configurations and experiments
- Consider applying for a formal WMO recognition as a MIP (but without excessive barriers to participation)
- Coordinated approaches to stakeholder engagement – use the UND Network







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