



# *End-term workshop "Climate Predictability & Inter-regional Linkages"*

## *Looking at achievements & future research priorities*

**Climate in the Belmont Forum portfolio**

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Disaster  
 Freshwater  
 Mountains  
 Services  
 Reduction  
 Ocean  
 Biodiversity  
 Food-Water-Energy  
 Vulnerability  
 Observing  
 Innovation  
 Sentinels  
 Coastal  
 Groundwater  
 Ecosystem  
 Use  
 Soils  
 Land  
 Sustainable  
 Resilience  
**Change**  
 Risk  
 E-infrastructure  
 Climate-Environment-Health  
 Science-driven  
 Nexus  
 SDGs  
 Pathways  
 Arctic  
**Security**  
 Sustainability  
**Climate**

# Belmont Forum Climate Profile

Of 132 funded projects, 78 reference “Climate” in either their title, summary, or keywords

Climate relevance was found in all funded CRA themes

Outside of the 2 “Climate” calls, the CRA with the most climate interest was Mountains as Sentinels of Change

Most other CRAs had at least 50% of projects conducting climate relevant research

Lowest connectivity was in Food Security and Land Use Change, Transformations to Sustainability, Food Water Energy Nexus (SUGI)

Climate  
Predictability

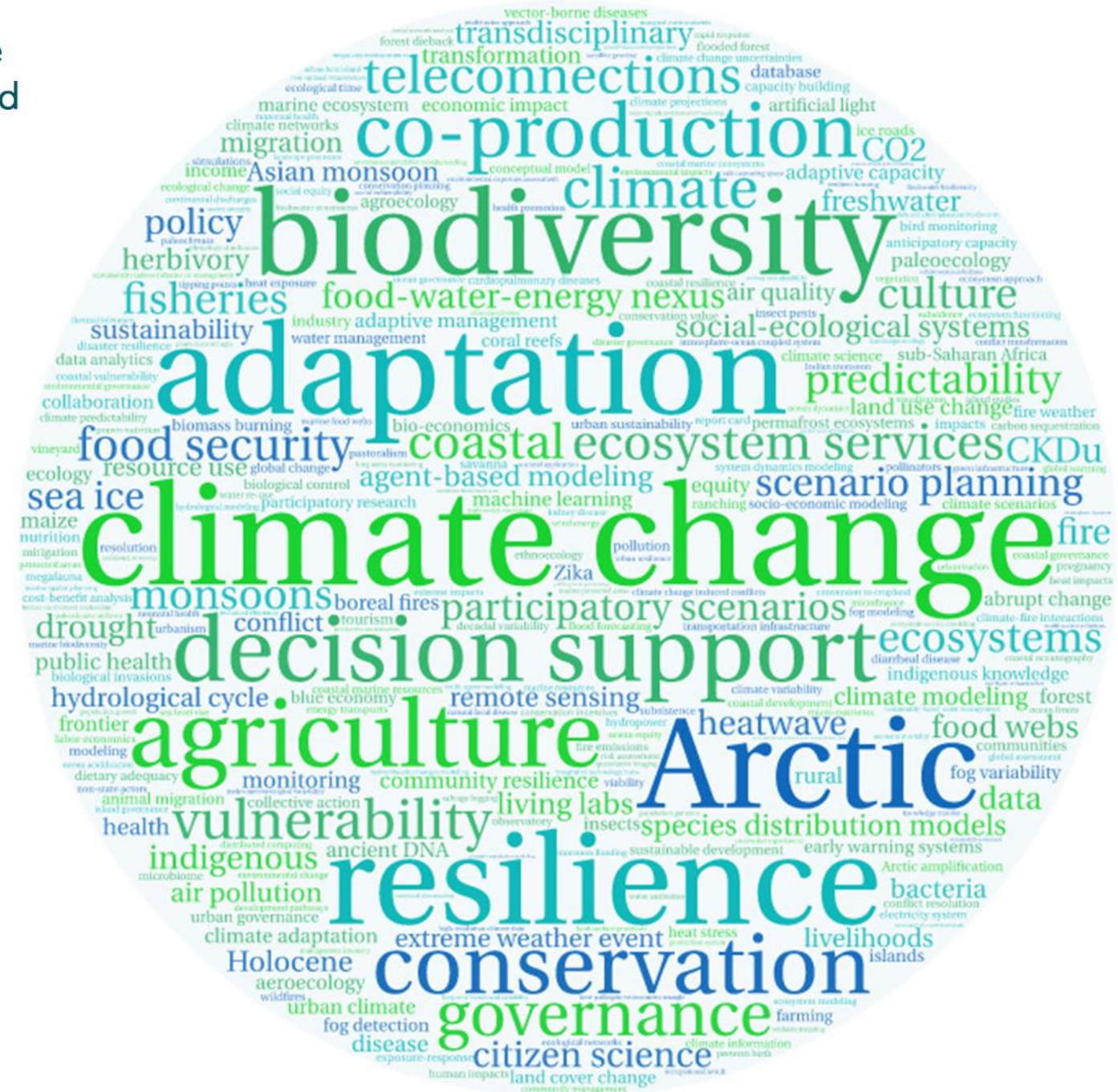
& Inter-regional  
Linkages

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“Climate change” was the most mentioned keyword by a factor of 3

Adaptation was the next most featured keyword



Climate Predictability

& Inter-regional Linkages

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Within climate there were these sub themes:

- climate adaptation
- climate modeling
- climate change
  - induced conflicts
- climate change
  - uncertainties
- climate information
- climate networks
- climate predictability
- climate projections
- climate scenarios
- climate science
- climate services
- climate variability
- climate fire interactions

Modeling and predictability also featured heavily:

- agent based modeling
- decadal variability
- ecosystem modeling
- ecosystem service modeling
- fog modeling
- fog variability
- hydro meteorological variability
- hydroclimatic change modeling
- hydrological modeling
- water supply and demand modeling
- mosquito population modeling
- multi agent modeling
- socio economic modeling
- system dynamics modeling

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## Connecting on monsoons...



Coastal Vulnerability  
BanD Aid

- monsoonal flooding
- sea level rise
- decadal variability
- land cover change and subsidence
- satellite geodesy
- mega city environments
- coastal vulnerability and sustainability
- climate change induced conflicts
- decision support and adaptive coastal management



Food Water Energy Nexus /  
Sustainable Urban Globalization Initiative  
FUSE

- multi agent modeling
- living labs
- food energy water
- transdisciplinary
- sustainability
- vulnerability
- population growth
- land use change

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# Connecting around Forestry...



## Biodiversity and Ecosystem Services 2017 BONDS

### Mountains as Sentinels of Change ClimTree

- dead wood
- drought
- forest dieback
- insect pests
- salvage logging

- wetlands mapping
- flooded forest
- fish and phytoplankton biodiversity
- fisheries co management
- hydroclimatic changes modelling
- participatory scenarios
- environmental eDNA metabarcoding
- agent based modelling
- Amazon várzea



## Biodiversity and Ecosystem Services 2017 INVASIBES

- biological invasions
- ecosystem services
- environmental impacts



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Winter road bearing capacity was estimated using CMIP5 models for several scenarios of climate change during the 21st century

Model of fisheries in French Guiana now accounting for climate change.

PM10 concentrations are projected to decrease by up to 2 ppb with the exception of the northwest where an increase was simulated due to larger reductions in precipitation in that area.

The model simulations and palaeoecological data showed that the Atlas cedar range has been decreasing steadily over the past 9000 years with a clear extinction in all areas below 1400m elevation over the past 2000 years.

The new generation (high resolution,, CMIP6) climate simulations show much stronger sensitivity to GHG emissions as compared to the older generation climate models.

## Outcomes

We have implemented a reindeer grazing scheme to run at high resolution using WP2 climate data for the Scandes study region.

The interdisciplinary approach helped to connect the practical needs with the climate science, modeling and statistical analysis of the satellite information.

Implementation of the urban scale turbulence resolving model to urban air quality and urban climate issues allows us to resolve the air pathways on meter scales for the entire city within the planetary boundary layer, which help to identify the air pollution pathways and temperature/wind differences, snow redistribution etc.

interactions between climate and land use change results in a stronger change in total algae and cyanobacteria abundances, as compared to the effects of only climate or land use change.

### & Inter-regional Linkages

Development of curriculum for climate change literacy and ecological calendars in schools and undergraduate education

Subsistence harvest has declined in general, but locally there has been appropriation challenges associated with climate fluctuations and commercial use.

Climate Predictability