Ministry of Earth Sciences (MoES)
Government of India

Call for proposal - Impact of climate change on the probability and intensity of extreme weather events over Indian region

Ministry of Earth Sciences (MoES) invites project proposals from Universities, Research/Academic institutions in the country for funding the proposals focused to study the Impact of climate change on the probability and intensity of extreme weather events over Indian region under Project Appraisal and Monitoring Committee-Atmospheric Sciences (PAMC-AS) of MoES.

The global average temperature has risen by about 1°C since pre-industrial times, which is mainly attributed to human activities. A similar trend can also be observed over India. Past observations indicate an increase in the frequency of weather and climate extremes in India. Many studies have noted the increase in heavy rainfall during the monsoon season and heat waves over India. Most of these studies have focussed on these two events. But we know that these changes can also occur in many other components of the coupled climate system. We need a comprehensive understanding of the changes occurring in the entire climate system. As global warming continues, it is possible that we will experience compound extremes, defined as combinations of multiple factors and/or hazards that contribute to societal risk.

Some studies have shown that heavy rainfall and heatwaves are likely to continue to occur in a future climate. However, this available information is only part of a big story. We need a comprehensive understanding of how these extreme events, including compound extremes, have changed and how they will change in the future. Thus, comprehensive knowledge is needed to establish robust adaptation and mitigation strategies and action plans.

In view of this, MoES invites proposal on ”Impact of climate change on the probability and intensity of extreme weather events over Indian region” addressing the following topics:

- ✓ Atmospheric and oceanic drivers and precursors of weather and climate extremes, including compound extreme events
- ✓ .The role of land surface and oceanic processes, leading to these extremes. The role of atmospheric rivers that contribute to extreme events.
- ✓ How do the current NWP and coupled climate models predict these extreme events on sub-seasonal and seasonal time scales over India? If the models have low skill, what are the possible reasons for the low skill and how can we improve the skill of the models?
- ✓ What are the future projections for extreme events over India (not only for precipitation and temperature, but also for synoptic weather systems, large-scale droughts, and floods, etc.) and what are the uncertainties associated with these climate change projections?

The proposal can cover aspects of both summer monsoon (southwest) and winter monsoon (northeast).

The proposals may be submitted online on https://reachout.moes.gov.in

The last date for receiving the completed project proposals is 14th June 2024.

For any further queries related to this call, please contact

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