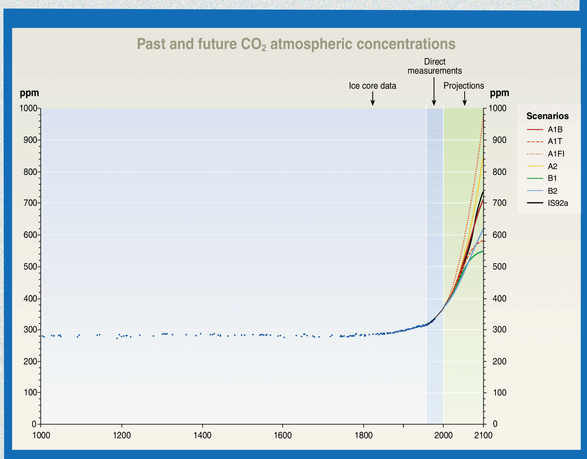
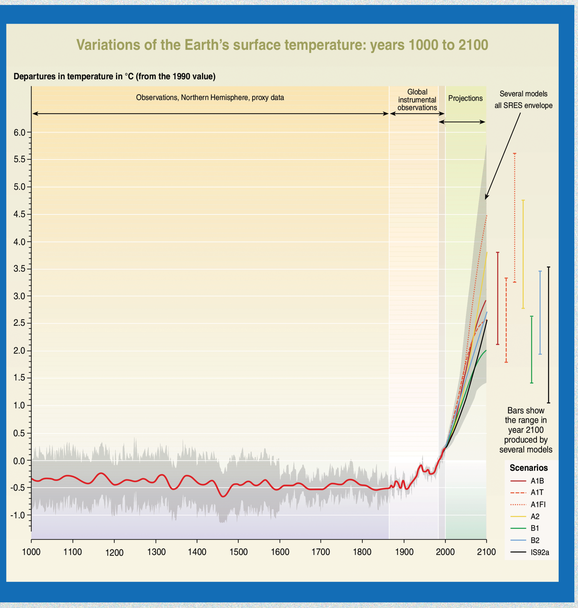
CLIMATE CHANGE IN INDIA: WHAT DO WE KNOW AND HOW?

“It is unequivocal that human influence has warmed the atmosphere, ocean and land.“
– IPCC, AR6 (2021)





Climate Change 2001: Synthesis report (TAR)

The Intergovernmental Panel on Climate Change (IPCC) was set up by the United Nations (UN) and the World Meteorological Organization(WMO) in 1988 to advance scientific knowledge about climate change caused by human activities. Between 1990–2023, the IPCC has prepared 6 assessment reports (FAR, SAR, TAR, AR4–AR6) that review all the published scientific work on climate change.

It is now scientifically established that the warming is due to increased human Greenhouse Gases (GHGs) emissions, primarily carbon dioxide, since the Industrial age (1850–1900).

The warming has and will result in significant climate change. The effects have been and will be felt all over the world but they are not the same everywhere. This poster series is about scientific results highlighting few of the effects of climate change in South Asia.

In South Asia, monsoons are crucial to lives and livelihoods. There is scientific work that indicates that spatial and temporal variability of the monsoons is increasing. Climate change has affected various natural phenomena, from Himalayan glacier melting to mango trees flowering. Sea levels have risen, marine ecosystems have been affected.

Climate scientists project warming based on different possible future emission scenarios. These scenarios are called Shared Socioeconomic Pathways (SSPs). SSP1–2.6 scenario would limit the temperature rise to 1.8 degree Celsius at the end of the century. SSP5–8.5 would lead to a rise of 4.4 degree Celsius. Projections of climate changes are made by computer simulations called the “Earth System Models“ (ESM). Indian Scientists are part of the global effort.

There is an urgent need to prepare for the inevitable climate change in the coming decades, based on our current understanding, however incomplete. This is important in South Asia which is home to one fourth of the world population. We need to formulate science based adaptation policies for many basic issues including agriculture, city planning and health.

Global warming and the consequent climate change can be stopped by global action. However, this is a complex problem involving coordinated efforts from all nations. The United Nations Framework Convention on Climate Change (UNFCCC) ratified by 198 nations says that it has to be “on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.”

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Poster series designed by
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