MERCURY | RISING

Hot summer this year? Brace for worse for the rest of your life

Indian Ocean heats up rapidly, to hit all

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Summers in India are only expected to get hotter, even as monsoons may weaken with interspersed episodes of rains worth a week or a few days occurring in a matter of hours.

"The Indian Ocean is entering a permanent state of marine heatwave stage. This will have two impacts," according to Dr Roxy Mathew Koll, a senior scientist and climatologist at the Indian Institute of Tropical Meteorology.

"One, will be the weakening of the monsoon winds as they are determined by a large extent by the difference in terms of ocean and land temperatures. If the ocean gets warmer, the monsoon winds will weaken. A warmer Indian Ocean will mean more moisture in the air over the seas, and this could result in episodes when the wind is strong, and the higher moisture means heavy shorter concentrated rain spells."

The second impact, Dr Koll said, is that "India will definitely get hotter in the decades to come. And heatwaves are expected to be not only more frequent, but will also exhibit increased intensity." The Indian Ocean is likely to hit the dangerous phase of being in a state of permanent marine heatwave conditions between 2071 and 2100. That may sound far off, but is just about a generation away.

On Friday, the India Meteorological Department, in its March to May (MAM) predictions, said this year, most of the country, including Telangana and Andhra Pradesh will see higher than normal temperatures as well as heat wave days than in the past. Dr Koll said "what we are seeing now is a result of just 1.2° Celsius rise in global temperatures and by 2050, this increase will be between 1.5° and 2°C. To be prepared for what is to come, assessments of conditions must begin right away from the panchayat level upward." Adaptations to the coming changes must begin at the local level. If we are not prepared, then things can become very hard for the people in this country, he added.

One of the impacts of the warming up of the ocean, Dr Koll, who was the lead author on a research study 'Future Predictions from the Tropical Indian Ocean' that talks in detail about the conditions in the Indian Ocean and how they are expected to develop, is reduction in chlorophyll levels in the surface layers of the ocean.

Satellites recognise plankton and other microscopic plant life and algae among others found in the seas. Between 2071 and 2100, marine life that will impact fisheries, will go down by 8 to 10 percent, the study says, particularly along India's west coast and Arabian Sea.

The study also warns of increasing acidification of the Indian Ocean. The projected changes in pH may be detrimental to the marine ecosystem since many marine organisms — particularly corals and organisms that depend on calcification to build and maintain their shells — are sensitive to the change in ocean acidity.

PERMANENT STATE OF MARINE HEATWAVE

- Indian Ocean heating up, will affect India, 39 other countries.
- Indian Ocean warmed 1.2°C per century during 1950–2020.

Faster warming, at a rate of 1.7°C–3.8°C per century by 2100

- Monsoons to be affected.
- Longer, hotter summers ahead.
- Marine life set to get hit impacting fisheries.