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HOTTER OCEANS SPAWN SUPER CYCLONES

Relevant for: Geography | Topic: Important Geophysical Phenomenon - Tropical Cyclones

Buoys are used to measure ocean temperatures.

Higher than normal temperatures in the Bay of Bengal (BoB) may be whetting ‘super cyclones’ and the lockdown, indirectly, may have played a role, meteorologists and atmospheric science experts told *The Hindu* .

Super cyclone Amphan that is barrelling towards West Bengal is the strongest storm to have formed in the BoB since the Super Cyclone of 1999 that ravaged Paradip in Odisha, said Director-General, India Meteorological Department M. Mohapatra.

Warmer waters

Cyclones gain their energy from the heat and moisture generated from warm ocean surfaces. This year, the BoB has posted record summer temperatures a fall-out, as researchers have warned, of global warming from fossil fuel emissions that has been heating up oceans.

“The BoB has been particularly warm. Some of the buoys have registered maximum surface temperatures of 32-34°C consecutively, for the first two weeks of May. These are record temperatures driven by climate change — we have never seen such high values until now,” said Roxy Mathew Koll, a scientist with the Indian Institute of Tropical Meteorology in Pune, who has also co-authored IPCC reports on oceans and the cryosphere.

Cyclone Amphan intensified from a category-1 cyclone to category-5 in 18 hours, an unusually quick evolution. Last year Fani, a category 4 cyclone, which swept through the Odisha coast, was again fuelled by high temperatures in the BoB.

While tropical cyclones in these seas are a typical feature of the summer months and play a role in aiding the arrival of the monsoon, Dr. Koll said warming around India is not longer restricted to just the BoB but also the Arabian Sea and the Indian Ocean. This makes storm prediction less reliable as well as disrupting monsoon patterns.

Lockdown impact

Another researcher said the elevated ocean temperatures this year could, in part, be explained by the lockdown. Reduced particulate matter emissions during the lockdown meant fewer aerosols, such as black carbon, that are known to reflect sunlight and heat away from the surface.

Every year, increased particulate pollution from the Indo-Gangetic plains is transported towards the BoB and this also influences the formation of clouds over the ocean, said V. Vinoj, Assistant Professor, School of Earth, Ocean and Climate Sciences at the Indian Institute of Technology in Bhubaneswar.

“Fewer clouds and more heat in the Bay of Bengal may have amplified the strength of the cyclone,” he told *The Hindu.* “We’ve observed that during the lockdown from March-April, BoB temperatures have been 1-3°C higher than normal. But the exact contribution from aerosols to this still to be determined.” He and his colleagues are working on a research paper on these lines.

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