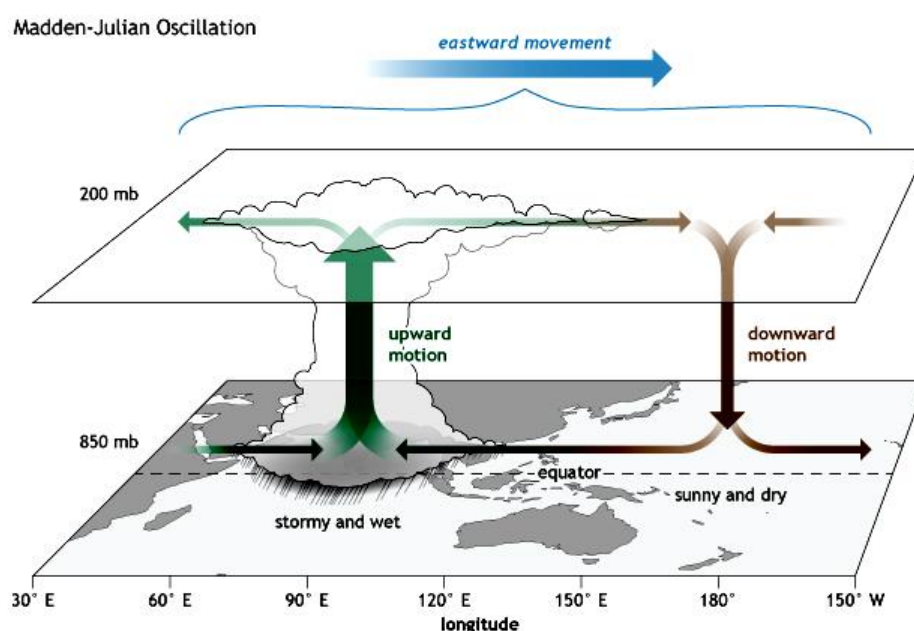


Climate Change Research by Ministry of Earth Sciences (MoES) in 2019: Warming of the Indo-Pacific Ocean and Changing Rainfall Patterns

Reacting to the impacts of climate change in the Himalayan region, Scientists from the Ministry of Earth Sciences, Government of India developed a general framework to assess vulnerability to climate change in all states of the region in 2019 and used an index based on socio-economic factors, demographic and health status, sensitivity to agriculture production, forest-dependent livelihoods, and access to information, services, and infrastructure. This knowledge will now be applied to develop a nationwide map of climate vulnerability.



The surface and upper-atmosphere structure of the MJO for a period when the enhanced convective phase (thunderstorm cloud) is centered across the Indian Ocean and the suppressed convective phase is centered over the west-central Pacific Ocean. Horizontal arrows pointing left represent wind departures from average that are easterly, and arrows pointing right represent wind departures from average that are westerly. The entire system shifts eastward over time, eventually circling the globe and returning to its point of origin.

Illustration Courtesy: Fiona Martin, Climate.gov

Scientists at the Indian Institute of Tropical Meteorology (IITM) found a link between [warming of the Indo-Pacific Ocean and changing rainfall patterns](#) in many parts of the world, including India. The warming pool of the Indo-Pacific Ocean is expanding, and this, in turn, is transforming a major weather event known as the [Madden Julian Oscillation \(MJO\)](#).

Dr. Faiyaz Anwar
Project Scientist, Vigyan Prasar