

The Indian Ocean is a unique geographical region that differs from other ocean basins due to its northern boundary being surrounded by land. The air-sea interaction processes within the Indian Ocean have a direct impact on precipitation patterns in the surrounding areas, which are home to billions of people. In this talk, I will discuss how coupled ocean-atmosphere processes in the Indian Ocean are projected to evolve under future climate change. The seminar talk will cover two main themes. First, mechanisms that cause uneven warming in the Indian Ocean and related impacts on circulation and precipitation patterns. Second, projected changes in the South Asian Monsoon in the deep future, including shifts in amplitude, phase, and spatial distribution, and the associated physical mechanisms driving these changes.