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KlimaCampus Colloquium

Hisashi Nakamura

Midlatitude warm ocean currents as climatic hotspots

The midlatitude ocean has been long believed to respond passively to atmosphere fluctuations, including remote influence from tropical variability like El Niño. Recent studies have nevertheless revealed active roles of the midlatitude ocean in the climate system. Unlike in vast areas of midlatitude ocean basins, warm western boundary currents, such as the Gulf Stream and Kuroshio, and associated sea-surface temperature (SST) fronts can influence the atmosphere through intensive release of heat and moisture. In this talk, roles of these “climatic hotspots” are highlighted, including a critical role of the Southern Ocean SST fronts in translating impacts of the Antarctic ozone hole down to the surface as an unambiguous climatic trend, organization of convective clouds and resultant torrential rainfall in summer along a warm current, and enhancing activation of anthropogenic Asia aerosols as cloud condensation nuclei over the Kuroshio and a resultant increase in cloud reflectivity.

Hisashi Nakamura from the Research Center for Advanced Science and Technology, University of Tokyo, Japan is invited by Daniela Matei (MPI-M).

Bundesstraße 53, Room 22/23 (ground floor)