

CGD SEMINAR



DATE: Tuesday, 28 May 2019

TIME: 11 am – 12 pm

LOCATION: NCAR, 1850 Table Mesa Drive
Mesa Lab, Main Seminar Room

TITLE: The seasonal cycle of upper-ocean
mixing in the Bay of Bengal

SPEAKER: Deepak Cherian, NCAR

ABSTRACT:

We describe the seasonal cycle of upper-ocean mixing as observed by moored mixing meters (χ pods) in the upper Bay of Bengal (north Indian Ocean).

We find that the seasonal cycle of monsoon winds, currents and near-inertial energy is imprinted on both near-surface and thermocline turbulence.

All χ pod observations were combined to form seasonal-mean vertical profiles of vertical turbulence diffusivity K_T in the top 100m.

The seasonal cycle of near-surface K_T (top 45m) in the Bay appears to follow the seasonal cycle in wind forcing.

In the thermocline between 50m and 100m, high mixing events coincide with the passage of surface-forced downward-propagating near-inertial waves and with the presence of enhanced low-frequency shear associated with the Summer Monsoon Current.

The months of March and April, a period of weak wind forcing and low near-inertial shear amplitude, are characterized by near-laminar flow and near-molecular values of K_T in the thermocline for weeks at a time.

In the south-central Bay (8°N, 85°E—89°E), monthly-averaged turbulent transport of salt out of the salty Arabian Sea water between August and January is significant relative to local $E-P$.

The magnitude of this inferred turbulence salt flux is approximately that required to close model-based salt budgets for the upper Bay of Bengal.

Live webcast: <http://ucarconnect.ucar.edu/live>

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