

**Sea surface temperature: Characteristics of diurnal variability at the ocean surface: spatial/temporal distribution from data and models**Chelle Gentemann<sup>†</sup>;<sup>†</sup> Remote Sensing Systems, USALeading author: [gentemann@remss.com](mailto:gentemann@remss.com)

Several recent studies have concluded that coupled climate models should utilize a diurnally varying SST to examine the details of the boundary layer response and ensuing air-sea interactions. The global distribution of diurnal warming is clearly linked to wind speed and will therefore respond to the climatic distributions and seasonal or anomalous changes in wind speed, as shown by the response to ENSO wind speed anomalies. The Subtropical High regions in each ocean basin, and the Tropical Indian and Western Pacific Oceans have the largest averages of diurnal warming. The intra-day variability of surface warming has been related to the stability of the boundary layer and atmospheric convection. Since the tropical convection is an important driver of global atmospheric circulation, this example of ocean-atmospheric feedback underscores how diurnal warming of the ocean surface may influence larger scale weather patterns and climate. Results from several satellites show significant diurnal warming present over large regions. Several models (both empirical and physical) of diurnal variability have been developed, but show little agreement with each other. Comparisons of data and models will be used to discuss the global spatial/temporal distribution of diurnal warming and how accurately we actually understand it.