



The Influence of a Precursor Central American Gyre and a Northerly Surge into the Gulf of Tehuantepec on the Formation of Hurricane Patricia in October 2015

Lance F. Bosart

*Department of Atmospheric and Environmental Sciences
University at Albany/SUNY
Albany, NY*

The National Hurricane Center (NHC) initiated advisories on Tropical Depression (TD) Patricia at 1500 UTC 20 October 2015. Patricia originated from a pre-existing area of disturbed weather over the eastern Gulf of Tehuantepec (GoT) subsequent to the formation of a Central American gyre (CAG) and a surge of northerly gap flow across the Isthmus of Tehuantepec and into the GoT. The gap flow was driven by strong low-level height rises over the northern Gulf of Mexico behind a southeastward-moving cold front. Strong low-level anticyclogenesis over the Gulf of Mexico and the southeastern United States behind the cold front and CAG-related surface pressure falls over Central America contributed to the development of an anomalously strong meridional surface pressure gradient that further drove this gap flow. An elongated strip of cyclonic shear vorticity formed along the eastern margin of the gap flow over the GoT while oceanic heat and moisture fluxes maximized in the core of the flow. Subsequently, this vorticity strip broke down into a cyclonic vortex by 0600 UTC 20 October and transitioned into TD Patricia by 1500 UTC 20 October as this TD moved over a region of anomalously warm SSTs and high oceanic heat content in the presence of large oceanic heat and moisture fluxes. This sequence of events prior and their likely importance to the genesis of TD Patricia will be illustrated.

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Refreshments 3:15 PM
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