



892: The North American Monsoon GPS Hydrometeorological Network 2017

Wednesday, 10 January 2018

03:45 PM - 05:30 PM

📍 *Austin, Texas - Exhibit Hall 3 (ACC)*

Debates surrounding the importance of moisture recycling as a moisture source for the North American Monsoon have resurfaced in recent years. Several studies, employing modeling and observational approaches, describe a prominent role for moisture recycling in fomenting deep convective precipitation. Likewise, several of these studies have argued for the increased importance of transport from the Gulf of Mexico/Central America and the Atlantic Ocean, relative to the Pacific Ocean/Gulf of California. This revived debate, and the general importance of understanding surface and vegetation influences on deep convective regimes has motivated the *North American Monsoon GPS Hydrometeorological Network 2017*.

In this presentation, we describe the North American Monsoon GPS Hydrometeorological Network 2017. This bi-national (Mexico-US) ~3-month campaign to examine water vapor source regions, and specifically, land-surface water vapor fluxes, consists of 10 experimental GPS meteorological sites as well as TLALOCNet and Suominet GPS-Met sites in the Mexican states of Sonora, Chihuahua, Sinaloa, and Baja California and in Arizona and New Mexico. Near Rayón Sonora, inside the larger regional GPS-Met array, a set of 3 eddy covariance flux towers were deployed in representative semi-arid woodland ecosystems forming a 30 km triangular array, with collocated GPS-Met, soil moisture sensors, and a dense rain gauge network. These GPS flux tower sites measure continuous energy fluxes and precipitable water vapor at very high frequency (minutes). Furthermore, an intensive radiosonde (1 week) launch schedule 5 sondes (launched early morning to afternoon) is carried out within this flux array. LIDAR measurements from the UNAM RUOA site in Hermosillo also provide boundary layer height continuously. Preliminary results examining the local water vapor flux contribution in the triangular array to total precipitable water vapor are presented. The proof-of-concept campaign is part of a larger US-Mexico research effort to quantify water vapor fluxes, understand sources of advected versus surface fluxes of water vapor, and improve the understanding of convection and the hydrological cycle in the arid and semi-arid zones of the North American Monsoon.

Authors

David K. Adams

*Univ. Nacional Autónoma de
Mexico
Mexico City, Mexico*

Enrique R. Vivoni

*Arizona State Univ.
Tempe, AZ, USA*

Benjamin R. Lintner

*Rutgers Univ.
New Brunswick, NJ, USA*

Carlos Minjarez Sosa

*Univ. de Sonora
Hermosillo, Mexico*

Yolande L. Serra

*JISAO
Seattle, WA, USA*

Alfredo Granados

*Univ. Autonoma de Ciudad
Juarez
Ciudad Juárez, Mexico*

Adrian Vázquez Galvez

*Univ. Autonoma de Ciudad
Juarez
Ciudad Juárez, Mexico*

Julio Cesar Rodriguez

*Univ. of Sonora
Hermosillo, Mexico*

Vivian Verduzco

*Arizona State Univ.
Tempe, AZ, USA*

Eli Rafael Pérez Ruiz

*Arizona State Univ.
Tempe, AZ, USA*

Felipe Barffuson

*Univ. de Sonora
Hermosillo, Mexico*

Michel Grutter

*Centro de Ciencias de la
Atmósfera, Univ. Nacional
Autónoma de México
Mexico City, Mexico*

Jennifer S. Haase

*SIO
La Jolla, CA, USA*

Hong Liang

*SIO
La Jolla, CA, USA*

Enrique Cabral Cano

*Univ. Nacional Autónoma de
México
Mexico City, Mexico*

David J. Gochis

*NCAR
Boulder, CO, USA*

Enrico Yépez

*ITSON
Cd. Obregón, Sonora, Mexico*

Agustín Robles Morua

*ITSON
Cd. Obregón, Sonora, Mexico*

Alejandro Bezanilla

*Universidad Nacional
Autónoma de México
Mexico, Mexico*

Rafael Del Rio Salas

*ERNO/UNAM
Hermosillo, Mexico*

Arturo I. Quintanar

*Centro de Ciencias de la
Atmosfera UNAM
Mexico City, Mexico*

Carlos Ochoa Moya

*Centro de Ciencias de la
Atmosfera UNAM
Mexico City, Mexico*

L Salazar-Tlaczani

*Univ. Nacional Autónoma de
México
Mexico City, Mexico*

[Find Similar](#)

View Related Events

Day: [Wednesday, 10 January 2018](#)