Abstract Submitted
for the FWS16 Meeting of
The American Physical Society

Evaluation of Surface Fluxes in the WRF Model: Case Study for Irrigated Farmland in Rolling Terrain XIA SUN, HEATHER HOLMES, University of Nevada, Reno — Surface fluxes, serving as sinks or sources of atmospheric pollutants, are crucial parameters in numerical weather prediction models.The Weather Research and Forecasting Model (WRF), version 3.7.1, is used to simulate surface fluxes near Echo, Oregon, in September2014. Flux tower observations, from 22 to 28 September , provide the evaluation dataset for the model assessment.Atmospheric turbulence data were measured at 10 Hz using a 3D sonic anemometer and surface fluxes were calculated by eddy-covariance technique. The PBL schemes in WRF differ in assumptions of the transport of energy, mass, and moisture.To get the optimal model options with satisfactory evaluation performance, a series of simulations are conducted based on different combinations of PBL schemes, land surface models, and large- scale datasets for boundary conditions.To evaluate the WRF performance on surface flux simulations under varying sets of schemes, the bias, correlation coefficient, and root-mean-square error between the observation and simulation data is compared among these cases. This study assesses the ability of WRF to simulate surface fluxes and determine the sensitivity to different PBL and land surface schemes.

Xia Sun
University of Nevada, Reno

Date submitted: 04 Oct 2016 Electronic form version 1.4