P28 NU-WRF-LIS coupled simulation experiments of Tropical Storm Kelvin (2018) and the Brown Ocean Effect.

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Tropical cyclones (TCs) develop over ocean and landfalling TCs undergo weakening process over land due to various reason such as loss of sufficient moisture flux, increased friction, and increased baroclinicity in general. However, there have been TCs that were able to maintain their strength or even to intensify inland away from the coast. Previous studies suggested that these TCs were fueled by energy fluxes from the ground, which is known as the 'brown ocean' effect. Recently, Tropical Storm Kelvin (2018) made its landfall in the evening on Feb 17, 2018 over northwest of Australia. At about its landfall, its strength was increased from Category 1 to Category 2 and it survived until Feb 19, 2018 when it became a Tropical Low. A set of numerical simulations of Tropical Storm Kelvin is conducted using the NASA Unified Weather Research and Forecasting (NU-WRF) coupled with the NASA Land Information System (LIS) to understand the contributions of the latent heat fluxes (LHFs) from the land surface quantitatively during the intensification period of the storm over the land.