

Title: The LBA / NGEE-Tropics data collaboration and water dynamics impacts of the 2015 drought in Central Amazon

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Project Abstract: The LBA Program operates a network of micrometeorology and hydrology field stations across the Amazon. In partnership with NGEE-Tropics, datasets from these stations are being QA/QC'd and prepared for synthesis studies and also as driving and validating measurements for FATES model runs. One of our joint studies is focusing on the ecosystem effects of the 2015-2016 El Niño, the second strongest since 1950s and with record-breaking effects causing a sharp decrease in precipitation and increase in temperature over tropical South America. While the spatial distribution of the 2015-2016 drought was unusual and concentrated into a smaller region in northeastern Amazonia, the ZF2 reserve near Manaus in the central Amazon was heavily impacted. Measurements of soil moisture, sap flow, and eddy-covariance fluxes, among other micrometeorological variables, collected at the ZF2 K34 tower (AmeriFlux ID BR-Ma2), clearly show the effects of this drought event. We explored these data looking for quantitative and mechanistic relationships between soil moisture, plant transpiration, and evapotranspiration. In this poster, we present results from our study with a quantification of soil water dynamics, plant transpiration, and forest evapotranspiration during the 2015 drought. We also discuss other ongoing and future work in the Amazon within the context of the LBA / NGEE-Tropics collaboration.