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CX100 and TX100 Blade Field Tests

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Abstract

In support of the DOE Low Wind Speed Turbine (LWST) program two of the three Micon 65/13M wind turbines at the USDA Agricultural Research Service (ARS) center in Bushland, Texas will be used to test two sets of experimental blades, the CX-100 and TX-100. The blade aerodynamic and structural characterization, meteorological inflow and wind turbine structural response will be monitored with an array of 75 instruments: 33 to characterize the blades, 15 to characterize the inflow, and 27 to characterize the time-varying state of the turbine. For both tests, data will be sampled at a rate of 30 Hz using the ATLAS II (Accurate GPS Time-Linked Data Acquisition System) data acquisition system. The system features a time-synchronized continuous data stream and telemetered data from the turbine rotor. This paper documents the instruments and infrastructure that have been developed to monitor these blades, turbines and inflow.