Zland 3C 5Hz Node Test Results
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The IRIS/PASSCAL Instrument Center currently has a small pool of FairfieldNodal Zland 3C 5Hz nodes for community use. In an effort to further refine our best practices for node installation, we have conducted several tests designed to elucidate how PIs can minimize the time needed for node installation while also maximizing data quality and data return. As nodal experiments grow ever larger, these types of time-saving best practices should prove very beneficial to PIs and their deployment teams.

Using data from 363 Zland 3C 5Hz nodes collected during the IRIS Wavefields Community Demonstration Experiment in Oklahoma, we present a detailed view of how node performance varied across the network. We examine the behavior of GPS timing with the passage of storms, and how differing levels of ground saturation affect node data quality. Our prior work has already shown that variation in local wind speed is directly tied to increased noise levels across the network in discrete frequency bands. The proximity of a large (150+) wind turbine installation to our network seems a likely source for this noise.

In addition to results from the Wavefields experiment, we present results of ongoing lab and field testing at PASSCAL that attempts to quantify node tilt sensitivity. We also investigate benefits and drawbacks of nodes installed: a) on the surface, b) partially buried, and c) fully buried to determine the level of effort required for high-quality data return. Lastly, we determine how accurate GPS timing is affected by moving a node away from the point of activation to better quantify how much latitude PIs have for moving nodes in the field.