

Ground observation of thermal neutrons from Terrestrial Gamma-ray Flash above wind turbine

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During a thunderstorm on December 3rd, 2015, coincident with an upward leader originating from a lightning protection tower next to the wind turbine in Uchinada, the Gamma-ray Observations During Overhead Thunderstorms (GODOT) instrument observed a large, ~100ms duration, flux of radiation with a spectral signature characteristic of thermal neutron production. We will present our observations and show comparisons to monte-carlo simulations, proposing that we have observed the first neutron glow from a Terrestrial Gamma-ray Flash, produced by photonuclear reactions of gamma-rays with the air and ground molecules around the wind turbine.

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