ABSTRACT

TITLE:	Lightning Detector and the Study of Sprites
AUTHOR(S):	Puls, Matthew T.
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ABSTRACT: When lightning strikes it emits very low frequency, 3 kHz to 30 kHz, and extremely low frequency, 3 Hz to 30 Hz, electromagnetic waves that propagate between the ionosphere and the Earth. We will build a single station lightning detector to detect the very low frequency electromagnetic waves. The characteristics of these waves will allow us or future researchers, in principle, to establish the direction and distance to the stroke and whether that particular strike had the correct criteria to initiate a transient luminous event known as a sprite. Sprites are large scale electric discharges that are mainly triggered by positive cloud to ground lightning in an underlying thunderstorm. New research suggests that the charge moment change (changes in the amount of charge built up separated by the distance between the cloud and the ground) in lightning is directly related to the ability of that strike to initiate a sprite. We will build the detector and create a step by step manual to support research into a single station very low frequency detector.