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Infrared Imaging of Transient Luminous Events (1 1.5 microns) Over the Mid Western US and Comparison with their Visible Wavelength Signatures MATT BAILEY, MICHAEL J. TAYLOR, DOMINIQUE PAUTET, Utah State University, WALTER A. LYONS, FMA Research, STEVEN CUMMER, Duke University — As part of a coordinated campaign conducted from Yucca Ridge, Colorado during summer, 2005, four sensitive imaging systems were fielded by Utah State University to investigate the signatures of transient luminous events (TLE's) over a broad spectral range, extending from the near ultra violet (0.35 microns) to infrared wavelengths (1.5 microns). These measurements were made in conjunction with high speed video and electromagnetic observations providing detailed information of the TLE dynamics and their structures. The USU instruments consisted of two Gen 3 Xybion cameras, one filtered to observe N_2 first positive emissions (665 nm) while the second observed white light emissions. A third intensified camera with an extended blue response was fitted with a broad band filter to observe the N_{2+} first negative and N2 second positive emissions (band width, 350 475 nm). Novel infrared measurements were made using an InGaAs imaging array operating at video rates. All four cameras had similar fields of view (25°) and were co-aligned on a single mount with the high speed imager. We discovered that sprites were easily imaged in the infrared spectral range, and over 30 events were captured with the InGaAs camera arising from thunderstorms over the mid-western United States during early July and mid August. This poster presents new measurements of the optical characteristics of TLEs imaged in the infrared spectral range (1-1.5 microns) and an initial comparison with their visible and near UV signatures.

Matt Bailey

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