



## New results from calibrated radiometric observations of TLEs in Mediterranean winter thunderstorms

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We present a procedure for calculating the radiance of TLEs (e.g. sprites and Elves), based on observations conducted from Israel in the 2008/9 winter season. We developed a reliable and accurate method for calibrating the Watec 902H commercial CCD camera, which is commonly used for TLE research. This method enables radiometric measurements of TLE luminosity and can augment spectral and photometric observations conducted with other instruments. We placed a spectral filter (630-810nm) on the camera and thus the results correspond only to the radiance in this spectral band. Furthermore the measurements take into account the medium properties such as atmospheric transmittance and visibility between the camera and the TLE. The calculations are made based on known sprite spectrum (Hampton et al. 1996; Milikh et al. 1997). During the ILAN (<http://geophysics.tau.ac.il/personal/Ilan/>) winter sprite campaign we measured the brightness of TLEs in the vicinity of Israel and the eastern Mediterranean. Preliminary results yield typical radiance values of 100 – 500 KR for sprites and 3 – 6 MR for Elves. The results are in good agreement with values obtained in previous measurements (Gerken and Inan, 2003). Calibration methodology, image analysis, calculations and new results are discussed.