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Classification of sprites observed in Central Europe between 2007 and 2009

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Sprites are short lived (<∼0.1s) electro-optical emissions in the 50-100 km height range above active thunderstorms. Along with other Transient Luminous Events (TLEs), e.g. sprite halos, we have been observing these phenomena optically in Central Europe from Sopron [16.58°E, 47.68°N, 231 m AMSL], Hungary, for ∼600 kms round of the town since 2007 with a conventional frame rate Watec 902H2 Ultimate low-light surveillance camera. 368 sprite events were captured from our detection site on 28 nights in the 2007-2009 period. They show great variability in the directly perceptible properties of these phenomena such as the shape and duration of the emission as well as the number of individual light emitting entities in an event. Focusing on these properties, we have sorted the sprites with similar characteristics into groups. On this poster, different approaches to the problem of classification are shown. Regarding mainly the shape of sprites, various formerly defined categories are revisited and peculiarities of the classic forms (e.g. columns and carrots) noticed during our observations are presented. Statistics of occurrence of the different sprite forms are reported. The optically observable lifetime of sprites with different shapes was examined for events captured above the same thunderstorm running at relatively constant distance from the observation site. Analysis of records unambiguously indicates that brighter events occupying large space tend to have shorter lifetime.