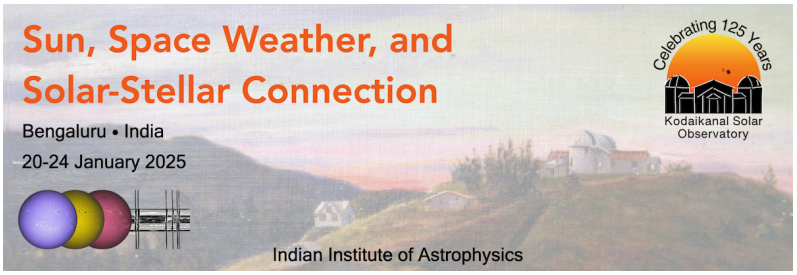

Contribution ID: **154** Type: **Contributed talk**

Quiet-Sun Ellerman Bombs and Their Impact on the Upper Solar Atmosphere

Tuesday, January 21, 2025 11:10 AM (15 minutes)

Recent high-resolution observations have shown that quiet-Sun Ellerman bombs (QSEBs), thought to be driven by magnetic reconnection in the deep solar atmosphere, are more prevalent than previously known, with about 750,000 present across the quiet Sun at any given time. Analyzing Hβ and Hϵ observations from the Swedish 1-m Solar Telescope, we detected ubiquitous QSEBs characterized by rapid variability and flame-like morphologies. While a subset of these events showed localized heating in the transition region, indicated by UV brightenings in Si IV observations from the Interface Region Imaging Spectrograph, only a small fraction of QSEBs contributed to such heating. Additionally, we found cases where QSEBs were linked to the formation of type II spicules, suggesting that magnetic reconnection could be a driving mechanism for spicules. However, these associations account for only a small portion of the total number of QSEBs and spicules, indicating that QSEBs likely play a limited role in global upper-atmosphere heating and spicule formation.

Contribution Type

Theme

Solar Magnetism in High-Resolution

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