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Title

Sub-Thz and H activity during the preflare and main phases of a GOES CLASS M2 event

Source

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Abstract

Radio and optical observations of the evolution of flare-associated phenomena have shown an initial and rapid burst at 0.4 THz only followed subsequently by a localized chromospheric heating producing an H brightening with later heating of the whole active region. A major instability occurred several minutes later producing one impulsive burst at microwaves only, associated with an M2.0 GOES X-ray flare that exhibited the main H brightening at the same site as the first flash.The possible association between long-enduring time profiles at soft X-rays, microwaves, H, and sub-THz wavelengths is discussed. In the decay phase, the H movie shows a disrupting magnetic arch structure ejecting dark, presumably chromospheric, material upward. The time sequence of events suggests genuine interdependent and possibly non-thermal instabilities triggering phenomena, with concurrent active region plasma heating and material ejection. (22 References).