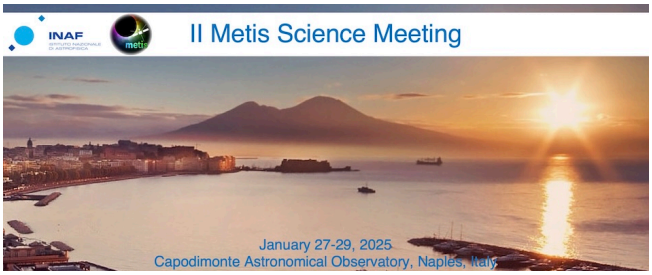


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# Synergies in high-resolution observations of the solar atmosphere to investigate small- to intermediate-scale energy release events

The interplay between emerging magnetic flux and pre-existing ambient fields is a key driver of small- to intermediate-scale energetic phenomena in the solar atmosphere, caused by magnetic reconnection. These events provide valuable opportunities to model eruptive phenomena on larger scales and necessitate a synergistic observational approach. We present observations of energy release events captured during coordinated campaigns involving high-resolution instruments from ground- and space-based facilities. Using spectropolarimetric data from the GREGOR and SST telescopes, we derive the magnetic configuration of the lower atmosphere, while the upper atmospheric response is analyzed using UV spectroscopic data and imaging from IRIS and Hinode. These observations are often complemented by continuous coverage from SDO. Our findings underscore the importance of coordinated observational efforts with current ground facilities and instruments on board satellites. In this context, it is beneficial to foster the scientific exploitation of high-resolution instruments on board Solar Orbiter, such as PHI and EUI. Looking ahead, we highlight the enhanced capabilities that future observatories and instruments, including the IBIS2.0 spectropolarimeter and instruments at the focal plane of the EST telescope, as well as the Solar-C and MUSE missions, will bring to study these phenomena, enabling deeper insights into the dynamics of the solar atmosphere.

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