IRIS Sub-Arcsecond Scale Observations of an Explosive Event

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We present a study of an explosive event witnessed by strong non-Gaussian profiles with blue- and red-shifted emission of up to 150 km/s registered in the transition region Si IV 1402.8 A, and the chromospheric Mg II K 2796.4 A and C II 1334.5 A lines observed by the Interface Region Imaging Spectrograph (IRIS) at unprecedented spatial and spectral resolution. The analysis of the lines' wing and line-centre emission reveals plasma up- and down-flows that are a signature of plasma jet-like ejections followed by retraction. We also analyse the evolution of the feature in the IRIS 1330 A slit-jaw and various AIA channels' images. The slit-jaw 1330 A images reveal for the first time that explosive events' strong non-Gaussian profiles are associated with a compact bright-point-like structure of ~1.5" where continuously small-scale (as low as 120 km long) plasma ejections take place. The explosive event is detected in the higher temperature channels of AIA 171 A, 193 A and 131 A suggesting that it reaches a higher temperature, which is found to be logT = 5.36 K derived using the emission measure loci method. Brightenings observed in the AIA channels with durations 90 -120 seconds are most probably caused by the small-scale jets seen in the IRIS slit-jaw 1330 A images. We found that magnetic convergence or emergence in the region of the explosive event is followed by magnetic-flux cancellation at a rate of about 5x10^14 Mx/s. The potential magnetic field extrapolation permitting to follow the field connectivity evolution reveals that significant reconnection associated with the explosive event must take place with time.