



High resolution imaging of Coronal Type III bursts: First MUSER solar radio observations

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The energy released during flares accelerates particles somewhere in the lower corona, which can be located and best studied using solar radio images in the decimetric frequency range. However, due to the limited imaging available at this frequency range, the exact location of electron acceleration and so the flare energy release has still remained poorly known. The low frequency radio array of Mianqitu Spectra Radio Heliograph (MUSER), operating in the frequency range 400-2000 MHz with its capabilities of high temporal (25 to 200 ms), spatial (1.3 to 50 arcsec) and spectral (25 MHz) resolution is very useful in this regard. We present here high dynamic range imaging of decimetric Type III bursts using MUSER observations associated with a short-duration GOES C2.3 class solar flare that erupted on 2015 June 20. The Type III bursts identified are actually narrow band reverse Type III bursts with the brightest ones observed at the very beginning. Also, identified few seconds apart are narrow band spike-like Type III bursts coinciding with the hard X-ray (HXR) and microwave radio burst peak activities. The radio images from MUSER show that the Type III bursts are located far from the location of HXR and microwave burst locations, while each Type III bursts, as revealed by MUSER images, show different spatial locations. From the different locations of Type III bursts, we suggest the presence of different flare energy release sites, which shows that the flare energy release is indeed fragmentary in nature.