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Radial and Tangential Kinematics and Angular Extent of EUV Coronal Bright Fronts

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Large-scale solar coronal compressive waves are often observed in extreme UV (EUV) and white light to precede nascent coronal mass ejections (CMEs), which previous work has shown develop most dynamically (expansion, acceleration) in the low and middle solar corona (below 5-8 solar radii). Multiple studies in the last ten years have suggested that these waves may be manifestations of driven coronal shock waves, and may accelerate ions to solar energetic particle (SEP) energies. A commonly invoked condition for the generation of EUV waves and their capability to produce energetic particles is the presence of rapid lateral expansion of the front and driver behind it. As a step to characterizing this capability, we study the radial and lateral kinematics of a number of EUV off-limb waves in the low corona, and their departure from spherical expansion. We characterize their time-dependent angular extent. We compare the results with the later-stage CME angular sizes and radial kinematics deduced from SOHO/LASCO observations of the events.