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# Coronal electron density distributions from simultaneous observations of solar corona with MK4, LASCO-C2, and SECCHI-COR1 Coronagraphs during the period from March 2007 to June 2007

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The coronal electron density is a fundamental and important physical quantity in solar physics for estimating coronal magnetic fields and analyzing solar radio bursts. Many ground- and space-based white-light coronagraphs continuously measure polarized brightness to estimate coronal electron density distributions (CEDDs). To confirm the consistency of white-light coronagraph measurements and determine CEDDs, we compare CEDDs derived from MK4 coronameter and LASCO-C2 with Van de Hulst inversions and SECCHI-COR1A and COR1B with spherically symmetric polynomial approximation (SSPA) by Wang et al., 2014. For this, we consider coronagraph data from January to August 2007 with the following conditions: (1) the separation angle between the either of the STEREO spacecraft and Earth is less than 10 degrees; (2) the observation time differences from one another are less than 1 minutes; and (3) the data can be reasonably inverted to derive CEDDs; (4) bright and faint streamer, and plume and inter-plume regions are well observed in LASCO-C2 field of view. By investigating 15 events, 10 events are simultaneously observed by MK4, LASCO-C2, and SECCHI-COR1A and 5 events are observed by MK4, LASCO-C2, and SECCHI-COR1B, we find the following characteristics: (1) CEDDs are similar to one another at broad- and faint- streamer regions (bright coronal structures) while they are not similar to one another at plume and inter-plume regions (faint coronal structures). Especially, there are very weak polarized brightness near polar regions in SECCHI-COR1 observations, which are similar to those of coronal backgrounds. (2) the average of estimated CEDDs from 1.2 to 6 solar radii is 1.0-Fold Saito's density model at bright streamer regions and 0.5-fold Saito's model at faint streamer regions while it is 0.2-fold Saito's model at plume and inter-plume regions. Our results indicate that not only kinematic studies of bright coronal structures such as streamers and CMEs observed by using white-light coronagraphs with different Field of View are reliable, but also 1-fold Saito's model is a proper CEDDs at bright streamer regions during solar minimum period.