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Exploring the Corona With the new Upgraded Coronal Multi-Channel Polarimeter (UCoMP) Coronagraph at Mauna Loa

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Science data products are now available from the new Upgraded Coronal Multi-Channel Polarimeter (UCoMP) installed at the Mauna Loa Solar Observatory [<https://www2.hao.ucar.edu/mlso>]. UCoMP is a major upgrade of the CoMP instrument. Its expanded capabilities include: observations of multiple coronal emission lines over a wide range of coronal temperatures to explore the magneto-thermal structure of the corona; a larger field-of-view; higher spatial resolution; and dramatically faster collection of the full Stokes polarization that provides higher quality polarimetry measurements. UCoMP provides powerful diagnostic measurements of the coronal magnetic field and plasma properties. The larger field-of-view allows it to explore the magnetic and thermal properties of coronal structures and coronal mass ejections (CMEs) out to ~ 2 solar radii. The UCoMP observations complement the MLSO K-Cor white light coronagraph, that is designed to track CMEs at a very high cadence (15 seconds) out to 3 solar radii. We provide examples of the variety of UCoMP science data products and highlight some of the science that can be explored with these exciting new observations. We illustrate how UCoMP and K-Cor coronagraph data can be combined and used with other coronal observations and models to explore coronal magnetic field and plasma conditions. We highlight synergies of UCoMP and K-Cor observations with Metis.

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