

Temperature, density and magnetic field structure of the corona during the total eclipse of 1999 August 11

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The goal of the eclipse expedition of the Harvard-Smithsonian Center for Astrophysics on 1999 August 11 to Ayn Diwar in Syria was to explore the temperature, density and magnetic structure of the corona through simultaneous imaging in the Fe X 6374, XIV 5303 and XI 7892 Å lines, the H α 6563 Å line, and the polarized brightness or white light. Polarization measurements were made in the Fe XIV 5303 Å and H α 6563 Å lines to yield the direction of the coronal magnetic field. Inferences of the temperature distribution were made from the three iron lines, while density profiles were derived from the polarized brightness measurements. Supporting space based observations were acquired with LASCO and UVCS on SOHO. The comprehensive diagnostic resulting from the analysis of the observations of the close-to-spherically symmetric corona of 1999 August 11 approaching solar maximum will be presented.

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