

Observations of solar coronal holes using radio (GMRT & GRH), extreme ultra-violet (SOHO-EIT) and X-ray (GOES-SXI) imaging instruments

F. R. H. Madsen (1), R. Ramesh (2), S. Ananthakrishnan (3), P. Subramanian (4), J. R. Cecatto (1) and H. S. Sawant (1)

(1) National Institute of Space Research – INPE, São José dos Campos – SP, Brazil

(2) Indian Institute of Astrophysics – IIA, Bangalore, India

(3) National Centre for Radio Astrophysics - NCRA/TIFR, India

(4) Inter University Centre for Astronomy and Astrophysics - IUCAA, India

Solar observations with the Giant Metrewave Radio Telescope (GMRT) on 06/04/2005 at 150 MHz show evidence for a radio counterpart to a Coronal Hole (CH) observed as a depression in the radio brightness distribution on the solar disk. In this work, we compare the structural details of the radio CH using the GMRT observations and the Extreme Ultra Violet (EUV) and Soft X-Ray (SXR) images obtained with the SoHO/EIT and GOES/SXI, respectively. We also study the density/temperature inside the same CH using 115 MHz data from the Gauribidanur Radioheliograph (GRH). We present and discuss our results for the radio counterpart to this CH, focusing on the comparison of its position and size as determined from EUV and SXR with the parameters determined from the GMRT map and on the determination of plasma parameters from the GRH map.