

THE STATUS OF THE DIRBE INSTRUMENT ON THE COBE

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Abstract. The Diffuse Infrared-Background Experiment (DIRBE) on the Cosmic Background Explorer (COBE) satellite is a 10-band absolute photometer covering the wavelengths 1–300 microns using photovoltaic, photoconductive, and bolometric detectors. The input is via a 19-cm, off-axis, highly-baffled Gregorian telescope, with the detectors located at a pupil plane so they share the same field of view (0.7×0.7 degrees). The whole assembly is mounted inside a 1.4 K super-fluid, liquid-He dewar, which is shared with the Far Infrared Absolute Spectrometer (FIRAS) instrument. Each day half of the sky is surveyed, as the line-of-sight of the DIRBE is canted 30 degrees to the COBE spin axis. The whole sky is fully observed in 6 months, as the spin axis precesses at about 1 degree per day. At present each sky pixel has been observed at least once. The basic findings on the general brightness of the sky – Zodiacal light and galaxy – are provided, as well as a synopsis of the advantages and disadvantages associated with a space-borne observatory. The relationship of our experience and findings with respect to possible future missions and their scientific goals is presented.

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