Destriping of Polarized Data in a CMB Mission with a Circular Scanning Strategy

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Revenu et al. Destriping of CMB polarized data

abstract

A major problem in Cosmic Microwave Background (CMB) anisotropy mapping, especially in a total-power mode, is the presence of low-frequency noise in the data streams. If improperly processed, such low-frequency noise leads to striping in the maps. To deal with this problem, solutions have already been found for mapping the CMB temperature fluctuations but no solution has yet been proposed for the measurement of CMB polarization. Complications arise due to the scan-dependent orientation of the measured polarization. In this paper, we investigate a method for building temperature and polarization maps with minimal striping effects in the case of a circular scanning strategy mission such as the Planck mission.

methods: data analysis; cosmology: cosmic microwave background; polarization