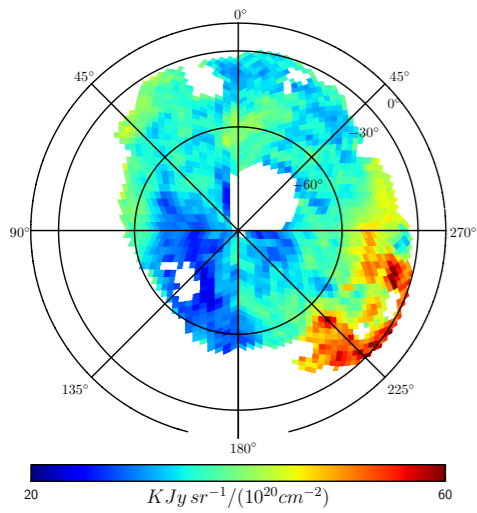


Bayesian Inference of Emissivity of Dust in the Diffuse ISM and Large-Scale CIB map

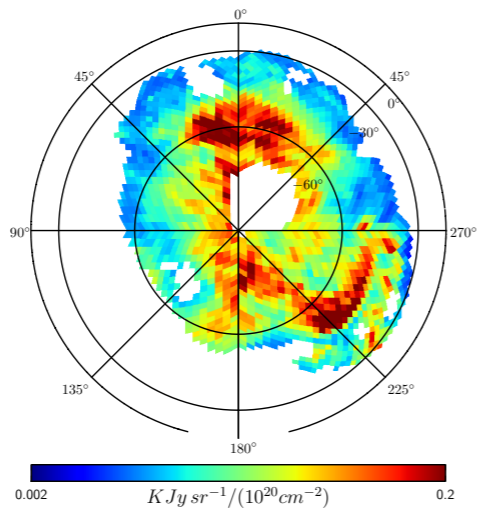
Debabrata Adak, ^{*} Shabbir Shaikh, Tuhin Ghosh, Francois Boulanger, Tarun Souradeep

- Develop a method to estimate spacial and spectral variation of emissivity of dust in 3D applying Hamiltonian MonteCarlo (HMC).
- Zero level of intensity and emissivity can be fitted over entire sky of interest.
- Dust intensity model at diffuse ISM :

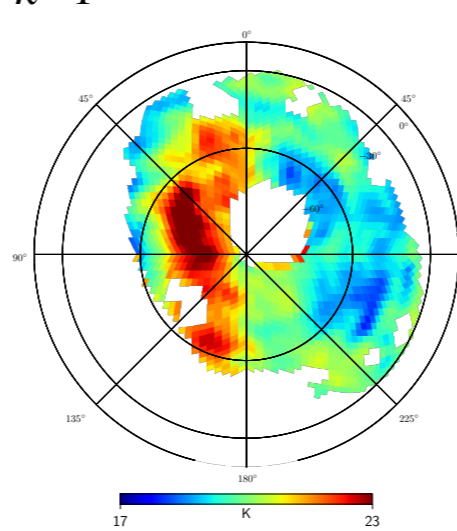
$$I_{\nu}(n_i) = \sum_{k=1}^K \epsilon_{k\nu}^j N_{\text{HI}}^k(n_i) + O_{\nu},$$



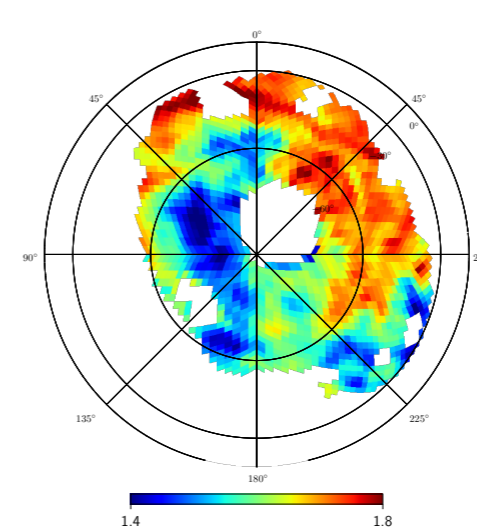
Emissivity at 353 GHz



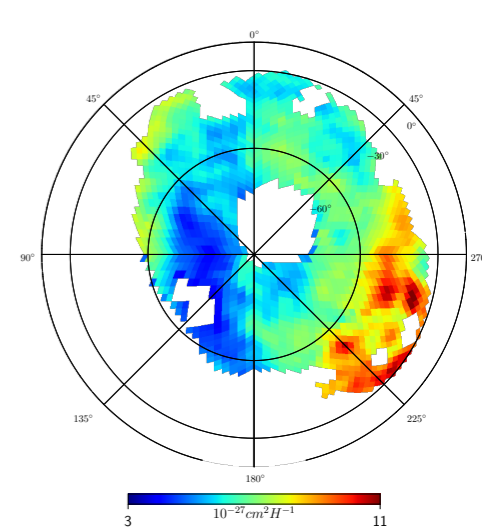
Error bar of emissivity



Dust temperature



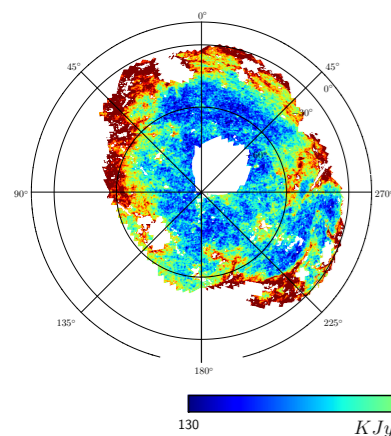
Spectral index



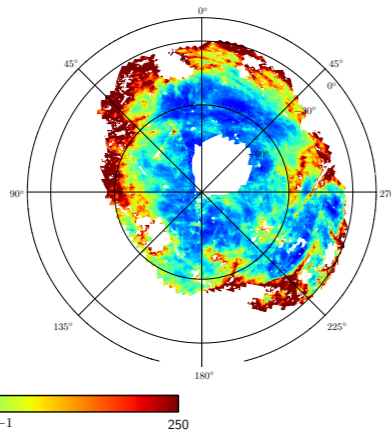
Opacity

- CIB maps and power spectra

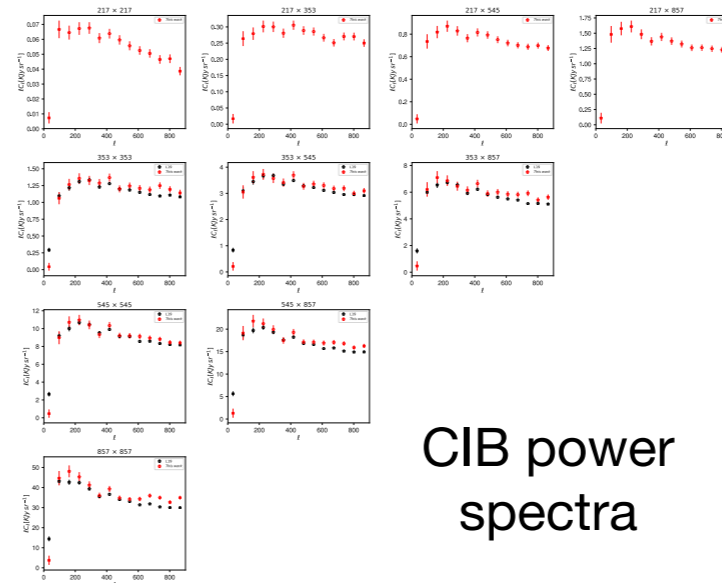
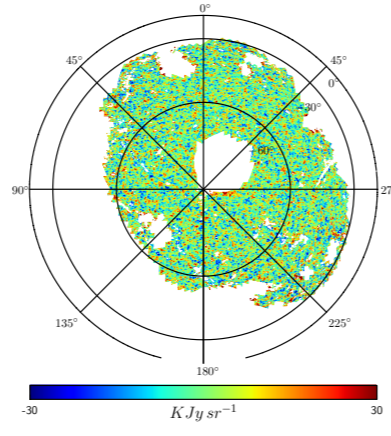
Total intensity



Model dust



CIB



CIB power spectra