Background Estimates in Sensitivity Plots

Updated: 09jan2009
Updated: 02apr2020 – updated links

Also See:

- Spitzer Background Estimation: Methods and implementation (e.g., how the observation planning software Spot calculated backgrounds) : https://irsa.ipac.caltech.edu/data/SPITZER/docs/files/spitzer/background.pdf
- Spitzer Performance Estimation Tool: https://irsa.ipac.caltech.edu/data/SPITZER/docs/dataanalysistools/tools/pet/

The background estimates were generated using a prototype version of the Spitzer background estimator. Three lines of sight were chosen to represent low, medium, and high background.

Line of Sight Parameters

	Galactic		Ecliptic	
	Longitude	Latitude	Longitude	Latitude
low	96	30	239	89
medium	105	-20	10	40
high	187	1	91	0

Background Contributions

The background model includes the zodiacal light, interstellar medium (cirrus), and the cosmic infrared background (at wavelengths greater than 100 microns). The contributions of each component can be seen in the figure below. The zodiacal light dominates IRAC and IRS wavelengths for all these lines of sight. For MIPS 70 microns, there are comparable interstellar and zodiacal contributions, while at 160 microns, the interstellar contribution dominates.
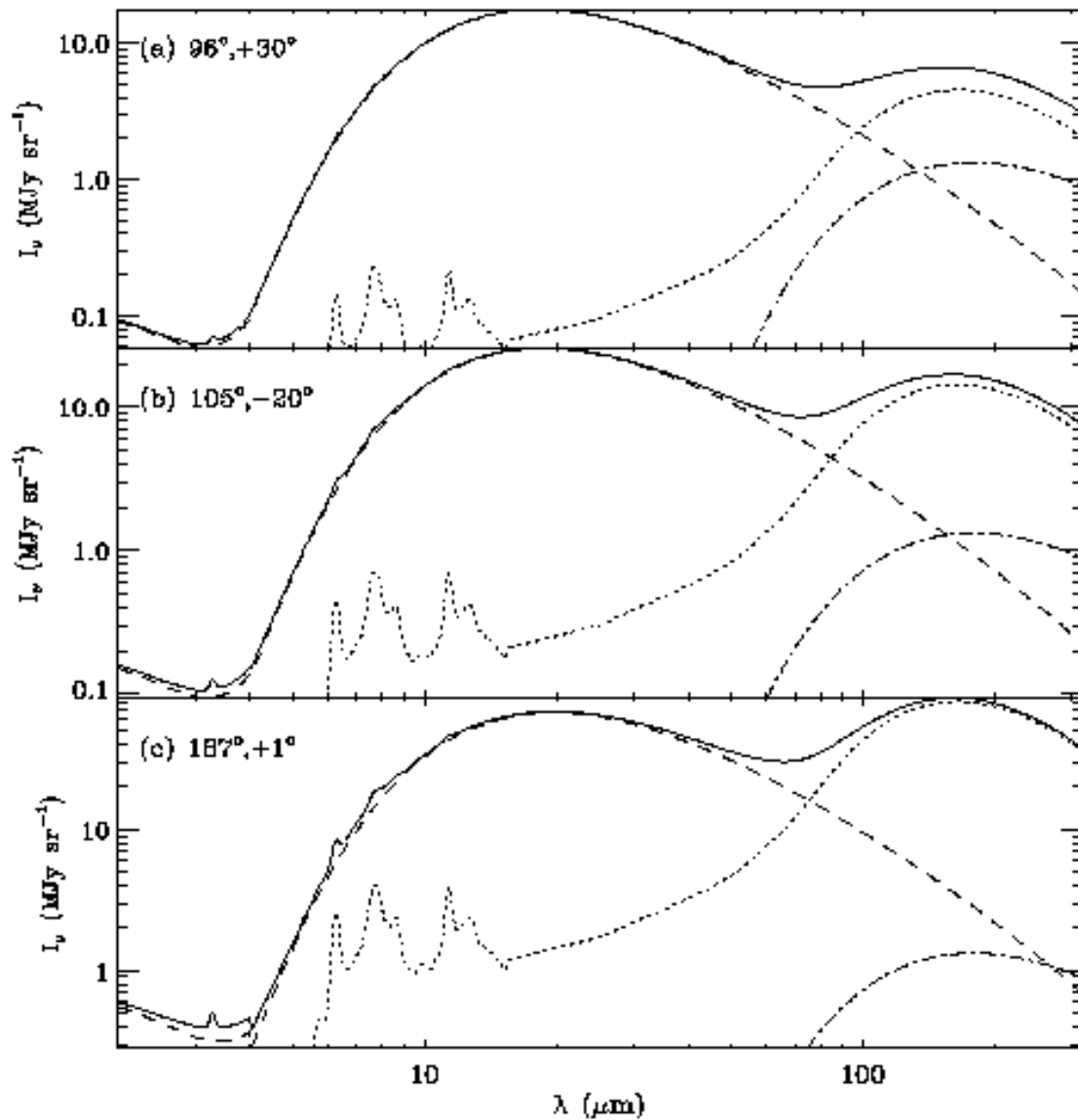
Brightness Values

The background spectra were integrated over the Spitzer passbands and the results are reported as per the Spitzer calibration convention (same as IRAS, ISO, COBE) below. The first column is the mnemonic wavelength for the band and the second column is the quoted surface brightness of that band. For reference, the color corrections ranged from 0.98 to 1.08.

A. Low-background

Wavelength (microns)	Background (MJy/sr)
3.6	0.0769
4.5	0.267
5.8	1.37
8	5.47
15.75	16.8
22.25	16.7
24	16.1
70	5.15
160	6.53

B. Medium-background

Wavelength (microns)	Background (MJy/sr)
3.6	0.125
4.5	0.366
5.8	1.93
8	7.69
15.75	24.4
22.25	24.7
24	23.9
70	8.95
160	16.5

C. High-background

Wavelength (microns)	Background (MJy/sr)
3.6	0.43
4.5	0.85
5.8	4.64
8	18.3
15.75	63.1
22.25	67
24	65.6
70	32.3
160	84.3