

dustmaps: A Python interface for maps of interstellar dust

Gregory M. Green¹

¹ Porat Fellow, Stanford/KIPAC

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Software

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Summary

Correcting for interstellar dust extinction is a critical step in many analyses of astrophysical data. Indeed, a standard dust reddening map, Schlegel, Finkbeiner, and Davis (1998), is one of the highest cited papers in astrophysics.

The `dustmaps` package provides a uniform Python interface for several commonly used maps of interstellar dust, including two-dimensional maps such as Schlegel, Finkbeiner, and Davis (1998), Planck Collaboration et al. (2014) and Lenz, Hensley, and Doré (2017), and three-dimensional maps such as Marshall et al. (2006) and Green et al. (2015). `dustmaps` makes use of `Astropy`'s coordinate-system package (`astropy.coordinates.SkyCoord`, Astropy Collaboration 2013), making it easy to query dust maps in a wide variety of coordinate systems (Equatorial, Galactic, Ecliptic, etc.). Additionally, `dustmaps` handles the downloading of the supported dust maps for users, and allows users to query some dust maps from a remote server, avoiding the need to download large data files.

Development of `dustmaps` takes place on GitHub (Green 2018), and any issues with the software or feature suggestions (e.g., the addition of new dust maps) should be raised there.

An example of the type of analysis which can be carried out with `dustmaps` is given below. The left panel is a plot of dust reddening in Green et al. (2018) to a distance of 800 pc, while the right panel shows the correlation between Green et al. (2018) and Planck Collaboration et al. (2014).

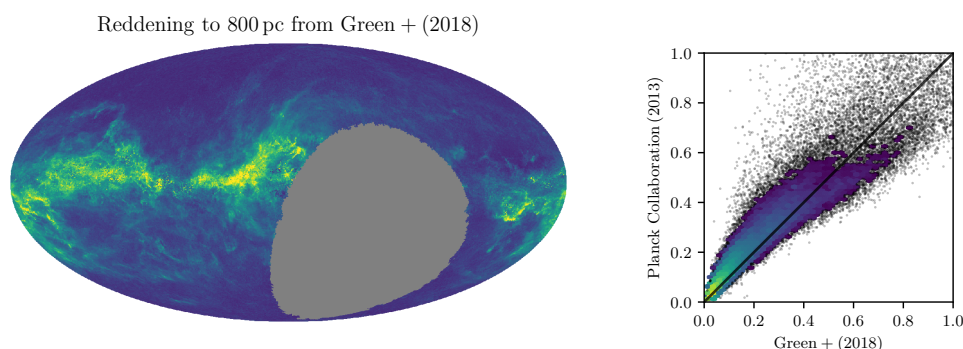


Figure 1: Example of the type of analysis made easy by `dustmaps`.

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