

How Pictures Of Planets Should Be Corrected

In this image you see three photographs of Jupiter along the top. Along the bottom are three corrections for an effect known as, "limb darkening".



A simple procedure for the correction of planetary limb darkening

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Limb darkening is a typical finding in planetary images, even at opposition, and can be considerably intense in gaseous planets like Jupiter or Saturn. It has a major role in the 3D perception we have when analysing a planetary photograph but, interestingly, it seems to be much more illusive at the eyepiece, probably due to the "logarithmic" way our brain interprets visual information.

The limb darkening effect can be deleterious in some occasions, like for instance the production of planispheres, direct photometric measurements, and the precise determination of a planet's apparent diameter. In fact, multiple images have to be used to build up cartographic projections of planets, and to perfectly merge them together the brightness of a given feature should not change when it occupies different positions along the visible planetary disk. For this same reason, photometric measurements are usually biased by the feature's position, say at the central meridian or approaching the limb. It is not necessary for the feature to be near the limb for brightness differences starting to become noticeable, but when it is the changes can be dramatic. This marked illumination falloff at the limb often artefactually decreases the apparent diameter of a given planet in CCD images, since with "aggressive" image processing and/or incorrect image settings the outer rim of the planet may be lost in the background.....[read more](#)

Here is a GIF of actual photos of a star.

