UserManual Glossary

First of all, not all of the following terms have been picked up.

The criteria used to select the terms are as follows:

* A term that is used frequently in a text.
* A term that does not have an explanation attached to it.
* The term itself is technical (the term is generally very unfamiliar to the public).

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**Amp glow**

The effect of circuitry in the camera body or sensor that causes one part of the image to shine brighter than the adjacent part.

**Banding**

A condition in which the camera displays various horizontal bands in the dark areas of an image.

**Bit depth**

The number of bits required to store the luminance level of an image, which in the case of RGB images is the sum of the quantization bits of each RGBA channel.

In image processing, the number of bits used to represent the size of a signal is called the number of quantization bits. The higher the number of bits, the more subtle differences in size can be represented (less quantization error), but the larger the amount of data. In data compression, reducing the number of quantization bits reduces the amount of data, but increases the quantization error.

**Binning**

a technique used to improve the signal-to-noise ratio of an image at the expense of reducing the resolution. Binning works by taking the value of 2 or more neighbouring pixels on the sensor and either adding or averaging them to produce the value for a single output pixel. Binning is usually 'symmetric' - meaning that the same number of pixels are averaged over in each direction. For instance, a binning value of '2x2' or just '2' means that a 2 by 2 block of sensor pixels are used to make each pixel in the final image – this will reduce the resolution of the final image by a factor of 2, but also increase the signal-to-noise ratio (S/N ratio) of the image by a factor of 2.

**Compression artefact**

Changes to the image caused by using compressed file formats (JPG, WMV, etc) to save images. These typically reduce the quality of the image, but may be OK for some users who want to dramatically reduce the output file sizes.

**Colour cast**

An undesirable color change found in all or part of an image.

**Dithering**

Dithering in astronomy is the deliberate, gradual shifting of the pointing position of the mount between captured frames. This prevents the appearance of noise patterns in the final stacked image. For example, if there are unusually bright pixels, dithering will move the effect of those pixels in the image, drowning out the extra brightness.

**Debayering**

turning the RAW image to full colour.

**Dynamic range**

it means the ratio between the brightest thing in the image that can be captured without quite saturating the camera and the dimmest thing that can be noticed against the background noise. An increase in noise will reduce the dynamic range, a reduction in noise increases it. Stacking many frames increases the range.

e/ADU（electrons per ADU）

In CMOS image sensors, it means the conversion rate of the number of photoelectrons measured as a digital unit (ADU: Analog-to-Digital Conversion Unit).

**Frame rate**

The number of frames per second that the camera attempts to send to the computer.

It is expressed in units of FPS (frames per second).

**FWHM** (Full-Width Half Maximum)

A measure of the size of a star or other image. Half of the maximum value means the distance from the center at which the brightness decreases to half of the center value. Full width means that the measurement is given as a diameter, not a radius. The radius can be obtained by dividing the FWHM of the point source in the image by 2, which can be used as an estimate of the radius for the point image distribution function model.

**Gaussian Blur**

In image processing, it is a process to blur an image using a Gaussian function. It can be applied to removing noise from images taken by digital cameras, unsharp masking, and preprocessing for edge extraction.

**Lucky imaging**

It is a type of high-resolution astronomical imaging technique used in astrophotography, which uses a high-speed camera and short exposure times (less than 100 ms) to minimize changes in the Earth's atmosphere during the exposure.

**Occultation**

A phenomenon in which celestial bodies such as the moon hide other planets.

**Point Spread Function** (PSF)

A function that describes how an image is blurred by seeing, optics, etc.

**ROI**

In the case of a camera, by reducing the imaging range, you are capturing a small portion of the sensor's total range, which is called ROI (region of interest) capture.

**Signal to noise ratio**

It is also called "SNR".

It means the ratio of signal S to noise N (S / N) in the measurement, It is a basic index of Capture accuracy.

**Timetamp**

A character string indicating the date, time, etc. when the image was taken.

**TXT**

A TXT file is a standard text document that contains unformatted text.

This file is commonly used for text editing, such as Notepad, and for recording other similar documents..

**Threshold**

It is a boundary value where the effect of a phenomenon occurs when it is above that value but not when it is below that value, and is the minimum value when the effect occurs.

**Vignetting**

A difference in brightness between the center and periphery of an image. (Decrease in peripheral light intensity)