

Astro Exposure Calculator

by Michael Oates

This exposure calculator is designed for both astronomical and terrestrial use.

Instructions

1. First download each of the 3 discs and print out onto thick paper or even card if your printer will allow this.
2. Paste the prints onto card.
3. Cut out the 3 disks, then carefully with a sharp knife cut out the 2 shaded portions.
4. Next pierce the centres of each card with a sharp point.
5. Pass a paper fastener through all 3 disks, the smallest on top and the largest on the bottom.
6. Spread out the fastener on the back and secure with tape.
7. The calculator is now ready for use.

How to use the Calculator

I will explain with an example...

Suppose you wish to photograph the moon at quarter phase and the film you are using has a speed of 100 ISO.

1. First use the pointer marked LUNAR and move the outer disk until it is aligned with QUARTER.
2. Then making sure the two outer disks don't move rotate the inner disk until '100' is seen in the small window.
3. You can now read off the exposure required from the 2 scales 'f' and 'sec', such as 1/60th sec at f8, or 1 sec at f64.

For planetary photographs use the PLANET pointer.

You can even work out the correct exposure for ordinary daytime photography by using the DAYLIGHT pointer.

Exposures should be bracketed either side of the indicated exposure for a number of reasons.

- If the object is low in the sky, the atmosphere is thicker and absorbs more light from the object.
- The planets vary in brightness depending on the phase of the planet its distance from us and its distance from the Sun.
- Different makes and types of film respond differently to exposures over 1 second in length. The emulsion becomes tired, with the result that the image is not as dense as it should be. This is called reciprocity failure. That is why, on the calculator the exposure lengths over 2 seconds do not double, but in fact treble with each increase in exposure. You should only use this as a guide, as I can only approximate since many different films will be used.
- Slide film needs to be exposed much more accurately. Print films however can stand a one stop over or under exposure.

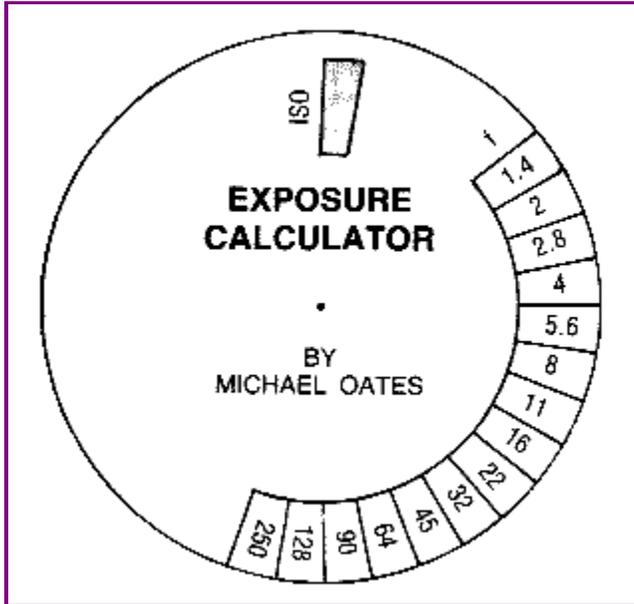
Notes

The figures used in the exposure calculator were based on tables published in Michael Covington's book "Astrophotography for the Amateur".

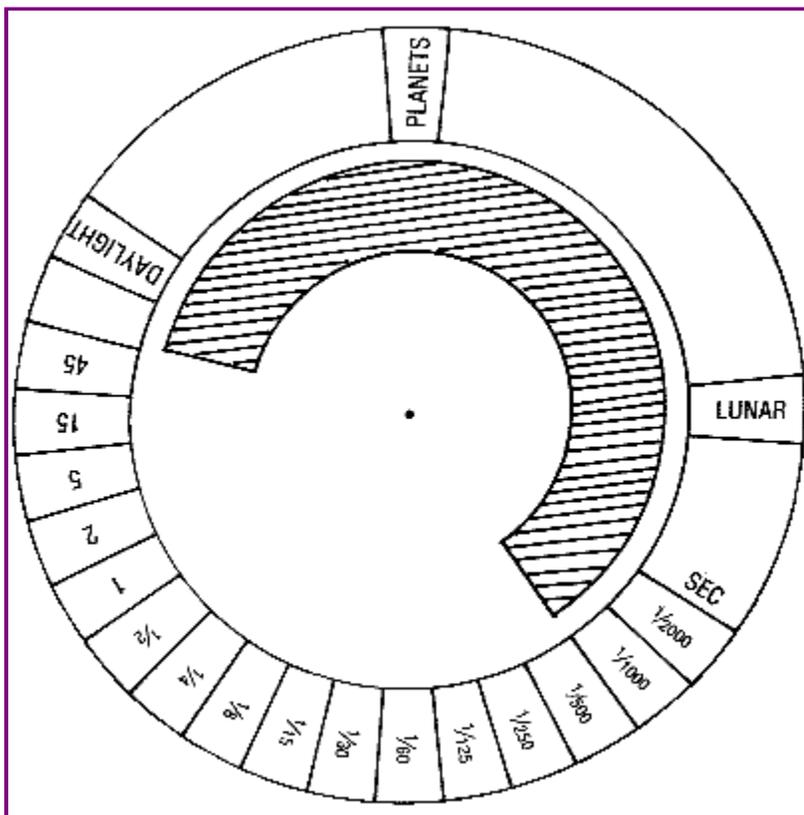
I've taken many photographs with this calculator and I find the exposures always spot on. (*but then I may be slightly biased :-))*

You are free to use the calculator and pass it on to friends. But I do ask, please do **NOT** re-distribute, without permission, or sell/pass this on to other parties for profit.

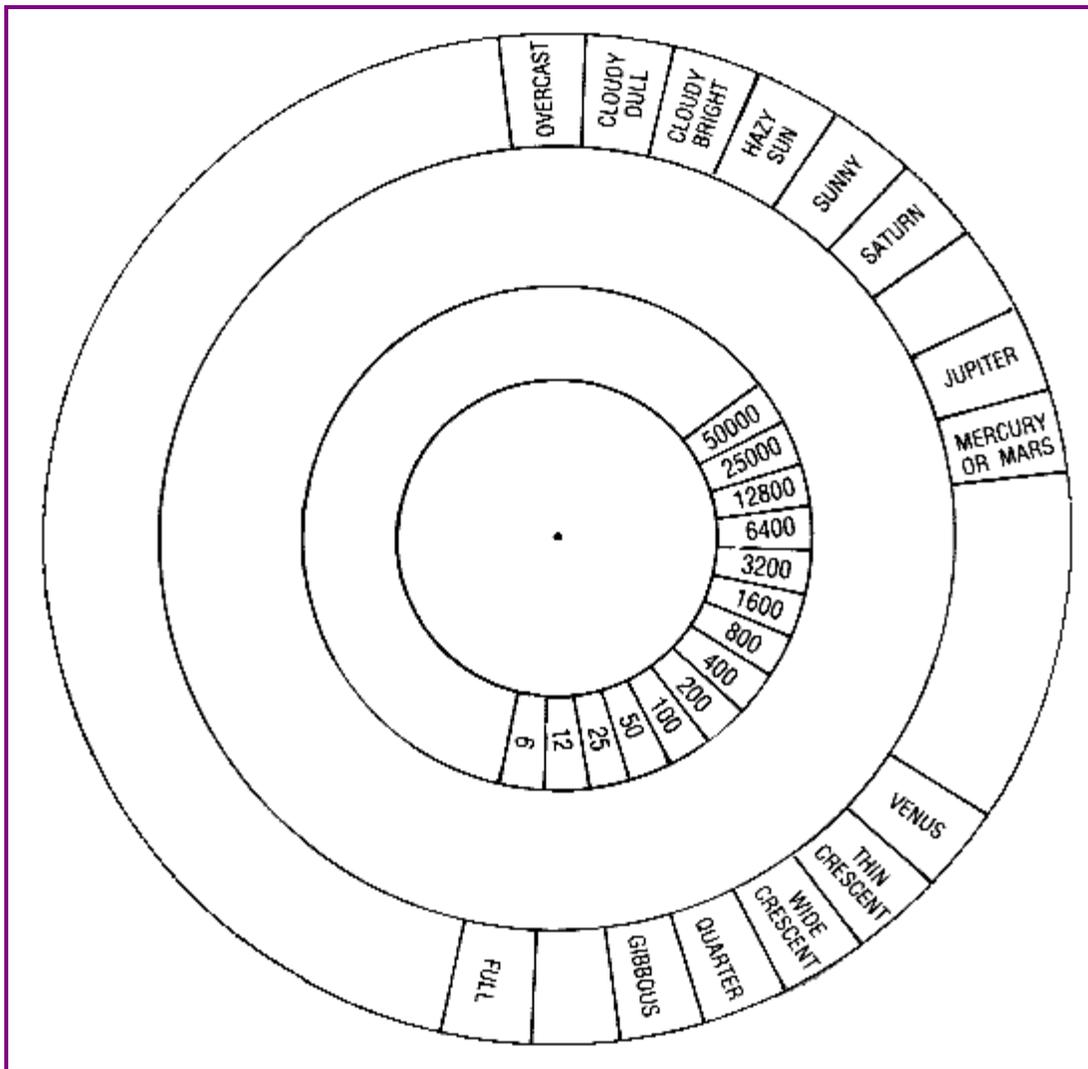
The Disks



Small Disk



Medium Disk



Large disk

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