



Southern California Observers

Improving Your Planetary Views using Color Filters

Tim Robertson

With the Gas Giants, Jupiter and Saturn making their way into our evening sky this month, the use of color filters in observation and photography of the planets can eliminate glare, penetrate the atmosphere, increase contrast, resolve finer detail and improve dark skies. Filters can be purchased from any astronomical dealer and can vary in price from \$10-\$25 each. The performance of a telescope can be greatly improved with the use of color filters. Often a 6-inch telescope with color filters can perform as well or better than a telescope of larger size without the aid of filters.

Venus-If observed without filters, it is very disappointing and appears devoid of any markings or cloud patterns. Use of a Blue #80A and a Violet #47 filters are often used to observe the low contrast markings in the upper atmosphere.

Mars-To the naked eye, Mars appears orange, but through a telescope the disk is broken up into areas of white, dark gray and red. But with #21 Orange and a #25 Red filter, they bring out a wealth of detail on the Martian surface while #58 green and #80A and Violet #47 records the cloud activity.

Jupiter-If you have never observed the planet Jupiter using a color filter, you have not seen it at its finest! A yellow or Orange filter is very useful for observing the contrast of the bands of the gas giant. However, the Great Red Spot, whose color varies from bright reddish-orange to pale yellow is most distinct in a Blue #80 filter, this is why the Blue filter is sometimes called the "Jupiter Filter". If you to buy only one filter for planetary research, buy the Blue #80A.

Saturn-The belts of Saturn will show some improvement with the use of filters, but it will not be as pronounced as when they are used on Jupiter and Mars. The ring system seems to be broken into finer detail with the aid of a #58 Green filters though.

Color Filters can be purchased at most Astronomy Supply stores like [The Scope Merchant](#) in Thousand Oaks.

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Comet Linear WM... Did you Know?

Discovery Date
December 20, 2000

Magnitude estimates
November 6th
December 4th
January 3rd

Perihelion Date
January 22, 2002

Perihelion Distance
0.55 AU

For additional information visit:

<http://encke.jpl.nasa.gov/>

Highlighted Web Page

" Telescope Field of View"

Understanding the size of the field of view through your eyepiece can greatly enhance your ability to seek out and find deep sky objects when using a star chart. Sure you can do it the 'old way' of measuring the time it takes a object to drift across the field of view. But what even do that, now you can just log onto the 'Eyepiece Calculator' web page, and within a few seconds you can not only know the field of view, but also the magnification of the eyepiece. All you need to know is the focal length of your telescope and the eyepiece that you are using.

Visit <http://www.starshine.com/frankn/eyepiececalc.asp> for more information.

Filter Use Chart

FILTER	VENUS	MARS	JUPITER	SATURN
#8 Yellow	C	B	B	B
#12 Yellow	C	C	B	A
#21 Orange	C	A	B	B
#25 Red	B	A	C	A
#47 Violet	A	B	B	C
#58 Green	B	B	A	A
#80 Blue	A	A	A	A

A=Always use

B=Sometimes use

C=Never use

Winter Star Parties

This Fall, the giant planets are in the evening sky. Our monthly Star Parties will highlight these and other wonderful events. It is too cold to venture up to Mt. Pinos, so all Winter Star parties will be at the Santa Paula site!

December 8, Santa Paula

December 15, Santa Paula

January 12 '02- Santa Paula

January 12, Santa Paula

February 9, Santa Paula

February 16, Santa Paula

Everyone is invited to the Star Parties and car pooling is suggested! Bring a friend or co-worker and teach them to love the night sky as much as you do!



Product Review- Spectrum Filter Wheel

As a 30 year member of the ALPO, and a planetary observer, one of my time consuming tasks while making observations, is the constant screwing and un-screwing of the numerous color filters I use to bring out various details of the planets. So needless to say, when I was first approached to review this new product by **The Scope Merchant** of Thousand Oaks California, I was a bit excited.

Encased in a plastic cover, the Spectrum Filter Wheel appears to be a well-built accessory. The filter is a circular piece of optically clear acrylic, that has been died various colors of the spectrum. The unit fits snugly into 1 ¼" eyepiece holders, and accepts all 1 ¼" eyepieces. It comes standard with a 2x Barlow lens, that can be taken off if the observer desires it. However, on many short focus telescopes, you must use the Barlow attachment to achieve focus.

The Spectrum Filter Wheel can easily be taken apart for cleaning by removing 3 nylon screws. There is a knob in the middle of the filter that allows easy rotation of the filter wheel. The filter does not however reference the Wratten filter number, but it does have letters printed on the wheel that identify the color that is currently in the eyepiece. For example, Y= yellow, BG= Blue green, O= Orange. There are twelve letters noted on the wheel.

The Spectrum Filter Wheel, is very lightweight, and will not cause the observer to rebalance their system.

I tried the Spectrum Filter Wheel on my VX120mm refractor. While observing the moon, Jupiter, and Saturn, I switched from the Spectrum Filter Wheel system to my high-grade color filters. I used a 18mm Takahashi, with a 2x Barlow lens for the comparison.

I was first pleasantly surprised with the crispness of the images through the Spectrum Filter Wheel. The waxing gibbous moon gave me a bright image to view, and rotating the filter wheel was a much more pleasant experience than changing out color filters. The one negative I noticed right away was that the color indicators on the wheel could not be seen at all. All you have to do is look in the eyepiece to see the color.

With Jupiter and Saturn, I compared Wratten 8 (Light Yellow), Wratten 80a (Blue), and Wratten 58 (Green) to the Spectrum Filter Wheel. With the Wratten filter, it reduced the chromatic aberration in the telescope slightly, and changing to the Spectrum Filter Wheel I saw the same improvement. However in the light yellow, I noticed more internal glare with the Moon and Jupiter from the Spectrum Filter Wheel. It wasn't harmful to the image, just distracting. Rotating to the Blue, Jupiter's belts and zones jumped out at me, and I had fun fine tuning the filter to give me the best image. Change again to the Wratten 80a, Jupiter looked great, and I saw no difference in the images between the Spectrum Filter Wheel and the Wratten filter. Rotating the filter wheel to green, and switching to Saturn, I was able to see details on the planets disk, and divisions in the rings easily. Replacing the Spectrum Filter Wheel with the Wratten 58, I was able to pick up slightly more detail on the planet.

Conclusion

The Spectrum Filter Wheel is an excellent accessory to add to your observing case. While die-hard planetary observers might have a problem with not knowing the Wratten number of the filtered image, I found it easy to use, easy to focus, and also it would make a great educational tool to explain easily the effect filters have on observing the planets. The changes in the detail of Jupiter and the moon were easy to see as I rotated the Spectrum Filter Wheel. For the price, you could easily buy 5 color filters that would satisfy most planetary observers, but if you want an all in one planetary observing attachment that includes a 2x Barlow lens, then I would recommend purchasing the Spectrum Filter Wheel.

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everyone



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