

Image the solar system with Celestron's Skyris

Good sensitivity, high-quality construction, and a lightweight package make these CCD cameras must-have planetary imagers.

by Damian Peach

During the past year or so, amateur astronomers have seen quite an upturn in the number of new cameras geared toward the solar, lunar, and planetary imager hitting the marketplace. Never before have we had so many terrific choices in equipment — and we can own many of them for a surprisingly modest price.

Celestron recently entered the marketplace with its Skyris series. The design and engineering for these cameras came from The Imaging Source in Germany in collaboration with Celestron's engineers.

Unlike the company's several basic models, such as the NexImage, the Skyris cameras target more serious solar system imagers. For this review, I tested two units

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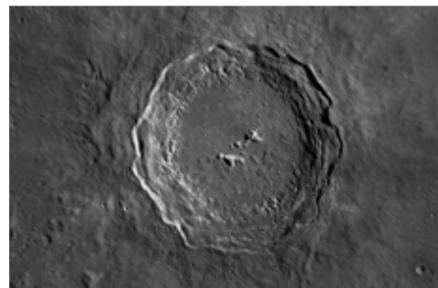
under the night sky — the Skyris 618C and the Skyris 445M.

Facts, figures, and use

The 618C contains a 640x480 array with 5.6-micron pixels based on the Sony EXview HAD ICX618AQA color CCD sensor. It operates via a high-speed USB 3.0 connection and can deliver frame rates up to 120 frames per second (fps) at full frame in 12-bit color mode. The camera comes with *iCap* capture software and a copy of *RegiStax 6* for processing the captured images. The box also contains a 1/4" nose-piece for easy connection to any 1/4" focuser and an instruction manual.

The 445M camera is quite a different beast altogether. It has a larger 1280x960 array with 3.75-micron pixels based on the Sony EXview HAD ICX445ALA monochrome CCD sensor. This camera also operates via USB 3.0 but offers download speeds of 30 fps at full frame in 12-bit monochrome mode. It comes with the

same accessories as the 618C, and, indeed, both cameras look identical on the outside. Both are



The author captured the lunar crater Copernicus using the Skyris 445M camera. Its large chip makes it ideally suited for lunar and solar imaging where larger fields of view are desirable. DAMIAN PEACH

also well made, being of all metal construction and anodized in black.

Installing both cameras was straightforward, and the instructions in the small manual included are clear and concise. I quickly had both cameras up and running with the supplied *iCap* software. I ran both on a midrange laptop with an Intel core i5 processor. The system had no trouble running either camera.

With some brief daytime testing completed, I waited for a clear night to try the cameras under the night sky. The Moon and Jupiter were both available throughout the review period, so I seized the opportunity to point both cameras at these targets.

Under the night sky

Each of these objects is challenging in different ways, and I had high hopes for the performance of the Skyris cameras given the technical specifications.

Both cameras require different setups to achieve the correct image scale because of their noticeably different pixel size. (The 445M has pixels around 35 percent smaller

Celestron and The Imaging Source designed the Skyris 618C and Skyris 445M to use the same body, although each contains a different chip. (Camera is actual size.) CELESTRON

than the 618C.) The 618C is an especially convenient system for planetary imaging because it gives a true-color live view, meaning you don't need filters. I was most impressed with this camera compared to competing color cameras I've used.

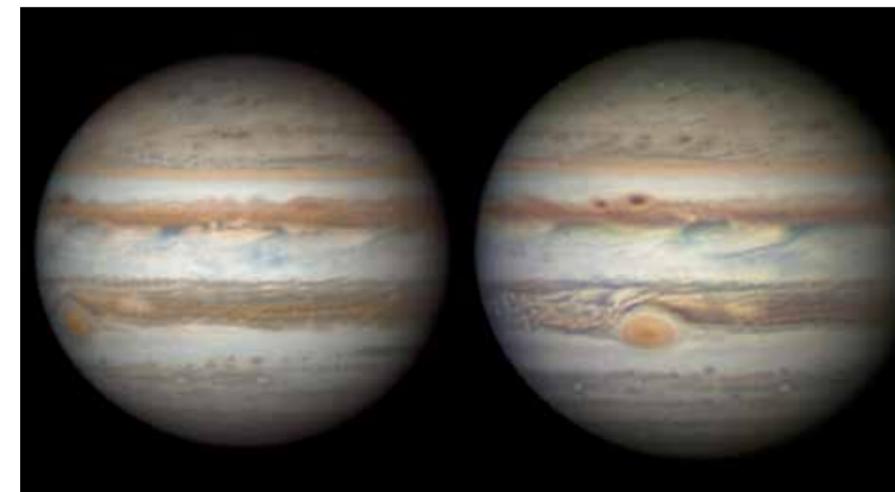
The USB 3.0 connection in both cameras allows high frame rates, so you can collect a large number of frames in a short time — vital for a fast-rotating object like Jupiter. In fact, you can get a decent result in as little as 60 seconds. With longer exposure times, you'll produce smooth results. This is important for color cameras like the 618C because they tend to be noisier than their monochrome counterparts.

As stated above, the 445M's smaller pixels require a different setup. This can prove awkward on long-focal-length telescopes such as Schmidt-Cassegrains using the typically available tools for image amplification such as 2x or 3x Barlow lenses. (The latter accessory, for example, boosts the apparent focal length all the way up to 6,000 millimeters.)

The 445M's larger array and small pixel size made it a really wonderful camera for lunar and solar imaging. Where before, using other smaller-chipped cameras, I needed to do mosaics to cover large craters, now I could shoot them in one take using the 445M, which makes imaging the Moon a lot more enjoyable.

I've spent many years making lunar mosaics, so a camera like this is a pleasure to use. It performed well on both the Moon and Jupiter, although if you want to take color images with it, you'll need filters.

Overall, both cameras delivered high-quality results. The 618C is a convenient planetary camera, and the 445M is well-adapted for wider targets like Moon craters



The author captured Jupiter with the Skyris 445M (left) and 618C. Both cameras deliver impressive results, although of course the 445M requires filters to produce color images such as this. DAMIAN PEACH



Celestron includes everything you need in the box with the Skyris 618C and 445M cameras. CELESTRON

(though it also does a great job with Jupiter). Both cameras are sensitive, although the 445M is a little more so and less noisy.

The only slight negative is that the *iCap* software that comes with the cameras is not easy to come to grips with. It was not always clear where certain functions were. Compared to other packages available, it isn't as slick in function or layout. On the other hand, it's great to see Celestron including *RegiStax 6* image-processing software with the camera — an especially nice touch for those just starting out.

Pick one

Both of these cameras really impressed me. They are of high quality and perform well in the field. I especially liked the 618C. Finally we have a high-speed color CCD camera on the market capable of delivering

nice results, all through a simple USB 3.0 interface. I can see this camera becoming a popular choice among planetary imagers both old and new.

The 445M is also excellent. It is more flexible in its uses, but being a monochrome model, it's more suited to the experienced imager. It certainly will serve amateur astronomers well as their primary camera, and the larger array size makes it especially nice for lunar or solar work.

Based on my testing of the Skyris 618C and 445M, these cameras would make excellent choices for either a novice or experienced imager, and the 618C is probably one of the best color cameras currently available. Both are worth checking out. ☛

PRODUCT INFORMATION

Celestron Skyris CCD cameras		
Model	618C	445M
Resolution:	640x480	1280x960
Pixel size:	5.6 microns	3.75 microns
Mounting:	1/4" barrel and C-thread	
Exposure range:	0.0001 to 30 seconds	
Power:	Powered by USB	
Weight:	3.6 ounces (102 grams)	
Included:	1/4" nosepiece, 10-foot USB 3.0 cable, Celestron <i>iCap</i> capture software, <i>RegiStax 6</i> software	
Price:	\$499.95	\$649.95
Contact:	Celestron 2835 Columbia Street Torrance, CA 90503 [t] 310.328.9560 [w] www.celestron.com	