The Celestron Skyris imaging cameras

Celestron have entered the CCD fray with a new range of astronomical mono and one-shot colour cameras. **Damian Peach** puts the mono-versions of the new Skyris CCDs to the test under the night sky.

▶ The Skyris 618M camera, ideal for planetary imaging and they even work well as autoguiders. Image: Celestron.

Over the past couple of years there has been quite an upturn in the number of new cameras hitting the marketplace that are geared toward the solar, lunar and planetary observer. Never before have we been so spoilt for choice in the cameras available – and many of them can be had for a surprisingly modest price.

Popular telescope manufacturer Celestron has now entered the marketplace with their Skyris range of cameras. These cameras, unlike their more basic models such as the NexImage camera, are geared toward the more serious observer. For this review I was allocated three cameras to test – their 618M, 445M and 274M imaging cameras.

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Facts, figures and installation

The 618M camera is a small 640 × 480 array with 5.6 micron pixels based on the Sony ICX618AL monochrome CCD sensor. It operates via a high speed USB3 connection and can deliver frame rates up to 120 frames per second (fps) at full frame in 12-bit mono.

The 445M and 274M cameras are quite different beasts altogether. The 445M offers a larger 1,280 × 960 array with 3.75 micron pixels based on the Sony ICX445ALA monochrome CCD sensor. This is also USB3-based and offers download speeds of 30fps at full frame in 12-bit mono. The 274M camera has the largest array of all, being a 1,600 × 1,200 chip with 4.4 micron pixels and offering up to 20fps at full frame.

All cameras are supplied with a 1.25-inch nosepiece for easy connection to any equal-size telescope eyepiece holder and an instruction manual. All seem very well made, being of all-metal construction and anodised in black. They are also supplied with capture software (called *ICap*) and a copy of *Registax 6* for processing the captured images.

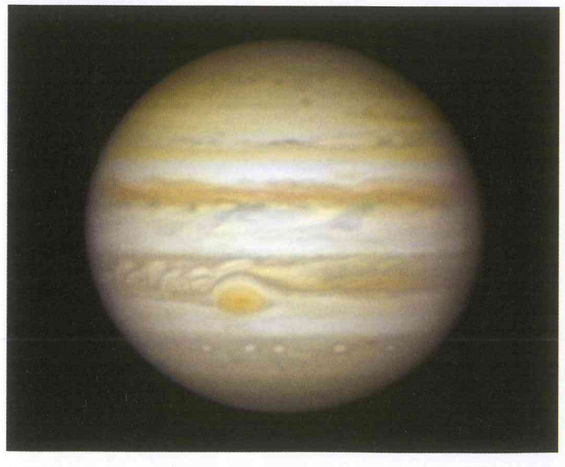
Installing the cameras was very straight forward and the instructions in the small manual are clear and concise. I quickly had them up and running with the supplied *ICap* software and ran the cameras on a mid-range laptop with an Intel Core i5 processor. The system had no trouble in running them. With some brief daytime testing and calibration completed I awaited a good clear night to test the cameras.

Under the night sky

Given the cameras are primarily geared toward the planetary observer much of my testing was done on Jupiter and the Moon. However, I also attempted to employ the cameras for deep sky work to see if they could be successfully used for this task.

All three cameras require rather different set-ups to achieve the correct image scale because of the noticeably differing pixel sizes. The 618M is by far the most convenient system for planetary imaging as it permits very high frame rates while the sensor used in this camera has especially good sensitivity to infrared wavelengths. The USB3 connection allows very high frame rates allowing you to collect a large number of frames within a small time span – vital for a fast rotating object like Jupiter. A half decent result can be had in as little as 60 seconds. With longer time spans very smooth results can be achieved.

▼ Jupiter captured using the 618M camera attached to a 360mm telescope. Image: Damian Peach.



▼ The 445M camera proved ideal for lunar work with its larger high resolution chip. Image: Damian Peach.

▲ The Skyris 618M camera, ideal for planetary imaging. Image: Celestron.

The 445M and 274M are rather different. For a start the small pixel size in these cameras means a change in set-up is required to achieve the appropriate image scale. This can prove quite awkward on longer focal length telescopes such as Schmidt–Cassegrains using the typically available tools for image amplification (such as 2× or 3× Barlow lenses). It is probably about time high end optical manufacturers started offering something like a decent quality 1.5× Barlow – I cannot stress enough how useful this would be!

The 445M and 274M with their larger arrays and small pixel size make them great cameras for lunar or solar imaging. Where before using the smaller chipped cameras you would need to build mosaics to cover large craters, now they can be shot in one take using these cameras, which makes imaging the Moon even more enjoyable! I have spent many years doing lunar mosaics so cameras like these are really a pleasure to use.

Overall these cameras delivered high quality results across the board. They can be employed for a wide range of photographic purposes. The 618M is the best choice for planetary work, while the other two are great for lunar or solar imaging. All three can also be employed for deep sky imaging, although the 274M is best suited to this task with its larger chip. The bright spiral galaxy NGC 7331 in Pegasus proved a good test target and my brief attempts at using the 274M for this task actually yielded a surprisingly reasonable result when coupled to a modest 200mm telescope.

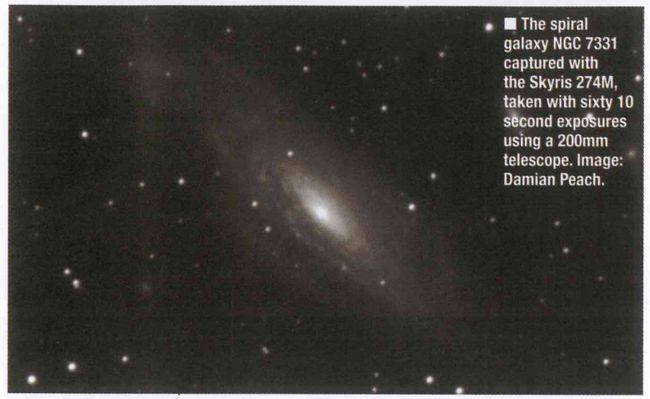
The standard *ICap* software that is supplied with the cameras is, however, rather basic and not especially clear and easy to get to grips with. Simple functions can be quite awkward to find and compared to other packages available it is not nearly as slick in its function and layout. Luckily third party software such as *IC Capture* can also operate these cameras and this software is a much better choice to make the most of these powerful tools. Nevertheless it is great to see Celestron including some image processing software with the camera in the form of *Registax 6* – an especially nice touch for those just starting out.

Conclusions

I was most impressed these cameras. All three perform well and offer both novice and experienced observers a very powerful package. Which one you choose really depends on your interests. All cameras are also offered in one-shot colour versions for those wanting an especially convenient system.

It is a tough market place today and there are several competing cameras from other manufacturers that go head to head with the Skyris range, which of course makes the choice of what camera to buy that bit harder. The 618M is a great planetary camera and up there with the best available. The 445M and 274M, being more expensive with their larger chips, are really geared toward those wanting a more flexible system. I must say though they are superb tools for shooting the Sun and Moon with their large high resolution chips.

Overall Celestron have delivered a fine range of cameras that offer an almost complete imaging solution straight out of the box. Though the supplied software is somewhat basic, free third party software is easily available. With both mono and colour versions of these cameras available I can see them becoming a popular choice among observers both old and new.



■ The spiral galaxy NGC 7331 captured with the Skyris 274M, taken with sixty 10 second exposures using a 200mm telescope. Image: Damian Peach.

Damian Peach is a world-renowned astrophotographer. Visit his website at www.damianpeach.com.

▼ An overview of what you get in the box: the camera, a 1.25-inch nosepiece, USB3 cable, a CD-ROM containing the *ICap* software and an owner's manual. Image: Damian Peach.

At a glance

	Skyris 618M	Skyris 445M	Skyris 274M
Sensor	Sony ICX618ALA mono	Sony ICX415ALA mono	Sony Super HAD ICX274 mono
Weight	102g (3.6 oz)	102g	102g
Resolution	640 × 480	1,280 × 960	1,600 × 1,200
Sensor size	4.46mm × 3.80mm	6.26mm × 5.01mm	8.50mm × 6.80mm
Pixel size	5.6 microns sq	3.75 microns sq	4.4 microns sq
Fps	up to 120	up to 30	up to 20
Price	£499	£649	£899

Details from: www.celestron.uk.com