Why Photograph the Astro-Realms?

By Larry Low

Why would one want to take pictures of the objects in outer space?

The first reason could be to document the "trip". You know, like when you go on vacation and you take pictures to bring back so you can remember all the good times and new places that you have seen, and also to show your family and friends all the neat places where you have been. Well looking at the amazing objects out in space is like that. For example, say you decide to look at the Moon. You set up your equipment to magnify the Moon 100 times and focus in. And… ZOOM! You have gone from being 240,000 miles away to being only 2400 miles away. You are now looking at the Moon as if you were about one lunar diameter above the surface! You have traveled 99% of the way to the Moon and you did it at the speed of light, about 1 and 1/3 seconds. It took the astronauts 3 or 4 days and millions of dollars to make that trip! What you have just done is pretty impressive, so you might want to take pictures of it to prove that you really were there.

Another good reason to call on photography is to allow you to see things that you can't see with your eyes alone. Even when you are looking through a decent size telescope, such as an 8" or even a 12", many of the details of wispy nebula and the faint arms of galaxies cannot be seen clearly, if at all. But by taking time exposures, while the telescope follows the objects as they move across the sky, it can be like your vision suddenly becomes 100 times more sensitive and amazing things appear on the images that you had no idea were even there!

Then if you really want to get into it and have some fun, you can take your photographs into a nice warm or bug free (depending on the season) house and analyze things like the brightness and colors of stars or detect moving objects by comparing a succession of photos of the same area. You can even make movies! You can enhance your images on a computer to squeeze more information from them. In this way you can actually be the first to discover new comets and asteroids and even find stars destroying themselves in unimaginable explosions in other galaxies, all in your own backyard!

Our eyes looking through telescopes can take us through the solar system and out into space a little ways. We can see the brighter and closer things in our own galaxy and even see the bright centers of some of the other nearby galaxies. But for a more penetrating and satisfying foray into the vast and faint reaches of the cosmos, photography is an essential tool. Our eyes simply aren't up to the job.

You may wonder if amateurs can really do much useful work in this area. To settle this question, I would like to refer you to the website of Robert Gendler at http://www.robgendlerastropics.com. He is a medical doctor who is an amateur astrophotographer. His largest scope is 12.5 inches. Yet his images are astoundingly beautiful. Astronomy magazine in September, 2003, ran an article showing what they considered to be the 30 most important "milestone portraits" of the last 30 years. Included were famous Hubble Space Telescope shots of deep space; images taken from various spacecraft of close-ups of the inner and outer planets they visited such as Saturn, Mercury, Venus, Neptune, Jupiter's moon Io; shots from space stations and the Mars rover; the European Southern Observatory; the Anglo-Australian Observatory; National Astronomical Observatory of Japan and more. Some of these images cost many millions of dollars to obtain. Only three shots by amateurs made it in. One was a photo of comet Hale-Bopp by John Volk, another was a solar eclipse by Rajiv Gupta and the third was a double page spread of the Great Galaxy in Andromeda by Robert Gendler taken from his driveway in Connecticut. This was the only double page image except for the "Pillars of Creation", which is possibly the most famous Hubble photograph. His image of Andromeda is arguably the best ever taken of the whole galaxy. It is a mosaic of 40 separate frames accumulated during a total of 40 hours of imaging. It is on his website in very high resolution. When you take a look at this picture and the other photos he has posted there you may start to get a feel for the answers to the two burning questions:

"Why would I want to photograph that stuff out in space?" and "Can I do it?"