Comet 17P/Holmes was a total surprise, showing how unpredictable comets could be. Shining at mag. 17 pre-Oct. 24, 2007, it shot up way high in brightness that it became naked eye visible quickly and it is now expanding in size to about half the diameter of the Full Moon (as of presstime). This comparison of images taken on Oct. 25 and Nov. 1 shows how different the comet looked like then and how it looked like with its expanding coma. While the comet has been naked eye visible through all that time, the difference is that it started off appearing as a yellowish “star”, and then became a fuzzy white object in about a week. Images courtesy of Brian Davis with his C8 f/10 Schmidt-Cassegrain telescope. More reports and images can be found on page 107.

ALPers FEATURED
ALPers Edwin Aguirre, Imelda Joson, and John Nassr’s images of Comet Holmes were featured in Spaceweather.com. ALPer Jun Lao’s Moon Halo image was featured in Astronomy.com’s Image of the Day and newsletter e-mailing.

BREAKING NEWS
COMET 17P/HOLMES OUTBURSTS
A small and very faint comet has surprised observers around the world by overnight becoming bright enough to see with the unaided eye. Comet Holmes, which was discovered in November 1892 by Edwin Holmes, in London England, was no brighter than magnitude 17 in mid-October— that's about 25,000 times fainter than the faintest star that can normally be seen without any optical aid. In order to view an object this faint, one would need a moderately large telescope, but the comet's brightness has suddenly rocketed all the way up to 3rd magnitude, brightening nearly 400,000-times in less than 24-hours! From urban locations, a 3rd magnitude object might be hidden by light pollution, but under rural skies it would be clearly visible.

The comet was also in a major eruption 115 years ago, in November 1892, when English amateur Edwin Holmes was the first to spot it. It reached 4th or 5th magnitude, faded in the following weeks, and then underwent a second eruption 2½ months after the first (⇒ p. 104).

They resolved that planets and other bodies, except satellites, in our Solar System be defined into three distinct categories in the following way:
1. A planet is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighborhood around its orbit.
2. A “dwarf planet” is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, (c) has not cleared the neighborhood around its orbit, and (d) is not a satellite.
3. All other objects, except satellites, orbiting the Sun shall be referred to collectively as “Small Solar System Bodies”.

Afterwards, ALP president James Kevin Ty added a few more updates to the members on the upcoming November 1st close conjunction of the Moon and the M44/Beehive/Praesepe star cluster. It will be a good photo opportunity as they are separated by less than 1 degree only. The meeting ended at around 4:30 p.m. - text and images by James Kevin Ty
The first person to notice something happening, according to IAU Circular 8886 (issued October 24th by the Central Bureau for Astronomical Telegrams) was A. Henriquez Santana at Tenerife, Canary Islands, shortly after midnight on the morning of the 24th local time. The comet was then about 8th magnitude, but within minutes Ramon Naves and colleagues in Barcelona, Spain, caught it at magnitude 7.3. Internet discussion groups came alive with the news. "To my amazement, 1P/1892 had brightened to naked-eye visibility," exclaimed Bob King when he spotted Comet Holmes shortly before dawn in Duluth, Minnesota. "What a sight!" he posted to the Comets Mailing List. Alan Hale of Cloudcroft, New Mexico, concurred. To Hale (well-known co-discoverer of Comet Hale-Bopp) it appeared essentially starlike in a telescope until he switched to high power.

Things only got better. As Earth continued to turn, nighttime arrived in Japan. "It is visible with naked eyes in a large city!" posted Seiichi Yoshida, who observed the comet from beside Tsurumi River in Yokohama. By 17:15 Universal Time he was describing Comet Holmes as magnitude 2.8.

Comet Holmes is not as dramatic as some, lacking the characteristic tail that makes some of these frozen wanderers so beautiful. Instead, it appears as a fuzzy, albeit distinct, starlike object, but with no noticeable tail. Bright moonlight can make it hard to find. But with a map and a small telescope, any relatively seasoned amateur should be able to spot it.

The comet is currently located among the stars of the constellation Perseus, which can be found about halfway up in the northeast part of the sky as darkness falls. Perseus is almost directly up by around 1 a.m. local time and is still well up in the northwest sky as dawn begins to break.

Why Comet Holmes has undergone such an explosive outburst is not understood. What is amazing is that it made its closest approach to the Sun last May, but came no closer than 307 million kilometers to the Sun. The comet is now moving away from the sun and currently is quite far out from Earth at a distance of 243 million kilometers. Not exactly a recipe for the typical show-off comet.

This comet is part of Jupiter’s “family” of comets—a group in which the far end of their respective orbits (aphelia) cluster around the orbit of Jupiter and takes 6.88 years to make one circuit around the Sun. So why would a comet far out in the cold of space suddenly brighten hundreds of thousands of times? What is the source of such energy? Does it come from within the comet or without? Alas, comets remain largely mysterious. Comet Holmes is not alone in exhibiting anomalous effects. In the past, other comets have undergone unexpected outbursts in brightness. And this is probably not the first outburst for Comet Holmes: when it was discovered in 1892, it was likely in outburst mode, since it became as bright as fourth magnitude and was dimly visible to the naked eye. It appears that it is undergoing another outburst that strikingly parallels [a] famous 1892 event. Viewers all report the comet as appearing star-like. Because of occasional close approaches to Jupiter, the orbit of Comet Holmes has been altered a few times. In fact the comet was considered “lost” for nearly 60 years before it was finally recovered with a large observatory telescope in 1964. As to what this object will do in the coming days and weeks is not known. If you have binoculars or a small telescope, you might want to try seeing what certainly is one of the solar system’s most enigmatic objects.

**Future prospects.** The comet is likely to stay visible to the naked eye until at least mid-November, when evening moonlight returns. The yellow color is dust reflecting sunlight, as confirmed by spectra. Dust is what keeps a comet bright, and it hangs around — as opposed to gas (comet gas is green and blue), which blows away more quickly in the solar wind.

Any tail that forms will probably be wide, short, and stubby. The tail should be pointing nearly away from us in space — we’re looking down its length — since the comet is nearly on the opposite side of Earth from the Sun. From the comet’s viewpoint, the Earth and Sun are only 15° apart, and this “phase angle” will stay small for many months. Which means we’ll keep looking down the tail. Sunlight and solar wind are coming in from the north-northeast, the direction away from the jets and offset bright area. - Joe Rao, Space.com and Alan MacRobert, SkyandTelescope.com

**PLUTO**

Ever since the tiny moons Nix and Hydra were found circling Pluto, planetary astronomers have enlisted the largest telescopes on and off the Earth to try to learn more about them. It’s painstaking work because the little moons are small and distant, making them incredibly faint. At 23rd magnitude, they’re about 1/5,000th the brightness of Pluto — which itself is a challenge to spot even in a large backyard telescope.

But the trio of David Tholen, Marc Buie, and Wil Grundy have kept plugging away, recording these elusive blips repeatedly with the Hubble Space Telescope and with an adaptive-optics camera attached to one of the giant Keck telescopes atop Mauna Kea. They even dredged up a dozen revealing Hubble images taken before the moons’ discovery in May 2005.

In this composite of 16 near-infrared images taken on September 5th with the Keck Telescope, the disks of Pluto and Charon appear reduced in brightness so they won’t appear overexposed. Nearby stars appear trailed because the telescope was following Pluto’s motion across the sky. © David Tholen /Univ. of Hawaii

The new images are 20 times brighter than those taken of Pluto 30 years ago when its large moon Charon was discovered. The resulting snapshots are expected to bring astronomers closer to estimating the sizes of Pluto’s satellites, Nix, Hydra and Charon.

Several favorable factors occurred simultaneously to yield these spectacular images of the Pluto system - the adaptive optics system of Keck, which compensates for turbulence from Earth’s atmosphere that typically blurs the light from celestial bodies, and Pluto was at its maximum brightness that night, giving the adaptive optics “stellar” conditions. He took 16 images of the system and combined them into a single picture, resulting in clear views of Nix and Hydra, Pluto’s small satellites that were discovered in 2005 with the Hubble Space Telescope.

The sharp images will show precise positions of the satellites, which will allow astronomers to detect tiny displacements caused by their mutual gravitational tugs. The measurements can be translated into more precise masses for Nix and Hydra. Astronomers have estimated that Nix and Hydra are less than 100 kms. in diameter, compared with 1,212 kms. for Charon and about 2,300 kms. for Pluto.

The more definitive measurements are important for scientists planning the 2015 flyby of Pluto with NASA’s New Horizons spacecraft. (⇒ p. 105).
“Something as simple as selecting the proper exposure time to snap images of Nix and Hydra with New Horizons depends on knowing how big they are and how reflective their surfaces are,” Tholen said. “One of our goals is to have those answers well in advance of the flyby.” - Space.com

JEWEL BOX
Thousands of sparkling young stars are nestled within the giant nebula NGC 3603. This stellar “jewel box” is one of the most massive young star clusters in the Milky Way Galaxy. NGC 3603 is a prominent star-forming region in the Carina spiral arm of the Milky Way, about 20,000 light-years away. The latest image from NASA’s Hubble Space Telescope shows a young star cluster surrounded by a vast region of dust and gas.

Powerful ultraviolet radiation and fast winds from the bluest and hottest stars have blown a big bubble around the cluster. Moving into the surrounding nebula, this torrent of radiation sculpted the tall, dark stalks of dense gas, which are embedded in the walls of the nebula. These gaseous monoliths are a few light-years tall and point to the central cluster. The stalks may be incubators for new stars.

On a smaller scale, a cluster of dark clouds called “Bok” globules resides at the top, right corner. These clouds are composed of dense dust and gas and are about 10 to 50 times more massive than the Sun. Resembling an insect’s cocoon, a Bok globule may be undergoing a gravitational collapse on its way to forming new stars. The nebula was first discovered by Sir John Herschel in 1834. The image spans roughly 17 light-years and was taken December 29, 2005, with the Advanced Camera for Surveys. - STScI

Observing Log

Sun
Oct. 3. Some nice medium size prominences appeared on the sun’s limb that made me skip a breath in amazement when I saw them! Here they are through a Borg77, Solar Max 60, and Dragonfly2 camera (top middle column).

Oct. 4. I was surprised to find the sun shining this morning with news of the typhoon nearby. I was doubly surprised to find a rather large prominence leaping from the edge of the sun and falling back to it! The smaller prominence at the upper right has a small but bright ball of material (spot prominence) floating above the sun. This feature was also seen visually.

Oct. 7. Powerful storms percolate over the oceans under the intense heat of our sun. We were extremely fortunate that the killer 296 kph gusts from the last storm spared the Philippines and even brought a little sunshine this morning to capture a few prominences on different sides of el sol!

Oct. 9. The Solar and Heliospheric Observatory (SOHO) posted a large prominence alert today. Here is an image (above) of it from Baguio, taken with the AP127 f/7 SM60 DF2 S2 T3

Oct. 10. A quick peek at the sun this morning revealed numerous prominences of all sizes. Here is an image of the larger and more prominent one (☞ p. 106).
Oct. 18. Solar prominences this clear morning were fairly large...and very pretty! Image above taken with the AP127 f/8 SolarMax 60 DF2 S3 T4.

Oct. 5. The sky this afternoon opened up but it was very hazy. I already miss the Sun so much that I still set up to observe the Sun. No sunspot in white light. In Hα, the image was very soft and I had a hard time seeing any prominences. Still, I setup for an imaging session so I can closely check if there are really no prominences. A careful scan of the Sun's disk let me catch a faint medium size eruptive prominence. I also got to test John's ATIK 1-HS II webcam so I can compare it to the Philips Toucam 740K I normally use. 1-HS II has more sensitivity than the 740K, but I was planning to image both side by side but I got caught on a roof obstruction already. The image I got was a bit soft but better than nothing.

Oct. 7. When I woke up this morning, I was able to see some faint sunlight through my window and with my body sensing another imaging session to start in an hour, I quickly went out of my house to see how the sky looked like. Well, another very normal white hazy sky greeted me. I still set up to get a glimpse of the small sunspot that was reported at spaceweather.com when I read it last night. Well, I can't see it maybe because the sky was a bit hazy, but closely checking the limb netted me a nice loop prominence.

Oct. 10. I got to take a half-day leave from office yesterday afternoon so that I can go to the Science Centrum to give a lecture on Digital Astrophotography at 3 p.m.

Oct. 11. Today is another nice day for me as the sky was fairly clear although seeing condition was not that good. Nevertheless, I didn't waste any opportunity to try imaging the Sun again. As I was trying to get good focus against bad seeing condition, I was able to see a faint large eruptive prominence! Earlier in the morning, fellow solar imager John told me the prominence today was small. After confirming that it is indeed a large prominence (above), I quickly called John so he can also image it. Upon learning of a big prominence, John hurriedly went home to try imaging it as well but John informed me the sky was clouded out in Baguio.

Oct. 25. I just returned from a Bicol business trip and was surprised to see a very large eruptive prominence that greeted me this afternoon. Although the sky was not good and thick rain clouds hampered my attempt at imaging it. It took me more than 2 hours to image the Sun as it kept playing hide and seek with me the whole session. I got rained on in the middle of my imaging session that I had to quickly pack up, only to return to set up again in just 10 minutes. But the 10 minutes was hard rain so I had no choice but to put my equipment out of rain's way. That's life! (☞ p. 107).

I quickly set up my imaging equipment so I can start in 10 minutes. Man, I was torn between whether to watch the talk of the town rematch between Manny Pacquiao and Marco Antonio Barrera and imaging the Sun! I choose to image the Sun as priority and in between the imaging session, I can get a glimpse of the match. But since the match was just starting, I patiently waited outside the house for a good break in the clouds for me to image prominences. After an hour of waiting, I was given a short time, maybe less than 15 minutes of clear sky to image several prominences. They are not that great but I love the Sun too much not to image it.

But since the weather was good during lunchtime, my thirst for the Sun tempted me again to do some quick imaging before I went to the lecture session. Without any more delays, I quickly set up and checked the Sun. John had earlier told me he was able to image a good prominence, so I decided to check it out as well. There were a lot of prominences around the Sun's limb but I got to concentrate on 2 major ones. One is a nice eruptive prominence, which is the same one as what John imaged earlier in the morning, and another collapsing wide loop prominence that was as equally beautiful to image. Afterwards, I quickly proceed to my afternoon affair at the Science Centrum.

Afterwards, I packed up and went to the Planetarium to attend the ALP meeting. I was planning to share the views with fellow ALPers but hard rain poured down and sensing no chance to share the view of the prominences, I decided to leave my stuff at home. Anyway, what I did at the meeting was to let the members view the prominences in AVI mode instead.

I was able to talk with John Nassr when I was imaging the Sun. He was able to image them in the morning before he got clouded out as well. For both of us, we were happy to get a chance to image and view my old astro friend... the SUN.

α

p. 107)
Large eruptive prominence on Oct. 25. Imaged with ATK-1HS II webcam on Coronado PST-Hα and 2x Barlow lens.

Nov. 2. After waking up late this morning due to fatigue from last night’s imaging session with Jett Aguilar at PAGASA Observatory. I saw some sunlight and was tempted again to image the Sun even though I knew that will add up to more image processing from last night’s imaging of Comet Holmes. Nevertheless, I set up my gear and it paid off handsomely with a nice large eruptive prominence greeting me again. Although there was another smaller group of prominence at the solar disk, I wasn’t able to image it because clouds again started to cover up the sky. Still lucky to get away with imaging the larger prominence – James Kevin Ty

Comet LONEOS

Last night, Oct. 20, clear skies and the lull between low pressure areas was around us here in Ohio, after the bout of severe weather at midnight on Friday, when tornado sirens blared around us and hailstones (ice pellets) the size of peas pelted the area. Saturday saw very blue skies, so I went to Lake Cowan State Park at dusk to search for Comet LONEOS.

I was there with the first quarter Moon shining brightly (it was casting shadows on the ground, so you knew the place was quite dark). If the Moon were not around, the sky would have been perfect, yet the conditions were pretty hard for capturing a barely naked-eye comet near the horizon and with a bright Moon. It took some doing, but with the map from Spaceweather.com, I was able to bag Comet LONEOS with my 20x80 binocs. It was below Arcturus and almost at the same elevation as one of the brighter stars of Bootes - about 8-10 degrees above the horizon, and very close to the tree line.

It was only that I knew there was a comet in that position that I did not discount that it was a star.

The comet is quite compact but fuzzy, at the edge of visibility in the binoculars. No visible tail. There was only a short time to view it in enough sky darkness to see it pop against the background sky before it would pass the treeline. The magnified image above taken with a Nikon D80 DSLR and 50 mm f/1.8 lens at ASA 800 barely shows the comet against the dusky sky. It needs to brighten up a bit for it to become visible this low in the sky. M22, M6, M7, and the Andromeda galaxy were however, spectacular, despite the moonlight. – Jun Lao, Mason, Ohio

17P/Holmes is still growing and it looks like there is an elliptical coma emerging, from left to right. Maybe we can't see the tail because it changed directions and now coming straight at us!!!! I posted an equal image from 31-Oct and 1-Nov, about 24 hours time apart to show that it is still growing! – Brian Davis

Comet 17P/Holmes was observed and imaged last October 30/31, 2007, by ALP President James Kevin Ty and Observations Head Peter Benedict Tubalinal. Kevin called Peter at around 9:30 p.m. and asked him if he wanted to observe the comet as he had plans of imaging it.

Both collaborated in updating the weather conditions in Quezon City. Clouds were present but moving. The gaps where the sky could be seen showed that it was a single cloud layer, which was a good sign for chances that the sky would clear up. So they finally decided to go to one of the darkest skies in Quezon City – the PAGASA Observatory in Diliman (⇒ p. 108).
Kevin fetched Peter at his residence in Kamias, and then headed for the observatory. While Kevin was setting up his 4-inch refractor on a German equatorial mount, Peter scanned the sky using 12 x 50 binoculars. In less than 30 seconds, the comet was spotted. However, clouds with secondary layers or high altitude clouds came rushing in and it nearly closed the entire sky. Their only reference was the Moon's contrast. It prevented Kevin from polar aligning at true north and instead, used a compass to at least align the mount to north. The test of patience, which is essential to astronomers, stepped in as they waited for at least half an hour for the bright stars to show, which is part of the aligning procedure for the mount. When Capella and Mirfak came into view through the clouds, the telescope was aligned successfully.

The comet was then observed through the telescope and once looked into view, Kevin attached his digital camera and Peter continuously monitored the movement of the clouds and the comet through the binocs. Both ALPers teamed up, every time Peter spots an opening through the clouds where the comet becomes visible for a few seconds, he signals and Kevin begins to image comet Holmes for brackets of 10 seconds, 15, 20, 30, and 60 seconds – hoping for the best shot. Both were amazed to have imaged the comet with a visible green colored smudge. A very very short tail was visible as the direction of the comet was clear, showing the head and a very short open tail.

The observation ended when the camera was nearly touching the tripod, and clouds started to come in again. As they packed up the equipment, the sky cleared up and they took time gazing at the comet with their naked eyes alone. It was nearly as bright as the star Mirfak. When Kevin dropped off Peter at his residence, he took a few minutes to image the comet once more, right in front of Peter's home. Plainly using just his digital camera, the comet was imaged successfully. – Peter Benedict Tubalinali

After a successful imaging session with Peter last October 31, I set up another session at PAGASA Observatory once again but this time I was alone. When I got there around 8:45 p.m., the sky was not very promising with lots of thick clouds. I then decided to just go home and probably try imaging it at our place, which for me is very hard because of lots of obstructions, but with some patience for the comet to get through the obstruction, I was able to image the comet again after midnight. Surprisingly, the comet was even better than my imaging session at PAGASA. This time, clouds dispersed so I had an easy time to image this unusual comet.

Below is a rather "unartistic" shot of the comet through a basketball ring. The comet's diameter has become so big that even with the camera's stock lens, the structure is pretty much evident. It is also so bright that even with the foreground street light, you could still see it.

Inset shows a closeup of the comet from the same shot with the core still recognizable. Camera: Canon 400D on stock lenses at 3 second exposure. - Mon Sarmiento

Nov. 1. Last night, Nov. 1st, around 11 p.m., I tried to search for Comet Holmes using my 10x50 binoculars. The weather was cloudy but I had a brief chance to view the comet for about 5 minutes or so. The comet indeed looked like a globular cluster through binoculars as reported by some observers earlier. A much brighter distinct coma can be seen though the nucleus is not visible. No distinct color recognizable, either because it can't be clearly resolved by the binocs I have or the seeing condition itself. I will try to monitor this comet for the days to come, using both my 10x50 and ETX-90, though I think I will be using the binoculars more often than my scope. I guess I am returning back to binocular astronomy. - Raymund Ang

After raining the whole day of Saturday, it finally cleared up past midnight (Sunday morning, Oct. 28) and we were able to shoot some close-up images of Comet Holmes using an 8-inch f/10 Meade Schmidt-Cassegrain telescope and a Canon EOS 20D digital SLR camera. Attached are a couple of low-res, unprocessed JPEGs of the comet's head (⇒ p. 109).
The comet appears to have faded slightly and is more diffuse compared to Thursday night, but it's still easily visible to the naked eye. It was quite a challenge to aim the telescope since the comet was almost directly overhead and the Moon's glare was very distracting. Comet Holmes is one of the strangest-looking comets we've ever seen. Its pseudonucleus looks very distinct and stellar, and contrasts very sharply with the comet's large, diffuse, yellowish coma. No tail was detectable. We'll try to observe it again Sunday night to see if there are any major changes in its appearance.

I just got back from a week long vacation at Sibuyan Island and was very excited to catch my first glimpse of Comet Holmes. I quickly and easily found it in Perseus with my naked eyes and marveled at its most unusual comet shape through a low power eyepiece on a C14. Below is a four-minute exposure of it taken through the C14 at f/4.4, and ATK16HR camera.

At one point during the session I was on the phone with my cousin, and as an exercise I described the object to him: at 19X magnification the coma looked like a fuzzy disc about the size of a quarter held at arm's length (after some refinement, I'm going to guess about 20 arc-minutes across), with a bright spot offset to the southeast (I hope I have my coordinates right!). It was definitely not gray; as I observed more closely I realized that it was indeed a shade of yellow.

At the bottom of the page, we show a sequence of photos from last night (October 28) showing Comet 17P/Holmes moving against the background stars. - Imelda and Edwin Aguirre, Massachusetts

Photo details: 8-inch f/10 Meade Schmidt-Cassegrain telescope and Canon EOS 20D digital SLR camera.

Nov. 1. I tried a ten-minute 2x2 binned image of Comet Holmes through a Borg77 f/5.5 and ATK16HR camera to see if it has a tail. This 21-minute image was taken though a Borg77 at f/5.5 and an ATK16HR camera. – John Nassr

This was the first clear night in our area since the comet's outburst. My left foot's bursitis was acting up, precluding any chance of me using my CCD imaging gear, so I decided to forego imaging for a change and practice my rusty observing skills.

Perseus was definitely looking different than I remember it. Strangely enough, when I trained the Borg's finder scope on the suspect star, I did not see the comet. It was only after a couple of minutes of sweeping that I finally found it. And what a strange object it is, indeed!

At one point during the session I was on the phone with my cousin, and as an exercise I described the object to him: at 19X magnification the coma looked like a fuzzy disc about the size of a quarter held at arm's length (after some refinement, I'm going to guess about 20 arc-minutes across), with a bright spot offset to the southeast (I hope I have my coordinates right!). It was definitely not gray; as I observed more closely I realized that it was indeed a shade of yellow.

Through the binoculars the offset bright spot was not visible, but the coma actually seemed much bigger, and in some ways more enjoyable than the view through the scope. Still, the steadiness of the scope allowed me a more detailed view and impressions of the comet. It reminded me more and more of telescopic views of the Eskimo (or Clown-face) Nebula, NGC 2392.

Another cool aspect of the telescopic view of the comet was this trail of stars that seemed to float away from the comet like a stream of diamond dust in its wake. If the comet is missing a tail, it was more than making up for it with a "tail" of stars! Before packing it in, I invited my wife to take a look at the comet. She dashed out into the chilly night, took one look, and exclaimed "Oooo! Beautiful! Take a picture! Take a picture!" See the image and imaging details on the following page (☞ p. 110).
Date: October 28, 2007  
Time: from around 8 p.m. EDT through 10:30 p.m. EDT  
Location: My backyard in West Chester, Ohio  
Instruments: Borg 76ED with Meade 26mm eyepiece (about 19X) on a Universal Astronomics Unistar Light mount; Oberwerk 15 x 60 binoculars  

This was taken with an SBIG STL-6303 through a Takahashi FSQ-106 on a Takahashi EM200 mount. This is an RGB-only image (there was luminance, but the comet is so bright it saturated my chip with just 30-second exposures, so I had to ditch the luminance), of 12 x 30 second images for a total of 18 minutes of exposure. I tried to preserve the stellar nucleus of the comet as much as possible and still bring out the greenish outer halo. At the same time I made an effort to preserve the star colors. - Eric Africa, Westchester, Ohio

Oct. 28. The skies have been gray the whole day Saturday, and it was even drizzling in the evening here in the Cincinnati area. I was fully expecting fog to form in the early morning, with the wet conditions and the dropping temperature (common during spring and fall). After printing the text of the November ALPha for editing, I decided to check the skies outside. Lo and behold, the skies were generally clear and the bright Moon was casting its light on the ground. The only bad thing though was the cold - it was now 7 C outside, and with a bit of a breeze, making it feel like 6 C - it's like Baguio during February.

I picked up my camera and 20 x 80 mm binocs and headed out, and very visible was Comet 17P/Holmes, seeming to be a bright star just a bit fainter than alpha Persei. Interesting to note though, was that in images, it appears brighter than the star, since it is a bright diffuse object. The comet is not the typical bluish-green that we've come to know - it was yellowish-white, and in 20x binoculars, it looked like a very bright globular cluster - this was way different and strange than the typical comet.

The Double Cluster was also visible, showing how the sky conditions have improved significantly.

Oct. 29. I observed Comet Holmes this evening through the ETX-125, and I noticed that the comet's brightness was skewed with a brighter ellipse inside the round "shell" - the comet seems to be losing its symmetry vs. its look on Sunday, Oct. 28.

The strange thing though is that in the 20x80 binocs, I seem to be picking up a hint or the beginnings of a fan-shaped tail outside the "shell" but only in the binocs (I usually pick up fainter detail with the binocs). Anyone else picking this up?

Nov. 2. The comet seems to be spouting more and more tail (above, taken with a Nikon D80 DSLR with 200 mm f/5.6 lens). In the ETX-125 last night, I noticed the comet was no longer round - it had a sharper boundary on the northward side, and fuzzier on the southward side. In 20x80 mm binoculars this morning, Nov. 3, I can pick up a mistiness on the southern side, consistent with a faint fan I was picking up a few days ago. - Jun Lao, Mason, Ohio
This wide field image of the comet in Perseus was taken on Nov. 1 with a Nikon D80 DSLR and 50 mm f/1.8 lens. Notice the comet is distinctly non-stellar. - Jun Lao

**Mars**
After having some technical issues during my DSO attempts, I plugged in the Neximager and shot Mars at f/42. At 88% phase and ~11 arc seconds it is small but some details can still be seen. The images below (with the right one taken on Nov. 2) may be a bit dim because any higher gain was washing out the details. - Brian Davis

Oct. 8. I woke up at 4:00 a.m. to catch Mars, which has grown to a respectable 10.3 arc seconds (compared to 50 arcseconds for Jupiter). The seeing was sadly an extremely poor 2 that made focusing (below) very difficult to do.

Oct. 12. Mars was high in the sky by the time I finished NGC55635 so I also quickly did an AVI of the planet whose 10.5 arc second size nicely shows its large polar cap. Being already sleepy, I forgot to use an IR block filter on my webcam so the final color is a bit off. The above two images were taken with a C14 f/27 DBK21 S3 T5. – John Nassr

**Saturn**
After imaging Mars at 4:00 a.m., I also decided to try Saturn low in the eastern pre-dawn first light. It was so nice to see the ringed planet again after so many months. One change that was instantly noticeable was that the rings have closed considerably in a few months!

I would not normally share an image as poor as this one taken low in the horizon through terrible seeing that made the rings constantly wobble and the planet heave, quiver, and pulsate wildly. But the shallow tilt of the rings, which I want to show you, is nevertheless well documented. - John Nassr

**Helix Nebula**
I really do not know why NGC 7293 is called the Helix Nebula. To me it looks like an eye....a red eye in the sky. I guess if I had a galaxy stuck in the upper right corner of my eye, it would turn red too! Kidding aside, NGC7293 is the dying remnants of a red super giant star whose material has expanded 2.5 light years across in 12,000 years. A faint red arc of its stellar material can also be seen on the upper left side and is especially pronounced in hydrogen alpha. The Helix Nebula appears over half a moon width and is one of the closest planetary nebulae to the Earth.

Imaged through an Astrophysics 5-inch Starfire, an ATK16HR, and a cumulative exposure time of 6.2 hours over two evenings. – John Nassr

**Bubble Nebula**
Thin clouds and poor seeing did not deter me from trying to image a target that I have long wanted to do (p. 112).
The “Bubble Nebula” NGC5635 in Cassiopeia is an interesting bubble of faint hydrogen gas in a young star-forming region of our galaxy captured here in three and a half hours of exposure. – John Nassr

M76
The many months of monsoon rains finally gave way to the first clear night after a very long time. I felt like an excited kid in a toy store with so many stars in a dark sky! After spending an hour visually relishing old friends like the Great Andromeda Galaxy, I decided to image the double lobed bi-polar 12th magnitude planetary nebula M76 in Perseus (above). The dying progenitor star clearly exhibits loss of its expanding mass in this image. Two minute sub-exposures were taken through a C14 with a Lumicon f/4.4 focal reducer and ATK16HR camera. A total of 51 images were stacked for this final image. – John Nassr

Andromeda Galaxy
The Great Andromeda Galaxy M31 stands out as probably the finest galaxy specimen in the firmament. It is a favorite subject that one never tires of visiting time and time again. A year ago, I imaged M31 with the imaging knowledge I had at the time. Since then, I have learned a little better how to image and process my work and came up with this version last night under clear dark skies.

Though I think both images are good, I am constantly motivated to try to do even better. I remember my very first M31. It was a blurry faint smudge that looked like some sort of mistake. But at the time, I was overjoyed to have imaged my first galaxy. Both images were taken using the same Borg77 and ATK16HR cooled camera. The most recent image is shown above right. – John Nassr

The Sky for October
The November sky normally starts becoming less rainy and cloudy, and more clear, heralding crisper, cleaner skies, especially in time for the Taurid and Leonid meteor showers. There are some interesting conjunctions between the Moon and the star clusters – Pleiades and Beehive clusters.

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Jupiter is leaving the night sky for a conjunction with the Sun, leaving the other planets in the morning sky to be the objects of interest. Mars continues to brighten for its opposition in December, while Saturn and Venus trace the ecliptic down toward the eastern horizon. Comet LONEOS is still a challenge to catch in early November (chart above). Here are some of its orbital elements:

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Sky Calendar

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<tr>
<th>DAY</th>
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<tr>
<td>NOVEMBER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>04:22</td>
<td>Mercury Greatest Elongation 19° W</td>
</tr>
<tr>
<td>10</td>
<td>07:02</td>
<td>NEW MOON</td>
</tr>
<tr>
<td>12</td>
<td>03:47</td>
<td>Moon 0.2° S of Aldebaran</td>
</tr>
<tr>
<td>17</td>
<td>14:21</td>
<td>Leonids Meteor Shower Peak</td>
</tr>
<tr>
<td>18</td>
<td>06:32</td>
<td>FIRST QUARTER</td>
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<tr>
<td>24</td>
<td>18:13</td>
<td>Moon 0.5° N of Pleiades</td>
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<tr>
<td>24</td>
<td>22:29</td>
<td>FULL MOON</td>
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<tr>
<td>27</td>
<td>13:51</td>
<td>Mars 1.0° S of Moon</td>
</tr>
<tr>
<td>29</td>
<td>11:35</td>
<td>Moon 0.1° S of Beehive</td>
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