



**HAC MEETING: Friday, February 13, 2009**

7 pm, Cochise College, Sierra Vista, Rm. 305A/B

PLUS our monthly Show-N-Tells, upcoming event details, refreshments & NEW Exciting Door Prizes!

**Speakers: Bill Lofquist & John Kalas**

**Topic: The Ups and Downs of Creating an Astronomy Complex**

**STAR PARTY CORNER**

Keith Mullen, Star Party Coordinator (520) 366-0049 email: [repogazer@msn.com](mailto:repogazer@msn.com)

***Participation is the Lifeblood of the Club!***

Mother Nature had a strangle hold on me so I wasn't able to make it out to Jim and Dianne's for last month's Member Star Party. President Wayne Johnson did the duty and covered in my absence. Reports from both Jim and Wayne were excellent and conditions were ripe for some deep observing with the 25". We had nearly thirty in attendance including Jim's neighbors so we can call it another good event; they always are when we land at Wind Spirit. Although I didn't hear anything about Jim and his soup of the event, I'll bet it was there. So until we venture out again to the outer realm of HACLAND, to the orbits of Jim and Wayne's worlds, we say thanks guys, and we'll be back!

As I drove over to JBO on this crisp clear evening I couldn't help think, "Am I going to be the only scope there again?" How wrong I was. I came swooping in to claim my traditional spot next to the observatory and found HAC chief observers Bob and Glenn already set up with James Taylor and the new 4" Monster Binos right behind them. But that wasn't all, Calvin Hoyt was set up too, and then a new member and I can't for the life of me remember his name, had a nice RCX ready for action. So I slithered in way down at the end of the row and set up my 11". Knowing that there had been several public inquiries about the event we were sure every scope would get some use. That was an understatement--before it was even dark Professor Rogalski's students began arriving. Kim must be the most popular instructor at Cochise College; his classes get bigger every semester. Now the public starts trickling in, and the trickle turned into a flow and I'll bet there were over 20 by night's end. Open Clusters were the order of the night, espe-

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**Official Donor of the Huachuca Astronomy Club Door Prizes!!!**

## President's Perspective

Wayne Johnson

My thanks to our club secretary, Bob Gent, for doing a yeoman's job of running the January meeting and being the main speaker! I was on a work assignment in Hawaii (I know, tough job, but someone had to do it!), and our vice-president with a broken wing, Keith, was on a trip to the east coast.

Despite the cold weather of the past few weeks, we were able to have several successful member and public star parties, and even an Outreach activity. All events were successful; those in attendance had a good time and we saw many celestial objects in our solar system and far beyond. Now that the weather is starting to get milder it would be nice to see more of our membership attending these fun events, which are central to our club's vitality. There are even a couple of nice comets, Saturn's rings are becoming more edge on, and seeing the crescent of Venus as it goes through its phases, are a few of the many, brighter attractions in the evening sky. Most of these objects, even the comets if they get bright enough, are wonderful for public events. I, of course, am eagerly waiting the more obscure, but nonetheless interesting galaxies of the Coma-Virgo region of the sky.

Our observing events are quite popular and members who have been paying attention to the media are aware that 2009 is the International Year of Astronomy. Everyone who attended the January meeting heard Doug Snyder's powerpoint presentation about information and activities that are planned for this special year. In addition to our regular activities, we are planning a couple large star parties late in Spring. Keith will discuss them in this and upcoming issues of the newsletter and at our meetings. I am hoping to organize a few "sidewalk astronomer" events at the local shop-

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Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; Student:\$10 (with restrictions)

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This issue of Nightfall can also be found on-line at [hacastronomy.com](http://hacastronomy.com). Click 'Newsletter' link. There is much more information about astronomy and our HAC activities on our club web site. \*To join the HAC-LIST, send an email to [haclist-subscribe@yahoogroups.com](mailto:haclist-subscribe@yahoogroups.com) .

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ping centers. We will have to get liability insurance and permission from the shop owners to conduct these activities, but with your help (which is very important!) these activities should be a big success. Nearly everyone loves to look through a telescope and know more about what is going on in our fascinating universe. You are our "ambassadors to the stars" whether you think you know much about astronomy or not. What is more important is your enthusiasm about our hobby. This is an ideal time to grow our club and I would like to see us break the 100 mark (we now have about 70).

Don't forget about the Gem and Mineral show in Tucson, especially for the meteorite collectors in the club, the first couple weeks of February. We plan to attend a couple days and see what the show has to offer.

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cially for the students with the Double Cluster, M-36 and M-37 leading the way as the most requested. All the while Dave was thrilling everyone with some Horsehead views and Orion was looking good in the 32" also. President Wayne Johnson and Past President Doug Snyder worked the crowds answering questions and handing out club literature. I'll not be surprised to see at least 4 and maybe even 6 new memberships come out of the night's attendees. Good things happen when we show up and participate, nothing happens when we stay home; the life blood of the club was flowing that night. Good job, all.

### **February Star Party Schedule**

Saturday, February 21, finds us landing over at Windy Mountain Observatory for another evening of on screen viewing behind Rich Swanson's 14". What was first an experiment has become a much talked about viewing experience. With the observatory's 14" shackled with a camera we could use a couple of member scopes to balance out the night and provide some eyepiece views too. If you haven't been to WMO before you can find directions in the HAC Web Page.

Friday, February 27, is Public Star Party night and we'll be at JBO again for this one. With the turnout we had in January, I'll be expecting another full house this month where we can move on to some of the late winter Galaxies and maybe Comet Lulin will have brightened up by then and be the centerpiece of the evening. So get out there with your scope and make February's PSP as good as January's was. Please remember that Saturday the 28 is a makeup date in case Friday's event is weathered out.

Messier Marathon Update: This year's Messier Marathon will be back at RGO on Saturday, March 28. We've been talking about putting a Stella Cam and monitor on the RC in the observatory and do a Video Marathon for those who don't want to go for it with their own scopes. I have been asked to change the event to Friday the 27, with Saturday as a back up night. Personally I feel that planning on both nights takes too much real estate out of your weekend and furthermore staying up all night following a work day is a lot to ask. But I'm open to a majority show of hands on this one and we will discuss it at the February general meeting and make the final decision at the March meeting.

It's 2009...  
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and pay your  
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Dues!



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Space Place Partner Column

## Severe Space Weather

by Dr. Tony Phillips

Did you know a solar flare can make your toilet stop working?

That's the surprising conclusion of a NASA-funded study by the National Academy of Sciences entitled *Severe Space Weather Events—Understanding Societal and Economic Impacts*. In the 132-page report, experts detailed what might happen to our modern, high-tech society in the event of a “super solar flare” followed by an extreme geomagnetic storm. They found that almost nothing is immune from space weather—not even the water in your bathroom.

The problem begins with the electric power grid. Ground currents induced during an extreme geomagnetic storm can melt the copper windings of huge, multi-ton transformers at the heart of power distribution systems. Because modern power grids are interconnected, a cascade of failures could sweep across the country, rapidly cutting power to tens or even hundreds of millions of people. According to the report, this loss of electricity would have a ripple effect with “water distribution affected within several hours; perishable foods and medications lost in 12-24 hours; loss of heating/air conditioning, sewage disposal, phone service, fuel re-supply and so on.”

“The concept of interdependency,” the report notes, “is evident in the unavailability of water due to long-term outage of electric power—and the inability to restart an electric generator without water on site.”

It takes a very strong geomagnetic storm to cause problems on this scale—the type of storm that comes along only every century or so. A point of reference is the “Carrington Event” of August-September 1859, named after British amateur astronomer Richard Carrington who witnessed the instigating solar flare with his unaided eye while he was projecting an image of the Sun on a white screen. Geomagnetic storms triggered by the flare electrified telegraph lines, shocking technicians and setting their telegraph papers on fire; Northern Lights spread as far south as Cuba and Hawaii; auroras over the Rocky Mountains were so bright, the glow woke campers who began preparing breakfast because they thought it was morning!

“A contemporary repetition of the Carrington Event would cause ... extensive social and economic disruptions,” the report warns. Widespread failures could include telecommunications, GPS navigation, banking and finance, and transportation. The total economic impact in the first year alone could reach \$2 trillion (some 20 times greater than the costs of Hurricane Katrina).

The report concluded with a call for infrastructure designed to better withstand geomagnetic disturbances and improvements in space weather forecasting. Indeed, no one knows when the next super solar storm will erupt. It could be 100 years away or just 100 days. It's something to think about ... the next time you flush.

One of the jobs of the Geostationary Operational Environmental Satellites (GOES) and the Polar-orbiting Operational Environmental Satellites (POES) operated by NOAA is to keep an eye on space weather and provide early warning of solar events that could cause trouble for Earth.

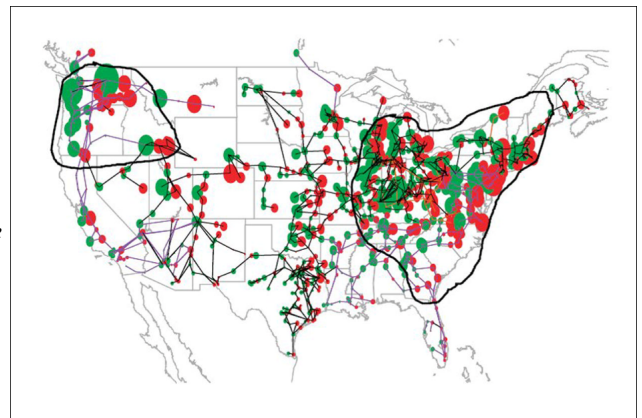
You can keep an eye on space weather yourself at the National Weather Service's Space Weather Prediction Center, [www.swpc.noaa.gov](http://www.swpc.noaa.gov). And for young people, space weather is explained and illustrated simply and clearly at the SciJinks Weather Laboratory, [scijinks.gov/weather/howwhy/spaceweather](http://scijinks.gov/weather/howwhy/spaceweather).

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Caption:

*On this power-grid map of the United States, the black-circled areas are regions especially vulnerable to collapse during an extreme geomagnetic storm. Inside those boundaries are more than 130 million people. Credit: National Academy of Sciences report on severe space weather. Note to editors:*

*This image may be downloaded from [http://spaceplace.nasa.gov/news\\_images/powergrid.jpg](http://spaceplace.nasa.gov/news_images/powergrid.jpg)*



## Treasures in Gemini

By Bob Kepple & Glen Sanner

Gemini, the Twins, is one of the 12 constellations of the Zodiac. The bright familiar stars of Gemini are the two brightest stars, Pollux and Castor, which form two parallel rows of stars that are the 23<sup>rd</sup> brightest star in the sky. Gemini's two brightest stars, Pollux and Castor, are fine double stars 5" apart. Gemini's two brightest stars, Pollux and Castor, are fine double stars 5" apart. Gemini's two brightest stars, Pollux and Castor, are fine double stars 5" apart.



*Messier 35 (center) and NGC 2159 (upper left) make a fine sight in small telescopes.*

Gemini has many fine open star clusters. Open star clusters come in a wide variety of sizes, concentrations, textures, and numbers of stars.

Some are so sparse and irregular that they hardly stand out against the star field while others are highly concentrated showpieces. Open clusters may be composed of bright stars while some are just dim misty patches of unresolved stars, a factor of their distance from us in space. No matter what size telescope you use there are suitable star clusters for viewing. Below is a selection of interesting star clusters suitable for small and medium-size telescopes, but just because you may have a large telescope that doesn't mean you should ignore objects listed for small telescopes as they will look even more impressive with a large aperture. We have rated these deep-sky objects from one to five asterisks, the more asterisks the brighter or more interesting it is. A three asterisks rating is average for its class, five is a showpiece object while one star means you need averted vision of a large telescope to see it.

Compare the clusters types described below to become familiar with the Trumpler rating system. We hope you enjoy observing them.

### Trumpler Types (Tr Type)

**Roman numerals indicate:** **I.** detached with a strong central concentration; **II.** Detached with a weak central concentration; **III.** Detached with no central concentration; **IV.** Not well detached from star field.

**Second number indicates:** **1.** Small magnitude range; **2.** Moderate magnitude range; **3.** Large magnitude range.

**Letters indicate:** **(p)** Poor (less than 50 stars); **(m)** Moderately Rich (50-100 stars); **(r)** Rich (more than 100 stars); **(n)** Nebulosity associated with the cluster.

**Example:** NGC 2129 has a Trumpler Type rating of III 3 p. (III) indicates that NGC 2129 is detached from the star field but has no central concentration; its stars (3) have a large magnitude range; and (p) means that it has less than 50 stars. We rate this cluster with 4 asterisks so in our opinion it is bright and interesting.

**NGC 2129 Open Cl. 40\* Dia. 7' Mag. 6.7v Tr Type III 3 p 06<sup>h</sup>01.0<sup>m</sup> +23°18' \*\*\*\***

NGC 2129 is a fine, bright cluster containing three dozen stars concentrated in a 7' area around two bright stars

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of 7.4 and 8.6 magnitudes. The cluster is divided into two irregular star chains running E-W.

**NGC 2168 M35 Open Cl. 200\* Dia. 28' Mag. 8.2v Tr Type III 2 m 06<sup>h</sup>08.9<sup>m</sup> +24°20' \*\*\*\*\***

Messier 35 is a magnificent cluster in small telescopes. 3-inch to 6-inch telescopes will show at least 100 stars in a half degree area while 12-inch and larger scopes will display 150 to 200 stars. The cluster shows little central concentration with an irregular distribution. There are numerous star chains and double stars scattered throughout its concentration. The star-glittering haze of the much smaller and fainter open cluster NGC 2158, lying to the SW of M35, provides a fine contrast to the larger cluster. NGC 2158, lying 13,000 light years away, is six times more distant than M35.

**NGC 2266 Open Cl. 50\* Dia. 6' Mag. 9.5v Tr Type II 3 p 06<sup>h</sup>43.2<sup>m</sup> +26°58' \*\*\*\***

NGC 2266 is a rich, attractive cluster of 50 stars highly compressed into a 5' triangular outline. The SW apex is marked by an 8.5 magnitude star, from which a string of stars trails outward to the NNE. A second star chain curves around the cluster from the north to the SW.

**NGC 2355 Open Cl. 40\* Dia. 9' Mag. 9.7p Tr Type II 3 p 07<sup>h</sup>16.9<sup>m</sup> +13°47' \*\***

NGC 2355, lying just SSW of an 8<sup>th</sup> magnitude star, has 40 faint members irregularly scattered in a 9' area. Its fainter members form a diffuse S-shaped background with its twenty brighter members scattered over them. An 11<sup>th</sup> magnitude double star may be seen in the NW portion and a yellow 9.7 magnitude star lies ESE of center.

**NGC 2371-72 Planetary Neb. Dia. 55" Mag. 11.3v Type 3a+6 07<sup>h</sup>25.6<sup>m</sup> +29°29' \*\*\***

NGC 2371-72 is an interesting object resembling a peanut, much like Messier 76 in Perseus. Because of its two lobes this object was given two NGC numbers. It is visible in small telescopes but larger instruments naturally give a better view. Higher powers are better at separating the two lobes which are aligned NE-SW. The SW is the brighter of the two and has a nucleus. Each lobe is surrounded by an outer shell which may need a UHC filter to discern. Larger scopes are needed to spot the 14.8 magnitude central star which lies between the lobes.

**NGC 2392 Planetary Neb. Dia. >15" Mag. 9.2v Type 3b+3b 07<sup>h</sup>29.2<sup>m</sup> +20°55' \*\*\*\*\***

NGC 2392 is the famous Eskimo or Clown Face Nebula. In small scopes it is quite bright with a 15" diameter bluish disk contrasting nicely with its yellowish 8.5 magnitude central star. Larger telescopes will show a concentric dark ring about 15" seconds from the central star surrounded by an outer shell. The central ring is more visible with larger scopes and with calm seeing conditions. When the seeing is steady use as much magnification as you can. Also try a UHC or Deep-sky filter to enhance contrast, however, when you use a filter you will lose the bluish color of the nebula.

**NGC 2395 Open Cl. 30\* Dia. 12' Mag. 8.0v Tr Type III 1 p 07<sup>h</sup>27.1<sup>m</sup> +13°35' \*\*\***

**PK205+14.1 Abell 21 Planetary Nebula Dia. 615" Mag. 10.3v 07<sup>h</sup>29.0<sup>m</sup> +13°15' \*\*\***

NGC 2395 is a fairly bright irregular scattering of forty 9<sup>th</sup> magnitude and fainter stars. The other night when viewing this cluster its brighter stars seemed to form the outline of a giraffe. The giraffe's neck will lead you to Abell 21, also known as the Medusa Nebula, lying over a field of view away to the SE. Abell 21 is not your usual round planetary nebulae disk, rather, it has an unusual half moon or crescent-shape outline. Although it is visible in small telescopes it will yield more detail in larger instruments. The disk is unevenly bright with the tips of the crescent being brighter near both ends. Use a UHC filter of the best view.

**NGC 2420 Open Cl. 100\* Dia. 10' Mag. 8.3v Tr Type I 2 r 07<sup>h</sup>38.5<sup>m</sup> +21°34' \*\*\***

NGC 2420 is a faint splash of stars lying between two 9<sup>th</sup> magnitude stars to its north and south. In small scopes it appears rich and well-concentrated with about three dozen stars spread over an oval 10'x7' N-S oval area. 12-inch and larger scopes will resolve over fifty stars.