HAC Web Page: hacastronomy.com December 2009

NIGHTFALL

Huachuca Astronomy Club of Southeastern Arizona

HAC MEETING: Friday, December 4, 2009

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

PLUS our monthly Show-N-Tells, upcoming event details, refreshments & Door Prize!

Speaker: Dr. George Jacoby

Topic: Pro-Am Search for Faint Planetary Nebulae

President's Perspective

Wayne Johnson "Mr. Galaxy"

First of all, let's congratulate our new Board members: Glen Sanner as Vice President (also one of our Deep Sky Guys) and Chris Hanawalt as Member at Large, and welcome back our returning members of the Board: Bob Kepple as Treasurer (also one of our Deep Sky Guys), Bob Gent as Secretary (also Loaner Telescope Chairman/UAS Liason), Del Gordon as Member at Large (also our website's Webmaster), Jim Taylor as Member at Large (also our Publicity Chairman), Rich "Swanee" Swanson (also our Outreach Chairman), and myself as President (also Speaker Chairman). Chris has been a member of HAC for a few years, but has been in the background. He said of his election that it will encourage him to be more active in the group. Please help him in his endeavor and help yourself by being active in the events offered by HAC, not only by attending activities, but offering to help out in some way.

We should also heartily thank Teresa and Keith Mullen for their hard work as they depart the HAC Board. Teresa is also stepping down as editor of our excellent club newsletter as of the December edition. Teresa really improved the newsletter when she took it over several years ago, and though it will be difficult to replace such an able editor, we need someone to step up and take over for her. If you have an interest in producing our newsletter please let me or Teresa and Keith know so that we can seamlessly continue publication of Nightfall. I understand that even if you only have some ability with a word processor similar to Word that you can produce a good quality newsletter. There is no need for any expensive or difficult-to- use product to edit our newsletter! It's a great way to get involved with the inner workings of the club since you would be contacting the various responsible parties (most of them already listed above!) to help spread the word about club activities. Keith will

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continue to assist with the Member and Public Star Parties as he has so ably done for the past several years. Thank you, Keith and Teresa, for hosting many of the HAC Christmas parties and organizing many official and non-official HAC events that many of us have enjoyed over the past years!

Also, at this writing, long time member Tim Doyle, who has performed a number of functions for the club (not the least of which was being Treasurer for a number of years) has decided to step down as Refreshments Chairman after the December meeting and we are also looking for someone to help out with this vital task. Everyone enjoys the goodies we have at the meeting so please help us keep this tradition going. You can either bake your own goodies or just buy them on your way to the meeting. Either way, the Club will compensate you for the money spent. Refreshments have been self-supporting for a long time, let's see if we can continue that trend. Tim has offered to transfer ownership of his nice portable ice chest to the club for the next refreshment chairman to use, so ownership of an ice chest is not a prerequisite for the job!

We continue with our Outreach events at the local schools and several of us helped out at them. We also need your help at events that are held at the UAS's Patterson Observatory, though participation at the last one was not as good as it should have been. These type of events are a bunch of fun and we need your help. I think club members enjoy participating in them as much as the children. You do not need your own telescope and you do not need to have a vast, or even a small, amount of knowledge to help out, just enthusiasm. In fact, recently I borrowed one of the club's loaner telescopes and, although it was missing a finder telescope, I simply pointed the scope at the moon all night long and just pointed to different parts of the moon for variety whenever a repeat customer came by. All the observers who came by to take a look were stunned by the lunar landscape. Frankly, so was I.

The December meeting promises to have a great presentation by professional astronomer, George Jacoby, from Kitt Peak National Observatory. He will talk about his search for planetary nebula in conjunction with a group of amateur astronomers. Those of you who have had ideas about what it would be like to work as an astronomer, now's your chance. Hope to see you there!

Don't forget the HAC Christmas Party will be held at Bob and Barb Kepple's house on Sunday, December 13th, just prior to our Geminid Meteor Shower observing party. Dress warm, bring a sleeping bag and lounge chair, and come enjoy the light show with us.

Happy Holidays to All, and if we don't see you at the December meeting or any of our observing parties, have a Happy and safe New Year!

Clear skies, Wayne (aka Mr. Galaxy)

Huachuca Astronomy Club P.O. Box 922 Sierra Vista, AZ 85636 **http://hacastronomy.com** email: mrgalaxy@juno.com

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

President: Wayne Johnson, mrgalaxy@juno.com ; **Vice President**: Glen Sanner 803-0576 or longeyes1@msn.com

Treasurer: Bob Kepple: 366-0490/ astrocards@aol.com; **Secretary**: Bob Gent 378-2915; **Past President**: Doug Snyder

Star Party Coordinator: Open

Outreach Events Coordinator: Rich Swanson, 803-7298 or telegeek-64@cox.net

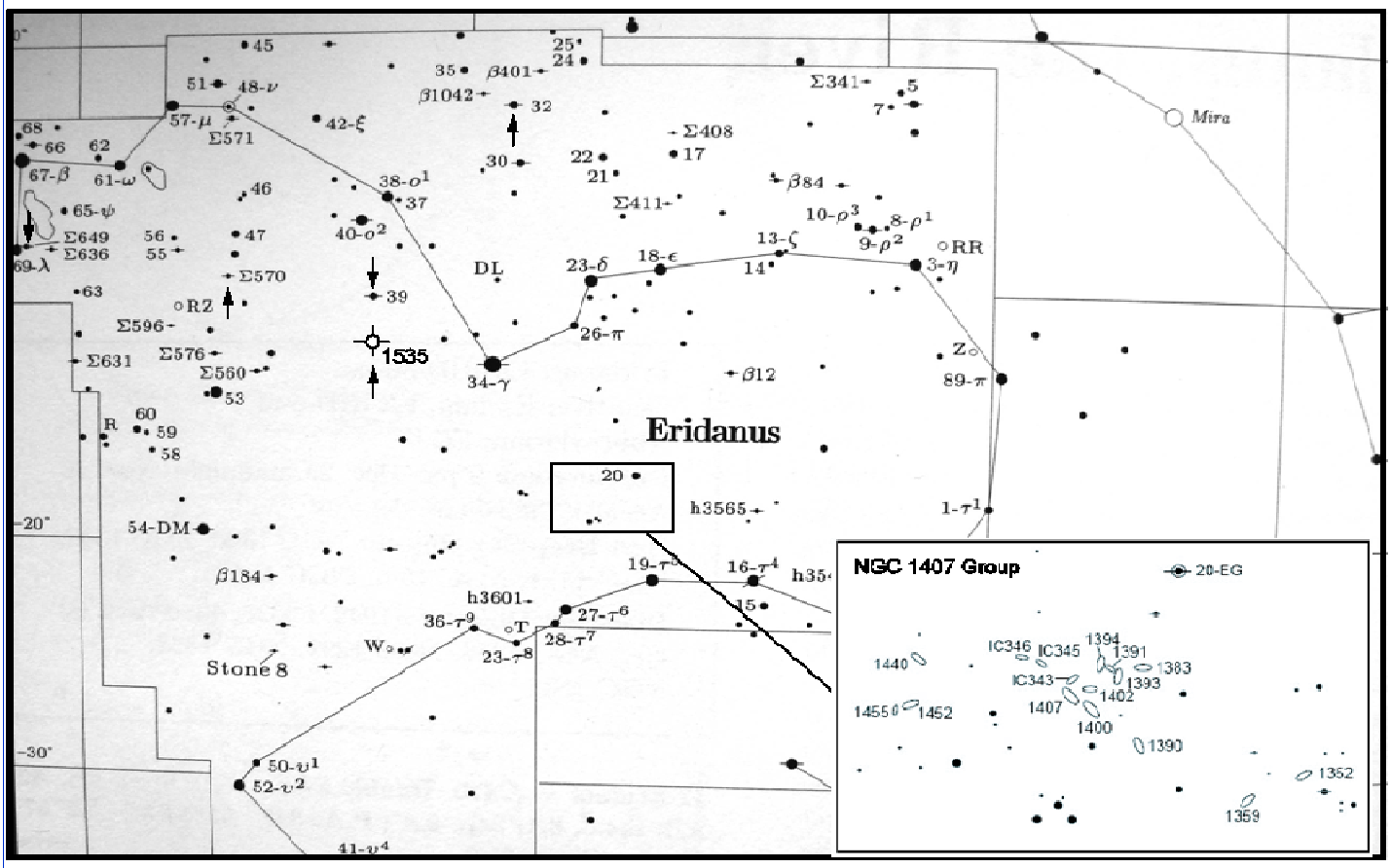
Loaner Scopes: Bob Gent 378-2915; Newsletter Editor: Open

This issue of Nightfall can also be found on-line at **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 .***

Travels on the Celestial Sphere

Eridanus, the River

Bob Kepple and Glen Sanner



Use 60-Lambda, the easternmost star in Eridanus, lying just SW of Rigel (19-Beta) as a starting point to identify the constellation of Eridanus

Small Scope Objects:

32 Eridani Double Star Spectral Types G5 & A2
Mags. 4.8, 6.1, Separation 6.8", P.A. 347°, R.A. 03h54.3m, Dec. -02°57'

32 Eridani is a nice double for small telescopes with stars of yellow and bluish-white.

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39 Eridani Double Star Spectral Type K0
Mags. 5.0, 8.0, Separation 6.4", P.A. 146°, R.A. 04h14.4m, Dec. -10°15'
39 Eridani is a lovely yellow and light blue pair of stars.

Struve 570 Double Star Spectral Types A0 & A0
Mags. 6.7, 7.7, Separation 12.8", P.A. 259°, R.A. 04h35.2m, Dec. -09°44'
Struve 570 is a fine bluish-white pair easily separated in small telescopes.

Struve 649 Double Star Spectral Type B8
Mags. 5.8, 9.8, Separation 21.6", P.A. 81°, R.A. 05h08.3m, Dec. -08°40'
Struve 649 is an interesting pair with a bluish-white primary but the companion's color is difficult to discern, Glen saw a reddish tint but it looked greenish to Bob. What do you see?

NGC 1535 Planetary Nebula Type 4+2c
Size >18", Mag. 9.6p, Central Star 11.6v, R.A. $04^h14.2^m$, Dec. -12°44'
NGC 1535 is a nice, bright planetary nebula for small telescopes showing a bright blue disk with a well concentrated central area. In 12-inch and larger telescopes two shells may be seen. There is a dark ring immediately surrounding the central star. The outer shell is much fainter and uneven in brightness. Be sure to use high power on this fine planetary nebula. A UHC filter will increase the contrast tremendously but we think the details in the disk are more visible without a filter.

Large Scope Objects

We came upon an interesting field of galaxies one night and thought we would include it in one of our articles. There is no Abell or Hickson cluster designation for these objects, so we guess that it is just a rich gathering of galaxies. Although these galaxies are listed for large scopes it may be fun to see how many you can discern with a small scopes.

NGC 1407 Galaxy Type E0
Size 4.6' x 4.3', Mag. 9.7v, SB 12.9, R.A. $03^h40.2^m$, Dec. -18°35'
Our starting point is NGC 1407, the brightest and largest object in a nice field of galaxies. It forms a nice pair with NGC 1400 lying 11.7 minutes of arc to the SW. NGC 1407 is a fairly bright, round 3' diameter object with bright, tiny core and a stellar nucleus.
NGC 1400 Galaxy Type SA0-
Size 2.3' x 2.0', Mag. 11.0v, SB 12.5, R.A. $03^h39.5^m$, Dec. -18°41'
Lying 11.7' SW of NGC 1407, NGC 1400 is fainter and smaller than its companion yet is quite obvious. It is a round 2' object with a tiny core and a stellar nucleus. A 9.4 mag. star lies 15' west.
NGC 1402 Galaxy Type $SB0^o$ pec
Size 0.8' x 0.6', Mag. 13.6v, SB 12.6, R.A. $03^h39.5^m$, Dec. -18°32'
NGC 1402 lies about 8' due north of NGC 1400. It is a very faint, round 0.5' smudge with a faint stellar nucleus and therefore is a challenge for small telescopes. It will fit in a small field of view along with 1400, 1407 and IC 343.
IC 343 Galaxy Type SB(rs)0+:
Size 1.6' x 0.8', Mag. 13.3v, SB 13.2, R.A. $03^h40.1^m$, Dec. -18°27'
IC 343 lies 8' due north of NGC 1407 forming a parallelogram with NGCs 1400, 1407, and

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1402. All four objects fit in a medium power field of view. IC 343 is a faint oval elongated NW-SE with a stellar nucleus. The galaxy lies just north of a triangle of stars.

NGC 1393 Galaxy Type SA(r)0°
Size 1.7' x 1.3', Mag. 12.0v, SB 12.8, R.A. 03^{h}38.6^m, Dec. -18°26'

Moving NW of our first four galaxies that form the parallelogram you will sweep up a nice row of three galaxies. NGC 1393 is the westernmost of a row of three galaxies along with NGCs 1391 and 1394. NGC 1393 has a fairly faint, slightly oval 1.5'x1.2' halo with a gradually brighter center and a faint stellar nucleus. The stars pass along the NW side of NGC 1393.

NGC 1391 Galaxy Type SB(s)0°
Size 1.1' x 0.5', Mag. 13.3v, SB 12.6, R.A. 03^{h}38.9^m, Dec. -18°21'

NGC 1391 lies at the center of a row of galaxies with NGC 1393 to the SW and 1394 to the NE. NGC 1391 is a faint, 1'x0.5' oval object with a very faint stellar nucleus.

NGC 1394 Galaxy Type S0°: sp
Size 1.3' x 0.4', Mag. 12.8v, SB 12.0, R.A. 03^{h}39.1^m, Dec. -18°18

NGC 1394 is the easternmost of three galaxies forming a NE-SW row with NGC 1391 at center and NGC 1393 anchoring the SW end. NGC 1394 has a fairly faint halo elongated 1'x0.3' with a faint stellar nucleus. Two fairly obvious stars flank the galaxy's northern tip.

NGC 1383 Galaxy Type SAB(s)0°
Size 2.0' x 0.9', Mag. 12.5v, SB 13.0, R.A. 03^{h}37.6^m, Dec. -18°20

If you sweep west of NGC 1393 you will come to NGC 1383, a fairly faint object elongated 1.5'x0.5' with a small central core.

IC 345 Galaxy Type S0/a
Size 0.8' x 0.7', Mag. 13.8v, SB 13.0, R.A. 03^{h}41.1^m, Dec. -18°19

If you go back to the NE end of the 1393-1391-1394 galaxy row and sweep eastward you will come to a pair of galaxies formed by IC345 and IC 346. Lying 6' NNE of a 10th mag. Star, IC 345 is very faint, very small, round and diffuse with a faint stellar nucleus.

IC 346 Galaxy Type SB(rs)0°
Size 2.0' x 1.3', Mag. 12.6v, SB 13.5, R.A. 03^{h}41.7^m, Dec. -18°16

IC 346 is a fairly faint diffuse oval elongated 1.5'x1.0' with a faint stellar nucleus. A 10.4 mag. Star lies 10'SSW.

NGC 1440 Galaxy Type (R')SB(rs)0°
Size 2.1' x 1.6', Mag. 11.5v, SB 12.7, R.A. 03^{h}45.0^m, Dec. -18°16

Sweeping eastward from IC345 and IC 346 brings you to NGC 1440, a fairly bright diffuse 2'x1.5' oval. It has a bright stellar nucleus inside a small core. A mag. 9.9 star lies 7' west.

NGC 1390 Galaxy Type SBa pec:
Size 1.4' x 0.5', Mag. 13.7v, SB 13.1, R.A. 03^{h}37.9^m, Dec. -19°00

To locate NGC 1390 go back to the bright NGCs1400-1407 pair and sweep SSW. NGC 1390 is a very faint, 1'x0.5' diffuse oval with a slightly brighter center. A mag. 9.7 star lies 6' south.

NGC 1452 Galaxy Type (R')SB(r)0/a
Size 2.8' x 1.5', Mag. 11.8v, SB 13.2, R.A. 03^{h}45.2^m, Dec. -18°38

Go back again to the NGC 1400-1407 pair and sweep about two fields of view due east will bring you to NGCs 1452 and 1455 lying 7.6' apart. The westernmost galaxy, NGC 1452 appears fairly bright with a 2.5'x1.5' oval halo and a stellar nucleus at center.

NGC 1455 Galaxy Type Sa:
Size 0.6' x 0.4', Mag. 11.8v, SB 10.1, R.A. 03^{h}45.9^m, Dec. -18°41'

NGC 1455 is the easternmost of a pair with NGC 1452. It has a bright but small, round 0.5' diameter halo appearing much like a planetary nebula.

A Cosmic Crash

by Patrick Barry and Dr. Tony Phillips

Two small planets hurtle toward each other at 22,000 miles per hour. They're on a collision course. With unimaginable force, they smash into each other in a flash of light, blasting streams of molten rock far out into space.

This cataclysmic scene has happened countless times in countless solar systems. In fact, scientists think that such collisions could have created Earth's moon, tilted Uranus on its side, set Venus spinning backward, and sheared the crust off Mercury.

But witnessing such a short-lived collision while pointing your telescope in just the right direction would be a tremendous stroke of luck. Well, astronomers using NASA's Spitzer space telescope recently got lucky.

"It's unusual to catch such a collision in the act, that's for sure," said Geoffrey Bryden, A cosmic Crashspitzer_an astronomer specializing in extrasolar planet formation at NASA's Jet Propulsion Laboratory and a member of the science team that made the discovery.

When Bryden and his colleagues pointed Spitzer at a star 100 light-years away called HD 172555, they noticed something strange. Patterns in the spectrum of light coming from nearby the star showed distinctive signs of silicon monoxide gas — huge amounts of it — as well as a kind of volcanic rock called tektite.

It was like discovering the wreckage from a cosmic car crash. The silicon monoxide was produced as the high-speed collision literally vaporized huge volumes of rock, which is made largely of silicon and oxygen. The impact also blasted molten lava far out into space, where it later cooled to form chunks of tektite.

Based on the amount of silicon monoxide and tektites, Bryden's team calculated that the colliding planetary bodies must have had a combined mass more than twice that of Earth's moon. The collision probably happened between 1,000 and 100,000 years ago — a blink of an eye in cosmic terms.

The scientists used the Spitzer space telescope because, unlike normal telescopes, Spitzer detects light at invisible, infrared wavelengths.

"Spitzer wavelengths are the best wavelengths to identify types of rock," Bryden says. "You can pin down which type of rock, dust, or gas you're looking at."

Bryden says the discovery provides further evidence that planet-altering collisions are more common in other star systems than people once thought. The "crash-bang" processes at work in our own solar system may indeed be universal. If so, Spitzer has a front row seat on a truly smashing show.

See Spitzer Space Telescope's brand new Web site at http://spitzer.caltech.edu/. Kids can learn about infrared light and see beautiful Spitzer images by playing the new Spitzer Concentration game at http://spaceplace.jpl.nasa.gov/en/kids/spitzer/concentration.

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

Caption:

Artist's rendering of cosmic collision involving two objects whose combined mass was at least twice that of our Moon. Discovered using the Spitzer Space Telescope in the planetary system of a star called HD 172555 100 light-years away.