

## S. C. R. A. P. S.

Society's **Ch**Ronological **A**stronomical **P**aper**S**



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### Message from the President

Elections are upon us and the rotation of club responsibilities. We should all give our thanks to Jim Sanders for his work on the nominations committee. Thanks too to the persons who have agreed to be nominated for 2011. All of us members can help the officers for 2011 by being engaged. How you ask? Be curious. Ask that question about telescopes, ask about methods of observing and ask about targets of observing. Every question is a great one. It is a good idea for experience members to ask some of the basic questions too. The members new to Amateur Astronomy will benefit.

Spring is coming and warming weather makes me itch to see Unicoi Crest again.

I look forward to new members seeing the sights with which we are familiar and I look forward to learning some new ones myself.

Last year we broke the long spell of bad spring weather and saw the dazzling spectacle of **NGC 5139** the Omega Centari globular cluster. As is the usual case while we waited for **NGC 5139** to clear the horizon we could see the active galaxy **Centaurus A** (also known as **NGC 5128**)

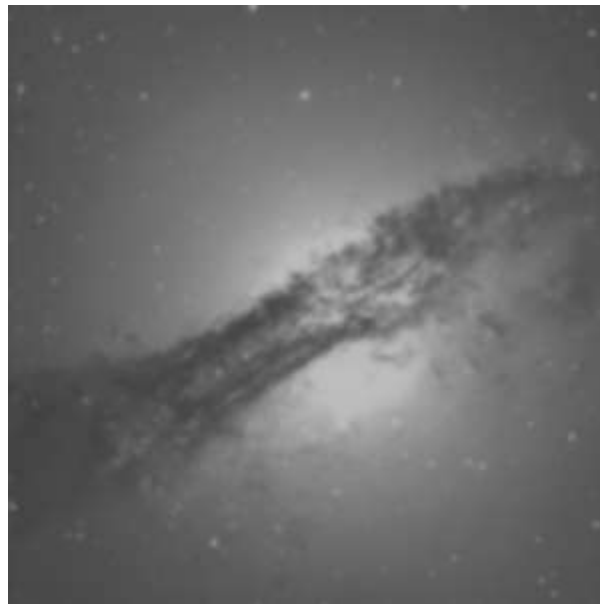
This galaxy is quite striking in Sasquatch. The dust band is huge. In fact we observed it with relatively low power because it is a close and therefore large object. The distance is reported to be 10 to 16 million light years and the diameter is about 26 minutes by 20 minutes. The full moon is only a little larger at about 30 minutes. Of course visually even in Sasquatch we see mostly the bright center. But it is worth the drive to Unicoi just to see it.

Here is a professional photograph:

[http://upload.wikimedia.org/wikipedia/commons/thumb/e/e5/Centaurus\\_A.jpg/300px-Centaurus\\_A.jpg](http://upload.wikimedia.org/wikipedia/commons/thumb/e/e5/Centaurus_A.jpg/300px-Centaurus_A.jpg)



Through Sasquatch we see less. Here is my attempt to simulate what I remember.

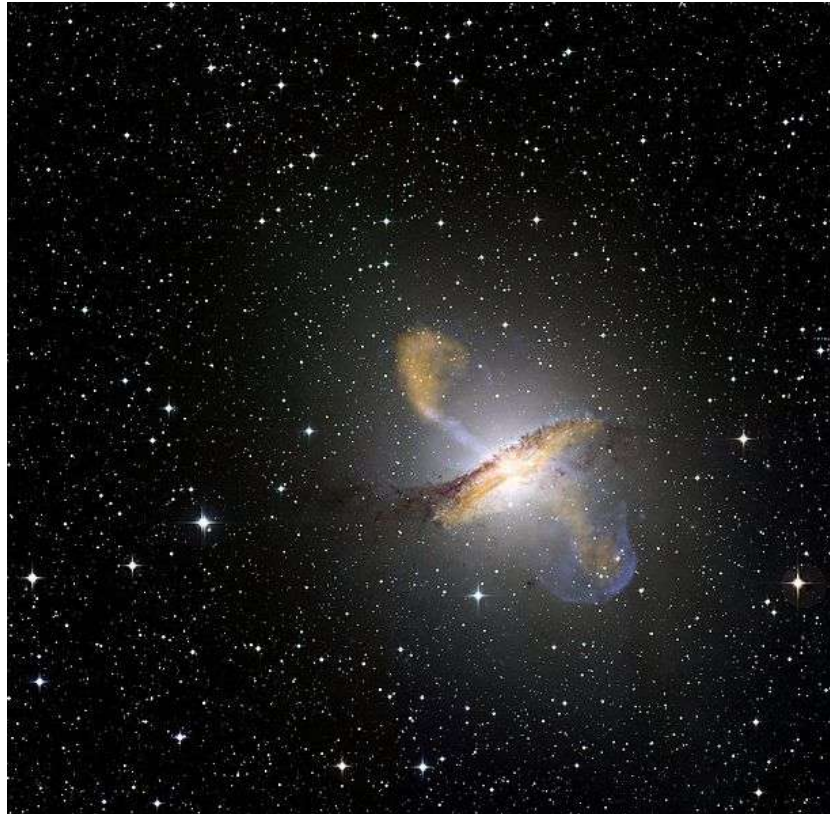


While it may seem disappointing that we do not see what the photographs show, I think everyone who actually sees this with their eyes will agree that it is a real thrill. The dark band cutting through the image is dust. Lots of dust. I believe the professional astronomers conclude that Centaurus A has recently consumed a smaller galaxy and that the disturbance of the dust is evidence of that collision. What we cannot see is that Centaurus A is also radiating lots of radio

waves. I believe that after our Sun and the center of our galaxy (The Milky Way) that Centaurus A is the most powerful radio object in the sky. (I wonder where Jupiter comes in?).

Here is an image combining visible and radio.

[http://upload.wikimedia.org/wikipedia/commons/thumb/d/d2/ESO\\_Centaurus\\_A\\_LABOCA.jpg/613px-ESO\\_Centaurus\\_A\\_LABOCA.jpg](http://upload.wikimedia.org/wikipedia/commons/thumb/d/d2/ESO_Centaurus_A_LABOCA.jpg/613px-ESO_Centaurus_A_LABOCA.jpg)



A Centaur is a creature of mythical story combining features of horse and human. I think this galaxy combining treats of visible light and radio is worth telling stories about. Come to Unicoi and see it this spring!

Final word: It has been a pleasure serving as president for 2010 and I want to thank officers Mike Reuter, Mike Littleton and Jim Sanders for their effort making 2010 a success. And to everyone who has attended a meeting; attended a star party or contributed questions and answers on the Yahoo List; thanks too. Please support the officers and the club as well in 2011 and we will all have a great year.

Sincerely,  
**Lee Erickson**

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## Sasquatch gets a Big Foot

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Initial tests of the new equatorial platform were a success! On Saturday, January 29, 2011, Sasquatch was set on the new platform and used for the first time. Prior to that event, there was a team learning experience that had to take place. Lee Erikson, Jim Sanders, and Aaron Haun (a frequent visitor to TAO) undertook the challenge of learning how to setup and use the new platform. Michael McCulloch gave use some tips via email.

First off, the platform was prepared by attaching 3 non-skid surface pads in locations where the three feet of Sasquatch's ground board would rest. Two pads are located above the North Support Rail (arc segment that allows the platform to rotate in an equatorial motion). The other pad is located just behind the center of the South Support Rail.



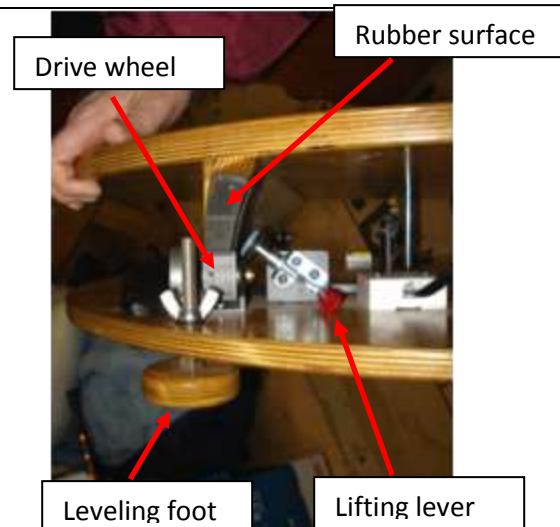
Lee Erikson and Aaron Haun installing the non-skid pads



New Platform under Sasquatch rocker box



Compass and spirit level



View of drive mechanism

Prior to setting Sasquatch on the platform, we had to align the platform toward North and level the board. (The north end of the platform is where the drive motor is mounted.) A compass and spirit level are attached to the bottom board; however, they are not very easy to see – requires you to be flat on your stomach to see between the boards. Just like any equatorial mount, a good polar alignment is required for good tracking; however, in this case, we tried to only get close and the result was that we had reasonable tracking. (Magnetic Declination has to be taken into account when using the compass.)

Most of us breathed a sigh of relief when we saw that the new platform seemed to support Sasquatch without difficulties. The assembly was stable without any slippage detected. We observed Jupiter and M42 as various magnifications. There was some slight drift of the target but the platform allowed much longer viewing sessions without touching the scope.

One big concern was how well would the drive mechanism work under the heavy weight of Sasquatch. The motor drives a wheel that is slightly wider than the support rail and the wheel has a knurled surface. There is also a rubber surface attached to the bottom of the rail that engages with the drive wheel. This drive arrangement seems to have plenty of traction and worked quite well during our short test of about 1 hour.

This design has a lever mechanism that is used to lift the rail off of the drive wheel. Once lifted, the scope and top surface of the platform can be repositioned (sliding on the lifting surface instead of the drive wheel) back to the starting position.

While our initial results with this platform were quite encouraging, we will now have to see how it performs under a long night of constant use.

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**Recommended Beginner Astronomy Targets**

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The winter sky offers several “must see” objects for new astronomers. There are 2 objects (M42 and M35) that are easy to find and observe with a small telescope, and most of them can be at least seen (if not fully enjoyed) from a light-polluted suburb. Here is information on M42; we will cover M35 in the next newsletter.

**M42: The Great Orion Nebula**

Type	Emission Nebula: Star Forming Region and Multiple Star Systems
Constellation	Orion
Season Visible in Evening	Winter
Conversation Notes	Easiest nebula to find and see - even binoculars. Makes a good contrast at a star party, show M42 (star birth) and a planetary nebula (star death).

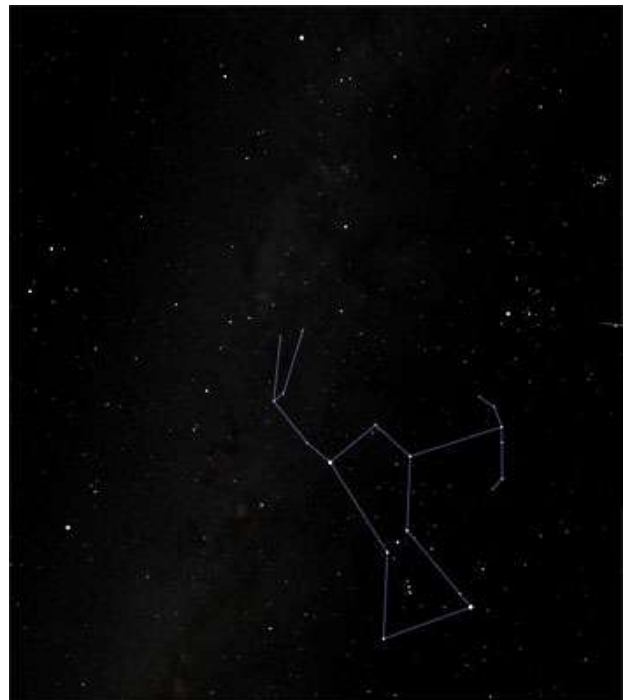
M42 is an emission nebula - a vast cloud of hydrogen gas, which is glowing red in response to the radiation it is absorbing from the bright stars it contains. The cloud of gas is still giving birth to new stars as it condenses under its own gravity.

This famous object doesn't really require finding instructions -- it is so easy to find that you need only know where it is. I include the instructions here to be found by newcomers to the hobby.

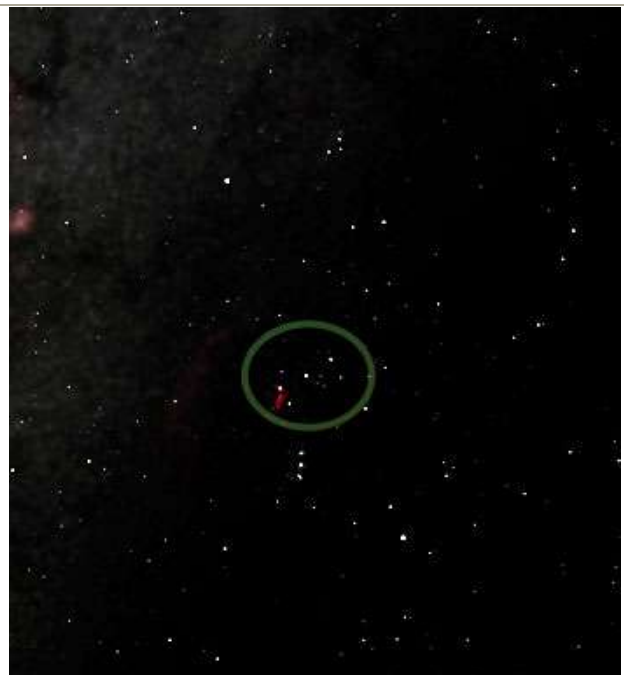


### Finding M42

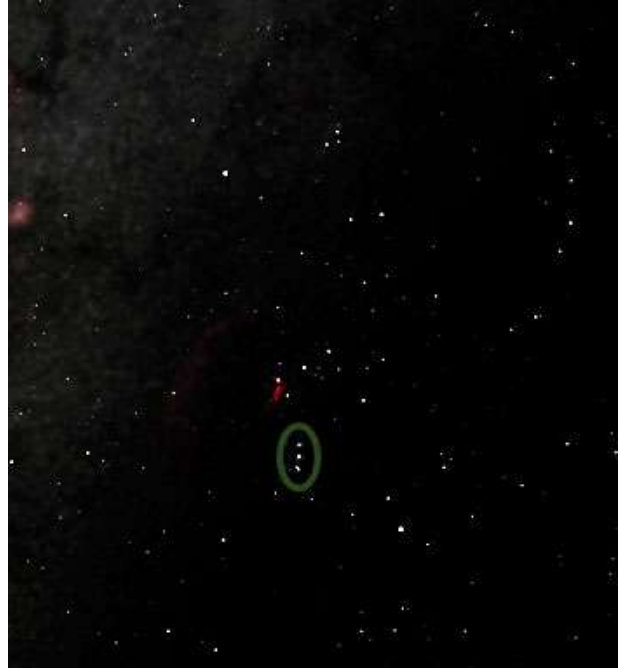
M42 is an easy to find component of the constellation Orion. Find Orion, "the Hunter", in the South during winter. Easy to find by his conspicuous 3-star "belt" between his shoulders and feet.



Find Orion's "belt" of 3 stars.



Find Orion's "sword": 3 slightly dimmer stars hanging from his belt.



Centre the centre star of the belt in your telescope and enjoy the view.





This is a typical view of M42 at 60x. This simulation shows what can be seen through a 235 mm (9.25") SCT under light-polluted city skies, or a 100 mm (4") refractor in very dark skies.

Look for 4 bright stars in the centre of the cloud, in a close-spaced square. This is called the Trapezium. It is a multiple star system of more than 4 stars, but only 4 are visible in small telescopes. They were recently born from the cloud of gas.



All the above images were generated with Stellarium and Starry Night Pro.

\*The above article is part of a presentation prepared by Richard McDonald and used with his permission.

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## [Review of a lecture/stargazing event](#)

Noah Frere, who recently joined SMAS, gives a review of a recent lecture/stargazing event from a newcomer's point of view:

## Review: Astroparty at Marble Springs by Noah Haverkamp Frere

Saturday evening January 29 there was an astronomy presentation given at Governor John Sevier's historic home, Marble Springs, on Gov. John Sevier Highway in South Knoxville. Garry Noland, adjunct astronomy professor from UT gave a lecture titled: **Practical Astronomy**.

The lecture was divided into 3 sections:

1. Time
2. Navigation
3. Geodesic Surveying

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The event was advertised in the News-Sentinel. Reservations were required, but I called too late (the morning of the event) and it was already full. Now, the attentive reader might ask: how can I write a review on a lecture I was not present for?! Did I spy long-distance with my 70 mm Celestron? No! You see, the woman at Marble Springs took my name and number to be put on the 1<sup>st</sup>-call list for another astronomy event planned for March 12<sup>th</sup>. Since the weather was forecast to be quite warm, they decided to hold the lecture outside under the pavilion, with unlimited seating. So it was that I was able to attend after all.

Unfortunately, I arrived about 7 minutes late, so I missed the introduction.

1. The section on Time was okay, although I don't remember it now. (It's been a few days)
2. The Navigation section had some interesting things, about using the stars to navigate boats across the Atlantic, etc. I remember increasingly feeling a little lost though. I looked around and noticed about 50 people, many of them children with parents, and wondered if they were having as much trouble following the presentation as I was having.
3. The Geodesic section was somewhat disconcerting. For one thing, I didn't know what "geodesic" meant. We could figure out from the content of the lecture that it had something to do with drawing lines on the earth, or from the earth to the stars. (Dictionary.com: Geodesic: "pertaining to the geometry of curved surfaces, in which geodesic lines take the place of the straight lines of plane geometry.") Again, my heart went out to the bored children who probably by now decided to become firemen or actresses.

Having said that, I still learned some stuff and was glad I went. And others may have followed the lecture better.

Now for the exciting part!

## Stargazing:

We walked out to the dark field near the Trading Post, where you could use the bathroom or grab coffee, tea, or even *hot cider*, snacks and memorabilia of Tennessee life. You might even find an ex-girlfriend sitting on a chair you hadn't seen in 9 years! (I did – but don't expect a hug!)

There were about 10 telescopes already set up. All shapes and sizes. I did the rounds: a lot of Jupiter, Orion Nebula, Andromeda galaxy. I was particularly impressed with the image/ease-of-use of a 6" Orion scope, especially considering its base price of around \$250. One young man there had only 2 weeks ago obtained a 10" Meade, which was quite breathtaking. A different man gave the presentation out here, and he did a fine job. The only problem was his laser pointer was acting funny, so he had to pulse it, but that worked well enough. More of an inconvenience to him than to us. It turns out he works at the Planetarium at the Chilhowee Park Discovery Center (who knew? I plan to go soon.)

I also enjoyed helping a father setting up his telescope for the first time. It was enlightening to see the difference in his very economical scope, my modest 70 mm Celestron, and the 10" Meade.

In conclusion, it is great to see Astroparties at random places, but there was in my experience a big difference between the muddy presentation in the first half under the pavilion, and the clear, concise presentation of the second half under the stars. However, it is better that than the other way around.

If you are interested in checking out the March 12<sup>th</sup> event (topic unknown) contact Marble Springs at (865) 573-5508.

## Upcoming Events

**February 11, 2011 – Regular SMAS meeting at PSTCC**

**Tentative program:**

1. Treasurer's Report
2. Election of Officers – see below
3. Michael Littleton: [Optical Aberrations](#). This is a continuation of the series started by at the November meeting.
4. Duane Dunlap: Night Sky

**Elections, February 11 – the following nominations have been made:**

President: Jim Sanders  
V. President: Vicente Diaz  
Secretary: Lee Erikson  
Noah Frere  
Treasurer: Brent Holt

The nomination process will be reopened prior to the elections at the February meeting.

## Meeting Minutes



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Any corrections to these minutes should be sent to JC Sanders ( [sandersj@chartertn.net](mailto:sandersj@chartertn.net) )

The regular SMAS business meeting was held at PSTCC on Friday, January 14, 2011

The meeting was called to order by President Lee Erikson. Those in attendance were:

Erik Iverson, Angela Quick and Miles, Jerry Kornegay, Duane Dunlap, Lee Erikson, Michel Reuter, Jim Sanders, Noah Frere, Roy Morrow.  
Visitors: Gerald B Calia and D.R. Fudge (previous members)  
Patrick Thrush, Donna Thrush, and their grandson Anthony Harvey (became new members).

Discussion:

- Lee mentioned that TAO has canceled the Saturday evening event because of icy roads.
- Brent Holt discussed his current project as counselor for Astronomy Merit Badge with a Boy Scout Troop. He passed around the Astronomy Merit Badge Manual and commented on its content.
- For the new members, Lee discussed good telescopes for beginners as well as benefits of coming to the SMAS Star Parties.
- Erik Iverson described some Astronomy/Space items available for children from the Smithsonian Air and Space Museum. They have picked up several good children's books as well as a Child's Astronaut Suit – shown here modeled by their son Miles:



Program: “Optical Performance of Telescopes” by Michael Reuter

Michael continued the series on Practical Astronomy that was began by Michael Littleton at the November meeting. This presentation presented the theory and formulas for telescopes in relations to the following 3 important factors: 1) Magnification, 2) Resolution, and 3) Light gathering capability.

Program: “Asterisms and Constellations” by Lee Erickson

Lee explained the subtle difference between Constellations and Asterisms. Constellations are boundaries and Asterisms are the “stick figures” we draw to represent the grouping of stars. Lee used an interesting analogy:

1. Stars are like the cities on a map
2. Constellations are like the state boundaries on a map
3. Asterisms are like the highways connecting the important cities



New business: Report from the nomination committee

The nominations committee for 2011 was made up of Jim Sanders, Michael McCulloch, and Lee Erikson. The committee submitted the following nominations for the 2011 term:

President: Jim Sanders  
V. President: Vicente Diaz  
Secretary: Lee Erikson  
Treasurer: Brent Holt

The nominations process was opened for additional names:

Noah Frere was nominated for Secretary.

Elections will be held at the February 11 meeting. There will be an opportunity for additional nominations to be made at the February meeting.

The meeting concluded at 9:30 PM.

Submitted by J. C. Sanders  
January 14, 2011



**News Articles Needed**

In order to have a better newsletter, I would ask that members contribute articles for publication in SCRAPS. Write about

- a project you have underway,
- a trip or visit made that had some astronomical connection,
- a review of an interesting book,
- a link to a useful website,
- or any other subject that might be of interest to the group.

Please send your articles to Jim Sanders ([sandersj@chartertn.net](mailto:sandersj@chartertn.net))

## February 2011

		1 Saturn rise 23:04  Jupiter set 21:59	2	3  New Moon 02:31 UTC	4 UT K	5
6 Watch for Jupiter near crescent moon in early evening	7 Algol minimum for 2 hrs centered at 01:28 EST	8	9 Algol minimum for 2 hrs centered at 10:18 EST	10	11 SMAS Meeting PSTCC 7:30 PM <a href="#">Renew your membership</a>	12 TAO Algol minimum for 2 hrs centered at 07:07 EST
13	14	15	16	17 Asteroid (7)Iris leaves Cancer and moves into Gemini	18 UT K  Full Moon 08:36 UTC	19
20	21	22	23	24	25 Look for the Moon near Antares in pre-dawn sky	26 TAO
27	28 Watch for Venus near moon in pre-dawn sky  Saturn rise 21:14 Jupiter set 20:41					

UTK – roof of Neilson Physics Building on the Hill At UT on 1<sup>st</sup> and 3<sup>rd</sup> Fridays  
<http://www.phys.utk.edu/trdc/telescope.html>

TAO – Tamke-Allen Observatory  
Public Stargaze  
Watts Bar Lake, Roane County  
1<sup>st</sup> and 3<sup>rd</sup> Saturdays  
<http://www.roanestate.edu/obs/>

