

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

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



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### Message from the President

Santa has no doubt come to many homes here in East Tennessee. Let's hope that he brought all the good little astronomers just what they wanted and needed. Let us not only hope some of these luck little astronomers come to SMAS meetings and Star Parties, but let us prepare for them. We can help them and they can help us. With each new member we can share our favorite observing objects and maybe learn as other members share theirs.

Now is a good time to prepare to help others with basic questions.

**How do I work this Telescope?** Often people given a Newtonian cannot figure out how to point it. We should not laugh - be helpful and always polite.

**How do I work this mount?** I sure pity the poor beginner who gets a wobbly equatorial mount with insufficient instructions on its theory of operation and the required setup.

**How do I find a planet?** Help them by pointing out the color and advising them of how its position can be found with respect to the fixed stars.

**Where is the moon tonight?** Often we more veteran observers may have no use for the moon but beginners seek it. Help them. Explain how it changes over the course of the month. Explain that is what the word Month is all about (approximately).

**Caution them about the sun.** Always warn people they must not look at the sun through a telescope without the always expensive filters.

**How do I find the constellation.. *insert name here* ..?** Invite them to star parties. Show them the easy ones and hook them.

Finally introduce yourself and let them know there are no dumb questions

I am sure you can all think of some basic things to share with beginners. Let me and everyone in SMAS know of some of your favorite basic things. I bet you can teach some of us more veteran members more than you think.

Look up, stay inspired and be inspiring.

**Lee Erickson**

### How can they do that?

As was mentioned in the last issue of SCRAPS, SMAS has acquired a Tracking Platform for our large Dobsonian telescope Sasquatch.

Here are a few pictures of the platform as they appeared on Astromart:



Top View



Bottom View



Side view showing controller



Another side view

**How does a tracking platform for a Dob work?** How can a device that is only a few inches high provide Equatorial Motion? One secret is that it has a very limited range of motion – maybe only 5 to 10 degrees but that is sufficient to keep an object in the eyepiece FOV for quite a while. The platform is not used to point the telescope at a star; the alt-az capability of the dob is still used to acquire the target. But once the target is in the eyepiece FOV, the platform drive motor is started and the platform keeps the telescope in sync with the star motion. The

following photos of a platform similar to the SMAS unit shows 2 small arcs that ride on 4 bearings. A drive motor is positioned at one of the bearing to provide motion.



2 arcs on the top half (left disc) and 4 bearing on the bottom half (right disc)



View showing one arc riding on the bearings – the drive motor is on the right

The dimensions of the arc segments are a function of the telescope dimensions and the latitude. The following figures are from a paper entitled “Cylindrical Bearing Equatorial Platform” by Warren Peters and should help to show some of the relationships:

Polaris

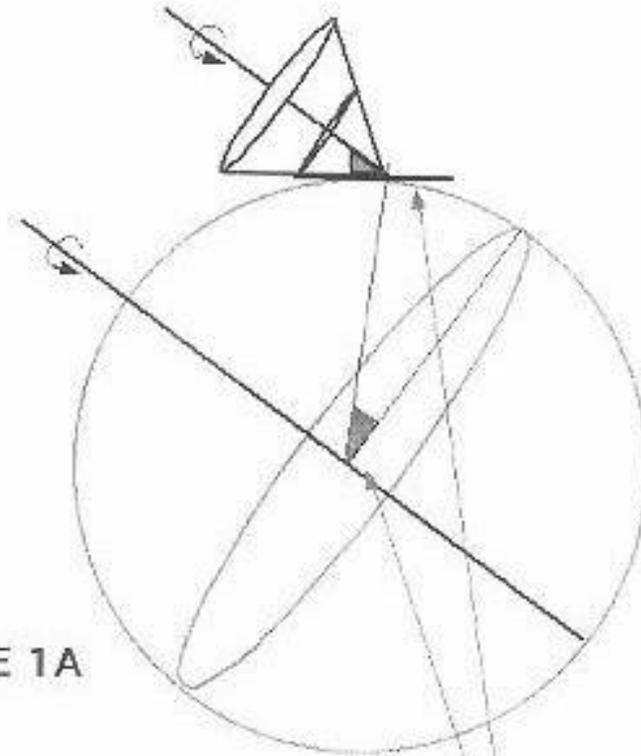


FIGURE 1A

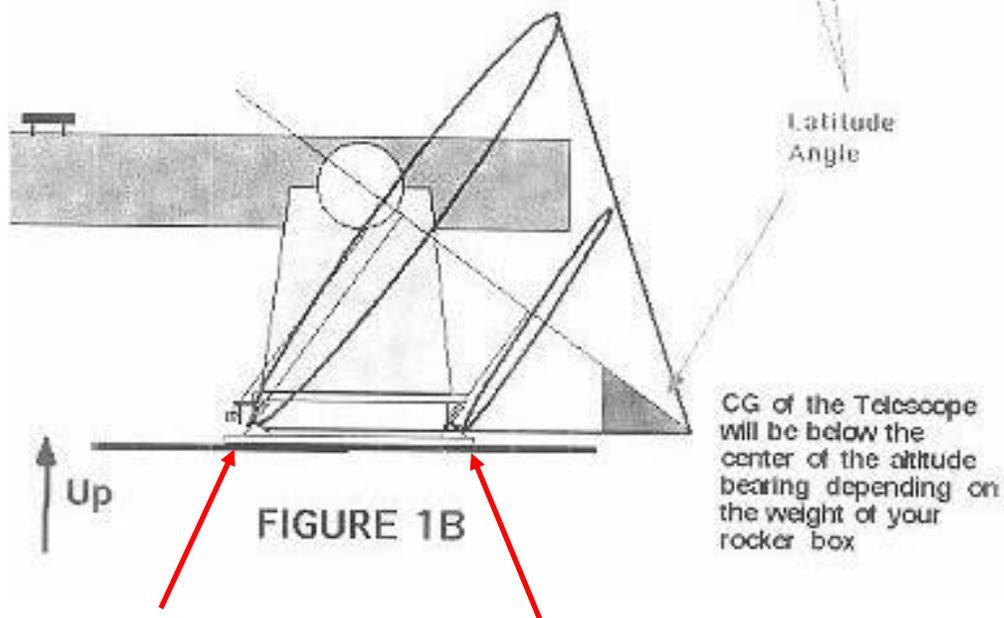
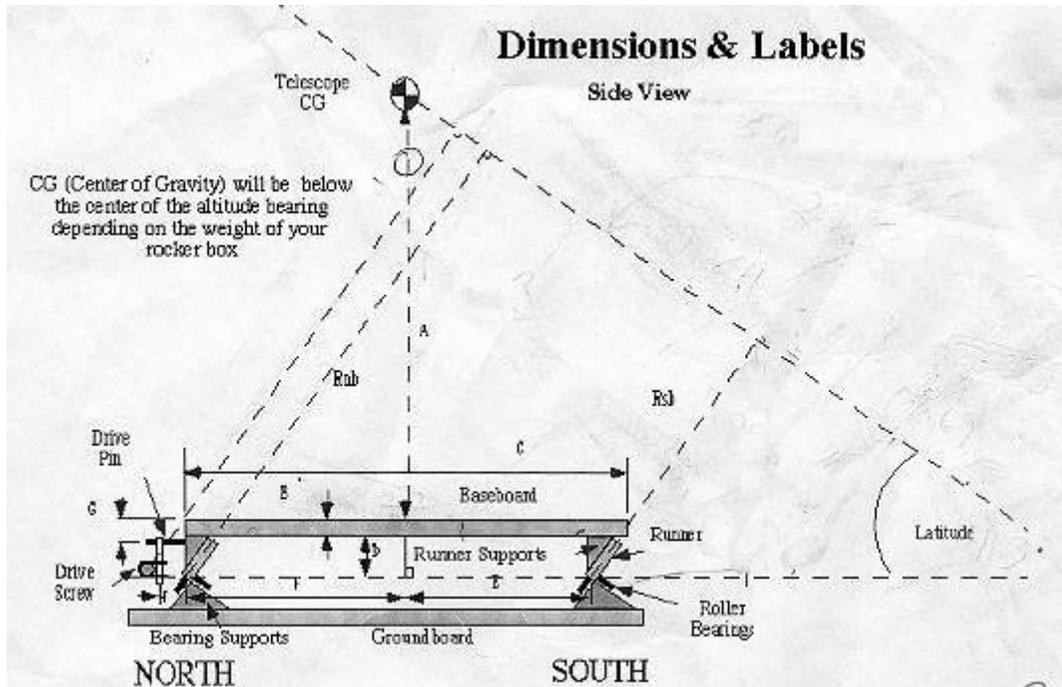


FIGURE 1B

The base of the platform includes 2 curved surfaces which are small portions of the circles shown in above diagram 1B.



The platform purchased by SMAS is built for large dobbs (up to 28") and for 35.3 degrees latitude.

The unit has arrived; but, we haven't had the opportunity yet to test it with Sasquatch

## Recommended Beginner Astronomy Targets

Open clusters are easy to find and observe in small telescopes, pretty, and scientifically important. This is a group of stars all born from a common cloud of gas and dust. Since they came from the same gas cloud they are, astronomically speaking, all about the same age and all about the same distance from us, and they all started with about the same chemical composition. Knowing that they are the same age and at the same distance, the fact that they have different appearances allows us to learn a great deal about stellar evolution - the different appearances can only be a result of the different masses of the different stars.

**Below are 2 open clusters that are worthy of viewing in January:**

### **M37: Open Cluster in Auriga; NGC 2099**

Visible in evening during winter (November to May)

M37 is the brightest of the several open clusters in Auriga. Several hundred stars - around a hundred visible in a small scope. Compare to the nearby M38 and M35.

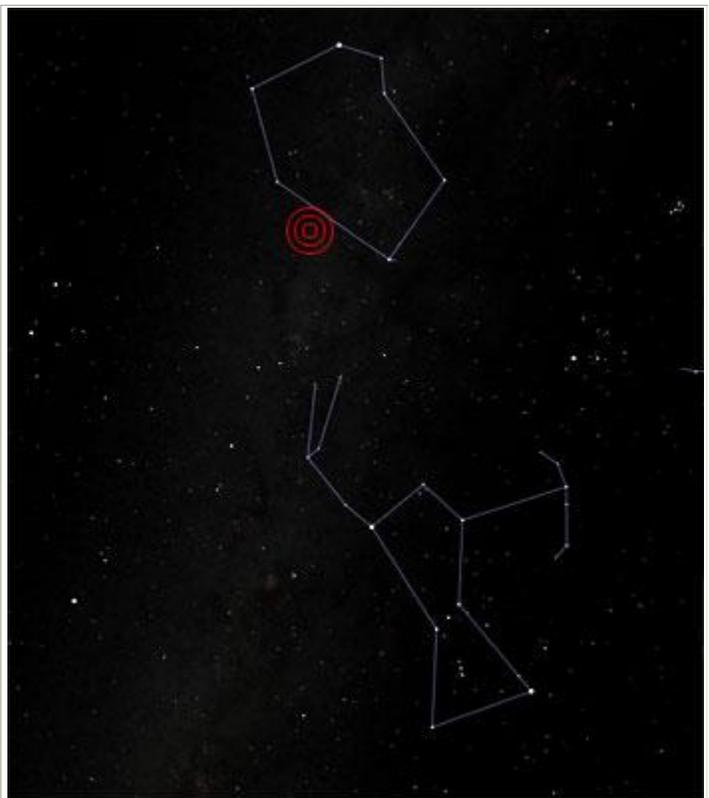
### **Finding M37**

In mid-winter, look to the South, fairly high in the sky, for the constellation Orion.

Now look straight above Orion's head, a distance about equal to his height, for a pentagon of stars. The top star in this pentagon, Capella, is very bright. The pentagon is part of the constellation Auriga.

Trace the line across the bottom two stars in the pentagon, and point your telescope just outside this line, slightly to the left of its center.

If you have a Telrad, the outer circle should just touch the line.



In a magnified finder, the cluster should be just visible as a small fuzzy patch of light.

If you don't have a magnifying finder, hunt around carefully with your telescope, fitted with its widest-field eyepiece.



In a telescope with an eyepiece giving 30x - 50x magnification you should be able to resolve individual stars and note their varying brightness and color.



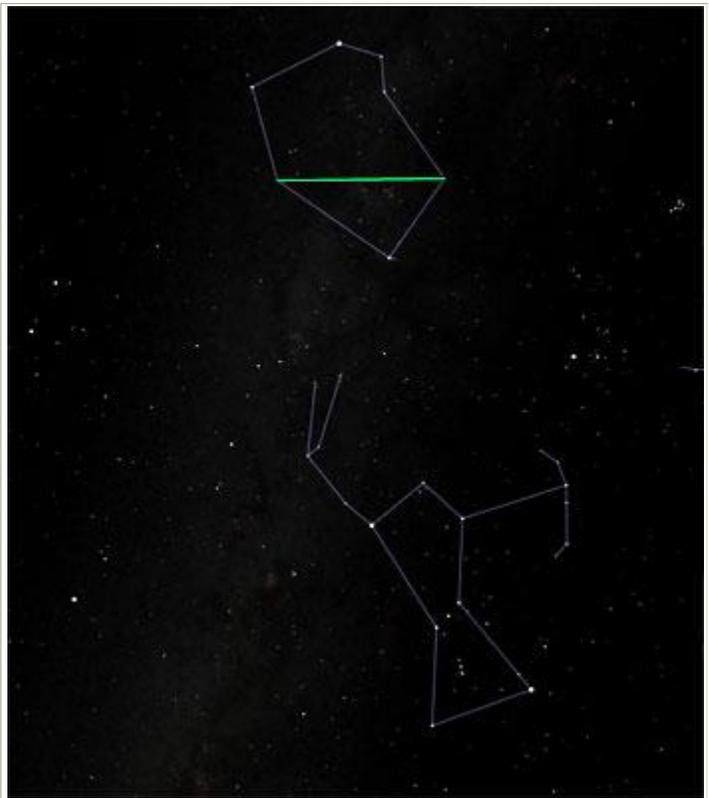
**M38: Open Cluster in Auriga; NGC 1912**

Visible in evening during winter (November to May)

M38 is a large dense open cluster in Auriga. Several hundred stars - around a hundred visible in a small scope. Compare to the nearby M37 and M35.

**Finding M38**

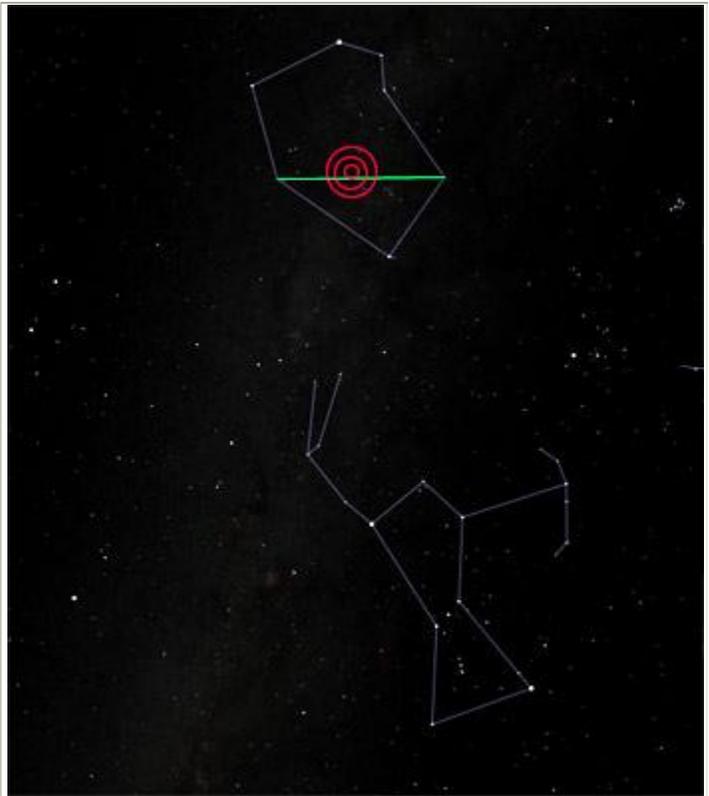
Note the two corners that are next-to-closest to Orion and mentally draw a line between them.



Sight your telescope just to the left of the middle of, and just above, this imaginary line.

If you have a wide-angle magnifying finder, you can safely point directly at the middle of the line - the cluster will be in the field of view of the finder.

If you find a small, sparse, uninteresting cluster, you may have found M36 instead, which is just the other side of the imaginary line, a little farther from its centre.



In a magnified finder, the cluster should be just visible as a small fuzzy patch of light.

If you don't have a magnifying finder, hunt around carefully with your telescope, fitted with its widest-field eyepiece.



In a telescope with an eyepiece selected for about 30x - 50x magnification you should be able to resolve individual stars and note their varying brightness and color.

Compare M38 and the nearby M37 and note the differences in the shape, density, and brightness of the cluster.



All the above images were generated with Starry Night Pro.

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

### Upcoming Events

**January 14, 2011 – Regular SMAS meeting at PSTCC**

**Tentative program:**

1. Report from Nominations Committee: recommended slate of officers for 2011. (Elections will take place at the February 2011 meeting.)
2. Michael Reuter: Optical Performance (for Telescopes). This is a continuation of the series started by Michael Littleton at the November meeting.
3. Tips for beginners on telescope use.

### Meeting Minutes

There was no regular meeting in December.

## 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))

# January 2011

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3  Quadrantids Meteor Shower	4  New Moon 09:03 UTC	5	6	7 <b>UT K</b>	8
9	10	11	12	13	14 <b>SMAS Meeting</b> <b>PSTCC</b> 7:30 PM	15 <b>TAO</b>
16	17	18	19  Full Moon 21:21 UTC	20	21 <b>UT K</b>	22
23	24	25	26	27	28	29
30	31					

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/>