

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

Society's ChRonological Astronomical PaperS



Message from the President

Finally we have a return to better observing weather.

The July Unicoi Crest Star Party was not perfect weather but it was wonderful.

August will bring the every delightful Perseid meteor shower peaking on the night of THURSDAY Aug 12 into the morning of Aug 13. We have a Look Rock party for Thursday night. Repeat, not Saturday but Thursday.

If you have not spent an evening on a blanket looking up at Perseid meteors for truly wide angle astronomy you have missed one of summers greatest treats.

I saw my first meteor in a shower on a warm summer evening in Minnesota. It was Minnesota so I know it had to be early August.

Some years later I was canoeing with friends in the Boundary Waters Canoe Area in northern Minnesota. Again it was August. We had a thin crescent moon and meteors. Several of the members of our party had grown up in the light dome of St. Paul and could barely see stars from home. They had a wonderful treat that night. As the meteors streaked we could see dark dust trails in the moon light. I have always wanted to go back, but only made that one trip.

Get a thick blanket to put underneath and a pillow or a reclining chair. Bring a light blanket for cover if it gets cool. Prop yourself pointing to the south south-east and look up. While you are waiting for the meteors, watch for Satellites. They cross the sky in all directions and can at first be mistaken for airplanes. They move differently however, and they do not have the flashing white strobe lights and the red and green wing tip lights.

Events – Future

August 7, 2010 – Star party at Unicoi Crest (weather permitting).

August 12, 2010 – Special SMAS Star Party: Perseid meteor shower watching at Look Rock

August 13, 2010 – Regular SMAS meeting at PSTCC. Tentative program: “Wide Field Astrophotography”. Included will be an introduction to the use of some excellent Freeware programs for image processing.

October 2, 2010 Special SMAS Star Party – Cades Cove GSMNP Star Party 2010

Minutes of July 9, 2010 Meeting

Attendees: Duane Dunlap, Michael McCulloch, Mike Littleton, Lee Erikson, Vicente Diaz, Ann and Gary Bridges, Michael Reuter

Program:

The Summer Sky - Michael McCulloch

- Good object description list: Saguaro Astronomy Club
- NGC 6231 region
- B87 - Parrothead Dark Nebula
- Sagittarius Star Cloud (M24)
- Ink Spot Nebula (B86) and NGC 6520
- Triple Cave near Gamma Aquilae - premier dark nebula
- North American Nebula - best to see in 4" reflector, 30 mm eyepiece, UHC filter

Measuring True FOV - Lee Erikson

Demo not done due to poor weather

(Meeting notes taken by Michael Reuter)

The August Sky Events

August 10 - New Moon

August 12, 13 - Perseids Meteor Shower. The Perseids is one of the best meteor showers to observe, producing up to 60 meteors per hour at their peak. This year's shower should peak on the night of August 12 and the morning of the 13th, but you may be able to see some meteors any time from July 23 - August 22. The radiant point for this shower will be in the constellation Perseus. The thin, crescent moon will be out of the way early, setting the stage for a potentially spectacular show.

August 13 - Triple Conjunction with the Moon. The planets Venus, Mars, and Saturn will all be close to the thin, crescent moon on this evening. Look to the west just after sunset.

August 20 - Neptune at Opposition. The blue planet will be at its closest approach to Earth. This is the best time to view Neptune, although it will only appear as a tiny blue dot in all but the most powerful telescopes. Located in Capricornus near the boundary with Aquarius.

August 24 - Full Moon. This full moon will be the most distant and therefore the smallest of the year.

Article on Comet Orbital Elements

There have been some discussions on the SMAS Yahoo Group about how to enter orbital elements into a Planetarium Program like the freebie Cartes du Ciel. This prompted me to do a little research since I have had questions about this myself. I found the following definitions (along with other information) on the orbital elements

Link: <http://stjarnhimlen.se/comp/tutorial.html#1>

The **orbital elements** consist of 6 quantities which completely define a circular, elliptic, parabolic or hyperbolic orbit. Three of these quantities describe the shape and size of the orbit, and the position of the planet in the orbit:

- a Mean distance, or semi-major axis
- e Eccentricity
- T Time at perihelion

A circular orbit has zero eccentricity. An elliptical orbit has an eccentricity between zero and one. A parabolic orbit has an eccentricity of exactly one. Finally, a hyperbolic orbit has an eccentricity larger than one. A parabolic orbit has an infinite semi-major axis, a , therefore one instead gives the perihelion distance, q , for a parabolic orbit:

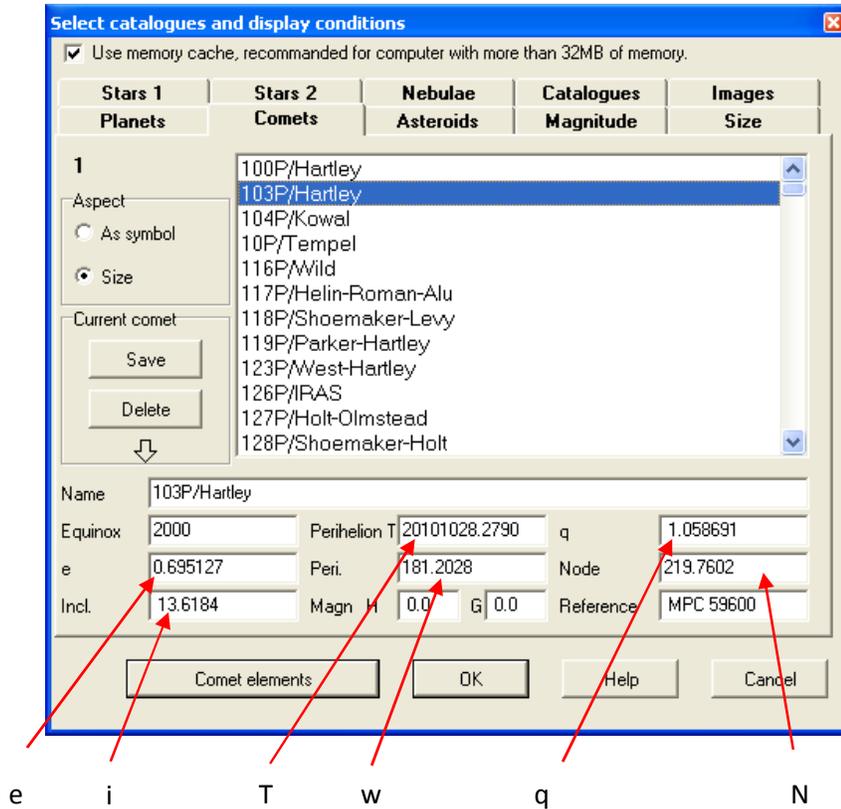
$$q \text{ Perihelion distance} = a * (1 - e)$$

It is customary to give q instead of a also for hyperbolic orbit, and for elliptical orbits with eccentricity close to one.

The three remaining orbital elements define the orientation of the orbit in space:

- i Inclination, i.e. the "tilt" of the orbit relative to the ecliptic. The inclination varies from 0 to 180 degrees. If the inclination is larger than 90 degrees, the planet is in a retrograde orbit, i.e. it moves "backwards". The most well-known celestial body with retrograde motion is Comet Halley.
- N (usually written as "Capital Omega") Longitude of Ascending Node. This is the angle, along the ecliptic, from the Vernal Point to the Ascending Node, which is the intersection between the orbit and the ecliptic, where the planet moves from south of to north of the ecliptic, i.e. from negative to positive latitudes.
- w (usually written as "small Omega") The angle from the Ascending node to the Perihelion, along the orbit.

From the above information, I was able to match up the entries for my software. For the Planetarium program Cartes du Ciel Version 2.76c, the following screen is used to enter the parameters from the orbital elements:



There is a new version (still in Beta form) of Cartes du Ciel (Version 3 beta); the following screen is used to enter the parameters from the orbital elements:

Solar System

Solar System Planet Comet Asteroid

General Setting Load MPC File Data Maintenance Add

Add a single element to the database. All fields are mandatory.

Designation	Perihelion date	Perihelion distance
<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	2 <input type="text"/>
Eccentricity	Argument of perihelion	Longitude ascending Node
0.0 <input type="text"/>	0.0 <input type="text"/>	0.0 <input type="text"/>
Inclination	Epoch (JD)	Equinox
0.0 <input type="text"/>	<input type="text"/>	2000 <input type="text"/>
H absolute magnitude	G slope parameter	
5 <input type="text"/>	10 <input type="text"/>	
Name		
<input type="text"/>		

Add

Help OK Apply Cancel

e i T w q N

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)

August 2010

SUNDAY	MONDAY	TUESDAY	WEDNESDA	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6 UT K	7 SMAS Star Party Unicoi Crest TAO
8	9	10  New Moon	11	12 SMAS Perseid meteor watch Look Rock	13 SMAS Meeting PSTCC	14
15	16	17	18	19	20 UT K	21 TAO
22	23	24  Full Moon	25	26	27	28
29	30	31				

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

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

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