The Meridian

Newsletter of the Quad Cities Astronomical Society • September 2014

Upcoming QCAS Events

September 26, West Liberty Library star viewing at the Sports Complex in West Liberty. Rain date is October 3.

September 26-28, Eastern Iowa Star Party at Menke Observatory.

September 27, QCAS open house.

October 4, QCAS & Davenport Parks & Rec, at the Soccer Complex, Division Street.

October 11, QCAS assist to the Boy Scout Camporee at Wapsi.

October 24, QCAS assisted observation night at Bettendorf High School football field, in connection with the Iowa-Illinois American Association of Physics Teachers.

Upcoming Meetings

Due to scheduling misunderstandings by Bettendorf Library, our next meeting is on **October 6th** at 6:30pm. This meeting is an astronomy (non-business) meeting. Starting in November, we return to holding meetings on the first Monday (**November 3**, astronomical) and third Monday (**November 17**, full business with *election of new officiers*, see the Agenda notes).

Meeting Notes

From September 8. Meeting called to order by Dale Hendricks at 6:35pm. The meeting was attended by 13 members and one guest. Members included: Craig Cox, Sam Snow, Karl Adlon, Gary Sissel, Tom Bullock, Dale Hendricks, Al Cattoir, John Robbins Dana Taylor, Bruce Brooker, Mitch White, Robert Mitchell and a "new" member Steve Sinksen. Welcome back to the club, Steve! Our guest was Peter Brueken from Bettendorf High School

Treasurer's Report: Balance as of September 16 was about $1870.

Agenda

Dale announced an upcoming star viewing with the Girl Scouts at Camp Conestoga on September 13th. See Past Event Report, inside, for how it went.

Tonight's guest, Peter Brueken shared more with the club about the joint fall meeting of the Illinois-Iowa section of the American Association of Physics Teachers (AAPT), scheduled for October 24-25 at Bettendorf High School. The QCAS will set-up telescopes for viewing from the High School football field on Friday October 24th (away game). Our viewing is announced on the section's web site. Pete is expecting between 50-100 teachers to attend the meeting. He was less sure how many would be there for Friday's star viewing.

Matt Neilssen has elected to step-down from the position of Outreach Official. Tom Bullock has offered to assist with the responsibilities.

Craig Cox has announced that he is planning to move from the area within the next year. He will be vacating the position of vice president. Bruce Brooker offered himself as a candidate for the position of Vice President, with Al Cattoir seconding. Other positions will

Variety of telescopes shown in our presentation to the Girl Scouts at Camp Conestoga. Photo by Jeff Struve.

Girls Scouts listen to our QCAS presentation in the dining hall at Camp Conestoga. Photo by Jeff Struve.

continue to be filled by those serving.

Election for vice president will take place at the next business meeting, on November 17th. This meeting will serve as our annual dinner meeting, as well [moved by Dana Taylor; seconded by Gary Sissel, followed by unanimous vote.]. More details to come in the next issue of The Meridian.

Finally, Dale described that the Clinton County Conservation Board favors that the location of the proposed conference buiding be offset from the north rail of the roll-off roof observatory building. The original proposed building was to be located directly east of the roll-off roof building. The offset location allows for continued use of the parking area. It was also indicated that no funding source has yet been located—that QCAS may need to take some lead on writing grant proposals.

The meeting was adjourned at 8:40pm.

Past Event Report

Report from the viewing with the Girls Scouts at Camp Conestoga on September 13th. By Dale Hendricks.

Lots of thanks to pass out – first to: Dana, Jeff, John, Tom, Craig, Deake and Bruce – you made the evening event memorable and educational and fun for the girls.

Jeff, I hope you made it all back in one piece after the great unload, setup, teardown and reload. What a great demonstration you had for everyone. If they didn't understand it all, they were at least very impressed by it.

Dana, thanks for making the presentation and giving the girls and adults a quick intro to the different scopes used for astronomy. By the way, at the very beginning of the event, I did hear one of the adult chaperones ask if this was the "astrology" club setting up. *No comment.* Dana and I have heard people refer to us this way before. Always worth a giggle.

There were about 60 people there at Camp Conestoga and the QCAS traveling guest book made it out too. I had the all the adults sign in and asked the respective troop leaders to provided troop identifiers and the number of scouts in their group. By the way, the main guest book is at Sherman Park. We do need to be assiduous in keeping both books up to date.

After our presentation in the dining hall, all the scouts then went out to the observing site. By the time they got there, the scopes were set up and if my count is correct we had six QCAS members with eight scopes set up and ready for use.

With the exception of a few high clouds and con-trails, viewing conditions were better than average and the Milky Way was visible.

One of the things the older girls really liked

was having the Tea Pot (Sagittarius) pointed out to them, low in the south, with the "steam" coming out of it.

Everyone had a chance to see some prominent objects (Saturn, Mars, Andromeda Galaxy, M13, etc.) and they stayed quite awhile after their "viewing". Deake was trying to take photos but the condensation was fairly significant and had a bit of trouble with "fog" on his lens. Last I saw him, he had taken the camera to his vehicle to warm up the lens and was reattaching the camera to his scope. Thanks, Deake. Your son told me what you were doing and why.

I talked with our girl scout contact person, Deb Landi, after the event and she said everyone was thrilled with evening's events and she wants to do something again sometime but with the older scouts.

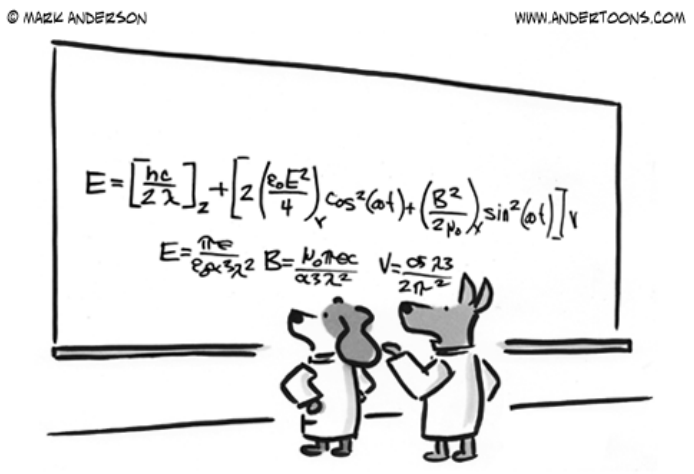
I was in discussion with three of the older scouts – in the dark I had no idea who they were – but they were remarkably well educated in astronomy and wide open for information to add to what they knew.

Once again, I forgot to take home the banner – it was on the chairs up front (upper left photo,) and I totally forgot it. One of the adults called me on Sunday to tell me she had it and I met her in south Rock Island and we did a hand off there.

Well done to everyone – we have more events coming up and we will, no doubt exceed expectations for the folks coming out for these events.

We have a potentially big gathering/viewing coming up, on October 4th, at the Davenport soccer field, by the Davenport Airport. This event will be well advertised, with Davenport Parks and & Rec creating a flyer. There will be an e-mail "push notice" to 7,000 people on the Parks & Rec email distribution list.

Science Humor



"There it is. You forgot to convert to dog years."

Dr. Hartunian wins the Nobel Prize and gets a liquid nitrogen "shower" from one of his graduate students.

FIGURE 3

Total Lunar Eclipse of 2014 Oct 08

Ecliptic Conjunction = 10:51:42.8 TD (= 10:50:35.5 UT)
Greatest Eclipse = 10:55:43.6 TD (= 10:54:36.2 UT)

Penumbral Magnitude = 2.1456 P. Radius = 1.2787° Gamma = 0.3827
Umbral Magnitude = 1.1659 U. Radius = 0.7451° Axis = 0.3824°

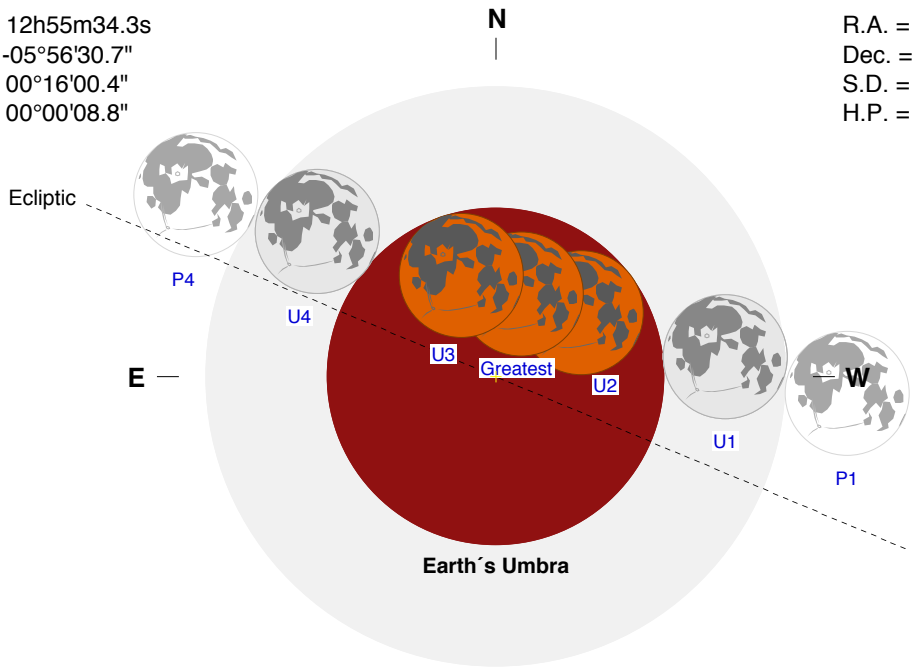
Saros Series = 127 Member = 42 of 72

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 12h55m34.3s
Dec. = -05°56'30.7"
S.D. = 00°16'00.4"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 00h55m07.2s
Dec. = +06°18'26.8"
S.D. = 00°16'20.3"
H.P. = 00°59'57.9"



Eclipse Durations

Penumbral = 05h18m10s
Umbral = 03h19m33s
Total = 00h58m50s

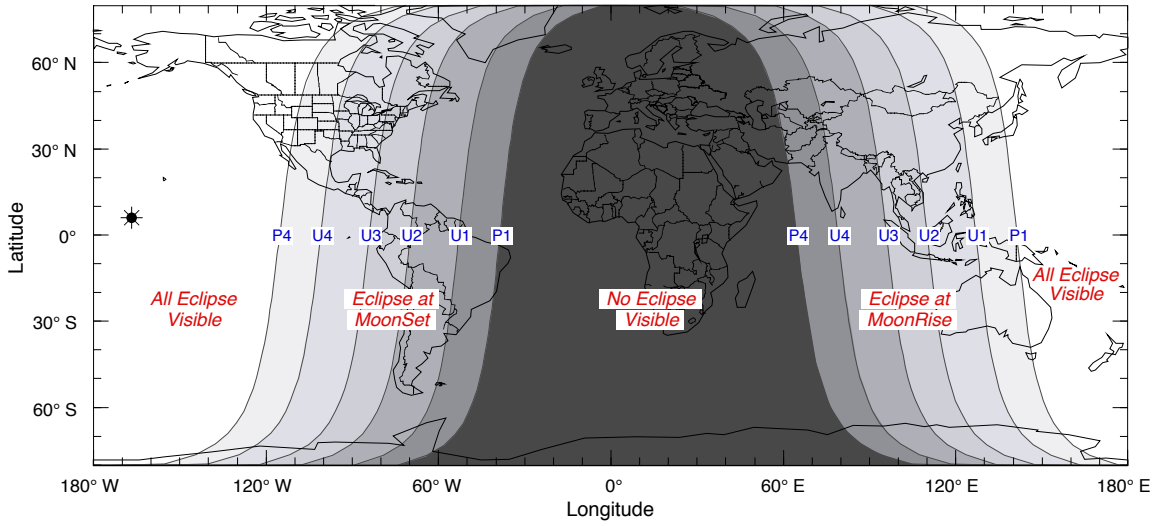
ΔT = 67 s
Rule = CdT (Danjon)
Eph. = VSOP87/ELP2000-85

0 15 30 45 60
Arc-Minutes

F. Espenak, NASA's GSFC
eclipse.gsfc.nasa.gov/eclipse.html

Eclipse Contacts

P1 = 08:15:33 UT
U1 = 09:14:48 UT
U2 = 10:25:10 UT
U3 = 11:24:00 UT
U4 = 12:34:21 UT
P4 = 13:33:43 UT



"Eclipses During 2014", F. Espenak, **Observer's Handbook - 2014**, Royal Astronomical Society of Canada

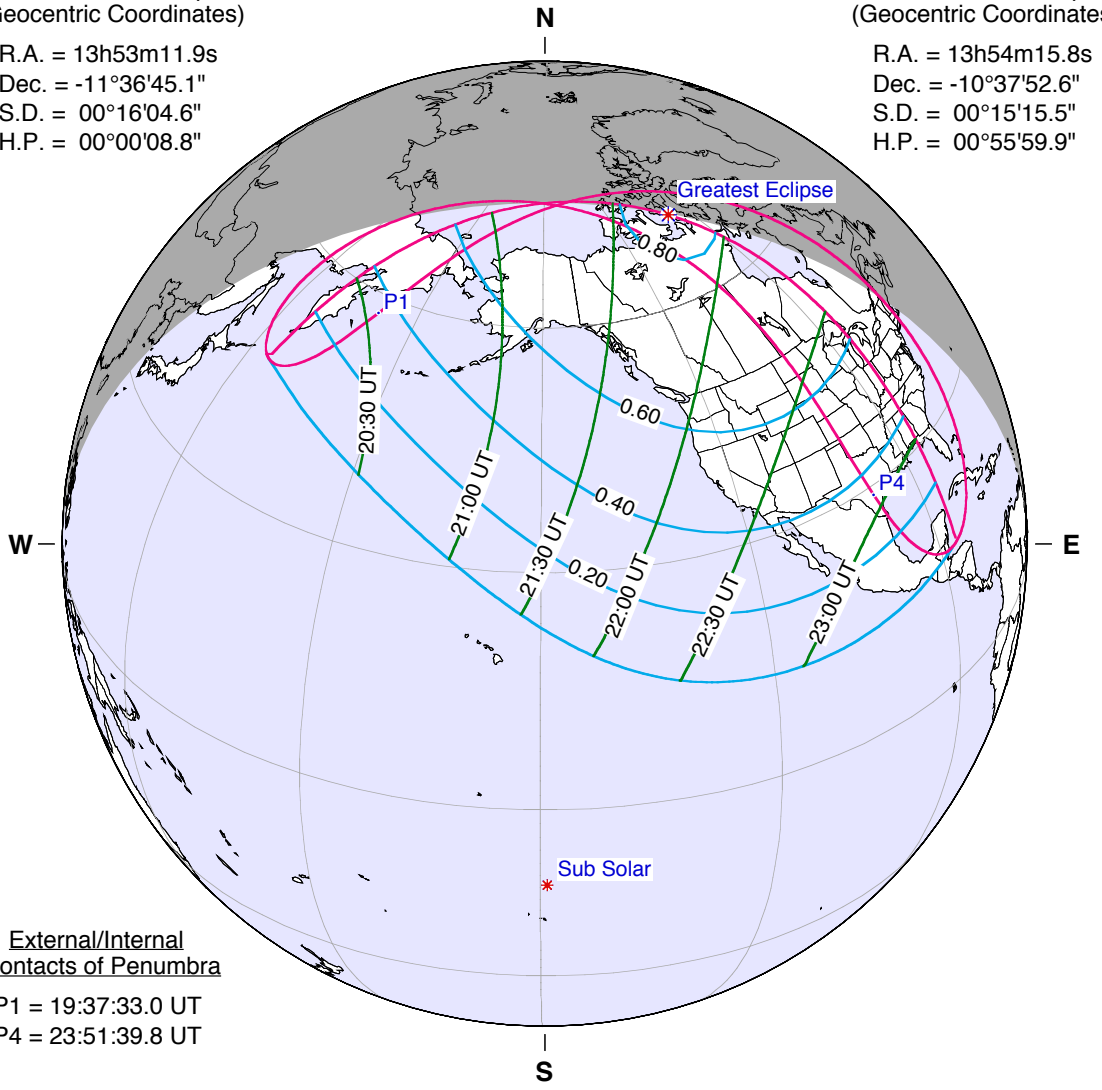
FIGURE 4

Partial Solar Eclipse of 2014 Oct 23

Ecliptic Conjunction = 21:57:46.8 TD (= 21:56:39.5 UT)
Greatest Eclipse = 21:45:38.7 TD (= 21:44:31.4 UT)

Eclipse Magnitude = 0.8114 Gamma = 1.0908

Saros Series = 153 Member = 9 of 70



Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 13h53m11.9s
Dec. = -11°36'45.1"
S.D. = 00°16'04.6"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 13h54m15.8s
Dec. = -10°37'52.6"
S.D. = 00°15'15.5"
H.P. = 00°55'59.9"

External/Internal
Contacts of Penumbra

P1 = 19:37:33.0 UT
P4 = 23:51:39.8 UT

Constants & Ephemeris

ΔT = 67.4 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"
Eph. = VSOP87/ELP2000-85

0 1000 2000 3000 4000 5000
Kilometers

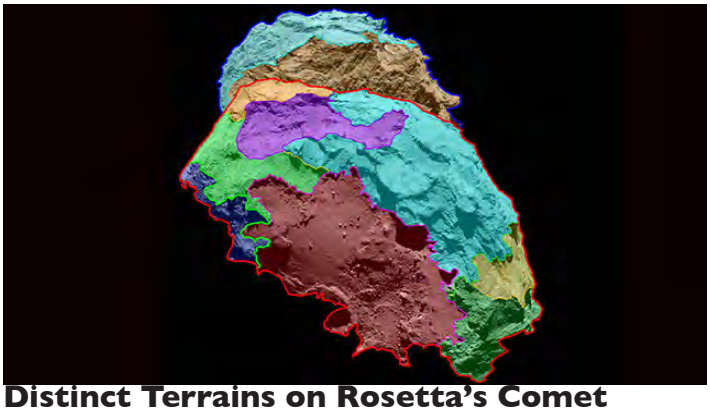
Geocentric Libration
(Optical + Physical)

l = -4.52°
b = -1.27°
c = 21.96°
Brown Lun. No. = 1136

F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html

"Eclipses During 2014", F. Espenak, **Observer's Handbook - 2014**, Royal Astronomical Society of Canada



Distinct Terrains on Rosetta's Comet

This view of the "belly" and part of the "head" of comet 67P/Churyumov-Gerasimenko indicates several morphologically different regions.

Scientists have analyzed images of the comet's surface taken by OSIRIS, Rosetta's scientific imaging system, and defined several different regions, each of which has a distinctive physical appearance. This analysis provides the basis for a detailed scientific description of 67P's surface.

The comet has areas dominated by cliffs, depressions, craters, boulders and even parallel grooves. While some of these areas appear to be quiet, others seem to be shaped by the comet's activity, in which grains emitted from below the surface fall back to the ground in the nearby area.

As both comet 67P and Rosetta travel closer to the sun during the next few months, the OSIRIS team and other instruments on the payload will monitor the surface to look for changes. While scientists do not expect the borderlines they have identified for the comet's various regions to vary dramatically, even subtle transformations of the surface may help to explain how cometary activity created such a breathtaking world.

The scientific imaging system, OSIRIS, was built by a consortium led by the Max Planck Institute for Solar System Research (Germany) in collaboration with Center of Studies and Activities for Space, University of Padua (Italy), the Astrophysical Laboratory of Marseille (France), the Institute of Astrophysics of Andalusia, CSIC (Spain), the Scientific Support Office of the European Space Agency (Netherlands), the National Institute for Aerospace Technology (Spain), the Technical University of Madrid (Spain), the Department of Physics and Astronomy of Uppsala University (Sweden) and the Institute of Computer and Network Engineering of the TU Braunschweig (Germany). OSIRIS was financially supported by the national funding agencies of Germany (DLR), France (CNES), Italy (ASI), Spain, and Sweden and the ESA Technical Directorate.

Celestial Calendar

Sep 20 05:39 Jupiter 5.4°N of Moon
20 08:56 Mercury 0.5°S of Spica
20 09:22 Moon at Apogee: 405846 km
21 13:52 Regulus 4.7°N of Moon
21 17 Mercury at Greatest Elong: 26.4°E
22 21:30 Autumnal Equinox
24 01:14 NEW MOON
25 12:41 Moon at Ascending Node
25 19:48 Spica 2.6°S of Moon
26 04:32 Mercury 4.2°S of Moon
27 23:46 Saturn 0.8°S of Moon: Occn.
28 01:26 Mars 3.0°N of Antares
29 12:01 Mars 5.6°S of Moon

Oct 01 14:33 FIRST QUARTER MOON
06 04:41 Moon at Perigee: 362481 km
07 15 Uranus at Opposition
08 05:51 FULL MOON
08 05:55 Total Lunar Eclipse; mag=1.162
08 12:44 Moon at Descending Node
12 04:58 Aldebaran 1.4°S of Moon
15 14:12 LAST QUARTER MOON
16 16 Mercury at Inferior Conjunction
17 22:25 Jupiter 5.4°N of Moon
18 01:05 Moon at Apogee: 404898 km
18 21:08 Regulus 4.7°N of Moon
21 11 Orionid Meteor Shower
22 19:46 Moon at Ascending Node
23 16:45 Partial Solar Eclipse; mag=0.811
23 16:57 NEW MOON
List from www.astropixels.com

QCAS Officers and Contacts:

President: Dale Hendricks
Vice-president: Craig Cox
Secretary: John Robbins
Treasurer: John Baker
Director: Dana Taylor
Facilities: John Baker
Web Master: Dana Taylor
Outreach: Tom Bullock
Programming: Jim Rutenbeck

QCAS Meetings: First Monday (workshop) at 6:30pm, and third Monday, (business), at 6:30pm, Bettendorf Library, 2950 Learning Campus Dr., off of 18th Street, Bettendorf.

QCAS Correspondence:
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Members are welcome and encouraged to submit articles for The Meridian. Submit Any and all interesting items (via e-mail) to: John Robbins or Dale Hendricks.