The Night Sky

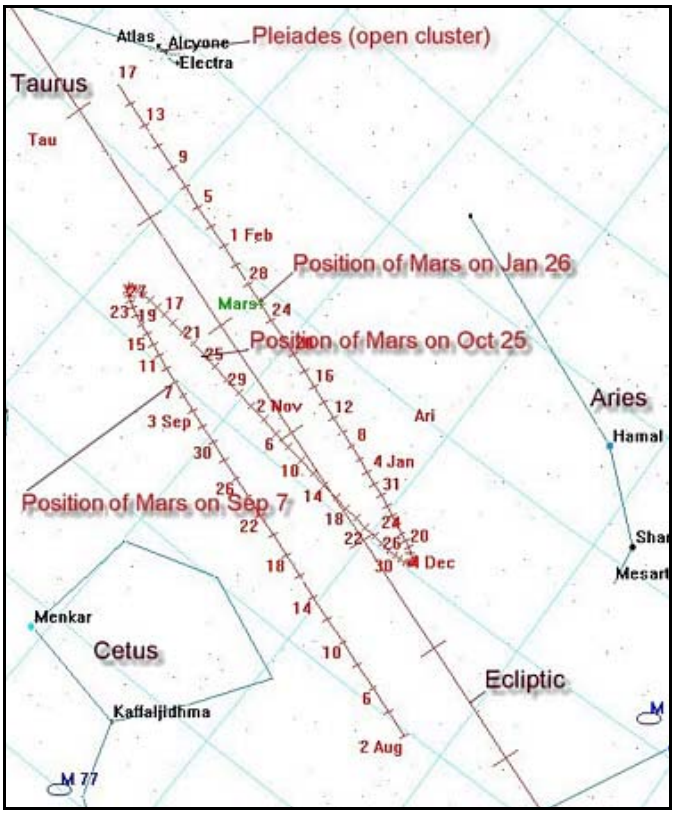
The Newsletter of
The Astronomy Club of Akron
www.acaoh.org

Volume 28 Number 2 **February 2006**

Meeting Friday, February 24

Ramblings of the President
Beautiful night, *"What the…?!"*
by Dave Jessie

As you might recall, last month I wrote about the horrid weather and depression resulting from ancient photon deprivation…and sad it was, too. Actually, I've gotten quite a few comments on that one! Well, as luck would have it, shortly after writing that article, the astro-gods took pity on us all and provided two magnificent nights – on Saturday, Jan 21st and Thursday, Jan 26th. I sent out an urgent email to our club email list suggesting that fellow photon fiends avail themselves of the clear night. Rosaelena and I went out with our binoculars to visit some familiar friends we hadn't seen for a while – Orion, Canis Major, Auriga, Gemini, Andromeda with her beautiful galaxy (M31), Saturn next to the Beehive (M44) in Cancer, and Mars. It was just beautiful out there. No, it was simply gorgeous. Wait a second! ***What the…!*** Isn't that Mars up there not far from and on the Aries side of the Pleiades? That's where it was three months ago! What gives! The Earth has moved move than ¼ of the way around the Sun and Mars over 1/8 of the way around. It just CAN'T be in the same place! But there it is. How can this be?! When we finally decided we were frozen to the core and our binoculars were too heavy to hold anymore, we came in. I headed for the computer to find out the story. It can be told easily by showing a chart – so without further ado, here it is:



Mars was just about where it was at the end of October and also where it had been near the beginning of September! It's been in retrograde since September 27, then caught up to where it was prior to the retrograde. I have to admit it fooled me when I saw the 'bright thing' down from and to the right of the Pleiades and thinking it would be far from where it was in the early fall. The retrograde motion of Mars is a result of the relative motions of the Earth and Mars around the Sun and Mars' position relative to the background stars as seen from Earth. Mars isn't ***really*** stopping, backing

(continued on page 4)

Meeting this month

This month's program features Dave Richards, Director of the Hoover Price Planetarium in Canton. His talk will explore the history of the planetarium and share some interesting questions he has been asked by visitors to the planetarium. In addition, he will discuss how ACA members can get involved with the planetarium.

OFFICERS 2005 – 2006

President
Dave Jessie 330-688-9043 djessie@neo.rr.com

Vice President
John Crilly 330-334-6668 jcrilly@neo.rr.com

Treasurer
Diane North 330-819-4330 diane@beadgirl.com

Secretary
Pete Flohr 330-645-9153 jlf31@uakron.edu

Assistant Secretary/Treasurer
Rosaelena Villasenor revillasenor@hotmail.com

Observatory Director
Mark North 330-819-4394 mark@marknorth.net

ACA Webmaster
Glenn Cameron 330-456-2022 glenn@cameronclan.org

Editor, Night Sky
Ray Hyer 330-784-3970 rhyer@neo.rr.com

Trustee (term through 2006)
Tom Mino 330-923-7704 tjmino@neo.rr.com

Trustee (term through 2007)
Jeff Haren 330-773-6842 eharen@neo.rr.com

Trustee (term through 2008)
Freddy Huffman 330-535-8009 atmos@netzero.com

Statutory Agent
Mark Kochheiser 330-882-3713 mkochheiser@neo.rr.com

OTAA Representative
Lou Poda

Activities Calendar

Club

February 24, 8 pm Monthly Meeting

February 25, 7:30 pm Open house at Observatory

March 3, 7:30 pm (rain date for above event)

March 24, Monthly Meeting

March 25, Open house at Observatory

Celestial

February 12, Full Moon

February 14, Mercury 1.4 deg. from Uranus

February 27, New Moon

March 14, Full Moon

March 20, Spring begins 1:26 PM

March 29, New Moon

The deadline for article submission is **the second Tuesday after each meeting**. All word processing files should be saved in straight ASCII text files or any version of Word to minimize import problems. We will not turn away **any** submission, as long as the article's subject is astronomy or a related topic. If you don't have access to a computer, don't hesitate to write something out long hand. As long as it is legible, I will slave over the keyboard and get it published.

PLEASE SEND IN YOUR ARTICLES!!!!

Send your articles, items for sale, and comments to:
Ray Hyer 725 Brewer St. Akron, OH. 44305 email rhyer@neo.rr.com

Minutes of the ACA General Membership Meeting on Friday January 27, 2006
By Rosaelena Villasenor, Assistant Secretary/Treasurer

1. VP John Crilly gave a presentation on his trip to the 305 meter Arecibo Radio Telescope. John's presentation was quite interesting and well received!

2. The business portion of the meeting began at 9:05 and lasted 57 minutes.

3. Observatory Schedules for 2006 have been printed and were available at the meeting. Copies were sent in the last newsletter, are available at the observatory and are also available from the ACA website.

4. With the increase in postage, members have been asked to downloaded and print the newsletter from our website instead of taking the snail-mail copy. Contact Dave Jessie if you'd like to help out the club by opting out of the printed newsletter.

5. Our new Optoma DLP projector was used for John's presentation – the first time we've seen what a nice job it does! This projector is available for outreach, in-house ACA presentations as well as programs at the observatory.

6. A request was made for ideas for meeting themes and topics when a speaker cancels or can't be found. If there is no speaker for the next meeting, the topic that was suggested is 'Cleaning Optics' (excellent suggestion!)

7. Outreach request have been received via email. John Crilly asked for volunteers. Date and place to be announced closer to the events.

8. Loaner telescopes are available to members. There is a 90 day agreement to sign. Please contact any of the trustees or the Observatory Director if you'd like to borrow one.

9. The ACA library books are for sale: 3 books for $5.00.

10. The unused and unloanable telescopes owned by the club are for sale with members getting first choice. If, after 30 days, no member expresses interest, the scopes will be sold to the public via eBay or Astromart. Please contact any of the Trustees if you'd like a great deal on a scope!

11. The club is going to have another Messier Marathon. It will occur on Saturday, April 29th/Sunday April 30th.

12. Astronomy Day is coming soon and various sites were mentioned including bookstores. Further discussion to take place.

13. Our next meeting is the FOURTH FRIDAY in FEBRUARY, 2006. That's February 24th, 2006.

Treasurer's Report: 1/1/06 - 1/31/06
Diane North, Treasurer

Total Beginning Assets	**$7,651.36**
Income	
Interest on balances	$6.87
Magazine Subscriptions	$32.95
Expenses	
Newsletter Expense	$(24.08)
Observatory Schedules	$(91.00)
Observatory Improvements (lighting project & plaque)	$(218.92)
Speaker's dinner reimbursement	$(17.00)
Charitable donation (Clear Sky Clock)	$(50.00)
Magazine subscription	$(32.95)
Total Ending Assets	**$7,257.23**

Scopeless in Tucson

For those who do not know me, I happen to be a jeweler. I went to one of the industries finest shows this last week in Tucson, Arizona. It was killing me that I did not take my scope out to this exceptional dark sky part of the country while there was no moon and Saturn is at its best. The show takes place at a beautiful mid-mountain resort. One can look up and see the Milky Way anywhere on the resort (just like Akron).

So here I am bemoaning not having a scope when I am introduced to a metallurgical genius in the name of Steve Kretchmer. He is the owner of many innovative patents in tension setting of gemstones and of different platinum alloys that have exceptional characteristics. Yes I am putting his unbelievable line in my store but my experience with him was nothing compared to meeting his daughter Claudia. Hey, no funny ideas, I am happily married and she has a boyfriend***. SHE IS AN ASTRO-PHYSICIST!!!*** Claudia is working in Tucson on her doctorate in galactic morphology.

Claudia was kind to a mere mortal armature like me and said nice things about my Saturn picture. She brought her computer in the next day to show me some of the work she is doing. ***Too cool***.

Claudia is analyzing pictures from the Hubble Space Telescope in both visible light and infrared. She was showing me the hidden structures of galaxies. The galaxies she is studying are typically 8 billion years old and older. Her research has shown that The Hubble theory on galactic evolution is correct **if** you work it backwards. For example, the classic Hubble theory states that spiral galaxies are older and more developed that elliptical ones. Well actually elliptical galaxies are the result of two spirals colliding. I know I am probably butchering many of the details.

It is genuinely so exciting to meet and discuss the current discoveries and questions with a person on the leading edge of this research. Claudia was great in talking about these areas in layperson's terms. I look forward to reading about her research.

For us, remember to take your daughters out stargazing, one of them might be the next Claudia Kretchmer.

John Shulan

(continued from page 1)
up, stopping and reversing its direction of motion – it just appears that way! It's what made Kepler pull his hair out until figuring out the laws of planetary motion based on Tycho Brahe's years of careful observation and records of same. It's truly a fascinating story that I hope you'll read more about.
By the way, the computer software I used to produce this chart was ***GUIDE8*** available from www.projectpluto.com and is my favorite astronomy software, by far. That said, there's a new member of my astro-software library: ***CARTES du CIEL*** (French for 'Sky Chart') of which I'm becoming quite fond. Watch for a future article containing a review. Oh, by the way, this software is totally ***FREE*** and available for download from the Internet. Just one more comment about this chart… please notice that on Feb 17th, Mars will be just over 2 degrees from the center of the Pleiades and be a beautiful site in binoculars or wide-field telescope. See if you can get both in your field of view. Don't forget Saturn just over one degree from the center of the Beehive – another magnificent view!

Now for some truly tragic news. As most ACA members are aware, Jim Anderson, past office holder for the Club and dedicated observer, passed away at his home on Friday, Jan 27. We will miss Jim, his contagious laugh and his unbelievable dedication to observing despite physical difficulties that would sideline most of us. The paved northwest corner near the observatory was where Jim always set up his telescope…I know I'll never be able to see that corner without thinking of him. We will all remember Jim and his love for astronomy and the Club.

Jim, rest in peace among the stars which you so dearly loved.

Dave

The ACA would like to extend a warm welcome to the following new members…

Roger King
Matt Weber
Emery Prior

We are thrilled to have you as members and look forward to seeing you at ALL club meetings and events!

AUTOGUIDING?

In olden times astrophotographers shot using 35mm film, frequently taking exposures of an hour or more. To avoid trailing of the image, they would use a separate guidescope on the same telescope mount, and watch a guide star in a cross hair eyepiece. They would keep the object centered by pressing buttons on a handbox connected to the mount's drive system to correct for speed variations and/or drive misalignment. We've all seen some of these early photos and the results were worth the effort - but it must have been very challenging physically.

Shorter exposures are generally required with electronic imaging due to the elimination of reciprocity failure, a characteristic of film causing the effectiveness of a given exposure to drop as the exposure time grows longer. Electronic imaging lends itself to the stacking of short exposures to simulate a longer one. Still, even the best mounts (in the $10,000 class) can't deliver the tracking required for exposures of more than a few minutes at moderate image scales. Autoguiding is still an important tool.

The first autoguiding system with which I'm familiar was an optional accessory for the Accutrack drive corrector. Drive correctors were used to vary the frequency of the AC power supplied to the telescope's drive motor, to control the tracking speed. My old C14 (80's vintage) came with an Accutrack unit and also included an optical sensor which could be inserted into an eyepiece holder. It kept track of the light level detected, and automatically sped or slowed the drive to correct for drift - at least that's what it said it did. I never tried it. I'm sure it wasn't very sensitive and it must have been challenging to find a sufficiently bright guide star near the object to be imaged. It could, of course, only be used with a mount that had an AC motor for the drive. More modern mounts require something more sophisticated.

The first popular dedicated autoguider was the SBIG Star Tracker 4 (ST-4). This was a miniature dedicated CCD imaging camera primarily intended for use as a guider. It was cooled, as premium CCD imagers are to this day. This permitted high sensitivity and relatively long exposures while keeping noise to a minimum. Its dedicated controller observed a guidestar and emitted control pulses based on the direction in which it detected the guide star to be moving - plus or minus in right ascension, plus or minus in declination. These four signals could be fed to a telescope mount via the same connections previously used for a four-button handbox for manual guiding. Manufacturers soon began to include an accessory jack intended specifically for this type of autoguider. The amazing thing is that they very nearly standardized the connections! Vixen uses the usual connector but a strange pinout; most other manufacturers are in agreement and the same autoguider can be connected to, for example, a Meade mount or a Celestron mount with no changes whatever.

Another popular early dedicated autoguider was the Meade 201. This unit was much simpler than the ST-4, having no external computer module. It was self-contained in a small housing. It was uncooled, though, making it less sensitive than the ST-4. More elaborate cameras with imaging capabilities from both Meade (208, 216) and SBIG often included the ability for standalone autoguiding when not being used for imaging. Later SBIG cameras incorporate a second imaging chip with support electronics for autoguiding while the main chip is used for imaging.

These days the 201 and ST-4 are no longer available. The only dedicated autoguiding camera with which I'm familiar is the STV, which sells for about $2000. Folks looking to gain autoguiding capabilities for less expense are exploring other options. Webcams or webcam-like cameras (LPI, DSI, NexImage, etc.) are being used by many.

These devices aren't capable of standalone use; they require a laptop or PC plus software that can analyze an image, detect relative motion of a guidestar, and issue commands to the mount that are used to correct the error. One popular (and free!) program is GuideDog. This software can control all the standard webcams and can issue serial command strings to all of the popular computerized mounts. The mount's controller decodes the ASCII string, parses the motion command, and adjusts the telescope accordingly. This mode doesn't use or require the dual-axis autoguide port mentioned earlier. Disadvantages include the necessity for a computerized mount as well as possible issues with command decoding delays. For a more rigorous solution, GuideDog and most other guiding programs can issue the dual-axis commands used by the earlier guiders via the computer's parallel port. Interfaces are available from Shoestring Astronomy to isolate these and feed them into an old-fashioned autoguide port. This eliminates command decode timing issues and will work with older, non-computerized mounts. Even though my mounts are computerized, I frequently use this setup to avoid communications issues - and to permit switching of mounts without having to reconfigure my cables or software.

The Veep aka John Crilly

Looking for a Loaner?

Just because you don't own a telescope is no excuse for not enjoying close up view of the heavens. If you are a member of the ACA you may borrow a scope to use for three months of celestial awe.

If you are interested please contact Mark North, Observatory Director or any of the Trustees.

Jovian Skies: An update on the sky at 20.1MHz

By Jason Shinn, Astronomy Club of Akron

Special thanks to Richard Flagg, Univeristy of Hawaii Windward Community College Radio Observatory, and Wes Greenman, University of Florida Radio Observatory, for their technical oversight in preparing this article.

The beginning of the 2006 Jupiter season is proving to be somewhat dry. A number of natural factors have come together to test the patience of even the most diligent radio astronomer. The first and most visible is Jupiter's movement to southern declinations, placing it lower in the southern skies for northern hemisphere observers.

To counter the reduced sensitivity to Jupiter's signals, an extra measured length of coax has been added to the southernmost of the twin dipole array. This moves the antenna beam, the area in the sky of highest sensitivity, lower toward the horizon. This simple modification has been successful in keeping Jupiter within the reach of high latitude Jove telescopes.

The second, perhaps the most important factor, is a term called the *Jovicentric Declination of Earth*, also known as D sub e. This describes the declination of the earth as it appears in the sky if you were standing on Jupiter. When the declination number is positive the probabilities are better at hearing a radio storm than if the number is negative.

This year D sub e reaches its most negative point, reducing the probability of hearing Jupiter during predicted bursting. However, since D sub e is lowest in 2006 the probabilities for hearing Jupiter can only get better. This year's season is just beginning so it remains to be seen just how active Jupiter will get.

The third and final factor comes between the years 2007 and 2009. Jupiter will be crossing the galactic plane through Sagittarius. This happens to be the "hottest" part of the sky where decametric radiation from the Milky Way is concerned. The increase in background noise from our own galaxy may make it difficult for low gain antennas to detect faint Jovian signals. Stronger signals will come through but the difference between the galactic background and the peak strength of Jupiter's signal may be somewhat reduced.

Hence the use of a high gain antenna is effective in mitigating the problem. The Jove twin dipole has a decent gain. It will be most interesting to see just what kind of effect, if any, the Milky Way will have on receiving Jupiter with the Jove project setup. Prospects for solar observing at decametric frequencies are not the best this year.

The current solar cycle is predicted to bottom out late this year, followed by a gradual rise in activity which should peak in 2010 (or perhaps later). Solar maximum should occur somewhere around 2010, perhaps even later.

For weeks there has been absolutely nothing coming in from the sun at 20.1MHz. The only exception has been a small burst detected January 24th. The University of Florida Radio Observatory's radio spectrograph showed the same emission peaking around 24 MHz. The total lack of solar decametric activity has been as bad as a cloudy month here in hometown Ohio. It has been said that radio astronomy will teach you patience, and I am beginning to believe it.

When the sun doesn't shine and Jupiter goes silent there is always that ever present beauty, the Milky Way. It's gentle, constant hiss rises and falls with the motion of the stars, and as it makes its daily pass I listen and measure with enthusiasm and wonder.

Sometimes, on the clearest of nights, I am inclined to go out among the ropes and poles that make my ear to the sky. I gaze past copper wires, across thousands of light years, deep into the heart of heaven. I am reminded of a time long ago when humankind first turned an ear toward the sky and discovered that the heart of heaven sings.

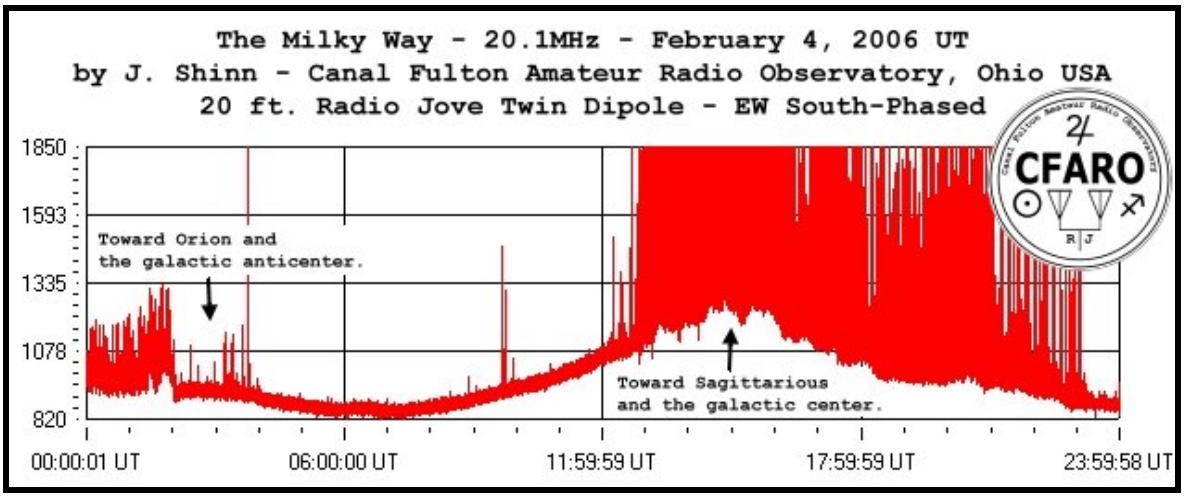
LINKS:

Project Radio Jove
http://radiojove.gsfc.nasa.gov/

The Canal Fulton Amateur Radio Observatory
http://members.aol.com/cfaro/index.html

University of Hawaii Windward Community College Radio Observatory
http://jupiter.wcc.hawaii.edu/

University of Florida Radio Observatory
http://ufro1.astro.ufl.edu/



SURPLUS CLUB ASTRO GEAR UP FOR GRABS!

The Club will be selling some excess astronomy gear over the next several months. It will be offered to Club members first at what should be a very attractive price - first come, first served. If no members want to take advantage then 30 days after each sales announcement is distributed the gear will be offered to the general public for whatever the traffic will bear. Descriptions of the gear and its condition are accurate to the best of our knowledge, but at these prices all sales will be final.

FIRST UP:

CELESTRON C11 FORKMOUNT SCHMIDT-CASSEGRAIN TELESCOPE. THIS IS AN 11" f/10 SCT FROM THE LATE 80'S OR EARLY 90'S. IT INCLUDES A HARDSHELL CASE, AN AC/DC DRIVE CORRECTOR WITH HAND-BOX AND DUAL AXIS MOTORS, A RIGHT ANGLE POLAR FINDERSCOPE, A HEAVY DUTY C11/C14 WEDGE, AND A FIXED-HEIGHT FIELD TRIPOD WITH WHEELEY BARS. THERE ARE NO KNOWN OPERATIONAL PROB-LEMS WITH THIS TELESCOPE.

The C11 WILL GO TO THE FIRST CLUB MEMBER WHO DELIVERS $1000 CASH.

SECOND UP:

CELESTRON C8 ULTIMA FORKMOUNTED SCHMIDT-CASSEGRAIN TELESCOPE. THIS IS AN 8" f/10 SCT FROM THE EARLY TO MID 90'S. IT INCLUDES DUAL AXIS ENCODERS, A DIGITAL SETTING CIRCLE CONTROLLER,A "FOOTLOCKER" CASE, AND A TRIPOD/WEDGE COMBO. IT HAS DRIVE CONTROLLER PROBLEMS BUT AP-PEARS TO BE GOOD OPTICALLY. WE'LL SELL IT FOR LESS THAN WHAT THE OPTICAL TUBE WOULD BE WORTH SEPARATELY. ***THE C8 GOES FOR THE FIRST $500.***

These telescopes may be inspected by contacting Club Trustees Freddy Huffman, Jeff Haren, or Tom Mino; or Obser-vatory Director, Mark North.

The Night Sky
Newsletter of the Astronomy Club of Akron
c/o Ray Hyer, Editor
725 Brewer St
Akron, OH 44305-2103

To join the ACA, ***or to renew your membership***, please fill out the form below, place in an envelope and mail to the address shown in the return address area of the form.

Please be sure to enclose payment for the membership level desired.

The Astronomy Club of Akron
c/o Diane North, Treasurer
795 Mohawk Ave
Akron, OH 44305-1811

Yes! I want to become a member of the Astronomy Club of Akron
www.acaoh.org
(PLEASE PRINT)

NAME: _____ PHONE: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

EMAIL ADDRESS: _____

Astronomy Club of Akron annual memberships renew in the month of May.

ADULT (ages 18 and older)..... $30.00	JUNIOR (ages 12 to 17).....$15.00
ADDITIONAL ADULT member $15.00	FAMILY MEMBERSHIP $40.00

☐ I realize the full color version of *The Night Sky* newsletter is available for download by members from our web page at www.acaoh.org, but I would rather have the B&W version mailed to my address via USPS.