



The Night Sky

The Newsletter of
The Astronomy Club of Akron

www.acaoh.org

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February 2007

RAMBLINGS OF THE PRESIDENT

by Dave Jessie

Last month, I mentioned that the holidays were over. Not so! How could I have forgotten Groundhog Day?! Every year on February 2nd all attention is on Punxsutawney Phil's shadow. According to folklore, if Phil sees his shadow we're in for six more weeks of winter. Of course, us long-time NE Ohio residents know whether Phil sees his shadow or not, we're in for eight more weeks of winter. ;^(

As I write this, we're experiencing a very deep freeze - last night the wind-chill was a near-record 25 below zero. Not exactly the temperature we prefer for extended nights under the stars - no matter HOW clear it is. Fast viewing with binoculars is a great quick fix, but not when your eyeballs freeze to the eyepieces! OK. No viewing lately. So what do we do?

Well, I like to prepare for the upcoming season. Somehow, it makes the lack of starlight tolerable, at least for a while. Prepare how? I heard someone ask.

I adjust tripod and mount to tighten up potential wobbles, charge (or change) batteries, grease gears, clean optics, look at catalogs (yeah, I know... that can get expensive!), check the Internet for astronomy news, load my favorite astro-software and see what's currently overhead, and plan ahead for when the weather lets us get back to what we love.

We have MANY events planned for this coming season and I'm excited about them all. The ACA was recently contacted by Joe DeRocher, astronomer at the Cleveland Museum of Natural History, about participating in their **Astronomy Day** festivi-

ties. We happily accepted! **Astronomy Day** occurs on Saturday, April 21 this year. Look for additional information about this event in upcoming issues.

We are also entertaining the idea of participating in the **Earth Day** event at the Akron Zoo the following Saturday, April 28, as we did last year. Both these events have the potential to get more folks involved in amateur astronomy and we just can't afford to allow these gold-plated opportunities pass without giving our best effort.

A sad note...the passing of a friend: *Sky & Telescope's* sister publication, *Night Sky*. Rosaelena and I subscribed when the magazine was first announced a couple years ago, and have been recommending this magazine to all beginners and to seasoned observers as well ever since.

This month's edition was its last. A one-page letter to subscribers written by editor, Kelly Beatty, sums it up...insufficient subscribers to make the magazine profitable. Why? General lack of interest among new amateur astronomers.

I think the real explanation is that there are very few incoming amateur astronomers due to many reasons...loss of the night because of light pollution, lack of interest among kids more interested in the latest computer games, loss of importance of educational activities, the list is long and the trend is disturbing.

All this makes our participation in **Astronomy Day** and **Earth Day** all that more important. Please help us get the word out how rewarding this avoca-

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Topic for February's meeting at the Kiwanis Civic Center at 8:00pm on Friday, Feb 23, 2007:

"Something Old and Something New" - Bring your first (or longest-owned) and your newest (or latest acquired) piece of astronomy gear and tell us about them. Come on, don't be shy! This will be a lot of fun, but we need you to participate!

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Activities Calendar

Club

Celestial

Feb. 17, Open House and Star Party 7:00 pm February 17, New Moon

Feb. 23, ACA General Membership Meeting
8:00 pm March 3, Full Moon

Mar. 10, Open House and Star Party 7:00 pm

Mar. 17, Open House and Star Party and
Messier Marathon 7:30 pm March 18, 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: Justin Phillips 402 Crystal St. Akron Ohio
email phillipsaca@gmail.com

(Continued from page 1)

tion truly is. What video game can compete with the thrill of hunting down and actually seeing, with one's own eyes, a galaxy so distant that its light takes tens of millions of years to reach us? How many millions of planets could be there and how many of them might harbor life? How many might be looking back at us this very second? Heady stuff, all. Now, let's get out there, observe, have a great time and show the uninitiated how great all this can be!

Treasurer's Report: 1/1/07 - 1/31/07

Steve Rohweder, Treasurer

Total Beginning Assets	\$8,853.23
Income	
Interest on balances	\$5.93
Dues	\$50.00
50/50 Drawing	\$11.00
Expenses	
Newsletter Expense	(\$12.00)
Total Ending Assets	\$8,908.16

OTAA Events for 2007:

May: OTAA Scenic Vista Stargaze - Saturday May 19, 2007 (Scenic Vista Park, Lisbon, OH.)

June: CVAS (Chagrin Valley Astronomical Society) - Saturday June 16, 2007 - at the Indian Hill Observatory

July: CAA (Cuyahoga Astronomical Association) - Saturday July 14, 2007 - at Letha House

August: MVAS (Mahoning Valley Astronomical Society) - Saturday Aug 11, 2007 - at the Cortese Observatory

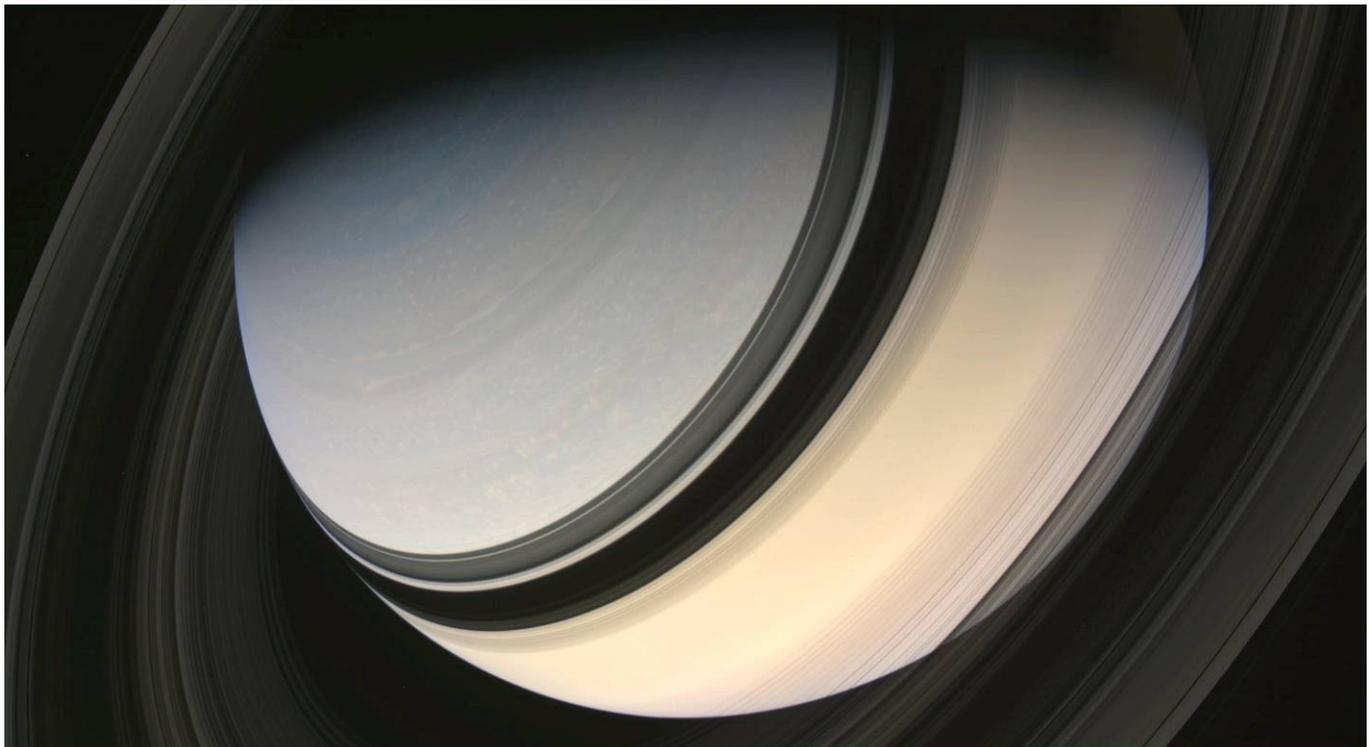
September: BRAS (Black River Astronomical Society) - Saturday Sept 15, 2007

October: RAS (Richland Astronomical Society) - ?? Saturday Oct 13, 2007 ??

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

Rick Bradley and family
Len Marek

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



Saturn in color: This striking color mosaic of two Cassini images was created by a member of the Unmanned Spaceflight forums (<http://www.unmannedspaceflight.com/>) using raw images from the Cassini website (<http://saturn.jpl.nasa.gov/>). Used with permission.

Credit: NASA / JPL / SSI / Ian Regan

A New Look at Yesterday's CCD Imaging Gear

John Crilly
1-25-2007



MY PERSPECTIVE

My first dedicated, cooled CCD imaging camera was a Meade 216XT with 616 color filter wheel. I later owned the SBIG/Celestron ST-5C and a couple of Meade 416XTE cameras. I've also owned and used Meade's DSI, DSI Pro, and LPI cameras as well as Celestron's NexImage and SAC Imaging's SAC-7B. Dedicated astro-imaging software that I own and have used includes Maxim/DL-CCD, Images Plus, CCDSoft, CCDOps, K3CCDTools, Registax, and Astrovideo.

Despite all this, nearly all of my imaging has been done using first a stock Canon 300D DSLR and later an IR-modified 300D. The primary reason is that my first Canon arrived at about the same time as my observatory. I can't resist adding the otherwise irrelevant comment that an observatory is the best imaging accessory there is. My desire to return to monochrome imaging with its improved resolution is what prompted this research.

MODELS TO CONSIDER

ST-237A

In my opinion, the first model to consider is the ST-237A. This economy model (at least for an SBIG) boasts an imaging area of about 4mm X 5mm and a resolution of 657 X 495 pixels plus very powerful imaging and processing software. These can be found complete with the internal color filter wheel and plenty of great software for \$500-\$700. They lack the USB interface of the DSI Pro/DSI Pro II but use active, regulated cooling and a very sensitive chip. Filters can be switched remotely and the camera can also be used as a guider. The lack of USB is a real issue for many laptops but for those of us using desktop computers for camera control they are fine.



ST-7 AND VARIANTS

The next model to examine is the ST-7. The ST-7 has a slightly smaller imaging chip than the ST-6 (4.5mm X 7mm) but a higher pixel count (765 X 510 pixels) due to smaller pixels. This is very similar to the popular DSI Pro but in a high-end package. The best feature is the addition of a second imaging chip inside the camera body.

This permits autoguiding from the same telescope as the imager - no more off axis guiders or separate guidescopes. Here's the model number breakdown: The original, parallel interface, dual chip self guiding camera is the ST-7. An economy model was briefly offered as the ST-7I without the self-guiding chip. A model with enhanced blue sensitivity was offered as the ST-7E. A model with microlenses to focus all the light onto the pixels and away from the spaces between to increase sensitivity yet further was called the ST-7ME. Adding an AX@ to any of the later models means it has the very desirable USB interface. New price on an ST-7XME is about \$2200. The CFW-8a filter wheel accessory adds about \$900 to that. You can find used parallel interface, self-guiding ST-7's and ST-7E's for about \$800-\$1000. With the color filter wheel figure \$1300-\$1500.



ST-8 AND VARIANTS

Next is the ST-8, arguably the sweet spot in performance v. price. The ST-8 has an imaging area of 9mm X 14mm (exactly twice the ST-7's dimensions) in an array of 1530 X 1020 pixels. The model nomenclature follows the ST-7 format. A new ST-8XME sells for about \$4500. A self-guiding, parallel ST-8 or ST-8E will go for \$1300-\$1500, an ST-8I for less. For a self-guiding, parallel ST-8(E) with color filter wheel (these cameras use the same CFW-8(a) as the ST-7 series) figure on about \$1800-\$2000. Yes, the chip

is about half the size of a DSLR but it's cooled for less noise, has terrific sensitivity, no Bayer matrix filters, and comes with great software. It was designed solely for the purpose of astro-imaging.



APPENDIX

What do all these numbers mean? The pixel matrix array is pretty simple to understand; it defines the overall size of the image created by the camera. The chip dimensions determine the field of view the camera can see with a telescope of a given focal length. This can be calculated by the formula, $57.3 / \text{Focal Length of Objective (mm)} \times \text{chip size in mm}$. The pixel size determines the resolution attained for a given focal length; smaller pixels result in higher resolution. Oversampling occurs when the pixels are so small relative to the focal length that the resulting resolution exceeds the limitations of seeing or of the optical system. This wastes camera performance but does take advantage of all the resolution the optical system can deliver. Undersampling results when the pixels are too large, failing to take advantage of the available resolution of the instrument. Imagers usually try to select a camera and telescope which will deliver on the order of 1 to 2 arcseconds of resolution. For a 1000mm telescope, this would require pixels of about 3.5 to 7 microns. Hint - rather than do the math, just download CCDCalc, a free CCD calculator from "New Astronomy Press" at <http://www.newastro.com/newastro/default.asp>.

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Newsletter of the Astronomy Club of Akron

c/o Justin Phillips, Editor
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Akron, OH 44305-3116

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 Steve Rohweder, Treasurer
3981 Meadow Wood Ln
Uniontown, OH 44685-7785

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.