

GuideStar



November, 2011

Volume 29, #11

At the November 4 Meeting

Lunar Swirls

Dr. Georgiana Kramer

Postdoctoral fellow at the Center for Lunar Science and Exploration

Lunar swirls are unusual, curvilinear surface features the origin of which has been debated for



many years, but a consensus that explains their formation remains elusive. From the collection of measurements over the past 40 years, we know that every swirl is: 1) spectrally immature, and 2) associated with a local magnetic anomaly (although not every lunar magnetic anomaly has a recognized swirl). New measurements from four recent international

lunar missions and the active collaboration of experts in the scientific fields from which these instruments derive have begun to shed new light on the elusive lunar swirls. The wide range of scientific fields and instrument observations demonstrates that the study of lunar swirls is more than just a study of a lunar phenomenon. The swirls provide a laboratory to study the solar wind, space weathering, and complex electromagnetic interactions in the solar system.

Highlights:

Report of the Nominating Committee	4
Atila Danko - Clear Sky Chartmaker	6
The Gray Cubicle You Want	9
Northern R Cor Bor Stars	10
Northern R Cor Bor Stars	10
Kids Outreach Schedule	13
Almach—a Lovely Double Star	14

HAS Web Page:

<http://www.AstronomyHouston.org>

See the *GuideStar's* Monthly Calendar of Events to confirm dates and times of all events for the month, and check the Web Page for any last minute changes.

Schedule of meeting activities:

All meetings are at the University of Houston Science and Research building. See the inside back page for directions to the location.

Novice meeting: 7:00 p.m.
Alan Rossiter — Introduction to HAS Outreach Program

General meeting: 8:00 p.m

See last page for directions and more information.



The Houston Astronomical Society is a member of the Astronomical League.

The Houston Astronomical Society

The Houston Astronomical Society is a non-profit corporation organized under section 501 (C) 3 of the Internal Revenue Code. The Society was formed for education and scientific purposes. All contributions and gifts are deductible for federal income tax purposes. General membership meetings are open to the public and attendance is encouraged.

Officers & Past President

President: Ken Miller C:713-826-1049
 Vice Pres: Gordon Houston C:713-906-9101
 Secretary: Rene Gedaly H:281-300-3559
 Treasurer: Warren Murdoch H:281-293-8164
 Past President: Bill Leach H:281-893-4057

Additional Board Members

Bill Flanagan H:713-699-8819
 Bram Weisman C:832-338-9499
 John Missavage C:281-795-4443
 Greg Barolak H:281-467-5780
 Chris Mendell H:281-291-9544

Committee Chairpersons

Audit Scott Mitchell H:281-293-7818
 Education Richard Nugent H:713-524-1993
 Field Tr./Obsg Siobhan Saragusa H:713-376-5873
 Novice Justin McCollum H:409-212-2795
 Observatory Vacant
 Program Brian Cudnik H:832-912-1244
 Publicity John Missavage C:281-795-4443
 Telescope John Haynes H:802-363-8123
 Welcoming Katy Keene
 katykeene@comcast.net

Ad-Hoc Committee Chairpersons

Texas Star Pty Steve Goldberg H:713-721-5077

Advisors

Dr. Reginald DuFour, Rice Univ.
 Dr. Lawrence Pinsky, U. of H.
 Dr. Lawrence Armendarez, U. of St. Thomas

Dues and Membership Information

Annual Dues:Regular\$36
 Associate.....\$6
 Sustaining\$50
 Student\$12
 Honorary..... N/C

All members have the right to participate in Society functions and to use the Observatory Site. Regular and Student Members receive a subscription to *The Reflector*. *The GuideStar*, the monthly publication of the Houston Astronomical Society is available on the web site. Associate Members, immediate family members of a Regular Member, have all membership rights, but do not receive publications. Sustaining members have the same rights as regular members with the additional dues treated as a donation to the Society. *Sky & Telescope* and *Astronomy* magazines are available to members at a discount.

Membership Application: Send funds to address shown on last page of *GuideStar*. Attention - Treasurer, along with the following information: Name, Address, Phone Number, Special Interests in Astronomy, Do you own a Telescope? (If so, what kind?), and where you first heard of H.A.S.

Table of Contents

3November/December Calendar
4Report of the Nominating Committee
5Observations of the Editor
6Atilla Danko - Clear Sky Chartmaker
9The Gray Cubicle You Want to Work In
10Northern R Cor Bor Stars
13Kids Outreach Schedule
14Almach - Lovely Double Star

Other Meetings...

Johnson Space Center Astronomical Society meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: www.jscas.net

Fort Bend Astronomy Club meets the third Friday of the month at 8:00 p.m. at the First Colony conference Center. Novice meeting begins at 7:00, regular meeting begins at 8:00. Web site: <http://www.fbac.org>

North Houston Astronomy Club meets at 7:30 p.m. on the 4th Friday of each month in the Teaching Theatre of the Student Center at Kingwood College.Call 281-312-1650 or E-mailbill.leach@nhmccd.edu. Web site: www.astronomyclub.org

Brazosport Astronomy Club meets the third Tuesday of each month at the Brazosport planetarium at 7:45 p.m. The Brazosport planetarium is located at 400 College Boulevard, Clute, TX, 77531. For more information call 979-265-3376

Report of the Nominating Committee

By Gordon Houston, Nominating Committee Chair

The 2012 candidates for officers, board members, and committee chairs are the following:

Officers

PresidentGordon Houston
 Vice PresBill Pellerin
 SecretaryDoug McCormick
 TreasurerWarren Murdoch

Additional Board Members

Greg Barolak
 Mike Edstrom
 John Haynes
 Mark Holdsworth
 Mike Rao

Committee Chairpersons

Audit.....Scott Mitchell
 EducationDebbie Moran
 Field Tr./Obsg.....Siobhan Saragusa
Patricia Nadema
 NoviceJustin McCollum
 Observatory.....Bob Rogers
 Program.....Brian Cudnik
 Publicity.....Mike Rao
 TelescopeJohn Haynes
 WelcomingKatie Keene

Past President

Ken Miller-(This position is not elected and is not determined by the nominating committee.)

This year, November 4th is the date of the HAS annual meeting, which is always the November meeting per the bylaws. The nominating committee's responsibility is to nominate at least

one person for each position. This is a challenging responsibility and as sometimes happens, we have several people in dual roles. The elections are not limited to the candidate list and nominations from the floor may be made.

Observations... of the editor

by Bill Pellerin, *GuideStar* Editor

Camp for All / Astronomy Day... fun

The weekend that began Friday, October 7th was a busy one. Many of us attended the All Clubs meeting at the Houston Museum of Natural Science. I wasn't able to attend the meeting, and I'd like to hear about it, so if you want to write a few paragraphs about the meeting for the *GuideStar* please do so.

I was at the **Camp for All** event near Brenham. The day had been partly (or mostly) cloudy, and our prospects for this outreach event were limited. We were to begin showing the sky to the campers and their families at 8:00 p.m. Like magic, the sky cleared up just



From left: Bill Flanagan, Vera Jeter, Jan Kunkhey, John Missavage, Brian Cudnik, Clayton Jeter (kneeling)

long enough for our star party. This event was sponsored by the Candlelighters organization for kids (and their families) who are patients at MD Anderson and Texas Children's Hospitals. We had volunteers from the area, including Clayton Jeter, Chris Westall, Carolyn Skopik, Lennie Brown. HAS volunteers included John Missavage, Jan Kunkhey, Brian Cudnik, and Bill Flanagan. My wife, Lori Valencic was helping out too.

Saturday, was **Astronomy Day**, and the weather didn't get any better over Friday night. That said, there were plenty of people who showed up for the event and some observing was done at night, mostly the moon and a few bright objects. It was a lot of fun, not as hectic as last year, but it represents one of the best volunteer opportunities of the year.

There were solar telescopes for observing the Sun, and 'regular' telescopes for nighttime objects. It was also *International Observe the Moon* night. One guy wanted to take a picture of the moon through my telescope, so I worked with him a bit to make that happen. I



Moon—taken at Astronomy Day 2011

I took a picture of the moon, too, and here it is. I simply aimed my point-and-shoot camera down the eyepiece and clicked the shutter. The trick, if there is one, is to set your camera for manual exposure. Remember, the Moon is a Sunlit object so it'll be as bright as any object in the daytime.

In This Issue

The report of our **nominating committee** is again in this issue of the *GuideStar*. Remember that nominations from the floor can be made at the November meeting.

Also in this issue is a list from Alan Rossiter of the available **star parties for children and the general public**. Check this list, contact the coordinator, and plan to come out.

Look for the article by Mike Simonsen (AAVSO) on a special, peculiar, type of variable star.

Until next time...

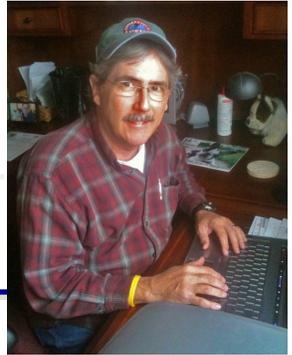
clear skies and new moons!

..Bill

Just Looking

A GuideStar Interview by Clayton L. Jeter

Atilla Danko—Clear Sky Chartmaker



It's really great to be able to plan my observing session for the coming night during my daily activities. It's all quite easy with several tools that I use. For the search, I use two different electronic star atlas's and my must have, "Clear Sky Chart" that Atilla Danko created for me. I use my home observatory ('Wonder Hill Observatory' listed on the chart below) nightly and his weather/seeing chart is a real godsend. This is an extremely accurate forecast of the coming sky conditions. If you have not used his

astronomy clubs sites and back yard observatories. For most North American observers, the clear sky charts have become an essential observation planning tool.

Version 2: Mostly true, less boring...

Atilla Danko suffers from cloud-induced astronomer's anxiety. Unable to treat his condition with mundane weather forecasts, that think "cirrus" means "clear", Danko despaired until he found an astronomy-specific data at the Canadian Meteorological Centre. Being too lazy to download 175 maps every time he wanted to observe, Danko wrote a script to extract the data for just his back yard. "Now I can see at a glance if I can observe tonight", he bragged to his friends, who insisted Danko do the same for their observing sites. Tired of describing them with pro-

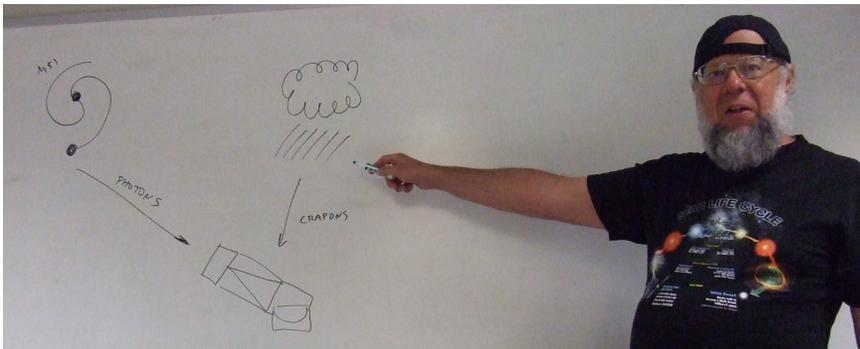
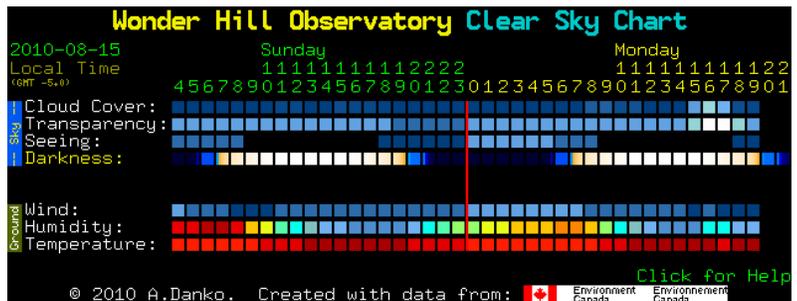


chart for your local area, you're in for a surprise. You need this tool.

I decided last week that it might be interesting to interview Atilla Danko for our HAS newsletter just to see what makes him tick. I wanted to know how he created and designed this wonderful astronomy device. As it turns out, he's not only sharp as a tack at computer gizmos, but a genuine comic! He's a real hoot! As you read his bio and his replies to me during this informative interview, you'll get a better idea of what I'm talking about. Enjoy the read. Here's Danko...



The Atilla Danko bio...

Version 1: True, but boring...

Atilla Danko is a Canadian amateur astronomer and computer programmer. In 2001 he took data from a weather forecast model run by the Canadian Meteorological Centre and created the Clear Sky Charts, which show hourly cloud cover, transparency, and seeing forecasts for specific observing locations. Danko supports clear sky charts for over 4000 observing sites in north American, including

nouns, Danko settled on the "not likely to get me sued" name of Clear Sky Charts. Things got out of hand and now Danko supports 4000 observing sites with Clear Sky Charts which he gives away for free since he completely forgot that web servers cost money. Luckily, the Clear Sky Charts are sponsored by the most intelligent and cool people on the planet.

(Continued on page 7)

(Continued from page 6)

The Attila Danko interview...

Clayton: I'm so glad to corner you here for this interview session. It's certainly a pleasure to have you take a moment with us here at the *GuideStar*.

Here goes...

Clayton: How did you first become interested in astronomy? Were you interested in the sky as a youngster?

Attila: It was the second book I ever read in grade one. It was called the "The Stars". I was learning to read. They said I should borrow a book from the library. The first one I read was "Joe's Luck", which I hated because it contained only falsehoods. (I was a little short of the concept of "fiction" at the time). I returned it and asked for something real. "The Stars" was a pretty impressive and sudden introduction into the immensity of physical reality. (Yes, I learned those words some decades later. :)

Clayton: I love your 'Clear Sky Chart' and it's very popular among the amateur. How many do you create for folks in a month's time? Do professional astronomers ask for charts too? How about celebrities?

Attila: I make a new CSC or two roughly every day.

Several professional astronomers have asked me to create charts for their observatories. Several have written to the Canadian Meteorological Centre (the source of the data I use to create the charts) to express that the forecasts are important for their observing programs. Two gamma ray observatories have asked me for charts, not for scheduling their observations, but for scheduling times when they can calibrate their instruments. Perhaps the most unusual was the USGS asking me to create a clear sky chart for the Deepwater Horizon. They wanted to be able to plan overflights of aircraft carrying optical instruments which they used to study the oil spill.

No celebrities. But then, I'm not good at pop culture. I'm not sure I'd recognize a non-astronomical celebrity.

Clayton: From your first idea until the final product on-line, how long was the process of implementing these charts? It must have been quite a feat.

Attila: The first one took an hour and displayed data for exactly 1 day one time. I made it for my back yard. Then I told a friend. Big mistake. He wanted one for his observatory. So did everyone else I knew. Then word got around.

I spent two years of essentially full time work coding the system that now generates all 4000 CSCs and synchronizes them on 3 redundant webhosts. Most of the effort was writing a fault-tolerant multi-computer processing system that could work on cheap computers and faulty commercial operating

systems. I still spend at least an hour a day (when I'm not trying to add a new feature) in maintenance and answering emails.

As for "final product online". It's not finished yet, so I guess the answer is "infinity".

Clayton: Anything new coming our way from 'Clear Sky Charts'....or is this TOP SECRET?

Attila: I have a very long "to do" list and a very short "free time" list. Most of my time is spent making improvements in reliability that, when they work, no one notices. However, I have dreams of world domination --- I mean extending the forecast beyond North America (I figure I'd save a lot of emails not having to apologize to Hawaiians.) The obvious way to do that requires a supercomputer and millions a year in licensing fees for raw data. Ok. I'll go with "TOP SECRET".

Clayton: What design telescope do you use? Like a guitar player, do you own more than one?

Attila: My main scope is a 25" Obsession with a Servocat drive. I use it both for deep sky and planetary observing. I have an 4" apo refractor that I use for sidewalk astronomy and wide-field deep-sky. I have two 10 inch dobs, one truss and one solid-tube that I use in the winter (since climbing the ladder to the eyepiece of the 25" is a bad idea when perched on a snow bank). I have two solar scopes, one of which is a dedicated 6" refractor. I have assorted small refractor and reflector OTA's and assorted equatorial and alt az mounts, so I could toss together another three or four complete scopes. I have a few spare objectives, secondary mirrors and focusers lying around somewhere.

Sometimes, just to annoy me, my girlfriend asks me "So, just how many telescopes do you have?", since she knows the answer is not an integer.

Clayton: Tell us about a typical observing session for yourself.

Attila: I'm a visual observer. I have a 25" dob. That's a "medium sized" scope in the USA, but in Canada people seem to think it's "large". Usually there are other people

(Continued on page 8)

(Continued from page 7)

around, or even members of the public. So I start by showing other people objects through my scope. Usually there are impatient beginner observers around, so I start by showing them globulars, Jupiter or Saturn. Those three objects are the only ones that will impress beginners even in twilight or in thin clouds. Then I move on to showing bright planetaries, bright emission nebulae and then bright galaxies and then progressively fainter and more esoteric objects as their dark adaptation and attention span allow. By 1 am or so, only the keeners are left so I look for galaxies in the 15th to 16th magnitude range. I particularly like galaxy clusters and interacting galaxies.

Clayton: Where is most of your observing performed?

Attila: Since trees have encroached upon the sky from my backyard, I no longer observe there. So I am itinerant. I trailer my scope to star parties, to public astronomy events, to my club's yearly picnic, to a nature conservation area that welcomes observers, and to an abandoned airstrip with mag 7.5 skies. So I must assemble my truss-dob every time I observe. I'm getting very good at collimation.

Clayton: Do you have an amateur observing mentor?

Attila: I started observing on my own from what I could learn from books. By the time I discovered astronomy clubs, I was already too opinionated to be able to absorb much explicit advice, though I have learned a great deal from watching and listening to many others. I don't think I can blame any particular person though.

Clayton: Have you a favorite star party that you attend regularly? Are there others?

Attila: I've been to the Winter Star Party five times. I've been to the Texas Star Party four times -- three times I trailered my 25" dob 2200 miles each way. I've been to Starfest (Canada's largest star party) twenty times. I'm not sure which is my favorite. WSP has the best seeing. TSP has the best transparency. I have a lot of friends at Starfest. Can I pick "all of them"?

My "what would you do if you won the lottery" fantasy involves going to every star party in North America.

Clayton: How do you envision amateur astronomy in the next 25 years?

Attila: I've heard too many dismal predictions of increasing light pollution and even global warming ruining the hobby, so my preferred prediction is: We will enjoy light pollution free skies with perfect transparency and seeing since we will all move to low earth orbit. As a side bonus, generating the clear sky charts will be particularly easy.

Clayton: Do you have any helpful advice to pass on to observers just starting out in astronomy?

Attila: Don't buy a telescope. Instead, join a club and go to star parties. Look through everyone else's telescope. If I'm there, look through mine. Don't spend money until you understand the differences between the many types of scopes.

Above all don't do what I did. In the early seventies, I bought a new Schmidt-Cassegrain for the princely sum of \$750. I was going to do deep-sky, planetary astrophotography all with the same scope and transport it to a dark site on my bicycle! I made my decision purely by comparing magazine ads. I had never looked through any SCT (never mind that model) and had no real idea how heavy or bulky they were. What arrived was possibly the worst telescope ever made. It barely resolved Polaris with its star images being 10 arcseconds across. (The manufacturer has since deceased.) I thought it was my fault -- that somehow I was not operating the scope correctly. Long after the warranty ran out, I joined a club and looked through real telescopes (not to mention learning how and what to observe) and learned that I had spent a fortune on junk.

Beginners should resist the lure of buying shiny toys and concentrate on observing the shiny universe.

Clayton: Is there an email address that you have that a HAS member could contact you for an additional question or two? What is the link to your 'Clear Sky Charts'?

Attila: Contact email: danko@pobox.com

Link to clear sky charts:
<http://cleardarksky.com/csk>
or Google "clear sky chart"

Clayton: Thanks Attila for taking the time to share your interest and thoughts within our *GuideStar* newsletter. We wish you luck with all of your astronomy interests. Again, thanks for another wonderful tool for us amateur and professional observers. Bravo. Clear skies always!

Clayton L. Jeter is an avid SCT visual observer and a long time member of the Houston Astronomical Society. Contact him at: stonebloke@gmail.com

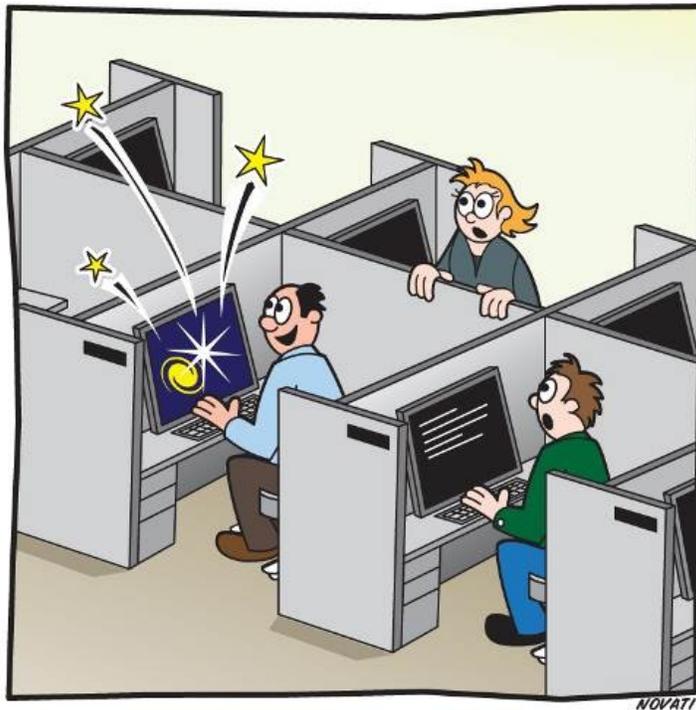
The Gray Cubicle You Want to Work In

By Dr. Tony Phillips

It's another day at the office.

You're sitting in a gray cubicle, tap-tap-taping away on your keyboard, when suddenly your neighbor lets out a whoop of delight.

Over the top of the carpeted divider you see a star exploding on the computer screen. An unauthorized video game? No, this explosion is



Some of the employees of NASA's Science Mission Directorate may work in gray cubicles, but their jobs are anything but dull. They get to study Earth, the Sun, the Solar System, and the Universe!

real. A massive star just went supernova in the Whirlpool Galaxy, and the first images from Hubble are popping up on your office-mate's screen.

It's another day at the office ... *at NASA.*

Just down the hall, another office-mate is analyzing global temperature trends. On the floor below, a team of engineers gathers to decode signals from a spaceship that entered "safe mode" when it was hit by a solar flare. And three floors above, a financial analyst snaps her pencil-tip as she tries to figure out how to afford *just one more* sensor for a new robotic spacecraft.

NASA Space Place

These are just a few of the things going on every day at NASA headquarters in Washington DC and more than a dozen other NASA centers scattered around the country. The variety of NASA research and, moreover, the variety of NASA people required to carry it out often comes as a surprise. Consider the following:

NASA's Science Mission Directorate (SMD) supports research in four main areas: Earth Science, Heliophysics, Astrophysics, and Planetary Science. Read that list one more time. It includes everything in the cosmos from the ground beneath our feet to the Sun in the sky to the most distant galaxies at the edge of the Universe. Walking among the cubicles in NASA's science offices, you are likely to meet people working on climate change, extraterrestrial life, Earth-threatening asteroids, black holes or a hundred other things guaranteed to give a curious-minded person goose bumps. Truly, no other government agency has a bigger job description.

And it's not just scientists doing the work. NASA needs engineers to design its observatories and build its spacecraft, mathematicians to analyze orbits and decipher signals, and financial wizards to manage the accounts and figure out how to pay for everything NASA dreamers want to do. Even writers and artists have a place in the NASA scheme of things. Someone has to explain it all to the general public.

Clearly, some cubicles are more interesting than others. For more information about the Science Mission Directorate, visit science.nasa.gov. And for another way to reach the Space Place, go to <http://science.nasa.gov/kids>.

Northern R Cor Bor Stars:

The Good, the Boring and the Unknown

By Mike Simonsen, <http://simostronomy.blogspot.com/>

Editor's Note: Some of you may have met Mike at this year's Texas Star Party. Great guy, and a lot of fun to be around. Mike is a serious variable star observer, and this article is about the class of variable stars similar to R Corona Borealis

Introduction

R Coronae Borealis stars (RCBs) are a small group of hydrogen poor, carbon rich supergiants that decline in brightness unpredictably and rapidly by up to 9 magnitudes, and remain at or near minimum light for several weeks or months, even years in some cases. It is generally accepted that the declines are the result of the formation of a cloud of carbon soot that obscures the stellar photosphere, and that this condensation takes place in matter that has been ejected from the stellar surface toward the observer.

Some RCBs exhibit more or less regular variations that may be interpreted as pulsations. The amplitudes of these changes are small, on the order of a few tenths of a magnitude, and have periods of approximately 30 days to 150 days. This pulsation appears to have no relationship to the obscuring events, and has been seen to continue through fading episodes in several cases.

Possible evolutionary tracks

RCBs are intriguing because they challenge our models for stellar structure and evolution. At first, they were believed to be highly evolved post-AGB stars, but most scenarios fail to explain the hydrogen abundance or trace their evolution back to the AGB.

Two more recent ideas suggest that 1) these may be 'born again' planetary nebula, created when the last thermal pulse is delayed to the point that it occurs as the star reaches the white dwarf phase. If the pulse is intense enough it may re-ignite a helium burning shell and expand the star to giant dimensions, moving it to the AGB for a second time, or that 2) RCBs may be the result of the merger of helium and CO white dwarfs. The merger theory goes a long way to explaining the exotic chemical composition of these stars.

The Family

Whatever their origin, this is a small group of unique, unpredictable stars, just my cup of tea! I've come to know many of them well through a decade of observations and I have subdivided the class into my own categories based on their relative activity and interest as targets for the visual or CCD amateur astronomer or hobbyist. I call them simply the Good, the Boring and the Un-

known. Let me introduce you to the 'family'.

The Good

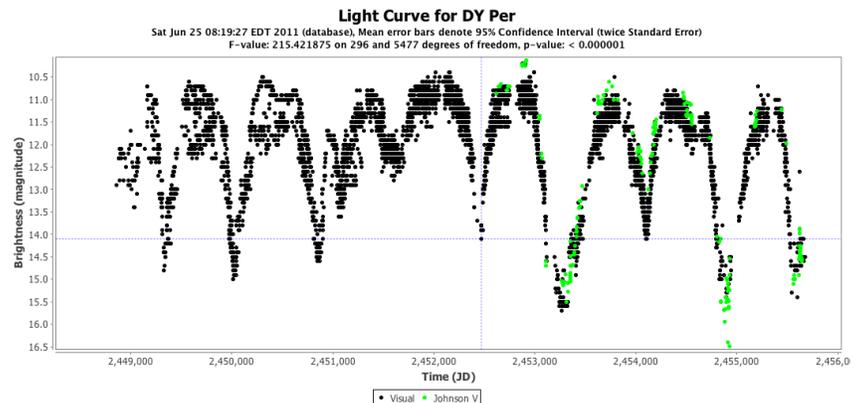
These are stars that provide a lot of entertainment value for the time invested in observing them. They are quirky and unpredictable, but most importantly, they are active. You don't need to wait five years to see a fading event or some small blip in a light curve. These stars are crazy and not afraid to show it.

DY Per

02 35 17.07 +56 08 44.7

Spec. type C4,5(R8)

Mag. range 10.6 - <13.2 V (16.5V aavso)



DY Per from 1992 to present

While this is certainly the light curve of an unpredictable star, the fading episodes do not follow the typical RCB pattern. Is DY Per a special case in a class of special cases? Instead of occasional fades every few years or so, lasting months at a time, these episodes are more or less regular and spend almost no time lingering at minimum or maximum light.

(Continued on page 11)

(Continued from page 10)

For the visual observer with a 10" or 12" telescope this star is visible during all but the very faintest excursions into 15th to 16th magnitude range, and as you can see, it will soon be back up if you just wait a couple weeks. DY Per is a solid performer and always a surprise from night to night.

SU Tau

05 49 03.73 +19 04 21.8
Spec. type G0-1Iep(C1,0 HD)
Mag. range 9.1 - 16.86 V (18.2V aavso)

Discovered by Annie Jump Cannon, SU Tau is another entertaining star to follow. The AAVSO light curve for this one goes back to 1909. As you can see from the above light curve, SU Tau has been very active since 1994, with an extended period after an initial fade where it tried to climb back to maximum light in fitful starts but sputtered again and again. It is now recovering from the third fading episode in the last decade. As with DY Per, visual observers can follow all but the very faintest periods of this star's unpredictable cycles.

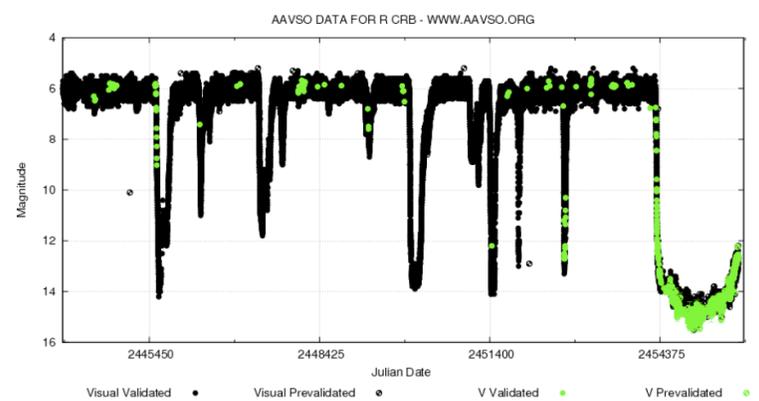
Z UMi

15 02 01.48 +83 03 48.7
Spec. type C
Mag. range 10.8 - 17.5: V (18.5V aavso)

Z UMi is another RCB that delivers a lot of action. Because it is circumpolar, the light curve is nearly continuous. As shown in this light curve, the fading episode prior to the current one was a record breaking affair, reaching an unprecedented minimum level and an extremely long, slow climb back to maximum light. After a typical interval at maximum light, Z UMi precipitously faded again and is currently recovering towards maximum. There is no guarantee it will make it to the top before sputtering or fading again, and that is what makes observing these stars on a regular basis so much fun.

R CrB

15 48 34.41 +28 09 24.3
Spec. type C0,0(F8pep)
Mag. range 5.71 - 14.8 V (15.4V aavso)



Thirty years of R CrB

The prototype of the class, R CrB is a binocular star hovering around 6th magnitude most of the time. Then, unpredictably it fades rapidly, diving for cover in

the inner sanctum at or near 14th magnitude. However, we live in interesting times, because the last fade of R CrB was one for the record books. In July of 2007, R CrB began to drop. By October it was 14th magnitude, but R CrB was only beginning to put on the show of the ages. In February 2009 observations of 15th magnitude began to come in, with no sign of a recovery. In fact, R CrB did not even get back to 14th magnitude until November of 2010. This fade was not only the deepest in recorded history, it was now the longest, and it isn't over yet!

Observations in June put R CrB around 12.2 V as it slowly makes its way towards recovery. Will R CrB make a full recovery, or have a relapse and fade again before reaching maximum light. Only time and AAVSO data will tell. No wonder this is one of the most well observed stars in the AAVSO program. You can't buy this kind of reality entertainment.

ES Aql

19 32 21.62 -00 11 30.9
Spec. type C
Mag. range 11.5 - <17.7 V

Located on the celestial equator, this under-observed star is somewhat difficult for northern observers to monitor, including me, which is a shame because this is a great star to follow, if you can. That's why I added it to my AAVSONet queue to acquire CCD photometry of it on a regular basis. As luck would have it, just about the time I began obtaining CCD measures it went into the deepest death spiral in AAVSO recorded history, hitting 16.5V in February 2011. I watched it steadily recover to 13.7V in May only to witness another fast decline, again reaching 16.5V as I write this piece, on June 27, 2011. During this entire period I was the only one collecting data on this fascinating star.

This is another fun to observe, unpredictable star worth putting on your program if you can observe near the celestial equator in Aquila from your observing site. I have it on both my visual and CCD programs.

The Boring

These are RCBs that for whatever reason just aren't very exciting to follow. They exhibit little, if any, activity and it has been years or decades since they showed any real sign of life at all.

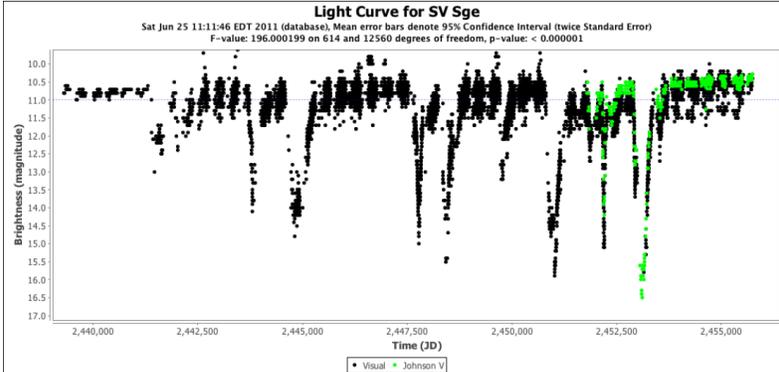
SV Sge

19 08 11.78 +17 37 41.2

(Continued on page 12)

(Continued from page 11)

Spec. type C0-3,2-3(R2)
Mag. Range 11.5 - 16.2 p



SV Sge since 1966

It wasn't too long ago this star was a lot of fun to monitor. It seemed to be fading and recovering fairly often, but the last time it did anything was 2004. I've grown tired of observing it at 10.5V for years on end, but I know better than to drop it, because that is the day it will go into a tailspin and fade to record depths.

This is probably normal behavior for this star as the light curve above shows. I'm just impatient. It looks long overdue for a fade, but for now it's a yawner. When it finally does cough up a dust cloud I'll take it off the Bad list and put it back in the Good category.

MV Sgr
18 44 31.97 -20 57 12.9
Spec. type B2p(HDCe)
Mag. range 12 - 16.05 B

With an amplitude of 1.5 magnitudes, this light curve looks a lot more like a semi-regular variable than an RCB. The spectrum is of a hydrogen deficient carbon star so it has the requisite color and composition, it just hasn't done anything since we've been monitoring it. Twenty-five years isn't long in the history of an RCB, so maybe we just need to keep an eye out for activity. So far, it hasn't been much fun.

V0482 Cyg
19 59 42.57 +33 59 27.9
Spec. type --
Mag. range 11.8 - <15.5 p

The last fade was in 1996, three years before I started observing variables regularly. So in the time I've accumulated nearly 70,000 observations, V482 Cyg has kept me waiting, based on the promise of a fade from 11th magnitude to 13.5 in the last century. If I wasn't already observing dozens of stars in Cygnus I probably would have dropped it a long time ago. All I can say is I hope the next fading event is worth waiting for, or my relationship with this bad star will suffer.

UV Cas

23 02 14.67 +59 36 36.6
Spec. type F0Ib-G5Ib
Mag. range 11.8 - 16.5 p

I remember a couple years ago some people got all excited because this star had a half magnitude dip in its light curve, confirming what I already thought about this star. It is one of the most R Cor Boring stars in the sky. Apparently, a "deep fade" of two magnitudes 40 years ago is enough to keep some observers monitoring this RCB. Not me, I dropped it long ago.

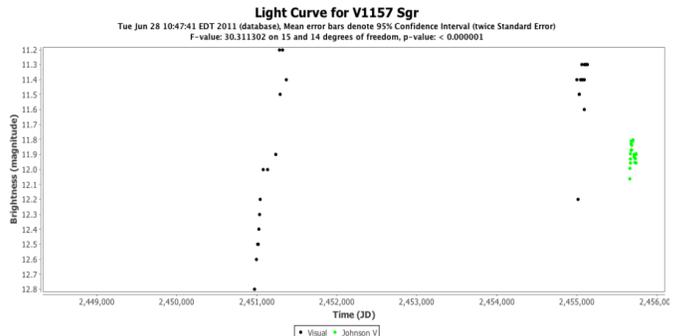
The Unknown

This category is made up of stars for which there are little or no data in the AAVSO database. These stars are ripe for the picking. No one else is watching, you never know what you might find.

FH Sct
18 45 14.84 -09 25 36.1
Spec. type --
Mag. range 13.4 - 16.8 p

I knew next to nothing about this RCB when I added it to my CCD program in 2009. I soon discovered it resides in the open cluster M26 in Scutum. There was no sequence for it when I began taking data, but now there is BVRI data available from the AAVSONet telescopes and a color magnitude sequence of comparison suitable stars has been created. In 2011 I caught the first fading episode recorded in BVRI in the AAVSO database. Normally around 12th magnitude at maximum, it faded abruptly to 15V and has been steadily recovering since. There is no excuse not to observe this star now. It simply suffers from neglect due to its southerly declination.

V1157 Sgr
19 10 11.83 -20 29 42.1
Spec. type C(R)
Mag. range 11.5 - <14.5 V



(Continued on page 13)

Kids Outreach & Star Parties, November 2011

By Alan Rossiter

Event: Robinson Star Party

Type: Elementary School Star Party. We are the main attraction!

Date: Thursday, 11/10/2011

Time: 6:00 PM - 9:30 PM

Location: 12425 Woodforest Drive (East side of Houston, I-10 outside 610)

Event: Askew Elementary Science Night

Type: Elementary School Science Night. Numerous organized activities.

Date: Thursday, 11/17/2011

Time: 6:00 PM - 9:30 PM

Location: 11200 Wood Lodge Drive (West side of Houston, Beltway @ I-10)

(Continued from page 12)

The epitome of an ugly light curve, the data for this star is sparse and unreliable. At -20 degrees declination, this one stretches the definition of a northern RCB to the limit, but any reliable data starting right now can only improve the situation here. Amplitude, maximum and minimum magnitudes, and pretty much everything else are uncertain for this RCB. My own recent observations only range from about 12 – 11.8V, not enough to say anything for sure, except it is variable.

There is another “northern RCB” you may happen upon in the literature, but LT Dra is not variable, it is a constant star, so don’t waste your precious telescope time following this one.

There are not that many observers following these interesting stars regularly, so the chance to hit upon something new or unexpected is always there. That coupled with their irregular and unpredictable nature makes them fun and challenging at the same time. Add a few of these stars to your observing program and be prepared to be surprised.

This content distributed by the AAVSO Writer's Bureau

Shallow Sky Object of the Month

Almach—a Lovely Double Star

Object: Gamma And / Almach

Class: Double Star

Constellation: Andromeda

Magnitude: 2.3, 4.8

R.A.: 02 h 03 m 54 s

Dec: 42 deg 23 min 18 sec

Size/Spectral: sep 9.8" p.a. 63 degrees, K3, B9.5,

Distance: 350 ly

Optics needed: 80 mm telescope, or larger

Why this object is interesting:

When you think of the constellation Andromeda, you probably think of the Andromeda Galaxy. I do. But if you look around the constellation you'll see other interesting things.

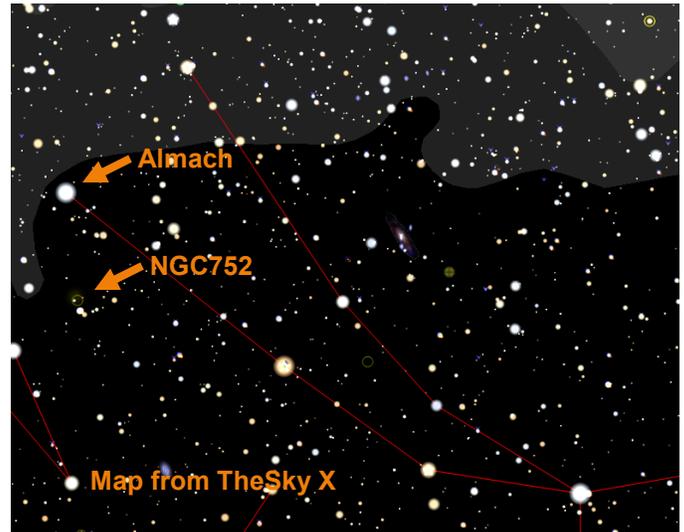
Tonight, we're going to look at Almach, also known as Gamma Andromedae or Gamma And. It's a double star, and with summer gone and autumn upon us (with cooler and longer nights), it's time to look away from Albireo and look toward a new double star that is equally interesting.

Gamma And is a double star separated by almost 10 arc-seconds so it is easy to separate in just about any telescope. Beyond that, there is a significant color contrast between the components of this double star. The stars of Albireo are K3 and B0, so the K3 (red) star is the same color in each pair the accompanying star in Gamma And is a B9 color, more white than the B0 star in Albireo.

There's more. The dimmer, B star in Gamma And is also a double, but don't expect to see it in your telescope. The separation is a small fraction of an arc-second, and can't be resolved with the best of amateur telescopes.

If you still have time on your hands you can find 56 And, which is a double star separated by 200" (very wide). Probably best seen in binoculars. This double star pair lies just to the southwest of NGC 752.

Another double in the neighborhood is 59 And, each star is a bit dimmer than 6th magnitude and the separation is about 17". You won't see any color contrast in this pair, though.



Houston Astronomical Society

P.O. Box 20332

Houston, TX 77225-0332

General Membership Meeting

The Houston Astronomical Society holds its regular monthly General Membership Meeting on the first Friday of each month, unless rescheduled due to a holiday or a conflict with other events at the University of Houston.

Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the Houston Chronicle office, downtown. Information provided to *GuideStar* will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

GuideStar Information

The H.A.S. *GuideStar* is published monthly by the Houston Astronomical Society. All opinions expressed herein are those of the contributor and not necessarily of Houston Astronomical Society. The monthly Meeting Notice is included herein. *GuideStar* is available on the HAS web site to all members of H.A.S., and to persons interested in the organization's activities. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in text, MS-Word format via email BillPellerin@sbcglobal.net. Copy must be received by the 15th of the month for inclusion in the issue to be available near the end of the same month. Or, bring copy to the General Membership Meeting and give it to the Editor, or phone to make special arrangements.

Editing & Production: Bill Pellerin,

713-880-8061

Email: BillPellerin@sbcglobal.net

Advertising: Advertisers may inquire concerning ad rates and availability of space.

The Houston Astronomical Society welcomes you to our organization. The HAS is a group of dedicated amateur astronomers, most of whom are observers, but some are armchair astronomers.

The benefits of membership are:

- Access to our 18 acre observing site west of Houston -- a great place to observe the universe!
- A telescope loaner program -- borrow a HAS telescope and try observing for yourself!
- A monthly novice meeting, site orientation meeting, and general meeting with speakers of interest.
- Opportunities to participate in programs that promote astronomy to the general public (such as Star Parties at schools)
- A yearly all-clubs meeting for Houston area organizations
- Meet other amateurs and share experiences, learn techniques, and swap stories

You're invited to attend our next meeting.

You'll have a great time.

Houston Astronomical Society

Meeting on Friday, November 4

7:00 Novice Meeting

8:00 General Meeting, room 117 Science & Research 1 Bldg

University of Houston

Directions to meeting:

From I-45 going south (from downtown)

- exit at Cullen Boulevard
- turn right on Cullen
- turn right into the parking lot (by the stadium)
- Science and Research is across the street (2nd building back)

From I-45 going north (from NASA/Galveston)

- exit at Cullen Boulevard
- turn left on Cullen
- turn right into the parking lot (by the stadium)
- Science and Research is across the street (2nd building back)

Parking:

There is Free Parking, **BUT DO NOT PARK IN ANY RESERVED PARKING SPACES AT ANY TIME.**

U of H parking enforcement will ticket your vehicle.

UPDATE (2011) — Due to construction in the stadium parking lot, use entrances 15D and 15F. You can park in this area, but NOT in a RESERVED space.