SVAS OBSERVER
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Sacramento Valley Astronomical Society
Founded in 1945

Venus Transit

Prairie City Star Party Huge Success

Walt Heiges Aiming the Sunspotter

The weather was perfect for a June afternoon, cool and clear with a moderate breeze and just a few clouds near sunset. Perry P. Porter arrived around 1:00pm to set up for the Venus Transit, thinking he would be the first, and was surprised to find most members already setup and one had stayed over from the night before! SVAS turned out with 20 scopes if we count Walt's Sunspotter! We estimated between 40 to 90 guest viewers at any one time and they were constantly turning over. Other estimates were as high as 300 to 450 total guests for the day! Everything went

Current Events

July 20, Friday: ***General Meeting*** at 8:00pm
Board Meeting at 6:30pm

July 21, Saturday: ***Star Party at HGO.*** Perry will be scheduling a fix up clean up day this month. Please watch the Yahoo members group for details, especially if you are an observatory member. We will be painting the exterior of HGO.

August 17-19: ***Star-B-Q!*** This is the SVAS, must attend, main event! We will have a great BBQ and a fantastic raffle.

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Poor Mans Panoramic View

Gary Shuluk and Richard Sandler

Jason Gayman

Richard Sandler & Perry P. Porter

from pg 1

smoothly except for the bottled water sales which were severely hampered by the cool weather. Everyone enjoyed the views and they were all very considerate to others. I shared my telescope views with a great couple, and we were talking about the “black drop effect” as the second contact started. They insisted I get a look just as Venus and the sun stretched the contact spot between them. Talk about sharing a once in a lifetime event!

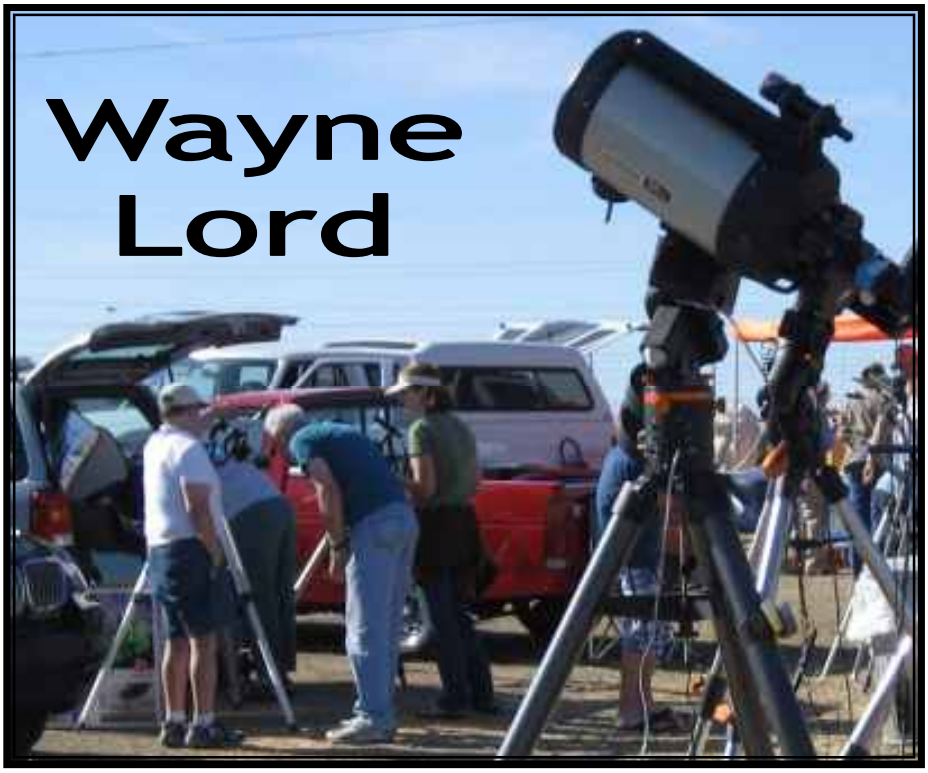
Editor

Tom Behiers' Sunsational Sun Funnel

Romona Glasgow & Tom Behier

Tom & Kevin Heider

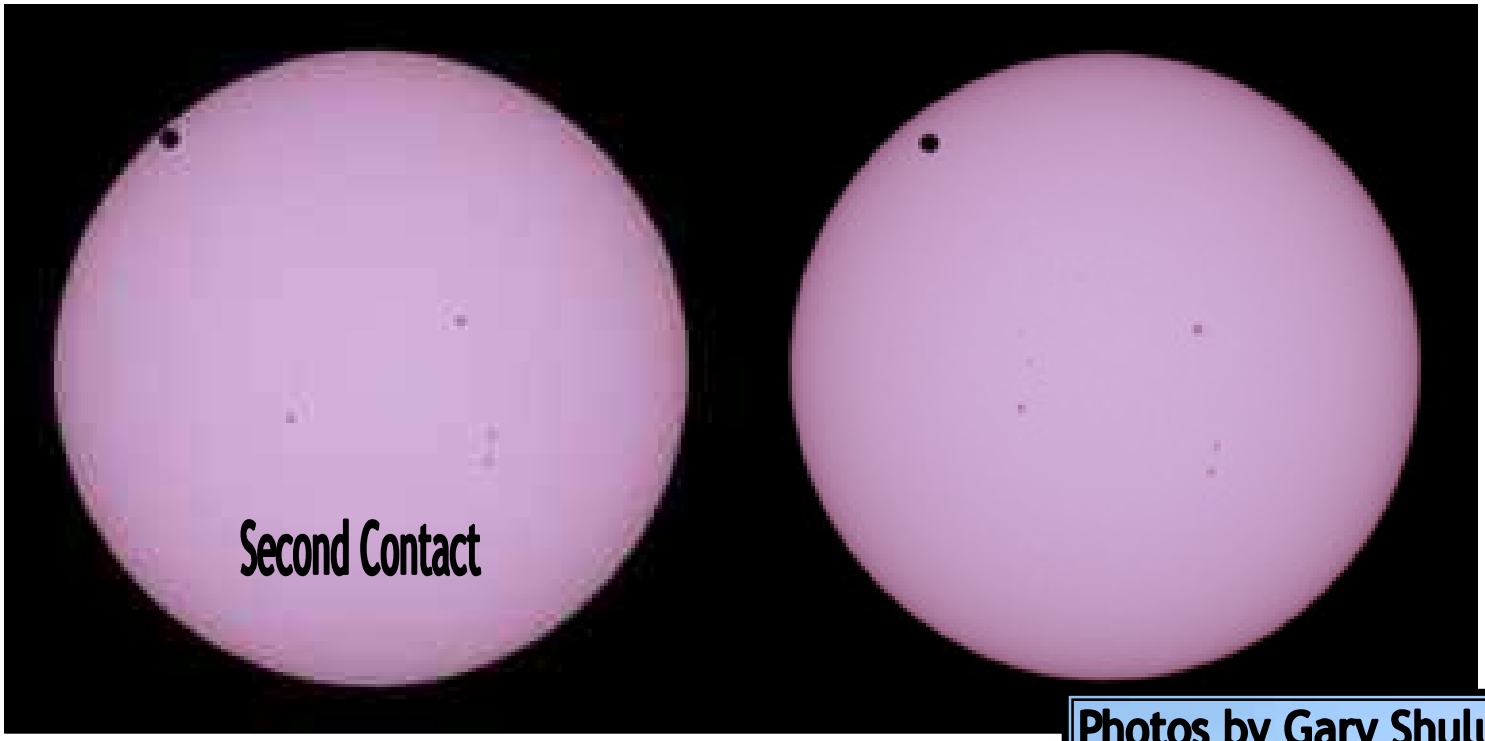
Ken Cotter from Chicago!



On Tuesdays Venus Transit, I attempted to use my new-found ability to connect and control my mount from a laptop, but it didn't work. For some reason the program(s) did not see the mount. Later, I used the same process here at home and it connected perfectly. I'm encouraged, that with a relatively simple setup (leveling the mount and starting from park position) the program did correctly position the telescope after entering the correct position and commanding the mount there. It remains to be seen if it will work for smaller, fainter objects.

Experiencing the Transit was a rather hectic, hurried time with folks coming by even before the event started, and I didn't have the luxury of figuring out what was malfunctioning with my go to mount. Oh, well, there will be another time, just not another Transit of Venus in my lifetime, at least.

Wayne Lord



Telescopes at the SVAS 2012 Venus Transit

Bud Bafia	8” Celestron Nexstar w/white Light
Tom Braun	Alter-M603 MAC/80mm
Tom Behler	500mm Telephoto Screen Projection
Jim Carvalho	10” Dobsonian/60mm Coronado PST
John Cary	12” Meade LX200
Ken Cotter	60mm Ha (From Chicago)
Jason Gayman	11” Celestron/6” RC Live Screen Projection
Suzy Goodwin	60mm Refractor w/White Light
Walt Heiges	SunSpotter
Wayne Lord	80mm Short Tube/127mm Mak/Cas w/Video
Scott Miller	LX90 & 8” Bino-viewer
Lonnie Robinson	8” Meade w/ Yellow Light
Richard Sandler	8” OTA w/ Screen Projector
Gary Shuluk	Astro-Physics 130 EDFGT
Tim Tingey	120mm Refractor/50mm Coronado PST

This is the list of the volunteers for the June 5th Venus Solar Transit at Prairie City as collected by Perry Porter. I thank each and everyone who helped us make this event as successful as it was. The SVAS was able to amass over 450 potential Astronomers according to Perry Porter. I expect many images of the event and I think we will have a great display of our work. If I have any of the details of the equipment used incorrectly noted, my apologizes. I believe the most important aspic of this report is our telescopes. We represented the SVAS very well. Be sure to visit our Yahoo Group site for great images of the Venus Transit

Rangers, Steve Gorman and Tony Guzman, were very impressed and pleased with the member and public turnout. I truly believe we have secured our winter site and a site for any special event in the future. We even had Ken Cotter, a pilot, in from Chicago on a layover in Sacramento who brought his Coronado 60mm Hydrogen Alpha with him for the event. Congratulation and thanks to everyone who showed up and helped the SVAS be successful. Walt Heiges

GAMMA RAYS:

A SURVEY OF EARLY RESEARCH

by
John A. Jaksich

The paths of astronomy often reach a watershed moment that alter the course of a research paradigm. The discovery of gamma-ray bursts is one watershed moment of great significance in the 20th century. Gamma rays are a part of the electromagnetic energy spectrum that are associated with nuclear explosions and also found throughout the cosmos. It is the gamma-ray burst that we are most concerned with in this text. Although the nature of their discovery is mostly shrouded behind classified government DARPA (Defense Advanced Research Project Agency) documents, some documents are available from the World Wide Web. Gamma rays were discovered by the Explorer 11 satellite in 1961, and they were found to permeate throughout the Universe with no apparent source.

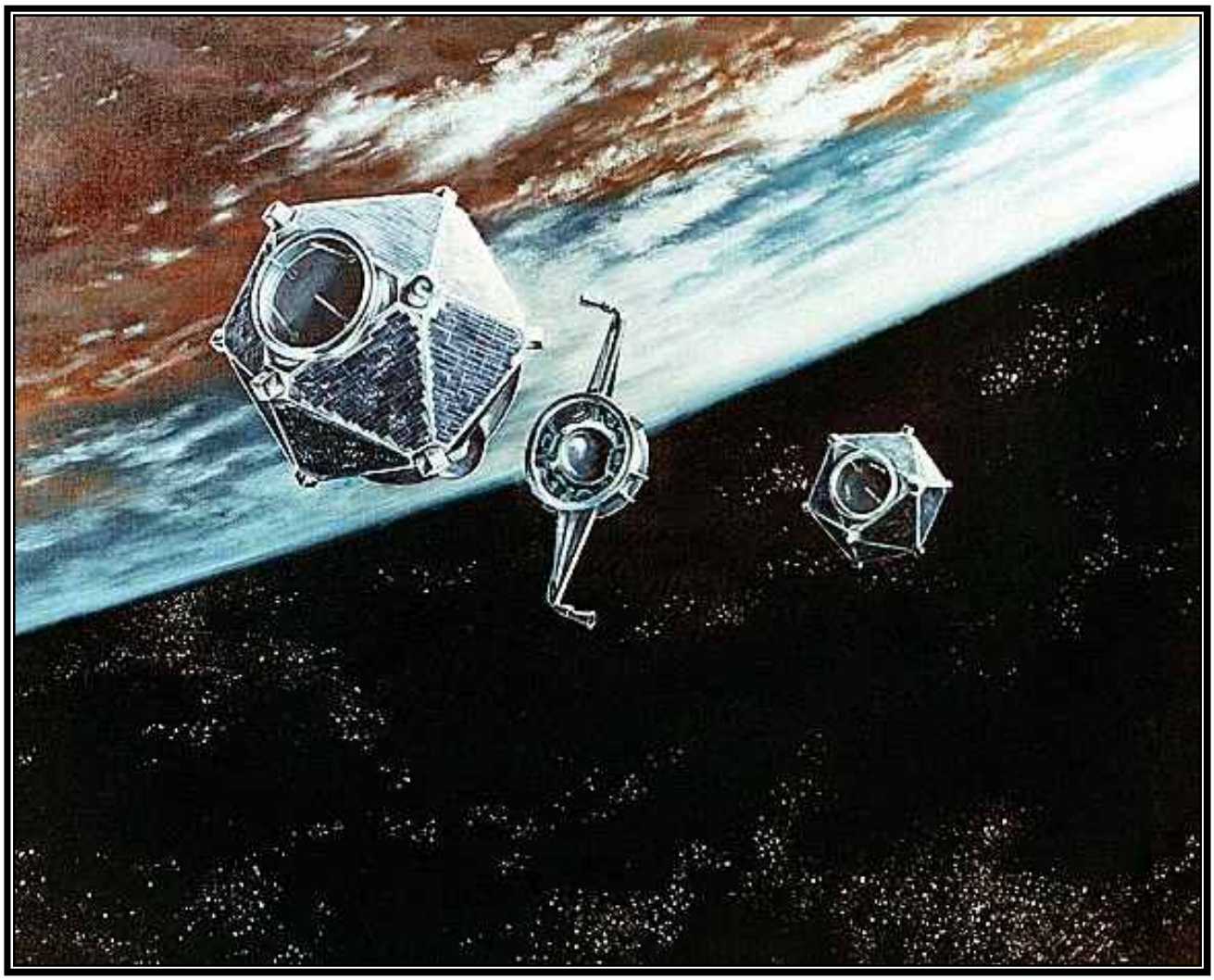


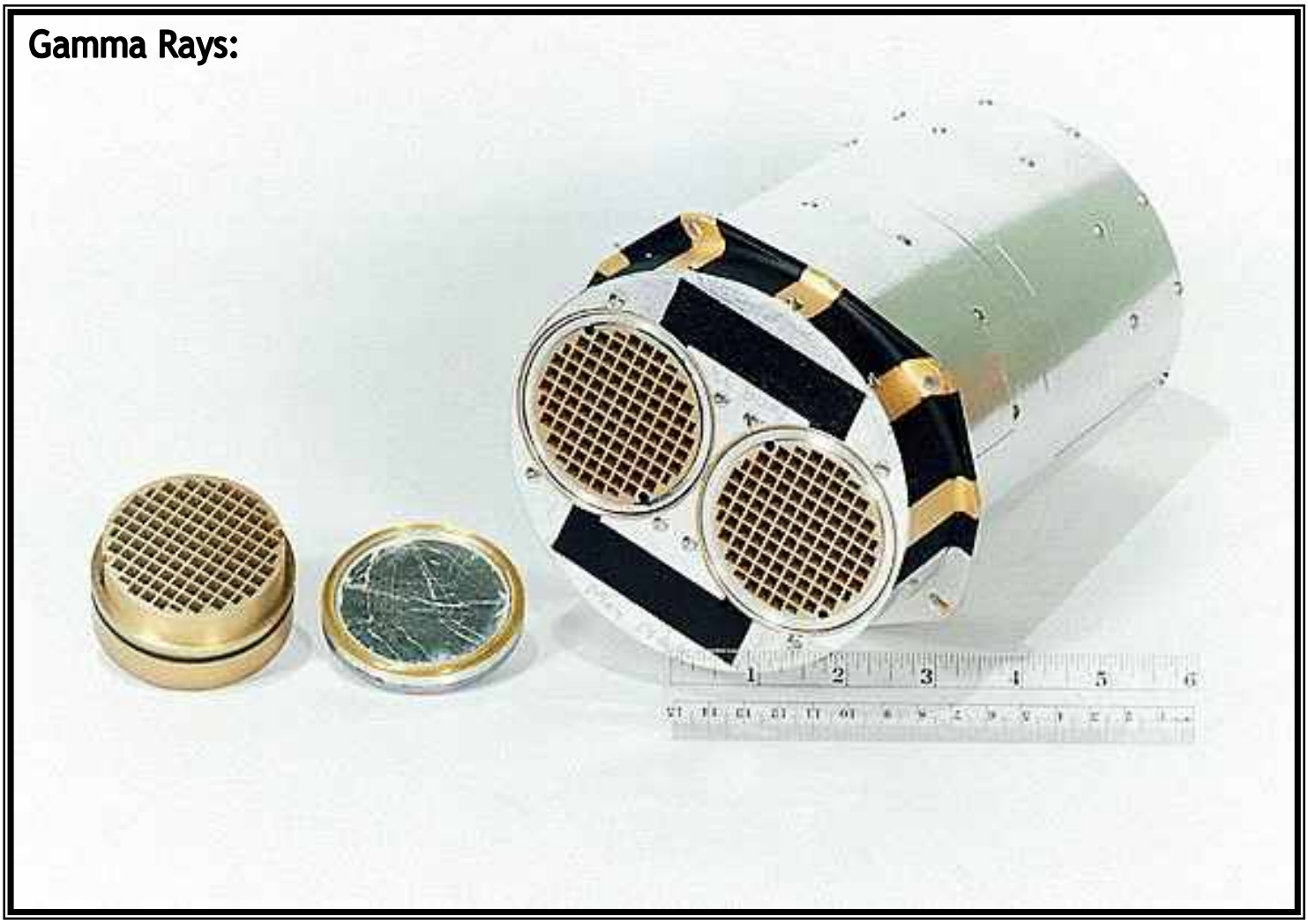
Fig. 1
Artist rendering of VELA satellite pairs.
(Source: NASA)

DARPA, originated in the Eisenhower Administration as a response to heightened Cold War tensions, successfully launched Explorer I in 1958. It begs to be mentioned that DARPA grew out the 1947 National Security Act; the legislation assured that the eventual space age would occur. Some of the early proposals by scientists and engineers (involved with DARPA) of the V-2 rocket era involved Earth-orbiting satellites, probes

Gamma Rays: to the Moon, Mars, and Venus, as well as a "rocket plane" which could orbit the Earth and re-enter from orbit much the way a jet airplane could land on an airstrip. One major factor in deciding to initiate DARPA was the launching of Sputnik 1 by the Soviet Union in 1957. As the Cold War went beyond the stratosphere of the Earth with the launching of satellites capable of spying upon Cold War adversaries, the satellites also bore the capacity of performing science. All in all, due to the psychological complexities of a nuclear holocaust, it is sometimes argued that humanity regained some of its sanity at this juncture of time. The sanity check came at a time when DARPA related technology went to work along side pure scientific discovery. The signing of the 1963 Atmospheric Nuclear Test Ban treaty allowed "hawk and dove" science to co-exist in the form of the VELA satellite technology. VELA satellites were DARPA technology that were primarily designed to monitor atmospheric nuclear tests. While the lead investigators were combing through the VELA data for 1967, they noticed a gamma ray burst emanating from deep space. The unexpected gamma ray burst came from source unknown to the investigators. Subsequent searches of three years of data (1969-1972) revealed that the VELA satellites detected sixteen unknown deep space gamma ray bursts. Although originally conceived to monitor atmospheric nuclear explosions, a significant scientific offshoot of the technology was realized: allowing gamma rays to be detected from within the cosmos.

Fig. 2
An early (and grainy photo of) VELA satellite being checked by DARPA US Air Force
(source: declassified-DARPA document)

The ground-breaking scientific publication came in 1973 and with it the announcement of a familiar but unexpected electromagnetic spectral signature from within cosmos. The sixteen transient gamma ray bursts that were detected by the VELA satellites were characteristic in that bursts did not have predictable nor repeatable energy signatures. The VELA satellites which were launched in pairs (in the 1960s) to detect and triangulate atmospheric nuclear explosions performed beyond the call of duty. So, in 1973, after nearly ten years of research secrecy, a trio of unknown (non-astronomer) engineers from Los Alamos published the following article: ObservationsofGamma-RayBurstsofCosmicOrigin (see notes at end of article). The trio of engineers, Roy Olson, Ian Strong, and Ray Klebesadel could not discern why transient gamma rays were emanating from deep space and in their publication they could not discount supernovae as their source, either. It had been postulated by leading theoreticians in that time that gamma rays were the result of novae and supernovae. The detectors on board the satellites trained their sights upon the cosmos, and in so doing, revolutionized gamma ray research.



Radiation (scintillation) detectors aboard the VELA satellites.
(source: declassified-DARPA document)

Their publication greatly aided the field of gamma ray astronomy; the US and European astronomers (in the 1960s) were not able to pinpoint the locations of most gamma rays, let alone, why the center of the Milky Way made prodigious amounts of gamma rays. The trio of engineers scoured their data and found that when they triangulated their satellites' data to the gamma rays in the sky; they could discern the locations of gamma rays as gamma ray bursts of radiation. This was (for that time period) the breakthrough that astronomers were seeking. The importance of the discovery lies in the fact that military-grade research was used to break open the field of gamma ray research, and astronomy satellites of that time period were not designed with the specifications needed to perform such a scan of the sky.

ADDENDUM
Within the current research paradigms of gamma-ray burst science, the mechanistic details for gamma ray bursts are coming to light; the FERMI and SWIFT satellites have produced results indicating that hyper-novae are one probable cause of gamma ray bursts.

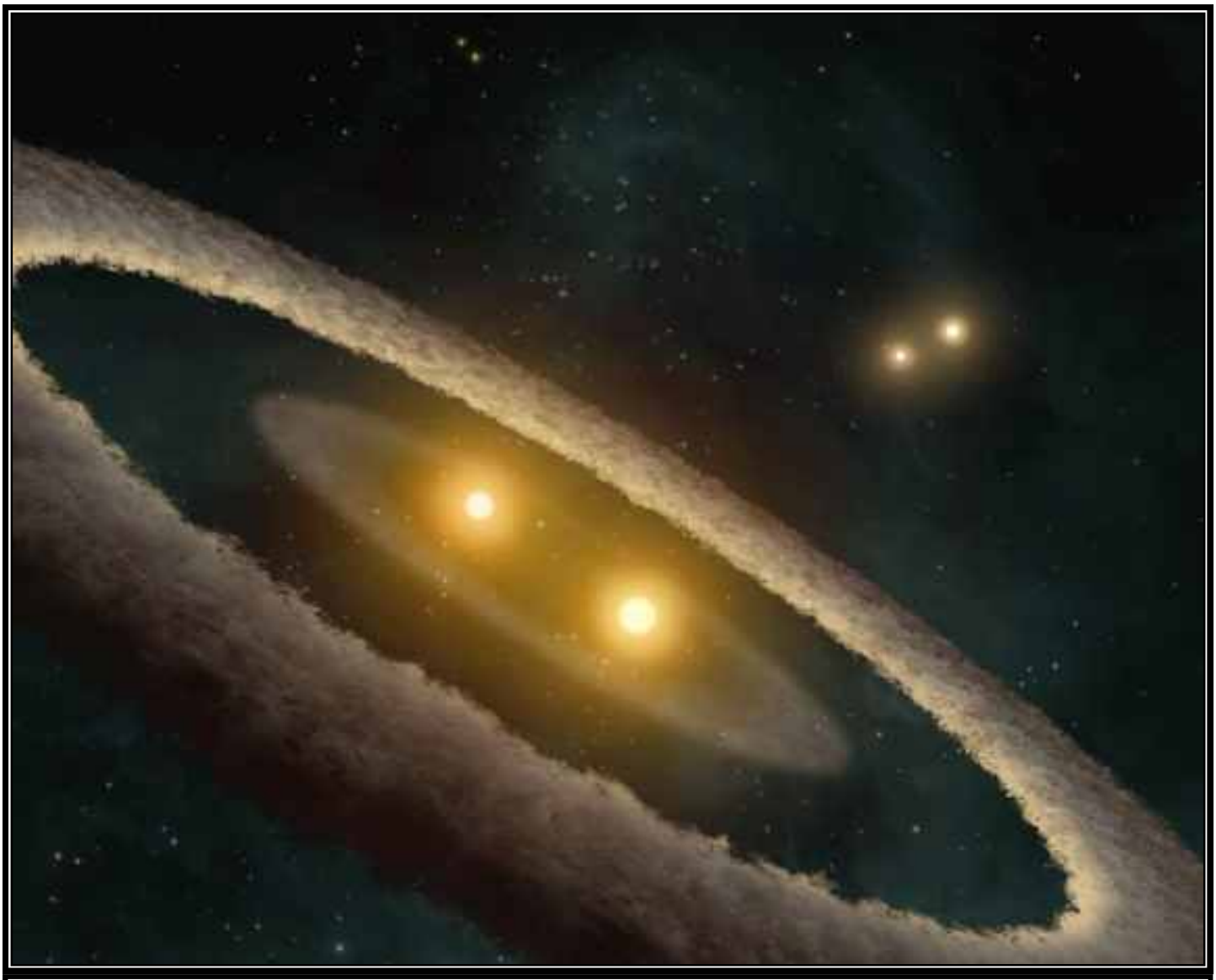
Notes:
1)The images in the text were retrieved from the World Wide Web.
2)The ground breaking publication (mentioned in the text):
The Astrophysical Journal, **182**: L85-L88, 1973 June 1

How Many Discoveries Can You Make in a Month?

By Dr. Tony Phillips

This year NASA has announced the discovery of 11 planetary systems hosting 26 planets; a gigantic cluster of galaxies known as "El Gordo;" a star exploding 9 billion light years away; alien matter stealing into the solar system; massive bullets of plasma racing out of the galactic center; and hundreds of unknown objects emitting high-energy photons at the edge of the electromagnetic spectrum.

That was just January.



Artist's concepts such as this one are based on infrared spectrometer data from NASA's Spitzer Space Telescope. This rendering depicts a quadruple-star system called HD 98800. The system is approximately 10 million years old and is located 150 light-years away in the constellation Crater. Credit: NASA/JPL-Caltech/T. Pyle (SSC)

Within NASA's Science Mission Directorate, the Astrophysics Division produces such a list nearly every month. Indeed, at this very moment, data is pouring in from dozens of spacecraft and orbiting observatories.

"The Hubble, Spitzer, Chandra, and Fermi space telescopes continue to make groundbreaking discoveries on an almost daily basis," says NASA Administrator Charlie Bolden.

Discoveries:

NASA astrophysicists and their colleagues conduct an ambitious research program stretching from the edge of the solar system to the edge of the observable Universe. Their work is guided in large part by the National Research Council's Decadal Survey of Astronomy and Astrophysics, which identified the following priorities:

Finding new planets—and possibly new life—around other stars.
Discovering the nature of dark energy and dark matter.
Understanding how stars and galaxies have evolved since the Big Bang.
Studying exotic physics in extreme places like black holes.

Observing time on Hubble and the other "Great Observatories" is allocated accordingly.

Smaller missions are important, too: The Kepler spacecraft, which is only "medium-sized" by NASA standards, has single-handedly identified more than 2300 planet candidates. Recent finds include planets with double suns, massive "super-Earths" and "hot Jupiters," and a miniature solar system. It seems to be only a matter of time before Kepler locates an Earth-sized world in the Goldilocks zone of its parent star, just right for life.

*Bolden made these statements in an April 20th editorial he co-authored with John Holdren, Director of the Office of Science and Technology Policy: http://blogs.nasa.gov/cm/blog/bolden/posts/post_1334967201693.html

A future astrophysics mission, the James Webb Space Telescope, will be able to study the atmospheres of many of the worlds Kepler is discovering now. The telescope's spectrometers can reveal the chemistry of distant exoplanets, offering clues to their climate, cloud cover, and possibilities for life.

That's not the telescope's prime mission, though. With a primary mirror almost 3 times as wide as Hubble's, and a special sensitivity to penetrating infrared radiation, Webb is designed to look into the most distant recesses of the universe to see how the first stars and galaxies formed after the Big Bang. It is, in short, a Genesis Machine.

Says Bolden, "We're on track in the construction of the James Webb Space Telescope, the most sophisticated science telescope ever constructed to help us reveal the mysteries of the cosmos in ways never before possible." Liftoff is currently scheduled for 2018.

How long will the list of discoveries be in January of that year? Stay tuned for Astrophysics.

For more on NASA's astrophysics missions, check out http://science.nasa.gov/astrophysics/. Kids can get some of their mind-boggling astrophysics questions answered by resident Space Place astrophysicist "Dr. Marc" at http://spaceplace.nasa.gov/dr-marc-space.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Mid Sized Dobs Need a SVS Step Stool Special

SVAS ATM Connection

NCA Nevada County Astronomers

When I designed and built my 16" Dobsonian, one of the main considerations was eyepiece height. I wanted to be able to reach the eyepiece without a stool or ladder when looking straight up. After working hard to grind the mirror a bit below f/5, the focuser still ended up a couple inches above my eye level. OK I thought, just a small stool is all I need. I looked at several designs of nesting stools, and decided on making one from a milk delivery type plastic box. I cut approximately one third off the top of a box and fitted a square 3/4" thick wood top to both pieces. The larger box top fits inside and nests in the base of the shorter box. That would allow three different combinations for height adjustments. Very cool! Just one "***small***" problem, I'm 6'4" tall so It didn't help much when a vertically challenged viewer

(short person) wanted to look through my scope. On to step stools as the next solution.

I wanted my stool to be easy to transport and store, very lightweight, tall enough to conveniently move around, provide a stabilizing hand support while climbing, wide enough rungs that are "comfortable" to stand on, and perhaps even double as a chair. It's interesting that most of us have an almost equal distance from our hands to the ground, taller folks have proportionally longer arms. A lot of requirements and the search was on. The many height adjustable viewing chairs that allow sitting at the eyepiece are tempting, but most are not tall enough for my Dob when at the vertical and definitely not stable enough! Harbor Freight to the rescue with an extra wide step stool that I could sit on. After using it a couple times, I discovered it was quite heavy to move around the scope, bulky to transport, just out of hand reach when climbing and moving, but it had large comfortable steps and worked great as a chair to sit on. I so hate compromises!

Home Depot caries a very light and inexpensive aluminum stool, just tall enough to grab easily, but too narrow to sit on, and with a narrow uncomfortable lower step (really hard on my feet after a couple hours). I decided to give up on the chair requirement and design a larger first step for the Depot stool. With the KISS principle in mind ("keep It Seriously Simple", or something close to that) I designed a single step that could be quickly inserted and secured, no loose parts, stay very flat for storage, and double as a spot to keep maps and stuff. The shelf slide bolts are 1/4x20 threaded into the stool legs, and aren't removed. The step catch is made of HDPE plastic and slides under the lower step edge to attach the shelf. The two rear notched bolt slides glide into place on the side bolts, and when the knobs are gently tightened into the locater hole the shelf (step) is securely fastened.

My Orion eyepiece fanny pack attaches nicely just below the handle by wrapping the belt twice around each side and latching it.

As you can tell this is going to be a work in progress, so stay tuned.

Hope you like it!

Lonnie Robinson

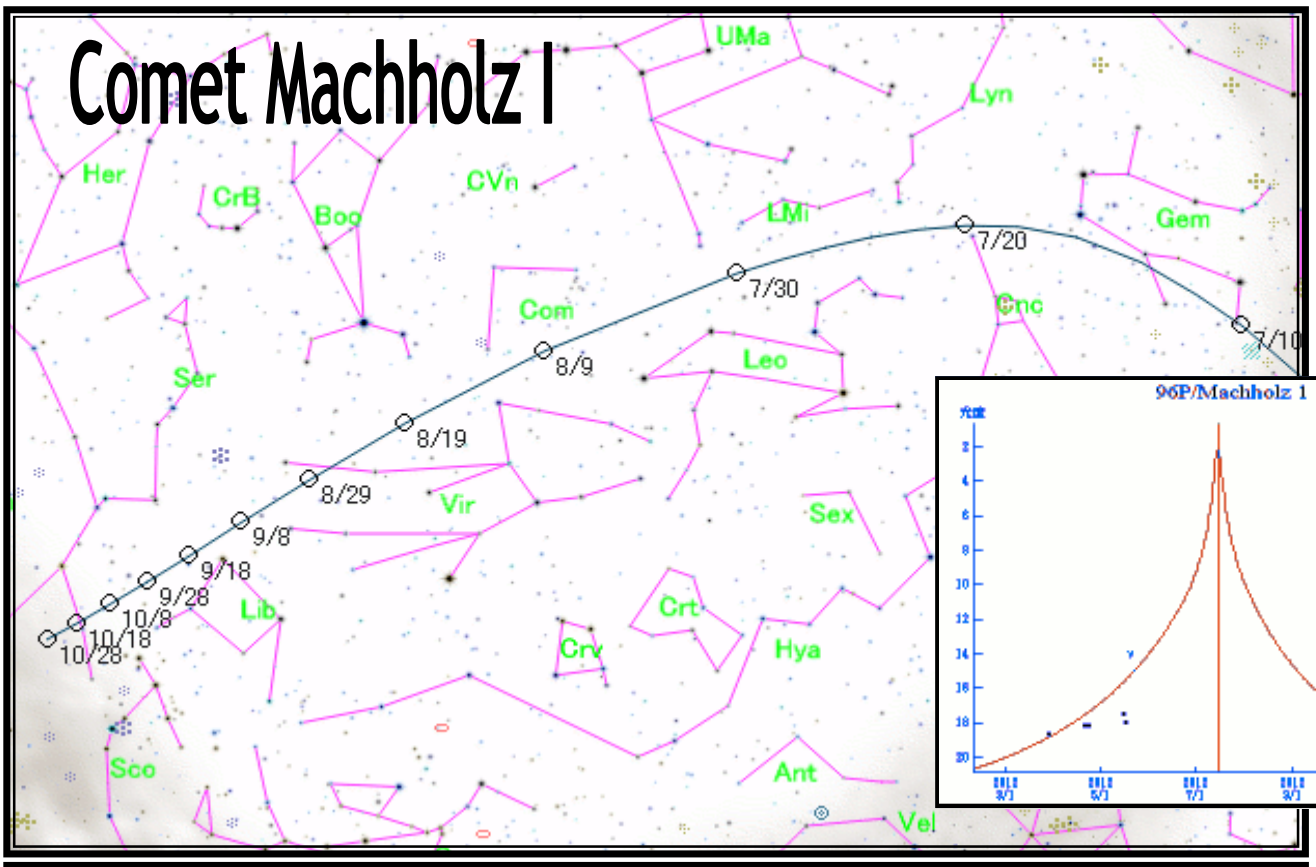
Send me your ideas. Let's build the perfect stool!

What's Up

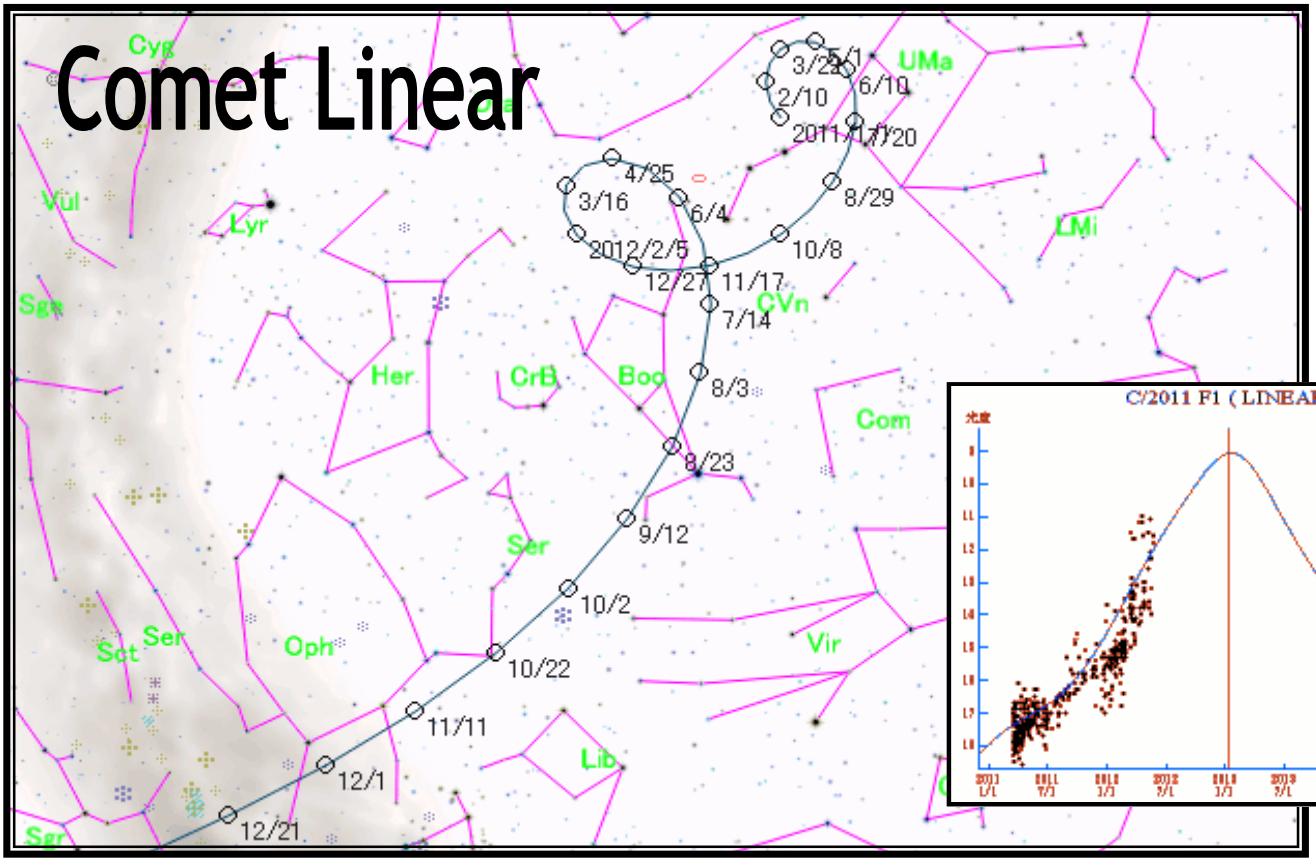
Courtesy of Seiichi Yoshida

http://www.aerith.net/index.html

Comet Machholz I



Comet Linear



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Community Star Parties	Perry Preston Porter
Observatory Director	Perry Preston Porter
First Light Team	Perry Preston Porter
ATM - Amateur Telescope Making	Lonnie Robinson / Bill Thomas
Speaker Seeker	Richard Sandler

Where We Meet

General Meetings are held the third Friday of each month beginning at 8:00pm.

Board Meetings begin at 6:30 on the same day. All members are welcome.

Sacramento City College
Mohr Hall Room 3
3835 Freeport Boulevard
Sacramento, CA.

WWW.SVAS.ORG

SVAS Observer

To Subscribe- First send in your membership application form below, with your dues, and upon approval by the board of directors the Observer (published bi-monthly) will be sent to your supplied email address in .pdf format. Second, request to join the SVAS Yahoo Group at http://groups-yahoo.com/group/svas-members. This group will keep you informed with the day to day current events and discussions.

Articles- Manuscripts and letters are welcome in MS Word, MS Publisher, or plain text format, and emailed to the SVAS Editor. Deadline is the 22nd of the month prior to the newsletter release.

Advertising- Commercial, non-personal advertising, business card, and full page are available. Classified advertising is free to SVAS members.

SVAS Membership Application

Choose Membership Level: New: ___ or Renew:___

Student- (student ID required)	$20/yr _____
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Observatory- (membership + $40 + approvals)	$40/yr _____
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Additional tax deductible contribution:	Amt $_____
Please Print:	Total $ _____

Name_____

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City _____ Zip_____ Phone_____

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(For SVAS Observer Newsletter)

Detach and mail with payment to:

SVAS Membership Application
PO Box 15274
Sacramento, California. 95851-0274

Observatory Membership Approvals

The benefits of a regular membership plus private use of the Henry Grieb Observatory (HGO) at Blue Canyon. You must be a regular member for six months or longer, be certified and approved by the Observatory Director, and then be approved by the SVAS Board of Directors.

Note: It may take the board of directors 30 or more days to process and approve this application.

By signing this application, I acknowledge I have accessed the SVAS website, read and understand the SVAS bylaws and the rules governing the USFS Special Use Permit. In doing so, I agree to abide by the respective "terms and conditions" of each as they relate to the SVAS, use of its property and its facilities. I further understand and acknowledge that failure to abide by these "terms and conditions" can result in revocation of use privileges and/or SVAS membership.

Signature

_____

Date_____