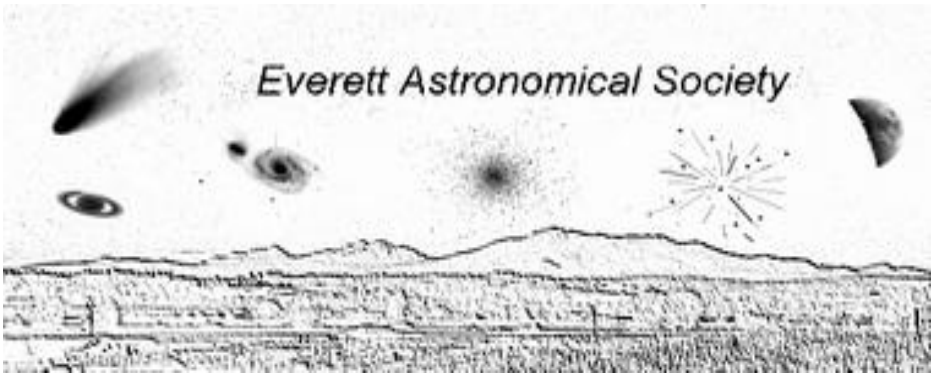
Volume MMX No. 8



The Stargazer

August 2010

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Programs:	Ron Mosher		mosheriffic69 at comcast dot net	**P.O. Box 12746**
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'Planetarium' column	John Goerger		wolfstar1701 at Comcast dot net	
Web assistance:	Cody Gibson		cgibson41 at austin dot rr dot com	*See EAS website at:*
Vice President:	<open>		(change 'at' to @, dot to. to send email)	http://everettastro.org

EAS BUSINESS…

LAST EAS MEETING (AUGUST) - - WAS SATURDAY AUG 21ST

August's meeting was August 21st, featuring a talk by Tom Field, on R-Spec and low-cost amateur spectrography. (you can do a lot with just a $2 diffraction grating and a web (or other) camera…

SEPTEMBER EAS MEETING - - SATURDAY SEP 25TH - 3:00 PM

Linda Khandro will give a presentation on 'Stellar Evolution – The life cycle of stars'. Meeting is at the ***Evergreen branch*** of the ***Everett Public Library*** (*not main downtown branch*) located at 9512 Evergreen Way. - Website · Directions

Attending members will be eligible for a monthly door prize.

NEW MEMBER / BEGINNERS CLASS WITH JACK BARNES

The August class is delayed by a week.
They are set for the 4th Tuesday of each month.

★ STAR PARTY INFO ★

★ Scheduled EAS Star Parties at Ron Tam's: ★

Next star party at Ron's is September 10th

Star Party dates for 2010 – weather permitting.
(Note they are on Friday nights.)
Oct 8 Nov 5 Dec 3

EAS member Ron Tam has offered a flexible opportunity to EAS members to come to his home north of Snohomish for observing on clear weekend evenings and for EAS star parties. Anyone wishing to do so needs to contact him in advance and confirm available dates, and let him know if plans change**.** **"***Our place is open for star parties any Saturday except weekends of the Full Moon. People can call to get weather conditions or to confirm that there is a star party. Our phone number is (360) 568-5152. They can e-mail me too (tam1951@verizon.net) but I don't check my email daily. They can email me for directions if they never have been out here."* Listed below are proposed dates for **planned EAS star parties** at my [Ron Tam's] place, depending upon the weather, of course. Call Ron about spur-of-the-moment observing.

Please also join the EAS e-mail list, **and then send mail to the mail list** at ***everett_astronomy@topica.com*** to coordinate spur-of-the-moment observing get-togethers, on nights when the sky clears. We try to hold informal close-in star parties each month during the spring, summer, and fall months on a weekend near the New moon at a member's property or a local park.

Other Western US Star Parties This Season

SEPTEMBER -

Sep 2 (Labor Day) - SAS Brooks Memorial Park Star Party, SR 97 near Goldendale - http://www.seattleastro.org/events.shtml

Sep 3-5 - RCA Maupin Dark Sky Star Party, Maupin, OR - http://www.rca-omsi.org/sp/maupin.htm

Sep 4-11 - Merritt Star Quest - Loon Lake Road - Merritt, BC - http://www.merrittastronomical.com/

Sep 9-11 - Orion Nebula 2010 Star Party, Table Mt. (Ellensburg) WA http://www.seattleastro.org/orionnebsp.shtml

Sep 10-12 - Idaho Star Party, Bruneau Dunes State Park - http://ifastro.org/web/index.php (Boise AS) http://www.boiseastro.org/

Sep 11-12 - **White Sands Star Party**, Alamogordo/White Sands, NM - http://www.zianet.com/wssp/

Sep 10-12 - RCA Dark Sky Camp Weekend, Camp Hancock, OR - http://www.rca-omsi.org/sp/sp_schedule.htm

Sep 07-09 - CalStar, Lake San Antonio Park CA http://www.sjaa.net/calstar/ - http://www.sjaa.net/

Sep 10-12 - Craters of the Moon Star Party, Craters of the Moon Nat. Monument, ID http://ifastro.org/web/index.php http://www.boiseastro.org/

Sep 11-12 - Alberta Star Party, Starland Recreation Area Campground near Drumheller, Alberta, CA http://www.astronomycalgary.com/events/info/155 http://calgary.rasc.ca/asp2010.htm

OCTOBER -

Oct 8-11 - OAS Camp Delany Fall Star Party, Sun Lakes SP - http://www.olympicastronomicalsociety.com/Documents/FALLCAMPDELANYSign-UpForm.pdf

Oct 7-9 - Sun River Star Party, Brothers, OR http://www.rca-omsi.org/sp/sp_schedule.htm

Oct 6-10 - The Enchanted Skies Star Party, Socorro NM - http://enchantedskies.org/

(tba) - **All Arizona Star Party** (near Arizona City, AZ) - http://www.eastvalleyastronomy.org/aasp.htm

NOVEMBER -

Nov 4-7 - Nightfall, Palm Canyon Resort, Borrego Springs, CA http://www.rtmcastronomyexpo.org/nightfall.htm

! Likely cancelled ! - Night Under the Stars, Alamo Lake, AZ - http://azstateparks.com/Parks/ALLA/events.html (closing due to state budget cuts)

Other Star Parties: http://www.cloudynights.com/ubbthreads/showflat.php/Cat/0/Number/2858373/Main/2858366

2010 ASTRO CALENDAR

August 2010

Aug 01 - Alpha Capricornids Meteor Shower Peak
Aug 05 - Neil Armstrong's 80th Birthday (1930)
Aug 06-07 - **Deception Pass Star Party**
Aug 06 - EAS star party at Ron Tam's place
Aug 06 - Southern Iota Aquarids Meteor Shower Peak
Aug 07 - Mercury At Its Greatest Eastern (evening) Elongation (27 Deg)
Aug 09 - New Moon
Aug 12-15 Table Mt. Star Party, NW of Ellensburg, WA
Aug 11-15 Oregon Star Party, Ochocco Natl. Forest, Prineville OR
Aug 21 – EAS Meeting – Saturday 3:00 pm Evergreen Branch Library
Aug 12 - Perseids Meteor Shower Peak
Aug 20 - Venus at Its Greatest Eastern (evening) Elongation (46 Deg)
Aug 20 - Neptune at Opposition
Aug 25 - Northern Iota Aquarids Meteor Shower Peak

September 2010

(Labor Day) - SAS Brooks Memorial Park Star Party
Sep 10 - EAS star party at Ron Tam's place
Sep 9-11 - Orion Nebula 2010 Star Party – Table Mt. – Jim Bielaga
Sep 14 - John Dobson's 95th Birthday (1915)
Sep 19 - Mercury at Its Greatest Western (morning) Elongation (18 Deg)
Sep 21 - Jupiter at Opposition
Sep 27 – EAS Meeting - Saturday 3:00 pm Evergreen Branch Library
Sep 21 - Uranus at Opposition
Sep 23 - Autumnal Equinox (03:09 UT)

October 2010

Oct 08/09 EAS star party at Harborview Park
Oct 08 - EAS star party at Ron Tam's place
Oct 09 - Draconids Meteor Shower Peak
Oct 16 - Astronomy Day (Autumn)
Oct 17 - New Horizons, Halfway to Pluto
Oct 23 – EAS Meeting - Saturday 3:00 pm Evergreen Branch Library
Oct 21 - Orionids Meteor Shower Peak
Oct 31 - Michael Collins' 80th Birthday (1930)

November 2010

Nov 01 - Daylight Savings - Set Clock Back 1 Hour (USA)
Nov 03 - Taurids Meteor Shower Peak
Nov 05 - EAS star party at Ron Tam's place
Nov 05 - Moon Occults Venus
Nov tba - EAS Meeting
Nov 17 - Leonids Meteor Shower Peak
Nov 25 - Asteroid 2002 KL3 Near-Venus Flyby (0.03 AU)

December 2010

Dec 03 - EAS star party at Ron Tam's place
Dec 06 - Moon Occults Mars
Dec 13 - Geminids Meteor Shower Peak
Dec 21 - Total Lunar Eclipse
Dec tba - EAS Holiday Meeting
Dec 21 - Winter Solstice, 23:38 UTC
Dec 22 - Ursids Meteor Shower Peak

OBSERVER'S INFORMATION…

LUNAR FACTS

Aug 24	Full Moon
Sep 01	Last Quarter Moon
Sep 08	New Moon
Sep 15	First Quarter Moon
Sep 23	Full Moon
Oct 01	Last Quarter Moon
Oct 07	New Moon
Oct 14	First Quarter Moon
Oct 23	Full Moon
Oct 30	Last Quarter Moon
Nov 06	New Moon
Nov 13	First Quarter Moon

UP IN THE SKY -- THE PLANETS (AND PLUTO)

Object	*Rises*	*Sets*	*Con*	*Diam.*	*Mag*
Sun	***06:24 am***	***19:55***	***Leo***	***30'***	***-27.5***
Mercury	**07:28 am**	**19:45**	**Leo**	**04"**	**+3.5**
Venus	**10:40 am**	**21:07**	**Vir**	**19"**	**-4.4**
Mars	**10:19 am**	**21:19**	**Vir**	**4"**	**+1.5**
Jupiter	**20:44**	**08:45 am**	**Psc**	**49"**	**-2.9**
Saturn	**08:51 am**	**20:59**	**Vir**	**16"**	**+1.0**
Uranus	**20:36**	**08:37 am**	**Psc**	**04"**	**+5.7**
Neptune	**19:29**	**05:42 am**	**Cap**	**02"**	**+7.8**
Pluto	**16:11**	**01:29 am**	**Sag**	*****	**+14.0**

(*times listed are in local time for Everett PDT*)

UW Astronomy Speakers Colloquium Schedule

Astronomy Department weekly colloquium meets Thursdays at 4:00 pm in PAB A102 - the classroom part of the Physics/Astronomy Building complex. http://www.astro.washington.edu/pages/colloquium.html

'IT'S OVER YOUR HEAD' – ASTRONOMY PODCASTS

Web page with lots of archives and other info is available at http://www.celestialnorth.org/radio/index.php and podcasts at http://www.celestialnorth.org/radio/index.php

KPLU 88.5 FM National Public Radio has daily broadcasts of "Star Date" by the McDonald Observatory of the University of Texas at Austin, Monday through Friday at about 6:05 pm. The short 2 minute radio show deals with current topics of interest in astronomy. The University of Washington TV broadcasts programs from NASA at 12:00 AM Monday through Friday, 12:30 AM Saturday, and 1:30 AM Sunday on the Channel 27 cable station.

EAS Member News

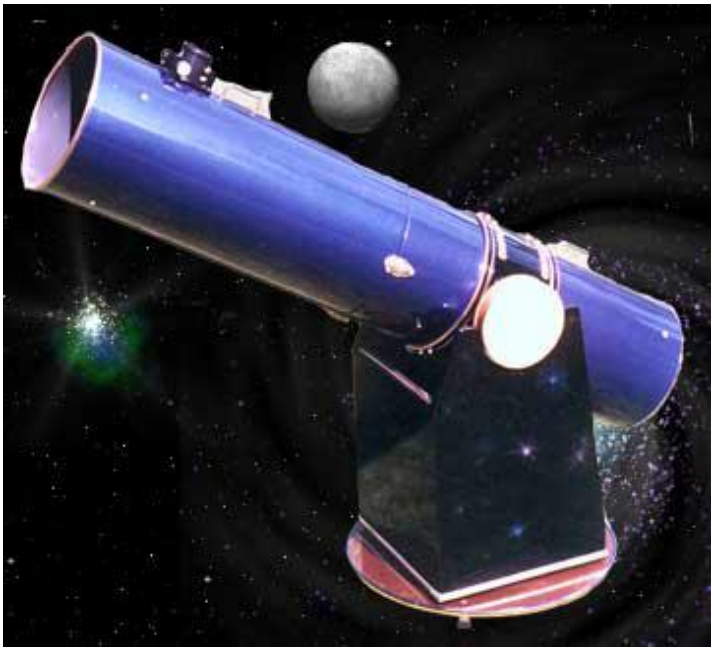
EAS volunteers Bill Carberry, Ron Tam, and Mark Folkerts conducted a star party for a nonprofit group July 18th at Camp Huston, just off SR-2 at Wallace Falls state park. Thank you to the volunteers !

$$ - Financial Health - $$

The club currently maintains a $350+ balance. We try to keep approximately a $500 balance level to allow for contingencies.

Funds obtained from membership dues allows the EAS to publish the Stargazer newsletter, pay Astronomical League dues, pay insurance, host a web site, and maintain our library.

Club Scopes



EAS Club Telescope Borrowing -

Being a member also allows you the use of the club's telescopes, including an award winning 10 inch Dobsonian mount reflector, a second 10" dob, or and 8" Dobsonian. Contact Ron Tam, or Jim Bielaga (425) 337-4384 to borrow a telescope.

Scope	Loan Status
13-inch thin-mirror Dob	Finishing Rehab
10-inch Ward Dobsonian	**Available for Loan**
10-inch Sonotube Dobsonian	Available
8-inch Dobsonian	**Currently On Loan**
25-inch Mirror	Characterization

A 25-inch mirror has been donated to the club, and investigation is under way to determine what would be required to turn it into a large club telescope. If you have interest or skills in mirror testing or telescope making, please let us know.

EAS members: contact Ron Tam to borrow a scope for up to 60 days.

EAS Membership Benefits & Information

EAS Benefits - Membership in the Everett Astronomical Society (EAS) includes invitations to all of the club meetings and star parties, and entitles members to the monthly newsletter, *The Stargazer.* Only members may vote in EAS elections, or be eligible for EAS drawings.

Magazine Discounts –

In addition you will be able subscribe to ***Sky and Telescope*** for $7 off the normal subscription rate, contact the treasurer (Jerry Galt) for more information. http://everettastro.org/application.htm (**When renewing your subscription to *Sky & Telescope* you should send your S&T renewal form along with a check made out to Everett Astronomical Society to the EAS address.** The EAS treasurer Jerry Galt will renew your *Sky and Telescope* subscription for you. **Astronomy** magazine offers a similar opportunity to club members.)

Membership in the Astronomical League -

EAS is a member of the **Astronomical League** and you will receive the Astronomical League's quarterly newsletter magazine, ***The Reflector***.

EAS Library -

Membership will give you access to all the material in the lending library. The library, consists of VCR tapes, DVDs, many books, magazines, and software titles. The EAS has a library of books, videotapes, and software for members to borrow,\. We always value any items you would like to donate to this library. You can contact club librarian to borrow or donate any materials. See library items list here: http://everettastro.org/eas_library.htm

Joining or Renewing with the EAS -

EAS dues are $25 / year per family. If it has been a year since you paid your dues, please re-subscribe to keep the club financially solvent, and to continue to receive membership benefits. http://everettastro.org/application.htm

>> Members – please check to see when your membership dues are payable. If you are more than three months past due, the club will officially assume that you no longer wish to be a member, and remove you from the membership rolls. <<

Send your annual dues renewals to the
Everett Astronomical Society
P.O. Box 12746, Everett, WA 98206.

Those who have **subscriptions to Sky and Telescope** can now pay their own subscription as long as they are EAS members in good standing. Members will now be able to renew directly via mail or phone and still obtain the club discount. The subscribers may mail in the renewal notices with their payment, or renew via phone at (800) 253-0245. Payment at the time of renewal is required. Once a year, Sky and Telescope will check with the EAS club treasurer to see that the subscribers are still members in good standing to qualify for the discount. New members will continue to subscribe through the club treasurer.

Digital Lunar Orbiter Photographic Atlas of the Moon

The Lunar and Planetary Institute has created a digital version of the Lunar Orbiter Photographic Atlas of the Moon, and Consolidated Lunar Atlas available online at:
http://www.lpi.usra.edu/research/cla/menu.html
http://www.lpi.usra.edu/research/lunar_orbiter

Observing Jupiter's Moons – Java tool

http://skytonight.com/observing/objects/javascript/jupiter

Transit times for Jupiter's Great Red Spot in 2010

http://skytonight.com/observing/objects/planets/3304091.html

NOAA Sun Calculator

Need to know exactly what time the sun will set on Sept. 26, 2065? Or when it rose in 565 BC? How about the length of daylight a week from Tuesday in Albuquerque, N.M.? Just go to NOAA's solar calculator, now available on the Web. http://www.srrb.noaa.gov/highlights/sunrise/gen.html

Offices Still Vacant for 2010 -

Vice president: Run monthly meetings if President is absent, and store/loan club telescopes.

Newsletter Co-editor #2: Contribute columns or articles for the StarGazer on a regular basis.

Publicity chairperson: Contact news media, and e-mail and blog to raise public awareness of EAS activities.

Outreach chairperson: Coordinate requests from public for EAS member volunteers to conduct star parties or presentations at visits to schools, senior centers, scout meetings, etc. We often have requests

for members of the EAS to come and help with an 'astronomy night' event from local schools, scout groups, senior homes, or similar groups. Usually this would be in the form of a star party at their gathering, or perhaps a short slide show or night sky talk. Providing education and support to the community about interest astronomy is one of the main missions of the EAS. A star party night can be a rewarding event for all involved. **Please email Mark Folkerts with your interest (or suggestions).**

Sidewalk astronomy committee: Plan and conduct urban/suburban sidewalk astronomy events to allow passers-by to experience astronomy. Needs 2-3 people for each event, and to schedule events. We are looking for volunteers who could do a series of Sidewalk Astronomy sessions this spring and summer, at a local park or public venue. For safety, moral support, and effectiveness, this should be done in teams of at least two people with telescopes. Special events like eclipse or comets especially draw the interest of the public.

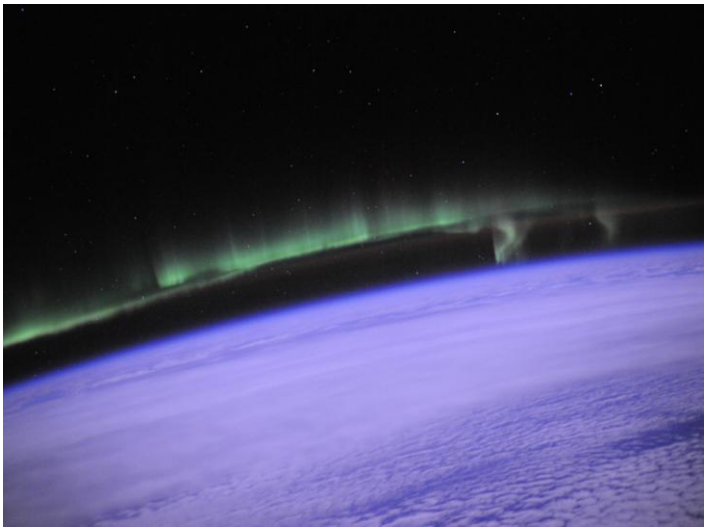
Other volunteers? Find a way to help and contribute. Come up with a new idea to promote the EAS and astronomy in your community.

International Space Station – Visible Seattle Passes

ISS Visibility – **Heavens Above**:
http://www.heavens-above.com/PassSummary.asp?lat=47.979&lng=-122.201&alt=0&loc=Everett&TZ=PST&satid=25544

Astronomical Notes -- On & Off the Web...

Aurora from ISS



NASA astronaut Doug Wheelock recently took this picture of Aurora from the International Space Station (ISS)

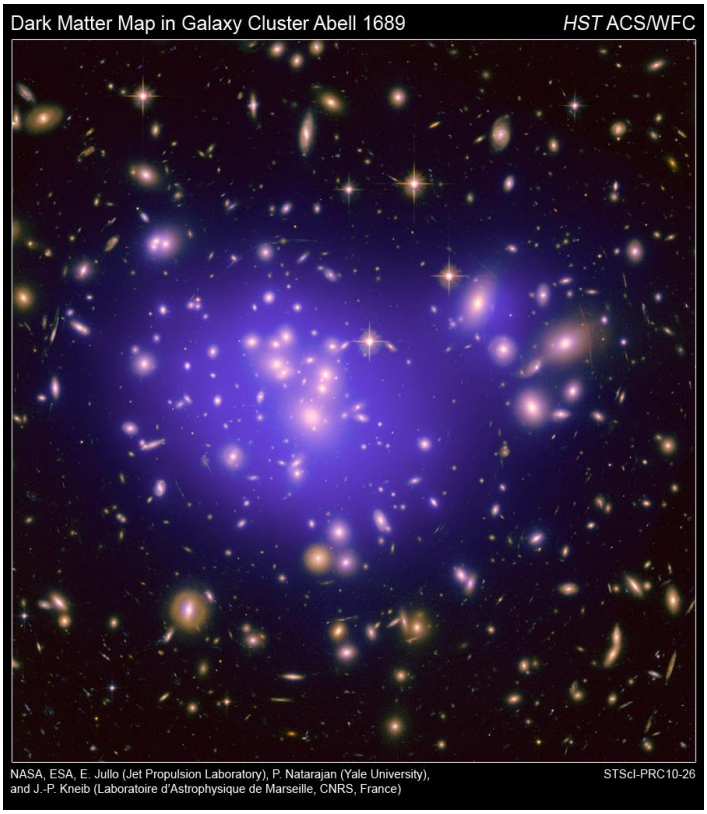
Cosmic Lens Used to Probe Dark Energy for First Time

Astronomers have devised a new method for measuring perhaps the greatest puzzle of our universe — dark energy. This mysterious force, discovered in 1998, is pushing our universe apart at ever-increasing speeds. For the first time, astronomers using Hubble Space Telescope were able to take advantage of a giant magnifying lens in space — a massive cluster of galaxies — to narrow in on the nature of dark energy. Their calculations, when combined with data from other methods, significantly increase the accuracy of dark energy measurements. This may eventually lead to an explanation of what the elusive phenomenon really is. "*We have to tackle the dark energy problem from all sides*," said Eric Jullo. "*It's important to have several methods, and now we've got a new, very powerful one*." Jullo is lead author of a paper on the findings.

Scientists aren't clear about what dark energy is, but they do know that it makes up a large chunk of our universe, about 72 percent. Another chunk, about 24 percent, is thought to be dark matter, also mysterious in nature but easier to study than dark energy because of its gravitational influence on matter that we can see. The rest of the universe, a mere 4 percent, is the stuff that makes up people, planets, stars, and everything made up of atoms.

In their new study, the science team used images from Hubble to examine a massive cluster of galaxies, named Abell 1689, which acts as a magnifying, or gravitational, lens. The gravity of the cluster causes galaxies behind it to be imaged multiple times into distorted shapes, sort of like a fun-house mirror reflection that warps your face.

Using these distorted images, the scientists were able to figure out how light from the more distant, background galaxies had been bent by the cluster — a characteristic that depends on the nature of dark energy. Their method also depends on precise ground-based measurements of the distance and speed at which the background galaxies are traveling away from us.



The team used these data to quantify the strength of the dark energy that is causing our universe to accelerate. "*What I like about our new method is that it's very visual*," said Jullo, "*You can literally see gravitation and dark energy bend the images of the background galaxies into arcs*." According to the scientists, their method required multiple, meticulous steps. They spent the last several years developing specialized mathematical models and precise maps of the matter — both dark and "normal" — constituting the Abell 1689 cluster. "*We can now apply our technique to other gravitational lenses*," said co-author Priya Natarajan, a cosmologist. "*We're exploiting a beautiful phenomenon in nature to learn more about the role that dark energy plays in our universe*."

HUBBLE IMAGE OF SPIRAL GALAXY DEEP IN COMA CLUSTER

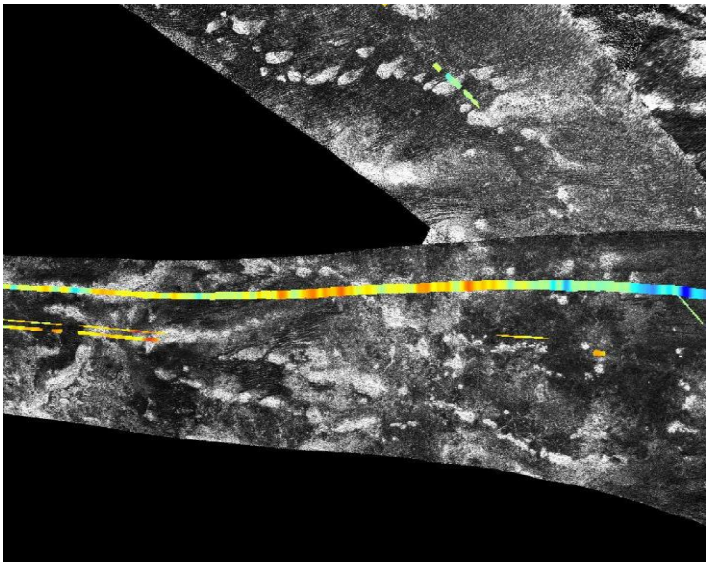
A long-exposure (28 hours) Hubble Space Telescope image shows a majestic face-on spiral galaxy located deep within the Coma Cluster of galaxies, which lies 320 million light-years away in the northern constellation Coma Berenices. The galaxy, known as NGC 4911, contains rich lanes of dust and gas near its center. These are silhouetted against glowing newborn star clusters and iridescent pink clouds of hydrogen, the existence of which indicates ongoing star formation. Hubble has also captured the outer spiral arms of NGC 4911, along with thousands of other galaxies of varying sizes. The high resolution of Hubble's cameras, paired with considerably long exposures, made it possible to observe these faint details. This natural-color Hubble image, which combines data obtained in 2006, 2007, and 2009 from the Wide Field Planetary Camera 2 and the Advanced Camera for Surveys.

TITAN'S ROWS OF RAISIN-LIKE MOUNTAINS

Saturn's moon Titan ripples with mountains, and scientists have been trying to figure out how they form. The best explanation, it turns out, is that Titan is shrinking as it cools, wrinkling up the moon's surface like a raisin. A new model developed by scientists working with radar data obtained by Cassini spacecraft shows that differing densities in the outermost layers of Titan can account for the unusual surface behavior. Titan is slowly cooling because it is releasing heat from its original formation and radioactive isotopes are decaying in the interior. As this happens, parts of Titan's subsurface ocean freeze over, the outermost ice crust thickens and folds, and the moon shrivels up.

"*Titan is the only icy body we know of in the solar system that behaves like this*," said Giuseppe Mitri, the lead author of the paper and a Cassini radar associate. "*But it gives us insight into how our solar system came to be*." An example of this kind of process can also be found on Earth, where the crumpling of the outermost layer of the surface, known as the lithosphere, created the Zagros Mountains in Iran, Mitri said. Titan's highest peaks rise up to about two kilometers (6,600 feet), comparable to the tallest summits in the Appalachian Mountains. Cassini was the first to spot Titan's mountains in radar images in 2005. Several mountain chains on Titan exist near the equator and are generally oriented west-east. The concentration of these ranges near the equator suggests a common history. While several other icy moons in the outer solar system have peaks that reach heights similar to Titan's mountain chains, their topography comes from extensional tectonics -- forces stretching the ice shell -- or other geological processes. Until now, scientists had little evidence of contractional tectonics -- forces shortening and thickening the ice shell. Titan is the only icy satellite where the shortening and thickening are dominant.

Mitri and colleagues fed data from Cassini's radar instrument into computer models of Titan developed to describe the moon's tectonic processes and to study the interior structure and evolution of icy satellites. They also made the assumption that the moon's interior was only partially separated into a mixture of rock and ice, as suggested by data from Cassini's radio science team.

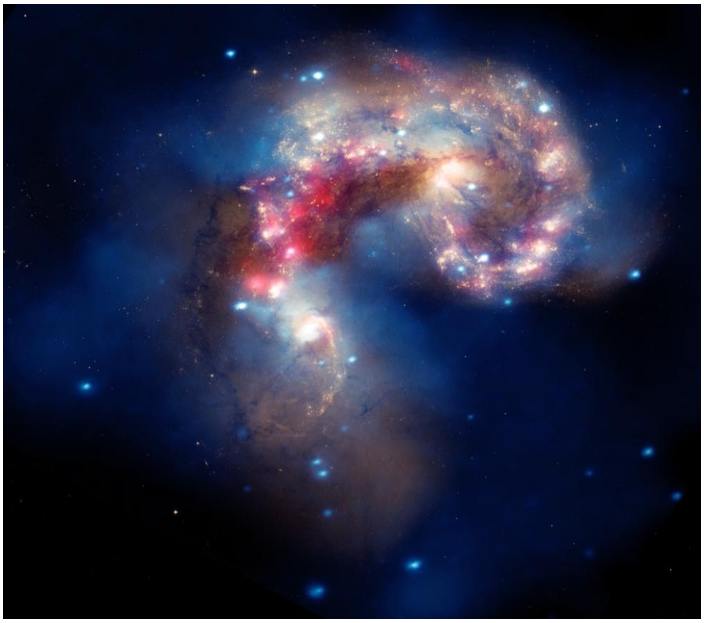


Mountains Near Adiri on Titan - This mosaic, made from radar images obtained by Cassini spacecraft, shows parallel mountain chains on Saturn's moon Titan, near an equatorial region known as Adiri. This mosaic focuses on an area around 10 degrees south latitude and 145 degrees east longitude. The annotated version shows topographic profiles obtained by the radar instrument, with red areas showing the highest elevation (in this image, 250 meters above the mean radius of Titan) and purple showing the lowest (in this image, 450 meters below the mean radius of Titan). That version also shows a grid for latitude and longitude. Scientists believe the structures rose up because the lithosphere, the outermost layer of the surface, folded up during deformation of the outer water ice shell. Cassini's radar instrument obtained the black-and-white image of the terrain . In radar images, objects appear bright when they are tilted toward the spacecraft or have rough surfaces. The topographical data were derived from the same flybys. Credit: NASA/JPL-Caltech

Scientists tweaked the model until they were able to build mountains on the surface similar to those Cassini had seen. They found the conditions were met when they assumed the deep interior was surrounded by a very dense layer of high-pressure water ice, then a subsurface liquid-water-and-ammonia ocean and an outer water-ice shell. So the model, Mitri explained, also supports the existence of a subsurface ocean. Each successive layer of Titan's interior is colder than the one just inside it, with the outermost surface averaging a chilly 94 Kelvin (minus 290 degrees Fahrenheit). So cooling of the moon causes a partial freezing of the subsurface liquid ocean and thickening of the outer water ice shell. It also thickens the high-pressure ice. Because the ice on the crust is less dense than the liquid ocean and the liquid ocean is less dense than the high-pressure ice, the cooling means the interior layers lose volume and the top "skin" of ice puckers and folds.

Since the formation of Titan, which scientists believe occurred around four billion years ago, the moon's interior has cooled significantly. But the moon is still releasing hundreds of gigawatts of power, some of which may be available for geologic activity. The result, according to the model, was a shortening of the radius of the moon by about seven kilometers (four miles) and a decrease in volume of about one percent. "*These results suggest that Titan's geologic history has been different from that of its Jovian cousins, thanks, perhaps, to an interior ocean of water and ammonia*," said Jonathan Lunine, a Cassini interdisciplinary scientist for Titan and co-author on the new paper. "*As Cassini continues to map Titan, we will learn more about the extent and height of mountains across its diverse surface*." http://www.nasa.gov/cassini http://saturn.jpl.nasa.gov

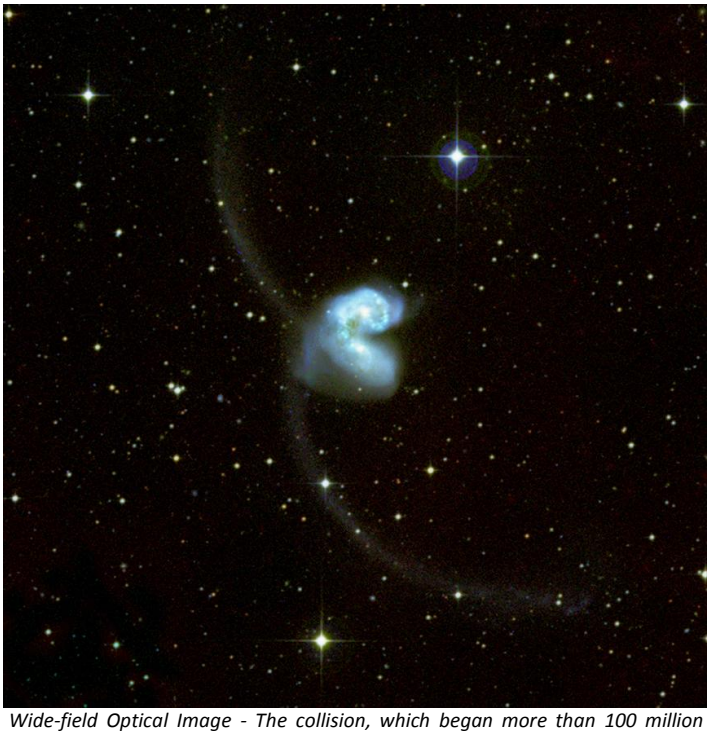
NEW 'ANTENNA' PICTURE - COMBINED HST AND CHANDRA



A beautiful new image of two colliding galaxies has been released by NASA Great Observatories. The Antennae galaxies, located about 62 million light-years from Earth, are shown in this composite image from the Chandra X-ray Observatory (blue), the Hubble Space Telescope (gold and brown), and the Spitzer Space Telescope (red). The imaging data were taken in 1999, 2003, 2004, and 2005. The Antennae galaxies take their name from the long antenna-like "arms," seen in wide-angle views of the system. These features were produced by tidal forces generated in the collision.

The X-ray image from Chandra shows huge clouds of hot, interstellar gas that have been injected with rich deposits of elements from supernova explosions. This enriched gas, which includes elements such as oxygen, iron, magnesium and silicon, will be incorporated into new generations of stars and planets. The bright, point-like sources in the image are produced by material falling onto black holes and neutron stars that are remnants of the massive stars. Some of these black holes may have masses that are almost one hundred times that of the Sun.

The Spitzer data show infrared light from warm dust clouds that have been heated by newborn stars, with the brightest clouds lying in the overlap region between the two galaxies. The Hubble data reveal old stars and star-forming regions in gold and white while filaments of dust appear in brown. Many of the fainter objects in the optical image are clusters containing thousands of stars.



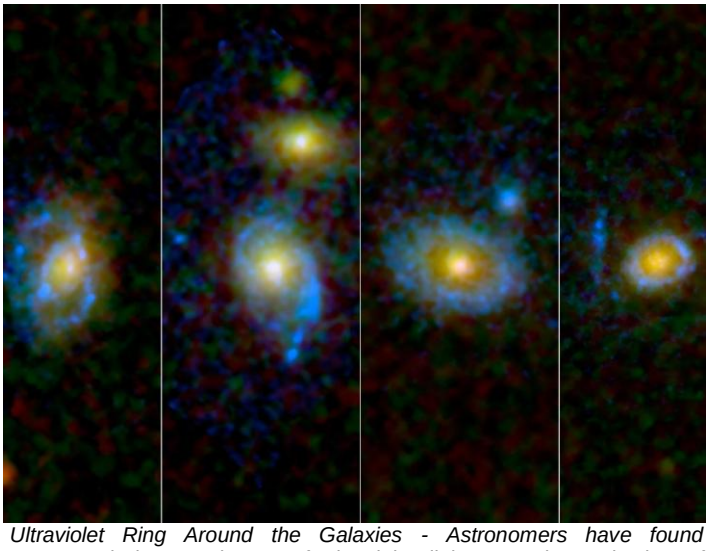
Wide-field Optical Image - The collision, which began more than 100 million years ago and is still occurring, has triggered the formation of millions of stars in clouds of dusts and gas in the galaxies. The most massive of these young stars have already sped through their evolution in a few million years and exploded as supernovas.

GIANT UV RINGS FOUND IN RESURRECTED GALAXIES

Astronomers have found mysterious, giant loops of ultraviolet light in aged, massive galaxies, which seem to have a second lease on life. Somehow these "over-the-hill galaxies" have been infused with fresh gas to form new stars that power these truly gargantuan rings, some of which could encircle several Milky Way galaxies.

The discovery of these rings implies that bloated galaxies presumed "dead" and devoid of star-making can be reignited with star birth, and that galaxy evolution does not proceed straight from the cradle to the grave. "*In a galaxy's lifetime, it must make the transition from an active, star-forming galaxy to a quiescent galaxy that does not form stars*," said Samir Salim, lead author of a recent study and a research scientist in the department of astronomy at Indiana University, Bloomington. "*But it is possible this process goes the other way, too, and that old galaxies can be rejuvenated*."

A One-Two Observational Punch - The findings come courtesy of the combined power of two orbiting observatories, Galaxy Evolution Explorer and Hubble Space Telescope. First, the Galaxy Evolution Explorer surveyed a vast region of the sky in ultraviolet light. The satellite picked out 30 elliptical and lens-shaped "early" galaxies with puzzlingly strong ultraviolet emissions but no signs of visible star formation. Early-type galaxies, so the scientists' thinking goes, have already made their stars and now lack the cold gas necessary to build new ones. The Galaxy Evolution Explorer could not discern the fine details of these large, rounded galaxies gleaming in the ultraviolet, so to get a closer look, researchers turned to the Hubble Space Telescope. What they saw shocked them: three-quarters of the galaxies were spanned by great, shining rings of ultraviolet light, with some ripples stretching 250,000 light-years. A few galaxies even had spiral-shaped ultraviolet features.



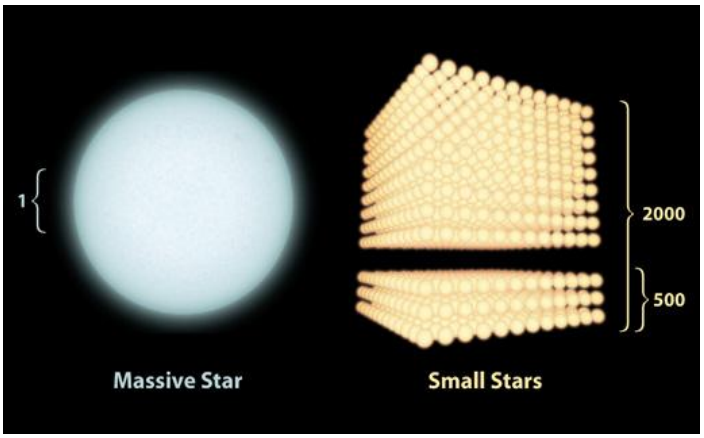
Ultraviolet Ring Around the Galaxies - Astronomers have found unexpected rings and arcs of ultraviolet light around a selection of galaxies, four of which are shown here as viewed by Hubble Space Telescope. Observations from Galaxy Evolution Explorer (GALEX) picked out 30 elliptical and lens-shaped "early-type" galaxies with puzzlingly strong ultraviolet emissions but no signs of visible star formation. Early-type galaxies, so the scientists' thinking goes, have already made their stars and now lack the cold gas necessary to build new ones. Hubble images captured the great, shining rings of ultraviolet light, with some ripples stretching 250,000 light-years. In these Hubble images, ultraviolet light has been rendered in blue, while green and red light from the galaxies is shown in their natural colors. Image credit: NASA/ESA /JPL-Caltech/STScI /UCLA

"*We haven't seen anything quite like these rings before*," said Michael Rich, co-author of the paper and research astronomer. "*These beautiful and very unusual objects might be telling us something very important about the evolution of galaxies*."

Colors of the Ages - Astronomers can tell a galaxy's approximate age just by the color of its collective starlight. Lively, young galaxies look bluish to our eyes due to the energetic starlight of their new, massive stars. Elderly galaxies instead glow in the reddish hues of their ancient stars, appearing "old, red and dead," as astronomers bluntly say. Gauging by the redness of their constituent stars, the galaxies seen by the Galaxy Evolution Explorer and Hubble are geezers, with most stars around 10 billion years old. But relying on the spectrum of light visible to the human eye can be deceiving, as some of us have found out after spending a day under the sun's invisible ultraviolet rays and getting a sunburn. Sure enough, when viewed in the ultraviolet part of the spectrum, these galaxies clearly have more going on than meets the eye. Some ultraviolet starlight in a few of the observed galaxies might just be left over from an initial burst of star formation. But in most cases, new episodes of star birth must be behind the resplendent rings, meaning that fresh gas has somehow been introduced to these apparently ancient galaxies. Other telltale signs of ongoing star formation, such as blazing hydrogen gas clouds, might be on the scene as well, but have so far escaped detection.

The Lord of the Ultraviolet Rings - Just where the gas for this galactic resurrection came from and how it has created rings remains somewhat perplexing. A merging with a smaller galaxy would bring in fresh gas to spawn hordes of new stars, and could in rare instances give rise to the ring structures as well. But the researchers have their doubts about this origin scenario. "*To create a density shock wave that forms rings like those we've seen, a small galaxy has to hit a larger galaxy pretty much straight in the center*," said Salim. "*You have to have a dead-on collision, and that's very uncommon*." Rather, the rejuvenating spark more likely came from a gradual sopping-up of the gas in the so-called intergalactic medium, the thin soup of material between galaxies. This external gas could generate these rings, especially in the presence of bar-like structures that span some galaxies' centers. Ultimately, more observations will be needed to show how these galaxies began growing younger and lit up with humongous halos. Salim and Rich plan to search for more evidence of bars, as well as faint structures that might be the remnants of stellar blooms that occurred in the galaxies' pasts. Rather like recurring seasons, it may be that galaxies stirred from winter can breed stars again and then bask in another vibrant, ultraviolet-soaked summer. http://www.nasa.gov/galex/ http://www.galex.caltech.edu

GALEX SHOWS MORE SMALL STARS THAN THOUGHT



This diagram illustrates the extent to which astronomers have been underestimating the proportion of small to big stars in certain galaxies. Data from Galaxy Evolution Explorer spacecraft and the Cerro Tololo Inter-American Observatory in Chile have shown that, in some cases, there can be as many as four times more small stars compared to large ones. In the diagram, a massive blue star is shown next to a stack of lighter, yellow stars. These big blue stars are three to 20 times more massive than our sun, while the smaller stars are typically about the same mass as the sun or smaller. Before the Galaxy Evolution Explorer study, astronomers assumed there were 500 small stars for every massive one (lower stack on right). The new observations reveal that, in certain galaxies, this estimation is off by a factor of four; for every massive star, there could be as many as 2,000 small counterparts (entire stack on right). Image credit: NASA/JPL-Caltech

RADIO – X-RAY IMAGE OF ERUPTION IN M87 GALAXY

Massive Attack - This image shows the eruption of a galactic "super-volcano" in the massive galaxy M87, as witnessed by Chandra X-ray Observatory and Very Large Array (VLA). At a distance of about 50 million light years, M87 is relatively

close to Earth and lies at the center of the Virgo cluster, which contains thousands of galaxies. The cluster surrounding M87 is filled with hot gas glowing in X-ray light (and shown in blue) that is detected by Chandra. As this gas cools, it can fall toward the galaxy's center where it should continue to cool even faster and form new stars. However, radio observations with the VLA (red) suggest that in M87 jets of very energetic particles produced by the black hole interrupt this process. These jets lift up the relatively cool gas near the center of the galaxy and produce shock waves in the galaxy's atmosphere because of their supersonic speed. The interaction of this cosmic "eruption" with the galaxy's environment is very similar to that of the Eyjafjallajokull volcano in Iceland that occurred in 2010. With Eyjafjallajokull, pockets of hot gas blasted through the surface of the lava, generating shock waves that can be seen passing through the grey smoke of the volcano. This hot gas then rises up in the atmosphere, dragging the dark ash with it. This process can be seen in a movie of the Eyjafjallajokull volcano where the shock waves propagating in the smoke are followed by the rise of dark ash clouds into the atmosphere. In the analogy with Eyjafjallajokull, the energetic particles produced in the vicinity of the black hole rise through the X-ray emitting atmosphere of the cluster, lifting up the coolest gas near the center of M87 in their wake. This is similar to the hot volcanic gases drag up the clouds of dark ash. And just like the volcano here on Earth, shockwaves can be seen when the black hole pumps energetic particles into the cluster gas. Image Credits: X-ray: NASA/CXC/KIPAC/N. Werner et al Radio: NSF/NRAO/AUI/W. Cotton

NASA Reveals Key to Unlock Mysterious Red Glow

Scientists created a unique collection of polycyclic aromatic hydrocarbon (PAH) spectra to interpret mysterious emission from space. Because PAHs are a major product of combustion, remain in the environment, and are carcinogenic, the value of this PAH spectral collection extends far beyond NASA and astronomical applications. For years, scientists have been studying a mysterious infrared glow from the Milky Way and other galaxies, radiating from dusty regions in deep space. By duplicating the harsh conditions of space in their laboratories and computers, scientists have identified the mystifying infrared emitters as PAHs. PAHs are flat, chicken-wire shaped, nano-sized molecules that are very common on Earth. "*PAHs in space are probably produced by carbon-rich, giant stars. A similar process produces soots here on Earth*," said Louis Allamandola, an astrochemistry researcher. "*Besides astronomical applications, this PAH database and software can be useful as a new research tool for scientists, educators, policy makers, and consultants working in the fields of medicine, health, chemistry, fuel composition, engine design, environmental assessment, environmental monitoring, and environmental protection*."

To manage the research data, NASA built a database that now can be shared over the internet. It's the world's largest collection of PAH infrared data, and the website contains nearly 700 spectra of PAHs in their neutral and electrically charged states. In addition, it has tools to download PAH spectra ranging in temperature from minus 470 to 2000 degrees Fahrenheit. Thanks to these spectra, PAHs are now known to be abundant throughout the universe, but in exotic forms not readily found on Earth. This mysterious infrared radiation from interstellar space was discovered in the 1970's and 1980's. While the infrared signature hinted that PAHs might be responsible, laboratory spectra of only a handful of small, individual PAHs were available to test this idea. To make matters worse, these were only for neutral, solid PAHs; they were not representative of PAHs found in space, where they'd be electrically charged, very cold, individual molecules floating in the gas. By the mid-1990's, observations showed this infrared emission as surprisingly common and widespread across the universe, implying that the unknown carrier was abundant and important. To better understand PAHs, then thought to be too complex to be present in space, their spectra were measured under astronomical conditions.

To capture their spectra, Allamandola led a team of scientists to measure PAH spectra under simulated astronomical conditions and with computer software. This team consisted of experts in many different fields. "*This group made a tremendous effort to make this a reality*," said Allamandola. "*There are now nearly 700 spectra in the database. Six hundred of these have been theoretically computed, and sixty have been measured in the laboratory. The theoretical spectra span the range from two to 2000 microns, the experimental spectra cover two to 25 microns*." The spectra have given insights into the PAHs in space that were impossible to get any other way. Scientists predict that in the near future these spectra will be especially valuable for interpreting observations made with the new airborne observatory, the Stratospheric Observatory for Infrared Astronomy (SOFIA) and the recently launched European Space Agency's (ESA) Herschel Telescope.

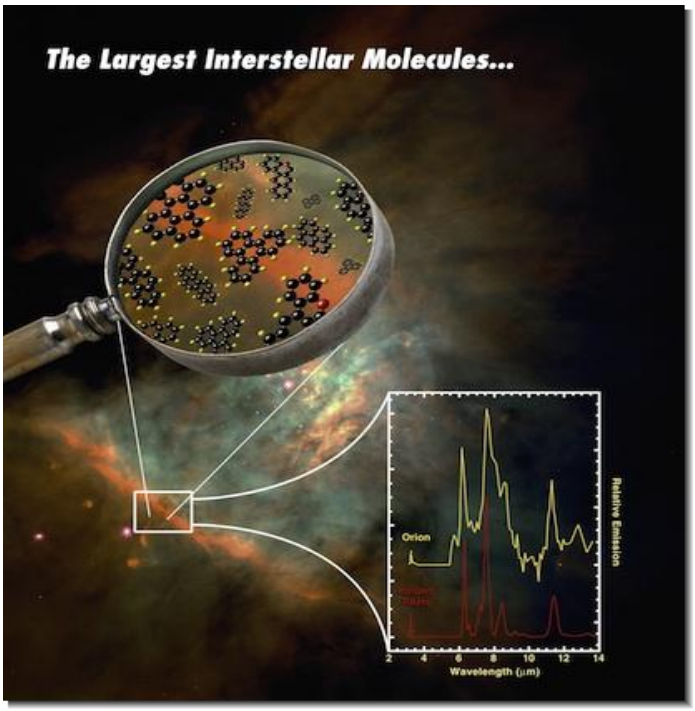
They tried to make the website user friendly for researchers. One can explore the database by charge, composition and spectral signatures. Tools allow users to do analyses online. For example, spectra can be combined to create a "composite" signature that can be compared directly to the spectrum of "unknown" material. "*We will expand the database and tools*," said Christiaan Boersma, a NASA postdoc who designed and developed many parts of the website and tools. "*We now use the database to interpret astronomical observations from star and planet forming regions in our galaxy, the Milky Way, and even other galaxies*." "*Initially, our hope was to help interpret the experimental spectra, but over time, our computational capabilities made it possible to study molecules much larger than can be studied in the laboratory*," said Charles Bauschlicher Jr., a world-renowned computational chemist. "*Thanks to the great sensitivity of the Spitzer Telescope, PAHs are seen across the universe, removing any doubt of the importance of these species*," said Allamandola. The database is available at http://www.astrochem.org/pahdb More information about the database and graphics are available at http://www.astrochem.org/pahdb/pressrelease

Orion Nebula Images Give Clues About Origin of Life

How did life on Earth begin? One hypothesis is that terrestrial life began when organics were delivered from outer space during the early, heavy bombardment phase of Earth's development. We know that several meteorites (e.g., Murchison) have amino acids with properties similar to those seen in biological amino acids, the building blocks of life. An international team of astronomers led by Fukue and Tamura conducted research on the properties of light in a massive star-forming region (BN/KL nebula) of the Orion Nebula and have investigated a process that may have played a role in the development of life on Earth.

The origin of what is technically called "biomolecular homochirality" is a longstanding mystery and an important one to solve, since it characterizes most life forms on Earth. Chirality refers to the handedness of an image or phenomenon, which is not identical to the mirror image of its counterpart, much as the right and left hands are similar in structure but are opposites and thus not the same. Homochirality means that a group of molecules exhibit the same handedness. Therefore, biomolecular homochirality indicates an organic group of molecules that are characterized by the same handedness. Terrestrial living material displays homochirality and consists almost exclusively of one enantiomer, L-amino acid, one of a pair of amino acids (Fig. 1). Wh meteorites show enantiomeric excesses of the same handedness as that seen in biological amino acids. Therefore, the process that produced the handedness of amino acids in the meteorites may provide clues to how homochirality developed in

life forms on Earth. The larger question becomes how enantiomeric excesses can be produced and under what conditions.



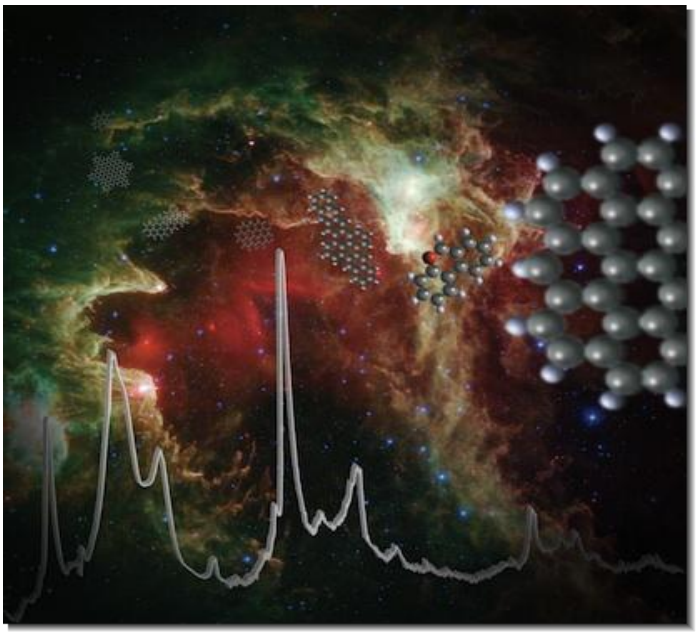
The Hubble image of the Great Nebula in Orion. The inset on the right shows the infrared emission signature (yellow) from the small white square located on a region known as the Orion Ionization Ridge, compared to infrared signature from a few PAHs in the NASA Ames database (red). The similarity between the signature (or spectrum) from Orion and that from the database laid the foundation for the idea that PAHs are common throughout the Universe. The magnifying glass shows some small PAH molecules. PAHs in space are now thought to be much larger than these, more like those shown This shows images of the structures of the two enantiomers, L-alanine and D-alanine, which are mirror images of the other. Black bars express atomic bonds. Red, orange, blue, green spheres express atoms of hydrogen, carbon, nitrogen, and oxygen, respectively. (This image was provided by NAOJ, the National Astronomical Observatory of Japan)

Addressing this question became the context within which the research team worked as they made observations of the Orion Nebula, one of the brightest and closest regions of high and low mass star formation near Earth. Since enantiomeric excesses can be produced by circularly polarized light, the research team focused on observing the degree of circular polarization in the star-forming region of the Orion Nebula. They developed the circular polarimeter for SIRPOL on SIRIUS, which is a wide-field near-infrared camera that works at three near-infrared bands (J-, H-, Ks-bands) simultaneously . They used SIRPOL to measure the polarity with SIRIUS on the IRSF (Infrared Survey Facility) 1.4 m telescope in South Africa. http://seeds.mtk.nao.ac.jp/~kandori/SIRPOL-e.html

Their results include the presentation of a wide-field and deep near-infrared (Ks band: 2.14 micron) circular polarization image of the Orion Nebula (Fig. 2), where massive stars and many low-mass stars are forming. This image reveals a circularly polarized region that is spatially extended around the BN/KL nebula, a massive star-forming region. The circular polarization here is high and significant, extending over a region about 400 times the size of the Solar System, an area observed that is much larger than that of previous studies.

Other regions contrast with this one and show no significant circular polarization. Unlike the BN/KL nebula, most of the low-mass young stars do not demonstrate a detectable extended structure in either linear or circular polarization. The researchers infer that their results indicate a process that could have played a role in the development if our Solar System formed in a massive star-forming region like Orion's, then circularly polarized radiation could have induced enantiomeric excesses in the parent bodies of meteorites and subsequently delivered to Earth.

Figures can be accessed by visiting the Subaru Telescope website at www.SubaruTelescope.org http://www.SubaruTelescope.org and then referring to the full article in "Topics".

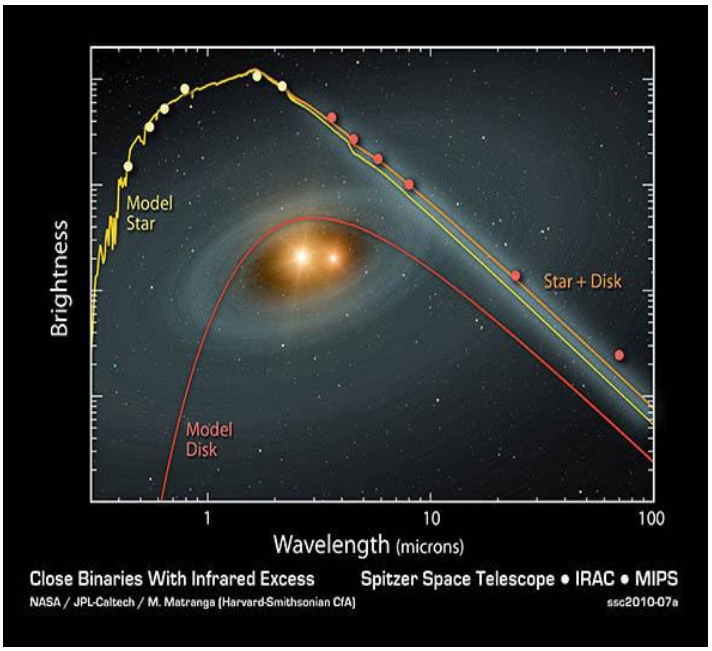


An interstellar nebula showing the emission from PAHs in red, some PAH molecular structures and the interstellar PAH infrared signature. This image was captured using SIRPOL, the SIRIUS camera's mode of measuring circular polarity. It shows the degree of circular polarization of the Orion star-forming region. Yellow color expresses left-handed circular polarization, where the electric vector of light is rotated anticlockwise. Red color expresses right-handed circular polarization. The black bar denoted by (A) expresses about 400 times the size of the Solar System, and the bar by (B) shows about 100 times the size of the Solar System. (Image provided by NAOJ, the National Astronomical Observatory of Japan.)

PULVERIZED PLANET DUST MAY LIE AROUND DOUBLE STARS

Tight double-star systems might not be the best places for life to spring up, according to a new study using data from Spitzer Space Telescope. The infrared observatory spotted a surprisingly large amount of dust around three mature, close-orbiting star pairs. Where did the dust come from? Astronomers say it might be the aftermath of tremendous planetary collisions. "*This is real-life science fiction*," said Jeremy Drake. Drake is the principal investigator of the research. "*Our data tell us that planets in these systems might not be so lucky -- collisions could be common. It's theoretically possible that habitable planets could exist around these types of stars, so if there happened to be any life there, it could be doomed*." The particular class of binary, or double, stars in the study are about as snug as stars get. Named RS Canum Venaticorums, or RS CVns for short, they are separated by only about two-million miles (3.2-million kilometers), or two percent of the distance between Earth and our sun. The stellar pairs orbit around each other every few days, with one face on each star perpetually locked and pointed toward the other. The close-knit stars are similar to the sun in size and are probably about a billion to a few billion years old -- roughly the age of our sun when life first evolved on Earth. But these stars spin much faster, and, as a result, have powerful magnetic fields,

and giant, dark spots. The magnetic activity drives strong stellar winds -- gale-force versions of the solar wind -- that slow the stars down, pulling the twirling duos closer over time. And this is where the planetary chaos may begin. As the stars cozy up to each other, their gravitational influences change, and this could cause disturbances to planetary bodies orbiting around both stars. Comets and any planets that may exist in the systems would start jostling about and banging into each other, sometimes in powerful collisions. This includes planets that could theoretically be circling in the double stars' habitable zone, a region where temperatures would allow liquid water to exist. Though no habitable planets have been discovered around any stars beyond our sun at this point in time, tight double-star systems are known to host planets; for example, one system not in the study, called HW Vir, has two gas-giant planets.



This plot of data from Spitzer tells astronomers that a dusty planetary smashup probably occurred around a pair of tight twin, or binary, stars. The stars are similar to the sun in mass and age, but they orbit very closely around each other. With time, they get closer and closer, until the gravitational harmony in the system is thrown out of whack. Planetary bodies -- planets, asteroids and comets -- are thought to migrate out of their stable orbits, and smash together. Spitzer's cameras, which take pictures at different infrared wavelengths, observed the signatures of dust around three close binary systems. Data for one of those systems are shown here in orange. Models for the stars and a surrounding dusty disk are shown in yellow and red, respectively. The disk reveals that some sort of chaotic event -- probably a planetary collision -- must have generated the dusty disk.

"*These kinds of systems paint a picture of the late stages in the lives of planetary systems*," said Marc Kuchner, a co-author. "*And it's a future that's messy and violent*." Spitzer spotted the infrared glow of hot dusty disks, about the temperature of molten lava, around three such tight binary systems. One of the systems was originally flagged as having a suspicious excess of infrared light in 1983 by the Infrared Astronomical Satellite. In addition, researchers using Spitzer recently found a warm disk of debris around another star that turned out to be a tight binary system. The astronomy team says that dust normally would have dissipated and blown away from the stars by this mature stage in their lives. They conclude that something -- most likely planetary collisions -- must therefore be kicking up the fresh dust. In addition, because dusty disks have now been found around four, older binary systems, the scientists know that the observations are not a fluke. Something chaotic is very likely going on. If any life forms did exist in these star systems, and they could look up at the sky, they would have quite a view. Marco Matranga, first author of the paper, said, "*The skies there would have two huge suns, like the ones above the planet Tatooine in 'Star Wars.'*" The Spitzer observations were made before it ran out of its liquid coolant in May 2009, officially beginning its warm mission. http://www.jpl.nasa.gov/news/news.cfm?release=2010-275&cid=release_2010-275

JACK HORKHEIMER (1938-2010)

Jack Horkheimer, Public Television's "Star Gazer" and the director of Miami's Space Transit Planetarium,' died Friday, August 20th, at the age of 72. Farewell, Jack Horkheimer, and "keep looking up!" "Star Gazer"

In EAS StarGazer - "The Planetarium"

- By John W Goerger

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[The EAS welcomes newsletter article contributions and submissions of all types from its members.]

… Lock rolled over onto her side, looked up at the digital time device which was mounted about 15 degrees above her, as she let out a sigh; even though she had gone to bed 8 cycles earlier she hadn't slept but dozed, the deep sleep she had hoped she would experience, had not happened. She had had an uncomfortable sleep-cycle, her mind had not let go of the problems she and her co-workers had been working on over the previous 15 cycles, before she and her team decided to get some rest, to clear their thoughts. Now with a new series of cycles starting, it was once again yet another series of cycles to pursue the problems and hopefully any options and from those, possible solutions, they could create a series of plans and outcomes.

After refreshing herself, Lock went to the section of the station for breakfast and perhaps some general conversation with others at the Radio Array Station. As she entered the area she saw many of her colleagues in a cluster discussing in low tones only she could understand, the codes they were using about the problems they all had discovered the day before. As she got closer she also heard them bringing up the same problems she had experienced-----none of them had had deep sleep but just dozing as she had too.

As she moved, they looked in her direction and gave her the warm greeting they always had for her and she in turn returned the greeting, knowing they all felt and enjoyed the comradeship and pleasantries of working with each other on their collective project. She then inquired if they all had a restless sleep-cycle and they all nodded in the unison and she likewise admitted to them as well. They all related it had to do with the problems they had worked on the previous cycles before and what the probable outcomes should be.

Later, they all entered the Director Station Office and discussed with her their results and the many suggestions they had discussed among themselves. The SIGNAL was clear, in that it was not of natural means, it was a created signal---it wasn't a signal that had a code to it but rather an ANTI-CODE, something that even a young one could easily understand, translate into their own language: it was a message from another civilization coming from one of those stars among the vast multitude of stars within their galaxy. It was apparent the civilization was in its infancy of star-analyzing and had a very primitive space program---these creatures hadn't even established any research bases

on any of their solar system moons, any space-based habitats, nor any space-based industries either or on any of the other planetary bodies within these aliens' solar system.

The message and the ones that followed were in binary anti-code and within it came the aliens descriptions of their biology and that of their home-world----for some reason, according to their signals, they thought their biological basis was rare and not common----CARBON! It amused Lock, her team and the Director, for they were CARBON BASED UNITS themselves, as were the other two civilizations they had received radio transmissions from within their galaxy. However, the information that was contained in their signals, from this newest civilization, for some reason, had the notion that CARBON BASED life was odd, in the extreme and additionally, even though they had very advanced technologies in other areas of science, for some reason they had chosen to restrict their space operations and not develop space settlements, nor space-based industries abilities which in turned, caused them to sign their own death warrant, in the opinion of the research team of the Radio Array.

There was one more point that really got the teams humor, was the view being expressed by these aliens---that the galaxy was teaming with all sorts of highly advanced civilizations and perhaps there was a GALACTIA ENCLOPIADA of some sorts, where all these perceived civilizations would present certain amount of information to younger civilizations to help them avoid the perils of a nuclear war and allow them to join this Galactic Federation and share knowledge.

The alien transmissions also contained the location, distance from the core of the galaxy, as well as time using the pulsations of Pulsars. The Director shook her head as did the rest of the group thinking these aliens have got to be the biggest HICKS within the galaxy! All evidence they and the other two civilizations had uncovered about nature and the galaxy told them that life was super abundant but intelligent life capable of creating space-based civilization and surviving was, at least a One Hundred Billion to One crap shoot!

The other two radio civilizations had just barely made it, with the establishment of a couple of moon-based outposts and a dozen space settlements when an asteroid for one of them and a comet for the other wacked their home-world! If it hadn't been for their space-base operations, these other two civilizations and their technologies would have been totally wiped away into infinity. There had been one other transmission that had been received and it was sad----a political movement was sweeping that planet and demanded an end to all science and an acceptance of some sort of deity----according to the transmission they were the last radio telescope holdout---all the education centers and been burned to the ground and they were the last----and then nothing----no carrier wave, not even the telltale signal of that planets' radar technologies----gone into the void.

So, a decision had to be made----these newest signals from these aliens were requesting a return transmission---the group looked at each other, their eyes on stalks moving and rotating a full 360, observing all the other members, some scratching themselves in their thought process. IF a signal were acknowledge the time it would take for the signal to arrive was calculated---an analysis of the star-system from which the signal had originated was examined in great detail---given the distance in light yrs by the time a return signal got to this planet---the comets and asteroids of those aliens' solar system were already in a position that they would travelling into the inner part of that solar system and strike those aliens home world. What did the aliens name it? EARTH!

IF those EARTHERS had had a space settlement, a couple of self-sufficient space outposts, maybe they could have sent transmission messages that could have assisted the Earthers living in those locations, the means of dealing with the aftermath of the comets/asteroids impacts and to give these Earthers the knowledge to continue to grow into a vibrant and successful space-based civilization---but given their light yrs in distance (not enough time to warn them)---as what good would that have done, since all of Earths' technologies, industries and its people were all planet-bound, there would have been no way to avoid the comet/asteroid bombardment that will take all that out.

The signal at the end keep asking the same question over and over and over and over; "IS THERE ANOTHER INTELLIGENT CIVILIZATION OUT THERE? CAN YOU TRANSMIT A SIGNAL BACK TO US, SO WE KNOW THERE ARE OTHERS OUT THERE, IN THE COSMOS?" The Group looked at each other and said; (loose translation in English): "Do they, these Earthers, really expect a straight answer? Then they laughed---if a human being had been there it would have sounded more like HOWLS….

The above is of course a science fiction story of my own creation (can you tell). Since the late 1950s' there begin to be serious discussion among astronomers (Philip Morrison) and others of the probability of there being other **COMMUNICATIVE TECHNOLOGICAL CIVILIZATIONS*** within the Milky Way Galaxy and within them, those with the technology to transmit and receive radio transmissions. If there were, say technological civilizations of say, the Ming Dynasty, Roman Empire, the Mayans, the Ancient Greeks; they are "technological"; however in science, words mean a specific thing, item or idea, so we have to be exact when the term "technological civilization" is mentioned or written about in this subject. There might be hundreds of millions of TCs' out there, but compared to what and at what level?

We all have seen the famous DRAKE EQUATION (I hope) where it has a series of statements and possible estimates for coming up with a possible estimated number of "communicative civilizations", in the Milky Way Galaxy. One of the major problem(s) that I have always have had with it was the answer can be, whatever is imputed into the equation---it allows a person to change all sorts of variables within it, so in some ways a person can get the answer they hope to get! That is not science, but wishful thinking! Before Dr. Carl Sagan passed away it was said he made a statement something along this line of logic; absence of evidence is not evidence of absence. Dr. Seth Shostak has reiterated Dr. Sagan's above statement. It means, even though no radio signals have yet to be detected (found/discovered) by us here, on Earth from another CTC* somewhere within the Milky Way Galaxy, that does not disprove they do not exist! Really?

SETI, stands for the SEARCH for EXTERTERRESTIAL INTELLIGENCE, and those that run this operation are convinced that somewhere else in the Universe, (and yes, there have been some astronomers suggesting that maybe we should also aim our radio telescopes at other nearby galaxies in the chance of picking up radio transmissions from some of those stars in those galaxies) there are beings with the technologies capable of transmitting radio transmissions. Now it is true, that the First attempt (1960) to detect artificial radio signals from two stars, Tau Ceti and Epsilon Eridani with T Ceti a little under 12 light years and E Eridani near 10.5 light years from our solar system, was conducted and under the direction of Dr Frank Drake.

According to sources, about 150 hrs of data was recorded over a 4-month period but no artificial signals were detected from either star. This project was given a name---PROJECT OZMA and used the Radio Telescope at the National Radio Astronomy Observatory at Green Bank, West Virginia, with the dish of the radio telescope being 85 feet across (26 meters). In 1973 another experiment was conducted by a Benjamin Zuckerman and a Patrick Palmer called PROJECT OZMA II, which was

started in 1973 and ran until 1976 and studied around 650 stars with no artificial radio signals detected.

Operating for several years now is the organization called SETI which have access to some of this planet's most advanced radio telescopes and recently there have been built radio telescope arrays that are dedicated to SETI. The data that have been discovered by the researchers using these systems have helped astronomers get a clearer understanding of stellar development, galaxy evolution, planetary formation and other fields of study within astronomy. However, their main mission is to detect artificial transmissions from somewhere within our galaxy and maybe from stars located in other galaxies. Science is a Latin word which means "knowledge" and it is also a process as how that knowledge is obtained---the tools and techniques used---which is the SCIENTIFIC METHOD.

The Scientific Method; many times you will either read or hear that term mentioned and sometimes it can get quite confusing as to the order within the method----the terms like, Hypothesis, Guess, Theory, Law etc----which comes, First, Second, Third? How does one set the system up to obtain a result and what does or does not the result mean? Could there be multiple results? Are their parameters within the results and if so, what does that mean? There are volumes that have been written about the "Scientific Method" and as one possible starting point the reader may want to look for books written by the late DR. Jacob Bronowski (SEE: THE ASCENT OF MAN [1973]) and others such as Dr. Carl Sagan, Dr. Gerald K O'Neill, to name a few. However, sometimes even the scientist, because of passion for their field of study or other factors; sometimes forget to analyze their passion of study using the scientific principles of the scientific method.

Earlier, I had written about the comment the 'absence of evidence is not evidence of absence'---well after a while of examining a problem or a series of related problems, or perceived ones, maybe the scientific investigations one (or the team) has undertaken have lead to a conclusion(s) which the investigator(s) does not like---take for example, a few years ago, the reports that were coming into law enforcement agencies of some people who claimed while under hypnosis, they had been sexually assaulted, raped, and seen someone murder or in some cases, claimed to have been abducted by aliens from outer space! There was an incident that happened back in the early 1990s', in the San Diego CA area, where a grounds keeper who was working at a religious school was charged by some of the members of the church that he had threaten harm to some of the children that attended Sunday School. An assistant District Attorney was contacted, did her investigation and issued an arrest warrant for this person.

The person in question was not an average person and did have a lower than normal "IQ". This case went to court until it was discovered that some members of this religious group felt "uncomfortable" that a "person like him" was working at their church. Further investigation discovered that the assistant district attorney was a member of this church group. Now the real "KICKER"---it turned out the children had been put under "hypnosis" and the person who was doing that, yep was also a church member, instilled into the young children what is known in the field of psychology as a "FALSE MEMORY"! The case was thrown out of court as there was no evidence at all that this poor man, had done anything wrong!

Remember the Betty and Barney Hill report back in the mid 1960s where under hypnosis Betty claimed she and her husband had been abducted and been medically examined by space aliens! The psychologist who had worked with them and done a series of treatments with them, using hypnosis concluded that Betty had read so many science fiction books and movies, all if this became "real" to Betty---being abducted by space aliens when the truth of the matter was; she created her own "reality" from her beliefs.

On a NOVA program, about 10 yrs or so ago they had a psychologist take a willing person and hypnotized her. The psychologist had the woman think she was back to being a little girl in a large shopping mall and that she was "lost'. Then the story was told to the woman who was under hypnosis that a kindly old woman found her and helped her fine her mother. She was told by the psychologist that when she woke up she would tell the psychologist about an odd story that happened to her when she was a young little girl. You guessed it! When she woke up, she informed the scientist that she remembered being a little girl lost in a shopping center and that a kindly old woman helped her find her mother---so called "repressed memory". Today, most courts will no longer hear or allow to be introduced into a case where a witness or victim testimony is based on "repressed memory".

I wrote about the preceding because it illustrates how people can twist evidence to suit their needs. Now many times they do not do it for criminal reasons or because they just do not like a certain idea but we are all human, and the thought that a line of study we are working on, maybe totally off-track can be for many, be a hard pill to swallow.

The question or questions we have to ask ourselves, both the layman and the scientist is how come we have not detected artificial radio signals from outer space? When a person looks up into the night sky, there appear to be "billions and billions" of stars! Well, first off one has to go out into the country, away from the Urban or city lights to see the night time sky with all those beautiful multi-colored points of lights and that hazy path of light we call the Milky Way Galaxy. Believe it or not but on any given clear dark night, you only see about 1,100 stars using just your eyes, without any optical aid. If you lived somewhere along the Earth's equator for One Year and went out every night, and assuming you had a clear night, for that one year, you would see around 6,000 naked-eye stars!

It is only when you use binoculars, telescopes and super-big telescopes, radio telescopes, space-based telescopes you discovered that there are "billions and billions" of stars! So, with so many stars, surely there have to be intelligent life in space! NOPE! When we think like that we are "jumping the gun! Within our galaxy, the Milky Way there is an estimated 100 to 400 Billion Stars contained within it! However, in the sciences a person has to be conservative, not politically speaking, but from a scientific point-of-view. A person wants to find out the "truth or what is the actual answer not what they want the answer to be". So, a person sets up their investigation to try and DISPROVE they idea(s). Sometimes I have heard astronomers mention with so many stars there has to be "LIFE "but they do not quantify that term "life"----there are probably lots of "life" (carbon-based) out there on planets which are in orbit around some of those stars and also the possibility of life existing on the comets, asteroids and moons, which orbit about those planets----but not ALL THOSE STARS.

One of the major researchers said in a science magazine recently, that they don't even have a good handle as to where to search for those civilizations who might be transmitting radio signals into the cosmos. Additionally, many SETI researchers have asked just how many civilizations, which have radio technology, are there in our galaxy? Well, I have proof that at least one advanced technological civilization with the capacity to send and receive radio transmission from the other side of the Milky Way Galaxy does exist---IT IS US! As a valid starting point as to what stars to aim our radio telescopes and optical scopes at, would be stars like our sun! I had written earlier in this article, that a human being, living at the earth's equator for one earth year would see about 6,000 stars. None of those stars, you see visually without optical

aid, would be a good candidate star to have an earth-type planet! Now take those 400 billion and divide that number by at least one half---200 billion stars. Almost half of all the stars in our galaxy are binary or multi-star systems and since our solar system appears to have only one star (given the present data about our solar system home), we should first only search for stars like ours, which are single.

Now we can start whittling away some more as to which stars we should spend our time studying. Stars greater than 2.5 times the mass of our sun, need not be looked at, as they do not stay around long enough for a planet like earth to form, become stable, nor allow for the development of complex life, would not be part of our starting list of stars to examine. "Development of Complex Life", here I am referring to life forms that are not just the kind a person would see though a microscope but creatures such as fish, some kind of land animals as well possible flying ones as well. One of the areas where some SETI folks kind of "miss the mark" and the Drake Equation is the assumption that wherever there is "life" it will continue to develop and "evolve" to a creature becoming "intelligent"---like us! Nowhere in Darwinian Evolution does it imply that "evolution" will lead to something akin to us! "Intelligence" came about as a result, as far as the present fossil record indicates, not because that is the path of evolution but rather, and this might be hard for some folks to take---a crap shoot!

Look at how long the Dinosaurs were around, hundreds of millions of years and not a single one of them ever built fire, created a spoken or written language, in fact there is no evidence at all that there were any other species of animal that ever remotely even got within .000000000(add in your own decimal point)1% even close to what we are. If the asteroid that impacted 65+million years ago had not impacted, dinosaurs or something close to them would still have been around and mammals, who at the time were very very small and living underground, would not have become the creatures they are now. Now back to stars; there is a lower mass limit we need to consider that usually a star no more than say, .8% the mass of our sun would be within the range of a star where an earth-type planet would feel welcomed! Stars with lower masses means the orbital position of the earth-type planet would be closer to the star and all sorts of problems start to crop up for that planet---it being too hot, being fried from stellar flares and other items stars like to throw out into space and its solar system.

So now we have a range of stars around 2.5 to no more than .8 mass of our sun, but there are other considerations, that chemical make-up of the star. Another form of classification of stars is where do they fit within the GENERATION of stars? It might seem like a backward system but that was how it was set up because of what was discovered first. The first groups of stars that were being examined happened to be the first stars that formed when the galaxy formed, and those were tagged as Generation III stars---stars that are metallically poor, or to put it another way, they do not have any heavy elements and this includes such "heavy elements like Carbon, Nitrogen and other gasses and metal type elements! If the star is a population III star there are no planets in orbit about it that have any of the heavy elements---their make-up will consist of Hydrogen, helium and a few other "lightweight" elements but no trace of carbon or anything else, because what the gasses the star formed from, so did its planets---which in this case would be gas giants, similar to Jupiter, Neptune (they might even be small but still just a gas planet without the material to make up a rocky surface).

Then there are the Generation II stars, which have some of the heavier elements but nothing like nickel, lead or the other elements which are needed to form with carbon to develop nice big complex chain molecules, you have to search and locate those stars classified as GENERATION I stars, which (I think you guessed the correct answer) is what we classify our sun as! When these factors start to be brought in, the age and composition of a star, its mass, the origins of "life" and the kinds of life on that planet and the affects nature has and is having on that life and how that life came about, allows a person to tighten up their investigations, into the possibility of there being others we could someday receive their transmissions. One other point that needs to be brought up and a very important point is the fact that life is based on the element CARBON!

CARBON is the ONLY element that, coming after Hydrogen, Helium etc, is the only one that can bring together other elements, that formed after its introduction into the Universe, it has the ability to form up with other elements to form complex chain molecules which in turn can lead to the development of other kinds of molecules and from there, build up to form what are called "Organic-Type" Molecules. With this also comes again, the star and its location within the galaxy. If one were check out the ***Periodic Table of the Elements*** you would see that CARBON is the 6th most abundant element in the Universe. There have been astronomers recently suggesting maybe life could also be based on, are you ready---SILICON, which is 14th on the list! They have been watching to many re-re-re-reruns of the original STAR TREK *The Devil in the Dark*---where a "mama" HORTA is trying to protect the eggs of her species----which are composed of Silicon----cute story and enjoyable when the Horta etches in the rock with acid, a message to Captain Kirk; "***NO KILL I"*** . There are many times more carbon in the Universe than there is silicon. Where is the "evidence" that life could and would be formed form a silicon based mixture? Since we are CARBON BASED LIFEFORMS, then the search needs to stay focused for stars and planets to out kind of chemistry---CARBON!

In 1974, a radio signal was sent from the largest radio telescope on Earth, Arecibo, located in Costa Rica to the star cluster known as M-13, the data within the signal being developed by Dr. Drake and Dr. Sagan. M-13 is approximately 25,000 light years from our solar system, so at the speed of light, it will take 25,000 earth-years for the signal to get to the location of M-13. However, because everything within the Milky Way Galaxy rotates, as does M-13, by the time the earth-radio transmission gets to that distance, M-13 will no long be in that region of space. However here is the biggest problem---M-13 contains, not generation 1 stars but GENERATION III and maybe some Generation II but nothing close to our sun in material make-up! Furthermore, if there were an earth-type planet within that cluster, around a star like ours, the gravitational influences of the other massive stars would eventually throw that planet away from its home star!

In 1999, a statement from the University of Cornell News claimed the transmission wasn't so much as actually making contact with ET (Extraterrestrial) but just to demonstrate the new technologies that had been installed at the time! When the signal was transmitted it was at such an energy level, if there were a star-system where, on a planet there were beings with radio technology and intercepted the signal, they would notice that the energy level in that part of the radio frequency could not have been produced by a star like our sun, but rather by artificial means---Can you think what the cost it was (this includes all the time in researching, developing, writing the message) and then to transmit that signal to M-13 and tell us it was not really to communicate with another communicative society? What were they thinking? By that period of astronomy, astronomers had already a reasonable hunch as to what stars would give us a better investment on our transmissions. Not to say it would have "paid out" but it would have been more reasonable to transmit to stars that come close to our kind of star!

Another issue some of the SETI folks bring up is the fact that even by not deliberately transmitting radio signals, via radio telescopes; we have been transmitting signals just by the fact that we use radio communications on earth. A standard radio tower transmits its signal in a horizontal but also downward fashion, however because the earth is curved as that signal moves or propagates though our atmosphere, it will reach the curvature of our planet and keep going into outer space, at the speed of light. Also, radar beams will leave the earth and moving at the speed of light, travelling into the infinite.

Before the advent of cable TV, and some forms of LASER or directed radio signals (to some extent they also "leak" into outer space) all those signals are radiating into space, in a sphere, 360 degrees into infinity! Given that, there have been some scientists who think we should not deliberately send signals into space, but the "horse is already out of the barn", so to say. Now comes the area where facts and wishful thinking get mixed up. Many in the SETI movement will say that since we have been using radio since the beginning of the 20th Century, our signals have now travelled close to 110 light years (1900 being their starting point). It is true that we were experimenting with radio transmissions at the start if the 20th Century, however signal strengths would have dropped off within a few light years, if even that!

Ever throw a small stone into a lake or the ocean? We all have and it makes a ripple, radiating from where the rock entered the water. However, along comes a speedboat which makes a much bigger wake and totally washes over the ripple your rock created. Now imagine after you tossed that rock into the ocean I then threw a boulder the size of a three-bedroom house near your ripple---your ripple would not only be washed over by my super ripple from the boulder but totally wiped out! The same for those radio signals earth was transmitting at the start of the 20th Century. The stars, plants and the Galaxy itself would overwhelm the low energy radio signals we humans were transmitting at that time.

Realistically, the better starting point for earth radio transmissions would be somewhere close to say, 1950----if we use this as our starting point, first off the signals by then were of such intensity that there would be a better than even chance of those signals not being interfered with from just the background radio noise of the cosmos. Given that starting point, then signals from Earth, independently of deliberately sending signals into space would now be around 60 light years out, from our home world, and none of those stars, within a 60-light year sphere would have any chance of there being a planet that would have on it a civilization like ours, or more advance then us, to receive, understand and retransmit a return message to us.

As I finish this first part of a two-part discussion of *CTC, it should be noted that last August 15, 2010 marks the 30th Anniversary of the "WOW" signal received at Big Ear, the Radio Telescope located at Ohio State University at 11:16 P. M., on August 15 1977. The radio signal lasted for about 72 seconds and what had gotten everyone's interest was the signal apparently matched what would be expected of an artificial interstellar transmission. Dr. Jerry R.Ehamn was the person who noticed on the graph paper the sequence of numbers and letters which showed a strong signal being received and apparently not of a natural form or radio transmission. In July 9, 1997 Dr. Ehamn had completed his first draft of an update of the WOW signal and of the intervening years. By May 28 2010 he had completed his last revision of the document entitled: The Big Ear WOW! Signal (30th Anniversary Report). One part of the report is somewhat disturbing in that the Big Ear no longer exists because of the following incident, according to Dr. Ehamn 2010 Report. In 1998 the radio telescope was destroyed by land developers which had purchased the land the scope was on in order to expand a 9-hole golf course to an 18-hole one and to build approximately 400 homes on the purchased land!

When the signal was detected in 1977 the astronomers had tried to regain the signal but to no avail. They also tried to figure out the possible location from where the signal may have originated from, within the Milky Way Galaxy. Presently, the best guess as to a possible direction the signal may have come from are the following set of Right Ascension Values, taking into account of updating the epoch of 1950, which was used at the time (1977) to what is now the epoch used J2000.0, here are the corrected RA numbers. Note also there were "Two Horns" of Big Ear and so there are two sets of numbers for the RA (J2000.0): 19hrs25mins31secs+/- 10sec or 19hrs28mins22sec+/-10sec with a Declination of -26degrees57mins +/- 20mins. The declination, according to sources, was "unambiguously determined". If a person where to rely on the above coordinates' than it means you would be looking into the constellation of SAGITTARIUS and about 2.5 degrees south of a fifth-magnitude star group known as Chi Sagittarii, again according to sources.

Additional related data have mentioned that many of this planets' major radio telescopes have scanned the possible area in question without detecting any transmissions. A wide range of suggestions have been introduced since the WOW signal was first detected and even today no firm answer has been found to nail down what caused or origin of the received signal. In reading over the information that is available on the 'net concerning this situation there is something that I noticed has not been mentioned, at least I have not found it brought up in any of the papers I have read on this specific incident---what if the signal had been a prank, a practical joke by one of the junior or maybe a student aids/assistants? I am not saying this is the case, but just that "all bets" have to be covered, all possible avenues examined, and if shown conclusively that it could not be at all even remotely possible, than it is discarded. However, remember the axiom; "leave no stone unturned" and in this case maybe a check of those who had access to the equipment, knowledge and ability should be re-examined, just to make sure that all the "T"s' have been crossed and all the "I"s' have been dotted! --- TO BE CONTINUED---

Femi Paradox, Organics (Carbon) within stellar nurseries, Make-Up of Life on this Planet and other stuff, related activities to this discussion.

When or when will **The First Day of Fall** come to the Northern Hemisphere of our lovely planet? Well, according to my sources, September 23rd! Once again, there will be around 12 hours of daylight and 12 hours of darkness, on that date. Then, perhaps not very noticeable at first, the days will start to get a bit shorter with periods of nighttime getting longer! The super bright over in the western sky, after sunset is not a UFO, not a sign that that TIME or our PLANET is ending , nor is it some Multi-Generation Spaceship like the one from INDEPENDENCE DAY---just one of the family of planets in our solar system---**VENUS**! Toward the end of August 2010 it SHINES at a -4.6 and is just 1 degree below a 1st magnitude star, Spica by the 31st, about 10 degrees above the horizon, a half an hour after sunset. Compared to Venus, in brightness, Spica is about 1% as bright as Venus! On the 19th, Venus had "grown" (not physically---just in angular size) to about 24 arc seconds across and though a telescope or high powered binoculars appears ½ lit. Near month's end its apparent angular diameter increases to 28 arc seconds and appears, again using an optical aid, as a fat crescent, 42% illuminated.

Earlier in August Venus had a couple of planetary buddies, Saturn (1.1) and Mars (1.5) move into the same region of the sky as it is located. By the 23th Venus passes about 2 degrees south of Mars and by the 31st, to the 3rd of September, they will be within an in angle from each other

with Venus being just a bit below the blue-white colored star Spica. According to my sources, using binoculars will be a nice visual treat for your eyes as you observe the planets and the stars' contrasting colors. Saturn, given its low position with respect to the western horizon has an angular diameter of around 16 arc seconds and its rings span 37 arc seconds, given it position within the thick atmosphere of our planet, though a telescope the viewing would show a very wavy and distorted celestial object. Mars, of course is very worst when trying to view it through a telescope as it has an angular diameter of only 5 arc seconds.

Saturn is still somewhat visible, at the start of September at a 1.0 visual, and sets about 1 hour after the sun does. It is close to being only 5 degrees above the western horizon, approximately 30 minutes after sunset. Consider using Venus as a guide to locate this ringed world, as it shows up quite well in the twilight of sunset. To the upper right of Venus, about 1 degree up and you should spot Spica, which is at the same visual as Saturn. Saturn will be ~20 degrees to the right of Venus and about ½ of Venus' altitude. How long are you able to track Saturn until it is loss in the glare of the evening twilight or when it sets?

Venus by-the-way is glaring at a visual -4.7 and on the 1st is in a line with Mars (1.5) and Spica, which is between the two planets. About two days later, Spica should be about halfway between these two planets and accordingly they all will form an "ever widening triangle". By the 10th of September our beloved **Moon**, a crescent, joins this grouping , with Mars close to 6 degrees above the moon and Venus near equal distance to the lower left of Mars. On the 11th, the moon will be close to 6 degrees to the left of Venus. In the second half of September Venus will be closer to the horizon and reaches its' Greatest Brightness of a -4.8, by the 23rd (two days before the next EAS meeting), setting 1 hour after the sun. Even though it will be lower to the western horizon you can still aim and optical device at this jewel of the evening sky. If you were to observe it though most of September you should see changes , both its size and phase during this period. It has a disk size of 29 arc seconds on the 1st, and be 41% lit. Later in the month these will change, so make sure you read this column next month and find out what those changes to Venus are! One thing you may want to do, by the way, though the reminder of August and most of September is to see if you could see Venus in the daytime, before sunset---try blocking the sun while you search, visually for this brilliant lit planet but do not look at the sun with your eyes!

Mars, is still there at a 1.5 and is 300 times fainter than the planet Venus! These two planets will still be somewhat close to each but widening from 4 degrees to 7 degrees during September, with Mars a bit higher and setting a bit later then Venus. The disk of Mars is now only 4 arc seconds and no detail is possible with any ground-based telescope now. According, again to my sources, it will not be until late next year, that it will be worth aiming a telescope at.

Jupiter at a visual -2.8 is stunning and except for Venus and the Moon is the brightest nighttime celestial object. In the predawn mornings Jupiter is around due south in the sky and a wondrous object to enjoy looking at while driving to work, but just remember to keep your eyes on the road as you do not want to meet new people by "accident". Impress your fellow co-workers by telling about that beautiful brilliant star-like object, high in the southern part of the sky. They will look at you, smile and possibly pat you on the back, and then as they walk by themselves to work, muttering; "need to stay away from this one".

Uranus is near Jupiter shinning at a 5.8 and Neptune, which is about 20 degrees in the southeast at a visual 7.8. One you seen them once, well what I can say, not much to write home about---Now **Mercury** is kind of neat as on the 19th of September reaches its Greatest Elongation, lying about 18 degrees west of the sun. It might be possible to see Mercury as early as the 13th of September, with an apparent magnitude of 1.0 and below the star Regulus, about 6 degrees. Through a telescope Mercury will be about 9 arc seconds across and 21% lit. By the 19th it increases to around -0.4 and has risen more than an hour before the sun with a diameter of close to 7 arc seconds and is about ½ lit.

---NUFF SAID (Way to Much)---

– John Goerger

CAMP DELANY STAR PARTY – October 8-11 2010

"My name is Cliff Mygatt and I am the president of the Olympic Astronomical Society in Bremerton. We host an annual star party at Sun Lakes state park each fall we call the Camp Delany Star Party; this is our 19th year hosting this great event. The event is held at the Camp Delany Environmental Learning Center, so we have complete control of the facility, including lighting. In the past, we have had members of {EAS} attend and I would like to invite your members again this year. The star party will be held over the Columbus Day weekend starting Friday, 8 Oct., and leaving Monday, 11 Oct. The fee is $60, which includes 8 meals, a place to sleep, hot showers, and great camaraderie with fellow astronomers. I hope to see some of your members there. Our website has some photos of past events, and the sign-up sheet, www.olympicastronomicalsociety.org. Get your submissions in by 30th of September to avoid a late fee. Camp Delany is a wonderful star party that is sponsored by the "Olympic Astronomical Society"".

Location: **Sun Lakes Environmental Learning Center**- North of Ephrata, South of Coulee City (509-632-9977).

Accommodations: There are eight 9 person bunkhouses available…see Camp Director. All bunkhouses are heated and air-conditioned. Bathrooms with showers are just down the path. RV's and Tents welcome. There's a large mess hall with cooking facilities and tables. We will darken it at night, except for red lights & TV sets. **Food**: The OAS will provide breakfasts, lunches, dinners, as well as coffee, tea, and hot chocolate. Friday and Saturday nights are Potluck Dessert Nights! Bring your specialty! Cost: $50.00 per member / $55.00 per non-member (3 nights) See form below. **Check-in**: After 2:00 pm on Oct. 8th. If you arrive before 2:00 pm, please remain outside the gate. An "OAS" board member must first do a walk-through with the park ranger before we can settle in. **Check-out**: Monday Oct. 11th….No Later than 11:00am. Please be in camp by sunset on Saturday and Sunday night, so night vision can be kept by all those viewing the night sky, and for those doing astrophotography. Space is limited. All attendees, overnight or for the day, must be registered/approved by the OAS board. See you there!

FROM THE EDITOR'S TERMINAL

The Stargazer is your newsletter and therefore it should be a cooperative project. Ads, announcements, suggestions, and literary works should be received by the editor at least two weeks prior to the next upcoming scheduled EAS meeting.

If you wish to contribute an article or suggestions to ***The Stargazer*** please contact Mark Folkerts by email or by telephone (425) 486-9733.

The Star Gazer
P.O. Box 12746
Everett, WA 98206

In August's StarGazer:

The next EAS Meeting is 3:00 pm, Saturday September 25th, at the Evergreen Branch Library.