

President: president@starfinders.ca
Web: www.starfinders.ca
Editor: newsletter@starfinders.ca

Categories

1. [EDITOR GREETINGS](#)
2. [SOCIAL HIGHLIGHTS](#)
3. [UPCOMING EVENTS](#)
4. [THIS MONTH IN EXPLORATION](#)
5. [COOL PICS/VIDEOS](#)
6. [FEATURED ARTICLES](#)
7. [COMMUNITY AFFAIRS](#)
8. [KREATIVE KORNER](#)
9. [THE SKY THIS MONTH](#)

Quick Links

[ABOUT THE CLUB](#)
[NEWSLETTER ARCHIVES](#)
[MONTHLY SOCIALS](#)
[BECOME A MEMBER](#)
[NEWSLETTER SUBMISSIONS & SUGGESTIONS](#)



Island Eyepiece and Telescope Ltd

1. Editor Greetings!

Please Note:

"Clear Skies" is put together by a small team of volunteers. We need you to help us. Your opinions on future content and stories of interest are crucial to keep the club moving forward. So please, get active and send your ideas, pictures and posts to The editor. If you dream it, photograph it or come across it...We want it!

Welcome to the Cowichan Valley StarFinders Astronomy Club's "Clear Skies" monthly newsletter.

April is always packed with special days such as "April Fools Day" and "Easter". We also have "Look Up at the Sky Day" (Apr 14), "Earth Day" (Apr 22) and "Astronomy Day" (Apr 28). This year is also the 68th annual National Volunteer Week (April 15 to 21). It is Canada's largest celebration of volunteers, volunteerism, and participation. It just so happens that we have some volunteers needed for two projects on the go at this time. The first is the "Shawnigan Lake School Observatory" Project. To read more about the Shawnigan Lake Project and what volunteer opportunities are required, go to the "Community Affairs" section. The second project is the Island Star Party (ISP) Planning Committee. This committee co-ordinates all the activities required for our "Island Star Party". This will be our 17th Island Star Party taking place in July. A separate email will be going out shortly with more information regarding the ISP Planning committee. I hope you take the time to consider helping out as more hands make light work ☺.

There is a lot going on locally. We are please to have Dr. Real Roy, Assistant Professor Faculty of Biology at UVIC for our feature presenter at the April Social (April 25) and CVSF is going on a field trip! Yes we are heading to Victoria on May 9th. For more information on these events and more, check out the "Upcomming Events" section.

And finally, a quote from Navada Burr sent in by Genevieve S:

"In the city the lights blinded the night sky, robbed it of stars.

Only the moon could compete, a pale contender against the roving searchlights of mall openings,

the unwinking concern of security lights.

No one was given an opportunity to feel deliciously small, magnificently unimportant.

Everyone was forced always, to take their dying littles as truth."

Please support your local "Dark Sky Project" and/or "Light Pollution Abatement group" is so important. Check out both [Nanaimo Astronomy](#) and [RASC Sites](#) for more information.

Many thanks to this month's contributors Ed N, Moe R, Bryon T, Genevieve S, Nancy K, Brian V and Brian R.

[back](#)

Ask An Expert

Have you been thumbing through the Astronomy or Sky and Telescope magazine and have some questions on the latest and greatest in astronomy gear? Or maybe you're narrowing down your search for just the right telescope and want to know the difference between Dobsonians, Schmidt-Cassegrains, Reflector and Refractors. Well wonder no more, email [Brian Robilliard](mailto:Brian.Robilliard) our resident expert to get the



"inside scoop" on what's hot or not in astronomy gear.

Are you new to astronomy? Want to know the how to find objects in the sky? Or just wondering what that bright object in the evening sky is? Well wonder no more; email [Bryon Thompson](mailto:Bryon.Thompson) our Editor and master of Astronomy 101 basics.

Looking for something different for a birthday or fundraiser in your community? How about a "Starparty"? Find out how we can help you organize it and provide demonstrations. For more information contact the president@starfinders.ca

2. Socials

Socials are held on the 4th Wednesday of each month (except for July and August) at the home of Bryon and Freda.

Click on the [Map](#) or follow these directions:

Island Hwy, Mill Bay

Turn on Frayne Rd towards ocean (Serious Coffee is on the corner)

Turn right on Huckleberry Rd

4th house on the left across from Springbank road and Mail boxes.

Look for the STAR sign

Please park on Huckleberry or Springbank Rd's.

Call Brian 743-6633 if you need directions

Our next Social will be held at **7:30** on **Wednesday Apr 25th**

Feature: "Space Dust, Bugs and Dao: Beneficial Bacteria" by Dr. Real Roy, Assistant Professor Faculty of Biology

Dr. Roy will discuss recent development in microbiology and their relevance to the issue of the origin of life. The lecture starts with the cosmological chapter 25 of the Dao de jing and explores the connection of space and the life of bacteria.

Come on out and enjoy an evening with friends.

As a registered Society, we must hold one meeting a year that is considered an AGM. Our AGM is on June 27 – 6:00pm, CVSF "Summer BBQ and Annual AGM"

There are three parts to the AGM, the Report of the Directors, the Financial Statement and election of Director positions (which take effect in September). As a member in good standing you are allowed to vote and hold director positions. For descriptions of the AGM Director positions see the website at <http://www.starfinders.ca/contact.htm>

Also, our Treasurer has completed our 2011 financial profit loss statement. It looks great Ed!

Financial Report January - December 2011

	Total
Income	\$
Membership	1,563.11
Donations	10.00
Interest	0.95
Other Income (ISP tee shirts)	230.00
Total Income	\$ 1,804.06
Expenses	
Honorariums	\$ 135.00
Bank Charges	\$ -
Astronomy Day Expenses	
Island Star Party Expenses	\$ 490.81

Brochures	\$	-
Monthly Social Expenses	\$	130.98
Ministry of Finance/Society fees	\$	25.00
Domain Service	\$	14.43
Miscellaneous Expenses		
Total Expenses	\$	796.22
Excess (Deficit)	\$	1,007.84

ASSETS:

Vancouver City Credit Union	\$5.10
Cash in account (May 31, 2010)	\$1,330.03
TOTAL	\$1,335.13

[back](#)

Social Highlights Mar 28th/12

By Nancy Kirshfelt

This month at CVSF we started with announcements of upcoming events. Of particular interest is the Transit of Venus which will happen Wed. June 6. Gerry and Christine Rozema will be holding a viewing for this event at the unfinished golf course near their home. Watch for more details on the Events section of the website.

Our speaker this month was Dr. David E. Atkinson from the Dept. of Geography at UVIC. One of his areas of study is the "environmental forcing" of coastal zones and the analysis of weather data for extreme events, specifically storms". His interest is the atmospheric side of weather and storms, and why they happen.

Dr. Atkinson's presentation included information about storms all over the world with particular emphasis on our storms here on the coast of BC. We learned what these storms mean and what can cause them as well as how researchers track storms. Here on the coast of Vancouver Island, we have had an unusual wind pattern this year. Our storms do not form locally. They come in from the west side of the Pacific Ocean, moving counter-clockwise toward the coast of BC and then up to Alaska. They come here to die, but they do not die quietly, and sometimes are revived, coming back even stronger than before. This is what happened during our last big wind storm in March.

Dr. Atkinson's presentation was extremely interesting and relevant to our lives here on Vancouver Island.

[back](#)

3. Upcoming Events

**Every Saturdays & Wednesdays* 1:00-1:30 PM, CHLY 101.7 FM**

Not Rocket Science (NRS) is a thirty minute weekly radio show about the science of everything and everything science. Dial them up or listen to past podcasts at <http://chly.dailysplice.com/notrocketscience/>

Every Wednesday, Astronomy Open House, sponsored by the UVic Department of Physics & Astronomy. Held at the Wright Center (5th Floor), this event is held from 8pm - 10pm October to April and 9pm - 10pm from May to August. In January, April and December, the open house may not run regularly, please contact Michelle Shen by phone at 250-721-7700 or by email at mshen@uvic.ca to confirm. Admission: Free More info: <http://astrowww.phys.uvic.ca/events/>

April 22- 11am to 3:30pm Earth Day "Dark Sky Project"

The Nanaimo Astronomy Society and the Nanaimo Dark Sky Project have been invited to participate in Earth Day. Volunteers will be on hand to answer questions. We will have some telescopes and have a light pollution display. If weather permits, we will do solar viewing through a solar telescope.

April 25 – 7:30pm, CVSF "Space Dust, Bugs and Dao: Beneficial Bacteria" by Dr. Real Roy, Assistant Professor Faculty of Biology at UVIC

Discuss recent development in microbiology and their relevance to the issue of the origin of life. The lecture starts with the cosmological chapter 25 of the Dao de jing and explores the connection of space and the life of bacteria. Come and enjoy an astronomical evening of presentation or videos with like minded individuals in the Cowichan Valley. For more info visit:

<http://www.starfinders.ca/socials.htm>

April 26- 7:00 – 9:00pm "Potential For Planets In Orion Nebula" Presented by Dr. Rita K. Mann, Nanaimo Astronomy Club Location: Beban Social Complex Street: 2300 Bowen Road, Nanaimo
Circumstellar disks surrounding young stars represent the birth sites of planets. Dr. Mann will review our current understanding of how planets form and what recent observations of disks are revealing about the planet formation potential in the Orion Nebula.

April 28 – Astronomy Day

10am to 4pm - Nanaimo Astronomy Event at Harbour Front Library 90 Commercial St
solar viewing (weather permitting), meteorite display, telescope display
11 AM: Dr. Bill Weller - "Killer Rocks From Space"
2 PM: Garland Coulson - "Light Pollution & The Nanaimo Dark Sky Project"

10AM-4PM & 7PM-10PM RASC Event at the Bob Wright Building, University of Victoria
Astronomy activities for little and big people, observe through telescopes during the day and the evening, and listen to our keynote speaker Dr. Bob McDonald (Quirks & Quarks)
"Vacations In Space: The Hottest Holiday"

May 9th- 6:45pm CVSF Fieldtrip: RASC Meeting – UVIC Astronomy Open House Tour

We are going on a fieldtrip! First we will attend the May RASC meeting and then go for a tour of UVIC's telescope. If you are interested in coming please let us know at newsletter@starfinders.ca no later than May 6th so that we can organize carpooling and give the RASC and UVIC an idea of the size of the group.

JULY 20 - JULY 22, 17 Annual Island Star Party hosted by CVSF

Cowichan Station known as the "Hub of the Universe" is the perfect setting for the Cowichan Valley StarFinders (CVSF) Astronomy Societies Annual Island Star Party (ISP). Join Astronomers and their telescopes for a fun family weekend with: A Guided Nature Tour, Guest Speakers, Tour the Universe, Camping, Swimming, Hiking and More at Bright Angel Park, Cowichan Station
This is our club's annual outreach event and it is a rain or shine event. For more information check out our site: <http://www.starfinders.ca/starparty11.htm>

Aug 17-19 RASCals Star Party - Metchosin Cricket Field - a fun and easy-going camping and observing weekend which the whole family can enjoy

Nov 2-22, 2012 - South Pacific Eclipse Cruise Honolulu, Hawaii to Sydney, Australia - observe the 2012 eclipse from the deck of the Celebrity Millennium. Please Contact Sandy Campbell of Expedia CruiseShipCenters by [email](mailto:sandy@expedia.com) or by telephone 250-477-4877 or 250-588-1276 for more details.

NASA Launches credit NASA.Com:

Date: April 20 +

Launch Vehicle: ISS Progress 47

Launch Site: Baikonur Cosmodrome, Kazakhstan

Description: A Progress resupply spacecraft will deliver cargo to the International Space Station.

Date: Late April *

Mission: SpaceX

Launch Vehicle: Falcon 9/Dragon

Launch Site: Cape Canaveral Air Force Station, Fla.

Launch Pad: Space Launch Complex 40

Description: The Falcon 9 rocket will launch the Dragon capsule to the International Space Station.

Pending completion of final safety reviews, testing and verification, NASA has agreed to allow SpaceX to send its Dragon spacecraft to rendezvous with the Station in a single flight.

[back](#)

4. This Month In Exploration

Courtesy of: NASA History Program Office

145 Years Ago -- 1867

April 16: Wilbur Wright born, Millville, IN.

65 Years Ago -- 1947

April 25: Wallops Flight Research Facility, VA launched its first rocket-propelled model of a complete airplane for performance evaluation (XF-91).

50 Years Ago – 1962

April 24: Cosmos 3 launched by a Cosmos rocket, 0405 UTC, Kapustin Yar, USSR.

April 24: First transmission of TV pictures in space, via Echo 1.

April 25: Saturn 2 (SA-2 - Project High Water) test launch for Saturn 1; suborbital; launched, 9:00 a.m., EST, Cape Canaveral, Fla.

April 26: Cosmos 4 launched by Vostok rocket, 1005 UTC, Baikonur, USSR.

April 26: Launch by Thor Delta of Ariel 1, the first international satellite, a joint project of NASA and the United Kingdom.

45 Years Ago – 1967

April 5: ATS 2 launched by Atlas Agena, 10:23 p.m., EST, Cape Canaveral, Fla.

April 17: Surveyor 3 launched by Atlas Centaur, 2:39 a.m., EST, Cape Canaveral, Fla, landed on Moon 7:04 a.m., EST, April 19.

April 20: ESSA 5 launched by Thor Delta, 6:21 a.m., EST, Vandenberg AFB.

April 25: Air Force Col. Joseph Cotton and NASA research pilot Fitzhugh Fulton made the first NASA flight in the XB-70A.

April 26: San Marco 2 launched by Scout, 5:06 a.m., EST, San Marco Range SMR, Kenya.

40 Years Ago – 1972

April 4: Molniya 1-20 & SRET 1 (a French acronym for 'Satellite for Research on Environment and Technology') launched by Molniya or Modified SS-6 (Sapwood) rocket, 2039 UTC, Baikonur, USSR.

April 16: Apollo 16 launched, 12:54 p.m., EST, KSC with astronauts John W. Young, Jr.; Thomas K. Mattingly; and Charles M. Duke, Jr.

30 Years Ago – 1982

April 10: Insat 1A (India) launched by Delta, 1:48 a.m., Cape Canaveral, Fla.

April 19: USSR launches Salyut-7 space station on top of Proton K rocket from Baikonur. Station operated until February 7, 1991.

25 Years Ago – 1987

April 15: The U.S. and the Soviet Union signed a new bilateral government-level agreement on civil space cooperation. The agreement called for cooperation in 16 specific project areas to be carried out by joint working groups in space science.

20 Years Ago – 1992

April 1: Daniel S. Goldin takes office as ninth NASA Administrator.

15 Years Ago – 1997

April 4: STS-83 (Space Shuttle Columbia) Launched 2:20 EST from KSC. Crew: James D. Halsell, Susan L. Still, Janice E. Voss, Donald A. Thomas, Michael L. Gernhardt, Roger K. Crouch, and Gregory T. Linteris. It carried the Spacelab module containing resources for many microgravity experiments and a combustion facility for the study of the rise, spread, and extinction of flames under microgravity conditions. Landing at KSC on April 8, 1997, 2:33 p.m., EDT. Mission Duration: 3 days, 23 hours, and 13 minutes.

10 Years Ago – 2002

April 8: STS 110 (Space Shuttle Atlantis) launched at 4:44 p.m. EDT, KSC. Crew: Michael J. Bloomfield, Stephen N. Frick, Jerry L. Ross, Steven L. Smith, Ellen Ochoa, Lee M.E.Morin, and Rex J. Walheim. International Space Station Flight 8A. Delivered an ISS truss assembly. Landing at KSC on April 19, 12:27 a.m. EDT. Mission Duration: 10 days, 19 hours, 43 minutes.

April 25: Soyuz TM-34 launched as the third "taxi" flight from Baikonur at 06:26 UTC to the International Space Station (ISS), bringing a "fresh" Soyuz return vehicle. The crew consisted of one Russian, Yuri P. Gidzenko, an Italian astronaut, Roberto Vittori, and the second commercial space tourist, South African Mark R. Shuttleworth. They returned 8 days later on older Soyuz TM-33.

5 Years Ago – 2007

April 7: Soyuz-TMA launched by a Soyuz rocket from Baikonur at 17:31 UTC. Crew:consisted of two cosmonauts, Oleg V. Kotov, Fyodor N. Yurchikhin, and a tourist, Charles Simonyi to the International Space Station (ISS). It docked with the Zarya module of the ISS.

April 25: AIM (Aeronomy of Ice in Mesosphere), an American (NASA) satellite designed to study noctilucent clouds (NLC) or night shining -- mainly ice crystal clouds that form about 85 km above Earth's poles, launched on a Pegasus XL rocket from an L-1011 aircraft flying out of Vandenberg AFB at 21:26 UTC,

[back](#)

5. Cool Pics/Videos

Want to show off your latest pics? Well here's your chance; email the editor at [My Cool Pics](#) and we will try to post them in the next edition of "Clear Skies".

Cool info on ESO thanks Moe:

In the dry and empty lands of the Atacama Desert in Chile, several giant telescopes eye the sky to unlock mysteries of the Universe. They are run, solely or in partnership, by the European Southern Observatory (Eso), which this year marks its 50th anniversary. Eso astronomer Joe Liske talks about space and telescopes - and about how ESO got where it is now <http://www.bbc.co.uk/news/science-environment-17567694>

[back](#)

6. Featured Articles

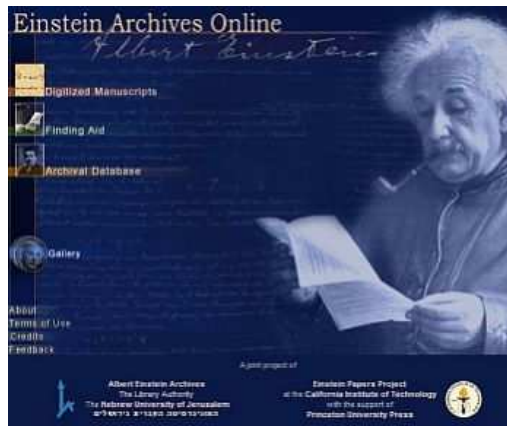
Articles

[RETURN TO CATEGORIES](#)

1. [Hebrew University Launches Einstein Archives Website](#)
2. [Mysterious Objects at the Edge of the Electromagnetic Spectrum](#)
3. [Thousand-year Wait for Titan's Methane Rain](#)
4. [Cassini Spacecraft Makes Saturn Moon Flyby](#)
5. [Biggest Environment Satellite Goes Silent](#)

Hebrew University Launches Einstein Archives Website– March 19/12 Credit: *The Hebrew University of Jerusalem*

The Hebrew University of Jerusalem held a press conference today to launch the



updated and expanded Einstein Archives website, at <http://www.alberteinstein.info> , containing a complete catalog of more than 80,000 documents in the University's Einstein Archives. This includes more than 40,000 documents contained in Albert Einstein's personal papers and over 30,000 additional Einstein and Einstein-related documents discovered, since the 1980s, by the Einstein Archives staff and the editors of The Collected Papers of Albert Einstein.

Images of documents in the archive and related notes can be obtained by contacting the Hebrew University's Media Relations Department at pressoffice@savion.huji.ac.il. Photos must be credited to The Hebrew University of Jerusalem. The launch was simultaneously marked at Princeton University Press (PUP) and the Einstein Papers Project (EPP) at the California Institute of Technology (Caltech), which have collaborated with the Hebrew University in a long-term project to publish The Collected Papers of Albert Einstein—one of the most ambitious publishing ventures ever undertaken in the documentation of the history of science. Thanks to the these two institutions' ongoing participation, the enhanced website makes it possible to link each document to its printed and annotated version as it appears in the "Collected Papers," and to its English translation, (since most of Einstein's papers were originally written in German). The website's launch was simultaneously marked by the Hebrew University's Friends organizations and Israeli embassies around the world.

Albert Einstein was a founder of the Hebrew University and one of its most loyal supporters. In his will he bequeathed all of his writings and intellectual heritage to the Hebrew University, including the rights to the use of his image.

The newly launched digitization project is funded by the Polonsky Foundation UK. Through his foundation, Dr. Leonard Polonsky has initiated similar enterprises, such as the digitization of the writings of Sir Isaac Newton at the University of Cambridge, which attracted 29 million hits within the

first 24 hours after its launch. "We have every reason to believe that the launch of the expanded Einstein website will attract as much attention as the Newton papers. Clearly, there is a pent-up demand for open access to these intellectual treasures," said Dr. Polonsky.

The previous site, which was launched in 2003 in conjunction with EPP and PUP, has until now presented 43,000 records of documents and 900 manuscripts in Einstein's own hand, whose digitization was made possible by a generous contribution from the David and Fela Shapell Family Foundation in Los Angeles, California.

The expanded site will initially feature a visual display of about 2,000 selected documents amounting to 7,000 pages related to Einstein's scientific work, public activities and private life up to the year 1921. These documents are sorted according to five categories: scientific activity, the Jewish people, the Hebrew University, public activities and private life.

Advanced search technology will enable the display of all related documents by subject, and, in the case of letters, by author and recipient. The first line or title of each document will also be displayed, alongside information on date, provenance and publication history. "In this way the content of the archives can be explored via a new user-friendly interface customized for this goal," explained project manager Dalia Mendelsson. "This interface provides easy navigation through the life and scientific career of Albert Einstein." Hebrew University president Prof. Menahem Ben-Sasson said, "This project relates to different academic disciplines: physics and basic science, the history of science, the history of Zionism and of the Hebrew University. I see great importance in the completion of another stage of the digitization project of the Einstein Archive. The Hebrew University has invested considerable effort to advance this project and is happy to make the world of this great scientist and person accessible to the interested general public."

According to Prof. Hanoch Gutfreund, former president of the Hebrew University and the academic head of the Einstein Archive, "The renewed site is another expression of the Hebrew University's intent to share with the entire cultural world this vast intellectual property which has been deposited into its hand by Einstein himself."

The press conference took place at the Hebrew University's Edmond J. Safra Campus in Givat Ram. Participants were able to navigate through Einstein's world and see documents that were not previously accessible to the general public. Participants also toured the Einstein Archive, which holds Einstein's fully-catalogued private, non-scientific library. With books on philosophy, classical German literature and Judaism, the library reveals the intellectual world of Einstein as a young Jew in Germany at the beginning of the 20th century. Among them is a book by Walter Rathenau, the Jewish foreign minister of Germany who was murdered in 1922 by members of a right-wing group, containing a handwritten dedication to his friend Albert Einstein.

Documents presented at the press conference have never before been visually accessible to the public, such as:

- Einstein's letter to Azmi El-Nashashibi, the editor of Falastin, suggesting an original solution to the Jewish-Arab conflict
- A letter to the Jewish community in Berlin containing the distinction between Jewish religion and Jewish nationalism
- A speech to a Zionist meeting containing a report on a fundraising campaign in the United States for the Hebrew University.
- A moving postcard to his sick mother
- A letter from his young mistress, Betty Neumann (age 24).

About the Hebrew University of Jerusalem: http://www.huji.ac.il/cgi-bin/dovrut/dovrut_search_eng.pl

The Hebrew University of Jerusalem was founded in 1918 by visionaries including Albert Einstein, Sigmund Freud, Martin Buber and Chaim Weizmann. Opened in 1925, the Hebrew University is located on three campuses in Jerusalem and a fourth in Rehovot. One of the world's leading academic and research institutions, the Hebrew University serves more than 23,000 students from over 65 countries and is consistently ranked among the top academic and research institutions worldwide. Forty percent of Israel's civilian research emerges from the Hebrew University, which has been ranked 12th worldwide in biotechnology patent filings and commercial development. Faculty and alumni of the Hebrew University have won seven Nobel Prizes in the last decade. The launch marks Einstein's 133rd birthday on March 14, celebrated as National Science Day.

Mysterious Objects at the Edge of the Electromagnetic Spectrum – March 16/12

Credit: NASA Science News

The human eye is crucial to astronomy. Without the ability to see, the luminous universe of stars, planets and galaxies would be closed to us, unknown forever. Nevertheless, astronomers cannot shake their fascination with the invisible.

Outside the realm of human vision is an entire electromagnetic spectrum of wonders. Each type of light—from radio waves to gamma-rays—reveals something unique about the universe. Some wavelengths are best for studying black holes; others reveal newborn stars and planets; while others illuminate the earliest years of cosmic history.

NASA has many telescopes "working the wavelengths" up and down the electromagnetic spectrum. One of them, the Fermi Gamma-Ray Telescope orbiting Earth, has just crossed a new electromagnetic frontier. A new ScienceCast video takes viewers on a trip to the edge of the electromagnetic spectrum, where mysterious objects are puzzling astronomers.

"Fermi is picking up crazy-energetic photons," says Dave Thompson, an astrophysicist at NASA's Goddard Space Flight Center. "And it's detecting so many of them we've been able to produce the first all-sky map of the very high energy universe."

The light we see with human eyes consists of photons with energies in the range 2 to 3 electron volts. The gamma-rays Fermi detects are billions of times more energetic, from 20 million to more than 300 billion electron volts. These gamma-ray photons are so energetic, they cannot be guided by the mirrors and lenses found in ordinary telescopes. Instead Fermi uses a sensor that is more like a Geiger counter than a telescope. If we could wear Fermi's gamma ray "glasses," we'd witness powerful bullets of energy – individual gamma rays – from cosmic phenomena such as supermassive black holes and hypernova explosions. The sky would be a frenzy of activity.

Before Fermi was launched in June 2008, there were only four known celestial sources of photons in this energy range. "In 3 years Fermi has found almost 500 more," says Thompson. What lies within this new realm? "Mystery, for one thing," says Thompson. "About a third of the new sources can't be clearly linked to any of the known types of objects that produce gamma rays. We have no idea what they are."

The rest have one thing in common: prodigious energy.

"Among them are super massive black holes called blazars; the seething remnants of supernova explosions; and rapidly rotating neutron stars called pulsars."

And some of the gamma rays seem to come from the 'Fermi bubbles' – giant structures emanating from the Milky Way's center and spanning some 20,000 light years above and below the galactic plane. Exactly how these bubbles formed is another mystery.

Now that the first sky map is complete, Fermi is working on another, more sensitive and detailed survey.

"In the next few years, Fermi should reveal something new about all of these phenomena, what makes them tick, and why they generate such 'unearthly' levels of energy," says David Paneque, a leader in this work from the Max Planck Institute in Germany. For now, though, there are more unknowns than knowns about "Fermi's world." Says Thompson: "It's pretty exciting!"

[back](#)

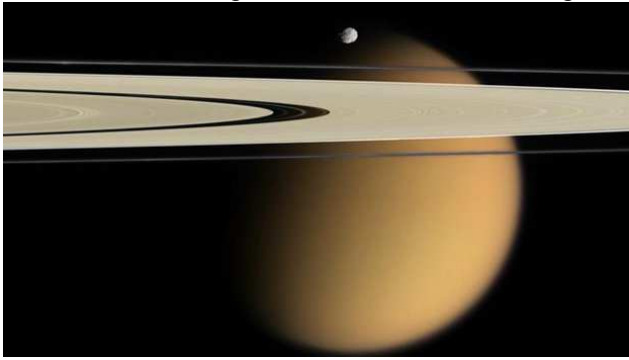
Thousand-year Wait for Titan's Methane Rain – Mar 22/12 *Credit: BBC News*

Places on Saturn's moon Titan see rainfall about once every 1,000 years on average, a new analysis concludes.

Earth and Titan are the only worlds in the Solar System where liquid rains on a solid surface - though on Titan, the rain is methane rather than water. The calculation is based on findings from the Cassini probe of rainstorms that occurred in 2004 and 2010.

Dr Ralph Lorenz presented details of his work at the Lunar and Planetary Science Conference (LPSC) in Texas.

Titan is a fascinating, "same but different" analogue of the Earth. Wind and rain sculpt the surface, producing river channels, lakes, dunes and shorelines. But here, liquid hydrocarbons take the place of water. On Titan, where the surface temperature averages -179°C , it rains methane.



"You get centuries between rainshowers; but when they occur, they dump tens of centimetres or even metres of rainfall," Dr Lorenz, from the Johns Hopkins Applied Physics Laboratory (JHUAPL) in Maryland, told BBC News.

"That's consistent with the deeply incised river channels that we see. "These channels have been observed by both Cassini and the Huygens probe, which plunged through Titan's thick atmosphere in 2005. Dr Lorenz says the latest results are remarkably close to the theoretical predictions of Titan rainfall he made 12 years ago. We're anxious to see when we'll see clouds appearing again"

In 2004 and 2010, at different locations on Titan, the Cassini spacecraft observed a darkening of the moon's surface associated with cloud activity - events that scientists interpret as rain showers. Dr Elizabeth Turtle, also from JHUAPL, presented an analysis of the Autumn 2010 storms observed at Concordia Regio, near Titan's equator. "In the wake of this storm, we saw significant changes on the surface... a month later, there was this large darkened swathe that's longer than 2,000km, covering an area of about 500,000 sq km," she explained. "The simplest interpretation is that this is caused by precipitation wetting the surface - possibly ponding in some areas.

"It's the easiest way to cover [an area this large] in such a short timescale. It's also consistent with the fact that the changes revert over several months afterwards." Ralph Lorenz's analysis of the rainfall represents a global average; but the seasonal cycle on Titan concentrates rainfall during the polar summer. Hypothetically, he says, if an observer were to sit somewhere at one of Titan's poles for 96 Earth days (six days on Titan), they would have a 50% chance of being rained on directly, and be able to observe five rainstorms. This is of particular relevance to the proposed space mission that Dr Lorenz is currently involved with.

The Titan Mare Explorer (TiME) would splash down in one of Titan's largest lakes - Ligeia Mare - to spend 96 days analysing its depth and chemistry. It would also gather data on the surrounding environment, including weather patterns. TiME is one of three finalists competing to be selected as a Nasa Discovery mission - the others are InSight and CHopper. A decision should be made next month.

Meanwhile, Dr Turtle's team has continued to monitor Titan, but has seen very few clouds since the events in 2010. A similar lapse was seen after the storms in 2004, and could be the result of methane in the atmosphere being depleted. "That may be what happened here; this depleted the atmosphere significantly and it takes a while for it to reset," she said. "We're anxious to see when we'll see clouds appearing again."

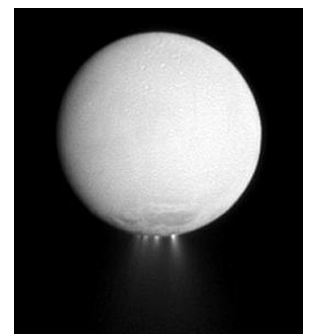
While many aspects of Earth's weather can be seen on Titan, one difference is that the moon is probably too small for the kind of activity that generates cyclones and hurricanes on Earth.

[back](#)

Cassini Spacecraft Makes Saturn Moon Flyby – March 27/12 *Credit BBC News*

The Cassini spacecraft has made its lowest pass yet over the south pole of Enceladus, an active moon of Saturn which may harbour a liquid water ocean.

The flyby, at an altitude of 74km (46mi), allowed Cassini to "taste" the jets of ice and water vapour that gush from the moon's polar region. Several lines of evidence suggest these jets are fed by a liquid water ocean beneath Enceladus' outer icy shell.

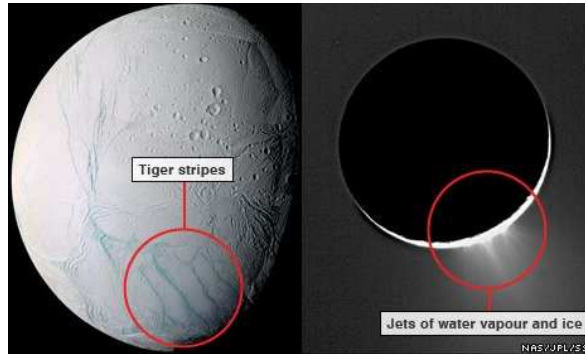


The spacecraft's closest approach took place at 1930 GMT on Tuesday.

The scientists are using Cassini's Ion and Neutral Mass Spectrometer instrument to learn more about the composition, density and variability of the plumes from Enceladus. Scientists previously detected salts in these jets, which suggested the sub-surface liquid water ocean was probably in contact with Enceladus' rocky core.

This makes Enceladus an even more important target in the search for life elsewhere in the Solar System, as rocks could furnish the ocean with the chemical ingredients thought essential for life.

The plumes erupt from fissures at the south pole known as "tiger stripes".



Last week, scientists presented evidence of a connection between the jet activity on Enceladus and the way Saturn's gravity stretches and stresses the fissures. The results were outlined by Terry Hurford, from Nasa's Jet Propulsion Laboratory (JPL), at the Lunar and Planetary Science Conference (LPSC) in The Woodlands, Texas.

However, about 35% of the observations could not be explained by tension in the jets' source regions.

Enceladus moves around Saturn in a distorted, oval-shaped orbit rather than a circular one. This causes the moon to be pulled and squeezed by Saturn's gravity, inducing the heat that enables geological activity on the icy moon.

[back](#)

Biggest Environment Satellite Goes Silent—Apr 12/12 Credit: CBC News

The European Space Agency said on Thursday it had lost contact with Envisat, the biggest Earth-monitoring satellite in history. Designed to operate for only five years, Envisat was launched in March 2002, carrying 10 instruments to monitor the planet's oceans, ice, land and atmosphere.

The giant 8.2-tonne, 10.5-metre (34.1-foot) craft carried on working for a decade, racking up a total of 2.25 billion kilometres (1.4 billion miles), or more than 50,000 orbits, ESA said. The satellite failed to make a radio call on April 8 as it passed over a ground station at Kiruna in Sweden, the agency said. It has assembled a "recovery team" of engineers, flight dynamics scientists and mission operators in the hope of restoring contact with Envisat, which remains in a stable orbit.

Envisat's data has been used in 4,000 science projects in 70 countries, including landmark research into climate change. Its study of ocean currents was used last year to simulate dispersal of nuclear pollution from the Fukushima accident, and it gained real-time images of the BP oil spill in the Gulf of Mexico in 2010. It has also been an important tool in tackling illegal fishing.

ESA had hoped to keep Envisat going until its seven replacements, the so-called Sentinel satellites, start being launched in 2013.

[back](#)

7. Community Affairs

By Brian Robilliard

Shawnigan Lake School Observatory Project

Editor: *Our Vice-President (Brian Robilliard) sent this message out to our listserve on March 27/12. I have repeated it here for those of you who are not on the listserve.*

To refresh your memories: Shawnigan Lake had a Observatory and Telescope donated to them. They have requested our club's help in dismantling, moving and choosing on a site for the Observatory. Last month Brian and Bryon T did a presentation at Shawnigan Lake School to advise

them further on what is required to get the observatory up and running and then what is essential to keep it functioning.

Hi Group

I am creating a separate email list for the Shawnigan Lake School Telescope Project. Anyone that would like to be directly involved with this project please let me know and I will add your name to the list. Contact Brian at: vice-president@starfinders.ca

Thanks Brian Robilliard (Vice-President).

[back](#)

8. Kreative Korner

If you have any ideas that might spark the interest of a young upcoming astronomer, please send your submissions to the editor.

Revealing Missions

Hidden in the grid are 13 names from the U.S. and Russian space programs.

Can you find them all? Look across, back, down, up, and diagonally to discover them.

The word VOYAGER has been circled as an example.

R	E	D	N	I	F	H	T	A	P
O	V	E	R	G	N	I	K	I	V
N	R	F	Z	T	E	Y	A	J	O
R	E	N	R	U	O	J	O	S	Y
B	N	P	I	N	Y	L	D	A	A
A	I	B	M	U	L	O	C	O	G
L	R	E	G	O	R	U	S	K	E
Y	A	M	P	I	O	N	E	E	R
K	M	A	T	L	A	N	T	I	S
S	P	U	T	N	I	K	C	G	O

VOYAGER
SOJOURNER
MIR
APOLLO
COLUMBIA
PIONEER
VIKING
SOYUZ
ATLANTIS
MARINER
PATHFINDER
SPUTNIK
SKYLAB

[back](#)

9. The Sky This Month

By oneminuteastronomer.com

Observing Site: Duncan, **48.783°N, 123.700°W**

There's a changing of the guard in the night sky this month as Jupiter slowly fades in the western sky, while beautiful Saturn becomes visible in the mid-to-late evening hours. The ringed planet will put on a good show for the next few months. Mars is high overhead this month, still tantalizing telescopic observers with glimpses of its northern polar cap and a few surface markings. And of course, for serious observers, the galaxy fields of Virgo, Coma Berenices, and Ursa Major provide several lifetimes of excellent viewing, as does the star-clogged expanse from Carina through Centaurus and Crux in the southern hemisphere. Here's what's happening in the night sky this month...

2-3 April. Venus skims the southern edge of the Pleiades star cluster. Look with binoculars or a wide-field telescope for the best view. Also tonight, the waxing gibbous Moon lies near the star Regulus and bright-orange Mars nearly overhead.

6 April. The Moon continues its apparent tour of the planets as it nears bright-white Spica and brighter Saturn in the constellation Virgo.

15 April. Saturn reaches opposition, rising at sunset and setting at sunrise. This marks the closest approach of Saturn this year. The disk spans about 19" and the rings about 42". The rings are tilted at 14° to our line of sight, more than in the past several years, so the planet presents a dramatic image in a telescope.

18 April. Mercury reaches greatest western elongation. It rises about an hour before the Sun today, but is not positioned for easy viewing. Scan the eastern sky with binoculars to see this small baked world.

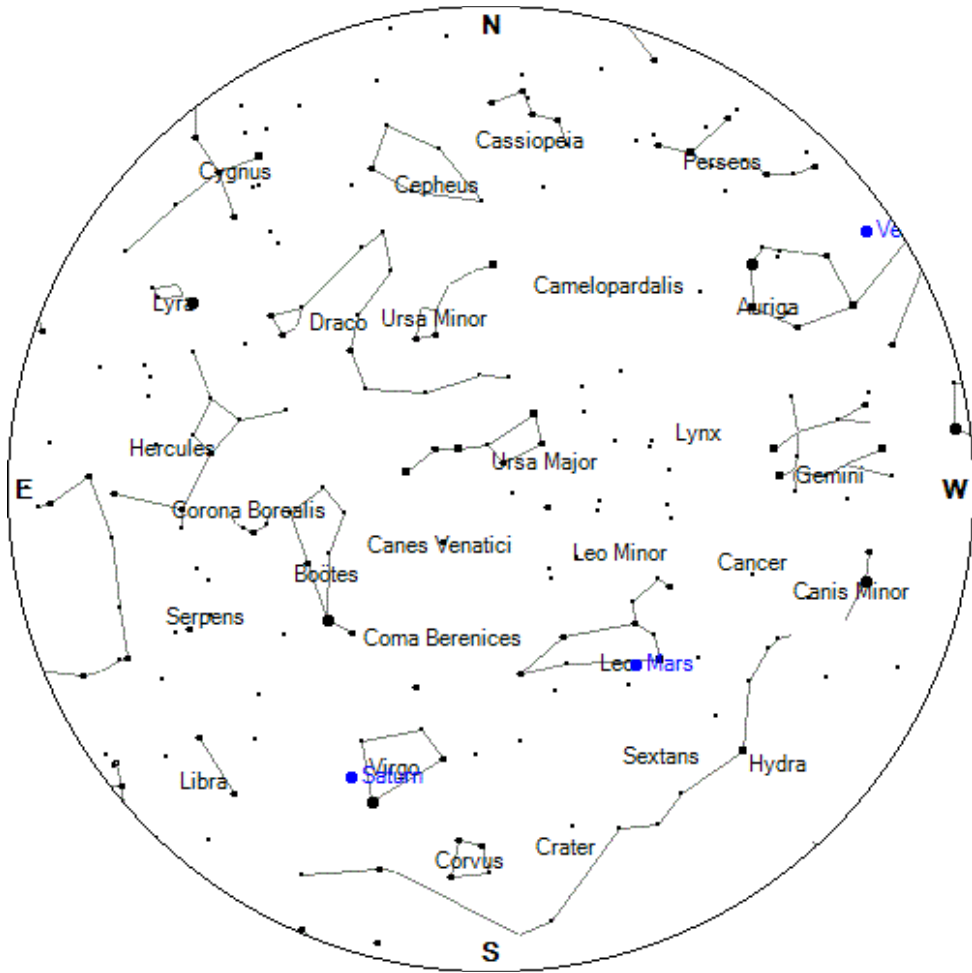
21-22 April. The modest Lyrid meteor shower peaks early on the 22nd. A new Moon this year makes for good viewing of these meteors, which range from 20-30 per hour and occasionally many more. The meteors appear to trace back to a point in Lyra near the star Vega, though they can appear anywhere in the sky.

22 April. Jupiter lies just below a very slender crescent Moon in the west-northwest sky just after sunset. Use binoculars to spot this event. This also makes a great "photo op". Jupiter fades quickly this month, but with a telescope you can still see the bands and 4 large moons of the big planet.

23 April. The crescent Moon lies between the Hyades and Pleiades star clusters, again making for a great photograph

24 April. Brilliant Venus lies near the crescent Moon after sunset. Venus reaches a stunning magnitude -4.7 this month, and appears in a telescope as 1/2 full early in April and 1/4 full by month's end. The planet sets 3.5-4 hours after sunset. Venus is easily visible in broad daylight with a telescope.

Sky Chart —Here's your mid-April midnight sky chart. In order to use the sky chart properly remember the centre of the chart is the sky directly above your head (or the Zenith). Turn the chart so that the direction you are facing is at the bottom of the chart (or pointed toward your toes). The star field directly in front of you will be between the bottom of the chart and the centre.



SkyChart Courtesy of Heavens-Above

[back](#)