

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. [KIDS 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

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

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.

March is one of the busiest months for celebration: We have Mar 8 Mardi Gras, Mar 14 Albert Einstein's Birthday, Mar 17 St. Patrick's day and Mar 20 First Day of Spring. To top it all off we also have to "spring forward" on March 11 (Daylight Savings Time). While your marking these dates down in your calendar don't forget to check out the "Upcoming Events" section which is loaded with things you can do locally.

On Mar 2 there was an M3 solar Flare. Last I heard the "tweeters" were "tweeting" about a possible aurora borealis (northern lights). I didn't notice any locally, did anyone see them? If you kept your eyes to the skies and/or snapped a photo send it in to us at clearskies newsletter@starfinders.ca

NEWS FLASH!!! I just heard that TONIGHT Mar 8 and Mar 9 that there is supposed to be aurora's. Let us know if you spot some.

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

[back](#)

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 Mar 28th**

Feature: "Pacific Storm Types and Tracks" by Dr. David Atkinson, Assistant Professor
Department of Geography

What are the types of Pacific storms? Where do they form, where do they travel, and why do they move as they do? Why do we have more storms in winter than in summer? How do El Nino/La Nina affect them?

Come on out and enjoy an evening of storm watching!

[back](#)

Social Highlights Feb 22nd/12

By Nancy Kirshfelt

Coffee and tea were flowing as we gathered at Bryon and Freda's house.

This month one of our members, Gilbert Beaudry, shared his Youtube video "The Redshift Theory" If you are interested in exploring theories other than the widely accepted Big Bang Theory, you will find Gilbert's video very informative. He demonstrates what he feels is the real cause of the red-shifting of stars. His hypothesis is that "the Red Shift of distant objects is caused by the diminishing of observable electromagnetic energy as the distances increase". He explains that the Doppler Effect cannot be the reason for the red shift of stars and galaxies. This is the first of more Youtube info sessions. If you would like to see more from Gilbert, visit his website www.physicsfuniverse.com

We also viewed "Destiny in Space" narrated by Leonard Nimoy. This film was shown in IMAX theatres in 1994. We were able to observe the daily lives of astronauts in space, as well as the repairing of the Hubble telescope. It also gives an idea of the future of space exploration and predicts what future generations might accomplish in the years to come.

[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

Feb 9 – Mar 29 (Thursdays) 7:00pm – 9:00pm An Introduction to the Night Sky at West Shore Parks & Rec, Learn the constellations, how to use a telescope and binoculars, as well as how telescopes work. We will spend time out doors at night viewing when the sky is clear. Admission: 6 / \$ 100 to Register call 250-478-8384

March 5-10 – Idea Fest 2012, UVic Campus

Discover the breadth of the research being conducted in our department by taking in our -- "From Quarks to Cosmos: a research fiesta from Physics & Astronomy". Spend the afternoon attending some of our "mini-talks" or touring some of our facilities. For more info:

<http://www.uvic.ca/research/learnabout/news/ideafest/>

March 7 - 3:30 p.m - The Quantum Way of Doing Computations, presented by Dr. Rainer Blatt, Innsbruck University, in Bob Wright Centre, Room A104 University of Victoria. For more information:

http://www.uvic.ca/science/physics/assets/docs/colloquia/Blatt_03_07_12.pdf

March 14 - 7:30pm, Science as I've Seen It - Presented by Dr. Bob McDonald, University Centre Farquhar Auditorium, University of Victoria. Tickets are free, but reservations are required. One of Canada's best-known presenters and authors, Dr. McDonald has been hosting the CBC radio show Quirks & Quarks since 1992. In this illustrated presentation meant for the layperson "Science as I've Seen It", Dr. McDonald will share his personal journey to the edge of the universe and back with a perspective on our unique and very special place, tiny planet Earth. UVic Ticket Centre

250-721-8480 ticket@uvic.ca

March 21- Dr. Martin Bureau, Oxford University, UVIC

March 22 - 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.

March 28 -Dr. Hugo Martel, Université de Laval, UVic

March 28 – 7:30pm, "Pacific Storm Types and Tracks" by Dr. David Atkinson. CVSF Monthly Social, Cowichan Valley StarFinders (CVSF) Astronomy Club. 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>

March 31- 8:30 PM – 9:30 PM Earth Hour "Lights out"

Hundreds of millions of people, businesses and governments around the world unite each year to support the largest environmental event in history – Earth Hour. Earth Hour has done a lot to raise awareness of sustainability issues. But there's more to it than switching off lights for one hour once a year. It's all about giving people a voice and working together to create a better future for our planet.

JULY 20 - JULY 22, 17 Annual Island Star Party at Bright Angel Park at the Hub of the Universe (Cowichan Station) Hosted by CVSF.

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: March 9 +

Mission: ATV-3 "Edoardo Amaldi"

Launch Vehicle: Ariane 5

Launch Site: Kourou, French Guiana

Description: The ATV-3 European Space Agency cargo vehicle, named Edoardo Amaldi, will carry food, fuel and supplies to the International Space Station.

Date: March 14 *

Mission: NuSTAR

Launch Vehicle: Pegasus XL

Launch Site: Reagan Test Site, Kwajalein Atoll

Description: The Nuclear Spectroscopic Telescope Array (NuSTAR) is an Explorer mission that will allow astronomers to study the universe in high energy X-rays.

[back](#)

4. This Month In Exploration

Courtesy of: NASA History Program Office

100 Years Ago -- 1912

March 23: Dr. Wernher von Braun born, Wirsitz, Germany (now Part of Poland).

75 Years Ago -- 1937

March 6: Valentina Nikolayevna Tereshkova born, Maslennikovo, Yaroslavl Region, USSR. First woman in space aboard Vostok 6, June 16, 1963.

65 Years Ago -- 1947

March 7: First photograph taken from space from a V2 rocket 100 miles above White Sands, New Mexico.

60 Years Ago -- 1952

March 22: Colliers magazine published its first space symposium under title: "Man Will Conquer Space Soon."

March 23: Science fiction writer Kim Stanley Robinson born. Known for his "Red Mars", Blue Mars", and Green Mars" trilogy.

50 Years Ago -- 1962

March 7: OSO 1 launched Thor Delta, 11:06 a.m., EST, Cape Canaveral, Fla.

March 16: Cosmos 1 launched by Cosmos rocket, 1200 UTC, Kapustin Yar, USSR.

45 Years Ago -- 1967

March 8: OSO 3 launched by Delta, 11:12 a.m., EST, Cape Canaveral, Fla.

March 22: Cosmos 150 launched by Voskhod, 1243 UTC, Plesetsk, USSR.

March 23: Intelsat II F-3 launched by Delta, 8:30 p.m., EST, Cape Canaveral, Fla.

40 Years Ago -- 1972

March 2: Pioneer 10 launched by Atlas Centaur, 8:49 p.m., EST, Cape Canaveral, Fla.

March 11: TD-1A launched by Delta for ESRO, 8:55 p.m., EST, Vandenberg AFB.

March 27: Venus 8 (Venera 8) launched by Modified SS-6 (Sapwood) or Molniya, 0415 UTC, Baikonur, USSR.

35 Years Ago -- 1977

March 10: Uranus rings discovered.

March 10: Palapa 2 launched by Delta, 6:16 p.m., EST, Cape Canaveral, Fla.

30 Years Ago -- 1982

March 4: Intelsat V F-4 launched by Atlas Centaur, 7:24 p.m., EST, Cape Canaveral, Fla.

March 22: STS-3 (Space Shuttle Columbia) launched, 11:00 a.m., EST, KSC. Crew: Jack R. Lousma and C. Gordon Fullerton. Continued testing of Space Shuttle systems for qualification for operational flights. Landed March 30, 11:05 a.m., EST, White Sands, N.M. Mission Duration: 8 days, 4 minutes.

25 Years Ago -- 1987

March 20: Palapa B 2P Comsat launched by Delta, 5:22 p.m., EST, Cape Canaveral, Fla. Owned by Republic of Indonesia.

March 31: USSR launches space station module Kvant-1 (Quantum) aboard a Proton K rocket from Baikonur. Docked with space station Mir on April 9.

20 Years Ago -- 1992

March 14: Galaxy 5, a commercial communications spacecraft, was launched from Cape Canaveral by an Atlas 1 rocket.

March 17: Russia launches Soyuz TM-14 to space station Mir from Baikonur. Cosmonauts: Aleksandr S. Viktorenko; Aleksandr Y. Kaleri and Klaus-Dietrich Flade (Germany).

March 24: STS-45 (Space Shuttle Atlantis) launched March 24 at 8:13 a.m. EST, KSC. Crew: Charles F. Bolden, Brian Duffy, Kathryn D. Sullivan, David C. Leestma, C. Michael Foale, Byron K. Lichtenberg, and Dirk D. Frimout (Belgium). Carried first Atmospheric Laboratory for Applications and Science (ATLAS-1) on Spacelab pallets mounted in orbiter's cargo bay. Landed April 2, 6:23 a.m., EST, KSC. Mission Duration: 8 days, 22 hours, 9 minutes.

10 Years Ago -- 2002

March 1: STS-109 (Space Shuttle Columbia) launched at 6:22 a.m. EST, KSC. Crew: Scott D. Altman, Duane G. Carey, John M. Grunsfeld, Nancy J. Currie, James H. Newman, Richard M. Linnehan, and Michael J. Massimino. This is the fourth servicing mission to the Hubble Space Telescope. Landed March 12, 2002, 4:32 a.m., EST at KSC. Mission Duration: 10 days, 22 hours, 11 minutes.

March 1: ENVISAT 1, a European Space Agency (ESA) environmental remote-sensing spacecraft was launched by an Ariane 5 rocket from Kourou, French Guiana at 01:07 UTC. Reported to be the most massive and expensive of the European satellites, it carried ten sensors to monitor global warming, the ozone hole and desertification.

March 17: GRACE 1 and GRACE 2 (Gravity Recovery And Climate Experiment nick-named Tom and Jerry) are a pair of American-German, identical, satellites that were launched by a Rocket booster from Plesetsk at 09:21 UTC. They aim to map the local gravitational mini-variations

caused by sea-level changes, glacial motions, and seasonal melting/freezing of ice sheets.
 March 25: Shenzhou 3 (Divine Vessel 3), a Chinese (PRC) "unmanned spaceship, launched by a Long March 2F rocket from Jiquan Space Launch Center in the northwestern Gobi desert at 14:00 UTC. It consisted of three modules: a propulsion section, a conical re-entry capsule, and an orbiter. The capsule was equipped with all that would be needed for a manned flight.

5 Years Ago – 2007

March 9: FalconSat 3, an American military (DARPA) picosatellite, was one of six DARPA military satellites launched by an Atlas 5 rocket from Cape Canaveral at 03:10 UTC. Built by USAF Academy cadets, it monitored the ambient plasma, and tested a micropropulsion attitude control system.

[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".

Check out the Scale of the Universe from the smallest to the largest. A wonderful display from the twins Cary and Michael Huang <http://htwins.net/scale2/>

Gilbert Beaudry, shared his NEW Youtube video "The Redshift Theory" If you are interested in exploring theories other than the widely accepted Big Bang Theory, you will find Gilbert's video very informative. There are more to come and we have tentatively booked Gilbert for the May social. Check out his website www.physicsfuniverse.com, Great Work Gilbert.

[back](#)

6. Featured Articles

Articles

[RETURN TO CATEGORIES](#)

1. [Chandra Finds Milky Way's Black Hole Grazing on Asteroids](#)
2. [Signs of Ancient Ocean on Mars](#)
3. [Switzerland to Build "Janitor" Satellite to Clean Up Space](#)
4. [NASA's Spitzer Finds Solid Buckyballs](#)
5. [Floating a Tech City](#)
6. [Grail's Video From Farside of the Moon](#)
7. [Worlds Largest Mirror](#)
8. [Microsoft OmniTouch](#)

Chandra finds Milky Way's Black Hole Grazing on Asteroids– Feb 9/12 Credit: Chandra X-ray Center,



The giant black hole at the center of the Milky Way may be vaporizing and devouring asteroids, which could explain the frequent flares observed, according to astronomers using data from NASA's Chandra X-ray Observatory.

For several years Chandra has detected X-ray flares about once a day from the supermassive black hole known as Sagittarius A*, or "Sgr A*" for short. The flares last a few hours with brightness ranging from a few times to nearly one hundred times that of the black hole's regular output. The flares also have been seen in infrared data from ESO's Very Large Telescope in Chile.

"People have had doubts about whether asteroids could form at all in the harsh

environment near a supermassive black hole," said Kastytis Zubovas of the University of Leicester in the United Kingdom, and lead author of the report appearing in the Monthly Notices of the Royal Astronomical Society. "It's exciting because our study suggests that a huge number of them are needed to produce these flares."

Zubovas and his colleagues suggest there is a cloud around Sgr A* containing hundreds of trillions of asteroids and comets, stripped from their parent stars. Asteroids passing within about 100 million miles of the black hole, roughly the distance between the Earth and the sun, would be torn into pieces by the tidal forces from the black hole.

These fragments then would be vaporized by friction as they pass through the hot, thin gas flowing onto Sgr A*, similar to a meteor heating up and glowing as it falls through Earth's atmosphere. A flare is produced and the remains of the asteroid are swallowed eventually by the black hole.

"An asteroid's orbit can change if it ventures too close to a star or planet near Sgr A*," said co-author Sergei Nayakshin, also of the University of Leicester. "If it's thrown toward the black hole, it's doomed."

The authors estimate that it would take asteroids larger than about six miles in radius to generate the flares observed by Chandra. Meanwhile, Sgr A* also may be consuming smaller asteroids, but these would be difficult to spot because the flares they generate would be fainter.

These results reasonably agree with models estimating of how many asteroids are likely to be in this region, assuming that the number around stars near Earth is similar to the number surrounding stars near the center of the Milky Way.

"As a reality check, we worked out that a few trillion asteroids should have been removed by the black hole over the 10-billion-year lifetime of the galaxy," said co-author Sera Markoff of the University of Amsterdam in the Netherlands. "Only a small fraction of the total would have been consumed, so the supply of asteroids would hardly be depleted."

Planets thrown into orbits too close to Sgr A* also should be disrupted by tidal forces, although this would happen much less frequently than the disruption of asteroids, because planets are not as common. Such a scenario may have been responsible for a previous X-ray brightening of Sgr A* by about a factor of a million about a century ago. While this event happened many decades before X-ray telescopes existed, Chandra and other X-ray missions have seen evidence of an X-ray "light echo" reflecting off nearby clouds, providing a measure of the brightness and timing of the flare.

"This would be a sudden end to the planet's life, a much more dramatic fate than the planets in our solar system ever will experience," Zubovas said.

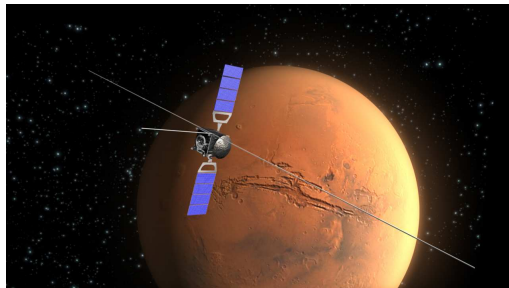
Very long observations of Sgr A* will be made with Chandra later in 2012 that will give valuable new information about the frequency and brightness of flares and should help to test the model proposed here to explain them. This work could improve understanding about the formation of asteroids and planets in the harsh environment of Sgr A*.

NASA's Marshall Space Flight Center in Huntsville, Ala., manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory controls Chandra's science and flight operations from Cambridge, Mass.

[back](#)

Signs of Ancient Ocean on Mars— Feb 7/12 Credit: Space.com

European spacecraft orbiting Mars has found more revealing evidence that an ocean may have covered parts of the Red Planet billions of years ago.



The European Space Agency's Mars Express spacecraft detected sediments on Mars' northern plains that are reminiscent of an ocean floor, in a region that has also previously been identified as the site of ancient Martian shorelines, the researchers said.

"We interpret these as sedimentary deposits, maybe ice-rich," study leader Jérémie Mouginot, of the Institut de Planétologie et d'Astrophysique de Grenoble (IPAG)

in France and the University of California, Irvine, said in a statement. "It is a strong new indication that there was once an ocean here."

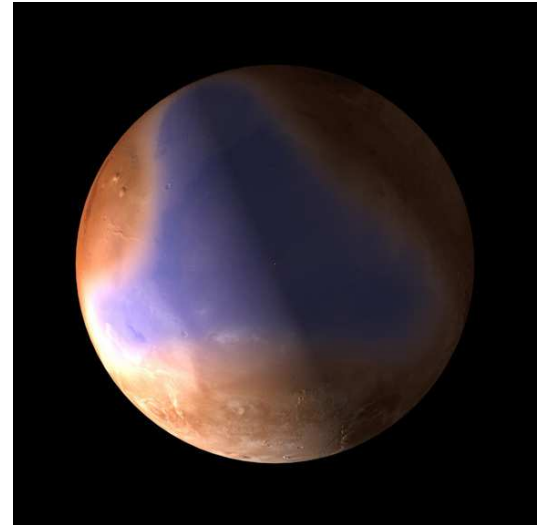
As part of its mission, Mars Express uses a radar instrument, called MARSIS, to probe beneath the Martian surface and search for liquid and solid water in the upper portions of the planet's crust. The researchers analyzed more than two years of MARSIS data and found that the northern plains of Mars are covered in low-density material that suggests the region may have been an ancient Martian ocean. "MARSIS penetrates deep into the ground, revealing the first 60–80 meters of the planet's subsurface," said Wlodek Kofman, leader of the radar team at IPAG. "Throughout all of this depth, we see the evidence for sedimentary material and ice."

The idea of oceans on ancient Mars is hardly new, and features reminiscent of shorelines have been tentatively identified in images from various spacecraft and missions. Still, the concept remains controversial. In fact, this new investigation comes on the heels of a separate study that found that Mars may have experienced a "super-drought," making it parched for too long for life to exist on the surface of the planet today.

New results from the MARSIS radar on Mars Express give strong evidence for a former ocean of Mars. The radar detected sediments reminiscent of an ocean floor inside previously identified, ancient shorelines on the red planet. The ocean would have covered the northern plains billions of years ago.

CREDIT: ESA, C. Carreau

But, scientists working to document Mars' history have proposed two oceans: one 4 billion years ago when the planet experienced a warmer and wetter period, and one 3 billion years ago when subsurface ice melted after a large impact that created various channels that drained water into areas of lower elevation, the researchers said. Still, the more recent ocean would have only been a temporary feature on the Martian surface, the researchers said. The water would likely have been frozen or preserved underground again, or turned into vapor and lifted gradually into the atmosphere within a million years or less, Mougnot explained. "I don't think it could have stayed as an ocean long enough for life to form," Mougnot said in a statement. The sediments seen by Mars Express are typically low-density grains of material that have been eroded away by water and carried off to their current location. According to the researchers, the MARSIS instrument reveals the sediments to be areas of low radar reflectivity.



In the ongoing search for life on Mars, astrobiologists will likely have to delve deeper into the Martian past, when liquid water may have existed for longer periods on the surface, the scientists said. Still, these results are some of the best evidence yet that there were once large bodies of liquid water on the surface of Mars, the researchers said. The findings are also further proof that liquid water likely played an important role in the geological history of Mars, and the planet's own evolution. "Previous Mars Express results about water on Mars came from the study of images and mineralogical data, as well as atmospheric measurements," Olivier Witasse, a Mars Express project scientist at the European Space Agency, said in a statement. "Now we have the view from the subsurface radar. This adds new pieces of information to the puzzle but the question remains: where did all the water go?"

Mars Express was launched in June 2003 and entered orbit around the Red Planet in December 2003. The spacecraft is scheduled to operate until at least the end of 2012.

[back](#)

Switzerland to Build 'Janitor Satellite' to Clean Up Space – Feb 15/12 Credit: LiveScience.com

Earth is surrounded by a cloud of more than half a million pieces of space junk, from bus-size spent rocket stages to tiny flecks of paint. Orbiting at breakneck speeds, every last bit poses grave dangers — and means huge insurance premiums — for operational satellites, and it threatens the International Space Station, too. Every time two orbiting objects collide, they break up into thousands more pieces of debris.



To combat this growing headache, Swiss scientists and engineers have announced the launch of CleanSpace One, a project to build the first in a family of "janitor" satellites that will help clean up space.

To be launched as soon as three to five years from now, CleanSpace One will rendezvous with one of two defunct objects in orbit, either the Swisscube picosatellite, or its cousin Tlsat, both 1,000 cubic centimeters (61 cubic inches) in size. When the janitor satellite

reaches its target, it will extend a grappling arm, grab it and then plunge into Earth's atmosphere, burning up itself and the space junk during re-entry.

CleanSpace One is being designed and built at the Swiss Space Center, part of the Swiss Federal Institute for Technology in Lausanne, or EPFL.

Scientists there are developing the micro-and electric propulsion systems that will enable CleanSpace One to grab hold of space junk as the two objects zip around Earth at 17,500 mph (28,000 kph).

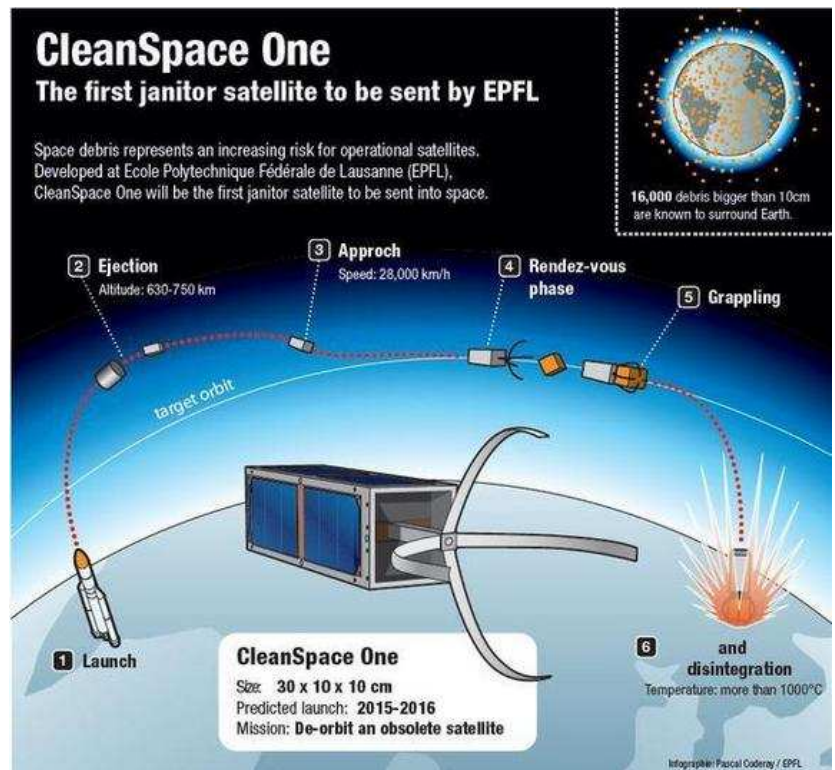
"The [main] challenge will be having a deployment either of a robotic arm or a deployment of a mechanism that will embrace or grab exactly Swisscube," EPFL scientist Muriel Richard said in a press video. The design team is drawing inspiration from the grabbing mechanisms of living organisms, she said.

Eventually, the team hopes to offer and sell a whole suite of ready-made systems designed to de-orbit space junk of various sizes. "Space agencies are increasingly finding it necessary to take into consideration and prepare for the elimination of the stuff they're sending into space. We want to be the pioneers in this area," Swiss Space Center Director Volker Gass said.

Smaller systems like CleanSpace One will be low-cost, Richard said. "It's not a multimillion development, it's a university based development."

There may indeed be a market for such janitor satellites. In 2009, the American Iridium satellite collided with debris from an inactive Russian satellite, producing roughly 2,000 more pieces of debris, some of which went on to destroy a satellite worth \$55 million. The more junk accumulates, the more likely collisions between satellites and debris will become, with each collision causing a proliferation of debris.

"There's going to be an avalanche effect and more and more satellites are going to be kicked out or destroyed in orbit," Gass said. Higher risk of impact means higher insurance premiums, and the cost of insuring today's active satellites is around \$20 billion. Falling space debris even poses a slight risk of injuring people on Earth. Claude Nicollier, an astronaut and EPFL professor, compared the space junk problem with global warming. "In a way, there's some similarity between the two



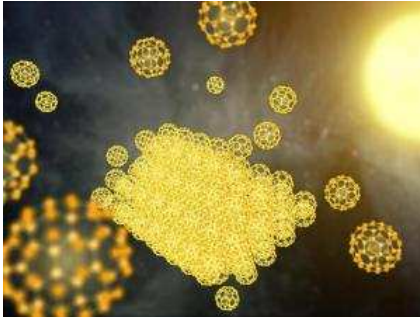
problems," he said. "If we don't do anything, we'll have big problems in the future."

This story was provided by Life's Little Mysteries, a sister site to LiveScience.

[back](#)

NASA's Spitzer Finds Solid Buckyballs— Feb 22/12 Credit ScienceDaily

Astronomers using data from NASA's Spitzer Space Telescope have, for the first time, discovered buckyballs in a solid form in space. Prior to this discovery, the microscopic carbon spheres had been found only in gas form in the cosmos.



Formally named buckminsterfullerene, buckyballs are named after their resemblance to the late architect Buckminster Fuller's geodesic domes. They are made up of 60 carbon molecules arranged into a hollow sphere, like a soccer ball. Their unusual structure makes them ideal candidates for electrical and chemical applications on Earth, including superconducting materials, medicines, water purification and armor.

In the latest discovery, scientists using Spitzer detected tiny specks of matter, or particles, consisting of stacked buckyballs. They found the particles around a pair of stars called "XX Ophiuchi," 6,500 light-years from Earth, and detected enough to fill the equivalent in volume to 10,000 Mount Everests.

"These buckyballs are stacked together to form a solid, like oranges in a crate," said Nye Evans of Keele University in England, lead author of a paper appearing in the Monthly Notices of the Royal Astronomical Society. "The particles we detected are miniscule, far smaller than the width of a hair, but each one would contain stacks of millions of buckyballs."

Buckyballs were detected definitively in space for the first time by Spitzer in 2010. Spitzer later identified the molecules in a host of different cosmic environments. It even found them in staggering quantities, the equivalent in mass to 15 Earth moons, in a nearby galaxy called the Small Magellanic Cloud. In all of those cases, the molecules were in the form of gas. The recent discovery of buckyballs particles means that large quantities of these molecules must be present in some stellar environments in order to link up and form solid particles. The research team was able to identify the solid form of buckyballs in the Spitzer data because they emit light in a unique way that differs from the gaseous form.

"This exciting result suggests that buckyballs are even more widespread in space than the earlier Spitzer results showed," said Mike Werner, project scientist for Spitzer at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "They may be an important form of carbon, an essential building block for life, throughout the cosmos." Buckyballs have been found on Earth in various forms. They form as a gas from burning candles and exist as solids in certain types of rock, such as the mineral shungite found in Russia, and fulgurite, a glassy rock from Colorado that forms when lightning strikes the ground. In a test tube, the solids take on the form of dark, brown "goo."

"The window Spitzer provides into the infrared universe has revealed beautiful structure on a cosmic scale," said Bill Danchi, Spitzer program scientist at NASA Headquarters in Washington. "In yet another surprise discovery from the mission, we're lucky enough to see elegant structure at one of the smallest scales, teaching us about the internal architecture of existence."

JPL manages the Spitzer Space Telescope mission for NASA's Science Mission Directorate in Washington. Science operations are conducted at the Spitzer Science Center at the California Institute of Technology in Pasadena. Caltech manages JPL for NASA.

[back](#)

Floating a Tech-City — Mar 2/12 Credit: CBC News

Twelve miles off the coast of California there's a vessel that looks like a cruise ship that never moves. Ferries arrive three times a day from the mainland, maybe the occasional helicopter. On board there's an indoor soccer field, a rock climbing wall, biking circuit and a thousand people from all over the globe — China, Croatia, Kazakhstan — who are absolutely convinced they're the next

Steve Jobs. But as luxurious as the vessel appears, this is not a ship of leisure. The cabins are work units, and the guests are there to build businesses. The vessel is an offshore incubator, a place where an idea for a start-up is developed, scaled and, in the best cases, moved inland to Silicon Valley. It's a campus for entrepreneurs who, if they need to talk to, say, an accountant or lawyer, they can consult with the professionals provided onboard. In fact there's only one thing a guest might need that can't be supplied by the ship: an American passport, or at least a work visa.

As of today this ship full of foreigners doesn't exist. But the people who are promoting it are actively shopping for their boat. They say Silicon Valley is hungry for talent and there's no shortage of ideas on the international market but because of immigration law it's very hard for the U.S. to harness those ideas and reap the benefits of new jobs. The company is called Blueseed and the CEO is the son of Cuban-American immigrants, 27-year-old Max Marty.

When Marty was an MBA student at the University of Miami, he was president of the entrepreneur club and he was in contact with students from all over the world: China, India, Europe and South America. He remembers an Argentinean guy, he told me, who wanted to take his tech start-up to Silicon Valley, and a Chinese woman with an idea for a chocolate boutique. They were innovators and they were ready to go. If not for U.S. immigration law, Marty figures they could have walked out of school with their degrees and built their companies, hiring people and attracting investors. That's not what happened. "None were given a chance to start a company," he says. There's no such thing as an entrepreneur visa in the U.S. There is, sort of, in Canada, a federally-sponsored, provincially-run nominee program, but the red tape and the high net-worth rules can make it prohibitive for a young person with not much more than a bright idea.

The options for the people Marty knew at the University of Miami were limited: find a sponsor to hire you and work for them while applying for a work visa. Or leave. "The immigration policies that have been put in place decades ago are now outdated," "These entrepreneurs would love to be here in Silicon Valley if only they could get the work visas necessary to come and start companies. There's no channel for them to do that." That's where Blueseed floats a solution: a ship just outside the legal jurisdiction of the U.S. Imagine you're a foreigner with an intriguing idea. Blueseed has you placed minutes away from Silicon Valley. You can meet with investors, other developers, and set up your internal organization. Blueseed would charge you rent while onboard and would likely also negotiate a stake in your company.

Once your company outgrows the incubator, it can be moved onshore using existing rules — a satellite office, the investor visa program (assuming you have enough capital), or by getting someone in the U.S. to incorporate and bring you and other directors as a "temporary foreign worker" in a specialty occupation.

I asked Marty if he was sure Blueseed was legal. "It's entirely legal. We've had some pretty good reception," he says, "from people in the federal government to the state and local levels saying this is awesome, it's exactly the sort of innovation we need to shine a spotlight on this problem."

Still, emotions run high when immigration policy is discussed in the U.S. and Blueseed is no exception. It doesn't see itself as trying to create an offshore free-trade zone or sweat shop, but the critics have been out in force. When *Wired* magazine profiled the company in December, some readers found Blueseed sinister, essentially saying: what if the idea catches on? "So the slave ships of old have gone hi-tech?" wrote one commenter. "Lovely... I would want to be captively working for on an isolated ship away from the protections of the law. Golly, where do I sign up?"

Said another: "This is yet another greed driven excuse to bypass workplace and immigration law at the expense of shore-side economies and workforces. There are plenty of unemployed Americans willing to work for fair wages, not slave wages and as innovative as this idea is, it's a slap in the face to the middle class. "Going to this extent to get cheap labor is as appalling as it is insulting to the American worker who can see right through this abhorrent BS."

One of the initial investors in Blueseed is Peter Thiel, a tech entrepreneur and co-founder of Pay-Pal, and he understands why some people are wary. "I think people should never underestimate how far we (as a country) are from any sort of rational equilibrium or reasonable policies — and therefore we also should not underestimate how there may be some opportunities for initiatives such as Blueseed, regardless of how strange they may appear on the surface."

Still, creating a floating island of foreign tech-heads seems like a radical solution. Why not just try to change U.S. law? Marty says there are some groups trying to do that but the proposed legislation

seems to be stuck in Congress and lacking support. "And I frankly think it doesn't go far enough. We need to be trying multiple different tracks."

I asked him if there wasn't something absurd about Blueseed — the idea of floating human beings outside an arbitrary line in the ocean because of some regulation that would appear to hobble the growth of a vital industry. It seems like something out of science fiction. Does it mean America has become dystopian? His answer was careful. "I wouldn't say the U.S. is a dystopian society so much as a place that has strayed from the idea of what it is supposed to be." Marty reminds me Blueseed will be off the coast of California, not South Korea or Singapore or Tokyo, but a fast ferry ride from Silicon Valley. It's because that's where his future clients will want to be. "Silicon Valley is still a beacon," he says.

[back](#)

7. Community Affairs

By Brian Robilliard

Shawnigan Lake School Observatory Project

Bryon Thompson and I attended a meeting of the Shawnigan Lake School parents association on March 1st.

Steve Houser showed photos of the observatory and the move from King Island to Shawnigan Lake School. I spoke to the group about the equipment and the possible partnership benefits of the CVFS. Bryon spoke about the educational value and interdisciplinary ties that astronomy has. At the end of the talk we stepped outside to a semi clear night and Bryon used his green laser pointer to give a short tour of the sky with Venus, Jupiter and the moon showing.

Steve has since conveyed to me that the Parents association found the take fascinating and are receptive to the idea.

I believe it is another good step in the right direction.

Cowichan Estuary Nature Centre (call for optical technicians)

Editor: This was sent to our president on March 6th.

Dear Cowichan Starfinders,

You are probably aware of the Cowichan Estuary Nature Centre that is under construction at Hecate Park in Cowichan Bay. You can get some background information at <http://cowichanestuary.wordpress.com>. This is a non-profit facility being developed by the Cowichan Land Trust. Volunteers are working at a feverish pace to create displays, acquire equipment, and develop programs for the Centre.

I am writing to the Star Finders with a very special request. We are looking for a few volunteers with skills and interests related to optical instruments.

Dr. Bill Austin has donated several excellent dissecting microscopes to the new Cowichan Estuary Nature Centre. Due to years of use and exposure to salt water, they are in need of cleaning and lubrication, some minor repairs and alignments, and replacement of the lights (which get too hot) with LEDs or mirrors.

I'm asking you to circulate this request to your members or to anyone else who might be interested. This is a chance to make a real contribution to local science and nature education. For more information or to volunteer, contact me at info@naturecowichan.net or 250-746-6141.

Thanks, John Scull

[back](#)

8. Kids Korner

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

Origami Petals (Eight Point Stars)

Courtesy of DLTK's Crafts for Kids

Materials:

Scotch tape or glue

Square of paper - make a rectangle of paper (typical 8.5x11 sheet) into a square

Mountain fold the top corner of paper over.



Cut off the small rectangle below the triangle you just formed.

Unfold and now you have a square (with a crease).



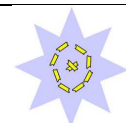
NOTE: origami paper typically comes with each side a different color -- this is perfect for this project!! You can find double sided origami paper at your local craft store or Amazon.com -- it is inexpensive.

Instructions:

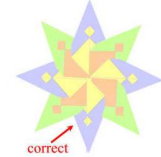
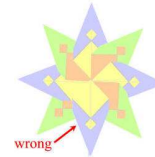
Valley fold paper from edge to edge , making a rectangle. Crease well and then unfold fold edge to edge	
Valley fold the triangle from the other edge to edge, crease and unfold. You'll now have a square with a creased plus sign splitting it into 4 quarters. fold edge to edge	
Valley fold paper from corner to corner , making a triangle. Crease well and then unfold.	
and you end up with a square of paper with creases like this.	
Rotate your paper so one of the creased points is facing you. Valley fold the left hand point to the center of the paper (where the creases cross) Crease well!!	
Valley fold the right hand point to the center of the paper (where the creases cross) Crease well!!	
Valley fold bottom left side point to touch the center crease Crease well	
Valley fold bottom right side point to touch the center crease Crease well!!	

And you have a petal! You can see that if you're using double sided paper, you get a pattern with the two colours.

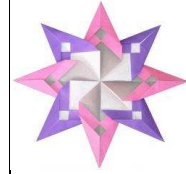
Make 7 more petals.
Flip all of your petals over so that you're looking at the back of them
Use scotch tape or glue to attach the petals together to make an 8 point star.



Slip the last petal under the first when assembling. This sentence will make more sense when your project is sitting face up in front of you. to edge



Use two different colors of origami paper and alternate the petals to make an even fancier star.



[back](#)

9. The Sky This Month

By oneminuteastronomer.com

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

It's as good as it gets for casual stargazers. All five bright planets are visible early this month, as are nearly a dozen of the brightest stars in the constellations Orion, Taurus, Canis Major, and Centaurus. The best views occur just after sunset and through the early evening hours, so you need not lose any sleep. Just wander out and enjoy the show. Here's what to see in the night sky this month...

3 Mar. The planet Mars reaches opposition today (directly opposite the Sun) and rises at sunset. The next few weeks are the best time for observing the planet until 2014. On March 5, Mars comes within 63 million miles from Earth, much further than the fine opposition of 2003, when the planet came within 35 million miles. Still, Mars is worth inspecting with a telescope, especially at its highest point in the sky around midnight. The disk of Mars is a modest 14" across. You can find the bright red-orange planet in the constellation Leo. At magnitude -1.2, it's the brightest object in the eastern sky this month.

4 Mar. Mercury reaches its greatest eastern elongation from the Sun. Today, the small planet lies about 18 degrees east of the Sun and remains in the western sky until after dark this week. It shines just a little brighter than magnitude 0.0. Mercury fades quickly and moves back towards the Sun over the last two weeks of March.

7 Mar. The nearly-full Moon hangs close to Mars and Regulus, the brightest star in Leo.

8 Mar. Full Moon (9:39 Universal Coordinated Time)

10 Mar. The waning gibbous Moon makes a triangle with the bright star Spica and planet Saturn. Look for the grouping in the eastern sky after 11 p.m. Spica is brilliant white, while Saturn is sand-colored and shines with a steadier light. The ringed planet rises four hours after sunset on March 1, and just one hour after sunset on March 30. The planet puts on its best show next month.

11 Mar. Daylight Savings Time begins in most parts of North America.

12 Mar. You've been watching bright Jupiter (mag -2.2) and brighter Venus (mag -4.3) move closer over the past few months, and today and tomorrow they finally pass each other. At their closest, they're separated by just 3 degrees. For the rest of the month, they move apart again as Jupiter apparently moves closer to the Sun.

15 Mar. Last Quarter Moon (1:25 UTC)

20 Mar. Finally! Spring begins in the northern hemisphere (and autumn in the south) at 5:14 UTC as the Sun crosses the celestial equator moving north.

22 Mar. New Moon (2:37 GMT)

23 Mar. From North America, look for a very slender day-old Moon in the western sky about a half an

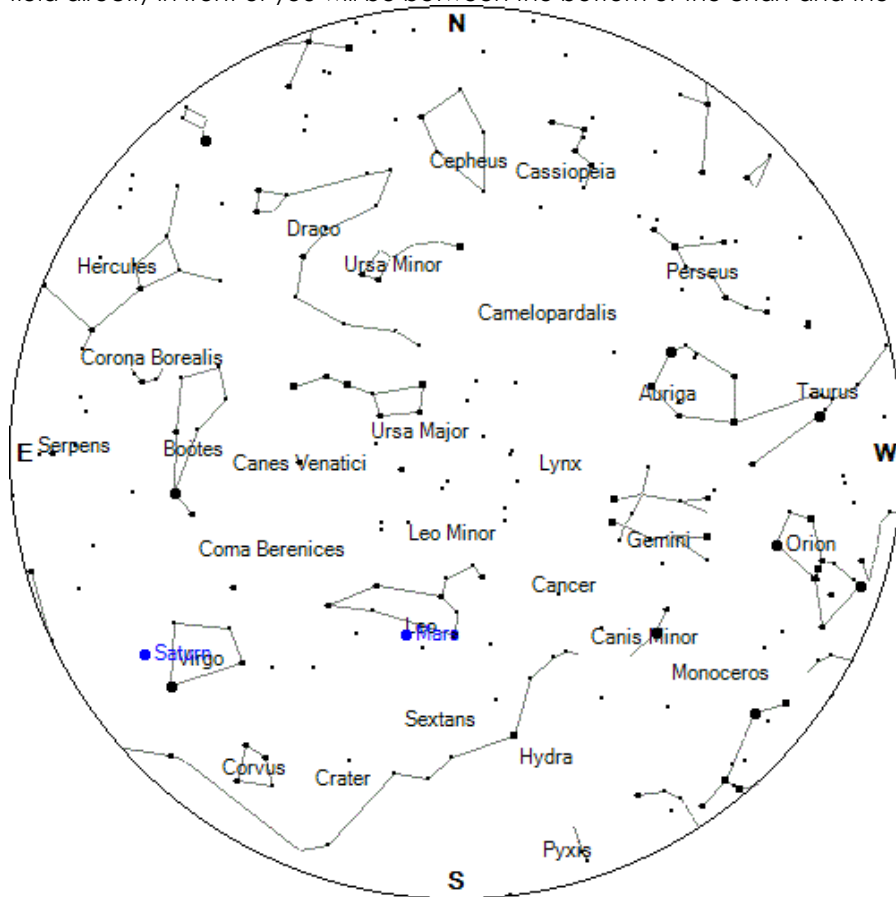
hour after sunset. Binoculars will help.

25 Mar. Daylight Savings Time begins in the United Kingdom.

25 Mar. As occurred in the past two months, the waxing crescent Moon passes Jupiter (Mar. 25), Venus (Mar. 26), and the bright orange star Aldebaran (Mar. 27)

30 Mar. First Quarter Moon (7:41 GMT)

Sky Chart —Here's your mid-March 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](#)