The Astronews

HUI KILOLANI

Volume 59, Issue 11

November 2011

www.hawastsoc.org

## ☆ Upcoming Star Parties ☆

| | |
|---|---|
| **Kahala/Ewa Party** | **Nov 5** |
| **CLUB Party-Dillingham** | **Nov 19** |
| **Public Party-Dillingham** | **Nov 26** |

## Inside this issue:



## Up To The Minute:

### Gemini Observatory Celebrates 1000th Paper

At 1000 scientific papers strong, Gemini is celebrating its amazing contribution to astronomy by weekly postings of the top science results and stunning images to Facebook through the end of the year. Become a Facebook friend of Gemini and follow posts from the twin 8-meter telescopes that are featured each week in "Discovery Flashbacks."

A recent discovery of unidentified material between stars in the center of our galaxy is the "tip of an iceberg" according to Gemini Observatory's director Dr. Fred Chaffee. This latest result, the 1000th paper based on Gemini data, is, according to Chaffee, typical of the new and exciting ways users and staff are finding to explore the universe with the Gemini telescopes. "Findings like this inspire us and we look forward to the next 1000 papers to come."

Gemini astronomer Tom Geballe led the 1,000th paper's research team, which reports the discovery

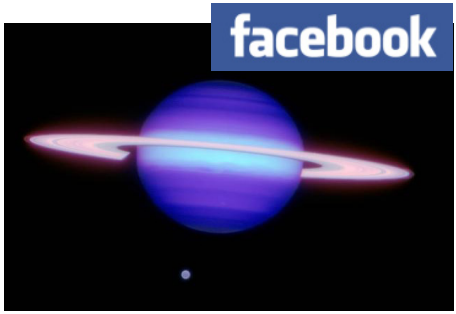
*(Continued on page 2)*

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., Nov.1** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Nov 4 & 18** at 8:00 p.m.
www.bishopmuseum.org/calendar

☆The next Board Meeting is Sun., **Oct 30** at 3:30 p.m. at the POST building at UH.




*(Gemini on Facebook continued from page 1)*

of thirteen new members of what are called Diffuse Interstellar Bands (DIBs). The new bands were found while observing stars near the center of our galaxy and are the first DIBs detected in that direction. They are also the longest wavelength DIBs ever discovered. DIBs are formed by the absorption of light by molecules in interstellar space lying between a distant light source and us. However, the identification of the material or materials causing the absorption has stumped scientists since the first examples were reported some 90 years ago.

"We believe that the new absorptions actually occur in the Galactic center," said Geballe. "Our accidental discovery of them is significant because of the long wavelengths of these DIBs and because we now know that the molecules producing DIBs can exist in a much harsher environment than where they have been previously found," he added.

To become a Facebook friend of Gemini go to : https://www.facebook.com/pages/Gemini-Observatory/62036634676 . A complete listing of the most significant findings from Gemini can be found at: www.gemini.edu/archive .

Gemini is grateful to the users of Gemini for finding innovative and exciting ways to explore the universe with the twin Gemini 8-meter telescopes. The staff of the observatory is looking forward to the next 1000 papers.

This article published courtesy of Gemini Oberservatory, Peter Michaud, Public Information and Outreach Manager.

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The Astronews is a monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via email. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

## President's Message

by Chris Peterson

I have this crazy idea. Of course, when you're talking about cosmology, all the ideas seem to sound crazy, so maybe mine's not so wild. The current consensus among cosmologists is that there was a period of cosmic inflation that increased the size of the universe by a factor of 1078 in volume in a period of about 10-36 second.

This helps to explain the evenness of the cosmic microwave background radiation, among other things. Since then the universe has continued to expand. Gravity acts to slow down the expansion, but a mysterious force called dark energy, thought to be everywhere, is acting to accelerate the expansion.

My idea is a different way of looking at these two types of expansion. What if matter is actually getting smaller? What if protons started out the size of stars and have been shrinking ever since (along with their smaller components)?

Imagine a marshmallow in a bell jar. If you seal the jar and pump out some of the air, the marshmallow expands because it is filled with bubbles of air. When the air pressure has equalized, expansion stops. Now break the seal on the jar. What happens?

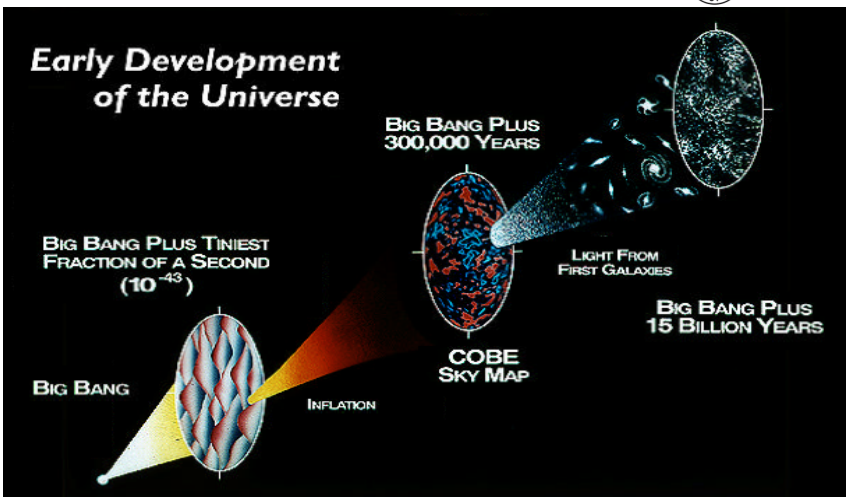
The marshmallow quickly deflates. After a short time, the deflation slows as the solid part of the marshmallow resists the pressure for a while. Now imagine that the bell jar is in space (away from a big gravity filed like Earth's) and is filled with puffed up marshmallows. As the marshmallows deflate, they become further and further separated.

So imagine a big universe, emerging from the cosmic foam, completely filled with giant particles. The bubble bursts, and matter rapidly shrinks. From inside that universe, the effect would look like inflation. Particles would get further and further apart.

Our measuring sticks would be shrinking just as fast, so we wouldn't be able to tell we were shrinking. At the end of "inflation," the shrinking could slow just as in the marshmallow case. This slower shrinking would look like the effects of dark energy.

This may be disprovable. I don't know. At the least, it's an interesting way to look at these phenomena and a way to get an intuitive grasp of them. What crazy ideas do you have?

*Chris*




*(Courtesy NASA/Goddard Space Flight Center)*

NASA's Space Place

# The Gray Cubicle You Want to Work In

by Dr. Tony Phillips

It's another day at the office.

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

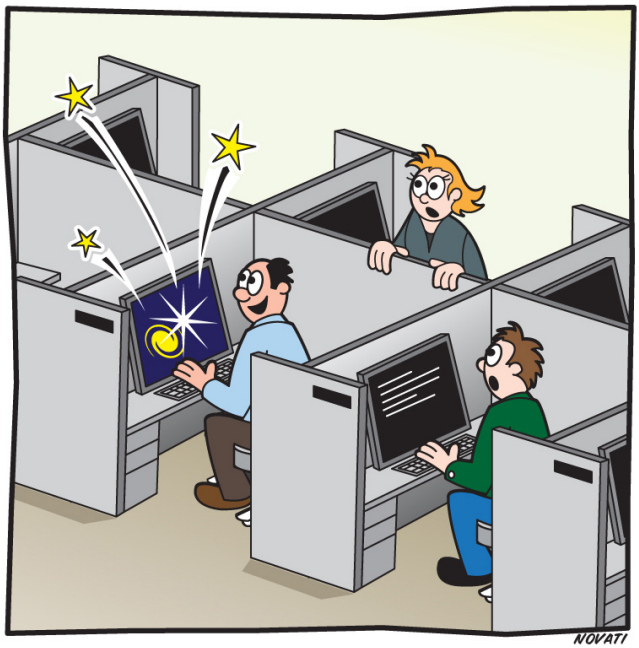
Over the top of the carpeted divider you see a star exploding on the computer screen. An unauthorized video game? No, this explosion is real. A massive star just went supernova in the Whirlpool Galaxy, and the first images from Hubble are popping up on your office-mate's screen.

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

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

These are just a few of the things going on every day at NASA headquarters in

*(Continued on page 9)*




*When you work for NASA's Science Mission Directorate, even cubicle life can be full of surprises Credit: NASA*

A few of us braved the rain and clouds on Friday evening/Saturday morning (10/21-22) to observe the Orionids. With low expectations (often the best way to be surprised) we set out for central Oahu.

Gradually the night began to improve as the radiant rose higher in the sky and the air mass over us cooled. It was a pleasure to see the sky improve and even better when the meteor count began to rise. Not a big shower, but still a nice show with a count of 22 at the time that I had to depart (I couldn't pull an all nighter because of the UH SOEST Open House in the morning).

Alas, good things come to the patient ones – my fellow observers stayed until the end and raised the count to 48! The meteors were interesting in that they had a bright head and fainter tail, as opposed to just a streak of uniform light. Nice – put this shower on your list for next year!

In November, the Leonids (LEO) is the most prominent shower. With a peak on November 18 near the last quarter moon, this shower will be challenging to observe. The most recent perihelion passage of the Leonids' parent comet, 55P/Tempel-Tuttle, in 1998 may be more than a decade ago now, but the shower's activity has continued to be fascinatingly variable from year to year recently according to regular observers.

| *First Quarter* | *Full Moon* | *Last Quarter* | *New Moon* |
|---|---|---|---|
| **Nov. 2** | **Nov. 10** | **Nov. 18** | **Nov. 25** |

| Shower | Activity | Max Date | $\lambda_{2000}$ | Radiant $\alpha$ | Radiant $\delta$ | $V_\infty$ km/s | *r* | ZHR |
|---|---|---|---|---|---|---|---|---|
| Northern Taurids (NTA) | 10/20-12/10 | Nov 12 | 230° | 58° | +22° | 29 | 2.3 | 5 |
| Leonids (LEO) | 11/06-11/30 | Nov 18 | 235.27° | 152° | +22° | 71 | 2.5 | 20+* |
| α-Monocerotids (AMO) | 11/15-11/25 | Nov 22 | 239.32° | 117° | +01° | 65 | 2.4 | Var |

* May have additional peak times

For more information on observing meteors, please contact ***Tom Giguere,*** 808-782-1408, Thomas.giguere@yahoo.com or ***Mike Morrow***, PO Box 6692, Ocean View, HI 96737.

## Planets Close To the Moon

Times are Hawaii Standard Time

**Nov 3, 17h, M 5.6º NNW of Neptune**
(106º from sun in evening sky)

**Nov 6, 08h, M 5.8º NNW of Uranus**
(137º from sun in evening sky)

**Nov 9, 07h, M 4.9º N of Jupiter**
(167º from sun in morning sky)

**Nov 18, 18h, M 7.2º SSW of Mars**
(83º from sun in morning sky)

**Nov 22, 10h, M 6.3º SSW of Saturn**
(34º from sun in morning sky)

**Nov 25, 23h, M 1.9º NNW of Mercury**
(15º from sun in evening sky)

**Nov 26, 17h, M 2.9º NNW of Venus**
(25º from sun in evening sky)

## Other Events of Interest

Times are Hawaii Standard Time

**Nov 1, 13h, Mercury 2.0º SSW of Venus**
(20º from sun in evening sky)

**Nov 6, Daylight Savings Time changes to Standard Time on the mainland**

**Nov 10, 10:17h, Moon Full**

**Nov 12, 22h, Mercury 2.0º SSW of Venus**
(23º from sun in evening sky)

**Nov 13, 22h, Mercury at greatest elongation**
(23º east of the sun in evening sky)

**Nov 16 Leonid meteors**
(Unfavorable year for this major shower)

**Nov 24, 20:10, Moon New**

**Nov 27, 07h, Asteroid 15 Eunomia at opposition**

### ☿ Mercury

Mercury is low in the west after sunset during the first 3 weeks of November - near Venus.

### ♀ Venus

Venus shines brightly low in the west after sunset.

### ♂ Mars

Rises about midnight. Look for it near Regulus in the morning of Nov11. Brightens from mag 1.1 to 0.7 this month..

### ♃ Jupiter

Reaches opposition late last month. It appears large and bright and is in the sky almost all night.

### ♄ Saturn

Saturn is visible low in the eastern sky before sunrise.

### ♅ Uranus

Visible most of the night in the evening sky.

### ♆ Neptune

Neptune is well-placed for viewing in the late evening sky, west of Uranus.

### ♇ Dwarf Planet Pluto

Low in the southwestern sky during the early evening hours.

### Asteroid Eunomia

Reaches opposition on November 27 at about magnitude 7.9.

## The Somber Autumn Skies

by Barry Peckham

For us skywatchers, mid-autumn is a calming period between the extremes of bright Summer Milky Way and bright Winter stars. The great globulars and nebulae of the past season are dropping into the sunset. Unless you are aiming at top 10 targets, telescopic objects are declining. Many star gazers are content to wait for the bright beauties of winter, yet the autumn sky is far from empty. Gazing near the southern constellation of Sculptor, we look out the "bottom" (south galactic pole) of our own galaxy, and this gives us a clearer view of our extra-galactic neighbors. So whereas summer is introspective; looking within our own dazzling galaxy, autumn is extrospective; looking beyond the disk of our star-city.

We wave goodbye to Cygnus through December, but having been spoiled by this celestial swan at the zenith, we pay it little heed in November. Cassiopeia, Hawaii's frigate bird, soars higher in autumn and shows off its multitude of clusters. I've invested many a fine fall evening in the Iwa's hale, high above the dark North Pacific. Preceding his wife to the meridian, King Cepheus looks best in autumn months, and features a swath of the Milky Way, plus clusters, galaxies and doubles. Aim for the middle of Cepheus' upside down house to find "Stephanie's Double", honoring our former club president. It is visible to the unaided eye, but is as tight as it is bright in the eyepiece.

Up into the Northeast climbs monster-killer Perseus with his goul star Algol, while nearby the Pleiades arise, carrying ancient associations of foreboding, including fleeing flocks of birds and the killing frosts that ravage mainland crops. It's all about the glitter for us in Hawaii, and don't forget to tell your friends that nothing in the sky looks better than the Pleiades in well-focused binoculars. Nothing! Then teach them how to focus their binoculars. They have no idea!

The Great Square holds a hollowness, like a picture frame from which the picture has been robbed. The large and ghostly "Jones 1" planetary nebula just north of this frame challenges our club's largest aperture. Stephen's Quintet of faint galaxies stumps many who hunt near Pegasus' front legs. The relative emptiness of autumn's star fields will encourage many of us to search for deeper secrets, like the Blue Snowball nebula, or my favorite galaxy NGC 891, both in Andromeda.

Waxing brighter, we can ponder the mottled structure of the Silver Dollar Galaxy (NGC 253) in Sculptor or gaze along the length of Andromeda's great glowing galaxy in a dark sky, knowing that this sister is our fraternal twin. The Hyades Cluster creates a bull's head for us and sparkles in binoculars. Every autumn begins the season of Messier's most glaring omission: The Double Cluster, but this autumn has an extra helping of glare… because Jupiter's back, baby! Venus too!

*Barry*

## Meeting Minutes

by Gretchen West

***President Chris Peterson*** called the October 4, 2011 meeting of the Hawaiian Astronomical Society to order at 7:35 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were 23 members and one visitor in attendance.

**Speaker:** Jim Crisafulli from DBEDT Office of Aerospace Science spoke on the proposed International Lunar Research Park, planned for development with the State of Hawaii. Mr. Crisafulli spoke about the framework for an enterprise for research, education and exploration on the Moon and in space. International participants would

*(Continued on page 11)*

## < October 2011 >

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| 25 | 26 | 27 | 28 | 29 | 30 | 1<br>5:45 PM Public Star Party(D)<br>Sunset: 6:21 PM |
| 2 | 3 | 4<br>7:30 PM Club Meeting | 5 | 6 | 7 | 8<br>6:00 PM Public Star Party(K)<br>6:00 PM Public Star Party(G)<br>Sunset: 6:14 PM |
| 9 | 10<br>Columbus Day | 11 | 12 | 13 | 14 | 15<br>Sunset: 6:08 PM |
| 16 | 17 | 18 | 19 | 20 | 21 | 22<br>5:45 PM Club Star Party (D)<br>Sunset: 6:03 PM |
| 23 | 24 | 25 | 26 | 27 | 28 | 29<br>5:30 PM Public Star Party(D)<br>7:45 AM Lacey Veach Day of Discov<br>Sunset: 5:59 PM |
| 30 | 31 | 1 | 2 | 3 | 4 | 5 |

# Night Sky Network

**Astronomy Clubs bringing the wonders of the universe to the public**

Telecon with Brian Day on the LADEE Mission will take place on Thursday, November 17th, 2011 at 4:00 pm (Note change in time due to ending of DST in the mainland). Details can be found on the Night Sky Network (NSN) on the clubs calendar for the month. Just click on the "Telecon" for date and you will be taken to a page that will show additional information, sign on procedures, and link to the power point slides.

You must be a member of the NSN to see this information. For additional info contact John Gallagher, NSN Coordinator at 683-0118 (leave message).

Clear Nights, *John G.*

*(Space Place continued from page 4)*
Washington DC and more than a dozen other NASA centers scattered around the country. The variety of NASA research and, moreover, the variety of NASA people required to carry it out often comes as a surprise. Consider the following:

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

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

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

## NIGHT SKY NETWORK NEWS

### Have you heard of 365 Days of Astronomy Podcasts?

The 365 Days of Astronomy Podcast is a project that will publish one podcast per day, 5 to 10 minutes in duration, for all 365 days of 2009, 2010 and now 2011. The project was started as part of the International Year of Astronomy 2009.

The podcasts are available through an RSS feed and on this website:
***http://365daysofastronomy.org***

Podcast episodes will be written, recorded and produced by people around the world. Although all the episodes will have a common intro and "outtro" that ties into the overall theme, each episode will be completely different.

When you go to the URL you will see a "download" link but it shows "0" data. Click on the "download" which is highlighted and wait till the podcasts comes up on your computer (you don't actually download the Podcast). On my computer the program QuickTime had to load first. If you check the "Archives" at the top of the page you will see a list of dates going back to 2008 and the number of Podcast for each month to date. Clicking on the month will give you the subject material for each Podcast which you can listen.

Clear Nights, *John G.*

## Treasurer's Report

by Jim MacDonald

**HAS Financial Report for the month ending as of June 15, 2011**

| | |
|---|---|
| **Initial Balance:** | **$4,344.53** |
| | |
| *Receipts:* | |
| Donations | 52.00 |
| Dues Received | 280.00 |
| Magazine Payments | 34.00 |
| Calendars | 130.00 |
| **Total Income:** | **$496.00** |
| | |
| *Expenses:* | |
| Magazine Subscription | 68.00 |
| Liability Insurance | 320.00 |
| Mauna Kea funds to Donation | 60.00 |
| Astronews | 267.77 |
| **Total Expenses:** | **$717.77** |
| | |
| **Final Balance** | **$4,122.76** |

The club gained seven new members during this two month period. They are ***Andrew Leskowitz, William Nixon, James Bell, Peter and Ben Faso, and Emma and Joseph Tibay.*** Thanks to ***Matthew Cochran, William Nixon, Gary Ward, Elton Chambers, William Mann and Emma Tiba***y for their donations.

Thank you also to all those who renewed their membership. Come join under our darkening skies for some unforgettable views.

## ☆ ☆ Upcoming School Star Parties ☆ ☆

| | | |
|---|---|---|
| Fri. | **11/4** | Pearl City Highlands Elementary |
| | | |
| | | **2012** |
| Fri. | **1/27/12** | Waikiki Elementary |
| Fri. | **3/30/12** | Hokulani Elementary |
| Thurs. | **4/26/12** | Ala Wai Elementary |

*(Minutes continued from page 7)*

create platforms for space observation by utilizing materials on the lunar surface. There would be terrestrial prototypes developed in Hawaii for these enterprises. There are a multitude of benefits for this type of industry in Hawaii that would impact our state. Mr. Crisafulli took questions from the floor. There were inquiries about public input and how the group will work to engage public interest. As Mr. Crisafulli is also a contributing member of the Star Light Reserve Committee, Barry Peckham brought up H.A.S. concerns regarding the concerns for a true star light reserve here on the island of O`ahu. Discussion followed.

**Associated Lectures:** The next free Hawaii Space Lecture Series has not been scheduled yet. Chris Peterson explained that SOEST Open House activities would take place on University of Hawaii, Manoa, Oct. 21and 22 . Chris suggested that anyone interested should come on Saturday as the Friday Open House is usually inundated by hundreds of school tours. Contact NASA PRPDC at 808-956-3132 or on the Web go to http://www.higp.hawaii.edu/prpdc for more information.

**Observe the Moon:** International Observe the Moon night will take place on Oct. 8, 2011. We urge members to celebrate this evening with us at Geiger Park in Leeward O`ahu or at Kahala Community Park in West O`ahu.

**Star Light Reserve Committee:** ***Chris Peterson*** attended the last Star Light Reserve Committee meeting. He reports that the committee will work to draft legislation for state to lead the way through lighting of state highways and state buildings. He indicated that the committee hopes to have the state work to restrict state lighting and make it more efficient.

**Astronaut Lacy Veach Day of Discovery:** The club will participate in the next Lacy Veach Day of Discovery event at Punahou School on Saturday, Oct. 29. This day of science and discovery for students, parents and teachers celebrates the life of the late U.S. Astronaut Lacy Veach. ***Gretchen West*** is coordinating the club's exhibit and asked for members to sign up to help man the table at this year's event. If anyone is interested in manning the table for a two-hour time period, please contact ***Gretchen***.

**Dillingham Airfield:** The Hawaii Dept. of Transportation has restricted H.A.S. use of the gate during Public and Club star parties. We will still coordinate gate movement with the Airport Security Officer. The gate will be closed and locked by sundown. The ASTRONEWS will carry information for the public regarding our access into and out of the airfield. ***Chris Peterson*** urges all members to adhere to the rules for the use of the area.

**School Star Parties**: We had two school star party scheduled during September:

Sept. 23 – Niu Valley Middle School & King Intermediate (Kaneohe)

If you are interested in participating in star parties, contact ***John Gallagher***.

**Christmas Already?**: Treasurer ***Jim MacDonald*** informed the members that Astronomy magazine has again offered their 2012 calendar to our club at a 50% discount of $6.50. If interested contact Jim.

**Observers Log:** ***Steve Chun*** presented views of the M101 supernova. Steve had previously imaged the field last year and with his new image, provided a great contrast of the supernova. Nicely done, Steve!

As there was no further business, the meeting was adjourned at 9:07 p.m. Light refreshments were served.

Respectfully Submitted,

*Gretchen West*
Secretary

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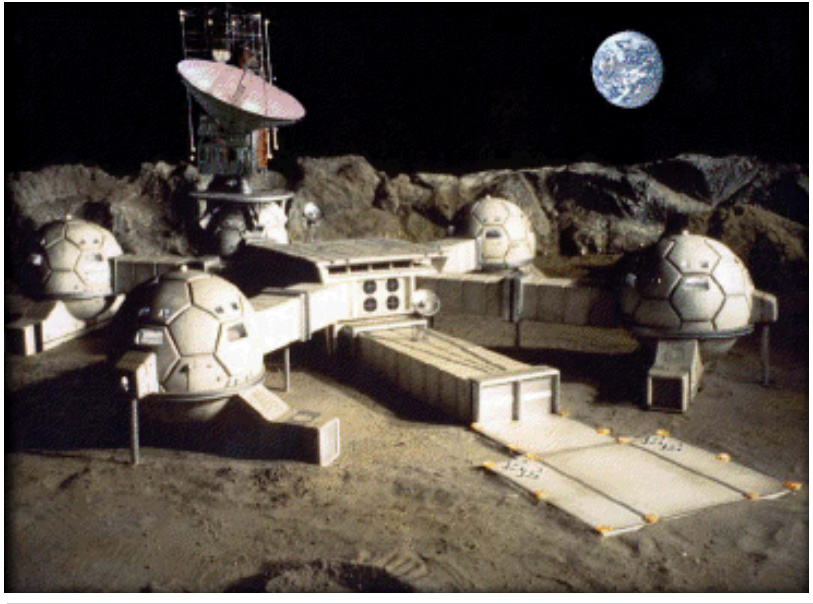

The State of Hawaii is exploring a novel strategy for advancing space exploration and development through an International Lunar Research Park (ILRP) – initially prototyped through terrestrial analog facilities in Hawai'i, and subsequently deployed robotically on the Moon (with eventual human habitation). Image based on Jim Crisafulli's talk at HAS last month. *Art credit: NASA/2011 ILRP*