

Galaxies, far, far away

Charles Rykken

At last month's meeting Brent Tully (<http://www.ifa.hawaii.edu/~tully/>) spoke about galaxies in our "near" vicinity. His talk was titled: "The Laniakea Supercluster of Galaxies". During he showed some spectacular 3D animated views of galaxies.. I was delighted that software existed to go where quite a few astronomy buffs have gone before with the Digital Universe software at Hayden Planetarium(<http://www.amnh.org/our-research/hayden-planetarium/digital-universe/>) What Prof Tully used was software called Partiview. Naturally I had to know if

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Year End Potluck!!



On Tuesday December 2.

Arrive at 6:00 PM before club meeting at

7:30PM.Location:

Bishop Museum Hall of

Discovery (right outside

entrance to Planetarium lobby doors) Come early and get to know your fellow members.

Upcoming Events:

- The next meeting is on Tuesday, Nov..7th at the Bishop Museum. See left for details on potluck!
- Bishop Museum's planetarium shows are every Saturday of the month at 8:00 PM www.bishopmuseum.org/calendar
- The next Board meeting is Sun., Nov 30 at 3:30 PM in POST building at UH.

President's Message

December 2014

The European Space Agency's Rosetta spacecraft has been in orbit around Comet 67P Churyumov-Gerasimenko, or "C-G" for short, for some time now, but recently it scored a qualified success with its attempt to place the Philae lander that it carried from Earth onto the surface of C-G. Philae had three systems designed to help it land and remain securely in place at the desired location on C-G. None of them worked as planned. A "cold gas thruster" was supposed to provide a downward thrust to prevent Philae from bouncing as it landed and fired harpoons into the surface. Mission controllers discovered before Philae separated from Rosetta that they could not activate this "active descent system" and would need to rely on the harpoons to secure Philae.

Unfortunately, the harpoons never fired. I don't think the reason is yet known. Consequently, Philae bounced twice before it came to rest on its third contact with the surface. The first bounce in C-G's weak gravity field kept Philae off the surface for nearly two hours; the second hop lasted about 7 minutes. Little has been said about the screws in the lander's feet, but it appears that they didn't deploy either.

It is believed that Philae ended up in the shadow of a cliff about 1 km from its intended landing spot and is receiving far less sunlight than was planned for. Its battery was designed to operate for 64 hours before needing to be recharged by solar cells. Sunlight in its present location is insufficient to produce enough charge to continue communicating. However, there is still hope that as the comet nears its August 13, 2015 perihelion the increasing

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Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, Hawaii 96817

President

Chris Peterson

956-3131

chrisp@higp.hawaii.edu

Vice President

Peter Besenbruch

peter@besenbruch.info

Secretary

Gretchen West

282-1892

gwest002@hawaii.rr.com

Treasurer

April Lew

734-2705

stardustlounge@hotmail.com

Board Members-at-Large

Otis A. Wikman

otisann49@gmail.com

Andy Strobe

The **Astronews Editor**

Charles Rykken

astronewseditor@gmail.com

HAS Webmasters

Peter Besenbruch

peter@besenbruch.info

Harry Zisko

harryz@pobox.com

School Star Party Coordinator

John Gallagher

gallaghej002@hawaii.rr.com

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Planets Close To the Moon
Times are Hawaii Standard Time

- Dec 1, 14h, M 1.2° NNW of Uranus
(123° from sun in evening sky)
- Dec 11, 15h, M 4.9 SSW of Jupiter
(143° from sun in morning sky)
- Dec 19, 11h, M 1.5° N of Saturn
(28° from sun in morning sky)Dec 24,
19h, M 5.5° NNW of Mars
(42° from sun in evening sky)
- Dec 26, 03h, M 4.0° NNW of Neptune
(61° from sun in evening sky)
- Dec 28, 19h, M 1.3° NNW of Uranus
(94° from sun in evening sky)

Venus and Mercury are closer that 15° from the sun when near the moon in October

Other Events of Interest
Times are Hawaii Standard Time

- Dec 6, 02:26h, Full Moon
- Dec 8, 0h Mercury at superior conj with sun
(Passes into evening sky)
- Dec 13, Geminid meteors
- Dec 21, 13:03h, Winter Solstice
- Dec 21, 15:35h New Moon

Planets in October

<p>Mercury</p> <p>♂</p> <p>Passes behind the sun on Dec 8 at end of month appears in western sky below Venus at twilight.</p>	<p>Venus</p> <p>♀</p> <p>Begins to be visible in the evening sky just after sunset by the end of the month</p>	<p>Mars</p> <p>♂</p> <p>Is visible low in the SW evening sky in Capricorn and set a little over 3 hours after rhe sun</p>
<p>Jupiter</p> <p>♃</p> <p>rises before midnight and is visible in the early morning hours.</p>	<p>Saturn</p> <p>♄</p> <p>Emerges from the sun’s glare and is visible in the predawn sky late in the month</p>	<p>Uranus</p> <p>♅</p> <p>reached opposition on October 7, so is still visible in the evening.</p>
<p>Neptune</p> <p>♆</p> <p>Is below Uranus and can be viewed sky in the early evening hours.</p>		<p>Pluto</p> <p>(Dwarf Planet)</p> <p>♇</p> <p>Is too close to the sun to view in December.</p>

Meeting Minutes

H.A.S. Secretary

The meeting minutes will be combined with the next months issue of Astronews.

Respectfully Submitted,

Gretchen West
H.A.S. Secretary

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this galaxy observation platform was available to the general public and was delighted to find that it was. You can get access to it yourself at <http://www.amnh.org/our-research/hayden-planetarium/digital-universe/download/partiview-license> .It turns out that the Digital Universe is combined with Partiview. The file is 170MB, so if you don't have broadband the wait may be long.

I have been accused of being a computer geek which is partly true,. But when it comes to making things work on a computer, I am not all that hot. Since I was a bit challenged to make Partiview work, I thought it would be worthwhile to give you a step by step on installing and first use.

Since almost all of my PC experience is with MS Windows, this help file is primarily of help to people with a Windows OS. After downloading the 170MB file, put it into whatever folder you choose for its permanent residence (no green card required). Since it is a zip file it will need to be unzipped (right click on the file and choose "extract"). The next bit is a bit tricky, so you should open the adobe acrobat file(pdf) in the folder (.Digital Universe\Partiview Users Guide.pdf) where the period at the beginning is MS speak for the path for the folder you put the downloaded file into. From page 16 of the Partiview Users Guide it says : "This is accomplished using a start script that takes the form (without the square brackets): [path to partiview] [path to config file] " What this is all about is executing a program from Command Prompt. Basically this takes you back to looking at an old fashioned dos prompt window. If you don't go back that far, no worry. On older Windows OS it is on the left side of the popup when you click the "Start" button. On more recent versions of Windows OS you need to click on the "Windows Pane" on the lower left of the Desktop and go to "Windows System" at the far right and it is titled "Command Prompt".. The path to partiview you get by opening File Explorer and going to folder where you put the zipped file(You should have extracted the zip file to the same folder). Then right click at the top where your location is displayed and choose "Copy address as text" Now go start

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Hawaiian Astronomical Society

Event Calendar

<div> <div><</div> <div>December 2014</div> <div>></div> </div>						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2 7:30 PM Club Meeting	3	4	5	6
7 sunset: 17:51	8	9	10	11 Globe at Night: December	12	13 7:00 PM Geminid Meteor Shower
14 7:00 PM Geminid Meteor Shower sunset: 17:53	15	16	17	18	19	20 6:00 PM Public Star Party(D)
21 December Solstice sunset: 17:55	22 Ursids Meteor Shower	23 Ursids Meteor Shower	24	25	26	27 6:04 PM Public Star Party(G) 6:03 PM Public Star Party(K)
28 sunset: 17:59	29	30	31			

< < Upcoming Star Parties > >

Public Party-Dillingham Dec. 20 (Rykken)

Public Party Geiger Dec. 27

Public Party Khala Dec. 27

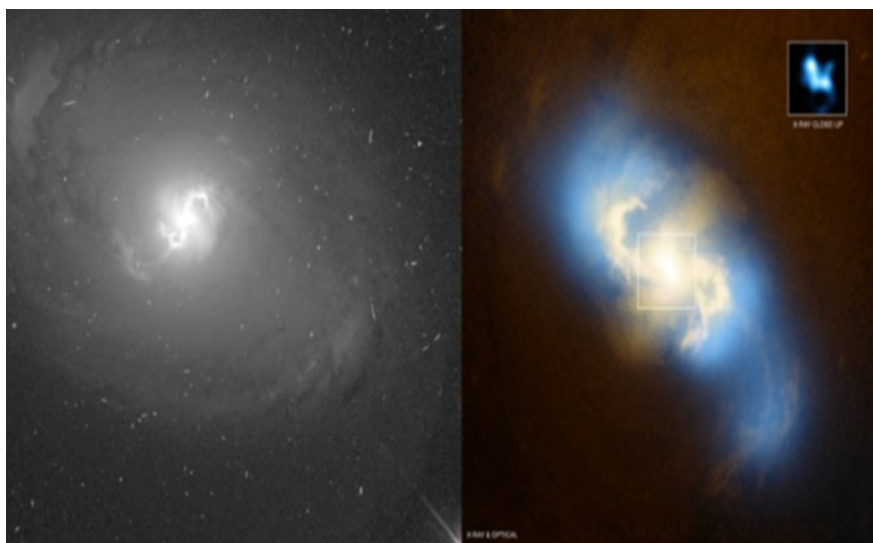
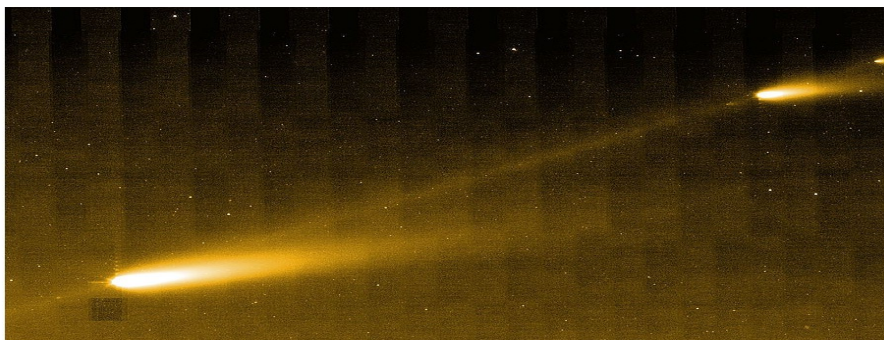
Upcoming School Star Parties		
Fri.	Jan 23, 2015	Waialua Elementary School (Waialua Area-North Shore)
Wed	March 25, 2015	Waimalu Elementary School (Aiea Area)
Fri	April 24,2015	Ala Wai Elementary School (Waikiki area)

President's Report (Continued from page 2)

intensity of sunlight will be enough, perhaps by spring, to provide sufficient power to enable further work by Philae.

During its brief period of activity on the surface, though, Philae returned useful data. It took pictures, drilled into the surface and measured the temperature, and detected organic molecules in the atmosphere. Scientists are still studying the data and hope to have more in the future. The main Rosetta spacecraft is still functioning as planned.

Chris



Where the Heavenliest of Showers Come From



You might think that, so long as Earth can successfully dodge the paths of rogue asteroids and comets that hurtle our way, it's going to be smooth, unimpeded sailing in our annual orbit around the sun. But the meteor showers that illuminate the night sky periodically throughout the year not only put on spectacular shows for us, they're direct evidence that interplanetary space isn't so empty after all!

When comets (or even asteroids) enter the inner solar system, they heat up, develop tails, and experience much larger tidal forces than they usually experience. Small pieces of the original object—often multiple kilometers in diameter—break off with each pass near the sun, continuing in an *almost* identical orbit, either slightly ahead-of-behind the object's main nucleus. While both the dust and ion tails are blown well off of the main orbit, the small pieces that break off are stretched, over time, into a diffuse ellipse following the same orbit as the comet or asteroid it arose from. And each time the Earth crosses the path of that orbit, the potential for a meteor shower is there, *even after* the parent comet or asteroid is completely gone!

This relationship was first uncovered by the British astronomer John Couch Adams, who found that the Leonid dust trail must have an orbital period of 33.25 years, and that the contemporaneously discovered comet Tempel-Tuttle shared its orbit. The most famous meteor showers in the night sky all have parent bodies identified with them, including the Lyrids (comet Thatcher), the Perseids (comet Swift-Tuttle), and what promises to be the best meteor shower of 2014: the Geminids (asteroid 3200 Phaethon). With an orbit of *only* 1.4 years, the Geminids have increased in strength since they first appeared in the mid-1800s, from only 10-to-20 meteors per hour up to *more than 100* per hour at their peak today! Your best bet to catch the most is the night of December 13th, when they ought to be at maximum, before the Moon rises at about midnight.

The cometary (or asteroidal) dust density is always greatest around the parent body itself, so whenever it enters the inner solar system and the Earth passes near to it, there's a chance for a **meteor storm**, where observers at dark sky sites might see *thousands* of meteors an hour! The Leonids are well known for this, having presented spectacular shows in 1833, 1866, 1966 and a longer-period storm in the years 1998-2002. No meteor storms are anticipated for the immediate future, but the heavenliest of showers will continue to delight skywatch-

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Pictures that accompany above article are to the left on page 6.

A small group of meteor observers set out to catch some November Leonids on 11/17/14. It was a Monday night, so difficult for some people to get away. Ort led the group and got out to Mouna farm just after dark. Chris Peterson and Polly arrived a couple of hours later, and I arrived shortly after that. I was traveling on Tuesday so couldn't stay very late. Although it was

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First Quarter

December 28

Full Moon

December 6

Last Quarter

December 14

New Moon

December 22

Shower	Activi- ty	Maximum		Radiant		V_{∞}	r	ZHR
		Date	$\lambda \square$	α	δ	km/s		
Phoenicids (PHO)	11/28 → 12/9	Dec 06	254.25°	18°	-53°	18	2.8	Var
Puppids/ Velids (PUP)	12/01→ 12/15	(Dec 07)	(255°)	123°	-45°	40	2.9	10
Monoce- ratids (MON)	11/27 → 12/17	Dec 09	257°	100°	+08°	42	3.0	2
σ - Hydrids (HYD)	12/03→ 12/15	Dec 12	260°	127°	+02°	58	3.0	3
Geminids (GEM)	12/04→ 12/17	Dec 14	262.2°	112°	+33°	35	2.6	120
Comae Bereni- cids (COM)	12/12→ 12/23	Dec 16	264°	175°	+18°	65	3.0	3
Dec Leo- nis Mi- norids (DLM)	12/05→ 02/04	Dec 19	268°	161°	+30°	64	3.0	5
Ursids (URS)	12/17→ 12/26	Dec 22	270.7°	217°	+76°	33	3.0	10

Treasurer’s Report

by April Lew

HAS Financial Report October 16, 2014 to November 15, 2014			
Beginning Balance	2,561.93		
Income:			
	Dues Received	138.00	
	Astronomy Sub order	34.00	
	Sky & Telescope sub order	65.90	
	Donations	5.00	
Total Income	242.90		
Expenses:			
	Astronews Printing and Postage November issue	124.55	
	Refreshments Nov. meeting	17.57	
Total Expenses			142.12
Ending Balance			2,662.71

Many thanks to those renewing their membership(Kimberly & Hieu Nguyen, Gina Ho, Gary M. Shimazu, Albert J. Mariani, Leighton Hasegawa, and Tim Kurashima). As a reminder, please check your membership anniversary date listed on the Astronews address label. Clear skies to all!

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the Command Prompt and type “cd \” without the quotes to get to the C prompt. It should look like C:\> . Next type “cd “ without the quotes (notice the space after the cd) then paste the partiview path copied earlier “Copy address as text” by right clicking on the little icon on the top left corner of the command prompt window. You should choose Edit -> Paste. This will paste the path into the command prompt window. Then hit enter. You should have the path displayed in Command Prompt window to Perm Res folder. Then type in partiview and a space and type in the config relative path .\data\mandata\test.cf (notice period before first

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(Meteor Log) Continued from page 8)

mostly clear, there was a stubborn cloud that obscured about a quarter of the sky in a very inconvenient location, from about 45 degrees altitude in the east to overhead. The cloud would literally form on the eastern edge then dissipate on the western edge, thus apparently never moving out of the way. We'll have to monitor this unique weather condition.

I only saw three meteors due to my short stay, but the rest of the dedicated group recorded 15 Leonids with 5 of them sporadics. The best of the bunch was a 25 degree meteor, magnitude 2, around 8pm. We discussed the sporadics count as being higher than expected for the last two outings. Speculation holds that some of these "sporadics" may actually be members of other showers that are waxing or waning. Both the Northern Taurids (Oct 20 – Dec 10) and the alpha-Monocerotids (Nov 15 – Nov 25) overlap the peak time of the Leonids (Nov 17) and may be contributing to the count. In the future, I will check for other showers to see if they are contributing.

Following the reasonably good results for the Orionids and then the Leonids, we are now looking forward to the strong Geminid shower on the evening of December 13/14.

***** Geminid Meteor Observing at Moana Farm, Saturday, Dec 13th starting at sunset *****

Finally a Saturday night, which makes it easier to stay late for those of us who aren't retired! The Geminids, with a parent of 3200 Phaethon (asteroid), puts on the best show of the year consistently. We have a last quarter moon, which will interfere around midnight, but we will still have plenty of pre-peak time to observe with the longer winter evenings.

(Continued on page 11)

Accompanying picture is to the right on page 11 —>

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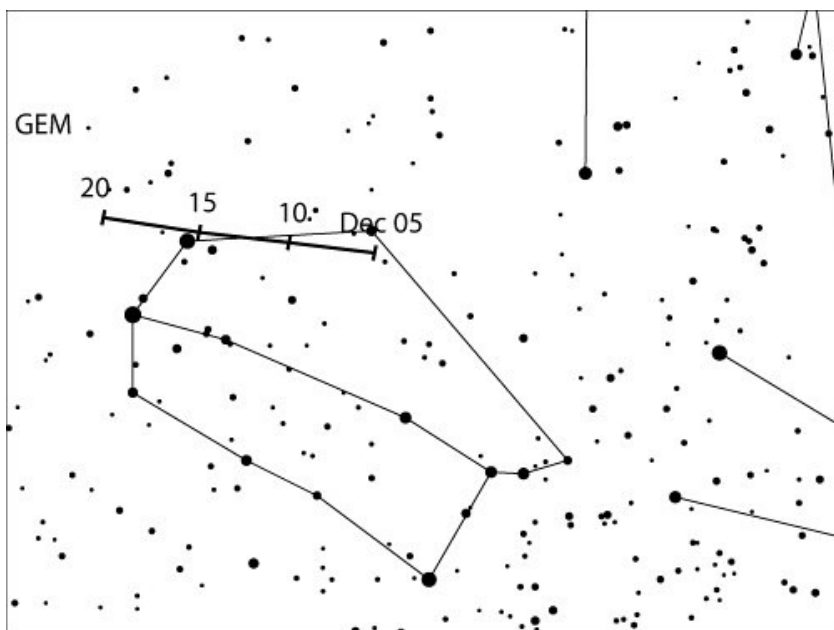
ers for all the foreseeable years to come!

What's the best way to see a meteor shower? Check out this article to find out: <http://www.nasa.gov/jpl/asteroids/best-meteor-showers>.

Kids can learn all about meteor showers at NASA's Space Place: <http://spaceplace.nasa.gov/meteor-shower>.

As for overlapping showers...there are five other showers that overlap the peak of the Geminids. Although these other showers have very low peak counts, we should still be aware and keep an eye out for some.

If you want to observe the 2014 Geminids, call/email the contact info below... For more info: Thomas Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

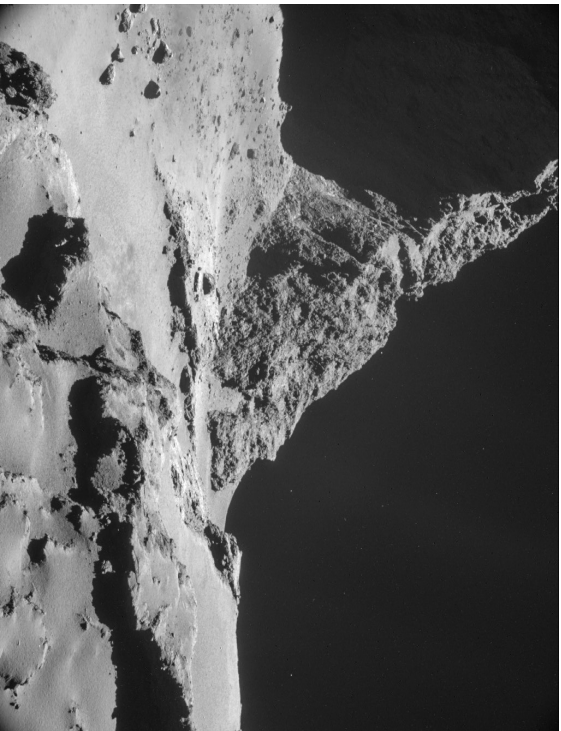


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) and finally hit enter. Voila you have a cube that you can play with. Big deal, Huh. Now the main attraction. Close partview(click red X box top right) and you are still at Perm Res folder on Command Prompt. Now type in partview .\data\extragalactic\extragalactic.cf then hit enter(don't forget the space after partview) and now you are out into intergalactic space. I think you can take it from here Have fun!

H.A.S.
P.O. Box 17671
Honolulu, HI 96817

Place cover
up this snudge
with some-
thing. A post-
age stamp is
suggested..



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