The Astronews

Volume 59, Issue 12

December 2011

www.hawastsoc.org

SPECIAL GUEST SPEAKER
December 6th Meeting:

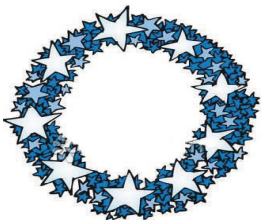
Dr. Richard Keen

University of Colorado

Dept. of Atmospheric & Oceanic Sciences

"Estimating the Brightness of the Dec. 10 Lunar Eclipse"

~meet Dr. Keen at our potluck before the meeting! (see below for details)



HOLIDAY POTLUCK

***** Come join us for a pre-holiday celebration outside the planetarium before our meeting on Dec. 6!***

*****Bring any dish or contact Carolyn at c.kaichi2001@gmail.com for specific needs. (We already have paper goods)***

*****Participation is NOT mandatory, and the meeting will begin at the usual time. But if you want to attend, party starts at 6 P.M.!***

Inside this issue:

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., Dec 6** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Dec 2 & 16** at 8:00 p.m.
www.bishopmuseum.org/calendar

☆The next Board Meeting is Sun., **Nov 27** at 3:30 p.m. at the POST building at UH.

Up To The Minute:

The good news is that we have another total lunar eclipse visible in the Pacific since 2010--the bad news: you may lose some sleep staying up for this one!

In the early morning hours on December 10 to sunrise that morning, the Moon's light will be interrupted by the Earth's shadows. Here is the information for the different phases of the eclipse from Fred Espenak's website:

(Times are in HST)

Penumbral Eclipse Begins:	1:33 AM
Partial Eclipse Begins:	2:45 AM
Total Eclipse Begins:	4:06 AM
Greatest Eclipse:	4:31 AM
Total Eclipse Ends:	4:57 AM
Partial Eclipse Ends:	6:17 AM
Penumbral Eclipse Ends:	7:30 AM

At the time of the greatest eclipse the Moon will be at zenith in the Pacific Ocean near Guam and the Northern Mariana Islands. It is difficult to predict the brightness of the Moon during a lunar eclipse (see front page about special guest speaker this month), but during this totality, the winter constellations will be well placed for viewing and a number of bright stars can be used for magnitude comparisons. Aldebaran (mv = +0.87) is 9° to the southwest of the eclipsed Moon, while Betelgeuse (mv = +0.45) is 19° to the southeast, Pollux (mv = +1.16) is 37° east, and Capella (mv = +0.08) is 24° north.

The entire event will be visible from Asia and Australia. For the mainland, the eclipse will be in progress as the Moon sets with western observers favored by a larger fraction of the eclipse before moonset. Observers throughout Europe and Africa will miss the early eclipse phases because they occur before moonrise. None of the eclipse will be able to seen from South America or Antarctica. (See illustration on eclipse on outside back cover)

Good luck!

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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

Attendance at our monthly membership meetings has been dwindling for some time now. There could be many reasons for this, and it may or may not be a problem. Our club does many things, and meeting at Bishop Museum is just one of them. We run many star parties and participate in other activities, so the club is not going away any time soon. However, the small attendance is worrisome, so I'd appreciate some feedback.

I suspect that many members would like more talks by IfA folks or others. If so, please let me know. It would also help greatly if you had a suggestion for a speaker or at least a topic.

We have a speaker for December, and we are also trying something different this month – a potluck before the meeting. (see pg. 1) We'll see how it goes. If it works well, we can do it again. Other social activities are also a possibility.

The HAS belongs to its members. Please let me, or anyone on the Board of Directors, know if you have suggestions for how to improve it. One really good contribution you could make is to run for office! Nominations will be accepted at the December meeting until just before the vote.

Have you seen Venus in the evening sky? It has appeared with Mercury recently, but by the time you read this Mercury will be out of the picture. Have you seen Venus in the daytime? This is a good time to try. If you are usually at home (or another particular spot) at sunset, find Venus shortly after the Sun goes down, then pick a couple of stationary objects to line up on Venus.

For example, you could use a point on your house and the corner of a neighboring building. The next night, you'll probably find Venus quicker using those markers. The real fun begins when you start looking earlier and a little up the ecliptic (away from the Sun). Before you know it, you'll be able to spot Venus in broad daylight!

Happy hunting.

Chris

Meeting Minutes

by Gretchen West

President Chris Peterson called the November 1, 2011 meeting of the Hawaiian Astronomical Society to order at 7:30 p.m. at the Bsishop Museum Planetarium. There were 14 members and three visitors in attendance.

Associated Lectures: The next free Hawaii Space Lecture Series has not been scheduled at the time of the HAS general membership meeting. However, since then Chris Peterson indicated that Dr. Toby Owen of the Institute of Astronomy will be the next speaker on November 22. He is speaking on "Water in the Solar System." You can contact NASA PRPDC at808-956-3132 or go to http://www.higp.hawaii.edu/prpdc for more information on upcoming lectures.

Rental Scopes: ***Barry Peckham*** reports that he was able to retrieve the telescope that was rented some months ago. ***Chris Peterson*** urged those members without scopes to rent a scope, use it at home and to join us by bringing it out to star parties.

Star Light Reserve Committee: ***Harry Zisko*** will attend the next Star Light Reserve Committee meeting on November 3rd.

Astronaut Lacy Veach Day of Discovery: The club participated in Astronaut Lacy Veach Day of Discovery 2011 event at Punahou on Saturday, Oct. 29. This day of science and discovery for students, parents and teachers celebrated the life of the late U.S. Astronaut Lacy Veach. Club members ***John Gallagher, Travis Le, Lenore Hansen-Stafford, April Lew, Jim MacDonald, and Gretchen West*** volunteered for the event.

(Minutes continued from page 11)

NASA's Space Place

Re-thinking an Alien World: The Strange Case of 55 Cancri e

Forty light years from Earth, a rocky world named "55 Cancri e" circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200 F. Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

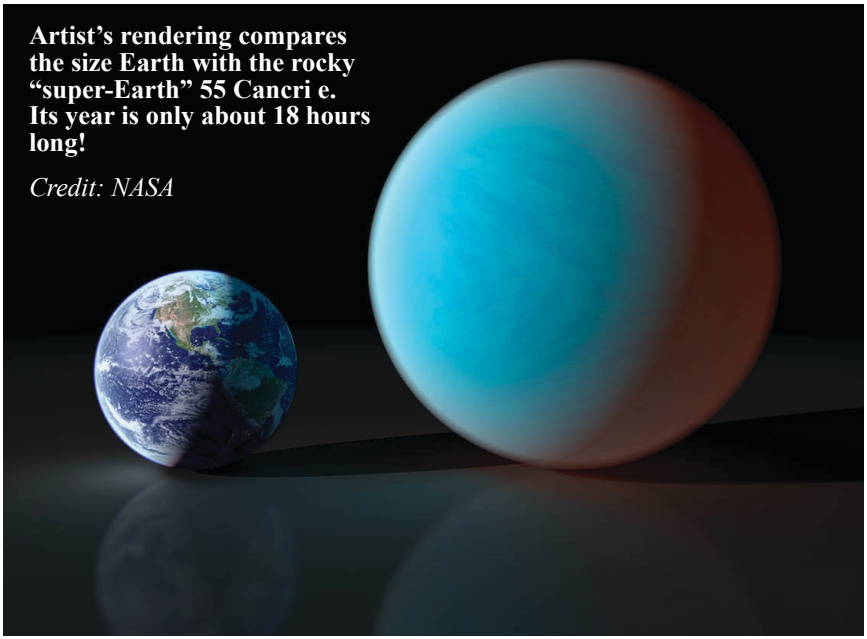
Now they're thinking again. New observations by NASA's Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined.

Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet.

According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those properties place 55 Cancri e in the "super-Earth" class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet's mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience,

(Continued on page 9)



Artist's rendering compares the size Earth with the rocky "super-Earth" 55 Cancri e. Its year is only about 18 hours long!

Credit: NASA

The month of December is home to one big shower and many smaller showers. The first small shower of the month is the Phoenicids (PHO). Some of these showers are so small and unpredictable that only the most dedicated make the effort. The Phoenicids definitely fall in this category. Apparently, the rates were high in the discovery year of 1956 (~100), but have been near zero ever since.

The Geminids (GEM) compete with a bright moon this year, which is unfortunate as this is arguable the best shower of the year. We often see Geminid rates that are higher than Perseid rates in any given year.

This year the little observed Ursids (URS) have perfect observing conditions with the new moon only a day away. The meteors are slow (33 km/s) which makes for nice viewing. The maximum is close to Christmas, but it still might be worth putting down the fruitcake and taking a look outside.

First Quarter	*Full Moon*	*Last Quarter*	*New Moon*
Dec. 2	**Dec. 10**	**Dec. 18**	**Dec. 24**

Shower	Activity	Max Date	λ 2000	Radiant α	Radiant δ	V∞ km/s	*r*	ZHR
Phoenicids (PHO)	11/28-10/9	Dec 08	254.25°	18°	-53°	18	2.8	Var
Puppid-Velids (PUP)	12/1-12/15	(Dec 07)	(255)°	123°	-45°	40	2.9	10
Monocerotids (MON)	11/27-12/17	Dec 09	257°	100°	+08°	42	3.0	2
δ-Hydrids (HYD)	12/3-12/15	Dec 12	260°	127°	+02°	58	3.0	3
GEMINIDS (GEM)	12/7-12/15	Dec 14	262.2°	112°	+33°	35	2.6	120
Dec. Leonis Minorids (DLM)	12/5-2/4/12	Dec 20	268°	161°	+30°	64	3.0	5
Comae Berenicids (COM)	12/12-12/23	Dec 16	264°	175°	+18°	65	3.0	3
Ursids (URS)	12/17-13/26	Dec 23	270.7°	217°	+76°	33	3.0	10

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

Dec 1, 01h, M 5.6º NNW of Neptune (79º from sun in evening sky)

Dec 3, 17h, M 5.8º NNW of Uranus (109º from sun in evening sky)

Dec 6, 09h, M 5.0º N of Jupiter (137º from sun in evening sky)

Dec 16, 21h, M 7.9º SSW of Mars (99º from sun in morning sky)

Dec 19, 20h, M 6.3º SSW of Saturn (61º from sun in morning sky)

Dec 22, 16h, M 2.2º SSW of Mercury (22º from sun in morning sky)

Dec 26, 20h, M 6.1º NNW of Venus (325º from sun in evening sky)

Dec 28, 12h, M 5.6º NNW of Neptune (52º from sun in evening sky)

Dec 31, 02h, M 5.7º NNW of Uranus (81º from sun in evening sky)

Other Events of Interest

Times are Hawaii Standard Time

Dec 3, 23h, Mercury at inferior conj. with sun (Passes into morning sky)

Dec 10, 04:37h, Moon Full

Dec 10, Total eclipse of moon visible from Hawaii

Dec 14, Geminid Meteors (Unfavorable year for this major shower)

Dec 21, 19:30h, Winter Solstice

Dec 23, Ursid Meteors (Favorable year for this sometimes major shower)

Dec 22, 17h, Mercury at greatest elongation (22.8º west of the sun in morning sky)

Dec 24, 08:07h, Moon New

Dec 28, 18h, Pluto at conjunction with sun (Passes into morning sky)

☿ Mercury

Mercury has an excellent morning apparition this month, reaching maximum elongation on Dec 22.

♀ Venus

Venus shines brightly low in the west after sunset, setting about two hours after the sun.

♂ Mars

Rises before midnight. Look for it in Leo in the morning sky. Brightens form mag 0.7 to 0.3 this month.

♃ Jupiter

Reaches opposition in October, and is still well placed for viewing in the evening sky.

♄ Saturn

Saturn is close to Spica in the morning sky before sunrise.

♅ Uranus

Near the meridian at sunset and can be found in the southwestern sky in the early evening hours.

♆ Neptune

Also visible in the southwest after sunset.

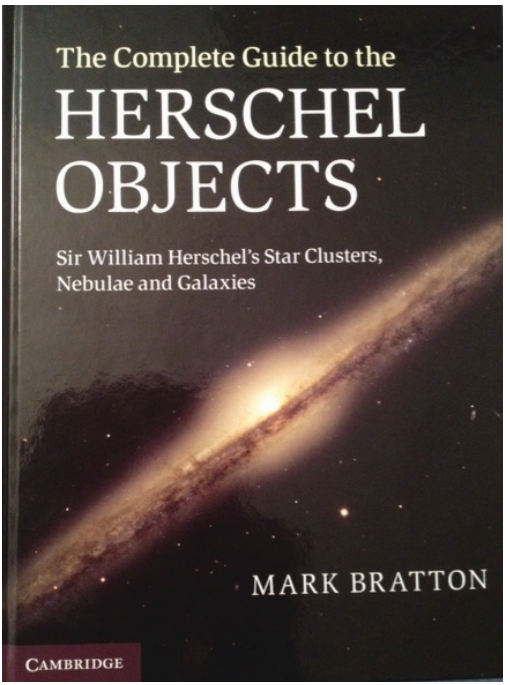
♇ Dwarf Planet Pluto

Reaches conjunction with the sun in December and cannot be viewed.

Asteroid 15 Eunomia

Reached opposition on November 27 at about magnitude 7.9 and is visible most of the night.

The Complete Guide to the Herschel Objects: Sir William Herschel's Star Clusters, Nebulae and Galaxies by Mark Bratton
Cambridge University Press, 2011. **ISBN: 0521768926**



This is a book that doesn't just come along once in a lifetime or once in a century, but once in two centuries. To my knowledge, not since William Hershel created his catalogs between 1786 and 1802 has there been a comprehensive volume written by someone who has personally observed each and every one of the Hershel objects (and like Hershel, without the aid of electronics).

Add to this the fact that Mark Bratton is an "observer's observer" who knows how to organize an observing book in a logical, straightforward manner. No organization by RA and Dec. here. The book is organized by constellations, which for most observers, is the way they think of the sky.

The illustrations are also organized in a useful way. Instead of filling the volume with gorgeous Hubble images (which the observer at the eyepiece will never see), the illustrations are either DSS images or (most happily) sketches done by the author himself.

At first blush, you might think it would have been nice to have an illustration of each of the Hershel objects, but who would want to buy a multi-volume set that weighed seven pounds just to see hundreds of pictures of elliptical galaxies. For the most part, the illustrations chosen detail areas of the sky that have several Hershel objects in the same field. This can be extremely helpful in the field.

Anyone who has had the pleasure of observing with Mark can tell you of the animated way in which he describes even the most mundane of the Hershel objects. The fact that he has personally observed each object produces much more accurate descriptions of their visual appearance, than someone who is extrapolating from a photograph what "should" be visible in the eyepiece.

And the fact that he includes his own observation notes alongside those of Hershel is especially helpful. On an observing trip with the author, I was able to see several Hershel objects, which would otherwise have gone unnoticed, based on his meticulous descriptions of them, from memory.

With the advent of go-to scopes and digital setting circles, it is unlikely that there will ever be another human being who accomplishes this herculean task, let alone putting it into a very well organized and readable book. Every other volume I have seen on the Hershel objects covers at best only a few hundred of them. This is really the definitive reference for the entire Hershel catalog. It is a long awaited and very satisfying addition to my astronomical library, and more importantly, just picking it up and glancing through it fills me with an intense desire to go out and observe.

Paul

< December 2011 >

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	1	2 	3 5:45 PM Public Star Party(K) 5:45 PM Public Star Party(G) Sunset: 5:50 PM
4	5	6 7:30 PM Club Meeting	7	8	9	10 Sunset: 5:52 PM 
11	12	13	14	15	16	17 5:30 PM Club Star Party (D) Sunset: 5:54 PM
18 	19	20	21	22	23	24 Sunset: 5:57 PM 
Christmas Day 25	26	27	28	29	30	31 Sunset: 6:01 PM

FOR SALE

☆ **80mm Lumicon Super Finder, about 5 years old. No bracket, star diagonal or eyepiece - *$75.***

☆ **26mm Meade Super Plossl, in great condition - *$40.***

☆ **Couch Potato Telescope (swiveling binocular chair platform) without binoculars or beach chair - *$175.***

☆ **1-1/4" erect image diagonal by Celestron - *$30.***

Email Barry: barry@liteboxtelescopes.com

(Space Place continued from page 4)
researchers think the compounds likely exist in a "supercritical" fluid state.

A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

On 55 Cancri e, this stuff may be literally oozing—or is it steaming? —out of the rocks.

With supercritical solvents rising from the planet's surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth.

It's something to re-think about.

Get a kid thinking about extrasolar planets by pointing him or her to "Lucy's Planet Hunt," a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up. Go to http://spaceplace.nasa.gov/story-lucy.

The original research reported in this story has been accepted for publication in Astronomy and Astrophysics. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager's group at MIT.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration. ☆

May 15, 2010 August 27, 2011

HAS member and astrophotographer ***Steven Chun*** captured an image Supernova in M101, comparing it to an earlier shot he took of the same region. Both pictures with a Canon T1i attached to an 8" F4 Astro-Tech Newtonian on a Vixen Sphinx SXW mount. Images were processed and stacked using Images Plus and some post processing done in Photoshop.

5/15/2010 Image consists of 6 – 10 minute shots
8/27/2011 Image consists of 1 – 5 minute shot

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of Nov. 15, 2011

Initial Balance:	**$4,122.76**
Receipts:	
Donations	63.05
Dues Received	184.00
Magazine Payments	99.90
Calendars	13.00
Total Income:	**$359.95**
Expenses:	
Astronews	147.89
Postage	8.27
Calendar Supply	181.30
Total Expenses:	**$717.77**
Final Balance	**$4,145.25**

The club gained three new members this month. They are ***Brent Johnson, Charles Rykken*** and ***Ann Liu***. Thanks to ***Buzz Willauer*** and ***Susan Girard*** for their donations. Thank you also to all those who renewed their membership. Come join under our darkening skies for some unforgettable views.

<<Upcoming Star Parties>>

Kahala/Ewa Party **Dec 3**

CLUB Party-Dillingham **Dec 17**

Public Party-Dillingham **Holiday!**

☆ ☆ Upcoming School Star Parties ☆ ☆

Thurs.	**12/1**	Kamaile Elementary (Waianae)
		-------2012-------
Fri.	**1/27/12**	Waikiki Elementary
Fri.	**3/30/12**	Hokulani Elementary (St. Louis area)

(Minutes continued from page 7)

International Observe the Moon Night: Took place on October 8. We celebrated this evening with members who joined us at Geiger Park and Kahala Community Park at our regularly scheduled, free suburban star party night.

Dillingham Airfield: ***Jim MacDonald*** submitted a written request to the Director of the Hawaii State Department of Transportation. We are requesting a return to the lock protocol used previously at Dillingham Airfield.

Maui News: The Haleakala Amateur Astronomers have contacted ***Chris Peterson*** indicating they have been granted authorization to use a viewing area at "Science City". The Haleakala group extended an invitation to our group to join them at some time in the future.

School Star Party: We had star party on Nov. 4 at Pearl City Highland Elementary School. If you are able to participate in star parties, be sure to contact ***John Gallagher***.

Visitors: There were three visitors at our November meeting. ***Andy Lascowitz***, who is a member but has been away for a while; Manfred, who has an interest in physics and astronomy; and Mike, who is new to astronomy, is curious about viewing and found us on the internet.

President's Message: ***Chris Peterson*** elaborated on his "President's Message" from this month's ASTRONEWS. He explained the mechanisms of the universe and discussed what he termed "a semi-serious outlook on cosmology." Chris spoke about his ideas on the expansion and contraction theories of the universe.

Missions: ***Chris*** also reviewed various missions. "Curiosity" should launch in November 2011 on its 8.5 month journey and research mission to Mars.. He also spoke briefly about NASA's considerations about funding of future missions, the Russian Phobos/Grunt mission and Sofia (the Stratospheric Observatory for Infrared Astronomy), the 1.2 m infrared telescope mounted in an aircraft.

Elections: Will take place at the December meeting. ***Chris*** described the duties of each board member and called for nominations. He reminded members that becoming a board member involves commitment of some time and effort, but is a great way to get more involved. The current board was nominated for re-election, yet anyone who is interested in serving is asked to contact H.A.S.

Chris led a discussion on the direction members want for the club in the upcoming year. He encouraged members to become involved and communicate their wishes. One suggestion was to outreach to school astronomy clubs in an effort to bring new and younger blood into the club. Discussion also touched on the alienation of astro-imagers and how we can draw some of them back to join us. Members asked for more speakers from IfA. Chris indicated that he would work to foster a closer relationship with them and ask for speakers from the institute.

HOLIDAY GET-TOGETHER: Members of the H.A.S. are invited to a potluck dinner to precede the December H.A.S. meeting. The get-together will take place on the lanai on the Ewa side of the Planetarium starting at 6:00 p.m. December 6, 2011. ***Carolyn Kaichi*** is coordinating.

Vice President Barry Peckham offered for sale the 1.25 inch, f 30 eyepiece from the circa 1950's telescope that was donated to the club a few months ago.

Barry also spoke on the Garradd (C/2009 Pt) in Hercules that will be observable this month. Asteroid #2005 YU55 will be swinging past the Earth as well, but we won't be able to observe it here in Honolulu.

Planetarium Show: Joanne Bogan gave us a short tour of the skies over Hawaii. As there was no further business, the meeting was adjourned at 9:07 p.m.

Respectfully Submitted,

Gretchen West
Secretary

Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, HI 96817-0671

Place stamp here. Post Office will not deliver mail without proper postage

Eclipse Durations

Penumbral = 05h56m28s
Umbral = 03h32m17s
Total = 00h51m08s

ΔT = 68 s
Rule = CdT (Danjon)
Eph. = VSOP87/ELP2000-85

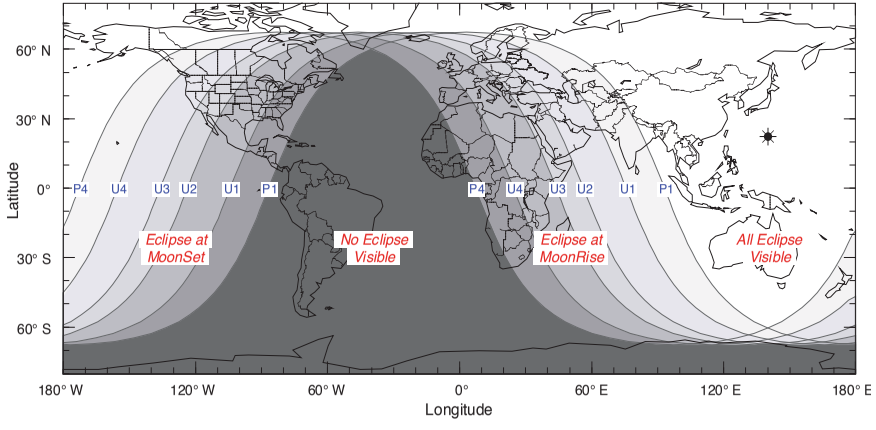
S

0 15 30 45 60
Arc-Minutes

F. Espenak, NASA's GSFC
eclipse.gsfc.nasa.gov/eclipse.html

Eclipse Contacts

P1 = 11:33:32 UT
U1 = 12:45:42 UT
U2 = 14:06:16 UT
U3 = 14:57:24 UT
U4 = 16:17:58 UT
P4 = 17:30:00 UT



DECEMBER 10 TOTAL LUNAR ECLIPSE WILL BE VISIBLE FROM THE HAWAIIAN ISLANDS. SEE STORY ON PAGE 2
Graphic courtesy F. Espenak/NASA/GSFC