

Observatory News

January 2010
513-321-5186

Published by the Friends of the Observatory
www.cincinnatiobservatory.org Bill Cartwright, editor

Volume 21 No. 11
wcartw@aol.com



Coming Up At The Observatory....

Jan. 2; 7 pm, Astro Saturday
Jan. 5; 7 pm, Intro to Astronomy
(3 weekly sessions)
Jan. 7; 7:30 pm, FOTO Monthly
Meeting
Jan. 8; 7 pm, FOTOKids
Jan. 10 & 24, 1-4 pm, History
Tours
Jan. 14 & 28; 7 pm, Astro
Thursday
Jan. 15; 7 pm, Astro Friday
Jan. 21-24; 8 pm, Marsapalooza!
Feb. 1; 7 pm, *Mysteries of the
Universe
Feb. 3; 12 pm, COC Board
Meeting
Feb. 4; 7:30 pm, FOTO Monthly
Meeting
Feb. 5; 7 pm, FOTOKids
Feb. 8, 7 pm, **NEW! Monthly
Astronomy Class for Members**
Feb. 11 & 18; 7 pm, Astro
Thursday
Feb. 10; 7 pm, *Stargazing 101
*Communiversiity course
Call 513-321-5186 or visit
www.cincinnatiobservatory.org for
more information

The Word from FOTO's President Zoller

It's hard to believe that 2009 is history. The observance of the *International Year of Astronomy* brought many great opportunities to promote the Observatory and our love of astronomy. There were so many highlights it would be hard to list them all.

Our special programs such as "*Sun Day, Sunday, Sundae*" and "*Jupiter Nights*" brought large crowds to the Observatory – many for the first time. We continued our "Sidewalk Astronomy" events which take astronomy to the masses at venues such as *Newport on the Levee*.

A major highlight of the year was the dedication of the *Paul Nohr Memorial Sundial* which honors Paul's many contributions to revitalizing the Observatory and his ability to instill an interest in

astronomy in people of all ages. The sundial is a great teaching tool and was a major hit with school groups visiting the Observatory throughout the year.

Possibly one of the biggest projects ever undertaken by the Observatory was the "*40 Galileos*" program in which 40 telescopes were put into the hands of local students, teachers and astronomy buffs with the intent that they will conduct star parties and promote astronomy in the local area. This project brought the Observatory local, national and international recognition. Because of its success, the Observatory has received grants which will continue the project for another two years.

ScopeOut 2009 was another successful event that brought many people to the Observatory. The event was supported by many vendors and resulted in a major gift of an advanced digital camera from SBIG. The keynote speaker was noted astronomy historian Owen Gingerich who spoke to a standing-room-only crowd.

Another major accomplishment was the revision and ratification of the FOTO Bylaws. A number of FOTO members put in many hours hammering out the details of the new bylaws. A new feature included in the bylaws was the establishment

of 5 trustee positions to assist with the governance of FOTO.

On November 22nd, **John Ventre** was awarded the "Diffusion of useful Knowledge Award" at a surprise party held in his honor. He is the Staff Historian for the Observatory and also was instrumental in saving the Observatory from the wrecking ball. John also coordinates all the volunteer schedules that support our events. The highlight of the party was the presentation of a proclamation from Cincinnati mayor Mark Mallory declaring November 22, 2009 as "**John E. Ventre Day**" in the City of Cincinnati.

As always, none of this could be accomplished without the support of the FOTO members and volunteers. I hope to see you at our monthly meetings and at FOTO events throughout 2010!

FOTOkids Meeting

By Dean Regas

The next FOTOkids meeting will be on Friday, January 8th, at 7 pm. Note that we are not meeting on the first Friday because of the New Year.

The December meeting featured fierce competition during our annual Astronomy Quiz.

Congratulations go to Will Geers who finished in 3rd place, Max Moeller who came in 2nd, and Matthew Luczaj who took 1st prize.

This month we will discuss plans for the year so if you have any topics you'd like to see covered at FOTOkids, we'll welcome all ideas. Dress warmly, because if it's clear we'll practice more with the big telescope.

Owen Gingerich, new Observatory staff, a terrific Luminaria night and increased grant and community support. Our sincere thanks to everyone who contributed their time and hard earned money to the Observatory especially in these challenging times! 2009's list of successes is long and as much as we'd like to - and could - go on we'll save the full review for this spring's annual report.

So we say goodbye to IYA 2009 and the '00's. Does that mean we rest on our successes? Not a chance. We're going to carry that momentum into 2010 and build on it over the next 10 years. We'll be introducing new public, member and outreach programs to meet the steadily increasing demand. The success of 40 Galileos will carry over to the 3 year Future Galileos project. We'll be recruiting new presenters and volunteers for our Astronomy Evenings which are fundamental to our success of reaching out and engaging the community. Our Planet Days and special programs like Luminaria Night will continue to be "must attend" annual events for many and will draw even more new visitors every year.

Through new collaborations including the *Historic Homes and Sites of Greater Cincinnati* group we're going to offer more programs and displays that tell the remarkable story of the Cincinnati Observatory, its connection to the history of our Queen City the history of astronomy. With the help of Board member **Paul Callard** (*who I still think single-handedly built Paul's Memorial Sundial*) a maintenance list has been put together that will serve as a guide toward soliciting foundation and private contributions and ensure the two remarkable telescopes and the grand buildings that house them are preserved for future generations. Likewise board members **Basil Rowe** and **Andy Park** are completing a plan to update the Observatory's aging

FOTO's Meeting

By Dale Zoller

The January 2010 FOTO meeting will be held on the first Thursday of the month, **January 7 at 7:30 pm** in the west wing of the Herget Building at the Observatory. This month's presentation will be by **Violette Lavender** from Children's Hospital on "Vestibular Testing" as related to astronaut testing.

Don't forget, we also have an informal dinner before the meeting around 6 pm at Panera Bread in Hyde Park Plaza.

December FOTO Meeting

Highlights

The December meeting was the annual FOTO Volunteer Appreciation dinner. A special thanks to **Becky Shundich** and her elves who put together an excellent dinner and transformed the Observatory with festive decorations.

Craig's Corner

By Craig Niemi, Observatory Executive Director

Well the calendar is winding down to a close (no, we're not talking about the 2012 nonsense). And the decade is also closing out which I'm sure means the news will be full of the all the good and bad of the past ten years. The Observatory has had its share of good and bad over the past ten years too. Thankfully almost all of the news has been good, if not great. Of course the worst news was the too early passing in 2006 of Observatory Astronomer Paul Nohr who we miss dearly.

As the International Year of Astronomy 2009 was a banner year for astronomy, space science and education. Little could we imagine during the kick-off event last January that 2009 would turn out the way it did. The amazing 40 Galileo's Project, another successful ScopeOut astronomy education fair, a visit from astronomy historian

business and communication infrastructure. Other board members are working on a research and fundraising project to identify the heirs of the Cincinnatians who made the original observatory possible. Again, as much as we could go on we'll save the details for future newsletters.

So we're confident that 2010 and beyond will see continued advancement in all areas of our mission. And it's all thanks to you; the members, the donors, the staff, board and volunteers who give so passionately. As you celebrate this New Year's Eve and herald in the next decade make a well deserved toast to yourself. Then try if you can to imagine how even more remarkable this Cincinnati treasure will be in 2020 thanks to you and your fellow Observatory family members.

Happy New Year!
Craig

The Planning Meeting

By Dale Zoller

The next FOTO Planning meeting is scheduled for **Thursday, January 21, 2010** at 6 pm at the **Observatory**. The meeting generally lasts a couple hours. The planning meetings are open to all FOTO members. We encourage your participation in planning future FOTO activities.

Word of the Month

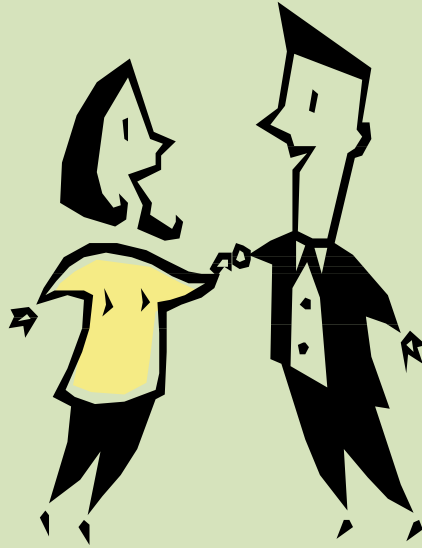
By Greg Huber

“Heilopause”

December's Word: “Residuals”

“Residuals” are the differences between observed values and the values obtained from calculations. It was a study in the residuals in the orbit of Uranus that led to the discovery of Neptune!

Welcome Renewing & New FOTO and COC Members!



Donna & Bill Anderson

Andrew Arken

Eric Aronson

John Barnes

Fred Bowman

William Y. Cartwright

Sally Chai

Jo Ann Coors

Jeffrey & Nanci Daniher

Jean Davison

William Decker

Charles & Linda Dehner

Barry Dick

Suzanne Dortch

Preston Dunnmon

Dennis & Kim Egan

Robert Ehram

Jeanette Fisher

Eric & Cathlin Flamme

Lee & Paul Fox

Eric Gould

Michael Haap

Jeff Hamner

James Hulefeld

Rick Hunter

Bailey James & Family

Bruce Kempner

Tom Klekamp

Todd Kravetz

Majorie Kuck

Kevin Langston

Lisa Lemen
Eric & Diane Luczak
Rob & Katie Magenheim
Frederick & Deanna Martin
Russ McMahon
Harry Moeller
Betty Moscovice
Raymond O'Connell
Terry & Ann Pardue
Sue Ransohoff
Juan & Ann Santamarina
Bob Schroeder
Kirk Schrotel
Ellen Sewell
Rebecca Shundich
Doug Shuster
William C. Smith
Kayla Springer
Jim Steiner
Carol & Mark Stephenson
Jennifer Strong
Chuck Strubbe
Eric Urbas
Rita Voltmer
Hwa Shain & Yisheng Yeh

Star Parties

By Scott Naylor

The next scheduled Stonelick Star Parties will be **Saturday, January 9th and January 16th**.

For directions or for more information phone Scott Naylor at 513-575-5556.

Trivia Question

By Greg Huber

“At about 300 miles up, how long does it take to orbit the Earth?”

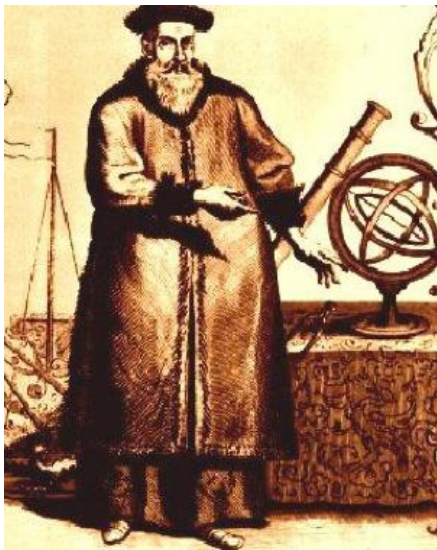
December's Question

What was the top speed for the Lunar Rover?

Answer: The top speed of the Moon Rover was 11mph. (Maybe someday NASCAR on the Moon?)

Dave's Excellent Astronomy Class

By Craig Niemi



Ed. Note: This may or may not be Dave Bosse, but you get the idea.

His class begins Monday, February 8th, at 7 pm.

Observatory member and UC Physics Department instructor **Dave Bosse** will be offering a monthly astronomy class for members. Designed around his UC classes Dave will be guiding us through the wonders and complexities of the universe. The course is college level and is intended for AP high school students and adults but with Dave's terrific teaching style the material will be accessible to everyone. We welcome all members and volunteers to join us for a night of astronomy and fellowship.

Did You Know....

Our solar system is in the middle of a cosmic dust storm, and some astronomers said they've zeroed in on the possible source: the Red Rectangle nebula, which is 2,300 light-years away in the constellation Monoceros. A double star system there is spewing the dust.

Stonelick State Park Stargazes 2010

By Craig Niemi

Stonelick stargazes are free and open to all! They're a great opportunity for members, teachers, scouts, and the general public to learn the night sky, learn how to use their telescopes, get started in astrophotography and more while enjoying the company of Observatory members. The 2010 schedule is posted on the Observatory's website; www.cincinnatiobservatory.org/stonlickblog.html.



Galileo's Starry Messenger 1610-2010

By Craig Niemi



No scientist in the past thousand years changed the world more than Galileo. What did he do that was so important?

"Galileo's Starry Messenger: 1610 - 2010" explores the work of Galileo, touching on the science that came before him, then focusing on

what Galileo discovered and what those discoveries have meant to the future of science. The exhibit includes a full-color reproduction of the *Sidereus Nuncius* based on the University of Oklahoma copy signed by Galileo. It may not be the real thing, but then you couldn't flip through its pages.

Astronomer and project coordinator **Christopher Graney** will host a discussion of Galileo and his work at each location. (*Professor Graney's students often visit the Cincinnati Observatory as part of their course work.*) For more information go to LFPL.org. The exhibit is free and open during regular library hours.

The exhibit sounds interesting. Maybe some FOTO folks should carpool down for the day.

Southwest Library

January 4 – January 19

Program: Tuesday, January 19, 7 p.m.

Highlands/Shelby Park Library

January 21 – February 10

Program: Wednesday, February 10, 7 p.m.

Crescent Hill Library

February 12 – March 1

Program: Monday, March 1, 7 p.m.

Middletown Library

March 3 – March 18

Program: Thursday, March 18, 7 pm.

Military Interested in Virgin Galactic Launch

As Virgin Galactic prepares to roll out its suborbital passenger spaceship, U.S. military officials seeking low-cost, responsive access to space are studying the company's latest exotic concept to deliver small satellites to orbit.

<http://spaceflightnow.com/news/n0912/07launcher/>

Dropping the Ball for Cincinnati Time



The *Retired Engineers & Scientists of Cincinnati* recently toured the Observatory with John Ventre as their host. Can you just imagine the good time they had exploring our history, telescopes and instruments?

One of the attendees, **Leland Hite**, wrote, with John's input, a great article about the role of the Cincinnati Observatory in timekeeping including our fabulous clocks and the time ball. A copy is available from the RESC website; <http://resc.org/pages/downloads.htm>

John gives many Observatory tours for scouts, civic groups and retirees which can be scheduled by appointment. Call 513-321-5186 for more information.

For Sale

Vixen SXD Equatorial Mount with Star Book technology. Little used and in excellent condition. This is a serious mount with instrument capacity up to 50lbs.

Suggest you pull up the web site for full data & pictures. A value of \$3300.00, will sell for \$2500.00. Reason for sale; upgrading to heavier capacity mount.

E.mail Graham Davis at Graham@Ket-Moy.com or call 513-673-9106 anytime

Marsapalooza – The Return of the Red Planet

At the Observatory
January 21-24, 8 pm

The Red Planet is back. Mars, always a crowd favorite, will be the featured planet for a four-night viewing extravaganza called Marsapalooza.

The Cincinnati Observatory will open its doors and telescopes to the public four nights in a row. There will be nightly classes about Mars, tours of the buildings, and viewing through the historic 1843 and 1904 telescopes (weather permitting). The **Moon and Orion Nebula** will also be observed.

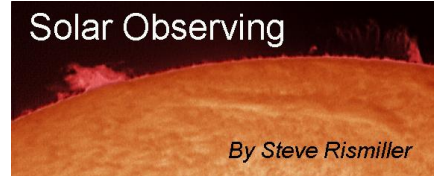
Reservations are recommended.

Cost: \$6 per person.

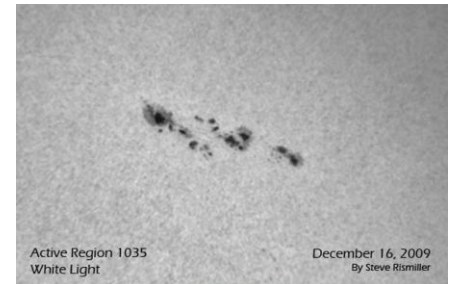
For more information visit: www.cincinnatiobservatory.org or call 513-321-5186.



Jim Groen in FULL holiday Garb at the FOTO holiday party



December was a great time to observe the Sun. Once the clouds parted there were actually some Sunspots developing right before our eyes. The image below shows sunspot group 1035 at its largest on December 16th. The grouping was just over one earth diameter wide and about 5 earth diameters long. A few days later, region 1035 rotated off the western limb of the sun and three more regions began to develop. These regions did not grow as large as 1035 and were short lived.



This white light image was made with a Baader mylar solar filter in front of the telescope. To enhance the granulation, that "sandpaper" textured background, I used a Baader Continuum filter just in front of the camera. Continuum is a term used to define the combination of all the colors emitted by the sun. A No 58 green filter will work almost as well and costs less. It does make the Sun look green if you use it visually. The darkest part of each sunspot is called the umbra and is surrounded by gray penumbrae. With good seeing conditions, the penumbra will show radial lines around each umbra. To see these radial lines better, don't use a green filter but use a No. 29 or 25a filter in conjunction with your solar filter. In all cases a good solar filter must be used with the telescope to prevent eye damage. Always think about the safety of your eyes and have fun observing the Sun.

Introductory Astronomy Classes

At the Observatory
Tuesdays, January 5, 12, and 19
7-9 pm

By Dean Regas

This three-night astronomy course is perfect for beginners who want to learn more about observing the night sky, and the Cincinnati Observatory.

Cost: \$50 for the series
\$40 for Observatory Members
Reservations: 513-321-5186

We will discuss the new and improved Solar System, Moon phases and features as well as identify major stars, constellations and planets. Plus we will show you how to get the most out of your binoculars and telescopes.

To register call Dean Regas at:
513-321-5186.

Watch Out! Steer Clear the HERV!



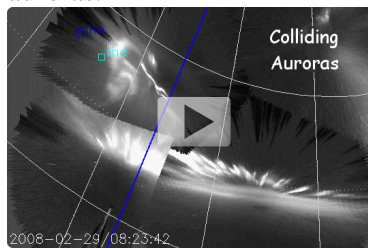
Photo by Marsie Newbold

Craig Niemi shows off the Observatory's New HERV (Holiday Emergency Response Vehicle)

Colliding Auroras Produce Explosions Of Light

A network of cameras deployed around the Arctic in support of NASA's THEMIS mission has made a startling discovery about the Northern Lights. Sometimes, vast curtains of aurora borealis collide, producing spectacular outbursts of light. Movies of the phenomenon were unveiled at the fall meeting of the American Geophysical Union in San Francisco.

Our jaws dropped when we saw the movies for the first time. These outbursts are telling us something very fundamental about the nature of auroras.



Colliding auroras photographed by
THEMIS all-sky imagers.

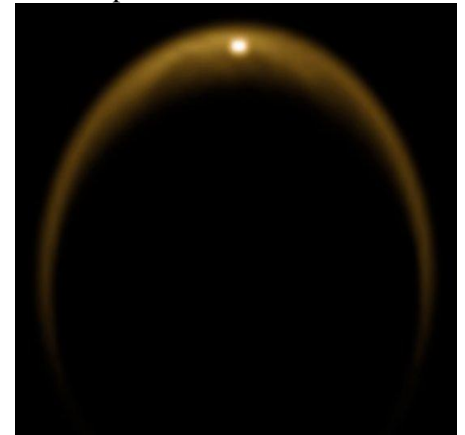
The collisions occur on such a vast scale, isolated observers on Earth with limited fields of view had never noticed them before. It took a network of sensitive cameras spread across thousands of miles to get the big picture.

NASA and the Canadian Space Agency created such a network for THEMIS, short for "Time History of Events and Macroscale Interactions during Substorms." THEMIS consists of five spacecraft launched in 2006 to solve a long-standing mystery: Why do auroras occasionally erupt in an explosion of light called a substorm? Twenty all-sky imagers were deployed across Alaska and Canada.

http://science.nasa.gov/headlines/y2009/17dec_whenaurorascollide.htm?list739819

A Flash of Light From Titan

NASA's Cassini spacecraft has photographed a flash of sunlight reflecting from a lake on Saturn's moon Titan, confirming the presence of liquid hydrocarbons on a part of the moon dotted with many lake-shaped basins.



This one image communicates so much about Titan -- a thick atmosphere, surface lakes and an otherworldliness. It's an unsettling combination of strangeness yet similarity to Earth. This picture is one of Cassini's iconic images."

Titan, Saturn's largest moon, has captivated scientists because of its many similarities to Earth. Scientists have theorized for 20 years that Titan's cold surface hosted seas or lakes of liquid hydrocarbons, making it the only other planetary body besides Earth believed to have liquid on its surface. While data from Cassini have not indicated any vast seas, they have revealed what appeared to be large lakes near Titan's north and south poles.
http://science.nasa.gov/headlines/y2009/18dec_titanglint.htm?list739819

Did You Know....

13.6 billion years ago our entire Universe was smaller than the smallest part of an atom.

Solar Activity Alerts

Would you like a call or text message the next time the sun unleashes a big solar flare--or when a geomagnetic storm erupts? Sign up for Spaceweather Phone and never miss another big event on the sun: <http://spaceweatherphone.com>.

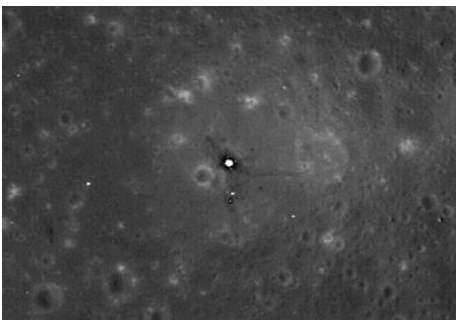
Voyager Makes an Interstellar Discovery

The solar system is passing through an interstellar cloud that physics says should not exist. In the Dec. 24th issue of *Nature*, a team of scientists revealed how NASA's Voyager spacecraft has solved the mystery.

Using data from Voyager, they have discovered a strong magnetic field just outside the solar system. This magnetic field holds the interstellar cloud together and solves the long-standing puzzle of how it can exist at all.

http://science.nasa.gov/headlines/y2009/23dec_voyager.htm?list739819

Lunar Orbiter Yielding Rich Results At Six-Month Mark



The Apollo 11 landing site

A NASA probe circling the Moon has found an unexpected lunar radiation source and detected the coldest known location in the solar system, scientists announced.

<http://spaceflightnow.com/news/n0912/20Iroresults/>

Mystery Swirls Around 'Dark Stars'

When the very first stars lit up, they may have been fueled by the dark matter that has long eluded scientists.

These "dark stars," first born nearly 13 billion years ago, might still exist today. Although they would not shed any visible light, astronomers might detect these invisible giants — some 400 to 200,000 times wider than our sun and 500 to 1,000 times more massive — because they should spew gamma rays, neutrinos and antimatter and be linked with clouds of cold, molecular hydrogen gas that normally would not harbor such energetic particles.

If scientists find these stars, they could aid the search to discover and identify dark matter. They could also help solve the mystery of why black holes formed much faster than expected.

Scientists think unseen, as-yet unidentified dark matter makes up about 95 percent of all matter in the universe. They know it exists because galaxies rotate faster than can be explained by the visible matter within them.

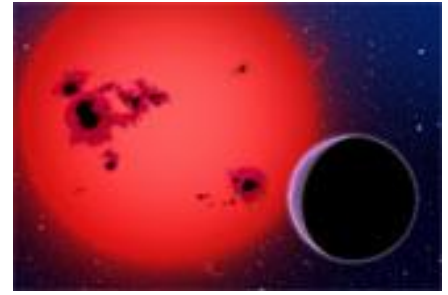
<http://www.space.com/scienceastronomy/091221-mm-dark-stars.html>

20-Inch Telescope Mirror for Sale

By Dick Wessling

I have just completed a 20", f/4, 80" FL mirror that is for sale. The figure is 1/30th wave. The price is negotiable so let me know if you are interested. I have the Figure XP plot of the mirror. Call or email me at 831-7045 or Pinesop@aol.com

Nearby Super-Earth May Be a Waterworld



A rocky and water-rich planet, not much heavier than our own, has been discovered so close to our solar system that astronomers one day may be able to study its atmosphere.

The extrasolar planet, now named GJ 1214b, is about 40 light-years away. It orbits a red dwarf star. It is the only known "Super-Earth" exoplanet — worlds that have masses between Earth and Neptune — with a confirmed atmosphere.

The planet is about three times the size of Earth and about 6.5 times as massive. It is the second smallest planet discovered outside of our solar system to date, trailing behind only [CoRoT-7b](#), which is 1.7 times Earth's size and about five times as massive.

Charbonneau's team thinks GJ 1214b is likely a water world with a solid center. Moreover, the planet has a thick surrounding atmosphere of hydrogen and helium.

Normally, a planet located at that distance from this particular type of star would be so hot that any water on its surface would be in a vapor form.

But scientists think the thick atmosphere of GJ 1214b creates a high pressure environment that keeps water on the surface in a liquid state.

<http://www.space.com/scienceastronomy/091216-super-earth-water-atmosphere.html>