

# THE WRIGHT STUFF



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Kepler-20e



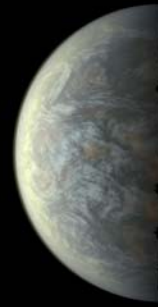
Venus



Earth



Kepler-20f





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Volume 22 - Number 6

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**IMAGE - Featured Front Page**

Comparison of Earth, Venus, and the first Earth-sized exoplanets.

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# A View From the Catbird Seat

By J.R. Fisher

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First things first: Merry Christmas! I hope everyone has the safest and best Christmas

possible. I wish more of you had been able to attend the holiday/anniversary dinner at the Kanki on the 18th. Those that attended had a great meal and a good show.

On our list of things to do was the two children from the angel tree. I thank the Pischkes for donating an indoor R. C. helicopter to the cause. Jane and I agreed to fill the rest of the list. With Ms. Poole's assistance, we acquired the requested

shoes, socks, underwear, jeans, tops, jackets and a wide range of desired toys for both the girl and boy.

In regards to our food bank campaign, we are about 20 pounds short of our goal for the month of 100 pounds. If you get a chance, bring your donations by the Fisher house by the 30th of December. I would like to see us hit the 300 pound goal for the three months.

In the upcoming events department, it is time once again for UNC-TV's Festival. This year the festival runs from February 25th until March 25th. I will be requesting a Saturday night, preferably the first Saturday night

in March so that we could have our meeting and go straight to the studio.

In case you need reminding, they provide a pretty good spread of food on Saturday night. We have no way of knowing what the programming will be at this point; but that is part of the tradition! We always have fun!

If you get this in time for Christmas, I hope you have a great one! But be sure you have a safe and Happy New Year! See you on the seventh!

*Esse Quam Videri*

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## Science Report

By Elaine Pischke

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### 2011 – The Year In Science

2011 was an active year for planet Earth. From Cyclone Yasi that hit Australia, the earthquake that rocked Christchurch, New Zealand, to the devastating earthquake that hit Japan, triggering a massive tsunami and meltdown at the Fukushima power plant, you might say it was a year for natural disasters (and unnatural ones). It was also the year of the “100 year storms and weather events”, as time after time we heard of ‘the worst flood in 100 years’, the ‘worst drought in 100 years,’ record heat and record snowfalls. Arctic ice levels hit new lows, CO2 levels continue to rise, and Mother Earth is squirming.

There were discoveries and achievements to celebrate in 2011. Three new Earth-like

planets were found, as well as a planet made of diamond (imagine!). “Messenger” orbited Mercury, and “Curiosity” is winging its way towards Mars. Researchers determined that HIV treatments may work as prevention. There is a promising possible vaccine for malaria. We may be a little closer to that elusive ‘fountain of youth’ as evidence that culling old cells might keep us young. Clouds left over from the Big Bang have been detected. Physicists at CERN may have found Higgs Boson, the last missing piece of the Standard Model, which has something to do with the Big Bang as well, and is apparently a big deal, but is beyond my understanding! There is also DNA evidence that our

homo sapien ancestors mated with other archaic peoples.

Which brings us to the bad news, in which science suffered renewed assaults from legislators in Oklahoma, New Hampshire, New Mexico, Tennessee, Florida, Texas and Kentucky. All of these states had legislation introduced which would allow religion to be taught as science in public schools. On the bright side, some states, such as California, are attempting to strengthen their science and technology curricula, recognizing that maybe we should be better than 24<sup>th</sup> in the world in scientific literacy in order to compete in the 21<sup>st</sup> century.

(Some information was obtained from ABC Science and Science Magazine)

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# NASA Discovers First Earth-Size Planets Beyond Our Solar System

By NASA / JPL

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*[Editor's note - this is the press release that accompanied the photo on the cover of this issue.]*

NASA's Kepler mission has discovered the first Earth-size planets orbiting a sun-like star outside our solar system. The planets, called Kepler-20e and Kepler-20f, are too close to their star to be in the so-called habitable zone where liquid water could exist on a planet's surface,

but they are the smallest exoplanets ever confirmed around a star like our sun.

The discovery marks the next important milestone in the ultimate search for planets like Earth. The new planets are thought to be rocky. Kepler-20e is slightly smaller than Venus, measuring 0.87 times the radius of Earth. Kepler-20f is slightly larger than Earth, measuring 1.03 times its radius. Both planets reside in a five-planet system called Kepler-20, approximately 1,000 light-years away in the constellation Lyra.

Kepler-20e orbits its parent star every 6.1 days and Kepler-20f every 19.6 days. These short orbital periods mean very hot, inhospitable worlds. Kepler-20f, at 800 degrees Fahrenheit (427 degrees Celsius), is similar to an average day on the planet Mercury. The surface temperature of Kepler-20e, at more than 1,400 degrees Fahrenheit (760 degrees Celsius), would melt glass.

"The primary goal of the Kepler mission is to find Earth-sized planets in the habitable zone," said Francois Fressin of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., lead author of a new study published in the journal Nature. "This discovery demonstrates for the first time that Earth-size planets exist around other stars, and that we are able to detect them."

The Kepler-20 system includes three other planets that are larger

than Earth but smaller than Neptune. Kepler-20b, the closest planet, Kepler-20c, the third planet, and Kepler-20d, the fifth planet, orbit their star every 3.7, 10.9 and 77.6 days, respectively. All five planets have orbits lying roughly within Mercury's orbit in our solar system. The host star belongs to the same G-type class as our sun, although it is slightly smaller and cooler.

The system has an unexpected arrangement. In our solar system, small, rocky worlds orbit close to the sun and large, gaseous worlds orbit farther out. In comparison, the planets of Kepler-20 are organized in alternating size: large, small, large, small and large.

"The Kepler data are showing us some planetary systems have arrangements of planets very different from that seen in our solar system," said Jack Lissauer, planetary scientist and Kepler science team member at NASA's Ames Research Center in Moffett Field, Calif. "The analysis of Kepler data continues to reveal new insights about the diversity of planets and planetary systems within our galaxy."

Scientists are not certain how the system evolved, but they do not think the planets formed in their existing locations. They theorize the planets formed farther from their star and then migrated inward, likely through interactions with the disk of material from which they originated. This allowed the worlds to maintain their regular spacing despite alternating sizes.

The Kepler space telescope detects planets and planet candidates by measuring dips in the brightness of more than 150,000 stars to search for planets crossing in front of, or transiting, their stars. The Kepler science team requires at least three transits to verify a signal as a planet.

The Kepler science team uses ground-based telescopes and the Spitzer Space Telescope to review observations on planet candidates the Kepler spacecraft finds. The star field Kepler observes in the constellations Cygnus and Lyra can be seen only from ground-based observatories in spring through early fall. The data from these other observations help determine which candidates can be validated as planets.

To validate Kepler-20e and Kepler-20f, astronomers used a computer program called Blender, which runs simulations to help rule out other astrophysical phenomena masquerading as a planet.

On Dec. 5, the team announced the discovery of Kepler-22b in the habitable zone of its parent star. It is likely to be too large to have a rocky surface. While Kepler-20e and Kepler-20f are Earth-size, they are too close to their parent star to have liquid water on the surface.

"In the cosmic game of hide and seek, finding planets with just the right size and just the right temperature seems only a matter of time," said Natalie Batalha, Kepler deputy science team lead and professor of astronomy and physics at San Jose State University. "We are on the edge of our seats knowing that Kepler's most anticipated discoveries are still to come."

NASA's Ames Research Center in Moffett Field, Calif., manages Kepler's ground system development, mission operations and science data analysis. JPL managed the Kepler mission's development.

For more information about the Kepler mission and to view the digital press kit, visit <http://www.nasa.gov/kepler>.

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# VOYAGER - "Homecoming"

By Brad McDonald

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## ACT FIVE

FADE IN:

EXT. SPACE - STARBASE 224  
(OPTICAL)

There are more ships nearby.

INT. STARBASE 224 - OPS

There is much activity, present are many N. D. STATION PERSONNEL Janeway is at a duty station directing ships and personnel while Rodriguez waits.

JANEWAY

Starbase 224 to Royal Oak, come in Royal Oak.

RODRIGUEZ

No response from them either?

Janeway is still working at her comm board.

JANEWAY

Nothing from any ship in Sectors Five, Six or Seven, Starfleet or otherwise.

She stops working to look up at him, worried.

JANEWAY

(continuing)

We better assume the worse and start preparing for an attack on the station.

RODRIGUEZ

I'm glad we evacuated the civilians already. How about recalling the remaining ships?

JANEWAY

I'll start right away while you alert the Klingons. I'd estimate we have only minutes until the Borg arrive.

RODRIGUEZ

(tapping comm badge)

This is Admiral Rodriguez, station to red alert. I say again, red alert. This is no drill.

He retaps the comm badge, then to Janeway:

RODRIGUEZ

(continuing)

Now all we can do is wait and hope that we made the right decisions.

EXT. SPACE - STARBASE 224 and BORG SHIPS (OPTICAL)

Six Borg ships arrive and immediately attack the Klingon ships, destroying each of them in succession.

INT. STARBASE 224 - OPS

Ops is very active and Janeway is standing next to Rodriguez as they witness the action on the main viewer.

RODRIGUEZ

We're next. They won't even bother with the starships.

JANEWAY

Shields up! Phasers to full power, modulate phasers on an irregular basis. Hold photon torpedoes for point blank firing.

Activity increases further and lighting changes.

ENSIGN

Report from ship board commanders. They're coming to our assistance.

The station is hit by multiple weapons impacts in rapid succession and the lights fail.

RODRIGUEZ

Emergency lights! Boost power to shields!

JANEWAY

Phasers, open fire!

The station is hit again, several times. There is damage evident at several work stations.

ENSIGN

Command of U.S.S. Johannesburg sends regrets, warp drive off line and weapons damaged.

JANEWAY

Have them withdraw and effect repairs --

Another series of weapons impacts on the station.

RODRIGUEZ

Photon torpedoes, now!

Rodriguez moves away from Janeway and goes to the weapons console.

ENSIGN

Shields down to twelve percent. We won't survive any more hits.

RODRIGUEZ

Photon torpedoes, concentrate on the lead ship --

There is a large explosion which shakes the entire station. All the lights go out and when they return we see the station has sustained major damage. Many are hurt and Rodriguez is on the floor with severe injuries. Janeway spots him.

JANEWAY

Carlos!

Janeway rushes to his side, tapping her comm badge.

JANEWAY

(continued)

Medical! This is Ops. I have mancasualties and need assistance on the double!

(to Rodriguez)

Hold on, help is on the way.

RODRIGUEZ

Don't bother with me, it's already too late.

RODRIGUEZ

(continuing)

Save the others and yourself, Kathryn. Abandon the station and make a stand elsewhere.

JANEWAY

This station still has some fight left in it. And there are still six ships.

The station takes another hit and only minimal light remains.

RODRIGUEZ

Don't argue, that's an order.  
Probably my last one. Obey it,  
promise?

Janeway is losing her friend and she  
knows it.

JANEWAY

You're too tough --

He grabs at her with failing strength.

RODRIGUEZ

Promise!

JANEWAY

All right, but you're coming  
along!

He suddenly slumps and dies.  
Janeway taps her comm badge. As  
she speaks, we can see N. D. BORG  
appearing in the B. G. attacking  
personnel and converting them.

JANEWAY

Attention all hands, this is  
Ops. Abandon station, repeat  
abandon station.

Seven appears and immediately  
confronts Janeway.

SEVEN

So. Your plans didn't work out  
as you had hoped. No matter,  
I will now take care of you.

Seven reaches out to convert  
Janeway and as the Borg probes  
enter Janeway:

JANEWAY

No! This can't be happening!

OPS - FREEZE FRAME

All the action stops and only Janeway  
remains in motion. She is confused  
until Q appears.

Q

Ah, but I assure you that it is  
indeed happening.

JANEWAY

I should have known it was  
you. There were too many  
things that didn't add up.

Q is interested and smiles  
mischievously.

Q

Such as?

JANEWAY

My memory loss and  
blackouts. And why would  
Starfleet give me an important  
assignment when I wasn't  
even fully recovered.

Q

But you explained that  
yourself. Desperate people do  
desperate things.

JANEWAY

Under conditions you set!

He gets closer and becomes very  
serious.

Q

You poor dear creature. You  
don't understand. I didn't  
cause any of this. It's a  
natural progression of the  
events commencing with your  
return to the Alpha Quadrant.

JANEWAY

It wouldn't happen like this!

Q snaps his fingers.

OPS - NEW ANGLE

Ops is now empty except for Janeway  
and Q.

Q

That's just my point. It does  
happen like this. I just wanted  
you to see that coming home  
isn't always what you expect.

JANEWAY

Starfleet would not treat  
Chakotay and the others like  
criminals. And the Doctor  
would not become so...

Q

Pompous and selfcentered?  
Are you so sure?

JANEWAY

And Starfleet would not  
endorse suicide missions or  
mistreat Seven in that  
manner.

Q shakes his head in frustration,  
walking around Janeway, studying her  
closely.

Q

Just a bit testy aren't you?  
You know I performed a  
similar service for Captain  
Picard a few years ago and  
he was much more receptive.

Janeway is adamant and her anger is  
building.

JANEWAY

I read his reports on you after  
our last encounter. He was  
never receptive to anything  
you did.

Q displays mock hurt.

Q

And I thought he and I had  
such an understanding.

Now he brightens a bit.

Q

(continuing)

But you and I are different,  
right Katy?

JANEWAY

It's Captain Janeway to you  
and don't bet on it.

Q

You cut me to the bone!

JANEWAY

I didn't think you had any  
bones. Now. return me to my  
ship and time.

Q becomes agitated, ignoring her  
building anger.

Q

Not so fast. I want to be sure  
you understand what it is I've  
done for you.

JANEWAY

Done to me. And I do  
understand and I don't accept  
your vision.

Q

There you go again, it's not  
my vision. It's the future.  
You've been on your quest for  
so long, I thought I'd let you  
see how it all turns out.

He is studying her closely again.

Q

(continuing)

Not the homecoming you  
anticipated?

She is tired and her anger is peaking.

JANEWAY

Just put me back where I belong, let me get back to my work!

He smiles and 'goes for the kill', softening his tone.

Q

I could do you a favor. I could return you and your crew under much different circumstances.

Her anger and frustration tapers somewhat.

JANEWAY

Here it comes, what's the catch?

Q

No catch, I won't promise you the homecoming you want, but you'll be back in seconds. Even sooner, if you wish.

JANEWAY

No thanks. We'll do it on our own and deal with the consequences one way or another. Now that the business is out of the way, return me, now.

Q is very disappointed and hurt.

Q

Very well.

He snaps his fingers.

VOYAGER - CAPTAIN'S READY ROOM

She has been returned to her own timeframe and is sitting at her duty desk. Q is reclined on the couch, behind her.

Q

Sure I can't change your mind?

She turns to face him.

JANEWAY

See you when I get home, and not any sooner please.

Q

That remains to be seen.

He snaps his fingers again and vanishes. Janeway shakes her head,

then reflects for a moment. She then brings up some information on her computer and studies it. After a moment, she taps her comm badge.

JANEWAY

Tom? Report to my ready room.

PARIS'S VOICE

Aye, Sir.

She continues to study the screen until he enters.

PARIS

Reporting as ordered.

She smiles at him and indicates a seat.

JANEWAY

At ease, sit down won't you?

He relaxes and sits, waiting quietly.

JANEWAY

I've just been reviewing the transcripts of your hearing.

He's confused.

PARIS

My hearing? Why?

JANEWAY

There is no reference to your having passed classified information to the Maquis.

He is very surprised.

PARIS

You say that as if you expected to find one.

She discontinues her work and studies him closely.

JANEWAY

You used your father's security codes to gain access to classified information and passed it to the Maquis, correct?

Paris looks defeated.

PARIS

Yes. But how --

She holds up her hand to cut him off.

JANEWAY

I had help. Q visited me again. Your situation came up.

He is worried and is quiet.

PARIS

Does that mean I am to face charges on Voyager?

JANEWAY

Not at all. I asked you to serve on this ship. You have done a remarkable job. But, when we return home, they may be waiting for you. You may have to face formal charges from Starfleet.

He seems a bit more at ease.

PARIS

I can face that, when it comes.

JANEWAY

I hope you know that if it does come to it, you won't face it alone.

She smiles warmly and he responds in kind.

JANEWAY

Why don't we get back to work? Who knows, we may get home today?

They both rise and move to exit the ready room.

PARIS

I'm all for that.

EXT. SPACE - VOYAGER

Voyager continues its journey.

FADE OUT.

END OF ACT FIVE

THE END

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## Upcoming Events

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<b>Jan</b>	<b>7</b>	<b>4 p.m. Ship Meeting, Triangle Factory Outlet</b>
<b>Feb</b>	<b>4</b>	<b>4 p.m. Ship Meeting, Triangle Factory Outlet</b>
	<b>25</b>	<b>UNC-TV's Festival Starts</b>

**DON'T FORGET TO CHECK YOUR STARFLEET STATUS**

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***THE WRIGHT STUFF***  
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