

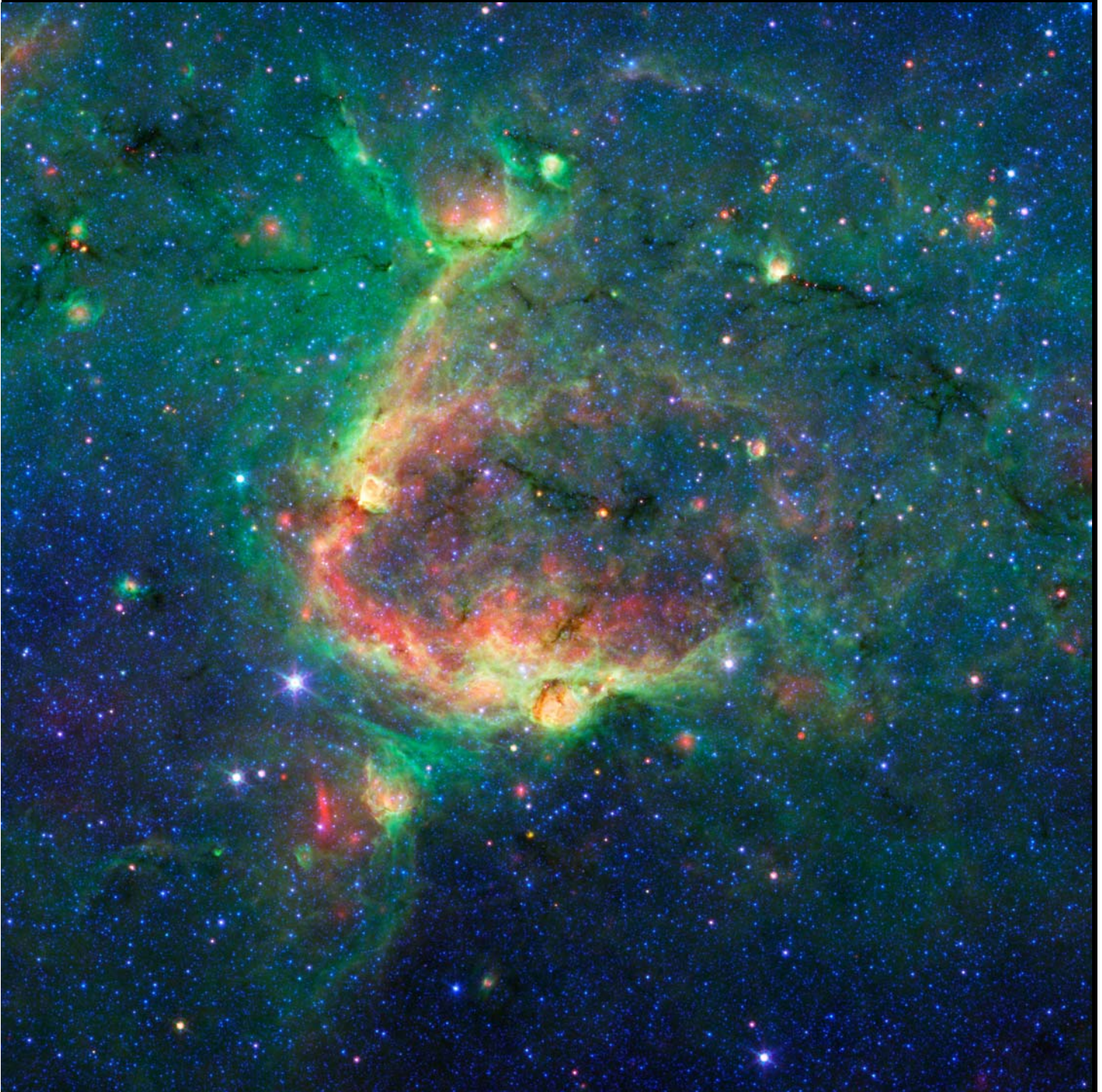
# THE WRIGHT STUFF



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# THE WRIGHT STUFF

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Publisher ..... J.R. Fisher  
Editor ..... John Troan



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**TOOL BOX:** Dell D810; Lotus WordPro; Adobe Acrobat.

**IMAGES - Title Banner**

Wright Flyer from NASA/Ames PAO photo archive; *U.S.S. Kitty Hawk* (USN CV-63) from [navicp.navy.mil](http://navicp.navy.mil); *Constitution* class cruiser from [gwu.edu/~rljones/khawk](http://gwu.edu/~rljones/khawk).

**IMAGE - Featured Front Page**

Infrared image from *Spitzer Space Telescope* showing a hierarchical bubble structure. More details are in the NASA press release on page 6. From NASA/JPL-Caltech/UWI.





# A View From the Catbird Seat

By J.R. Fisher



I wish every one of you could have been at the opening weekend of the new Star Trek movie last month. We had one of our best

participation efforts ever, from opening to closing on that Saturday. Brad, John and Keung stayed with me for the entire day, from 10 a.m. until 10 p.m.

Most of our crew showed for several hours at a time as well as taking the opportunity to view the movie in either 2-D or 3-D, for free.

The management was most helpful by providing a banner, standup, and large Enterprise, as well as hanging our banner and setting up 3 tables and six chairs for us to recruit in an area in the lobby. In addition to allowing us to see the movie for free, they provided us with free soda and popcorn for our entire stay.

Most impressive were the LARGE numbers and letters of NCC-1701 attached to the underside of the roof of their concession stand which is saucer shaped! John Troan provided a letter guide for them to make these. It really made us feel at home.

While the morning started off slow, by evening we had crowds of people talking with us and admiring Brad's fleet of original design starships he had on display along with all the technical data for each ship. We handed out applications for membership in Starfleet as well as applications for Shore Leave in August, and promotional cards for Contemporal later this month.

Our members in uniform got the most attention and often posed for pictures with attendees and staff alike. We had a TV-DVD player, playing episodes of the original series and the early movies and made Star Trek trading cards available to those who were interested.

I hope that we can have a similar effort when the movie comes out on DVD in the fall. What a great time we

had! Please make a special effort to join us next time we have this kind of opportunity!

## *Esse Quam Videri*

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Sherry Poole has e-mailed us a list of items that would be most useful for her students. Please bring what you can to the July meeting.

The needed items are more definitive this year because we will be receiving "0" supplies from school and/or the PTA.

The things needed are what you would imagine in order for a student to be able to complete various classes:

### Middle school

- wide and college ruled notebook paper
- mechanical pencils and lead #7 and #9
- graph paper - small and larger grid
- construction paper
- large poster paper - mostly white but also other colors if on sale
- pencil pouches - these are always on sale somewhere
- erasers - for the ends of wooden pencils and the larger, pink erasers for the pouches
- 1- and 3-subject spiral notebooks

### Elementary school

- wide ruled notebook paper
- lined paper to practice learning how to write letters
- fat pencils for kindergarteners' hands
- colored pencils
- washable markers - for drawing
- crayons
- any writing, math, science "learning" workbook you see... anywhere (The booklets I've been picking up are the size of coloring books, somewhat narrow, and

have amply opportunities to practice their newly-learned skills.)

- I will need probably 4-5 smaller, brightly-colored, *happy* bookbags for the shoulders of K-3rd grade students...

Every student is going to have a portfolio this year so they can save their work and reflect on it at the end of each semester. I'm going to recycle manila folders, preferably the 3rd-cut. They can be cut apart and the back side with the tab be trimmed to the size of a sheet of notebook paper and 3-hole punched. This is going to be a *very* important part of everyone becoming organized this coming year, even my kindergartners! I wish someone had shown me how to be better organized sooner! This will of course include everyone needing a black or white, insertable, 1" (elementary) / 1-1/2"-2" (middle school) 3-ring binder. I have rounded up 30 already and will need about 15 more.

### Teacher wish-list:

- Kleenex, Kleenex, Kleenex
- Antibacterial hand sanitizer for my desk and other places in the classroom. (The kids already come in and automatically clean their hands. The younger students should not be too difficult to train this coming year.)
- Expo dry-erase markers of all colors, especially black
- Printer paper - 20# mostly but 22# and 24# are also needed for special projects

Any one item is so enormously appreciated and needed. You are all so incredibly helpful in assisting these children as they become more academically successful... AND LEARN ENGLISH!!!

I will be at the July meeting with information on all my K-8 students...

## Comp Ops Report By John Troan

I'm getting this issue started about a week later than originally planned. The oldest of the nephews recently graduated from the Raleigh School (pre-K to 5th), which brought my mom into town to celebrate. Every time she's here, we always spend a day together and do something. This time was a doubleheader of our first trip to the NC Natural Science's new wing and a return trip to the NC Art Museum. (We usually see the special exhibit(s) each trip to the art museum, making it interesting each trip there.) Both stops were definitely fun.

Turning to ship's business, several of us were at the Raleigh Grande for part (or all) of Saturday during opening weekend of *Star Trek: Into Darkness*. A great time was had by all as we chatted and posed for pictures with the movie-goers. A few of us even ducked into the theater to see the movie. Many thanks to Brad for bringing a small part of his fleet to display, which caught the attention of a little of people. (We need to find some blank decal stock to do the *Kitty Hawk* model justice.... and we really need to work on getting the full fleet manual onto the *Kitty Hawk* web site -- including everything in the file cabinets.)

In other *Kitty Hawk* news, I've started up some Comp Ops projects. The first is building a full-color version of the ship's logo. Everyone at the June meeting saw my basic plans for it, and I'm almost done with the final version.

The other project has a longer timeline as Jane and I work through getting all of the *Wright Stuff* issues converted to .pdf and posted to the web site. There are a lot of good stories in the past issues and we'll be able to share them with the crewmembers who joined after the issues had been published.

A somewhat-ship related third project is something I'll be doing over the next few years -- rebuilding the entire jt-sw.com web server environment outside of Lotus Domino.

## *ST: Into Darkness* Theater Photos From Elaine Pischke and John Troan



(I'm making the move away from Domino in my professional career, too.) I've already got most of the new software picked out -- Linux, Apache, MySQL, and Python -- and will start the rebuild sometime this fall, after I

finish my Red Hat Linux classes and certification(s). The major challenge is rewriting all of the pieces I've built over time for the football stats portion of the web server.

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# Science Report

## By Elaine Pischke

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Hurricane season is officially upon us. While tornadoes across the country are grabbing the headlines and wreaking havoc, let's not forget that in North Carolina, hurricanes have traditionally been a bigger threat. This year, the National Oceanic and Atmospheric Association (NOAA) predicts 13 to 20 named storms, with 7 to 11 becoming hurricanes. However, Scientists at the Florida State University Center for Ocean-Atmospheric Prediction Studies (COAPS), a relative newcomer to the weather prediction game, predicts 12 to 17 named storms with 5-10 becoming hurricanes. This is a slightly lower prediction than the official one, but both predictions indicate that this will be a higher-than-average hurricane year. Also, it should be

noted that the Florida State group, although they have only been around for a few years, have used a unique computer model that, so far, has been more accurate than the "official" predictions. In either case, it is time to buy fresh batteries and stock up on other emergency supplies.

Last year the *Curiosity* Rover rolled over some round pebbles on Mars. After careful examination, scientists have concluded that these pebbles could only have been formed by running water. It appears that *Curiosity* has discovered an ancient river bed on Mars.

Climate change is having an impact on sea bird populations. Puffins in particular are in danger. The comical-looking birds live in the North Atlantic. But dead puffins

are turning up on shorelines from Bermuda to Maine to Scotland. The birds are starving to death. The survival rate of fledglings has plummeted from 77% a few years ago to 31%. Scientists at Woods Hole conclude that the likely cause is that the birds' normal food source, herring, have shifted due to warming waters. The puffins have tried to adapt by feeding their young butterfish, a more southerly fish that is moving further north. However, the butterfish are too large for the young puffins and they cannot swallow them. Large piles of rotting butterfish have been observed near the puffins' hatching grounds. If the puffins cannot adapt quickly and find a new food source, they may soon join the estimated 200 species going extinct every day.

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# J.O.urnal

## By Babs Freeman

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I have admitted to seeing the new *Star Trek: Into Darkness* twice. I'm not a special effects watcher, I am a story follower. I don't need 3D to follow a story line; I just need good dialog, good repartee, and the ability to generally follow the action. That said, I sometimes like to see a movie twice to find out stuff I missed the first time as I was focused on following the story. I also sometimes read books twice for the same reason.

The movies I am anticipating over the next several months are *The Wolverine*, which comes out in July, *Percy Jackson: Sea of Monsters* (August), the next *Thor* movie (November), and the return to middle earth in the next installment of the *Hobbit*. Movies I

have mixed emotions over seeing is the *Man of Steel* in June, *World War Z*, and the *Lone Ranger*. I will probably break down and see the new *Superman* flick but zombies have no interest to me and I'm tired of Johnny Depp doing over-the-top roles.

I watched *Dead Man Walking* this weekend and enjoyed it very much. Not hard to see Susan Sarandon in that role. Sean Penn has honed his acting skills very well, too. I enjoy watching the classics on the various movie channels I subscribe to and I subscribe to a lot of movie channels. I even enjoy the pre-movie and post-movie commentary/trivia presented on some channels.

Being a big movie fan, you'd think I would own a ton of stuff but

I actually don't own a lot of movie memorabilia. Nor do I have a huge collection of DVDs. I have come to realize that I don't need these since I catch so many different movies on the many channels I have and will watch repeats of many movies when I am busy with chores and stuff. I do have the occasion for getting really into a movie, notably at a theater, and temporarily, forgetting it is just a movie.

I would like to promote amazon.com as a great source for many things *Trek*, including faux tribbles which I am considering buying. And to be honest, I would donate my wisdom teeth to go to a large trek convention but the inside joke is that my wisdom teeth were taken out decades ago.



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# *Spitzer* Sees Milky Way's Blooming Countryside

## From NASA/JPL

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[This is the NASA press release that goes with this month's cover image. The release is available with additional images at [http://www.jpl.nasa.gov/news/news.php?release=2013-186&cid=release\\_2013-186](http://www.jpl.nasa.gov/news/news.php?release=2013-186&cid=release_2013-186).]

New views from NASA's *Spitzer* Space Telescope show blooming stars in our Milky Way galaxy's more barren territories, far from its crowded core.

The images are part of the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (Glimpse 360) project, which is mapping the celestial topography of our galaxy. The map and a full, 360-degree view of the Milky Way plane will be available later this year. Anyone with a computer may view the Glimpse images and help catalog features.

We live in a spiral collection of stars that is mostly flat, like a vinyl record, but it has a slight warp. Our solar system is located about two-thirds of the way out from the Milky Way's center, in the Orion Spur, an offshoot of the Perseus spiral arm. *Spitzer's* infrared observations are allowing researchers to map the shape of the galaxy and its warp with the most precision yet.

While *Spitzer* and other telescopes have created mosaics of the galaxy's plane looking in the direction of its center before, the region behind us, with its sparse stars and dark skies, is less charted.

"We sometimes call this flyover country," said Barbara Whitney, an astronomer from the University of Wisconsin at Madison who uses *Spitzer* to study young stars. "We are finding all sorts of new star formation in the lesser-known areas at the outer edges of the galaxy."

Whitney and colleagues are using the data to find new sites of youthful stars. For example, they spotted an area near Canis Major with 30 or more young stars sprouting jets of material, an early phase in their lives. So far, the researchers have identified 163 regions containing these jets in the Glimpse 360 data, with some of the young stars highly clustered in packs and others standing alone.

Robert Benjamin is leading a University of Wisconsin team that uses *Spitzer* to more carefully pinpoint the distances to stars in the galaxy's hinterlands. The astronomers have noticed a distinct and rapid drop-off of red giants, a type of older star, at the edge of the galaxy. They are using this information to map the structure of the warp in the galaxy's disk.

"With *Spitzer*, we can see out to the edge of the galaxy better than before," said Robert Benjamin of the University of Wisconsin, who presented the results Wednesday at the 222nd meeting of the American Astronomical Society in Indianapolis. "We are hoping this will yield some new surprises."

Thanks to *Spitzer's* infrared instruments, astronomers are capturing improved images of those remote stellar lands. Data from NASA's Wide-field Infrared Survey Explorer (WISE) are helping fill in gaps in the areas *Spitzer* did not cover. WISE was designed to survey the entire sky twice in infrared light, *completing* the job in early 2011, while *Spitzer* continues to probe the infrared sky in more detail. The results are helping to canvas our galaxy, filling in blanks in the outer expanses where not much is known.

Glimpse 360 already has mapped 130 degrees of the sky around the galactic center. Four new views from the area looking

away from the galactic center are online at: [http://www.nasa.gov/mission\\_pages/spitzer/news/spitzer20130605.html](http://www.nasa.gov/mission_pages/spitzer/news/spitzer20130605.html).

Members of the public continue scouring images from earlier Glimpse data releases in search of cosmic bubbles indicative of hot, massive stars. Astronomers' knowledge of how massive stars influence the formation of other stars is benefiting from this citizen science activity, called The Milky Way Project. For instance, volunteers identified a striking multiple bubble structure in a star-forming region called W39. Followup work by the researchers showed the smaller bubbles were spawned by a larger bubble that had been carved out by massive stars.

"This crowdsourcing approach really works," said Charles Kerton of Iowa State University at Ames, who also presented results. "We are examining more of the hierarchical bubbles identified by the volunteers to understand the prevalence of triggered star formation in our galaxy."

For more information about the Milky Way project and to learn how to participate, visit: <http://www.milkywayproject.org>.

NASA's Jet Propulsion Laboratory, Pasadena, Calif., manages the *Spitzer* Space Telescope mission for NASA's Science Mission Directorate, Washington. Science operations are conducted at the *Spitzer* Science Center at the California Institute of Technology in Pasadena. Data are at the Infrared Science Archive housed at the Infrared Processing and Analysis Center at Caltech. Caltech manages JPL for NASA. For more information about *Spitzer*, visit <http://spitzer.caltech.edu> and <http://www.nasa.gov/spitzer>.

# Hubble Uncovers Evidence of Farthest Planet Forming From Its Star

## From NASA

Astronomers using NASA's *Hubble Space Telescope* have found compelling evidence of a planet forming 7.5 billion miles away from its star, a finding that may challenge current theories about planet formation.

Of the almost 900 planets outside our solar system that have been confirmed to date, this is the first to be found at such a great distance from its star. The suspected planet is orbiting the diminutive red dwarf TW Hydrae, a popular astronomy target located 176 light-years away from Earth in the constellation Hydra the Sea Serpent.

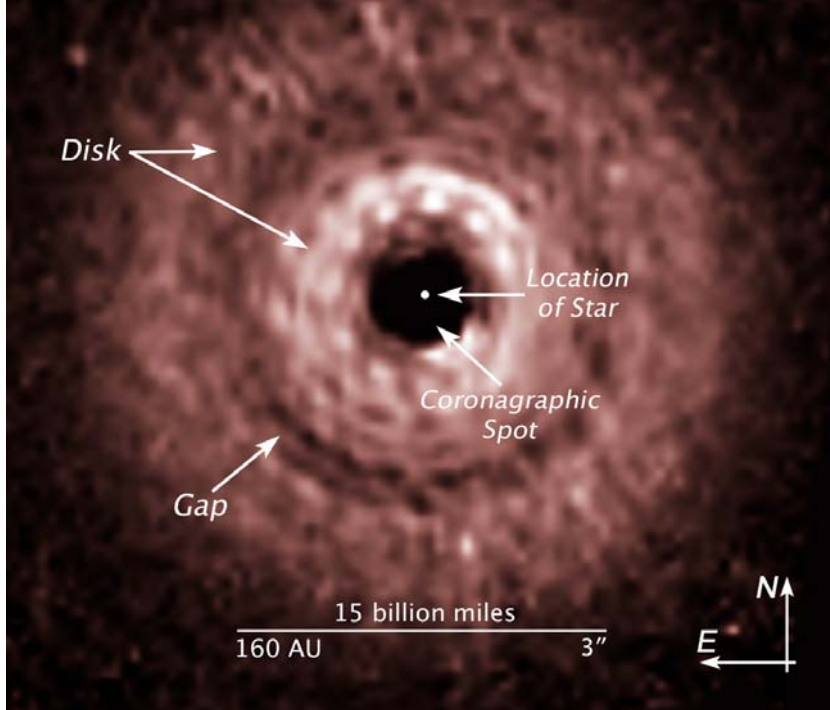
*Hubble's* keen vision detected a mysterious gap in a vast protoplanetary disk of gas and dust swirling around TW Hydrae.

The gap is 1.9 billion miles wide and the disk is 41 billion miles wide. The gap's presence likely was caused by a growing, unseen planet that is gravitationally sweeping up material and carving out a lane in the disk, like a snow plow.

The planet is estimated to be relatively small, at 6 to 28 times more massive than Earth. Its wide orbit means it is moving slowly around its host star. If the suspected planet were orbiting in our solar system, it would be roughly twice Pluto's distance from the sun.

Planets are thought to form over tens of millions of years. The buildup is slow, but persistent as a budding planet picks up dust, rocks, and gas from the protoplanetary disk. A planet 7.5 billion miles from its star should take more than 200 times longer to form than Jupiter did at its distance from the sun because of its much slower orbital speed and the deficiency of material in the disk. Jupiter is 500 million miles from the

TW Hya Disk  
HST NICMOS/NIC2  
F171M+F180M+F222M



sun and it formed in about 10 million years.

TW Hydrae is only 8 million years old, making it an unlikely star to host a planet, according to this theory. There has not been enough time for a planet to grow through the slow accumulation of smaller debris. Complicating the story further is that TW Hydrae is only 55 percent as massive as our sun.

"It's so intriguing to see a system like this," said John Debes of the Space Telescope Science Institute in Baltimore, Md. Debes leads a research team that identified the gap. "This is the lowest-mass star for which we've observed a gap so far out."

An alternative planet-formation theory suggests that a piece of the disk becomes gravitationally unstable and collapses on itself. In this scenario, a planet could form more quickly, in just a few thousand years.

"If we can actually confirm that there's a planet there, we can connect its characteristics to measurements of

the gap properties," Debes said. "That might add to planet formation theories as to how you can actually form a planet very far out."

The TW Hydrae disk also lacks large dust grains in its outer regions. Observations from the Atacama Large Millimeter Array in Chile show dust grains roughly the size of a grain of sand are not present beyond about 5.5 billion miles from the star, just short of the gap.

"Typically, you need pebbles before you can have a planet. So, if there is a planet and there is no dust larger than a

grain of sand farther out, that would be a huge challenge to traditional planet formation models," Debes said.

The team used *Hubble's* Near Infrared Camera and Multi-Object Spectrometer (NICMOS) to observe the star in near-infrared light. The researchers then compared the NICMOS images with archival *Hubble* data and optical and spectroscopic observations from *Hubble's* Space Telescope Imaging Spectrograph (STIS). Debes said researchers see the gap at all wavelengths, which indicates it is a structural feature and not an illusion caused by the instruments or scattered light.

The team's paper will appear online June 14 in *The Astrophysical Journal*.

For images, illustrations, and more information about TW Hydrae, visit <http://hubblesite.org/news/2013/20>. For more information about NASA's *Hubble Space Telescope*, visit: <http://www.nasa.gov/hubble>.

Image from NASA/ESA/STScI.

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## Boeing Completes New Spacecraft, Rocket Milestones From NASA

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The Boeing Company of Houston, a NASA Commercial Crew Program (CCP) partner, recently performed wind tunnel testing of its CST-100 spacecraft and integrated launch vehicle, the United Launch Alliance (ULA) Atlas V rocket. The testing is part of NASA's Commercial Crew Integrated Capability (CCiCap) initiative, intended to make commercial human spaceflight services available for government and commercial customers.

Boeing and ULA also worked together to test a newly developed component of the Atlas V's Centaur upper stage. Boeing now has completed two of eight performance milestones under CCiCap and is on track to complete all 19 of its milestones around mid-2014.

"The Centaur has a long and storied past of launching the agency's most successful spacecraft to other worlds," said Ed Mango, NASA's CCP manager at the agency's Kennedy Space Center in Florida. "Because it has never been used for human spaceflight before, these tests are

critical to ensuring a smooth and safe performance for the crew members who will be riding atop the human-rated Atlas V."

The wind tunnel tests, which began in March and wrapped up in May at NASA's Ames Research Center in Moffett Field, Calif., were the first interface tests of Boeing's spacecraft, launch vehicle adaptor and launch vehicle. A scale model of the integrated spacecraft and rocket was placed in Ames' 11-foot diameter transonic wind tunnel. The data gathered provides Boeing with critical information it needs to ensure its system is safe for launching crews to low-Earth orbit.

The Centaur liquid oxygen-feed duct line was tested in March in Murrieta, Calif., to characterize how liquid oxygen moves from the stage's oxygen tank to its two engines where the propellant will be mixed with liquid hydrogen to create thrust. The Centaur, which takes over after the Atlas V first stage runs low on propellants, will push the spacecraft to its intended orbit. The Centaur has an extensive and

successful history of delivering spacecraft to their destinations, including carrying NASA's Curiosity science rover to Mars.

"The CST-100 and Atlas V, connected with the launch vehicle adaptor, performed exactly as expected and confirmed our expectations of how they will perform together in flight," said John Mulholland, Boeing vice president and program manager for Commercial Programs.

Boeing is one of three U.S. companies NASA is working with during CCiCap to set the stage for a crewed orbital demonstration mission around the middle of the decade. Future development and certification initiatives eventually will lead to the availability of human spaceflight services for NASA to send astronauts to the International Space Station from the United States.

For more information about NASA's Commercial Crew Program and its aerospace industry partners, visit <http://www.nasa.gov/commercialcrew>.

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## Orion Spacecraft Proves Sound Under Pressure From NASA

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After a month of being poked, prodded and pressurized in ways that mimicked the stresses of spaceflight, NASA's *Orion* crew module successfully passed its static loads tests on Wednesday.

When *Orion* launches on Exploration Flight Test-1 (EFT-1), which is targeted for September 2014, it will travel farther from Earth than any spacecraft built for humans in more than 40 years. The spacecraft will fly about 3,600 miles above Earth's surface and return at speeds of approximately 25,000 mph. During the test, *Orion* will experience an array of stresses, or loads, including launch and re-entry, the vacuum of space, and several dynamic events that will jettison hardware away from the spacecraft and deploy parachutes.

To ensure *Orion* will be ready for its flight test next year, engineers at NASA's Kennedy Space Center in

Florida built a 20-foot-tall static loads test fixture for the crew module with hydraulic cylinders that slowly push or pull on the vehicle, depending on the type of load being simulated. The fixture produced 110 percent of the load caused by eight different types of stress *Orion* will experience during EFT-1. More than 1,600 strain gauges recorded how the vehicle responded. The loads ranged from as little as 14,000 pounds to as much as 240,000 pounds.

"The static loads campaign is our best method of testing to verify what works on paper will work in space," said Charlie Lundquist, NASA's *Orion* crew and service module manager at the agency's Johnson Space Center in Houston. "This is how we validate our design."

In addition to the various loads it sustained, the *Orion* crew module also was pressurized to simulate the effect of the vacuum in space. This simulation

allowed engineers to confirm it would hold its pressurization in a vacuum and verify repairs made to superficial cracks in the vehicle's rear bulkhead caused by previous pressure testing in November.

The November test revealed insufficient margin in an area of the bulkhead that was unable to withstand the stress of pressurization. Armed with data from that test, engineers were able to reinforce the design to ensure structural integrity and validate the fix during this week's test.

To repair the cracks, engineers designed brackets that spread the stress of being pressurized to other areas of the module that are structurally stronger. During these tests, *Orion* was successfully pressurized to 110 percent of what it would experience in space, demonstrating it is capable of performing as necessary during EFT-1.

For information about *Orion*, visit <http://www.nasa.gov/orion>.



# Webb Telescope's Last Backbone Component Completed From NASA

Assembly of the backbone of NASA's *James Webb Space Telescope*, the primary mirror backplane support structure, is a step closer to completion with the recent addition of the backplane support frame, a fixture that will be used to connect all the pieces of the telescope together.

The backplane support frame will bring together *Webb's* center section and wings, secondary mirror support structure, aft optics system and integrated science instrument module. ATK of Magna, Utah, finished fabrication under the direction of the observatory's builder, Northrop Grumman Corp.

The backplane support frame also will keep the light path aligned inside the telescope during science observations. Measuring 11.5 feet by 9.1 feet by 23.6 feet and weighing 1,102 pounds, it is the final segment needed to complete the primary mirror backplane support structure. This structure will support the observatory's weight during its launch from Earth and hold its 18-piece, 21-foot-diameter primary mirror nearly motionless while *Webb* peers into deep space.

ATK has begun final integration of the backplane support frame to the backplane center section, which it completed in April 2012 and two backplane wing assemblies, which it completed in March.

"Fabricating and assembling the backplane support frame of this size

and stability is a significant technological step as it is one of the largest cryogenic composite structures ever built," said Lee Feinberg, *James Webb Space Telescope* optical telescope element manager at NASA's Goddard Space Flight Center in Greenbelt, Md.

The frame, which was built at room temperature but must operate at temperatures ranging from minus 406 degrees to minus 343 degrees Fahrenheit, will undergo extremely cold, or cryogenic, thermal testing at NASA's Marshall Space Flight Center in Huntsville, Ala. The backplane support frame and primary mirror backplane support structure will shrink as they cool down in space. The tests, exceeding the low temperatures the telescope's backbone will experience in space, are to verify the components will be the right size and operate correctly in space.

The primary mirror backplane support structure consists of more than 10,000 parts, all designed, engineered and built by ATK. The support structure will measure about 24 feet tall, 19.5 feet wide and more than 11 feet deep when fully deployed, but weigh only 2,138 pounds with the wing assemblies, center section and backplane support frame attached. When the mission payload and instruments are installed, the fully populated support structure will support more than 7,300 pounds, more than three times its own weight.

The primary mirror backplane support structure also will meet

unprecedented thermal stability requirements to minimize heat distortion. While the telescope is operating at a range of extremely cold temperatures, from minus 406 degrees to minus 343 degrees Fahrenheit, the backplane must not vary more than 38 nanometers (approximately 1 one-thousandth the diameter of a human hair).

The primary backplane support structure is made of lightweight graphite materials using advanced fabrication techniques. The composite parts are connected with precision metallic fittings made of invar and titanium.

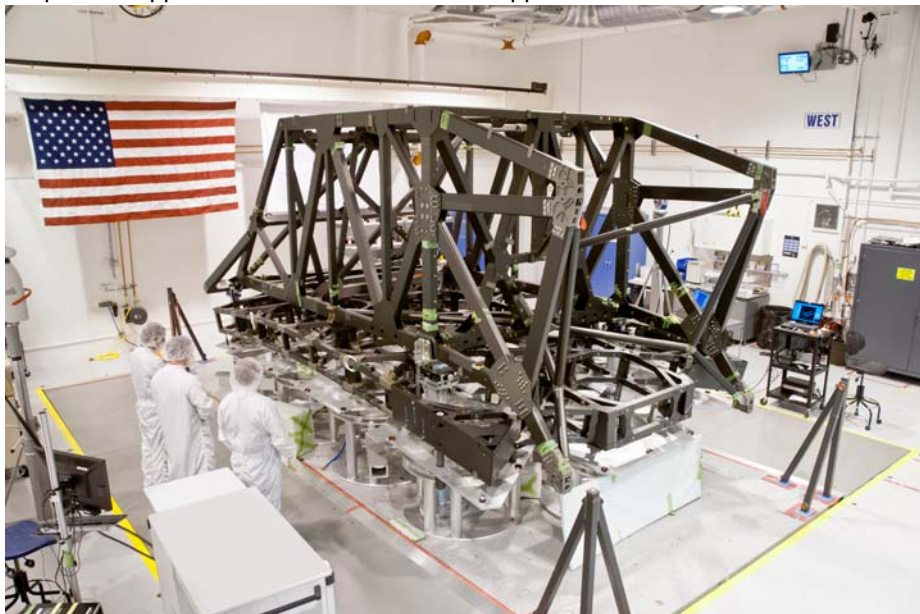
"The ATK team is providing program hardware that is arguably the largest and most advanced cryogenic structure ever built," said Bob Hellekson, ATK's *Webb* telescope program manager.

The assembled primary backplane support structure and backplane support frame are scheduled for delivery to Marshall later this year for the extreme cryogenic thermal testing. They will undergo structural static testing at Northrop Grumman's facilities in Redondo Beach, Calif. in early 2014, and then be combined with the wing assemblies.

The *James Webb Space Telescope*, the successor to NASA's *Hubble Space Telescope*, will be the most powerful space telescope ever built. It will observe the most distant objects in the universe, provide images of the first galaxies formed and see unexplored planets around distant stars. The *Webb* telescope is a joint project of NASA, the European Space Agency and the Canadian Space Agency.

For more information about the completion of the center section of the backplane, visit <http://go.nasa.gov/Zuggpqq>. For a "Behind the Webb" series video about the backplane, visit <http://go.nasa.gov/Zugltr>. For more information about the James Webb Space Telescope, visit <http://www.jwst.nasa.gov>.

*At left, the black framework of the Webb superstructure sits in a white cleanroom. Technicians complete the center section of the backplane and backplane support frame for the James Webb Space Telescope at ATK's facility in Magna, Utah. From ATK via NASA.*



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# Voyager - The Seven

By Brad McDonald

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## ACT TWO

FADE IN:

EXT. SPACE - VOYAGER AND SHUTTLE

Both ships remain motionless.

INT. SHUTTLE

Action is continuous from Act One. Janeway is studying Voyager from the pilots seat in the shuttle.

JANEWAY

Computer, establish a link with Voyager's main computer.

COMPUTER

Link established.

JANEWAY

Computer, recognize Janeway, Kathryn. Captain, Voyager authorization Omega Alpha Omega. Command lock out on all ship functions.

COMPUTER

Recognize Janeway and authorization. Lock out in effect.

JANEWAY

(to self)

All right, if anyone had plans on acquiring Federation technology, it's too late now. Computer, scan for any life signs aboard Voyager. Use generic profiles and scan for any living form.

She pauses a moment, rubbing her forehead.

JANEWAY

Computer, relay that. Scan for any moving life form, same parameters.

(to self)

I already know about our plants.

COMPUTER

Understood. Operational orders will require ten minutes to comply.

JANEWAY

Let it. I don't intend on walking into a trap. I must know what if anyone is aboard.

COMPUTER

Scan in progress.

JANEWAY

Computer, when did the crew of Voyager disappear?

COMPUTER

Crew left the ship at 1535 hours.

JANEWAY

Left? They used the transporters?

COMPUTER

An energy matter transfer device not conforming to any known standards, was used.

JANEWAY

(to self)

In other words, they were Shanghaied.

COMPUTER

Affirmative.

The computer's response surprises her. She shifts her seat and activates a viewer.

JANEWAY

Computer, playback the bridge flight recorder, beginning at 1430 hours.

COMPUTER

Flight recorder, U.S.S. Voyager, bridge, 1430

hours.

Commencing playback.

ANGLE ON VIEWER

The bridge of Voyager is normal with Chakotay, Tuvok and several N. D. CREWPERSONS busy at their stations.

TUVOK

Commander, I have unusual readings from the seventh planet in this system. High energy levels focused on us.

CHAKOTAY

Hostile?

TUVOK

No. It seems someone is curious about us.

CHAKOTAY

Open a hailing frequency. Let's find out what they want.

Tuvok works his console and shakes his head.

TUVOK

Frequencies open, but they do not respond.

CHAKOTAY

Let's take the first step then.

He taps his comm badge.

CHAKOTAY

(continuing)

To the beings on the seventh planet. We come in peace to study your unusual star system. Do you wish to communicate with us?

Tuvok continues to work his console.

TUVOK

No response. Just increased scans.



CHAKOTAY

Are the scans intense enough to impact on our systems?

TUVOK

(off console)

Unknown. Recommend defensive measures.

CHAKOTAY

Raise --

Before he can finish, the bridge crew fades out, leaving the bridge deserted.

ON JANEWAY

JANEWAY

The people of the seventh planet have a lot of explaining to do. Computer, is the scan complete?

COMPUTER

Affirmative. There are no life signs aboard which fit the required parameters.

JANEWAY

Computer. Open hanger doors and activate emergency recovery system. E.T.A. in three minutes.

COMPUTER

Shuttle bay emergency recovery system in effect, hanger doors open.

EXT. SPACE - VOYAGER AND SHUTTLE

The shuttle banks to one side and heads for the shuttle bay.

INT. VOYAGER - HANGER DECK

Janeway exits the shuttlecraft and taps her comm badge and continues walking.

JANEWAY

Computer. Raise shields.

COMPUTER

Unable to comply. Shields are not functional.

Janeway pauses and alters direction to a wall locker.

JANEWAY

Computer, begin a level three diagnostic on the shields, I'll be there in five minutes.

She stops at the locker, takes out a phaser and activates it. Then she exits the hanger and enters the corridor.

CORRIDOR - CAMERA FOLLOWS ACTION

As Janeway moves through the corridor we hear her voice in the B. G.

JANEWAY'S VOICE

Captain's log. Stardate 59586.5 Voyager is deserted, my crew has been taken. Before I can begin to get them back, I must restore the shields.

ENGINEERING

Janeway enters and locates the main control panel. She puts the phaser down and begins to work at the console. After a few moments, she hears a noise and grabs the phaser. Moving slowly and cautiously, she moves through engineering until a figure appears. Janeway is about to overtake the figure until he turns around, revealing the Doctor.

JANEWAY

Doctor! What are you doing here?

DOCTOR

Originally, I was attempting to locate Mister Paris, but I have been unable to find anyone.

(indicating phaser)

Is that really necessary?

Janeway lowers her phaser, relieved to find her old friend.

JANEWAY

Computer records show they were transported off about two hours ago.

DOCTOR

Not possible. Mister Paris was with me in sick bay not more than thirty minutes ago. He said he was looking for Ensign Kim, then he disappeared.

JANEWAY

Then they weren't all taken at once. Maybe they were taken in groups or by sections of the ship. Question is, why didn't they take you?

DOCTOR

Perhaps their sensors don't register holo programs.

JANEWAY

Thank goodness. At least I have a little help.

She returns to the main engineering panel and the Doctor follows her.

DOCTOR

How may I assist you?

Janeway begins working at the console.

JANEWAY

Somehow, the ship's shields have been disabled. I'm running a diagnostic right now. Looks like the main power couplings have been fused. Probably an overload. It took a lot of focused power.

DOCTOR

I'm afraid I'll be of little use to you. I am a Doctor, not an engineer.

She turns and admonishes him.

JANEWAY

Today you're going to be a little of everything. Later, I'll need you on the bridge. I hope you can learn quickly.

He seems hurt by the question and defends himself with pride.

DOCTOR

Captain, I am not an officer of the line either. However, I am undoubtedly the quickest study on board. After all, how many other crew members can you program?

Janeway smiles at the thought.

JANEWAY

You're right. I just wish I could clone you. Activate that panel near you, we're going to rig a bypass circuit. Redirect the power through the auxiliary circuits, I'll alter the power levels to maximize shield output, just in case we need it.

She returns to her work when an idea strikes her.

JANEWAY  
(continuing)

That's not a bad idea.  
(to Doctor)

After we get the shields working, you are going to provide this ship with a crew.

The Doctor is a bit confused by her comment. He is having difficulty with the control panel and is preoccupied.

DOCTOR

I am having difficulty in getting this panel to operate for me.

JANEWAY

My fault. I initiated a command lock out. Computer, recognize Janeway, Omega Alpha Omega. Extend command lock out to ship's doctor.

COMPUTER

Recognize Janeway,  
command lock out  
extended to ship's doctor.

JANEWAY

Try it now.

He attempts it again, smiling at his basic accomplishment.

DOCTOR

Maybe I'll make a good engineer after all.

Janeway is still busy with her panel and looks up.

JANEWAY

Not so fast. We still have to take care of a few other problems in the main Jeffries Tube. I hope you don't mind crowded spaces.

MAIN JEFFRIES TUBE

Janeway and the Doctor are entering the tube with tricorders and tools in hand and over the shoulder bags. As the Doctor enters, he surveys the small opening.

DOCTOR  
(to self)

I'm a doctor, not a miner.

JANEWAY

Come on Doctor, keep up with me.

The two move farther into the tube; the Doctor is less than thrilled.

DOCTOR

I suppose this trip is really necessary.

Janeway is mildly annoyed by the doctor's grouching.

JANEWAY

Don't be such a sissy. This type of work is good for building character. Besides, it's all part of becoming an engineer.

DOCTOR

Thanks, I'll try to better myself through other means.

JANEWAY

In the meantime, suffer a bit faster.

JEFFRIES TUBE - NEW ANGLE

Janeway stops at an access panel and begins scanning.

JANEWAY

Hand me the conduit spanner.

The doctor fumbles through the over the shoulder bag.

JANEWAY

The big silver thing.

He pulls it from the bag and hands it to her.

DOCTOR

Are we done now?

She is working and studies the Doctor.

JANEWAY

Almost. Once we finish here, we have to initiate the bypass from the bridge. Then we can move on to creating a new crew.

DOCTOR

I'm not real clear on how you are going to accomplish that. Would you care to elucidate?

JANEWAY

Actually, it's rather simple --

She stops when they hear a high energy noise. Janeway suddenly disappears in a transporter beam. The Doctor is terrified by the prospect of being alone.

Off his reaction...

FADE OUT.

END OF ACT TWO



# Puzzle - ST:TNG Alien Worlds

## From U.S.S. Kitty Hawk Puzzle Book

A	L	P	H	A	O	N	I	A	S	I	I	I	V	P	E
S	O	C	B	C	R	O	C	L	I	I	Y	I	E	T	R
S	O	H	A	A	N	K	O	D	L	K	A	L	A	A	O
A	N	A	R	M	A	L	N	E	Z	N	I	R	N	R	C
R	M	I	Z	A	R	A	I	A	A	A	O	U	G	C	N
O	R	N	A	R	A	Z	A	R	R	P	M	B	O	H	O
N	E	A	N	I	Z	Y	A	A	R	E	I	I	S	A	D
A	L	B	I	I	K	T	L	O	D	L	C	C	I	N	N
V	V	Y	I	I	L	P	C	I	E	I	R	U	A	N	R
I	A	N	C	E	H	K	D	I	V	A	O	N	I	E	O
I	V	A	D	A	A	E	I	I	I	R	N	I	I	N	L
I	I	R	M	I	N	O	S	V	N	I	T	I	I	I	A
K	I	O	L	E	L	A	D	R	E	L	H	I	K	I	G
K	O	E	B	R	E	E	L	I	V	D	E	L	V	I	N
N	H	I	R	O	V	I	A	R	A	H	T	N	E	P	I
S	V	N	O	O	M	A	T	E	B	R	A	I	L	E	P

Words can be found horizontally, vertically, diagonally, backwards, and/or forwards, and always in a straight line. Spaces and punctuation aren't included.

- |                 |                   |                   |
|-----------------|-------------------|-------------------|
| ACCAMAR III     | DELVIN            | PELIAR BETA MOON  |
| ALDEA           | EL-ADREL          | PENTHARA IV       |
| ALPHA ONIAS III | GALORNDON CORE    | RELVA VII         |
| ANGOSIA III     | ICONIA            | RUBICUN III       |
| BARZAN II       | MINOS             | SARONA VII        |
| BRE'EL IV       | MIZAR             | SHELIAC CORPORATE |
| BYNAR           | OMICRON THETA     | TARCHANNEN III    |
| CHAINA          | ORNARA            | ZALKON            |
| DELTA RANA IV   | PELIAR            |                   |
| DENEK IV        | PELIAR ALPHA MOON |                   |

*Answers to Last Month's Puzzle --*

- |      |       |       |       |       |
|------|-------|-------|-------|-------|
| 1. H | 7. C  | 12. M | 17. O | 22. R |
| 2. L | 8. E  | 13. F | 18. V | 23. X |
| 3. D | 9. B  | 14. K | 19. P | 24. T |
| 4. A | 10. I | 15. U | 20. Q | 25. W |
| 5. J | 11. G | 16. S | 21. Y | 26. Z |
| 6. N |       |       |       |       |

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## Upcoming Events

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**Jul**        **6**        **4 p.m. Ship Meeting, Triangle Factory Outlet**  
(Bring school supplies for Sherry - see JR's article for details)

**Aug**        *Annual Refit, No Ship Meeting*

**3**        *Articles Due for Wright Stuff*

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

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***THE WRIGHT STUFF***  
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**RALEIGH NC 27612**