



Jet Propulsion Laboratory
California Institute of Technology

CASSINI SCIENCE BIBLIOGRAPHIES

volumes 1 through 7

CASSINI FINAL MISSION REPORT 2019

Attachment C

DISCLAIMER

The Cassini Science Bibliographies is not exhaustive and complete. For all other Cassini related references refer to: Attachment B – References & Bibliographies; the sections entitled References contributed by individual Cassini instrument and discipline teams located in Volume 1 Sections 3.1 and 3.2 Science Results; and other resources outside of the Cassini Final Mission Report.

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FROM 2014 CASSINI SENIOR REVIEW

Cassini Ground-Breaking Science Publications

The following is a selection of Cassini's ground-breaking papers (those published in Science and Nature only).

- Anderson, J. D. and G. Schubert. Saturn's gravitational field, internal rotation and interior structure. *Science*, vol. 317, pp. 1384-1387, 2007.
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NASA/JET PROPULSION LABORATORY/CALTECH — SPACE SCIENCE INSTITUTE

Saturn, a (Really) Wide View

NASA's Cassini spacecraft looked back from the shadow of Saturn to take a picture that sweeps 405,000 miles across the planet and the inner solar system. Cassini captured 323 wide-angle images on July 19, and this mosaic, released on Tuesday, used 141 of them. For some galactic perspective, Earth is 898 million miles away.

EXPERTS RESHAPE TREATMENT GUIDE FOR CHOLESTEROL

CHANGE IN STATINS' USE

2 Groups See No Need
to Drop to a Specific
Level of LDL

By GINA KOLATA

The nation's leading heart organizations released new guidelines on Tuesday that will fundamentally reshape the use of cholesterol-lowering statin medicines, which are now prescribed for a quarter of Americans over 40. Patients on statins will no longer need to lower their cholesterol levels to specific numerical targets monitored by regular blood tests, as has been recommended for decades. Simply taking the right dose of a statin will be sufficient, the guidelines say.

The new approach divides people needing treatment into two

China Leader Gets More Swav

Obama in Bind Trying to Keep Health Law Vow

365 DAYS: THE YEAR IN SCIENCE

IMAGES OF THE YEAR

In 2019, our brilliant community of image and flight artists worked hard to produce the most beautiful images of the year. From the vastness of the universe, providing stunning views of space and capturing images of the very things that we humans depend on. This is our selection of the year's most beautiful images, and we hope you'll love them as much as we do.

Images selected by NASA's art and flight team, including Cassini.

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FIRE IN THE SKY

This bright meteor streaked across the night sky over the Turpan basin in 2019. It was seen by thousands of people, but captured in detail by the Cassini spacecraft. The image shows the bright fireball and the long, thin tail that followed.



FLOWER POWER

These images show the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



SMALL AND MIGHTY

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



MAGIC MOMENT

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



MIND READER

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



VISUAL LINK

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



FAR OUT

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



SOLAR STATION

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



BLOWING IN THE WIND

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



ANCIENT YOUNG

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



BROUGHT TO LIGHT

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



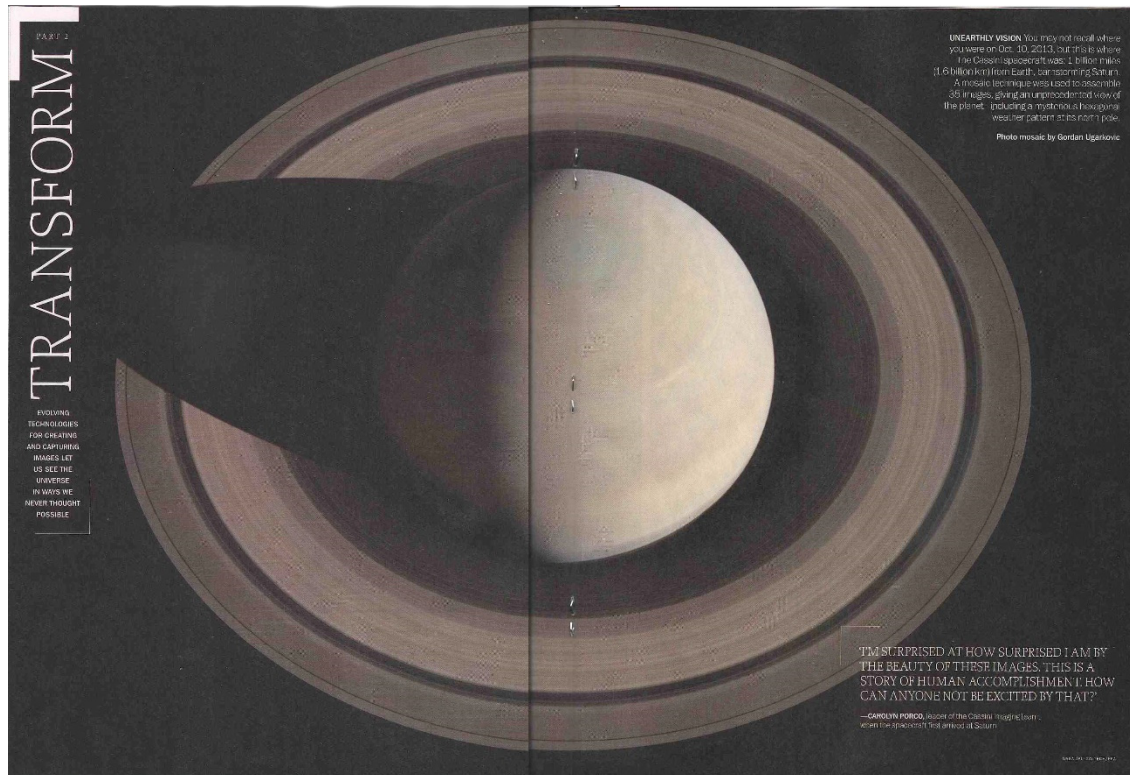
OLD FLAMES

This image shows the Cassini spacecraft's view of the planet Saturn and its rings. The image shows the planet's rings and the planet's surface, with the Cassini spacecraft in the foreground.



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PEER-REVIEWED JOURNALS: SPECIAL CASSINI-RELATED ISSUES

SCIENCE 25 FEBRUARY 2005 VOL. 307 #5713: CASSINI ARRIVES AT SATURN

Oxygen Ions Observed Near Saturn's A Ring

J. H. Waite, Jr., T. E. Cravens, W.-H. Ip, W. T. Kasprzak, J. G. Luhmann, R. L. McNutt, H. B. Niemann, R. V. Yelle, I. Mueller-Wodarg, S. A. Ledvina, and S. Scherer

Composition of Saturnian Stream Particles

Sascha Kempf, Ralf Srama, Frank Postberg, Marcia Burton, Simon F. Green, Stefan Helfert, Jon K. Hillier, Neil McBride, J. Anthony M. McDonnell, Georg Moragas-Klostermeyer, Mou Roy, and Eberhard Grün

Cassini Magnetometer Observations During Saturn Orbit Insertion

M. K. Dougherty, N. Achilleos, N. Andre, C. S. Arridge, A. Balogh, C. Bertucci, M. E. Burton, S. W. H. Cowley, G. Erdos, G. Giampieri, K.-H. Glassmeier, K. K. Khurana, J. Leisner, F. M. Neubauer, C. T. Russell, E. J. Smith, D. J. Southwood, and B. T. Tsurutani

Dynamics of Saturn's Magnetosphere from MIMI During Cassini's Orbital Insertion

S. M. Krimigis, D. G. Mitchell, D. C. Hamilton, N. Krupp, S. Livi, E. C. Roelof, J. Dandouras, T. P. Armstrong, B. H. Mauk, C. Paranicas, P. C. Brandt, S. Bolton, A. F. Cheng, T. Choo, G. Gloeckler, J. Hayes, K. C. Hsieh, W.-H. Ip, S. Jaskulek, E. P. Keath, E. Kirsch, M. Kusterer, A. Lagg, L. J. Lanzerotti, D. LaVallee, J. Manweiler, R. W. McEntire, W. Rasmuss, J. Saur, F. S. Turner, D. J. Williams, and J. Woch

Composition and Dynamics of Plasma in Saturn's Magnetosphere

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Radio and Plasma Wave Observations at Saturn from Cassini's Approach and First Orbit

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How Long Is the Day on Saturn?

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Enceladus: Cosmic Gymnast, Volatile Miniworld

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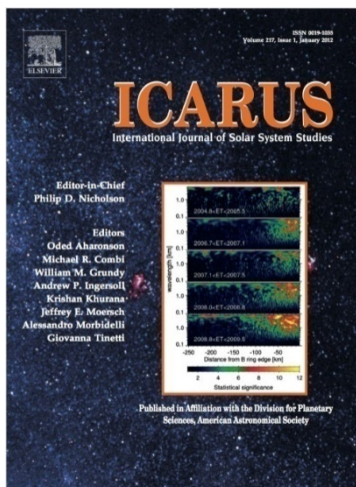
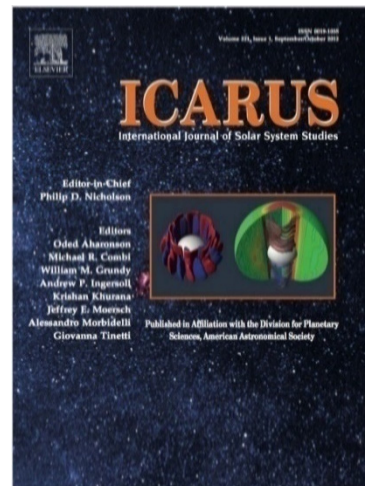
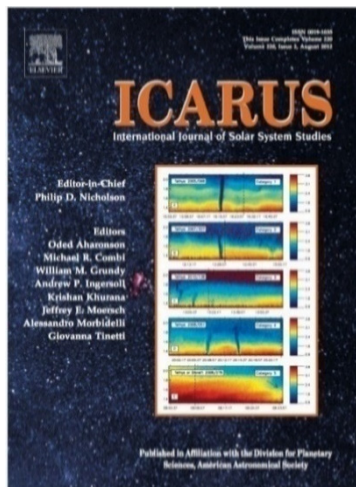
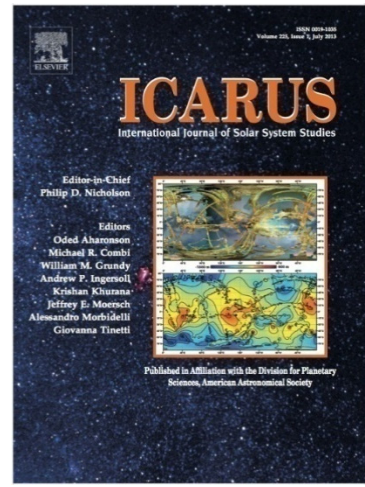
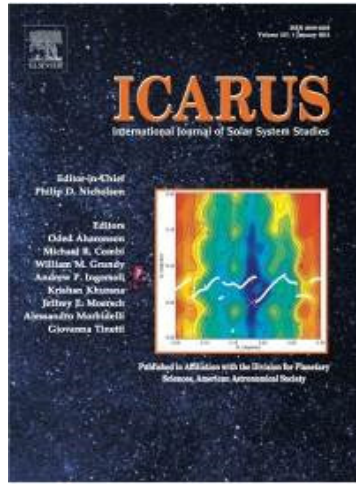
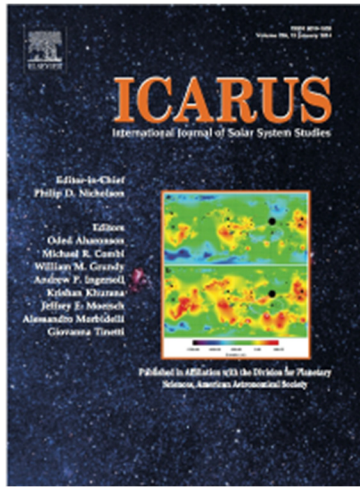
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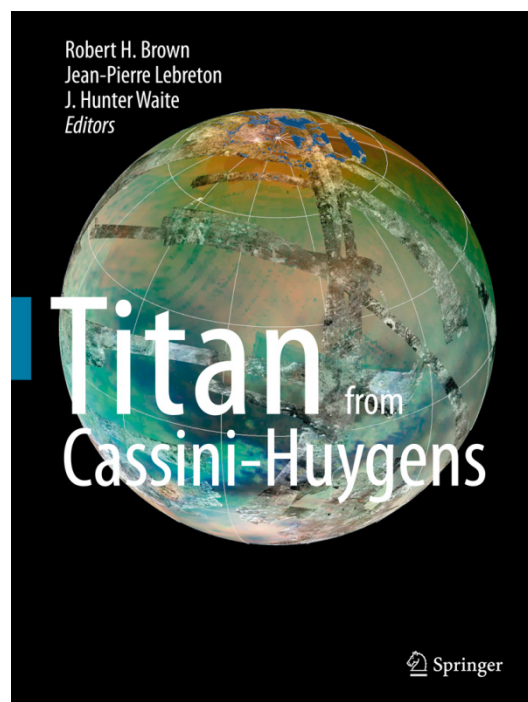
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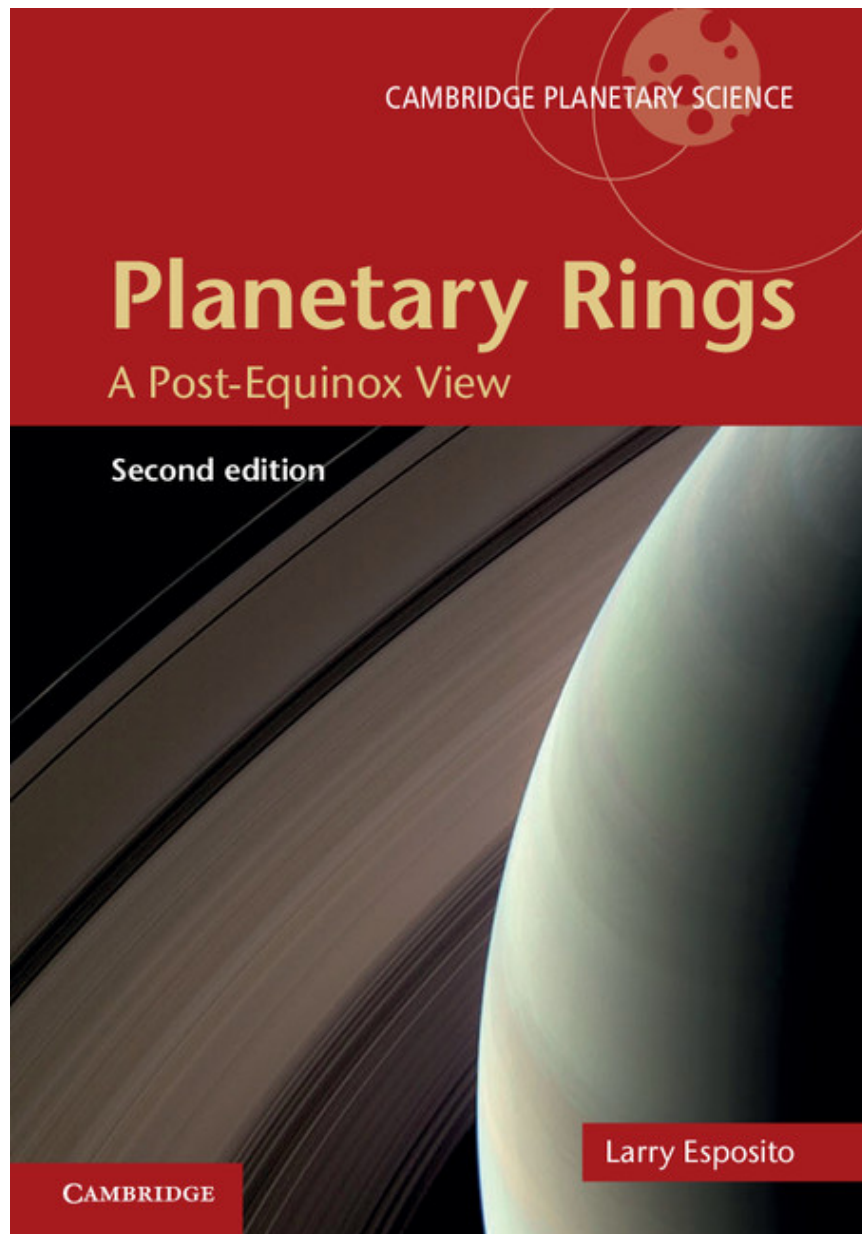
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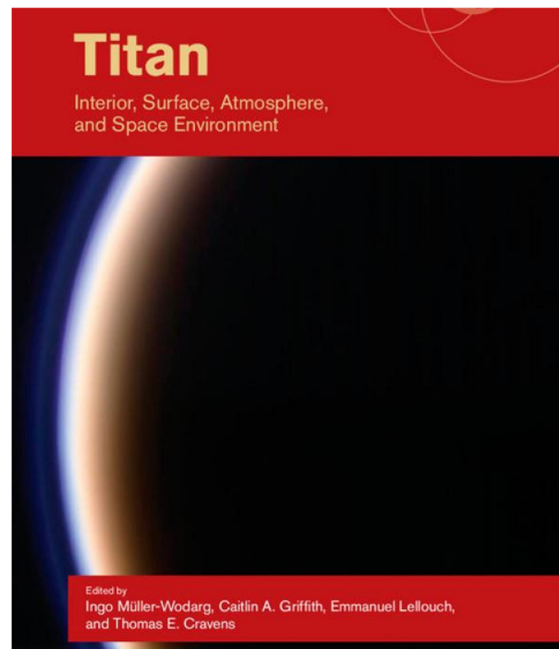
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Cassini Education and Public Outreach

The Cassini Education and Public Outreach (EPO) continues its original EPO plan, with an overall goal of contributing to the advancement of our nation's literacy in science, technology, engineering and mathematics. To successfully implement this strategy, Cassini EPO works to create thematic products that engage students via a "learn science by doing science" philosophy, and designs products with usefulness extending beyond Cassini. Cassini EPO also supports NASA's Science Mission Directorate planetary and outer planets EPO, benefitting educators and students and ensuring good stewardship of taxpayer funds.

Formal Education

- **Reading, Writing & Rings (RW&R)**

(http://solarsystem.nasa.gov/educ/lesson-view.cfm?LS_ID=308) is a comprehensive language arts education program for young learners. Lessons learned from RW&R paved the path for the Planetary Program-funded "Through the Eyes of Scientists", a language arts product, which uses NASA scientists and their stories to teach students to think and learn like scientists. (<http://solarsystem.nasa.gov/educ/tteos.cfm>)

- **Cassini "Scientist for a Day" (SFAD)**

(<http://saturn.jpl.nasa.gov/education/scientistforaday13thedition/>) challenges students to become NASA scientists studying Saturn. Participants write a short essay about which of three possible Cassini observations they think will yield the best science. SFAD meets U.S. National English and Science Education Standards. Since its 2004 inception, SFAD now reaches ~10,000 students in over 500 U.S. classrooms; the international version has reached tens of thousands worldwide in 5 continents and 52 countries.

Informal Education

- **"Ring World" Planetarium Show** won a 2004 Telly award, and has been shown nationally and internationally in hundreds of planetariums in multiple languages. Versions for schools in English, Spanish, Letterbox (for hearing impaired), and Podcast (or "vodcast") are available for download. The third and final Ring World HD video (<http://saturn.jpl.nasa.gov/video/videodetails/?videoID=114>) was completed in 2012, and a print run of 50,000 was completed and sent to NASA networks with a Spanish translation and closed-captioning for the hearing impaired.
- **"Saturn Observing Campaign"** (<http://saturn.jpl.nasa.gov/education/saturnobservation/>) shares the excitement of the Cassini mission with amateur astronomers and public groups around the world. Since 2004, Saturn Observation Events have reached more than 500,000 members of the public. The Juno Observing program will take lessons learned from Saturn Observing, as Juno develops its JunoCam programming.
- The **"What's Up?" podcast** (<http://solarsystem.nasa.gov/news/whatsup-archive.cfm>) features a two-minute video highlight of a current NASA mission and what is viewable in the night sky.

Originally started by Cassini EPO and now supported by the NASA Solar System web, in March 2013 “What’s UP?” marked its seventh anniversary with its 10 millionth download and 70th monthly podcast.

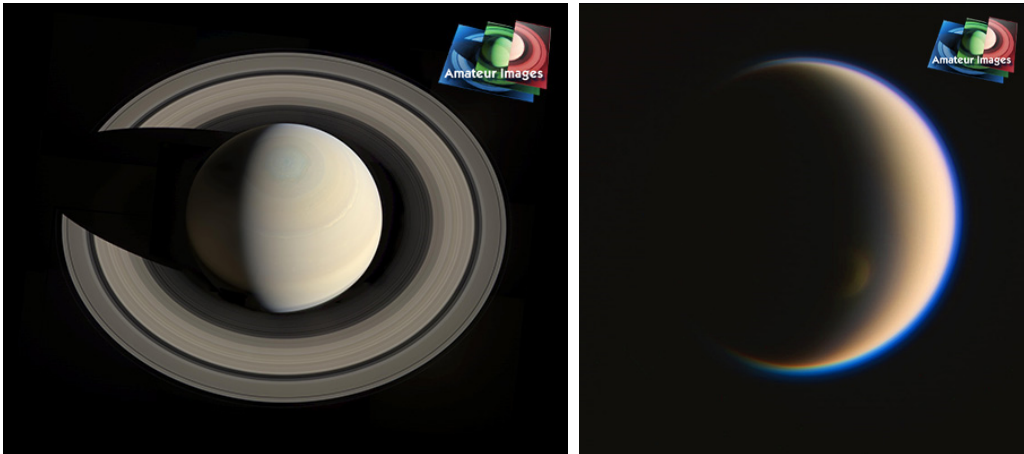
Reaching Underserved Schools

DonorsChoose.org (http://www.youtube.com/watch?v=PUSdjfh2YjM&feature=player_embedded) is a nonprofit organization matching donors with public school educators. 75% are high poverty and all were unaware that NASA provides high quality materials for free. Through DonorsChoose.org:

- Cassini reached ~3,000 K-12 teachers and ~300,000 students in all 50 states;
- Cassini EPO invited all students to participate in Cassini Scientist for a Day and other NASA networks.

Public Outreach: NASA Data Shared with the Public

- **“Eyes on the Solar System”**: In 2004, Cassini EPO started a unique visualization program called “CASSIE” (Cassini Internet Explorer, <http://saturn.jpl.nasa.gov/photos/imagedetails/index.cfm?imageId=2935>), which allowed the public to experience the Cassini spacecraft going into Saturn Orbit Insertion. Now known as “Eyes on the Solar System” (<http://eyes.nasa.gov/>), “Cassie” hosts all of NASA’s planetary missions and has generated millions of downloads of NASA data for the general public.
- **Images:**
 - Cassini **Top 10 Science & Image Features**: The Cassini EPO annual round up of the mission’s top science and images of the year is picked up by news sites and bloggers around the world including Time Magazine, Wall Street Journal, Wired, Reddit, Boston Globe and more.
 - 2013 Top 10 Science Highlights:
<http://saturn.jpl.nasa.gov/photos/imagedetails/index.cfm?imageId=4954>
 - 2013 Top 10 Images:
<http://saturn.jpl.nasa.gov/photos/imagedetails/index.cfm?imageId=4950>
 - Cassini **Hall of Fame Images** (<http://saturn.jpl.nasa.gov/photos/halloffame/>) is a combination of public- and scientist-selected “best of the best” images from the mission.
 - **Your 15 Minutes of 'Frame'**: In 2014 to help mark 10 years in orbit, Cassini launched its **Amateur Image Gallery** (<http://saturn.jpl.nasa.gov/photos/amateurimages/>) to highlight and celebrate images produced and submitted by members of the public who turn Cassini image data into works of art. Below is a sampling of the submissions.



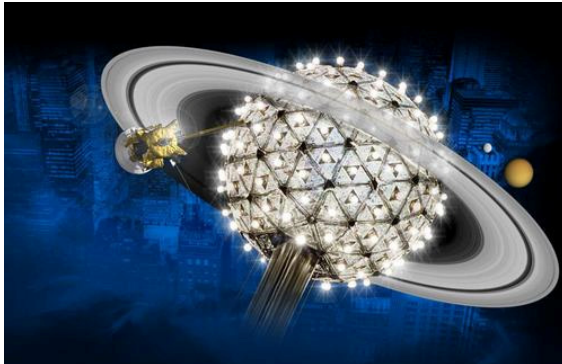
Other Notable Programs

- The **Cassini website** (<http://saturn.jpl.nasa.gov/>) is one of the most trafficked NASA websites, garnering a Webby award as Best Science Website in 2009 for outstanding work highlighting science. It currently receives approximately half a million unique users monthly and is over 100,000 pages deep. The raw images area, which makes images available to the public eight hours after being downlinked from the spacecraft, receives the most traffic.
- Other Cassini Web highlights:
 - **Cassini Science League:** These articles highlight some of the most intriguing science papers from the large and diverse volume of science generated by the scientists on the Cassini mission.
 - **Cassini Huygens Analysis and Results of the Mission (CHARM):** Teleconferences presented since 2004 by Cassini Mission experts to NASA's outreach networks (NASA Museum Alliance members, Solar System Ambassadors).
- **Cassini Twitter:** The most trafficked NASA orbiter Twitter account garnering 360,000 followers (@CassiniSaturn).
- A **Titan and Enceladus Interactive** Flash animation was the top-trafficked multimedia product in 2007 and 2008 produced for JPL/NASA and has been linked to multiple sites including NASA Solar System Exploration, JPL Homepage, Cassini Mission site, NASA Portal homepage, Cassini Portal site, European Space Agency and many more.
 - <http://saturn.jpl.nasa.gov/multimedia/flash/Titan/index.html>
 - <http://saturn.jpl.nasa.gov/multimedia/flash/Enceladus/enceladus.html>
- **Wave at Saturn:** The EPO team partnered with NASA Media Relations to produce the viral "Wave at Saturn" event on July 19, 2013, which captured a mosaic of the Saturn (below) and Earth/Moon systems. The event was the first time Earthlings were told in advance that their picture was being taken from interplanetary distances. A collage version of the image (below)

features about 1,600 pictures submitted by members of the public, in which they captured themselves waving up at Cassini during this event.



- Cassini hosts a regular whimsical gallery of seasonal images which have their own cult following. Samples below:



Products Rated as Outstanding from the NASA Education Review Residing on the NASA Education Portal

- Education Worksheet “Saturn, Jewel of the Solar System” and a Spanish language version: “Saturno: La Joya Del Sistema Solar”
- “Reading, Writing and Rings” booklets for grades 1-2 and 3-4
- Links to the DVD version of the Telly award winning Ring World Planetarium Show DVD, which is shown nationally and internationally to hundreds of planetariums in multiple languages. Versions are available for schools in English, Spanish, Letterbox (for hearing impaired), and in Podcast (or “vodcast”).

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