



WATTS **02-2017**

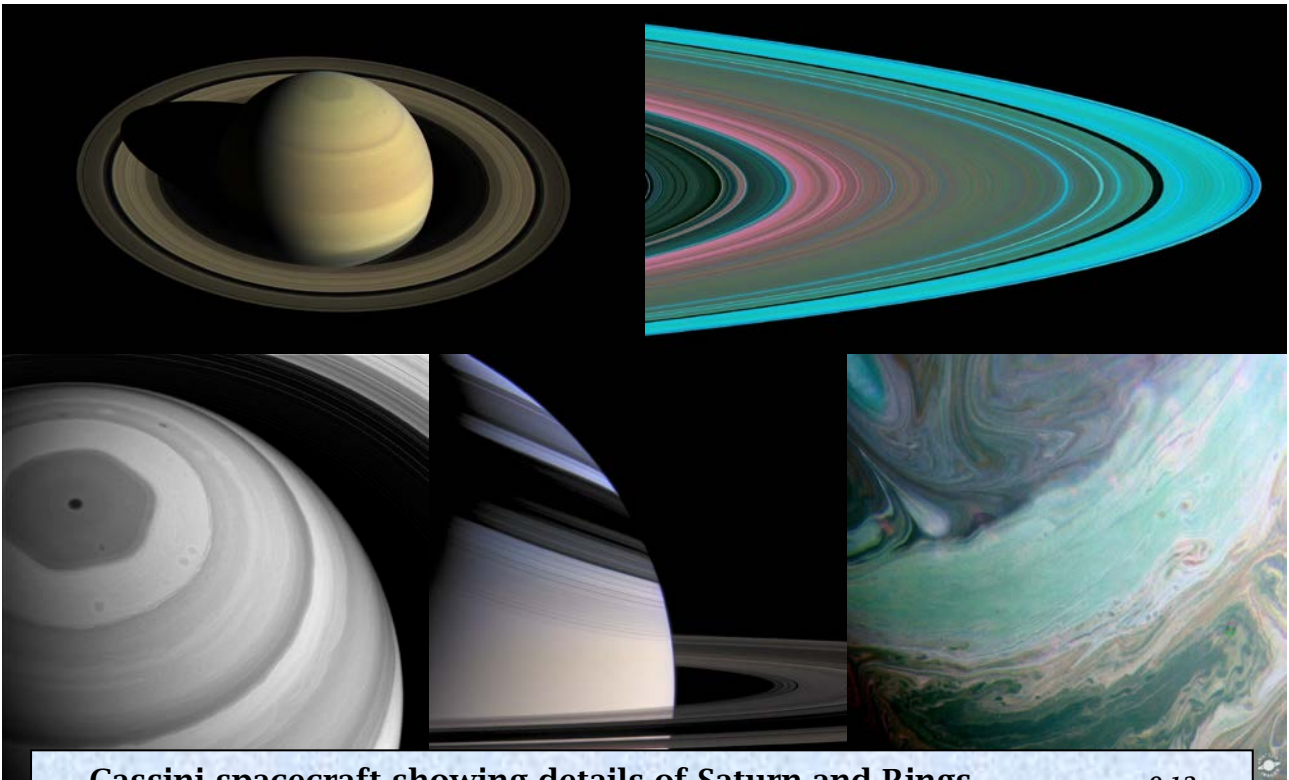
Year 87 + 02m

Monthly Newsletter of the Pretoria Amateur Radio Club
 Maandelikse Nuusbrieff van die Pretoria Amateur Radio Klub

✉ PARC, PO Box 73696, Lynnwood Ridge 0040, RSA
 🌐 <http://www.parc.org.za> zs6pta@zs6pta.org.za



Bulletins : 145.725 MHz on Sundays / Sondag at 08:45
 Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
 Activated frequencies are announced prior to bulletins
Swoptshop : 2m and 7.066 MHz live on-air after bulletins
 Bulletin repeats on Mondays / herhalings op Maandae : 2m 19:45



Cassini spacecraft showing details of Saturn and Rings *more on pages 9-12*

In This Issue / In Hierdie Uitgawe

Diary, General News and Joys and Sorrows.....	P 2
Bulletin Presenters / Aanbieders ; Rally News.....	P 3
A visit to the Museum 2074 / Evan Seligman ZS6ELL.....	P 3-5
Mysterious "Foghorn" in Amateur Radio bands.....	P 6-7
Amazing drone photography.....	P 8
Cassini Spacecraft shows photographs of Saturn rings.....	P 9-12
Technical and other news.....	P 13

Club Meetings / Klub Vergaderings

Club Social Meeting :

Saturday the 4th of February 2017
 from 14h00 at SAM

Committee Meeting :

Wednesday the 15th of February 2017
 from 19h00 at POMC

PARC Flea Market dates for 2017 / PARK Vlooiemark datums vir 2017

25 March / 25 Maart ; 6 May / 6 Mei ; 29 July / 29 Julie ; 28 October / 28 Oktober

For more information please listen to the Sunday Bulletins or contact Alméro Du Pisani
 ZS6LDP at 083-938-8955 or almero.dupisani@up.ac.za

PARC Committee Members / Komiteelede : 2016 - 2017

<u>Elected Members</u>	<u>Name</u>	<u>Callsign</u>	<u>Email Adress</u>	<u>Tel No</u>	<u>Mobile No</u>
Chairman, Web co-ordination	Graham Reid	ZS6GJR	greid@wol.co.za	012-667-2720	083-701-0511
Vice Chairman, Repeater & Rallies	Johan de Bruyn	ZS6JHB	zs6jhb@gmail.com	012-803-9418	079-333-4107
Bulletins, RAE & Liason	Etienne Naude	ZS6EFN	etienne@afrigrid.com	012-661-6745	082-553-0542
Treasurer	Andre van Tonder	ZS6BRC	andreh.vtonder@absamail.co.za	012-361-3292	079-869-0753
Clubhouse Manager	Pieter Fourie	ZS6CN	pieterzs6cn@gmail.com	012-804-7417	082-573-7048
Social	Whitey Joubert	ZS6JJJ	zs6jjj@gmail.com	012-993-2267	072-120-4516
Secretary, Watts & RAE	Louis de Wet	ZS6SK	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
<u>Co-Opted Members</u>	<u>Name</u>	<u>Callsign</u>	<u>Email Adress</u>	<u>Tel No</u>	<u>Mobile No</u>
Fleamarkets	Alméro Dupisani	ZS6LDP	almero.dupisani@up.ac.za	012-420-3779	083-938-8955
Auditor	Tony Crowder	ZS6CRO	tcrowder@telkomsa.net	011-672-3311	
Historian, Archives, Awards	Tjerk Lammers	ZS6P	zs6p@iafrica.com	012-809-0006	083-976-4387
Contests	Jaco Cronje	ZR6CMG	jacocronje@yahoo.com		081-474-2220
Contests	Pierre Holtzhausen	ZS6PJH	zs6pjh@telkomsa.net	012-655-0726	082-575-5799

Birthdays / Verjaarsdae - February / Februarie

02 John Minter ZS6LED	16 De Jager Burger ZS6ZO
03 Willie Greyling ZR6WGR	18 Jaco Cronje
03 Nico van Tonder ZS6AQ (Hon Member)	23 Pete Smith-Curren ZS6PJ
04 Louis de Wet ZS6SK	

Spouse's Birthdays / Verjaardae - February / Februarie

22 Erika, gade van Pine Pienaar ZS6OB

Anniversaries / Herdenkings - February / Februarie

03 Heather and Vincent Harrison ZS6BTY
 07 Juanita en Ryan Gibson ZS6GGR
 14 Louisa en Jaco Cronje ZR6CMG
 16 Dienkie en Pierre Britz ZR6ADZ
 27 Zelda en Wynand Wessels ZR6WW
 28 Martie en Jurgen de Beer ZR6YV (Hon Mem.)

Anniversaries Contd./

18 Sarina en Willie Greyling ZR6WGR
 21 Sandy en Menno Havelaar ZS6AGC
 27 Paddy and Kenny Martin ZS6KMM

Lief en Leed / Joys and Sorrows

Jaco Cronje ZR6CMG het hart chirurgie ondergaan en sterk tans by die huis aan.
 Kenny Martin ZS6KMM het chemoterapie en bestraling voltooi en sterk tans aan.
 Pierre Britz ZR6ADZ sterk aan na onlangse chirurgie.
 Graham Reid ZS6GJR has broken a number of ribs when he fell from a horse. He is recovering at home.

Contests and Diary of Events - February 2017 / Kompetisies en Dagboek van Gebeure - Februarie 2017 (UTC Times)

04 - 05	10 - 10 International Winter Contest, SSB : 00h00 - 23h59
04 - 05	Mexico RTTY International Contest : 18h00 - 17h59
11 - 12	CQ WW RTTY WPX Contest : 00h00 - 23h59
11 - 12	SARL Field Day Contest : 10h00 - 10h00
11 - 12	Dutch PACC Contest : 12h00 - 12h00
13	UNESCO World Radio Day
18 - 19	ARRL International DX Contest, CW : 00h00 - 24h00
18	SARL Youth Day Sprint : 08h00 - 10h00
24 - 26	CQ 160 Meter Contest, SSB : 22h00 - 22h00
25 - 26	REF Contest, SSB : 06h00 - 18h00
25 - 26	UBA DX Contest : 13h00 - 13h00
26	SARL Digital Contest : 13h00 - 16h00

PARC SUBS : PARK LEDEGELD : FROM / VANAF : 30-06-2017

Bank	First National Bank	Ordinary Members / Gewone Lede : R160 Spouses / Pensioners : R60	Your call sign must appear as statement text!
Branch Code	25 20 45		
Account No	546 000 426 73		
Please remit your subs in time to our Treasurer, or pay per transfer into the PARC account Betaal asb. u ledegelde betyds aan ons Tesourier, of betaal per oorplasing in die PARC rekening			

Please Note : If your Club fees are not paid up to date, birthday details cannot be displayed in Watts

PARC Bulletins / PARK Bulletins

PARC Bulletins are presented on Sunday mornings at approximately 08h45, after the SARL Bulletins in English and Afrikaans, from 08h15. The Bulletin Presenters for the following two months are presented below. Please do contact the applicable presenter beforehand if you wish to make a contribution to the Bulletin. PARC Bulletins are broadcast on the 2 meter repeater on 145.725 MHz, and 70 cm on 438.025 MHz. Relays are done on 7.060 MHz by Hans Kappetijn ZS6KR and on Echolink by Johan Lehman ZS6JPL.

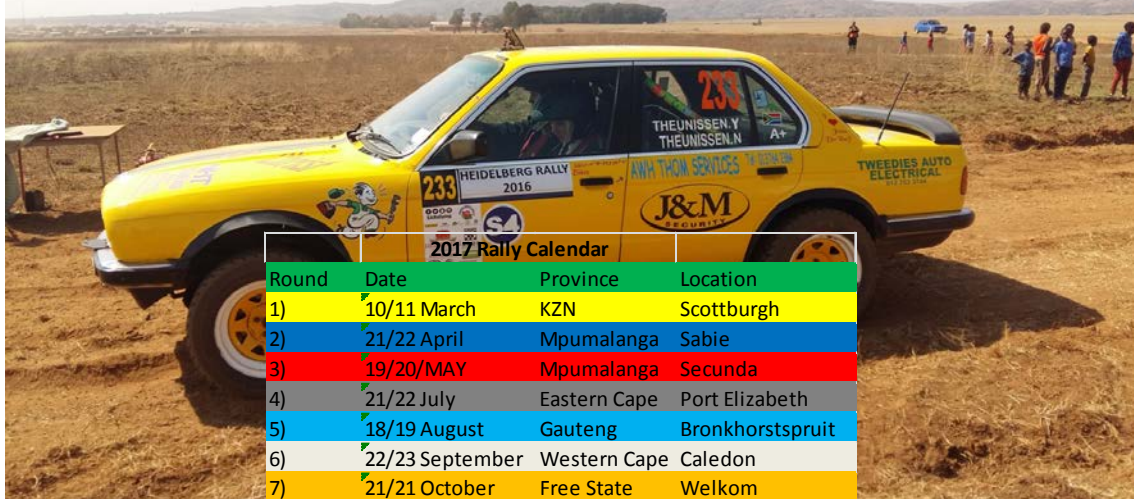
PARK Bulletins word op Sondar oggende aangebied om 08h45, na die SARL Bulletins in Engels en Afrikaans, vanaf 08h15. The Bulletin aanbieders vir die volgende twee maande word onder aangedui. Kontak gerus die toepaslike Bulletin leser indien u 'n bydrae tot die Bulletin wil maak. PARK Bulletins word uitgesaai op die 2 meter Herhaler op 145.725 MHz, en 70cm op 438.205 MHz. Herleidings word gedoen op 7.060 MHz deur Hans Kappetijn ZS6KR en op Echolink deur Johan Lehman ZS6JPL.

PARC Bulletin Presenters : January - March 2017			
Date	Presenter	Date	Presenter
19 February	Tjerk Lammers ZS6P	9 April	Louis de Wet ZS6SK
26 February	Johan de Bruyn ZS6JHB	16 April	Almero du Pisani ZS6LDP
5 March	Louis de Wet ZS6SK	23 April	Etienne Naude ZS6EFN
12 March	Almero du Pisani ZS6LDP	30 April	Tjerk Lammers ZS6P
19 March	Etienne Naude ZS6EFN	7 May	Johan de Bruyn ZS6JHB
26 March	Tjerk Lammers ZS6P	14 May	Louis de Wet ZS6SK
2 April	Johan de Bruyn ZS6JHB	21 May	Almero du Pisani ZS6LDP

Please do contact Etienne Naude ZS6EFN or Jean de Villiers ZS6ARA for more information or any Bulletin arrangements

Rally News 2017 : Tydren Nuus 2017

Die 2017 tydren seisoen belooft om weer net so opwindend te wees. Indien u sou belangstel om met radio ondersteuning betrokke te raak, kontak gerus vir Johan de Bruyn ZS6JHB by 079-333-4107 of zs6jhb@gmail.com



A Vist to the Museum in 2074 : Johan ZS6JHB

Tommy was spending the weekend with Gramps when he asked again for the 100th time. "What did you talk about with all these radios Grandpa?" Gramps was born in 2000 at the turn of the century and got his license for what was called "Amateur Radio" in 2016.

"Well Tommy I talked to folks far and wide, here and in other countries. We talked about current events, the antennas and radios we had and such things as fast cars we still drove before drivers no longer mattered." In the year 2074 cars drove themselves everywhere. Disease was mainly a thing of the past. The last Great War had ended and Earth was a much different place. Communications were via "The Grid" formerly known

as the Internet. People were entertained by Holograms instead of television and cell towers no longer existed in the sense they did when Gramps was born. The world was truly connected.

Gramps house sat on a lake with 5 towers and miles of coax cable all running back to his “shack.” His house WAS the shack! He had the very old radios from the 90’s and later called solid state but also rooms filled with well-kept antiques with names like ICOM, Yaesu, Kenwood, Heathkit, Drake, Swan and such. One room had even older radios from 160 years before, such as Hammarlund and Hallicrafters. There existed still communication purists such as him, but the number of “operators” once in the millions had dwindled to less than a thousand. Tommy was still fascinated by the many walls filled with postcards called QSL’s that had pictures of faraway places or letters and numbers. Gramps most current radio was close to 100 years old called a Flex 6700 SDR.



Tommy liked to watch the colorful patterns form on the Hologscreen that filled a whole wall as Gramps tuned the radio across the “bands” Today the weather was getting colder and signals were getting louder for a change. Gramps had a few regular friends he talked to daily but still looked for “newbies” perhaps the grandsons or daughters of the few remaining operators to talk and “elmer” on his long history of this ancient hobby as some called it.

Oh there were still historians in COMM-teach in schools that would explain the beginnings of all these things but it was more fun to actually listen and respond to someone else “over the air.” It was as the two of them sat there that something amazing happened. A signal on 20 meters of enormous strength almost hurt their ears. It was unlike anything they had ever heard before. It sounded like another person but was sing-songy and almost electrical sounding and in a language neither of them could understand but slowly it cleared up in bits and pieces into very clear English! Greetings!

I speak to you on this wavelength from the star you call Sirius. My name is Wolfe in your earth words as close as can be translated to your words. To whom am I conversing with?”

Gramps looked puzzled then smiled. Hey K6WWW that you Bill? What’s the gag?

“I am sorry but this is no “gag” if I understand that word. I am from a distant star system you call Sirius and I am seriously called Wolfe. The reason I speak to you is you have been the keeper of the radio history of your past and I wish to visit and see these things in what you call “The Museum.”

You need not key the microphone I can hear you without it. And with that a being took form in the room as solid as either Tommy or Gramps but it was not a hologram but a man-like creature with the body of a human but the head of a dog. And it was holding something in his hand.



“Wolfe” from Sirius “

Tommy looked in awe and Gramps jaw dropped; the entity seemed to be holding what looked like an old handi-talkie or HT! He was wearing something like an old style military uniform or such with medals.

Gramps stood up and walked over and asked the question. “We knew that others outside our world existed but nothing like you.”

“I understand Wolfe said, but there exists many things you have never seen, we are just one. I cannot stay long perhaps you can show me around your Museum?”

Of course. And that is what Gramps did along with Tommy in tow smiling at the wagging tail on this creature each time they stopped in front of a display he would bend down to inspect the gear then the furry tail sticking out the back of his uniform would wag approval.

It was Tommy who asked then “Sir (he was very polite) what is that device you are holding? With that Wolfe handed the device to Tommy and he said,” this for you as a piece of history. Tommy took and saw a word in English on it that read Yaesu FT-60.

Wolfe “This device had many bands and channels and much communication options. It was teleported in times past after we left a compensation with your HRO people for it of what we have in abundance on our

world you call a Diamond” Wolfe then produced a small wooden box and handed it to Gramps who opened it to find all the accessories normally found with the FT-60. -- Speaker mic, extra batteries, etc.

After an hour or so Wolfe looked at the two of them and stated, “I must leave now but if you wish I will return in the future and we can talk more of your and my world and how we can communicate, 73 my friends.”

He turned and walked through the wall and disappeared.
Tommy looked at gramps and asked a loaded question...
Gramps? Was this what you are always calling DX?



From the Shack of Evan Seligman ZS6ELI



Evan Seligman ZS6ELI, recently received a certificate of recognition from the ARRL for achieving the first place, with 912 points, by competing in the 10 Meter, 28 MHz Single Operator Phone Only, Low Power Contest. PARC hereby congratulates Evan sincerely on his achievement.

Evan lives in Nieuw Muckleneuk, opposite the Austen Roberts Bird Sanctuary, and earned his ZR licence in 1997, and ZS in 2008. His ham radio station consists of an ICOM 7200, LDG and Yaesu Tuners, and he currently uses a Cushcraft R7 vertical antenna.

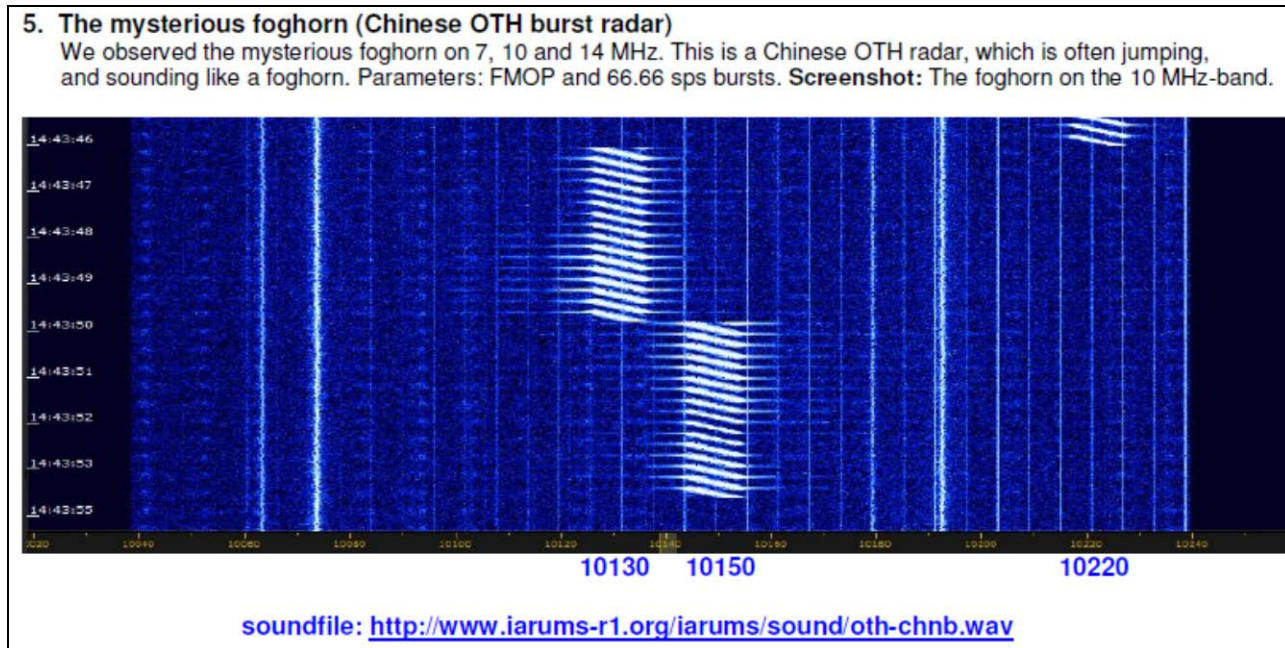
Evan is married to Joanne, and his other hobbies include Raspberry Pi, reading books on genocide, and watching rugby, cricket, tennis and any other sports, in fact.

Evan matriculated at Pretoria Boys High, sharing a class with Elon Musk of SpaceX / Tesla. He studied at Pretoria Technikon, and has a National Diploma in Electrical Engineering, High Frequency. Evan is self-employed, and is often found on the 145.725 Repeater, using his Yaesu 7800 mobile.

ARRL News : Mysterious Foghorn

The ARRL website^[1] recently issued a very interesting article (2017/02/13) entitled “Mysterious Foghorn” is Chinese Over-the-Horizon Burst Radar. According to the article, the International Amateur Radio Union Region 1 (IARU-R1) Monitoring System (IARUMS) newsletter^[1] reported a mysterious sound resembling a foghorn, which is in fact a Chinese over-the-horizon (OTH) burst radar, and is operating in the Amateur Radio bands.

The peculiar sound, which is a Chinese OTH radar and is often jumping, has been observed on 7, 10 and 14 MHz. The signal is frequency modulation on pulse (FMOP) with 66.66 sweeps-per-second bursts^[2]. A screenshot of the Chinese signal is shown below.



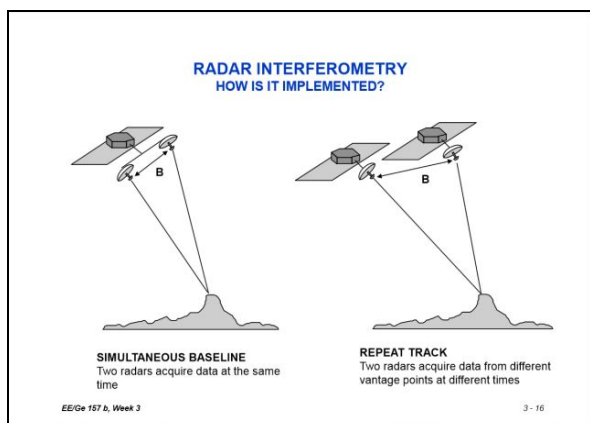
^[1]<http://www.iarums-r1.org/iarums/news2016/news1611.pdf>

^[2]<http://www.arrl.org/news/chinese-over-the-horizon-radar-qrmng-low-end-of-40-meters>

The IARUMS reported other intruders which include a Russian frequency-shift-keying (FSK) signal from Kalingrad on 7.193 MHz at 50 baud and 200 Hz shift. Strong splatter has also been reported from Radio France International (RFI) on 7.205 MHz down to 7.193 MHz. The German authorities have also filed several other complaints regarding Radio Hargeysa in Somaliland (7.120 MHz), Radio Eritrea with Ethiopian interference (7.175 MHz), Radio Taiwan with a Chinese jammer (7.200 MHz), and a radio Tajik harmonic (from 4.765 MHz) on 14.295 MHz^[2].

An article entitled “China’s High Frequency (HF) Over-the-Horizon (OTH) Radars”^[3] states that China deserves its reputation for having the most densely integrated radar network. It is known that China uses HF, Over-the-Horizon Backscatter (OTH-B) and Over-the-Horizon Wave (OTH-SW) radars. Chinese OTH radars have become exponentially more powerful using interferometry. Using interferometry, radars are networked together in order to function as one unit. With massively increased resolution and location identification via triangulation, China might be able to identify an incoming stealth aircraft.

^[3]<https://defence.pk/threads/chinas-high-frequency-hf-or-over-the-horizon-oth-radars.304589/>



Although interferometry does increase the total signal collected, its primary purpose is to vastly increase the resolution through a process called Aperture Synthesis. Signals from the different receivers (telescopes) are superimposed (interfering) such that waves that coincide with the same phase will add to each other, while waves that have opposite phases will cancel each other out. The result is a combined telescope that is equivalent in resolution (though not in sensitivity) to a single antenna whose diameter is equal to the spacing of the antennas furthest apart in the array. In the next issue of Watts, more will be reported on the use of interferometry to generate surface topography.

Increased resolution is obtained using ground based OTH HF radars and the Chinese NOSS satellites Yaogan Weixing-9, -16 and -17 which move in fixed formation. Phase changes in radar signals are used by radar receivers to either (i) detect the radar reflection of a stealth aircraft, or (ii) notice the absence of a radar signal. In other words, using applicable software, a stealth aircraft can be detected when it creates a void of radar reception that is expected by orbiting satellites.

In a recent article in Popular Mechanics^[3], it is reported that China appears to be building an anti-stealth radar system on an artificial island in the middle of the South China Sea. A military grade system of this caliber would be capable to detect stealth aircraft. Satellite imagery supplied by the Center for Strategic and International Studies and DigitalGlobe (below) show the Cuarteron Reef recently enlarged to approximately 52 acres by dredging. On the photographs, features such as two radar towers, a lighthouse, a communication tower, a bunker and a quay for docking of supplies are identified. Most prominent and interesting is a large open field section covered by evenly spaced 20 meter poles. This arrangement is typical for an over-the-horizon high frequency radar system which is capable of detecting objects at up to 3000 kilometers, including stealth aircraft.



^[3]<http://www.popularmechanics.com/military/weapons/news/a19602/china-installing-anti-stealth-radar-in-south-china-sea>

The main purpose of the HF radar installations is to provide an early warning network to direct Chinese fighter planes such as the J-11 to the probable location of a stealth aircraft. The radar islands are ideal for detecting American and Allied aircraft operating from bases in the Philippines. The Philippines, embroiled in a dispute with China over the Scarborough and Second Thomas shoals, has made it's air and naval facilities available to the United States.

China has, over the years, laid claim to 90% of the South China Sea. In support of this claim, China has taken several shoals and reefs and expanded them dramatically with sand dredged from the sea floor, believing that this terraforming amounts to a legal transformation of these shoals from nuisance navigational hazards to full sovereign territory, complete with a 12-mile territorial boundary and a 200 mile exclusive right to economic development^[3]. First noticed in 2015, the radar site became particularly newsworthy after an announcement that China had deployed HQ-9 long-range surface-to-air missiles on another artificial island in the South China Sea. Although both island systems are too far apart to provide support to each other, they do together support the argument that China is fortifying the South China sea, and expanding it's radar capabilities significantly. In addition, China has exhibited at a recent military exhibition it's latest portable radar capabilities and surface-to-air missile weaponry (below).



Amazing drone photography

She: "So, what did you do today?"

He: "I changed a light bulb"

She: "That's all ?"

He: "Yes, " I filmed it, look ([click](#) here) (follow link below)



This amazing high-quality video captured by a drone photographing the replacing of a beacon light on top of a 1500 feet (675 meters) television tower can be viewed at the following You-tube address:

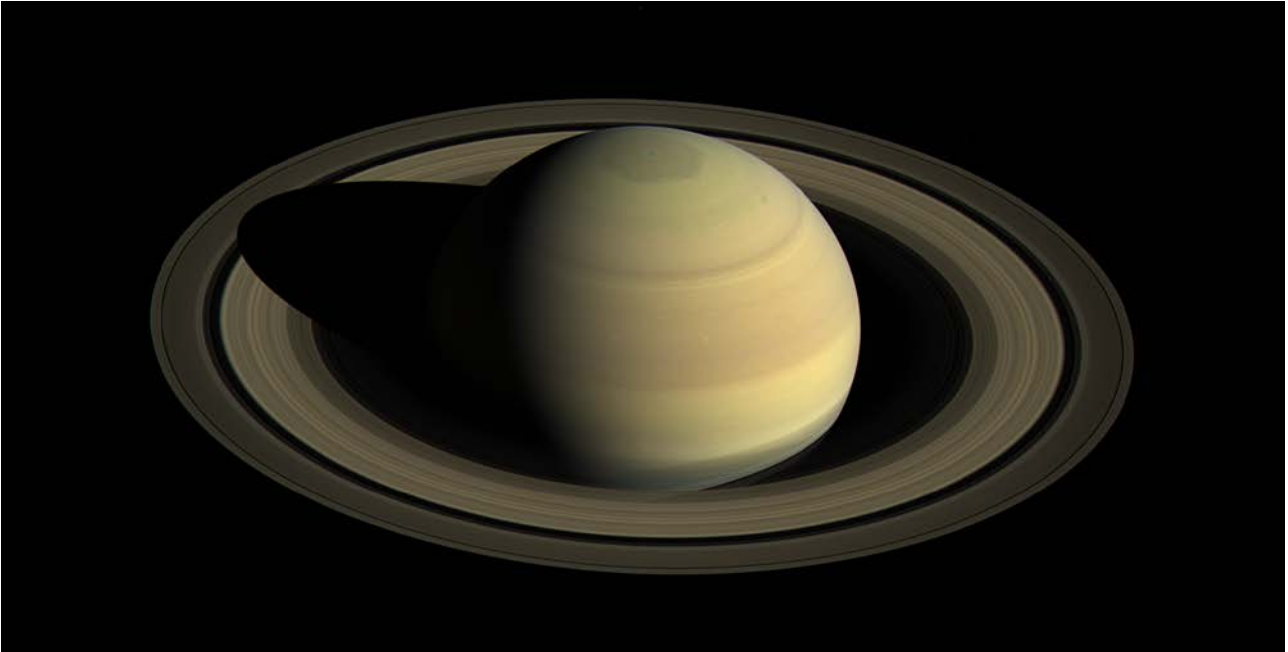
https://www.youtube.com/embed/f1BgZIRfT8?feature=player_embedded

***ALWAYS WORK FOR THE GREATER GOOD
NOT THE LESSER SELF***

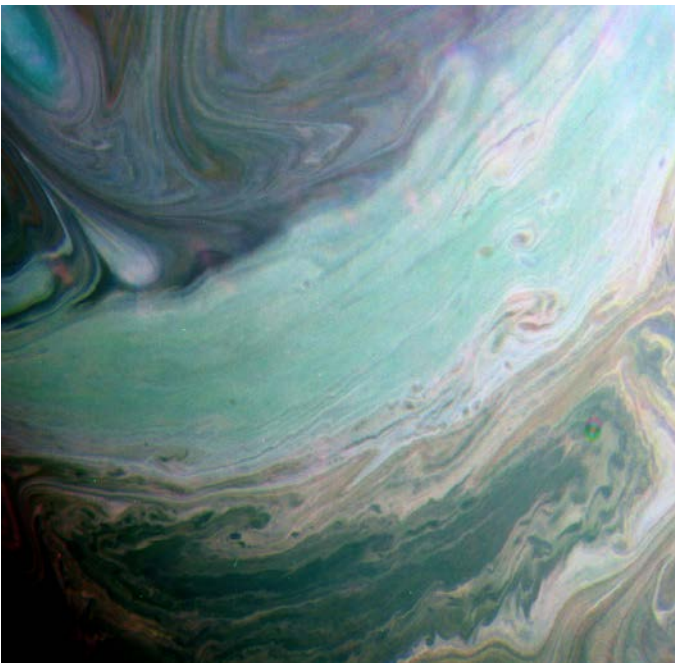
Cassini Top-18 Images for 2016

The Jet Propulsion Laboratory (JPL) recently published the top 18 photographs of Saturn and its rings and moons taken by the Cassini spacecraft on their website^[1]. All photographs and text by JPL.

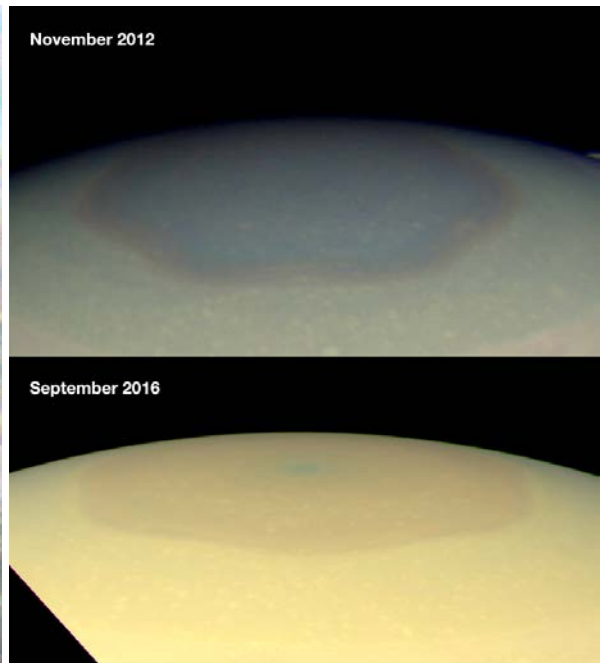
^[1]<https://saturn.jpl.nasa.gov/news/2983/cassini-top-10-images-2016/>



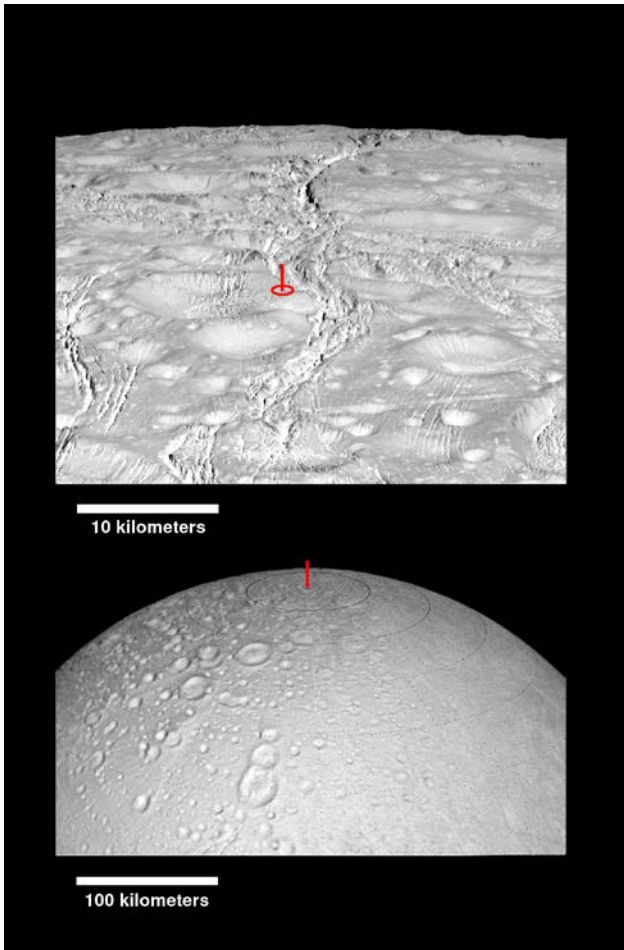
Approaching Northern Summer: This view shows Saturn's northern hemisphere in 2016, as that part of the planet nears its northern hemisphere summer solstice in May 2017.



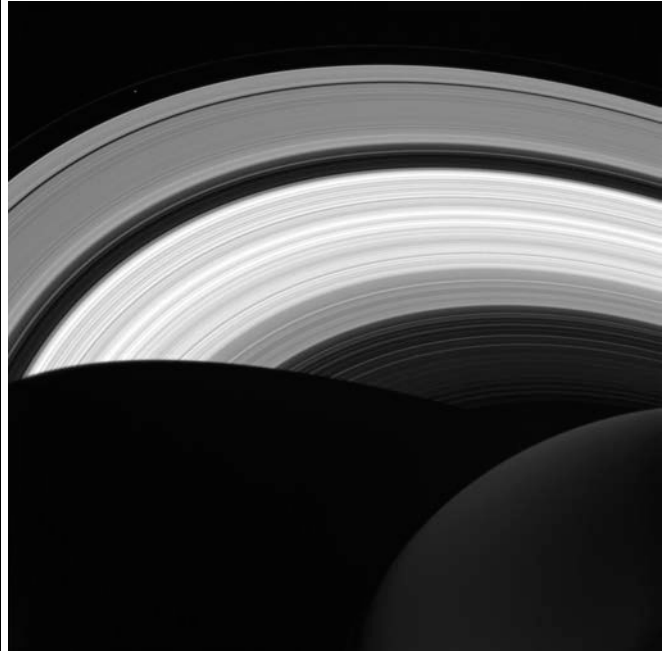
Amateur Image: Saturn in the Infrared: A false-color view of Saturn's clouds from Kevin M. Gill, a frequent amateur processor of space images.



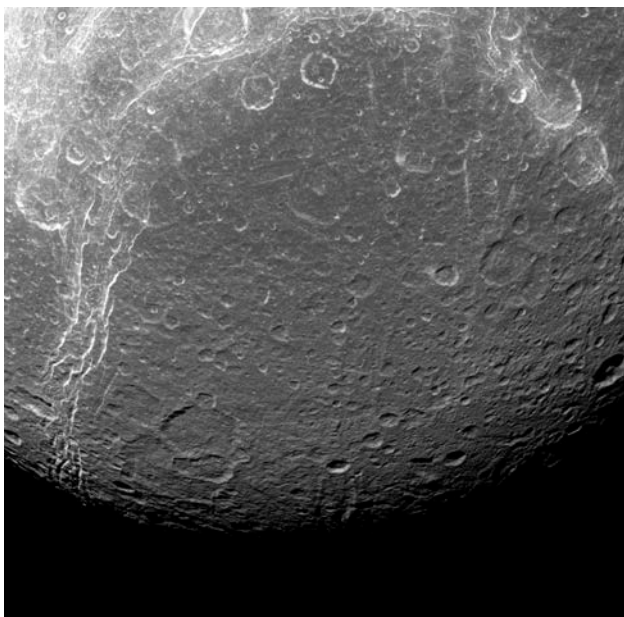
Changing Colors in Saturn's North: These two natural color images from Cassini show the changing appearance of Saturn's north polar region between 2012 and 2016.



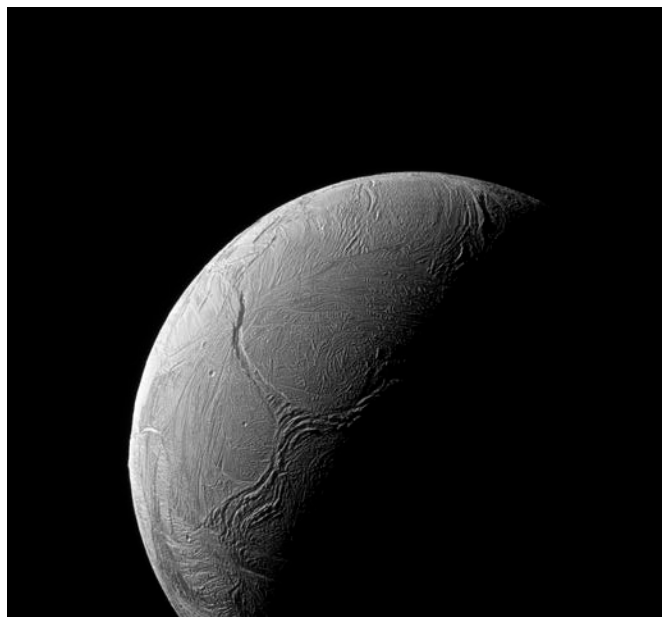
Enceladus North Pole Montage: This montage of images shows the precise location of the north pole on Saturn's icy moon Enceladus. The snow-white surface is kept bright by material sprayed from the active plume of ice and vapor in the moon's south polar region.



In Daylight on the Night Side: Cassini looks down at the rings of Saturn from above the planet's night side. The darkened globe of Saturn is seen here at lower right, along with the shadow it casts across the rings.



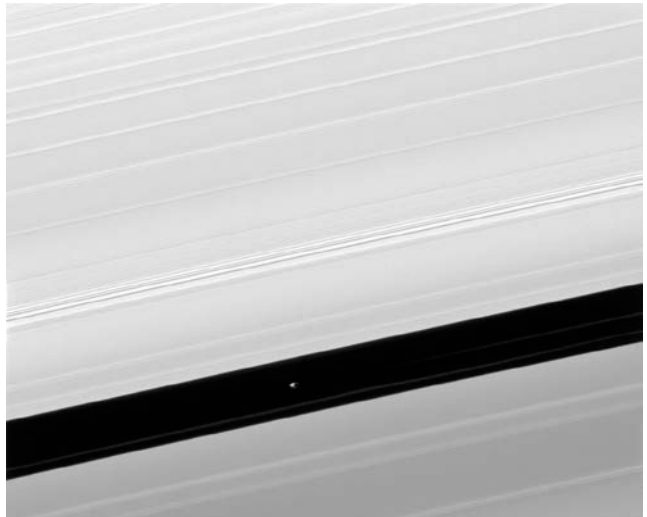
A Moon's Contrasts: Dione reveals its past via contrasts in this view. The features visible here are a mixture of tectonics -- the bright, linear features -- and impact cratering -- the round features, which are spread across the entire surface.



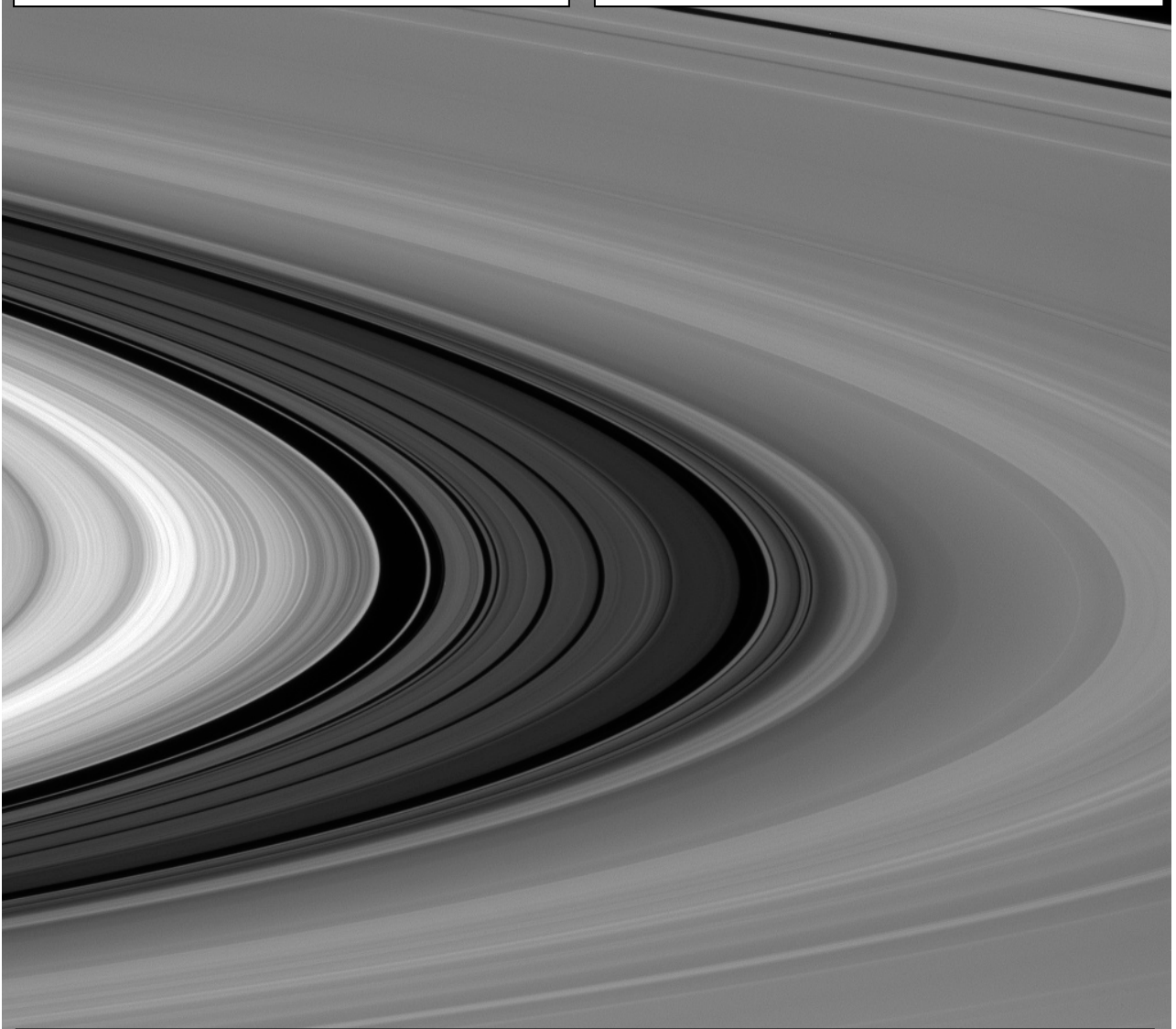
Y Marks the Spot: A sinuous feature snakes northward from Enceladus' south pole like a giant tentacle. This feature, which stretches from the terminator near center, toward upper left, is actually tectonic in nature, created by stresses in Enceladus' icy shell.



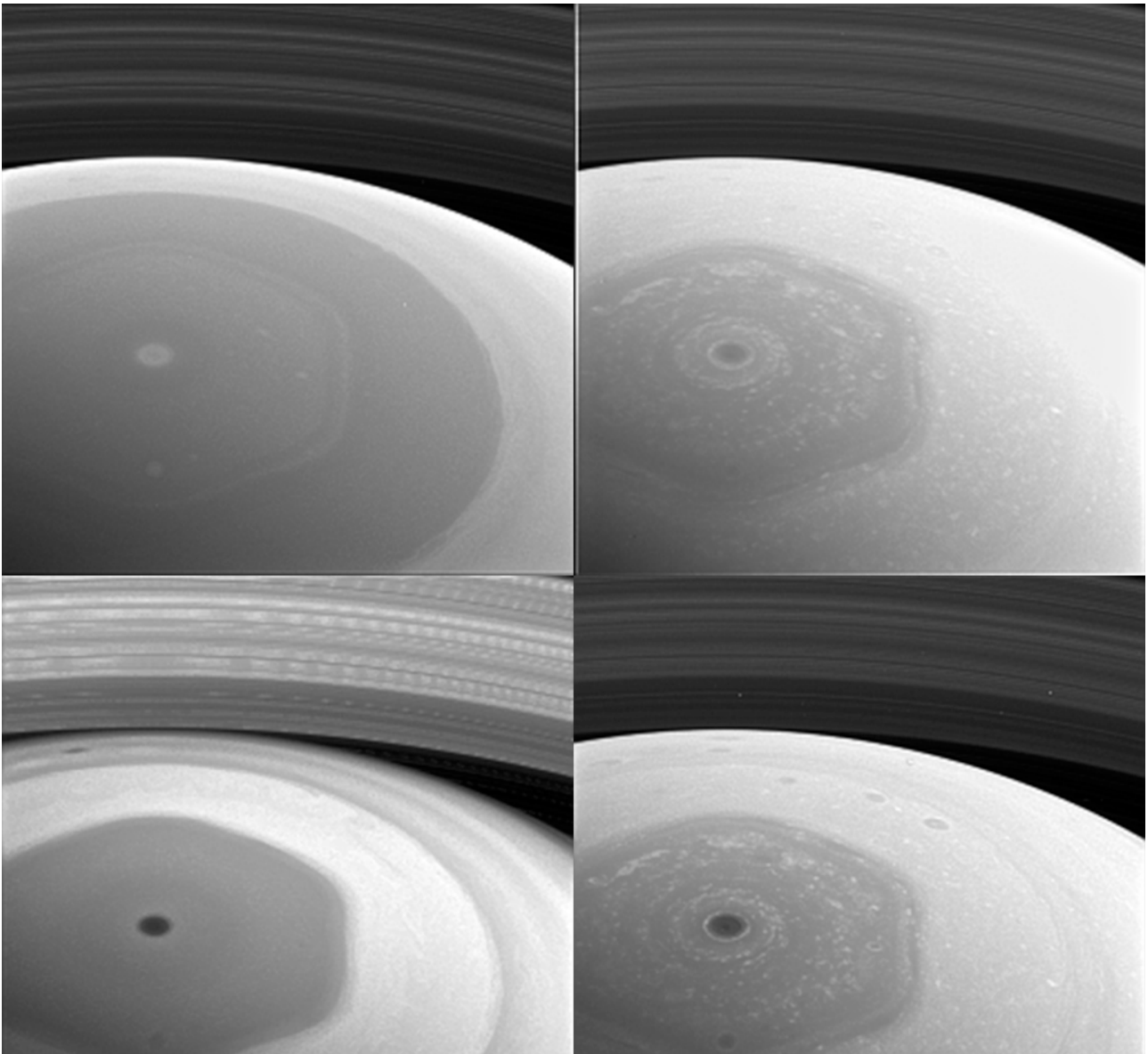
Ices and Shadows: Saturn's moon Tethys appears to float between two sets of rings in this view from Cassini, but it's just a trick of geometry. The rings, which are seen nearly edge-on, are the dark bands above Tethys, while their curving shadows paint the planet at the bottom of the image.



Pandemonium: Pan and moons like it have profound effects on Saturn's rings. The effects can range from clearing gaps, to creating new ringlets, to raising vertical waves that rise above and below the ring plane. All of these effects, produced by gravity, are seen in this image.

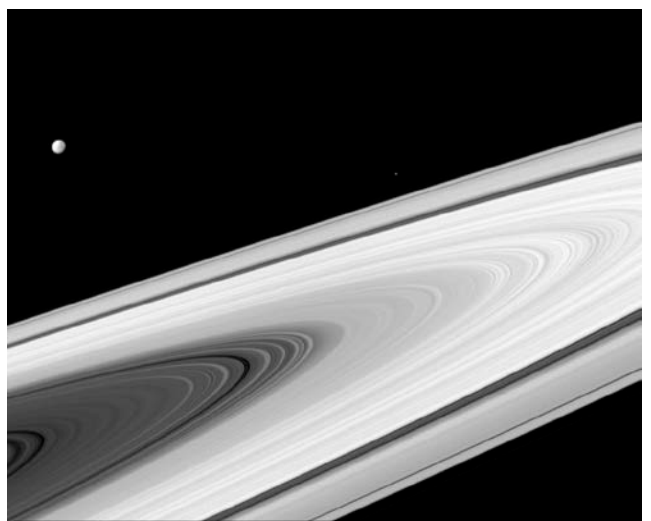
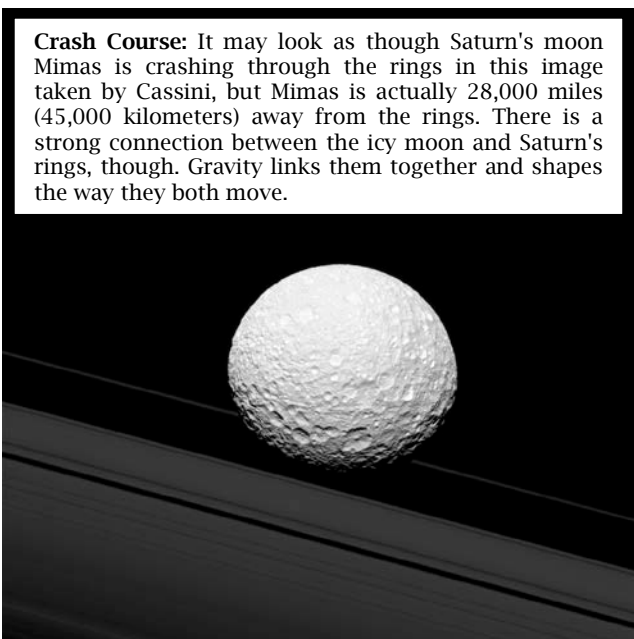


The Great Divide: It's difficult to get a sense of scale when viewing Saturn's rings, but the Cassini Division (seen here between the bright B ring and dimmer A ring) is almost as wide as the planet Mercury. The 2,980-mile-wide (4,800- kilometer-wide) division in Saturn's rings is thought to be caused by the moon Mimas. Particles within the division orbit Saturn almost exactly twice for every time that Mimas orbits, leading to a build-up of gravitational nudges from the moon. These repeated gravitational interactions sculpt the outer edge of the B ring and keep its particles from drifting into the Cassini Division.

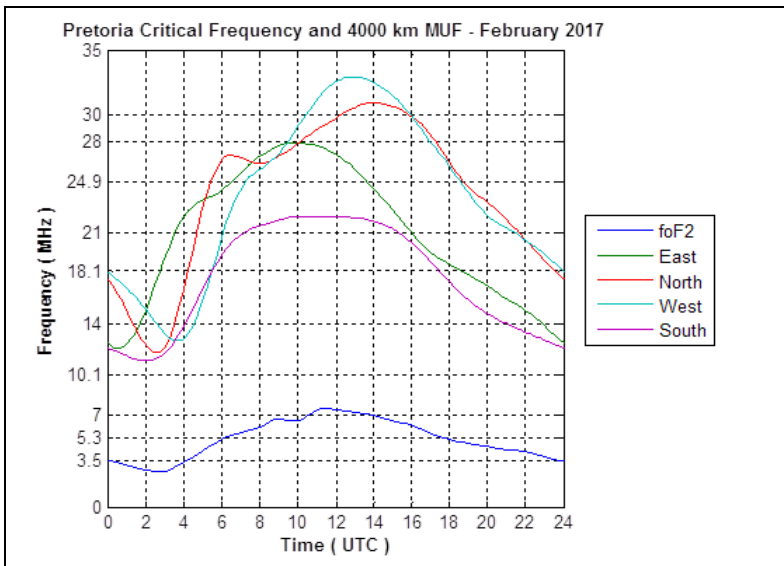


Basking in Light: Sunlight truly has come to Saturn's north pole. The whole northern region is bathed in sunlight in this view from late 2016, feeble though the light may be at Saturn's distant domain in the solar system. The hexagon-shaped jet-stream is fully illuminated here. In this image, the planet appears darker in regions where the cloud deck is lower, such the region interior to the hexagon.

Crash Course: It may look as though Saturn's moon Mimas is crashing through the rings in this image taken by Cassini, but Mimas is actually 28,000 miles (45,000 kilometers) away from the rings. There is a strong connection between the icy moon and Saturn's rings, though. Gravity links them together and shapes the way they both move.



Not Really Starless at Saturn: Saturn's main rings, along with its and moons, are much brighter than most stars. As a result, much shorter exposure times (10 milliseconds, in this case) are required to produce an image and not saturate the detectors of the imaging cameras on Cassini. A longer exposure would be required to capture the stars as well.



Long Term HF Propagation for February 2017

DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

The F2 critical frequency (foF2) is the maximum F-layer frequency for short range communications.

See also the Propagation tab at <http://www.parc.org.za/>

Courtesy Vincent ZS6BTY

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