



Wellington Astronomical Society  
2020-05 eNewsletter

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Wellington Astronomical Society Inc.  
Email Newsletter for May 2020

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## Contents

1. WAS SOCIETY MEETING – MAY 2020
2. EVENTS
3. SOCIETY NEWS
4. ASTRONOMY NEWS
5. NIGHT SKY FOR MAY 2020
6. CONTACTS

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### 1. WAS SOCIETY MEETINGS – MAY 2020

Due to COVID-19 restrictions, WAS has postponed Society meetings in person until government advice on gatherings is relaxed. Please keep an eye on our newsletters and follow us on Facebook [Wellington Astronomical Society](#) to keep up to date with information regarding events and meetings as they will resume when it is safe to do so.

As we would like to continue engaging with our members, and those interested in astronomy, we will be holding the **WAS MAY meeting online** and hope you can join us in. Register at <https://www.was.org.nz/2020/05/may-2020-meeting/>. You will be

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emailed a Zoom link to the meeting. Click on this link and you will be prompted to download the Zoom app if you don't already have it installed on your computer. Do this early so you have enough time to have it ready before the meeting. We will be using an Auckland University Zoom account for our trial. The account offers better security to all participants than the free Zoom meetings.

The online meeting will take place on **Wednesday 6 May at 7:30 pm** and consist of the usual: Night Sky, Astronomy updates and the main presentation.

### **Role of High-temperature Superconductors in Space Propulsion - Jakub Glowacki**



Current trends in satellites development focus on the design and delivery of new complex missions. Orbital satellite maintenance, life extension, low-altitude missions, precise attitude control and end-life decommissioning are widely discussed and have the potential to revolutionise space exploration. All of these missions will require efficient onboard propulsion which could deliver thrust with high mass-efficiency. This could be achieved by electric rocket propulsion which could provide a remarkably higher specific impulse than any other chemical technology. However, constraints connected with low thrust efficiency, thrust and electrodes long longevity have limited applicability of the technology. The solution could be through the application of high magnetic fields generated by low-weight superconducting systems.

This talk will cover basics of in-space propulsion technology concentrating on the past and present research activities on applied-

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field magnetoplasmadynamic thrusters. It will also address a question if recent progress in high-temperature superconductivity and miniaturisation of cryogenic technology could be a game-changer for plasma-based propulsion systems.

Jakub Glowacki is an aerospace engineer specialised in aircraft and space propulsion. He received his MS in 2010 from Warsaw University of Technology (Poland) in Mechanical Engineering and from the University of Warsaw in Astronomy. In 2016 he graduated from Politecnico di Milano (Italy) with a PhD for design and analysis of vortex hybrid rocket engines. After moving to New Zealand in 2018, he joined Robinson Research Institute as a Research Engineer working on the development of space propulsion systems as well as a new generation of highly efficient electric aircraft motor based on HTS technology.

His areas of expertise are rocket propulsion model-based design and optimisation. He worked on heat and mass transfer modelling, multi-stage chemical kinetic turbulent flows, and structural analysis of aerospace components.

Jakub is Research Engineer based at the Robinson Research Institute, Victoria University of Wellington.

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## **2. EVENTS**

All WAS events will remain suspended under OVID-19 Alert Level 3.

Please keep an eye on the WAS website [www.was.org.nz](http://www.was.org.nz) and our Facebook page [Wellington Astronomical Society](#) for updates. Any questions, suggestions, or for further information please email [president@was.org.nz](mailto:president@was.org.nz).

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## **3. SOCIETY NEWS**

**WAS survey**

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To learn a little more about our members, and those with an interest in astronomy in Wellington, we have created a short survey we'd like you to complete. It asks about your interests in astronomy, your feedback on WAS events and how we can improve what we put on offer for you. It won't take any more than three minutes to complete the survey.

**We really value our members and your feedback so please do complete the survey if you can.** You can find it here:

<https://www.surveymonkey.com/r/R3WSSNM>

Feel free to forward the survey to any other astronomy enthusiasts you know.

### **WAS RAG**

Due to COVID-19 restrictions, the WAS research group (WAS-RAG) is suspending their monthly meetings until further notice. WAS-RAG may arrange a virtual meeting, if and when so desired or considered useful. Physical WAS-RAG meetings at the preferred venue will remain suspended until further notice. However, members should pencil in the usual time of 5.30 pm on 13 May 2020 (second Wednesday of the month) for a potential virtual meeting. Well ahead of time, there will be an announcement with further details via our WAS-RAG mailing list. In the meantime, please use the mailing list to correspond within the group and keep staying safe in your respective bubbles. The group will keep contact via the WAS-RAG mailing list. Roland can be reached on [roland@cno.org.nz](mailto:roland@cno.org.nz) in the meantime.

### **WAS meeting presentations on Video**

If you were unable to attend any of the Society meetings but are interested in watching our brilliant speakers deliver their presentations, you can find them online at <https://www.was.org.nz/2019-meeting-presentations/>. To access the videos, you will need the password: *WASvideo*.

### **WAS newsletters**

Similarly, if you are interested in accessing WAS newsletters, going

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all the way back to 2007, you can find them on the following link: <https://www.was.org.nz/was-monthly-newsletters/>. The newsletters are accessible for anyone that is interested in reading them.

The WAS newsletters will continue to be sent to members every month during the COVID-19 situation.

### **Keeping busy during Alert Levels 4 and 3 with Science**

#### **How to Fight Microscopic Beasts: The Grand Experiment**

A new online citizen science project created in collaboration between our very own WAS Secretary, Matt Boucher, and a lecturer from Victoria University Wellington. Kids of any age can conduct simple experiments at home to learn about how germs spread and the importance of hand washing and cleaning surfaces by spreading glitter and growing mould on bread. A great opportunity to have students collaborate together on a big project NZ-wide.

This project can be completed in conjunction with the related course, or as a stand-alone project.

Check out this link for more information:

<https://www.anecdata.org/projects/view/718>

#### **Microscopic Beasts and How to Fight Them: The Course**

Our talented Matt has also developed a free self-paced course about microbes and disease for kids in Years 5-10. This is his attempt to help kids to scientifically understand what is going on around the pandemic. It is a 5-week programme that includes lessons, videos, games and activities. Already 300 students from 30+ schools around NZ have begun the course! Check it out here:

<https://mattscience.thinkific.com>

#### **The Trouble with Cats!!**



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## 4. ASTRONOMY NEWS

### COVID-19 and Astronomy



Though “one of the few bonuses of the COVID-19 pandemic is that air pollution is way down and clouds created by plane contrails are almost gone”, there are various issues astronomers across the world are having to content with.

Regular maintenance is required for robotic observatories and remote observations; however, COVID-19 restrictions means that these are not possible in the same way as before, therefore, “gradually halting even the most automated facilities”. Conferences and meetings are also affected but virtual meetings have been enabling new ways to connect.

Read more about it here:

<https://www.forbes.com/sites/brucedorminey/2020/04/26/how-covid-19-is-changing-big-time-astronomy/#106bf90b1eaf>

### Closure of telescopes due to COVID-19



Over 100 of Earth’s largest telescopes have had to close as a result

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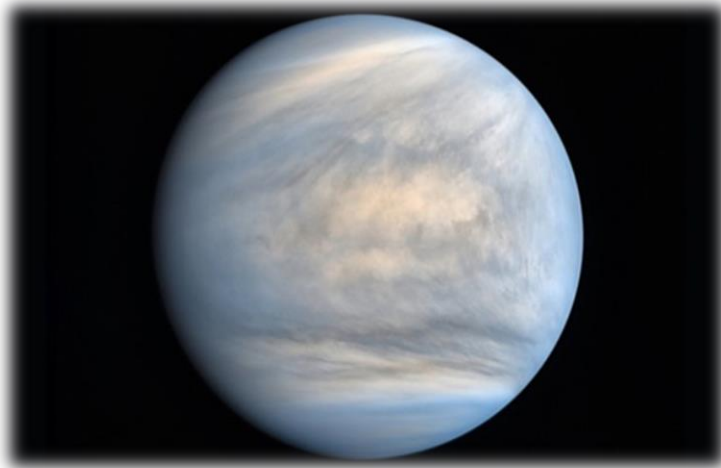


of the global pandemic, which is causing astronomers to be concerned about the long-term impacts on astronomy.

Read more about this here:

<https://astronomy.com/news/2020/04/covid-19-forces-earths-largest-telescopes-to-close>

### The 'weird' clouds of Venus



Venus' clouds circle at incredible speeds where its upper atmosphere goes around the world every four Earth days, though a day on Venus lasts 243 days. This phenomenon is called 'super-rotation'.

There are mysterious dark patches, called 'unknown absorbers' in Venusian clouds, which soak up large amounts of UV solar radiation. These patches may be driving weather patterns in ways that are hard to explain.

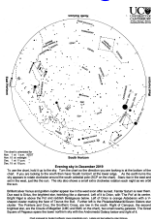
To read more on this, visit:

<https://astronomy.com/news/2020/04/why-are-venus-clouds-so-weird>

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## 5. NIGHT SKY FOR MAY 2020

The [Night Sky for May 2020](#) courtesy of the University of Canterbury.



## Planets, Comet and Meteor Shower in Early May

If you are willing to get up early (4 – 5 am) in the next few days, you are in for a treat. Not only do we have Jupiter, Saturn and Mars high in the sky but Comet C/2020 F8 (SWAN) has recently become a naked-eye comet (mag +5.5) visible in the East. It is apparently becoming brighter but also closer to the horizon each day and it will not be long before it will be lost in the sunlight of the approaching dawn. The Eta Aquariids peak on the morning of the 5 May. The Zenith Hourly rate is around 50/hour.

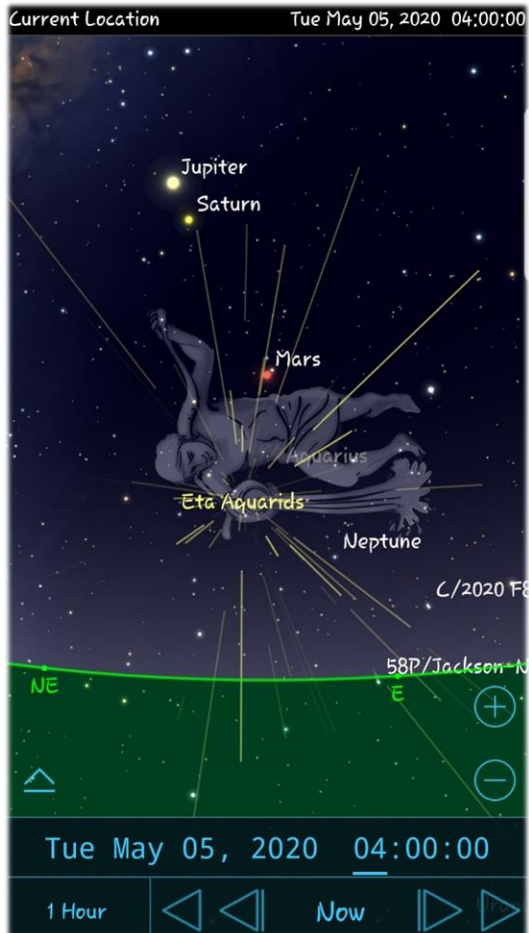


Chart showing the position of the planets, C/2020 F8, and Eta Aquariids.





*Comet C/2020 F8 (SWAN)*

## **NASA Night Sky Notes May 2020**



The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

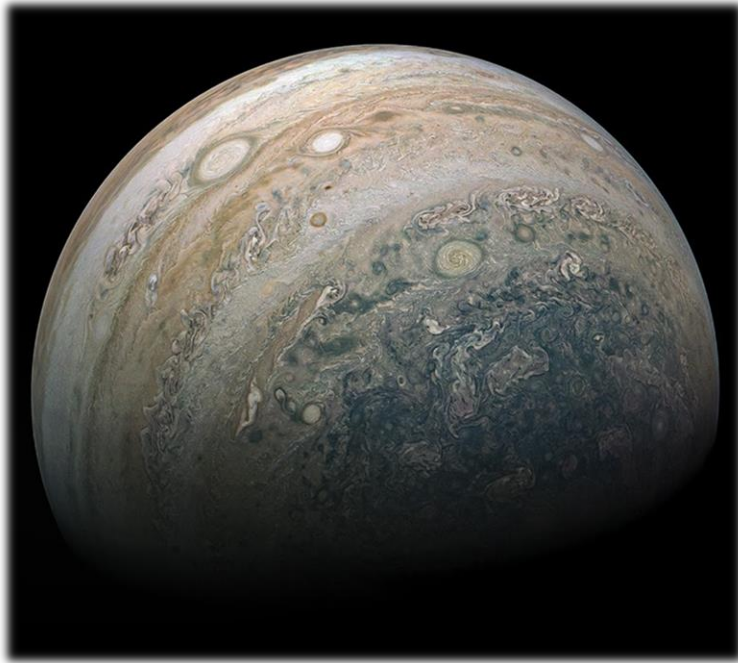
## **Become a Citizen Scientist with NASA! – David Prosper**

Ever want to mix in some science with your stargazing, but not sure where to start? NASA hosts a galaxy of citizen science programs that you can join! You'll find programs perfect for dedicated astronomers and novices alike, from reporting aurora, creating amazing images from real NASA data, searching for asteroids, and scouring data from NASA missions from the comfort of your home. If you can't get to your favorite stargazing spot, then NASA's suite of citizen science programs may be just the thing for you.

Jupiter shines brightly in the early morning sky. If you'd rather catch up on sleep, or if your local weather isn't cooperating, all you need is a space telescope - preferably one in orbit around Jupiter! Download raw images straight from the Juno mission, and even process and submit your favorites, on the **JunoCam** website! You may have seen

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some incredible images from Juno in the news, but did you know that these images were created by enthusiasts like yourself? Go to their website and download some sample images to start your image processing journey. Who knows where it will take you? Get started at [bit.ly/nasajunocam](http://bit.ly/nasajunocam)



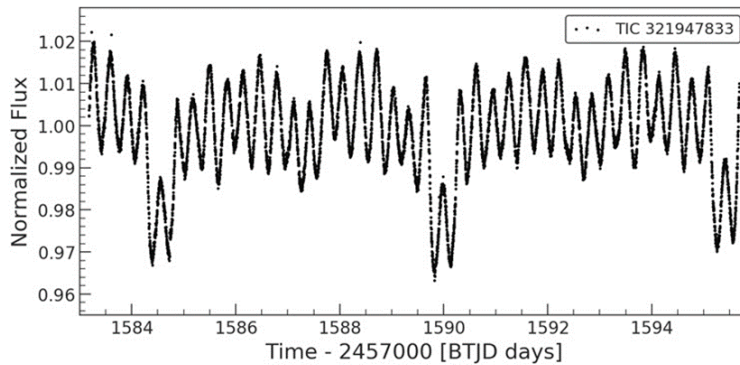
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*GREAT SOUTHERN JUPITER: Incredible image of Jupiter, submitted to the JunoCam site by Kevin M. Gill. Full Credits : NASA/JPL-Caltech/SwRI/MSSS/Kevin M. Gill*

Interested in hunting for asteroids? Want to collaborate with a team to find them?? The **International Astronomical Search Collaboration** program matches potential asteroid hunters together into teams throughout the year to help each other dig into astronomical data in order to spot dim objects moving in between photos. If your team discovers a potential asteroid that is later confirmed, you may even get a chance to name it! Join or build a team and search for asteroids at [iasc.cosmosearch.org](http://iasc.cosmosearch.org)

Want to help discover planets around other star systems? NASA's TESS mission is orbiting the Earth right now and scanning the sky for planets around other stars. It's accumulating a giant horde of data, and NASA scientists need your help to sift through it all to find other worlds! You can join **Planet Hunters TESS** at: [planethunters.org](http://planethunters.org)

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*Light curve of a binary star system containing a pulsating (variable) star, as spotted on Planet Hunters TESS by user mhuten and featured by project scientist Nora Eisner as a “Light Curve of the Week.” Credit: Planet Hunters TESS/NASA/mhuten/Nora Eisner*

Intrigued by these opportunities? These are just a few of the many ways to participate in NASA citizen science, including observing your local environment with the GLOBE program, reporting aurora with Aurorasaurus, measuring snowpack levels, training software for Mars missions – even counting penguins! Discover more opportunities at [science.nasa.gov/citizenscience](https://science.nasa.gov/citizenscience) and join the NASA citizen science Facebook group at [facebook.com/groups/Sciencing/](https://facebook.com/groups/Sciencing/). And of course, visit [nasa.gov](https://nasa.gov) to find the latest discoveries from all the research teams at NASA!

### [NASA Night Sky Network - NSN Webinar: Lunar Landing Sites, Past and Future!](#)

YouTube




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## 6. CONTACTS

The following members were elected to Council at the November 2019 AGM:

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President: Antony Gomez ([president@was.org.nz](mailto:president@was.org.nz)) - 021 253 4979

Vice President: Andrew Fuller ([vice-president@was.org.nz](mailto:vice-president@was.org.nz))

Secretary: Matt Boucher ([secretary@was.org.nz](mailto:secretary@was.org.nz))

Treasurer: Duncan Hall ([treasurer@was.org.nz](mailto:treasurer@was.org.nz))

Membership Secretary: Shazia Gazi ([membership@was.org.nz](mailto:membership@was.org.nz))

Newsletter Editor: Shazia Gazi ([editor@was.org.nz](mailto:editor@was.org.nz))

Website: Peter Woods ([webmaster@was.org.nz](mailto:webmaster@was.org.nz))

Telescope custodian: Chris Monigatti

Research Group coordinator: Roland Idaczyk

Council: Murray Forbes, John Homes, Isabella Eftimov, Grace Esterman

Postal Address:

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PO Box 3181,

Wellington 6140, New Zealand

Website: [www.was.org.nz](http://www.was.org.nz)

Instagram: [@was.nz](https://www.instagram.com/was.nz)

Facebook page: [Wellington Astronomical Society](https://www.facebook.com/WellingtonAstronomicalSociety).

Facebook group: [WAS – Wellington Astronomical Society](https://www.facebook.com/WAS-WellingtonAstronomicalSociety) (for members)

Facebook Astrophotography group: [WAS Astrophotography Group](https://www.facebook.com/WASAstrophotographyGroup) (for members).

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