



WUSAT Newsletter

October 2019

University of Warwick Satellite Engineering Team 2019-20

WUSAT-3 Launch Submission Received by European Space Agency!

After a rather frantic weekend of activity, WUSAT Project Directors, Bill Crofts & Julia Hunter-Anderson finally completed a 114 page submission to put our current mission, WUSAT-3, on its first stage of a launch programme with ESA.

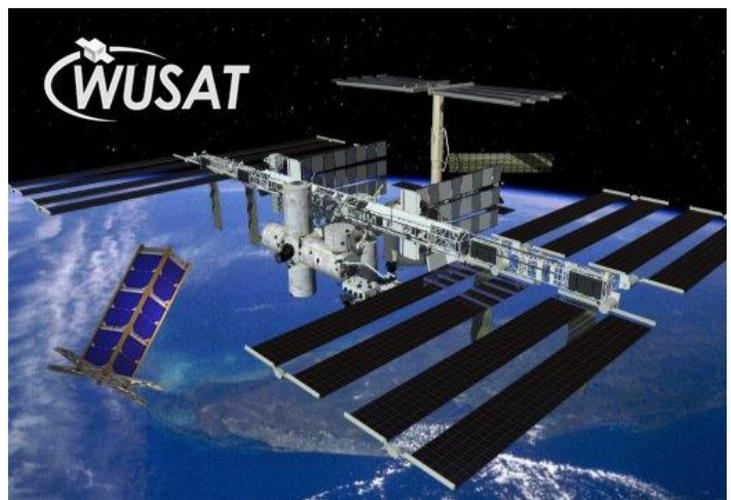


The submission was made, literally within minutes of the deadline, and we wait now to see if we are asked to attend the final ESA selection workshop in December. Many thanks to David Towers (Head of Engineering) and Mike McFarthing (Engineering Finance) for helping us obtain the crucial Letter of Financial Support, effectively underwriting the mission on behalf of the university.

This last factor is all the more important as it means that the university recognises that a launch of WUSAT-3 to the International Space Station, followed by deployment into Low Earth Orbit to test a novel wildlife-tracking technology is going to be of significance to the university as a whole.

If we are successful in this venture, we certainly want everyone to feel some sense of ownership!

Everything crossed!!



WUSAT Presentation at 3rd ESA SSEA Symposium



The European Space Agency held its 3rd Symposium on Space Educational Activities (SSEA) at the University of Leicester late September. Bill Crofts presented the WUSAT programme of activities since 2006 with particular emphasis on the wide range of ideas, activities, and schemes that the WUSAT Directors have relied on in order to achieve some remarkable outcomes with minimum-budget WUSAT missions over the past 14 years. A great deal of inventiveness and ingenuity has gone into the development of our extensive range of excellent project partners who generously assist us with our Space educational missions.



WUSAT Invited to 2019 AMSAT-UK International Space Colloquium

Prof Julia Hunter-Anderson gave a very well-received talk at the 2019 AMSAT-UK International Space Colloquium. Accompanying her was current WUSAT RF Communications Engineer Ole Ørke who is responsible for WUSAT-3 RF Communications this year.

Julia's talk covered an overview of WUSAT's heritage over the past 14 years, but specifically detailed the development of our current mission, WUSAT-3.

The AMSAT-UK colloquium was incorporated within the Radio Society of Great Britain (RSGB) Convention, so Ole was invited by Julia to attend in Bill's absence as we hoped to make contact with individuals who could potentially help with the development of our RF Comms systems for WUSAT-3, and particularly help to act as back-up ground-station experts who might pick-up communication signals from WUSAT-3 and download data if we need it.



A number of interesting contacts were made, and we hope to pursue our valued partnership with AMSAT-UK as WUSAT-3 development continues. Thanks very much to Barry Sankey (AMSAT-UK) for making all of the arrangements.

Julia's talk can be seen at <https://amsat-uk.org/2019/10/15/amsat-uk-colloquium-talks-on-youtube/>

WUSAT to Support All-Female Kyrgyz Space Team?

An interesting by-product of Bill's talk at the ESA Symposium is that he was later questioned at some length by three young women from the Kyrgyz Space Team. This is an initiative to operate an all-female school for satellite-building in Kyrgyzstan in order to encourage female opportunities in STEM subjects and careers within their country. Their trip to the UK was supported by the British Embassy in Kyrgyzstan. The picture here shows Kyzzhibek, Anna, Alina, and Aidana meeting with UK Ambassador Charles Garrett before departing for the UK.



The meeting of Anna, Alina, and Aidana with Bill was fully filmed by Al Jazeera, so we are hoping to see copy of this at a later date! Later they met with the UK's first astronaut, Helen Sharman (pictured left).

WUSAT Directors, Bill & Julia have offered to act in a mentoring role with the Kyrgyz Space Team, and Helen has agreed for her details to be used on their patronage page (<https://www.patreon.com/kyrgyzspaceprogram>).

We wish them all the very best in their brave adventure!

WUSAT 2019-20 Team in Place!

Our current WUSAT team have already got off to a great start! Due to Bill's recent illness, Julia has led the team in their initial induction and set-up, and they have all made very impressive progress within the first two or three weeks. Given this critical point in expecting to move onto an ESA launch programme within the coming months, we will be very dependent on their ability to get to grips with their various tasks – and they show every sign of doing that very well! They are.....



Left-to-Right – Technical role + Organisational Role

| | |
|-----------------|--|
| David Yorke | – Structure & Mechanisms + Deadline Manager |
| Emma Osbiston | – Data Handling + Outreach |
| Isabella Curtis | – Systems Engineering + Relationship Manager |
| Jm Carmona | – Thermal + WUSAT Lab Manager |
| Ole Ørke | – RF Communications – Social Media Publicity |
| Riddhi Patel | – Power – Health & Safety |
| Will Hill | – Systems Engineering + Project & Budget Manager |

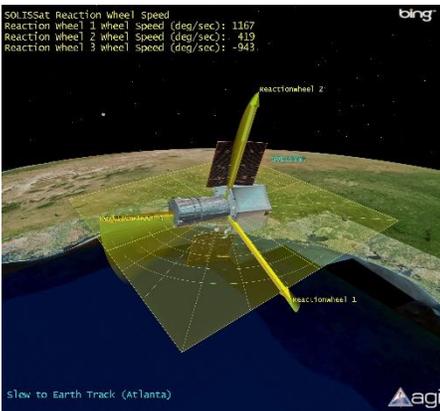
Due to the importance of the ESA submission this year, Bill & Julia are also taking on technical roles in addition to directing the project. Bill is leading on the Attitude Determination Control System (ADCS) that will stabilise & point WUSAT-3 post deployment from the ISS. Julia is leading on On-Board Data Handling (OBDH) that will deal with the management & organisation of payload data (i.e. recorded wildlife tag positions).

WUSAT Team Member chosen for ESA Training Programme



Isabella Curtis (WUSAT Systems Engineer) has been chosen by ESA to attend a training programme on Concurrent Engineering as applied to Space Technology Development. Isabella will attend ESA's Concurrent Engineering Design Facility at ESEC-Galaxia, Belgium (11-15 November 2019), and will take part in a programme that will investigate the preliminary design of a Space mission. Her experience in completing this programme will be invaluable to WUSAT as we prepare (hopefully!) for ESA's launch selection programme in December this year.

WUSAT Applying for AGI Educational Alliance Program!



WUSAT have recently completed an agreement application to join Analytical Graphics, Inc (AGI) Educational Partnership Program (EAP). This agreement, if accepted by AGI, will give access & licences to their Systems Tool Kit (STK) software which is especially important for WUSAT Systems Engineers in their design/analysis development work.

We are currently talking to AGI's UK partner, Antycip Simulation UK, with regard to completing our application.

Extension to WUSAT Support Team!

Within the last month, Bill unfortunately received a shock diagnosis of bowel cancer. However, thanks to the excellent work of Colorectal Consultant Henry Ferguson (pictured), and all of the wonderful colorectal nurses, stoma nurses, and nursing staff on Willoughby Ward, at Warwick Hospital – they had him operated on and miraculously back on his feet within three or four days! As a result they are all now honorary members of the WUSAT support team and will continue to receive this newsletter. I hope that when WUSAT-3 is launched, they will be watching and feeling some sense of ownership. They have certainly played their part!



Upcoming WUSAT Programme Activities!

Wed 6th Nov – Warwick Annual STEM Symposium – Zeeman Building – Bill will be a panel member for this event, and will take questions, etc, on matters relating to the importance of STEM for those wishing to follow careers in the Space/Aerospace industries.

CANSAT-MCR – WUSAT have been invited to take part in the University of Manchester’s 2020 CANSAT competition. A cross-department, multi-disciplinary team is currently being assembled by WUSAT partner the Warwick Aerospace Society. The CANSAT competition requires a team to build a drinks can sized ‘satellite’ to a specification determined by the Manchester team. This is then launched to a modest height where it must complete a series of requirements to complete the challenge once it is released. The specification for this challenge is quite tough!



We are indebted to our WUSAT partners, **RS Components**, who provide components to the Warwick CANSAT team as part of their WUSAT support provision.

Bill and Julia will act as Faculty Advisors to the Warwick CANSAT Team, and WUSAT will support the launch costs on the final competition day.

As always we are extremely grateful to our industrial partners who continue to support us in so many ways. We hope that WUSAT-3 will soon be well on the way to rewarding your support in a big way! In no particular order!



Andrew Little

