

University of Warwick Satellite Engineering Team 2019-20

Final Results of ESA FYS-3 Launch Programme!

After a long, long wait, we finally received the outcome of the FYS3 selection programme. Sadly WUSAT-3 was not selected in this round. We were told at the outset of the selection workshop in ESTEC last December that 4 to 5 teams would be selected from the 7 shortlisted. In the end, they selected only 3. As the result was a month overdue, it is likely that other factors had come into play, otherwise we think we would have been included in a selection of 4 to 5.



Nevertheless we did extraordinarily well to be shortlisted in the final choice of 7 European Satellites, but we were unable to win through against other teams who, in some cases, were far better resourced and had been able to make more advanced progress. The competition was very tough, and there are other teams, along with WUSAT, who had excellent projects but were not selected.

Are we disappointed? Yes!

Are we downhearted? NO!

We already have a number of plan B options for WUSAT-3 and many of these could lead to new and exciting partnerships that we have not yet explored. They could also lead to funding opportunities that we have not yet had access to. Through our membership of the **Midland Innovation Space Group** these options include;

- ☐ University of Nottingham - interested in link-up with WUSAT for potential ESA demonstrator project.
 - ☐ SSpace Academic Network (SPAN) – seeking funding for UK Small Satellite Programme CubeSat strand – 10 mission study – 5 selected for asst/test – 1 to 3 selected for launch – Yearly cycle £3Mpa to £7Mpa
 - ☐ SPRINT – 2020 Open Competition
- Space Research Innovation Network for Technology promotes UK Space Sector growth through commercial exploitation of Space data and technologies. Additional funds expected from industrial collaborators. Up to 5 projects share reward. 20th March deadline for current applications.

- ❑ Satellite Catapult – In-orbit demonstrator – probably payload launch only on a ClydeSpace platform.
- ❑ Plan for ESA FYS4 call – assume stringent selection process leads to rapid development of FYS3 progress and quicker period to call for FYS4.

So we are excited about these options as many of them come from the increased presence that WUSAT Directors, Bill & Julia, have had on UK Space technology related bodies. We value these connections highly!

Midland Innovation Space Group

WUSAT Directors, Bill Crofts & Julia Hunter-Anderson, recently attended the latest meeting of the MI Space Group at the University of Leicester.

We received updates on a number of initiatives that the group are involved with, notably;

Space Park Leicester – this is a major initiative that has the objective of creating a world-leading cluster for innovative research, enterprise and education in Space and Earth Observation.

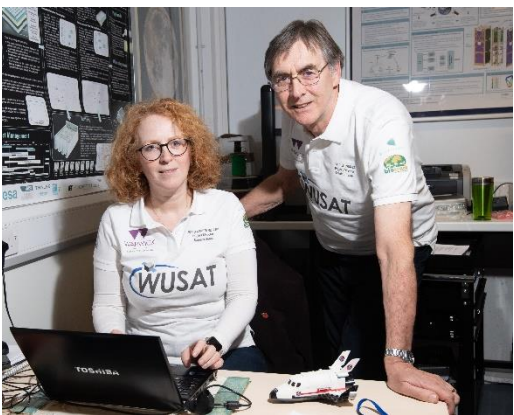
We are keen to see a strong **Midlands Space Cluster** to rival, e.g. the Surrey, SSTL, etc, cluster in the south, and the ClydeSpace, Strathclyde, etc, cluster in the north.

Phase 1 building of the Space Park is in progress (see right), and is expected to complete by December 2020. Phase 2 contractors have been confirmed and that is scheduled to start in Aug/Sept 2021.



Links related to this development and partners in the MI Space Group includes the **National Space Innovation Programme**. This in turn links to the **Small Satellite Programme** for which funding starts this year. WUSAT will be hoping to explore these connections and possible links with other MI Space Group university partners to see where we can contribute and potentially acquire funding via shared projects.

WUSAT Joins Space Academic Network (SPAN)



Through our contacts at the above Midlands Innovation Space Group, Bill & Julia have joined the Space Academic Network.

SPAN provides a voice for space-related research in the UK in the fields of Earth Observation, Space Engineering and Space Science. The group meets approximately three times per annum with representatives of the UK Space Agency, Research Councils and UK Space in attendance. Moreover, it acts proactively to coordinate a balanced response to current imperatives such as government or parliamentary consultations or more general issues.

They will sit on the **Space Engineering & Technology Working Group** that meets four times per year in London under the Chairmanship of Dr Stephen Hobbs of Cranfield University. The use of technology in

space and in support of space assets involves many novel challenges associated with the launch, environment and remoteness. Space Engineering addresses these issues and, like any other branch of engineering, brings forward new and novel technologies that enables our exploitation of space for both commercial and scientific benefit. Our first meeting is scheduled for March 25th this year.

WUSAT to Mentor the Kyrgyz Women's Space Programme!



At last year's ESA SSEA conference in Leicester, three of the Kyrgyz Women's Space Team attended Bill's talk, and afterwards were keen to ask him about how they might proceed in their plans to build & launch a CubeSat.

Further communication has led to us agreeing to act as mentors to the KSP team, and a video call is planned with them later this month. We have agreed to advise them on the topics of;

- ☐ Project Management
- ☐ Experience in CubeSat Building
- ☐ Ideas on making the project sustainable

Women are generally not encouraged to follow Science-based careers in Kyrgyzstan, so external support is important and we hope we can pass on a bit of our experience to them!

More WUSAT Team Members Selected for ESA Training Programmes



WUSAT Mechanical Engineer, Jm Carmona attended a Concurrent Engineering Training Programme in January this year. Held at the ESA European Space Security and Education Centre (ESEC) at Redu in Belgium, these programmes provide invaluable experience for our team members and they meet individuals with similar backgrounds in Space engineering from across Europe.

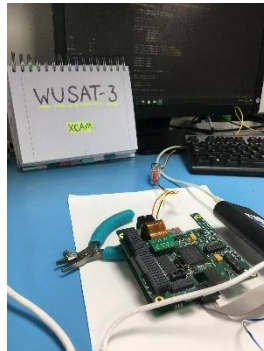
In February, two more WUSAT Engineers, Emma Osbiston (Data Handling) and Ole Ørke (Communications) attended a specialist course in Space Communications also held at ESEC.

Once again, every WUSAT team member who has wanted to attend one of these programmes has been accepted against high competition from across European Universities. These opportunities provide an impressive boost to the CV's of all of our WUSAT members when they graduate.



XCAM Provide C3d Camera Assistance to WUSAT

Our partners, XCAM Ltd, have provided invaluable assistance in the first stage of interfacing their C3d CubeSat camera system into WUSAT-3. We have already carried out extensive re-configuration of WUSAT-3 in order to mechanically integrate C3d onto the WUSAT-3 platform, but this is the first prototype work to determine how the C3d board will interface to our internal satellite systems. Emma Osbiston (WUSAT-3 On-board Data Handling) visited XCAM in early March and was given extensive assistance from their engineers on issues related to interfacing. We are very grateful to XCAM for giving this time to help us in their busy schedule!



WUSAT Outreach Activities

Feb 2020 Bill gave a talk to the **Warwick Aerospace Society** on the WUSAT-3 mission and its technology.

Feb 2020 Isabella Curtis (WUSAT Systems Engineer) gave a careers talk based on WUSAT at **St Benedict's School, London**.

Feb 2020 Jm Carmona and David Yorke presented a WUSAT stand at the **School of Engineering Open Days**.



Mar 2020 Julia gave a talk to the **Yr2 Systems and Mechanical Engineering** cohort in the School of Engineering at the University of Warwick.