



UK STUDENT MISSION TO MARS TAKES OFF 30 UK secondary schools test out technologies for Mars

On Thursday 19th June 2014 the MARSBalloon mission launched 80 student experiments designed to test how everyday objects will survive on Mars. This is the first flight of a unique project aimed to encourage young people to take up careers in the UK space industry. The project was devised and is run by young space engineers from Thales Alenia Space (TAS) UK with funding from the Science & Technology Facilities Council (STFC).

The experiments were carried 30km up into Earth's atmosphere on a high altitude balloon, named Tharsis after a volcanic region of Mars, where they experienced temperatures as low as -50°C, pressures of 1% of that at sea level and increased levels of radiation; conditions which are very similar to that of the surface of Mars. These conditions can rapidly degrade materials, damage electronics and sterilise organics.

After a two hour flight from Frome, Somerset, the balloon and experiments landed on farmland in Pulham, Dorchester and were safely recovered by the chase team an hour and a half later.

The students were set the challenge to come up with experiments for testing anything that humans might want to take or do on Mars in the future. All of the experiments had to fit inside a Kinder Surprise™ toy capsule and were mounted onto a special tray beneath the balloon to maximise their exposure to the hostile environment.

The idea for the mission was inspired by the need to show how fun and diverse careers in space engineering and science (and other STEM subjects) can be to meet the government's goal of quadrupling the size of the UK Space industry by 2030. This means the industry is going to need 70,000 new space engineers, operators and scientists in the next 15 years to continue the vital work that Space science and satellites do for our world [[Space Innovation and Growth Strategy 2014-2030](#)].

Andrew Bacon (27), TAS UK's lead engineer for the project, said:
"MARSBalloon is a great opportunity for young people to become involved in the future exploration of Mars whilst showing them that we have a thriving Space industry in the UK and that we need them to help it grow."

The next MARSBalloon launch, named Elysium after another Martian volcanic region, is planned for mid-October and there are still plenty of spaces available. UK secondary school teachers interested in entering their class or club into this flight should register on the project website: www.marsballoon.com

The experiments recovered from both Tharsis and Elysium will be returned to the students who made them. They will be encouraged to write up their scientific results for publishing on the project website.

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Notes to Editors:

1. The MARSBalloon project was devised and run by young space engineers from TAS UK. The project is free for schools to participate and is open to all secondary schools in the UK. The students are set the challenge to design experiments to test anything that humans might want to take or do on Mars in the future. These experiments were then launched on high altitude balloons into Earth's stratosphere that recreated the conditions of low pressure, -50°C temperatures and high cosmic radiation found on the surface of Mars.
2. Tharsis and Elysium are successors to last year's MARSBalloon pilot program, funded by the UK Space Agency, which launched 140 primary, secondary and university student experiments on two balloons, named Phobos and Deimos after the moons of Mars.
3. Full footage of Tharsis' flight is available on request. The complete list of flown experiments and participating schools are given at the end of this release.
4. Full details of the flight including video highlights, imagery, flight data and experiment results will be published on its dedicated page:
<http://marsballoon.com/tharsis/>
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About Thales Alenia Space UK

Thales Alenia Space opened in 2014 a British subsidiary in England, based in Harwell, Oxfordshire, and completed the acquisition of SEA space business activities, in Bristol. The new subsidiary will provide expertise in systems engineering, electronics, sensors and space mission subsystems. Thales Alenia Space UK will also be an integral part of Thales Alenia Space Neosat prime engineering activities, contributing to the design and production of the propulsion subsystem for this new platform. With more than 6 million Euros of revenues and 60 employees, Thales Alenia Space UK intends to become the second major space actor in the United-Kingdom.

About the Science & Technology Facilities Council (STFC)

The STFC is a world-leading multi-disciplinary science organisation, with the goal to deliver economic, societal, scientific and international benefits to the UK and its people – and more broadly to the world.

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Images

Links to high resolution versions of these images are provided below each caption.



Figure 1 Pre launch experiment preparations.

<http://marsballoon.com/wp-content/uploads/2014/06/Image-1-Experiment-preparations.jpg>



Figure 2 The MARSBalloon team with THARSIS in front of Beckington Castle. From left Claire Parfitt, Stefano Matussi, Andrew Bacon, Mike Guest and Tim Pickering [Work experience student]

<http://marsballoon.com/wp-content/uploads/2014/06/Image-2-The-MARSBalloon-Team.jpg>



Figure 3 The helium balloon fully inflated and ready to launch

<http://marsballoon.com/wp-content/uploads/2014/06/Image-3-Inflated-Balloon.jpg>



Figure 4 The view of Beckington Castle just after launch

<http://marsballoon.com/wp-content/uploads/2014/06/Image-4-Launch.png>



Figure 5 View from 30km altitude with the Bournemouth coastline visible on the right

<http://marsballoon.com/wp-content/uploads/2014/06/Image-5-View-from-30km-altitude.png>



Figure 6 Another view from 30km altitude looking north

<http://marsballoon.com/wp-content/uploads/2014/06/Image-6-Another-view-from-30km-altitude.png>

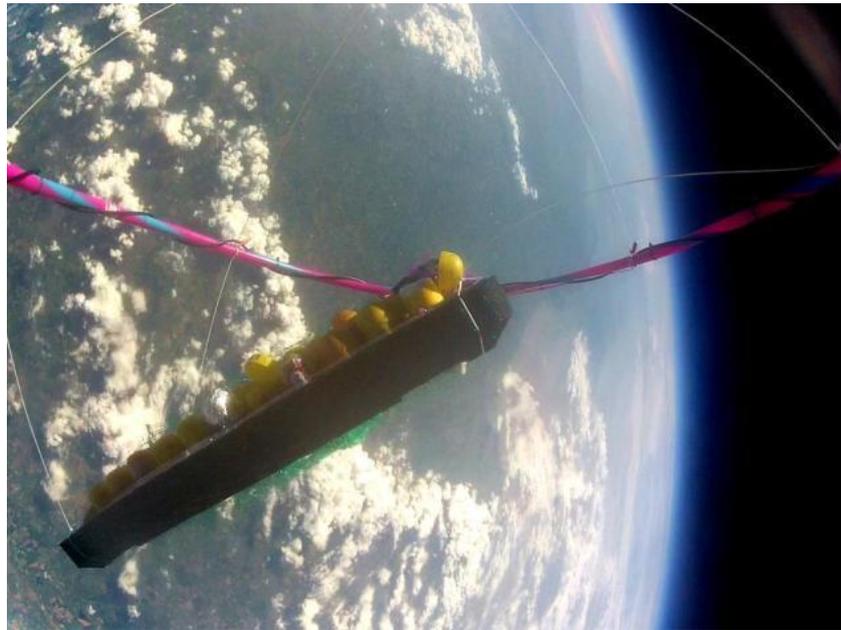


Figure 7 Unstable falling after balloon burst as parachute opens

<http://marsballoon.com/wp-content/uploads/2014/06/Image-7-Fall-after-parachute-deployment.png>



Figure 8 Passing through the cloud layer on the way back down, falling under parachute

<http://marsballoon.com/wp-content/uploads/2014/06/Image-8-Clouds-on-the-way-down.png>



Figure 9 Condition of the experiments upon discovery in a field in Pulham

<http://marsballoon.com/wp-content/uploads/2014/06/Image-9-Experiments-after-landing.jpg>

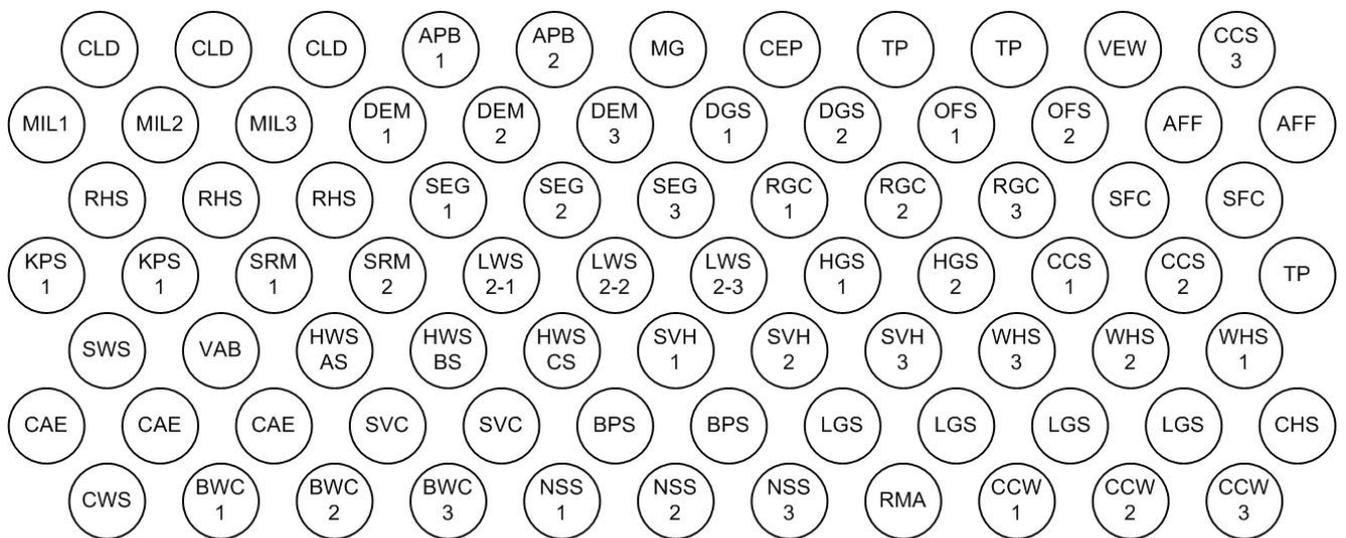


Figure 10 Positioning of the school experiment capsules in the experiment tray

<http://marsballoon.com/wp-content/uploads/2014/06/Image-10-Tharsis-Layout.jpg>

COMPLETE LIST OF FLOWN EXPERIMENTS AND PARTICIPATING SCHOOLS

Redmoor Academy [RMA]: Chocolate and vitamin C
Soar Valley College [SVC]: Seeds and toothpaste
Clifton High School [CHS]: Ink
Burscough priory science college [BPS]: SD card and bubblewrap
Khalsa Primary School [KPS]: Ink and SIM card
leweston school [LWS2]: Elastic bands, seeds and yeast
Seaford college [SFC]: Elastic bands
Hinchley Wood School [HWS]: Seeds, rubber bands and marshmallow
Claire's Court Senior Girls [CCS]: Seed growth, sodium hydrogen carbonate and glucose
Shavington High School [SVH]: seeds, metals, superglue and copper sulphate
Hayesfield Girls School [HGS]: Camera film (measuring radioactivity) and popcorn kernels
Cape Cornwall [CCW]: Algae, marshmallow, match & strike
Nailsea School [NSS]: Seeds, camera film, tea, coffee, coke & water
Caludon Castle School [CLD]: Jelly babies, tangfastics and Water PH
Dixie Grammar School [DGS]: Basil seeds and elastic bands
Sir Roger Manwood's School [SRM]: Yeast, Vitamin C and cress
The Cotswold School [CWS]: Lettuce, radish & cress seed growth
Oldfield School [OFS]: Watch battery and memory stick
Loreto Grammar School [LGS]: Ink cartridges and popcorn (popped and unpopped)
Sedgehill School [SEG]: Broad bean seeds and dried yeast
Withernsea high school [WHS]: Arduino microprocessor, plastic and Seeds
Ridgeway High School [RHS]: Salted and roasted peanuts
Smith's Wood Sports College [SWS]: Various metals
Caerleon Comprehensive School [CAE]: Seeds, bubbly chocolate and watch battery
Millom School [MIL]: Algae and Yeast
Bearwood College [BWC]: Sheep eye ball, film with shielding and cress seeds
Robert Gordon's College [RGC]: Cosmic ray film, marshmallow, glow-in-the-dark plastics, sticky notes, bubble wrap and memory stick data
Derby Moor Community Sports College [DEM]: Cress seeds, elastic bands and popcorn kernels
Vale Academy Brigg [VAB]: Water, ethanol and methanol
Pate's Grammar School [TP]: Solar panel & fan, alkaline vs lithium battery