

SOLARMETRICS TAKES FLIGHT WITH VIRGIN ATLANTIC RECORD ATTEMPT

Submitted by: 2thefore

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SolarMetrics has been chosen by Virgin Atlantic to run the scientific experimentation for its Global Flyer challenge (<http://www.virginatlanticglobalflyer.com>) which will see an attempt to fly round the world in one go. The project is the perfect opportunity to record Cosmic Radiation levels at high altitude and will also involve several scientific experiments investigating the 'Space Weather' environment in real-time. The Global Flyer challenge will enable SolarMetrics to make some valuable and unique measurements. SolarMetrics is supported by SETSquared at the University of Surrey - the acceleration programme for very early stage technology ventures, based on the Surrey Research Park.

Cosmic Radiation is probably one of the lesser known sources of radiation to the general public. Of the average annual background radiation received by a member of the public, about 10% comes from Cosmic Radiation. On Earth, the effects of the low-level radiation are minimised by Earth's magnetic field deflecting the cosmic ray particles and by Earth's atmosphere absorbing most of what is left. However, the protection becomes weaker at high altitudes. Flying at over 45,000 feet for such a long period of time, no pilot before has been subjected to such Cosmic Radiation in one flight

Cosmic Radiation is also one small part of the bigger picture known as Space Weather. This is the term used to discuss how our Sun and its extremely dynamic activity can influence the space environment around the Earth and affect the technologies we rely on in space and on the ground.

Virgin Atlantic chose SolarMetrics as its official partner because it is the only company in the world with the capability to provide real-time information on Cosmic Radiation to airlines. This enables airlines to deal more effectively with the impact of Cosmic Radiation exposure on aircraft (something they are now required to do by law in the EU), air travellers and air traffic systems. Traditional methods used by individual airlines are costly and time consuming, but SolarMetrics' unique technology means that monitoring can be outsourced to an automated service that provides unprecedented accuracy.

Bryn Jones, Managing Director of Solarmetrics, spent time as an RAF Tornado and fast jet pilot and is currently working as a commercial pilot. He also advises the Government and UK airlines on Cosmic Radiation. "This is a unique opportunity to find out more about Space Weather and how we can deal with its impacts in real-time," he said. "Over the last 20 months we have been developing our own technology which allows us to calculate radiation levels by comparing space weather measurements with actual aircraft positions – giving us results of great precision.

"Cosmic radiation accounts for only 10% of the natural radiation that is around us every day – so it's a relatively small amount - but we are increasing our knowledge of this area to understand the longer term impact on the aviation industry. As demand for air travel grows over the coming years, airlines will be flying further for longer so the Global Flyer project will provide us with a unique opportunity to study the radiation that future routes will be exposed to."

Currently, nowhere in the world is there a central database for the long-term collection of Cosmic Radiation exposure doses for all air travellers. Solarmetrics' aim is to create such a database and make it available to the medical community for research purposes.

The Record Attempt - In-flight Measurements & Detectors

Due to strict weight restrictions, SolarMetrics will be flying only a single light-weight EPDN-2 radiation monitor on the Global Flyer aircraft itself. This instrument, manufactured by Thermo Electron Corporation, will be calibrated against a whole suite of hi-tech Cosmic Radiation monitors, including: Tissue Equivalent Proportional Counters made in the US by Far West Technology Inc; a Cosmic Radiation Effects and Activation Monitor (CREAM) supplied by QinetiQ's Space Department; and more EPDN-2s, that will be installed on the chase aircraft. In addition, SolarMetrics has begun collaborative research with the University of Surrey Physics department to build smaller, lighter detectors that can measure both the radiation exposures for humans and for electronic components.

With the Virgin Atlantic GlobalFlyer capable of speeds of over 250 knots (285mph) the flight should be completed inside 80 hours. Because SolarMetrics is not able to download the data in real-time, they will instead be monitoring the dose during the flight using our S.M.A.R.T. Cosmic Radiation model that will be updated constantly as if flying a 'virtual instrument'. This will be compared with pre-flight estimates and then, after the flight, with in-flight measurements. Observers can follow the progress in real-time together with the latest space weather conditions at SolarMetrics' 'Mission Control Centre', viewable at <http://www.solarmetrics.com>

Cosmic Radiation

Cosmic Radiation is probably one of the lesser known sources of radiation to the general public. Of the average annual background radiation received by a member of the public, about 10% comes from Cosmic Radiation, the majority of the rest coming from naturally occurring radionuclides such as radon.

On Earth, the effects of cosmic rays are minimised by two main processes. The Earth's magnetic field deflects many cosmic ray particles, and the Earth's atmosphere absorbs much of what is left. However, the protection becomes weaker as we move to higher altitudes and higher latitudes. Hence, each time we fly, and especially on high latitude routes, we receive an additional dose of Cosmic Radiation.

It is our understanding of these effects, along with many other factors, that allows SolarMetrics to deal with the issue of Cosmic Radiation effectively.

About SolarMetrics Limited

SolarMetrics provides consulting, hardware and systems, and outsourcing to Airlines and Corporations enabling them to deal effectively with the impacts of Cosmic Radiation and Space Weather on air travellers, aircraft and air traffic systems.

* SolarMetrics collects and maintains details of in-flight Cosmic Radiation exposure and Space Weather events for commercial, corporate and cargo flights worldwide.

* SolarMetrics provides this information for airlines to demonstrate legislation compliance and to

integrate with crew rostering and route planning.

* Corporations may also use this information to help evaluate the health risks to corporate travellers thus ensuring a high standard 'Duty of Care' to their employees.

* An extensive database maintained by SolarMetrics will also provide a valuable source of information for future medical research.

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About SETsquared

SETsquared incubates early-stage, technology ventures that have high growth potential both from within and outside the universities. It accelerates a venture's progress from initial idea to business start-up by combining the research strengths of the universities with commercial and financial experience from the private sector. SETsquared provides:

- Low-cost serviced office space

Centres in Bath, Bristol, Guildford, Southampton and Swindon.

- Business mentoring

SETsquared mentors are experienced technology entrepreneurs often with relevant industry experience. They bring industry contacts, help ventures to develop the right commercial focus and provide a sounding board on ideas and strategy.

- Business support and guidance

The SETsquared support community includes a wide range of professionals and organisations that can offer investment, specialist advice and business guidance for technology-based start-ups

<http://www.setsquared.co.uk>