

## Wireless Heritage SIG 'Sixty Years of Satellites – from Sputnik to Space X'

5th October 2018

Hosted by Science Museum, London

The Wireless Heritage SIG is championed by Stirling Essex of **Espansivo**, Steve Haseldine of **Radio Communication Museum of Great Britain**, Andy Sutton of **BT**, Geoff Varrall of **RTT Online**, Nigel Wall of **Climate Associates** and Simon Rockman of **CW Journal & Fuss Free Phones**.

Venue: Science Museum, Exhibition Road, London, SW7 2DD

### AGENDA

**15:45** Mustering and muttering – meet in the 2nd floor café next to the clock museum

**16:00** A visit to the satellite and space exhibits in the Information Age Gallery hosted by **Abbie MacKinnon, Assistant Curator for Technologies & Engineering**

**16.45** Relocate to the Dana Research Centre and Library

**16.55** Introduction to Wireless Heritage SIG from Stirling Essex, Espansivo

**17:00** **Geoff Varrall, RTT Programmes**

#### 'Sixty years of technical, commercial and regulatory innovation'

Over the past sixty years, technical and commercial innovation has been closely coupled with regulatory innovation to meet the changing social and economic and political realities of a fast changing world and has provided the basis for a remarkable network of geostationary satellites that are now being upgraded to meet the global communication needs of the next sixty years. In parallel unprecedented investment in new high satellite count low earth and medium earth orbit constellations could potentially disrupt existing industry business models and enable a closer coupling with terrestrial 5G networks.

**17:25** Q&A

**17:30** **Nigel Wall, Climate Associates**

#### 'The Making of Madley'

First commissioned in 1978, Madley is BT's sole operational UK satellite ground station, with over 65 antennas ranging in diameter from 90cm to 32m. Madley provides continuous access to more than 15 satellites (ranging from 66 degrees East to 314 degrees East), spanning two thirds of the planet. As part of the original build team, Nigel revisits the engineering challenge of designing and constructing the Madley communications centre.

**17:55** Q&A

**18:00** **Dr Chris Brunskill, Head of Access to Space, Satellite Applications Catapult**

#### 'Cube SATS'

Over the past 15 years, ultra-compact small satellites have been developed and launched into low earth orbit to meet a wide range of communication needs including global IOT connectivity. The UK has ambitious plans to roll out new launch capacity and UK based companies are in the forefront of this fast developing satellite sector.

**18:25** Q&A

**18:30** **Matthew Stuttard, Airbus Defence and Space Advanced Systems- Space Systems Engineering**

#### 'Next Stop- the Sun'

While the main focus remains on developing near space satellite platforms, some spectacular deep space missions are promising to provide unique insights into our solar system including the Sun. Matthew provides 'under the bonnet' technical insights into the Solar Orbiter mission including the comms systems and highlights the differences between the Orbiter mission and the recently launched Parker Solar Probe.

**18:55** Q&A

**19:00** Networking over drinks

**20:00** **Event closes**

With the permission of the speakers, presentations will be loaded to the CW website on the day following the event

## Profile of organiser

### Cambridge Wireless (CW)

CW is the leading international community for companies involved in the research, development and application of wireless and mobile, internet, semiconductor and software technologies. With over 400 members from major network operators and device manufacturers to innovative start-ups and universities, CW stimulates debate and collaboration, harnesses and shares knowledge, and helps to build connections between academia and industry. CW's 20 Special Interest Groups (SIGs) provide its members with a dynamic forum where they can network with their peers, track the latest technology trends and business developments and position their organisations in key market sectors. CW also organises major conferences and start-up competitions along with other high-quality industry networking events and dinners. With headquarters at the heart of Cambridge, UK, CW partners with other international industry clusters and organisations to extend its reach and remain at the forefront of global developments and business opportunities. [www.cambridgewireless.co.uk](http://www.cambridgewireless.co.uk)

## Profile of speakers

### Geoff Varrall, Director, RTT Online

Geoff Varrall joined RTT in 1985 as an executive director and shareholder to develop RTT's international business as a provider of technology and business services to the wireless industry. He co-developed RTT's original series of design and facilitation workshops including 'RF Technology', 'Data Over Radio', 'Introduction to Mobile Radio', and 'Private Mobile Radio Systems and developed 'The Oxford programme', a five day strategic technology and market programme presented annually between 1991 and 2005. Geoff has been running in depth technology and market workshops for the industry for over 33 years, spanning five generations of mobile cellular technology. A co-author of the Mobile Radio Servicing Handbook (Heinemann Butterworth, UK), Data Over Radio, (Quantum Publishing, Mendocino, USA and 3G Handset and Network Design (John Wiley, New York). Geoff's fourth book, Making Telecoms Work – from technical innovation to commercial success (John Wiley) was published in early 2012 followed by 5G Spectrum and Standards published by Artech House in July 2016. *His latest book 5G and Satellite Spectrum Standards and Scale is now available from Artech House and can be ordered from <http://uk.artechhouse.com/5G-and-Satellite-Spectrum-Standards-and-Scale-P1935.aspx>* Delegates to this event can get a 25% discount and free posting by applying the discount code VAR25. As a past Director of Cambridge Wireless, Geoff is actively involved in a number of wireless heritage initiatives that aim to capture and record past technology and engineering experience and is a patron of the Science Museum. In his spare time he plays Jazz trumpet semi-professionally and is a marathon and ultra-runner. [www.rttonline.com](http://www.rttonline.com)

### Nigel Wall - Director, Climate Associates

Nigel Wall is an independent system engineering consultant and Director of Climate Associates Ltd: CAL helps organisations optimise ICT system design based on understanding the whole life carbon footprint cost of deploying innovative ICT technology compared to using current systems. Climate Associates are leading work with ITU-T SG5 and ETSI in standardising the analysis and in determining best practice. Nigel is also involved with Intelligent Transport Systems - 'connected cars' he is the Chair of the ITS UK Communications SIG and the Land Navigation & Location Group at the Royal Institute of Navigation. [www.climate-associates.co.uk](http://www.climate-associates.co.uk)

### Matthew Stuttard, Airbus Defence and Space Advanced Systems- Space Systems Engineering

Matthew Stuttard joined what is now Airbus Defence and Space in 2006 and is currently the Advanced Concepts Architect for Space Systems in the UK. Until 2013 he was head of Future Programmes in Science and Planetary Exploration. Before Airbus he worked for Logica (now CGI) and two small companies, accumulating 20 years' experience in satellite imaging applications and geospatial information systems. Following a degree in geography from Sheffield University, Matthew started in Earth observation at what is now Cranfield University where he was a lecturer in Applied Remote Sensing. He moved to the commercial world in 1989 and has gained wide experience of space applications and systems. His past activities have included making the first global vegetation fire map, checking farm subsidy claims using satellite imagery, modelling the water level of lakes in the Kenyan rift valley, rural development projects in the Himalayan foothills, future rovers for Mars exploration and telescopes to detect and study Earth-like planets around stars. Today he is concerned with bringing new types of space system into being, looking 5 to 10 years ahead on a range of topics including small launchers, space weather, space debris, space radar, radio-frequency sensing, new telecoms satellite architectures and in-space manufacturing.

## **Dr Chris Brunskill, Head of Space Access, Satellite Applications Catapult**

Dr Chris Brunskill is an electronics engineer specialising in small satellite systems and mission design. He obtained a Masters of Engineering degree in electronics and satellite engineering from the University of Surrey and a PhD in space robotics from the Surrey Space Centre. His work focuses on the development of new satellite applications that utilise small satellite platforms for demonstration of novel technologies and new mission concepts. Chris is passionate about open, innovative technology development in the space sector. <https://sa.catapult.org.uk>