



## Engineering Meteorology and The Royal Meteorological Society's AGM 2018



**Peter Gibbs**

**TITLE | Honey I shrunk the Satellite! Changing the Landscape of Weather Observation**

**ABSTRACT |** Operational meteorology is a very data-hungry pursuit. The Met Office's global numerical weather model takes in over 200 billion observations per day, generated by a planet-wide surveillance system on land, sea, air and in space. This international effort has been the preserve of government agencies up until now, in large part because of the cost of maintaining expensive infrastructure such as weather satellites. But as weather data becomes increasingly embedded in business operations, its commercial value is increasing. New companies are taking advantage of recent technological innovation to build networks of smaller, cheaper surface and space-based weather observation platforms in order to tap in to this growing market.

This creates big opportunities for improving data coverage, especially in under-observed regions like Africa. But is it possible to integrate commercially sensitive information with the existing international WMO network for the potential benefit of all?

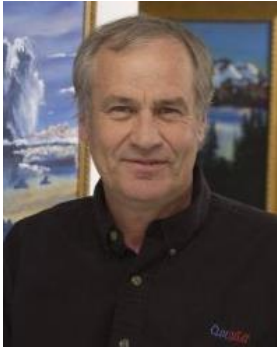
**BIOGRAPHY |** Peter is a Fellow of the Royal Meteorological Society, sits on the Society's education and outreach committee and is a Visiting Fellow at the University of Reading.

After graduating with a BSc in physics and geography from the University of Newcastle upon Tyne, Peter took up a position as meteorologist with the British Antarctic Survey, spending two consecutive winters running the weather observation programme at the remote Halley research station in Antarctica.

Peter then spent more than 30 years as a front line forecaster with the UK's Met Office and presenter with the national weather broadcasting team at the BBC.

He has devised, researched and presented features and documentaries for BBC output such as the technology show 'Click', the Radio 4 environment series 'Costing the Earth', and returned to Antarctica in 2016 to report on the global importance of the science programme at Halley for the BBC's flagship science show 'Horizon'. He also regularly chairs the iconic Radio 4 show 'Gardeners' Question Time', reputed to be the longest-running radio show in the world!

More recently, Peter has joined the team at social enterprise Kukua as their meteorological advisor. Kukua is working to modernise and improve access to weather and climate services across Africa, which is expected to have a major impact on the livelihoods of smallholder farmers.



## **Prof Graeme L Stephens**

### **TITLE | Mason Gold Medal Lecture : Cloud Physics from Space**

**ABSTRACT** | Sir John Mason was a giant in the field of cloud physics and the immense shadow he cast on the science is still felt today. In his time, cloud physics was a science that had a significant focus on microphysical to cloud scale processes— scales that could be readily touched by laboratory or by aircraft sensors. In the same era, and in a different country, another giant of our science was casting a similar long shadow across the meteorological landscape. Vern Suomi, widely considered the father of satellite meteorology, was shaping new ways to view the atmosphere offering a wider perspective on a completely different time and spatial scale. Today, science and technology have evolved, not always in lock-step, and we are now at a point where the scales of focus of Mason's cloud physics and the vast scales of Suomi's vision have connected. This talk will provide a journey along the pathway of cloud physics exploring how the science of Mason's cloud physics is now being addressed within the vision of Suomi. The talk will strive to balance those advances in our basic understanding of the physics of the atmosphere that have resulted from these spaceborne observations weighed against advances enabled by technology innovation while offering a glimpse of the near future.

**BIOGRAPHY** | Dr. Graeme Stephens completed his B.S. with honors from the University of Melbourne in 1973 and received his Ph.D. in 1977 from the same university. He was appointed to the CSIRO Division of Atmospheric Research in 1977 as a research scientist and promoted to senior research scientist in 1982. From 1979 to 1980, Professor Stephens served as a post-doctoral research student at the CSU Department of Atmospheric Science. He joined the faculty as an associate professor in 1984 and was promoted to full professor in 1991.

Dr. Stephens' research activities focus on atmospheric radiation including the application of remote sensing in climate research to understand the role of hydrological processes in climate change. He also serves as the primary investigator (PI) of the NASA CloudSat Mission and associated research group which has launched a satellite to study the internals of clouds using equipment similar to radar.



## **Briony Turner**

### **TITLE | Operationalising Climate Information - Engineering Urban Resilience**

**ABSTRACT** | From satellite to sensor networks, our ability to understand the climate globally and around us at a micro level is changing. As we advance our ability to acquire and monitor climate variables, so we are revealing interdependent dynamic relationships between global environmental change, micro-climates, the functioning of assets and infrastructure and our own health and wellbeing.

This talk will draw on a range of climate data advances from satellite derived observations to arduinos to reveal how engineers in sectors such as energy, water, transport and construction are working with researchers and the UK's climate data supply chain to integrate advances in climate data into their professional practice, improving the quality and resilience of the buildings and infrastructure upon which daily life is increasingly dependent.

**BIOGRAPHY** | Briony specialises in climate-related knowledge exchange across academic, government, commercial and third sector organisations. She currently runs the [Space4Climate](#) group at the Institute of Environmental Analytics and is a Steering Group member of the [London Climate Change Partnership](#). She previously worked for the [UK Climate Impacts Programme](#) as Knowledge Exchange Manager for the EPSRC-funded [Adaptation and Resilient in the Context of Change](#) network and prior to that in successive Government agencies responsible for housing and regeneration.

Having worked in urban regeneration, housing and climate change knowledge exchange, Briony enjoys packaging climate-related and wellbeing research findings in a manner that enables decision-makers to take action. In a voluntary capacity she is helping the Royal College of Physicians and the Royal College of Paediatrics and Child Health to establish a [Working Party on Indoor Air Quality and Children's Health](#). She is also completing a PhD on mainstreaming climate change adaptation in England's social housing sector at King's College London.