

The UK's Atmospheric Research Aircraft

Dr Gratton's lecture started with a brief, but detailed, history covering more than a century of the UK's valuable and pioneering development of aircraft and meteorological research.

He traced this story from the early days of the Royal Air Corps Met Division during and after the First World War through to the inter war period when daily met flights were based at Duxford in Cambridgeshire. During the Second World War high altitude research into the problems of condensation trails became of extreme importance and for this the wooden framed Mosquito proved to be by far the best aircraft for the job.

Between 1946 and the start of the 21st century cold war science was the driver for the met research flights based at Farnborough. One of the key findings of high altitude work in and just below the stratosphere was the discovery that air pollution from a single source could spread anywhere in the world within a mere 3 days. This sobering result alerted everyone to the dangers of nuclear fallout.

By the early 1960's satellites were beginning to be used effectively and efficiently in regular weather forecasting tasks with the result that the role of manned aircraft concentrated much more on key scientific research. Between 1978 and 2001 the UK employed a modified Hercules transport aircraft nicknamed "Snoopy". However, this was replaced in 2004 with a highly specialist version of the BAE 146 – 301 operating for the newly created Facility for Airborne Atmospheric Measurement (FAAM).

Over the past decade this highly sophisticated flying research laboratory, able to fly as low as 100 ft above the sea and up to an operating height of 35,000 ft and possessing amongst other unique equipment 400 mile distance radar, has been involved in a number of highly worthwhile research projects. These have included important findings related to aircraft safe flying limits following the 2010 volcanic eruption in Iceland, gas leakage measurements from the Elgin platform in the North Sea, research into arid zone surface temperatures in Arizona in 2013 and work on Tundra gas emissions this year.

Dr Gratton believes that this fascinating research aircraft has a further ten years' or more of highly relevant work relating to climate change and airborne research before needing to be replaced.