

# **Space Exploration Educators Conference (SEEC) 2010**

## **NASA Johnson Space Centre, Houston**

Report by Dr Catherine L. Muller, Space Academy Research Scientist

Our first 24 hours in Houston were very exciting – following a visit to Saturn 5, we had dinner with Mark Kelly, soon-to-be four-times astronaut. The first day at SEEC included a VIP visit to Mission Control Centre at the Johnson Space Centre (JSC): the white flight control room (FCR), in which we observed a training session for the next shuttle mission, which has since launched; the International Space Station (ISS) FCR, in which live feeds from the ISS were showing, featuring an approaching Soyuz vehicle and an amazing sun rise; and the amazing historic FCR, from which the Apollo missions were controlled – we were actually permitted into this particular FCR which provided a unique opportunity to take some amazing photographs, including speaking on the famous ‘red telephone’ which provided a direct line to the White House, and sitting in the flight commander’s chair.

Our first 2-hour teacher CPD presentation took place that afternoon and was a huge success, with delegates (including some returners from previous years) complimenting us on such an inspirational workshop. I took a lead role in outlining the Earth Observation (EO) applications relevant to the UV and thermal infra-red activities that we have developed (such as ozone monitoring and sea surface temperature measurements), and how they could be incorporated into classroom teaching, such as chemistry, physics, geography – the delegates were extremely impressed by these demonstrations. The EO aspect of the presentations were extremely well received, especially following the cancellation of the NASA Constellation programme and the re-focusing of the NASA space programme on technology including EO satellites – a field that the UK are quickly developing educational expertise in. This part of the workshop enabled the delegates to realise the importance of satellite observations in monitoring Earth and how this aspect of the space programme can also be used as an equally-inspirational ‘hook’ in teaching. The Keynote speech was given by Dr Sally Ride at the end of day one. She was the first female American in Space, and gave a truly inspiring talk. In the evening we attended an ‘Epicurean evening’ at the JSC, in which restaurants in the local area served samples of their food – it was a great way to end a successful first day.

On the morning of the second day at SEEC we went on two tours: vehicle mock-up (a facility containing mock-ups of the shuttle and ISS modules for astronaut training) and Ellington field (a base for NASA aircrafts, including the Shuttle Training Aircraft, STA), both of which were very informative. Our second workshop took place that afternoon and was equally as successful as the first, with an audience of more than 60 delegates, including NASA Aerospace Educational Services Project (AESP) members and an ESA educational specialist who was blown away with the content of the presentation. We also showcased the Space Academy EO and geospatial resources website that we have created, containing lots of information, case studies, and activities. That evening we all celebrated a successful conference at the SEEC banquet! Particular highlights included meeting Mr George Abbey, the former director of Johnson Space Center.

The SEEC conference was brought to a close on day three, following an enjoyable and informative talk by former NASA astronaut, Dr James Reilly. That evening we had dinner with Kevin Mellett, a

senior engineer at JSC, who had numerous incredible stories and recollections from himself and his colleagues.

During our time in Houston, we met numerous inspirational and enthusiastic people who are all working toward a common goal of increasing learners' excitement and awareness of Space-education and STEM subjects. There is clear interest for international, UK-US collaboration since many of us are working on similar educational projects that could be mutually beneficial. The Space Academy model, including the synergy of researchers and teachers, has already proven to be a success and has been met with much enthusiasm in the US.

Following the conference, the Space Academy team have had invites from NASA AESP members and Directors of Education to lead training sessions at NASA JPL, NASA Glenn (Ohio), and the United States Space and Rocketry Centre (USSRC) Huntsville (Alabama). There are also long-term joint EO/GIS projects planned with NASA JSC as part of their human research program, and NASA Dryden (California) as part of their program which takes educators aboard the NASA airborne research facility to conduct research and experience what it is like to be a research scientist.

It is clear from the trip that the UK and Space Academy are already considered to be at the forefront of such activities - particularly in the field of EO and its uses in education - and will be important, key players in the future of space-related educational activities. This is an exceptional achievement in a relatively short space of time which bodes well for the future, especially in light of the planned UK Space Agency. After a fantastic few days, I am extremely excited and optimistic about the future of the UK Space Academy project.