COSMIC RADIATION

Study to assess risk to airline passengers

A MAJOR AIRLINE is teaming up with scientists to conduct a three-year study of the risks that radiation poses to aircraft passengers and crew. Virgin Atlantic Airways is working with the United Kingdom's Mullard Space Science Laboratory to study in detail the cause and nature of cosmic radiation. With detectors flying aboard aircraft almost continuously, the team will take measurements of the radiation over a range of latitudes, longitudes, and time frames. They will then assess the potential risk and provide predictions of hazardous events.

"We know that cosmic radiation at aircraft altitudes is several orders of magnitude more intense than that experienced at ground level, because there is less protection from our atmosphere at high altitude," said Bob Bentley, a project scientist at the United Kingdom's Mullard Space Science Laboratory. "But the extent and nature of the risk to aircraft and aircrew is poorly understood."

Radiation measurements will be taken over a range of latitudes, longitudes, and time frames, followed by assessment of potential risk.

The study is timely because solar flares, which are known to affect the level of galactic cosmic radiation, have this year been at the peak of their 9.5–11-year cycle. "In particular we need to determine the influence of solar activity," commented Robert Hunter, of the U.K.'s Civil Aviation Authority (which, along with the National Physics Laboratory, is also participating in the study).

"During the very active space weather conditions in mid-July we noticed that the solar activity had increased significantly at lunchtime on 14 July," said Andrew Coates, head of MSSL's space plasma group. "By that evening the detector was gathering unique data on a Virgin flight to Hong Kong. Events like this, combined with the methodical study, will allow us to build up a picture of the complex chain of events affecting radiation levels in aircraft cabins."

The initiative is a result of a directive from the European Union, which went into effect in May, requiring member states to assess the exposure of aircrew to cosmic radiation inside aircraft.

Virgin Atlantic's chairman Richard Branson said, "All aircraft, but in particular future generations of aircraft, may be affected by this and it is surprising how little is known." NN