News

Bristol researchers venture to the Chernobyl Red Forest


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An abandoned bus belonging to the Chernobyl Road Repairing and Building Service.
Image credit: Tom Scott, University of Bristol

New safe confinement structure that surrounds the sarcophagus built around the stricken reactor immediately after the disaster that occurred in 1986.
Image credit: Tom Scott, University of Bristol

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A multidisciplinary group of researchers from the University of Bristol, as part of the National Centre for Nuclear Robotics, recently travelled to Chernobyl exclusion zone, 33 years after the nuclear accident at the power plant in Ukraine.

The team carried out a series of radiation mapping surveys using unmanned aerial vehicles (UAVs) including the first ever UAV to map both gamma and neutrons as well as a first ever fixed-wing (aeroplane style) UAV-based radiation mapping survey. This has led to radioactive hotspots being identified that were previously unknown to local authorities.

Professor Tom Scott from the School of Physics led the group who conductedsurveys of numerous interest areas, including Buriakivika village. This settlement was abandoned following contamination from the power plant accident as it sat in the centre of the fallout plume west of the power plant.

Speaking about the trip, Professor Scott said: “This trip has provided a great training opportunity for my PhD students and is an excellent demonstration of capability for UK robotics and sensor technologies.”

The accident at the Chernobyl nuclear power plant occurred during the early hours of Friday 25 April 1986 during a test on the Chernobyl 4 reactor prior to a routine shutdown. Unknown to the operators, the reactor core was in an extremely stable condition when they went to insert the control rods to shut down the reactor. As a result, there was a dramatic power surge that caused explosions of steam that ultimately exposed the reactor core to the atmosphere.

Previous University of Bristol research into the accident includes the *J-Value Rating Service For Assessing Nuclear Safety Systems*, which assessed that only 10-20% of the 335,000 people evacuated from the Chernobyl area needed to be relocated.

The gamma-ray spectrometry technology developed by the University of Bristol has previously been used in the first-ever UAV mapping of the Sellafield site in the UK and has also been deployed numerous times in the Fukushima Prefecture in Japan.

During the trip the researchers were filmed by ITV News as part of a feature marking the 33rd anniversary of the accident.

Further information

National Centre for Nuclear Robotics

The National Centre for Nuclear Robotics is an EPSRC-funded venture between academia and industry. The University of Birmingham is the lead academic institution and its key research themes are: Characterisation, Waste handling, cell decommissioning, underwater interventions and UAV-based site monitoring.

South West Nuclear Hub

The South West Nuclear Hub, based at University of Bristol, brings together academia, industry and the whole of the nuclear supply chain, acting as the focal point for the regional nuclear community and address technical challenges faced by the industry. The Hub will play an ever more important role as the construction and development of Hinkley Point C in North Somerset gathers pace.

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