

AIRIS

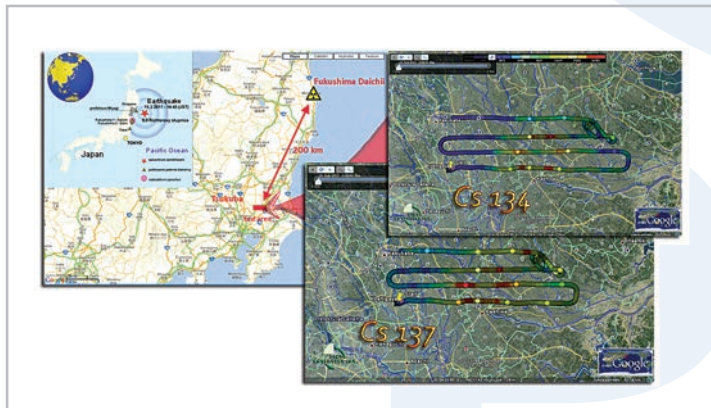
AIRBORNE INTEGRATED RADIATION INFORMATION SYSTEM

AIRIS (Airborne Integrated Radiation Information System) is based on PEI's expertise in radiation measurements from fix-wing and helicopter platforms. The system provides real-time identification of selected radionuclides, dose rate recalculation to the ground level, aircraft crew safety alarming and an intelligent pilot survey guidance.

Pico Envirotec's AIRIS can be installed on fix-wing and helicopter platforms. The standard system comprises NaI(Tl) radiation detection module with the effective detection volume of 16 Liters; High Dose Rate Gamma Module; mission navigation system integrated with Pilot Guidance Unit (PGU); Data Acquisition system, providing internal data synchronization and real-time calculation procedures; precise positioning equipment (GPS and Altitude meter) and ancillary sensors.

Surveillance Flight Path Navigation

- Pre-planned Survey Grid: area, survey lines, tie lines
- Waypoints/checkpoints navigation
- Flight-path Trace Option: topographical, geological features follow-up
- Contaminated area contouring and plume tracking
- Contaminated area through-pass study
- Vertical drape-profile navigation



APPLICATION:

The AIRIS can be adjusted to pursue different radiation surveillance tasks:

- Area monitoring and background radiation mapping
- Search and recovery of uncontrolled radioactive source
- Detection or radionuclides and isotopes identification
- Radioactive plume tracking and air contamination
- Contaminated area and local accident investigation

DETECTION MODULE

A standard detection module consists of 2 sets 2 x 4 Liter NaI(Tl) scintillation crystals boxes. The detection module can be set according to aircraft parameters and surveillance tasks. Each crystal is equipped with an individual Multichannel Analyzer. Each box performs independent recoding of the raw data to internal memory.



The system is self-calibrated and energy stabilized in real time.

DATA ACQUISITION

Data Acquisition is set on a rugged laptop, allowing the operator to control surveillance parameters, including map-view navigation, real-time data acquisition and alarms, real-time spectra and other.

Pico Envirotec’s Replay Tool is developed in accordance with DND0 requirements and allows the data to be replayed during post-mission analysis, using different libraries and alarm settings.

PILOT NAVIGATION

The AIRIS system is equipped with PGU (Pilot Guidance Unit) that provides the pilot with sufficient information about survey flight parameters, including cross-track information, distance to go to the next way point, guidance along survey lines, etc.

In particular tasks such as plume tracking or contaminated area study, the PGU will automatically form survey lines according to observed data. The system warns the pilot in case of approaching zone where the trespass might be dangerous for flight crew. The system will suggest an escape direction.

Detectors:	4 x 4 Liter NaI(Tl); Energy Compensated GM tube
Channels:	256/512/1024/2048
Dynamic Range:	up to 250,000 cps per detector
Resolution:	< 8,5% FWHM @ 662 keV
Energy range:	20 KeV to 3 MeV
Dose rate from:	5 nGy/h to 10 mGy/h
Temperature Range:	-20°C to +50°C
Spectra stabilization and energy calibration:	Auto on natural radionuclides better than 0.5%



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