



HAWKEYE

Thermal Infra Red Hyperspectral sensing assistance to clandestine weapon surveillance linking airborne or space borne systems

IMPROVED SURVEILLANCE TECHNOLOGIES IN SUPPORT OF SECURITY

HAWKEYE represents a consortium of eight organisations working on a research program to evaluate the benefits of Thermal Infra Red Hyper Spectral Imaging (TIHSI) technologies, as remote sensing units integrated into surveillance systems for the detection of clandestine weapon development or activities putting at risk civil security.

Five SMEs specialised in the development, use and processing of hyper spectral data are implementing ground and airborne experiments, building and using a prototype sensor unit which is able to detect traces of gases or solid materials typical of clandestine activities. The need to detect a new spectrum of chemical species makes it necessary to adapt the existing technology, originally developed by ATIS, both in terms of hardware and software.

MAIN ACHIEVEMENTS

- Identification of potential applications of the developed technology for non-proliferation enforcement and homeland security.
- List of scenarios and detectable products established and discussed with external experts through the advisory board.

- Development of methods for validating and extrapolating the results including the validation of a simulator.
- Performance assessment of existing and new algorithms.
- Construction of a spectral data base.
- Improvement of the software used in signal analysis.
- Specifications of the prototype for airborne experiments taking into account the performance requirements needed compared to the present ground based sensor.
- Manufacture of an airborne device with improved hardware performance for the sensitivity and to adapt the device to specific constraints related to flight.
- Preparing the prototype for test in real-life conditions.
- Preparing flight tests.

The airborne prototype will be tested in real life conditions giving input data that will allow the consortium to validate the algorithms and give the necessary information to extrapolate the performances of the detector. On the basis of the experimental results through field and airborne experiments, a preliminary evaluation of a space borne solution will be made.



This aircraft is equipped with a TIHSI prototype for airborne tests.
Source: Onera

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LIST OF PARTNERS

- ATIS, France
- THALES Alenia Space, France
- Actimar, France
- PEPITE, Belgium
- KeyObs, Belgium
- SpaceBel, Belgium
- Joint Research Centre, International Organisation
- King's College of London, UK

COORDINATOR

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PROJECT INFORMATION

HAWKEYE: Thermal Infra Red Hyperspectral sensing
Assistance to clandestine weapon surveillance
under Working conditions linking fixed airborne
or space borne systems

Specific Targeted Research Project

Contract no: SST4-CT-2005-516168

Starting date: 01/08/2005

Duration: 36 months

EU contribution: € 971.120

Estimated total cost: € 1.809.800

