

GEOBEAM helps deployment and self-management of wireless networks for mission-critical disaster-relief organisations in the EU-funded project ICARUS, which develops integrated systems for assisted rescue and unmanned search operations.

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Communications planning and management has become a key concern in large crisis events which involve numerous organisations, human responders and an increasing amount of unmanned systems which offer precious but bandwidth-hungry situational awareness capabilities.

As a member of the ICARUS consortium and leader of the communications provisioning work-package, Integrasys has extended the capabilities of the GEOBEAM product to support planning, monitoring and optimisation of an integrated multi-radio tactical network designed in the project to fulfil the new demands of high-tech search and rescue teams.

The ICARUS tactical network offers interoperable communications for international crisis response

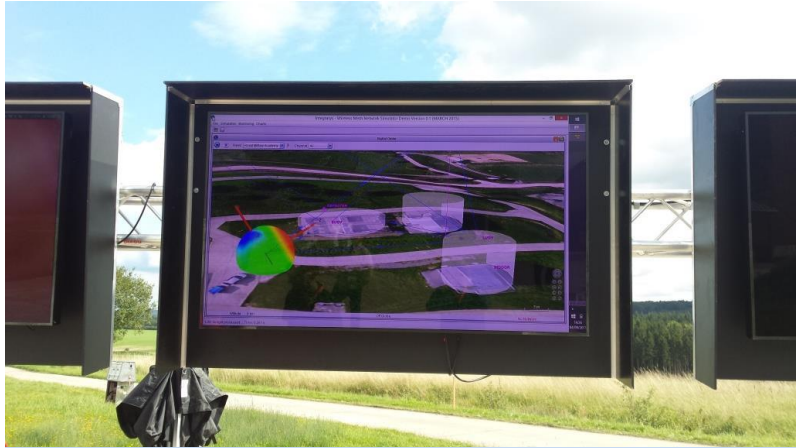
operations with a focus set on cooperative, unmanned air, sea and land vehicles. The network has been designed with rapid deployment, interoperability and performance-based real-time management & control (M&C) capabilities in mind. Building upon a cognitive spectrum layer for adaptive selection of radio channels, the framework uses standard datalink technologies (ETSI DMR, IEEE 802.11x and SatCom) to transparently empower applications with an unified communication capability exhibiting high-granularity Quality of Service (QoS) while hiding low-level details of underlying datalinks.

Custom-built M&C procedures support rapid deployments in unknown spectrum occupancy conditions, harsh propagation environments and large throughput demands, taking into account varying platform constrains.



Integrasys has extended the capabilities of the GEOBEAM product to support planning, monitoring and optimisation of an integrated multi-radio tactical network.

The developed network planning and management tools fully exploit the GEOBEAM ability to accurately characterize communication components, propagation environments, interference conditions and vehicles platforms in order to assess the global network performance over wide operation areas; as well as the performance of individual terminals along given mission routes.



GEOBEAM has shown to provide high-value support for mission commanders along different mission phases.

GEOBEAM base capabilities have been complemented with key extensions needed in ICARUS; such as UHF/2.4GHz/5GHz propagation models in indoor, rubble and sea environments; capacity models for WLAN mesh networks; or proper graphical interfaces for tactical mission operators.

During the final project demonstrations conducted at the Roi Albert Camp of the Belgium Army in the first week of September, the extended GEOBEAM tools have shown to provide high-value support for mission commanders along different mission phases: as a key component of training tools for robot operators; as a deployment planning tool for RF channelization and localisation of relay stations; and as a network optimisation tool able to predict and mitigate coverage and throughput shortcomings by timely reallocation and reconfiguration of nodes.



Advanced wireless data links supported demonstrations conducted at the Roi Albert Camp of the Belgium Army.

For more information visit:

- GEOBEAM product website at <http://www.integrasys-space.com/#!capacity-management/c1cq4>
- ICARUS demonstration event at <http://client.deribaucourt.com/2015-09-04-icarus>
- ICARUS demonstration video at <http://www.mil.be/fr/article/icarus-ne-perd-pas-ses-ailes>