

UAV-based multi-sensor survey of disaster locations for first responder support

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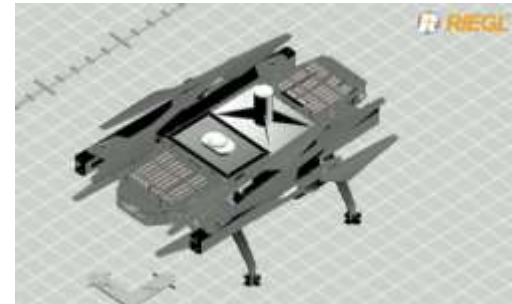
- Key features: RiCOPTER
- Current payload options
- Real-Time (RT) geo-referencing and data downlink
- Surveying of simulated disaster locations



Key features: RiCOPTER

Fully integrated turnkey solution

- MTOM: < 25kg
- Up to 6.5kg sensor payload
- Foldable arms, X8
- 30 minutes endurance with full payload
- Fully redundant system (Main & Backup flight control)
- Live video & telemetry downstream to ground station display
- Automatic flight or Manual Flight (Remote Control: Graupner MC32)
- Optimized for operation of *RIEGL* VUX-SYS with RGB cameras
- Integration of other or additional sensors possible



Current Payload options – scanner engines

- **RIEGL miniVUX-1UAV**

- Size: 242 x 99 x 85 mm
- **1.55 kg** (without cooling fans)
- Laser PRR: 100 kHz
- Max. Operating Flight Altitude: 100m/330ft AGL
- FOV: up to 360deg

NEW



- **RIEGL VUX-1UAV/LR**

- Size: 227 x 180 x 125 mm
- **3.60 kg** (without cooling fans)
- Laser PRR: up to 550kHz (UAV) / 820 kHz (LR)
- Max. Operating Flight Altitude: 350m/1150ft AGL (UAV)
530m/1740ft AGL (LR)
- FOV: up to 360deg

Current Payload options – system setup



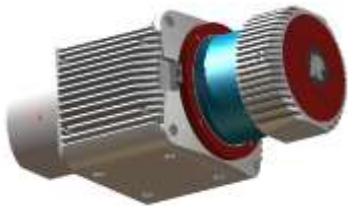
VUX-SYS-CU (control unit)
GPS receiver, camera electronics



or alternatively



RIEGL VUX-SYS
(with miniVUX-1UAV)



**VUX-1 scanner with
attached IMU sensor**

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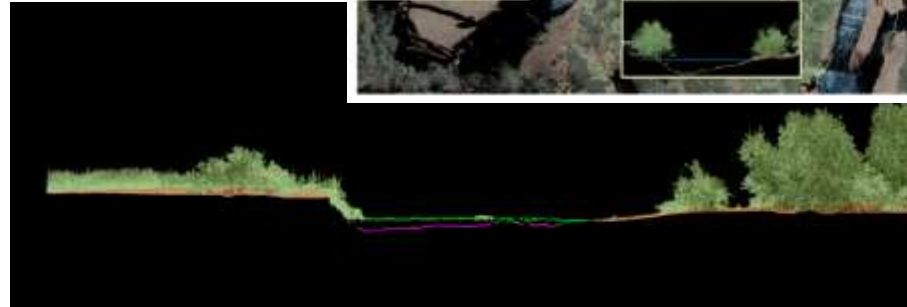
**VUX-SYS
camera system**

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RIEGL VUX-SYS

Current Payload options – bathymetric applications



BathyCopter with
RIEGL BDF-1 sensor payload

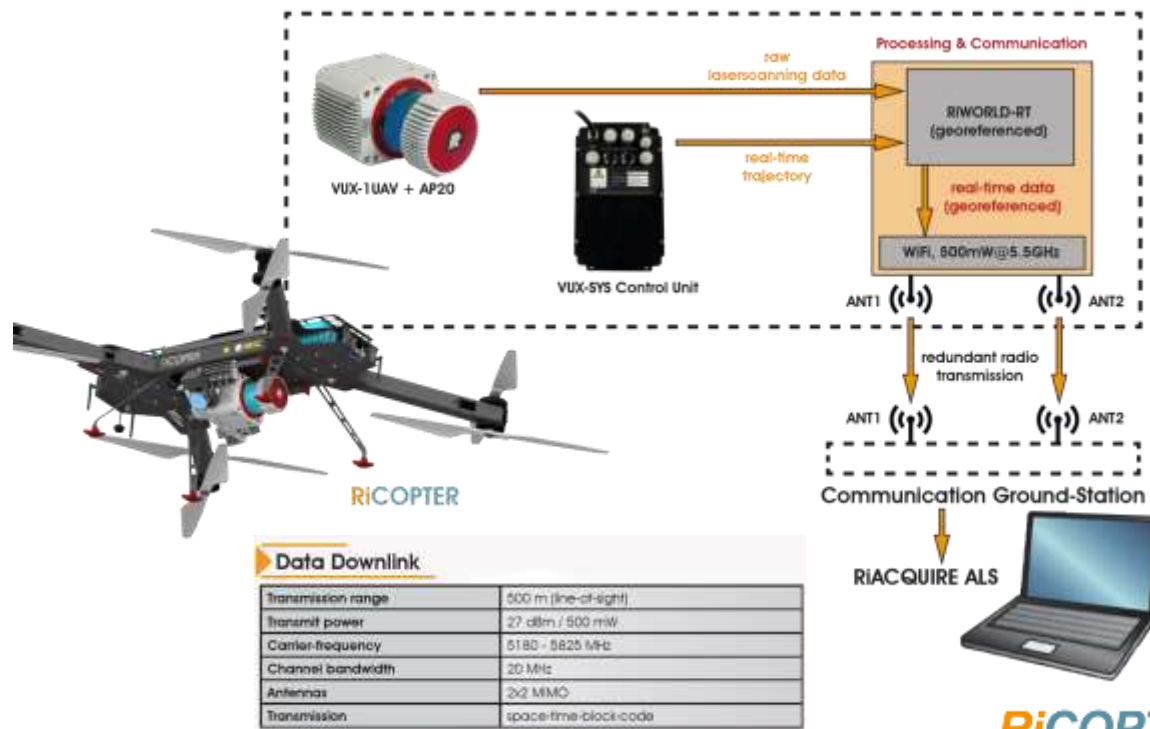
- Profiling of waterbodies
- 20 m typical flight altitude
- Echo digitization & Full-waveform recording

Real-Time (RT) geo-referencing and data downlink



SecuRescue research project

SecuRescue has been funded by the Austrian security research program KIRAS of the Austrian Federal Ministry for Transport, Innovation and Technology (bmvit).



Surveying of simulated disaster locations

Test szenario: Surveying of a simulated disaster location (radioactive radiation)



Radiation source
(caesium)

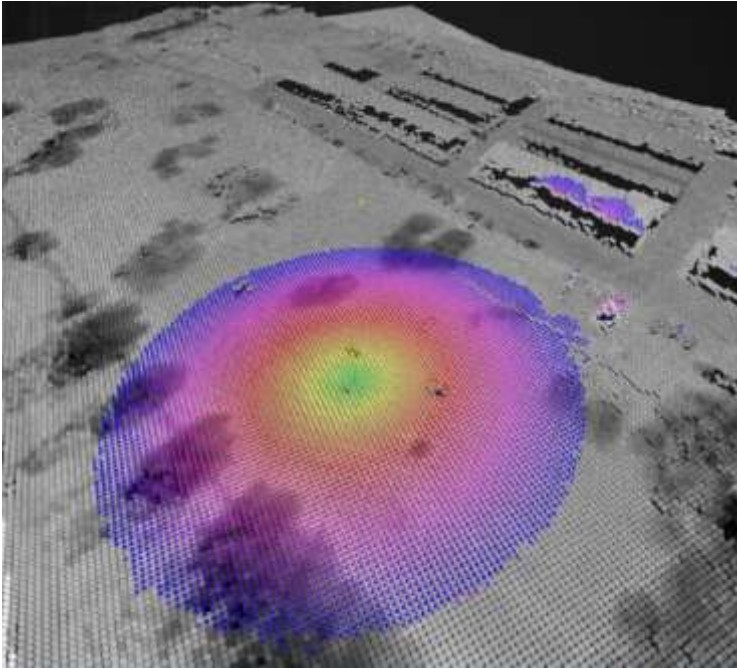
1 Starting point of the RiCOPTER 5 Location of the radiation source

Equipment used for data acquisition:

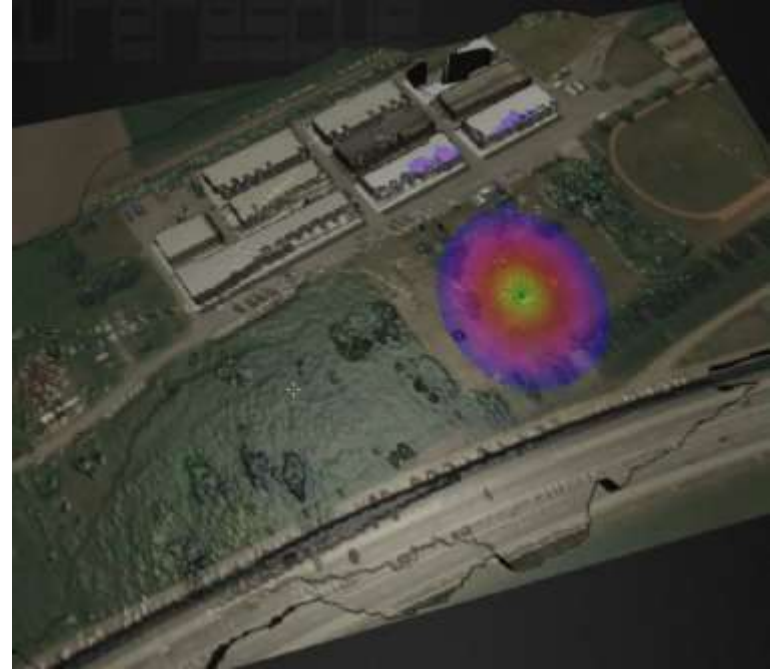
- RiCOPTER UAV with *RIEGL VUX-SYS* sensor payload (incl. RGB camera system)
- Broadband data downlink for real-time data transmission to ground station
- Gamma radiation sensor (a product of Hotzone Solutions Group)



Surveying of simulated disaster locations



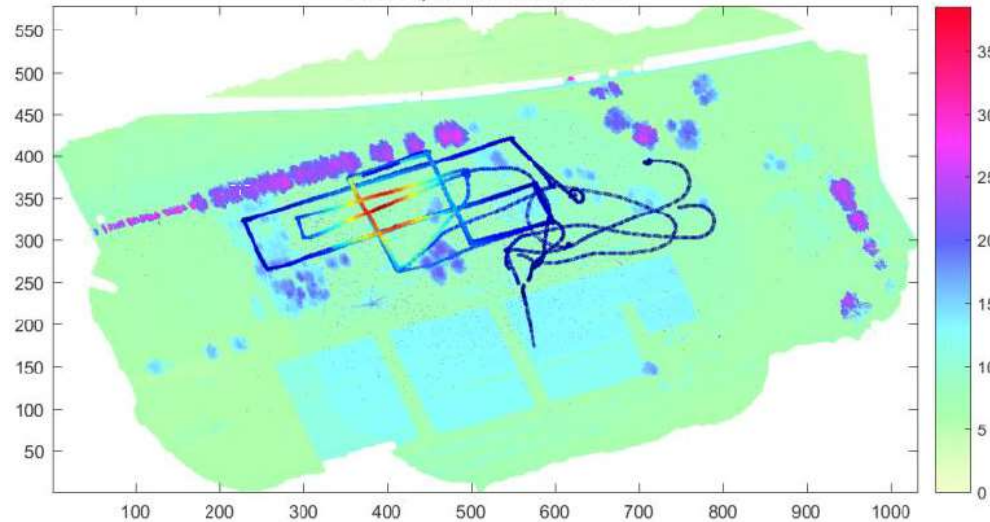
3D pointcloud, transmitted in real-time to the ground, with real-time data from the radiation sensor



3D mesh with RGB texture information and radiation sensor data

Surveying of simulated disaster locations

Radiation distribution and intensity, 2m above ground
(red – low, yellow – high)



Lines = Trajectory (flight path) information
Color = Intensity of the radiation (blue – low, red – high)

