How can MAVs assist human-robot teams in disaster response over multiple sorties?

Hartmut Surmann, Rainer Worst and the TRADR consortium*

Typical applications for Micro Aerial Vehicles (MAVs) in Urban Search and Rescue environments:

- **Aerial photography, Inspection tasks, 3D Modeling**

Disaster response is not just "in-and-out".
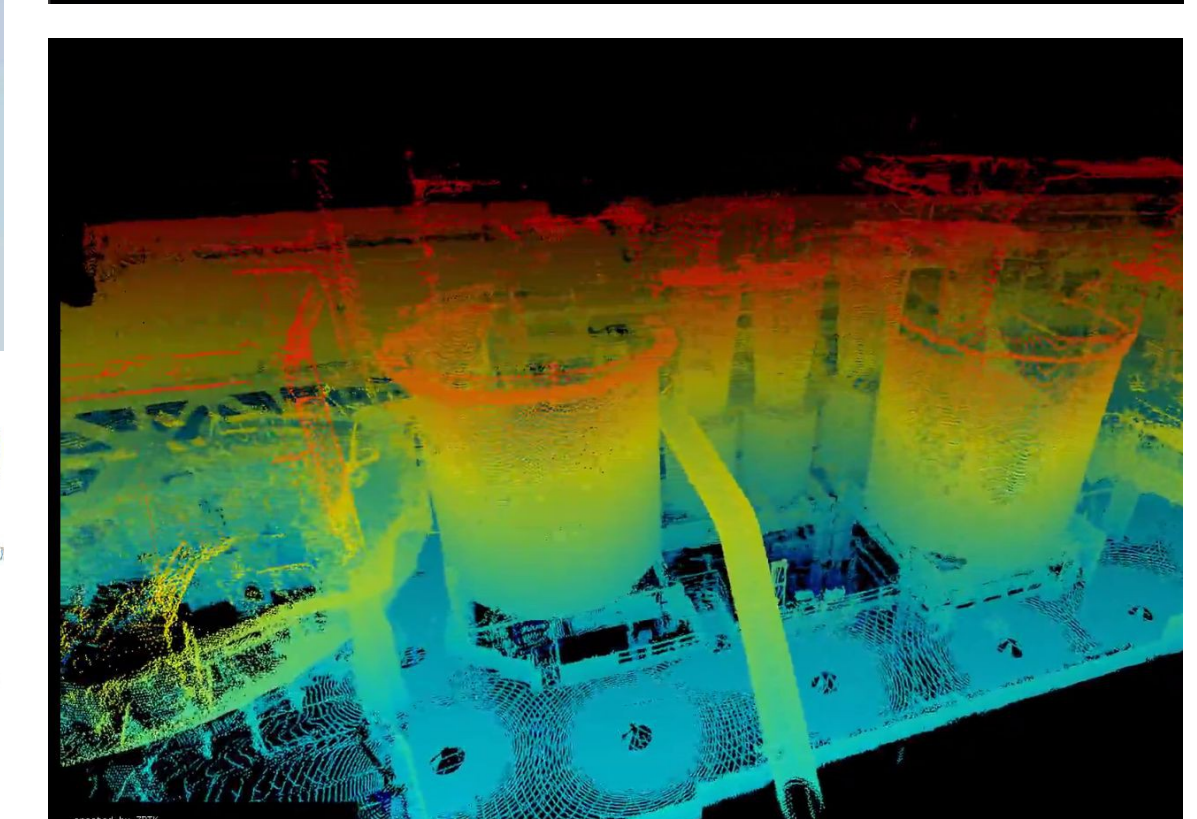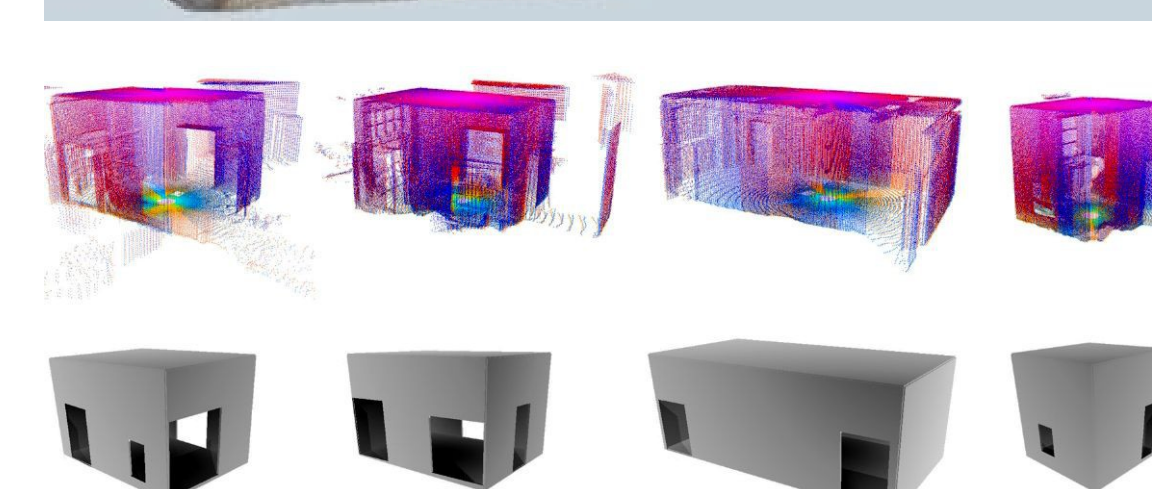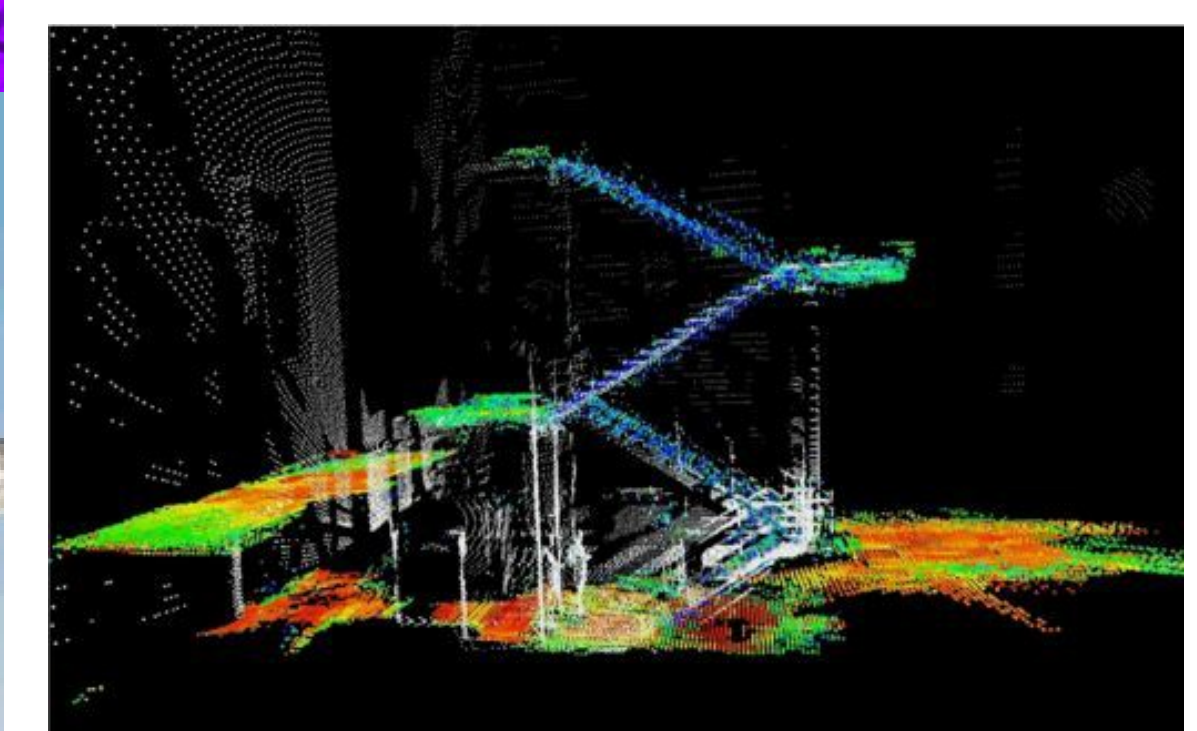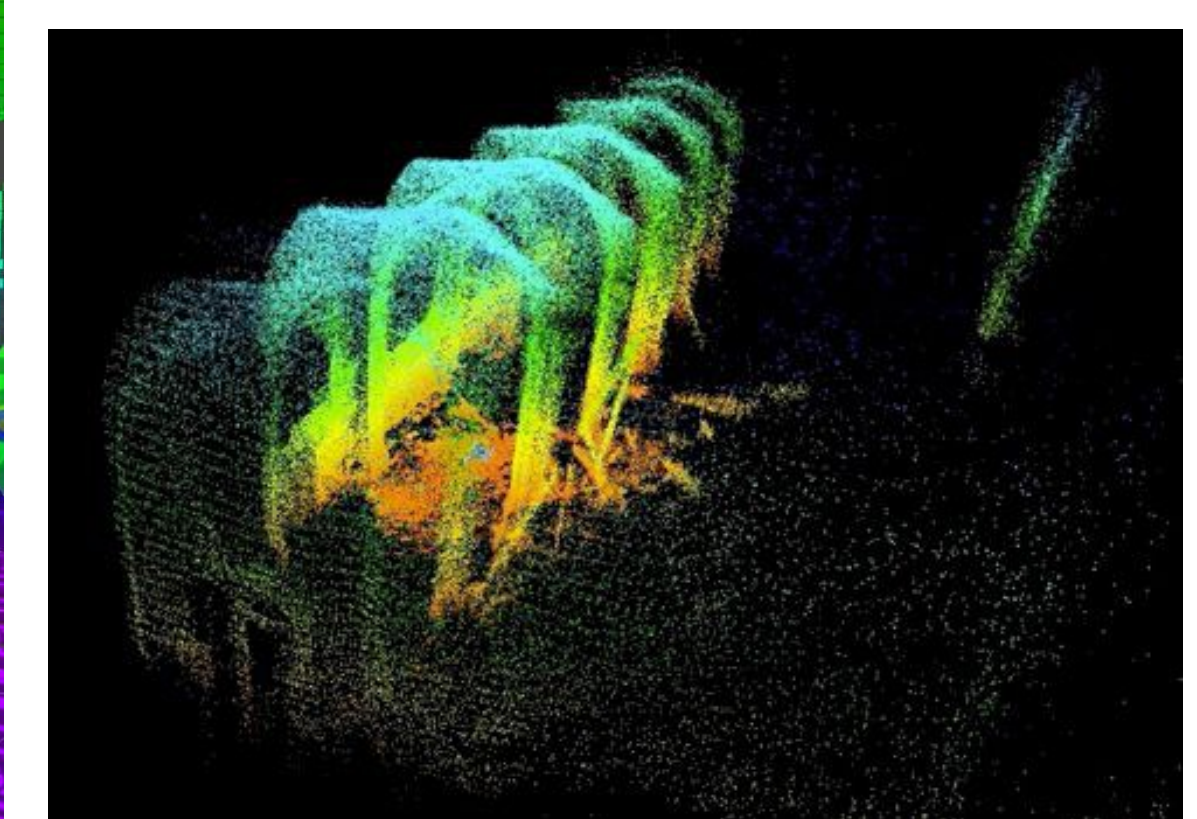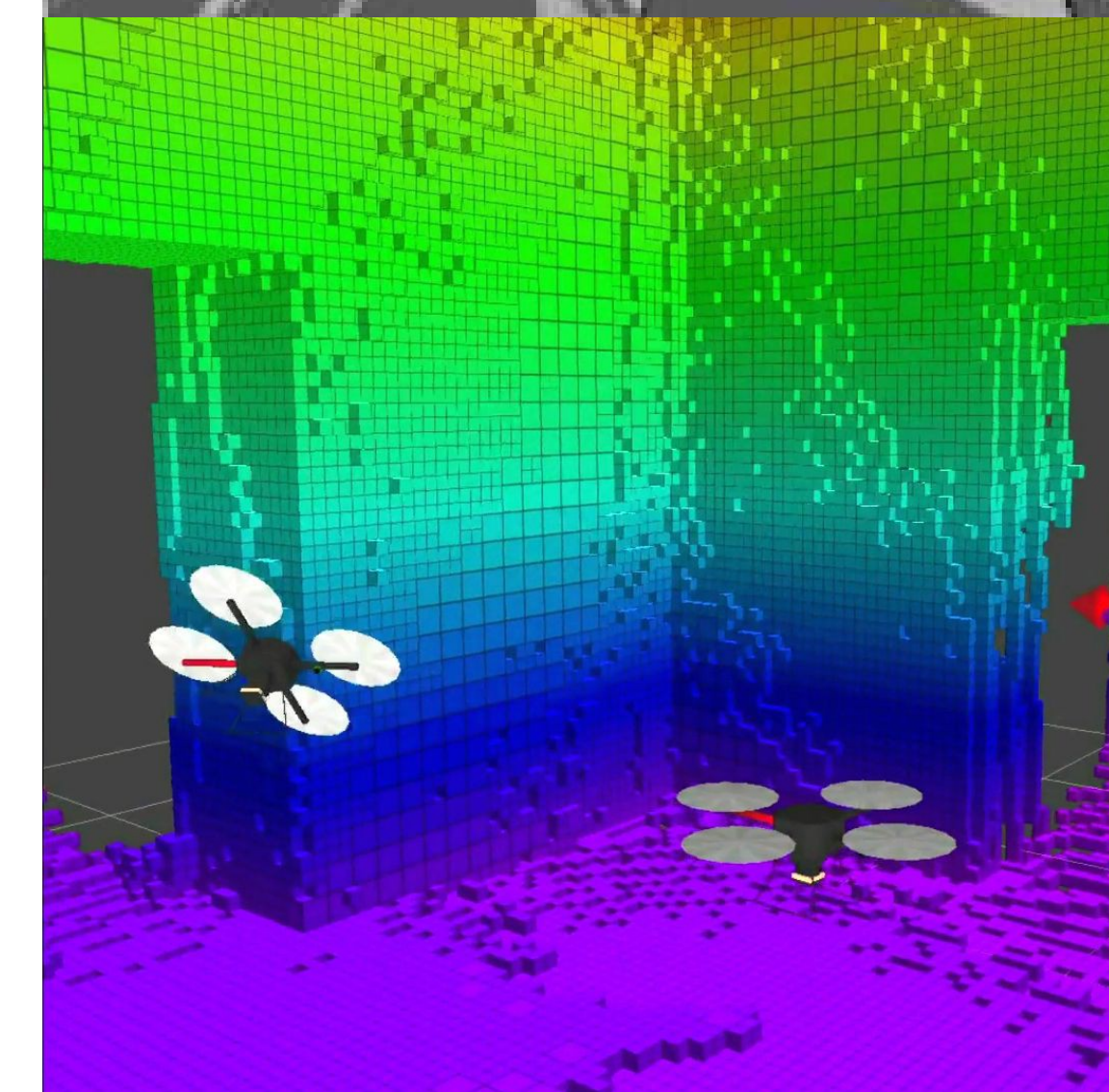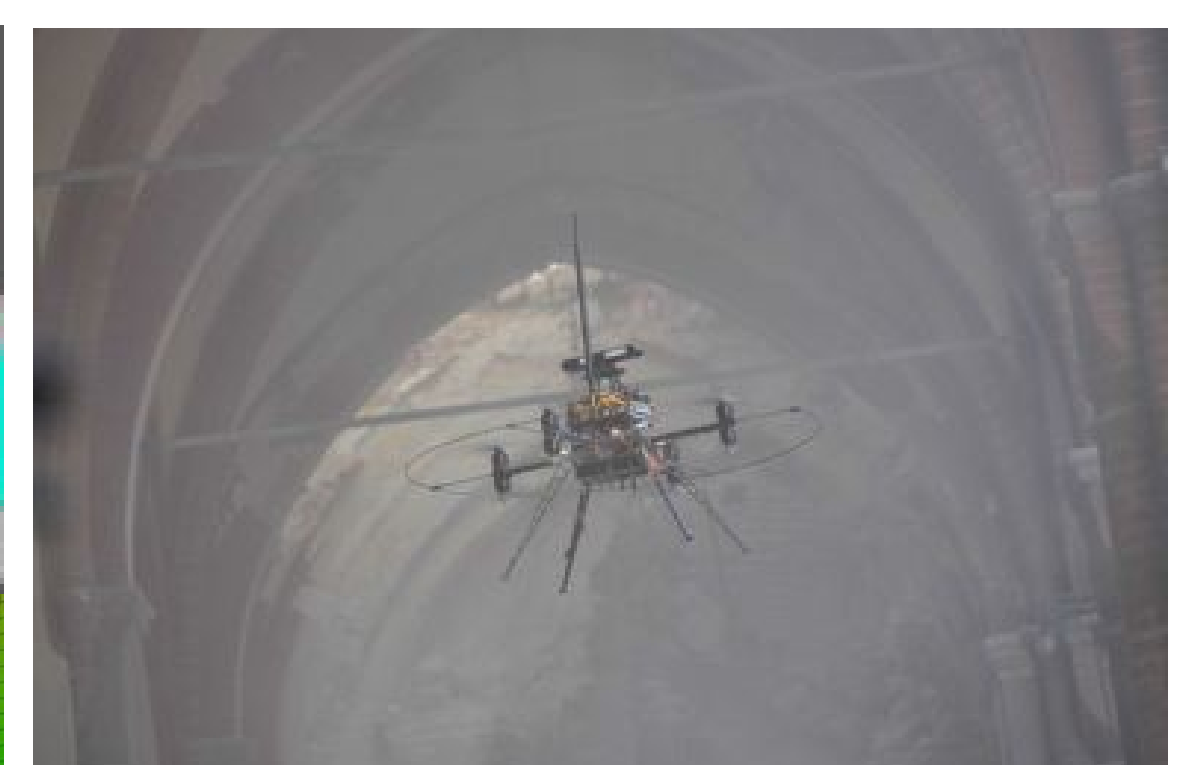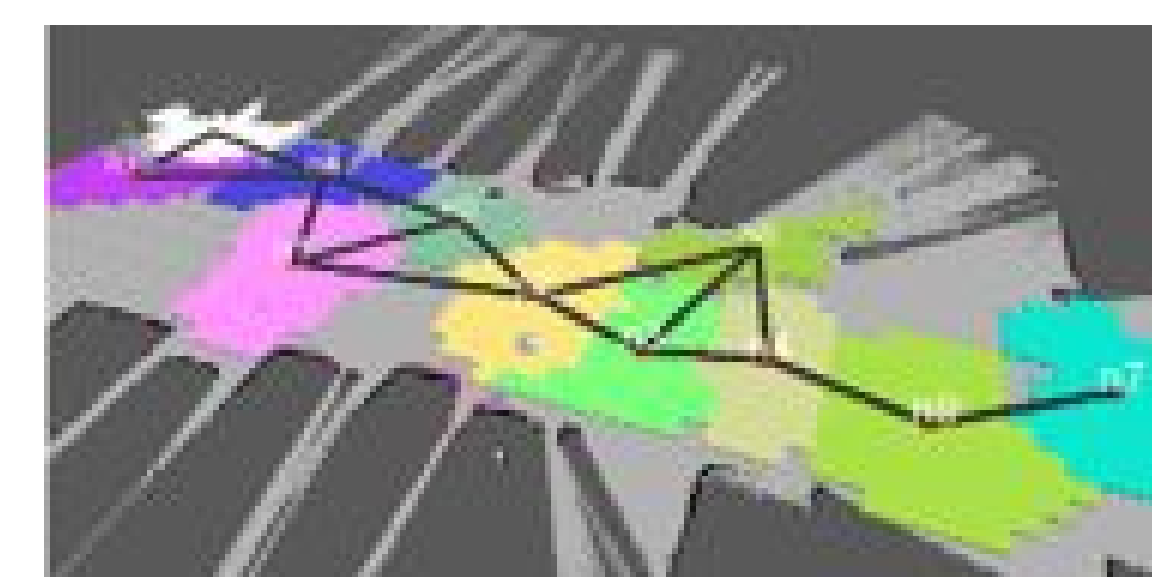
MAVs perform multiple sorties during missions.

Needed:

- **Integration** of information, to create persistent situation awareness.
- **Fusion** and **integration** of different sensors i.e. Mono / Stereo / Omni Cameras, 2D / 3D Laser scanners, Radar, GPS, Gyros, Compass ...
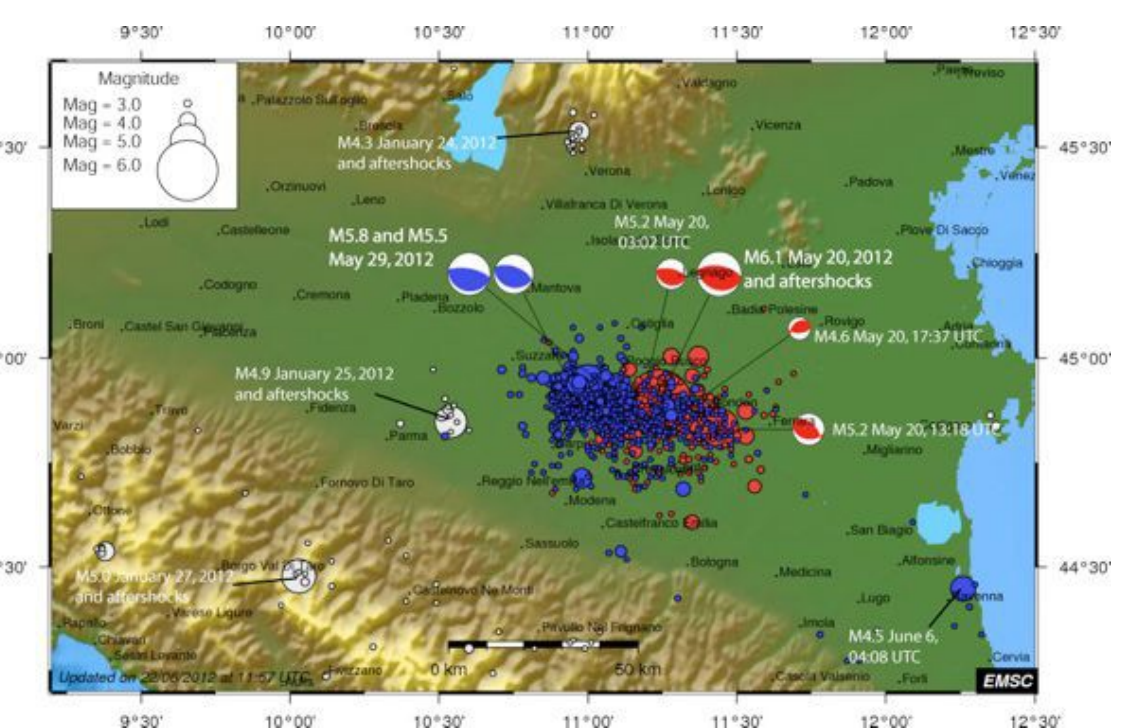
MAV actions

1. Localization and Planning
2. Construction of 3D models for dynamic environments, from observations obtained **over time** across **multiple sorties**
3. Persistent models for MAVs acting in environments with or without GPS.
4. Persistent models for human-robot teaming