



→ MEASUREMENTS AND OBSERVATIONS IN THE 21st CENTURY CONFERENCE

The survey of Ridracoli Dam: UAV – Unmanned Aerial Vehicle – and traditional topographic techniques

Piergiorgio Manciola, Giulia Buffi

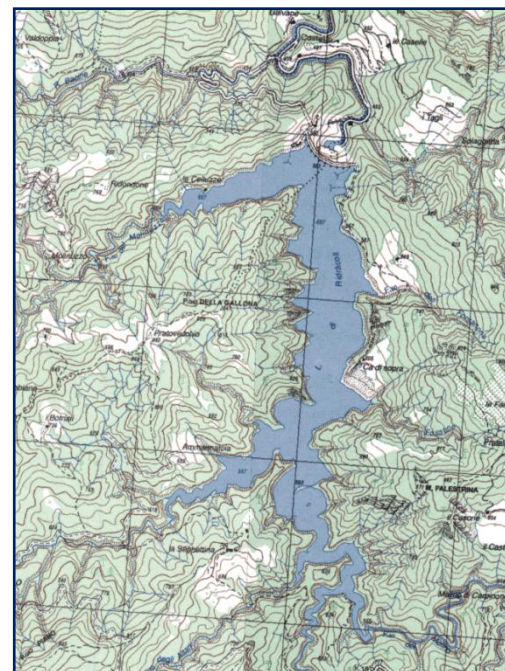
DICA – Department of Civil and Environmental Engineering – University of Perugia

In collaboration with:



21 November 2016 | ESA-ESRIN | Frascati (Rome) Italy

Outline: The Ridracoli Dam



- Maximum height: 103.500 m
- Crest length: 432.000 m
- Reservoir capacity: 33.000 million m³
- Reservoir surface area: 1.035 km²
- Total surface of drainage basin: 87.510 km²

Method: Integrated Survey System

- Total Station
- Gps Station
- Laser Scanner
- Photogrammetry by UAV – Unmanned Aerial Vehicle

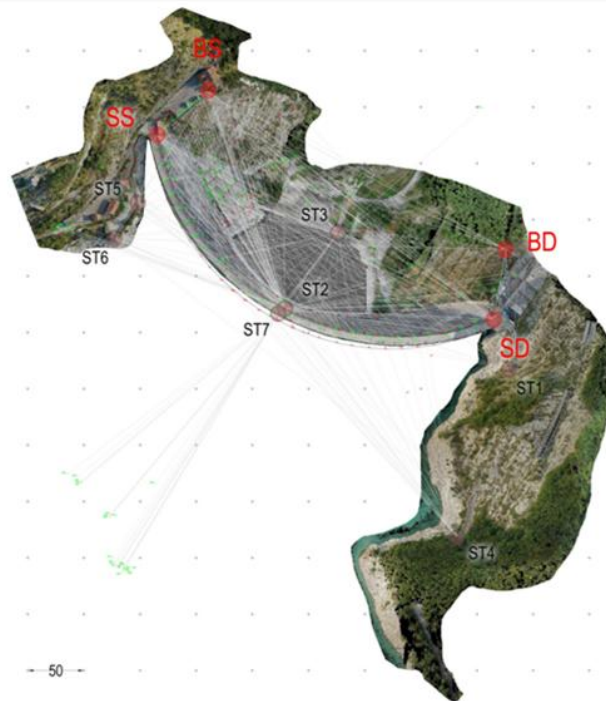


Method: Marker Placement

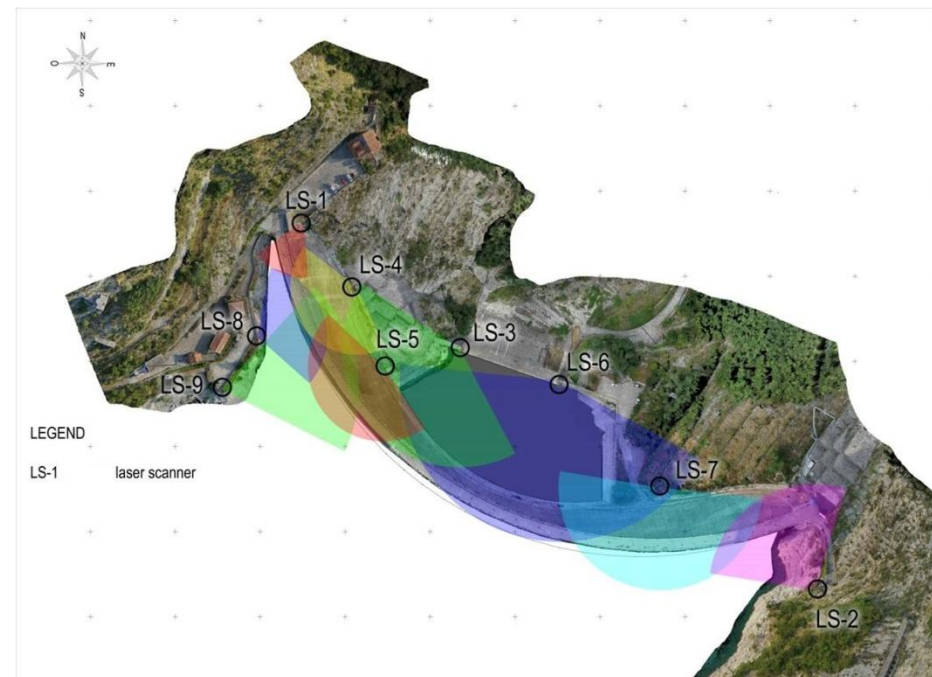


Method: Traditional Topographic Techniques

■ Total Station Survey



■ Laser Scanner Survey

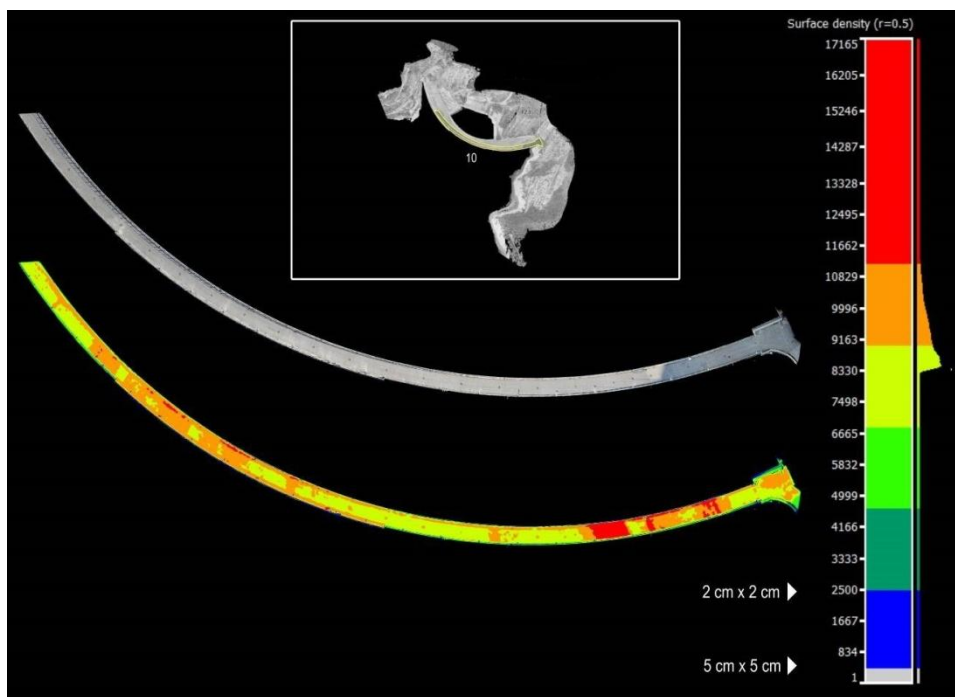


Method: “Structure from motion”



Validation

■ Points Density Analysis

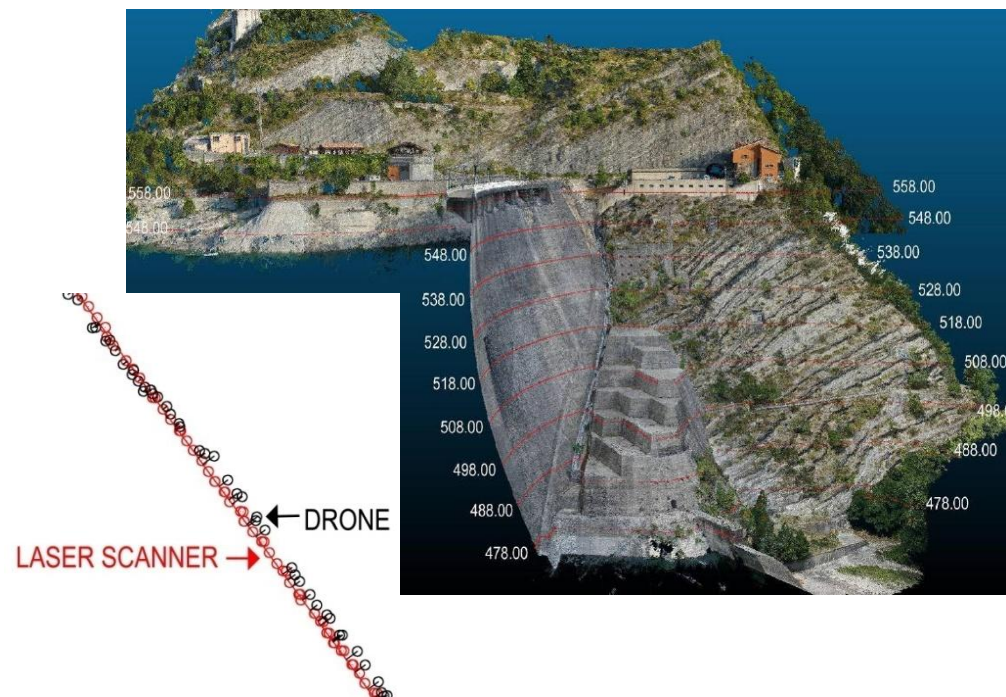


■ Points Coordinates Analysis

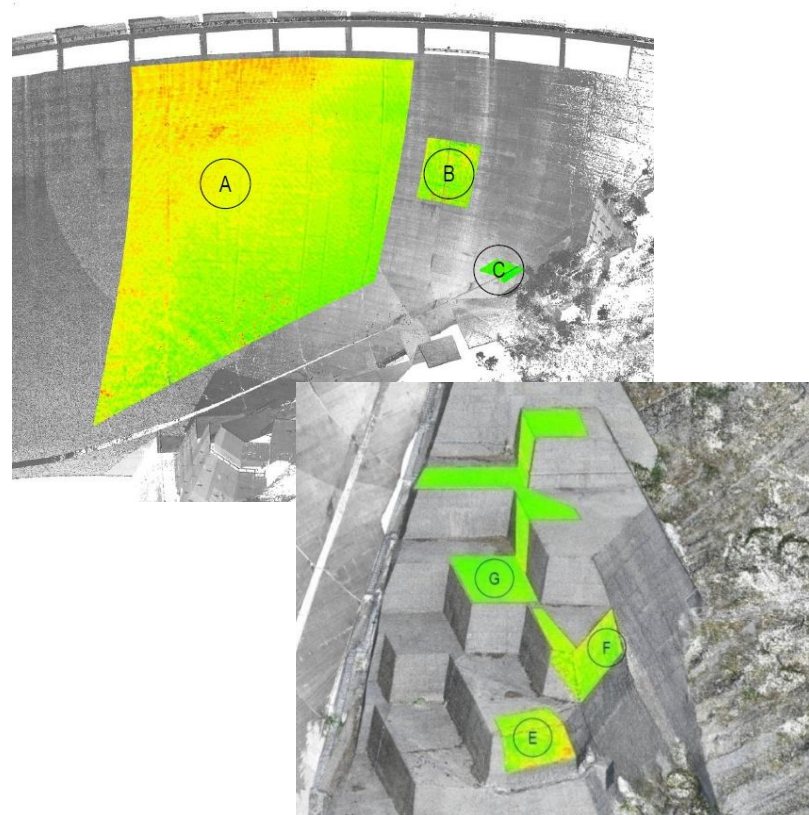


Validation

■ Lines Analysis

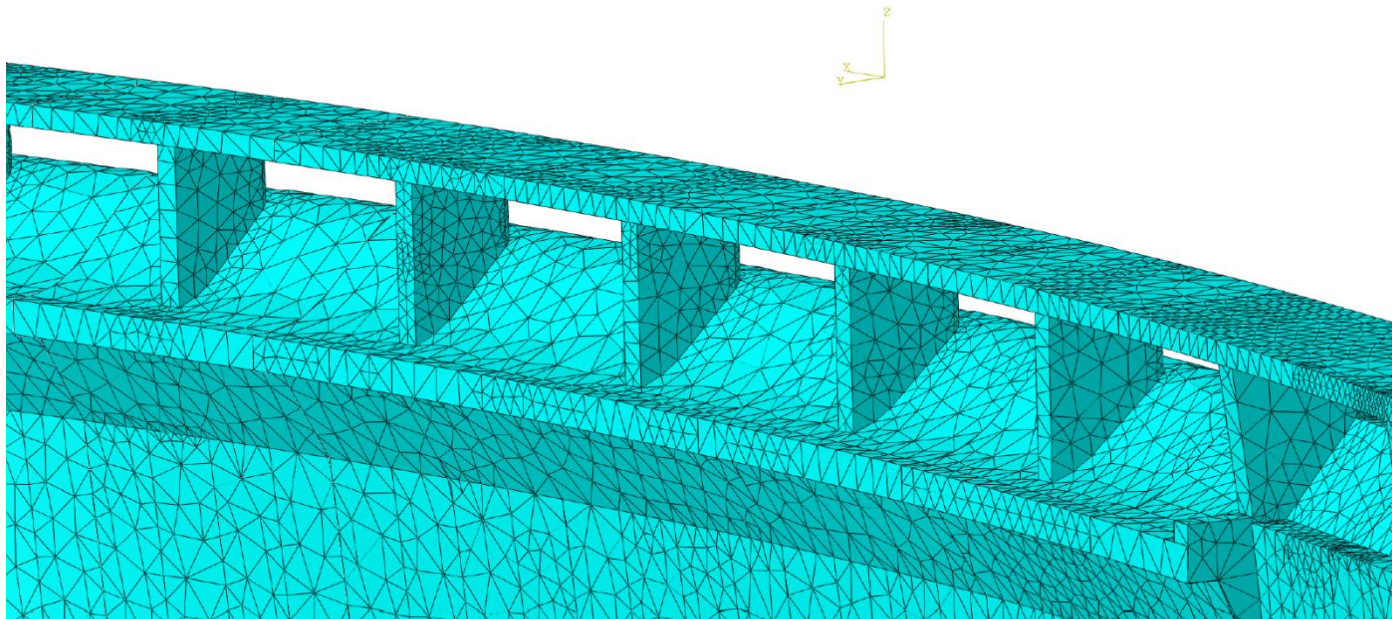


■ Surfaces Analysis



Conclusions

- Repeatability, execution speed and objective documentation
- Conformity of the UAV reconstruction with the real dimensions
- FE Model of the structure and of the ancillary works





Thank you for your kind Attention

giulia.buffi@unipg.it