UAV inspection & survey of Germany’s highest dam

Reservoirs and dams today are part of a complex water industry systems. Thorough maintenance and complex servicing operations are highly safety critical. Reservoirs’ providers maintain, preserve and manage reservoirs and dams according to the directives of the Federal Water Act. However material and plant inspections are still quite expensive. We successfully tested latest UAV technology to support that work quite efficient.

https://youtu.be/rAwGn7bez6Y

UAV- / Drone-based survey of the Rappbode Reservoir
AscTec Falcon 8 inspects Germany’s highest dam
The federal German state Sachsen-Anhalt alone count 32 constructions classified as reservoirs / dams. Like the Rappbodetal Reservoirs most German reservoirs and dams are located in the German low mountain range. From diverse perspectives and heights the complete concrete surface of the dam construction was surveyed by the lines. Within few hours the AscTec Falcon 8 operation was finished successfully. Automatic imaging series and the high-class payload Sony Alpha 7R granted efficiency and effectiveness.

The Rappbodetal Reservoir in numbers:

- Construction height: 90 metres
- Construction length: Crest 415 metres, base 78 metres
- Construction volume: 860.000 cubic metres
- Total reservoirs’ capacity: 113 mil. cubic metres
- Inspection area concrete surface: 22.000 square metres

Measured values & data output:

- Number of images: 1300
- Dense point cloud: 220 mil. points
- Faces: 43 mil.

A project in cooperation with:

- Bauhaus-University Weimar (BUW)
- Institute of Structural Engineering
- Chair of Modelling and Simulation of Structures (Prof. Dr. Guido Morgenthal)
- Research Project “Unmanned Aerial Vehicles (UAV) for State Determination of Structures” 06/2013 – 02/2015

Supported by:

- Chair of Computer Vision in Engineering (Prof. Dr.-Ing. habil. Volker Rodehorst)
- Regional Authorities for Construction and Traffic in Thuringia (Dipl.-Ing. Wilfried König)
- Guido Morgenthal Technologien im Bauwesen
Publikationen:

- Hallermann N., Morgenthal G. and Rodehorst V.: Vision-based deformation monitoring of large scale structures using Unmanned Aerial Systems 37th IABSE Symposium, Engineering for Progress, nature and People Madrid, Spain, 2014

Please note: Ascending Technologies develops and produces multi-rotor and autopilot technology, but provides no service. For further information about UAV / drone-based survey and photogrammetry service, please directly contact Guido Morgenthal Technologien im Bauwesen:

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Tags: UAV for Monument and Heritage Protection, UAV for Assessment and Energy Efficiency Control, UAV for Asset and Utility Inspection, UAV for Maintenance and Servicing, UAV for Surveying and Orthophotos, UAV for Condition Assessment and Structural Analysis

Category: Ascending Technologies, AscTec Falcon 8, AscTec Professional Line, AscTec Trinity, GeoEXPERT, InspectionPRO, UAV for Inspection & Monitoring, UAV for Surveying, Geo & Mapping