One of our UAV's

UAV TOPOGRAPHICAL SURVEYS

What Took Weeks Now Takes Days with More Detail, Same Accuracy

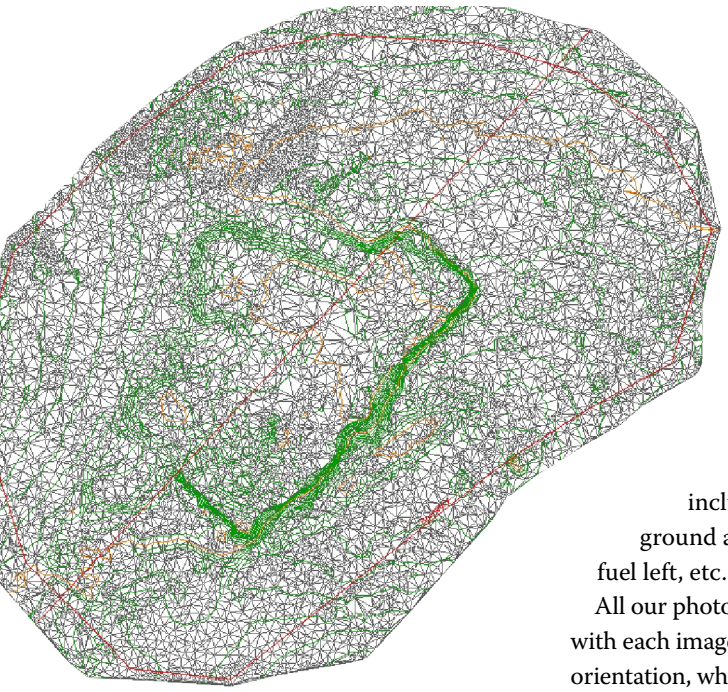
Many ancient structures like the pyramids, the acropolis and the Roman road infrastructures have survived for over 2000 years. This is testament in part to the successful application of surveying techniques, no matter how crude their methods might seem by today's standards. From its ancient roots to now, surveying has become and will always be, an integral part of a society striving to apply some order to its existence.

During my career I have been fortunate enough to witness meteoric-like progress in the field of surveying. We have moved on from tools like upside down theodolites, steel tapes, log tables and slide rulers to state of the art computers and surveying equipment.

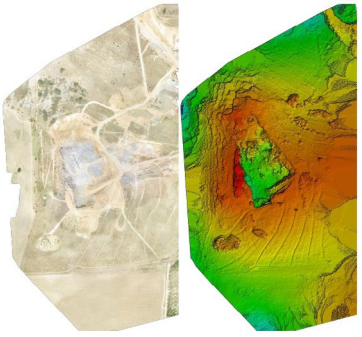
Just as we thought that nothing else could be added to our arsenal of technological tools, along comes the Unmanned Aerial Vehicle or better known as a UAV. Technology that has trickled down from the military industry, which up to a couple of years ago, belonged to science fiction stories and movies.

We, as a surveying company (see www.aerialpix.co.za.), have embraced this new technology to our advantage in all our topographic surveys. Surveys that used to take weeks can now be completed in a matter of a couple of days with much more detail than conventional surveys, but yet retain the same accuracy.

BY MICHAEL **PAPENHAGEN**



3D Tin and Contour
CAD Drawing



Orthomosaic and
Digital Surface Model

Creating Geo-referenced Orthomosaics and Digital Elevation Models (DEM) with our UAV's has never been easier and we provide the entire service from flight planning to the final product. We understand the importance of having requested information timeously and accurately delivered to our clients.

Our flight planning software takes care of all the flying characteristics by calculating flying height, speed and photo overlap based on our clients requirements. Our UAV then follows its flight plan and automatically triggers photos while taking into account the wind and its own flight speed. Our UAV's are also capable of recording a video of the area flown, should it be required by the client. All flights are monitored at our ground station including flight progress, ground and air speed, battery\ fuel left, etc.

All our photos are geo-referenced with each image having a position and orientation, which allows us to obtain a global Orthomosaic and Digital Elevation Models (DEM) with or without ground control points. Using this data we are able to generate Contours, Profiles, 3D Models, Cross-sections, Longitudinal Sections, CAD drawings, Volume and Area calculations.

The survey was requested by one of our clients in South Africa who wanted to determine the volume of overburden at one of their quarries with the help of test holes that were dug across the site. The area of concern is approximately 30 hectares and took us less than 5 hours to place Ground Control Points, fly the area and process the information.

One of our Helicopters used for Wind Turbine Inspections

Our GSR Helicopter in Action

What we submitted to the client included:

- Orthomosaic Model.
- Digital Elevation Model.
- 3D AutoCad Contour drawing with Elevations.
- Cross-sections along a Reference line showing the Original Ground Profile together with the Overburden Profile which was based on the depth of the Test Holes.
- Overburden Volume.

Two of our Pilots

It has been a long journey for us consisting of crashes, fly-aways and money, but which has paid off in the long run and we are now in a position to conduit any topographical survey of whatever size with confidence.

For more information please contact us at info@aerialpix.co.za or phone George Lawrence directly on +27 (0) 784573457

Our trusted Maja

Michael Papenhagen, the Founder of Aerialpix, is a qualified Civil Engineer, but his passion for Technology has driven him towards the Surveying Industry. From an early age in his career, he has searched ways to automate the workflow in the Surveying Field and is the developer of a mobile Land Surveying program called "CEASER" (see www.ceaser.co.za), which is being used by most Surveyors in Southern Africa. His next mission is to make the UAV a part of any Surveyor's tools.