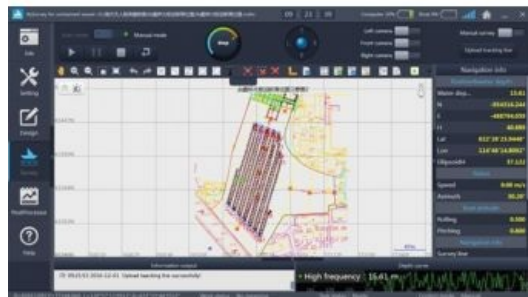# OceanAlpha Delivers Innovative USV Solution to Mining Industry

OceanAlpha's autonomous bathymetric survey boat, the ME40 for hydrographic survey, has been applied in the mining industry for tailing dam surveys, in addition to its common application in lakes, rivers, reservoirs and oceans. All that is necessary is to set up the survey waypoints; the boat can then acquire online bathymetric data automatically based on GPS navigation.

Water and tailing management is a key control process in mine management. Bathymetric surveys of tailing dams are important because the pond floor under the water is constantly changing and the water volume storage is therefore also changing. Local authorities may also require mining companies to submit the report of TSF (Tailing Storage Facility) water capacity. So it must support TSF in process operations.

Tailing pond water is usually hazardous and toxic, with big coverage, which makes the survey job dangerous and needing a high standard of work. Typically, there will be two people on the boat (one surveyor and another boat operator) with a pole mounted echo sounder and a GPS. With large boats unable to access shallow water, some surveys have to be done manually in order to acquire the bathymetry data involving wading into water which will inevitably bring up safety issues to surveyors. But thanks to the unmanned technology of the ME40 survey boat, this solves the problem.

Hydrographic survey software interface.

The Unmanned Survey Boat ME40

The OceanAlpha ME40 has a compact hull design (163x71x37cm) and is lightweight (33kg) which makes it easily transported and deployed. The boat comes with a 200KHz single beam echo sounder and a high performance RTK GPS. It is also compatible with 3rd party sonar and GNSS devices. The survey mission path can be planned in software or imported from various file formats including CAD, DXF etc. The sounding data acquisition and basic post process is also integrated in the same software. Besides, depth data can be outputted for further process and charting.

ME40 in Action

The second largest mining company of Peru performs regular assessments on the pond sedimentation and water capacity of its tailings dam and has used the OceanAlpha ME40 boat to model the bathymetric map and digital sediment thickness.

The survey operator can monitor everything about the mission and boat running status on a computer on shore instead of working in dangerous water in a time consuming way.

The results showed a significant difference between the volume capacity value expected by the Mining Company Water and tailings management (WTM) and OceanAlpha ME40 survey results. The data indicates water loss from a significant amount of cubic metres. The results obtained through the study were determinant to improve the water resources management of the mining company.

Deploy ME40 in a tailings pond.

Summary

ME40 survey technology has been proved to be a great alternative to replace traditional manned surveys, especially the surveys which are repeated periodically or in hazardous water. Generating quality data as well as reducing the running cost and saving human lives makes the boat more and more appealing to mining companies when they make survey decisions.