Leica Geosystems TruStory
Leica MobileMatriX getting to the bottom of reservoirs

The company
illwerke vkw, Bregenz/Österreich

Scope of the project
The measurement and evaluation of sediment deposits in reservoirs in regular intervals. Tens of thousands of measuring points are recorded per measurement.

Date
continued

Instruments

Sensors
Echolot Simrad EQ 44

TabletPC Panasonic CF-18

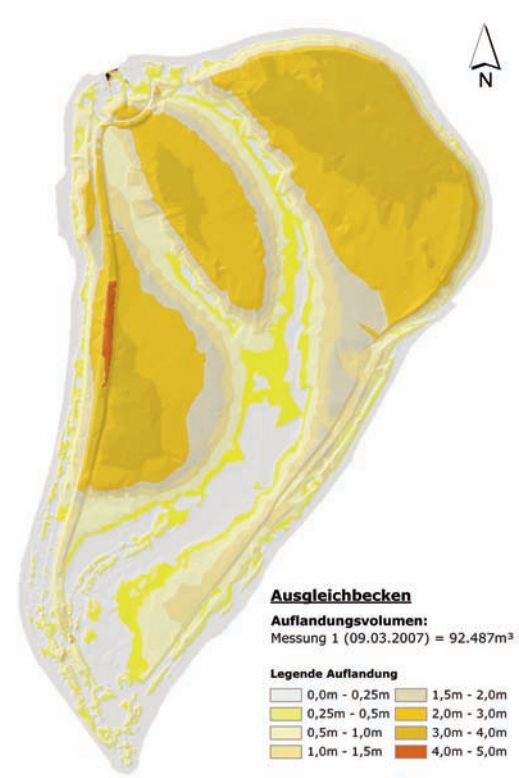
Software
Leica MobileMatriX on ArcGIS Editon

In the reservoirs operated by illwerke vkw, the constant build up of sediment deposits is hampering the work of some of their divisions. Obtaining exact information on the amount and property of the sediment has therefore become very important. Using the Echolot, the Leica GPS500 and the Leica MobileMatriX, the survey crew is "getting to the bottom" of the problems in the reservoirs.

illwerke vkw supplies power to approximately 180.000 customers in Vorarlberg and in the adjoining Westallgäu making it by far the largest power supplier in the western Austrian federal state. The company also owns about 15 reservoirs of various sizes; from pond size up to large mountain lakes. "Sediment deposits in these reservoirs greatly limit power generation and endanger our economic viability", explains the certified engineer Marco Ess, the supervising survey engineer

Sediments reduce the available volume to store water – meaning that the more deposits are in a reservoir, the less water it can hold which results in less water available for power generation. Specialist of the company regularly excavate the sediments from the lakes, however it is mandatory to reliably know the amount, extend and property of the sediments in advance.

For the exact data gathering of the sediment deposits, an Echolot measuring system was acquired consisting of an Echolot Simrad EQ44, a Leica 500 GPS sensor and a Panasonic CF-18 notebook on which the ArcGIS and Leica MobileMatriX software are installed. The reservoirs owned by illwerke vkw are measured in regular intervals – per lake, tens of thousands of underwater measuring points are measured, visualized and evaluated with ArcGIS, thereby calculating the



- when it has to be **right**

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volume of the sediments deposited. The locations of the sediment deposits are graphically displayed in an overview plan and the mass curve is calculated from which the useful water volume can be derived.

Ess explains the function of the equipment by saying: "Through the constant synchronization between the Leica MobileMatriX, the Echolot and the Leica GPS500, the depth measuring points of the Echolot are linked to the positional coordinates of the GPS sensor and displayed in real time. Additionally, the current time and location are saved. This does not only enable an intelligent arrangement of the sequencing of the further measuring points but it also saves our measuring crew a lot of time as remeasuring missing areas becomes unnecessary. The breaking edges of the original terrain or other areas important to the measurment can be displayed with the Leica MobileMatriX".

"The measuring points are displayed in the Leica MobileMatriX in real time, thereby enabling an intelligent sequencing of the measurements and renders costly new measurements unnecessary, which saves our crew much time and guarantees exact data gathering."

Certified engineer Marco Ess, supervising survey engineer, illwerke vkw