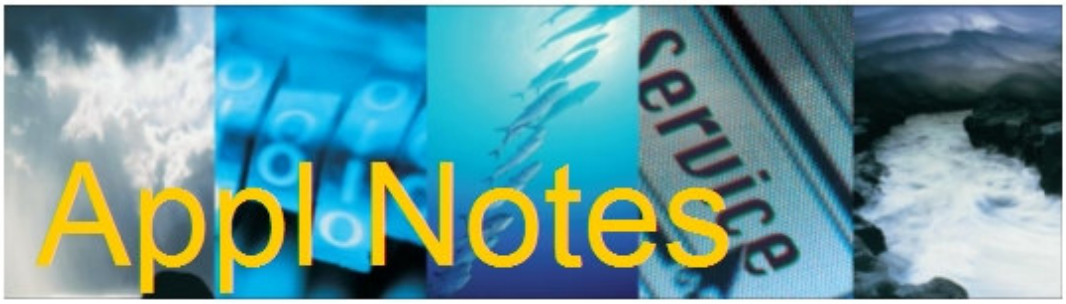

OTT Application Notes / Success Stories

Water Quality Measurement extreme

Hydrolab MiniSonde for measurement of water quality parameters in Rio Tinto / Spain

Background

The characteristics of the Rio Tinto in the south-west of Spain, near Sevilla, are his ruby colour and the extremely sour pH-value between 0 and 2 pH-units. The river carries a mixture between poisonous heavy metals like copper, nickel, arsenic, iron and cadmium, dissolved in high-percent sulphuric acid.

It's not proved where these unusual conditions come from. As per current knowledge, little bacteria dissolve and metabolise metal sulphides from the underground, by which sulphuric acid occurs.

The Rio Tinto is one of two rivers on the earth that presumably have quite a similar composition as it might have existed on the planet Mars at the time when water was prevailing there.

When in the year 2001 micro-biologists of the University Madrid discovered more than 1,300 different life-forms in water samples, against all assumptions, this aroused interest.

Additionally, an extraordinarily small species within the micro-organisms found shows similarity with a fossil form that can be seen on a photo of the Mars, according to the scientists.

Task

The INTA (national institute for aerospace and aviation technology in Spain) was authorised by the NASA to carry out surveys in order to get knowledge about the life in this river and the life-conditions.

For this, the INTA developed a submarine, which moves in the river remotely-controlled and sends data to a central computer at the river bank.

The submarine has integrated a multiparameter probe type "Hydrolab Minisonde", which transmits online data about temperature, dissolved oxygen, conductivity, ph-value and dissolved gas.

Summary / Outlook

The Hydrolab Minisonde integrated in the submarine measures the desired parameters in different dives reliably.

More information abuot OTT solutions and products www.ott-hydrometry.com

Technology

Hydrolab Minisonde with the following sensors

_temperature
_dissolved oxygen
_conductivity
_pH
_TDG – dissolved gas