



The CONTROS HydroC™ / CO₂ successful in ACT test

The Alliance for Coastal Technologies (ACT), supported by NOAA, conducted a field performance demonstration and evaluation from August to November 2009. ACT's unbiased, third party evaluation focused on the accuracy, precision and reliability of commercial in-situ pCO₂ instruments such as the CONTROS HydroC™ / CO₂. Tests were conducted at sites with significant variation in pCO₂ (daily and weekly cycles) and the systems have been compared against well-chosen reference systems.

Reference systems:

1. Flow- through pCO₂ Analyzer (LICOR LI840/ membrane contactor equilibrator)
2. Discrete water sampling (pH and total alkalinity calculated to pCO₂ with CO₂Sys/ Pierrot)

Results of HydroC™ / CO₂:

- The systems tested functioned continuously throughout the month long test period
- The systems acquired 100 % of the data expected
- The systems collected 10 times the data of the reference systems
- Biofouling did not affect performance during the duration of the test
- The mean difference (HydroC™ - Reference) is within the given uncertainty interval given by the uncertainties of the instrument and the reference systems.
- *"The time-series provided by the HydroC™ / CO₂ revealed diel patterns in CO₂ and captured a significantly greater dynamic range and temporal resolution than could be obtained from discrete reference samples."*

Conclusions:

- As a result of this performance test CONTROS has increased the quality standards for built-in NDIR sensors (e.g. stability, drift, cross sensitivity).
- Analytical filters will be included into the internal gas stream to prevent dust, dirt or any other reversible contamination.
- Update of the algorithms for the NDIR data processing to be implemented.

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The full report is available at: http://www.act-us.info/evaluation_reports.php