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## Enhancement of $\ensuremath{\textbf{pCO}}_2$ and $\ensuremath{\textbf{pH}}$ measurement technologies on observatories

Mikhail Kononets (1), Anders Tengberg (1), Dariia Atamanchuk (2), Jenny Ullgren (3), and Per Hall (1) (1) Department of Marine Sciences, Gothenburg University, Sweden, (2) Department of Oceanography, Dalhousie University, Halifax, Canada, (3) Nansen Environmental and Remote Sensing Center, Bergen, Norway

In the Fixed point Open Ocean Observatory project  $(FixO_3)$  different pCO<sub>2</sub> and pH sensors were evaluated insitu. First 8 different technologies were compared in shallow water with high biofouling at the Koljoefjord cabled observatory. The E2-M3A observatory in the Ionian Sea (Mediterranean) served for surface water long term testing of pCO<sub>2</sub> and pH optodes in oligotrophic waters and the Antares observatory offered its infrastructure for deep water (2500 m) trials of ISFET and optode technology. We will present our experiences from these projects as well as from roaming with autonomous mobile platforms, profilers and surface vehicles.