

August 27th In Situ Sensors Meeting

Plankton

Topic: Current instrumentation for in situ plankton analyses
Sensors needed for future work

Issues

- Large volumes are needed to get enough sample for less abundant species
 - Can use preconcentration techniques (non-filtering)
- Lysed vs. Whole cell
 - For automation, lysed is faster
 - Genetic probe techniques limited by reagents
 - Can imaging be combined with genetic probes?

Current Instrumentation

- Flow Cytobot
 - <http://www.whoi.edu/sbl/liteSite.do?litesiteid=11893&articleId=17066>
 - Optimized for ~1-10 μm plankton
 - Has been successfully deployed for up to 6 months at MVCO
- Video Plankton Recorder (VPR)
 - <http://www.whoi.edu/page.do?pid=11348>
 - <http://www.whoi.edu/oceanus/viewArticle.do?id=14746>
 - <http://www.whoi.edu/instruments/viewInstrument.do?id=1007>
 - For plankton ~50 μm to a few cm
- Large Area Plankton Imaging System (LAPIS)
 - http://www.whoi.edu/cms/files/swhite/2006/12/LAPIS_2_16323.pdf
 - Similar to VPR but larger volume, forward scattering
 - 500 m rated
- Environmental Sample Processor (ESP)
 - <http://www.mbari.org/ESP/>
 - <http://www.mbari.org/microbial/ESP/>
- BIOMAPER
 - <http://www.whoi.edu/instruments/viewInstrument.do?id=12014>

Related Programs

- CMORE
 - <http://cmore.soest.hawaii.edu/index.htm>
 - http://cmore.soest.hawaii.edu/cmored_theme3.htm
- WHOI Ocean Life Institute
 - <http://www.whoi.edu/page.do?pid=7398>
- Autonomous Multiscale Digital Imaging of Ocean Species
 - <http://www.whoi.edu/sbl/liteSite.do?litesiteid=6252>