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Project	Authors	Web Site
1. Tide Gauge Stations		
a. University of Hawaii Sea Level Center	Mark Merrifield	http://uhslc.soest.hawaii.edu
b. Sea Level Observation: NOAA's Tide Station Network	Allison Allen, Stephen Gill, Lori Fenstermacher, Carolyn Lindley, Chris Zervas	http://tidesandcurrents.noaa.gov http://opendap.co-ops.nos.noaa.gov/content/ http://tidesandcurrents.noaa.gov/sltrends/sltrends.shtml
2. Drifting Buoys		
a. The "Global Drifter Program" - Drifter Measurements of Surface Velocity, SST, SSS, Winds and Air Pressure	Peter Niiler	http://www.jimo.ucsd.edu/research/projects/current/A_theme/global_drifter.htm
b. Surface Drifter Program: AOML's Component of NOAA's Global Drifter Program	Rick Lumpkin, Silvia Garzoli	http://www.aoml.noaa.gov/phod/dac/gdp.html http://www.aoml.noaa.gov/phod/dac/dacdata.html http://www.aoml.noaa.gov/phod/dac/gdp_drifter.php http://www.aoml.noaa.gov/phod/soto/gsc/index.php
3. Tropical Moored Buoys		
a. The Global Tropical Moored Buoy Array	Michael McPhaden, Rick Lumpkin	http://www.pmel.noaa.gov/pirata/ http://www.pmel.noaa.gov/tao/ http://www.aoml.noaa.gov/phod/pne http://www.pmel.noaa.gov/tao/oceansites/ http://www.pmel.noaa.gov/tao/global/global.html
b. Development of a Next Generation Platform and Instrumentation for Continuous Ocean Observations (PICO)	Christian Meinig	http://www.pmel.noaa.gov/pico/
c. FY2009 Tropical Atmosphere Ocean (TAO) Array Program Accomplishments	Shannon McArthur, Michael McPhaden	http://www.tao.noaa.gov/ http://www.pmel.noaa.gov/tao/ http://www.oscar.noaa.gov
4. Ocean Reference Stations		
a. Ocean Reference Stations and Air-Sea Fluxes	Robert Weller, Albert Plueddemann, Lisan Yu	http://www.oceansites.org/ http://uop.whoi.edu/projects/ntas/ntasdata.html http://www.ndbc.noaa.govhttp://uop.whoi.edu/projects/stratus/stratus.html http://uop.whoi.edu/projects/whots/whots.html http://oaflux.whoi.edu
b. High Resolution Climate Data From Research and	Christopher Fairall	http://www.esrl.noaa.gov/psd/psd3/air-sea/oceanobs/ http://www.esrl.noaa.gov/psd/psd3/wgsf http://www.esrl.noaa.gov/psd/psd3/air-sea

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Volunteer Observing Ships		ftp://ftp.etl.noaa.gov/et6/cruiseshttp://www.ncdc.noaa.gov/oa/rsad/air-sea/surfa.html http://www.esrl.noaa.gov/psd/psd3/cruises/ http://www.usclivar.org/hlat.php http://saga.pmel.noaa.gov/Field/icealot/

c. Western Boundary Time Series in the Atlantic Ocean	Molly Baringer, Christopher Meinen, and Silvia Garzoli	http://www.aoml.noaa.gov/phod/wbts/ http://www.aoml.noaa.gov/phod/floridacurrent/
d. South Atlantic Meridional Overturning Circulation	Christopher Meinen, Silvia Garzoli, Molly Baringer	
e. PMEL Ocean Climate Stations	Meghan Cronin, Christian Meinig, Christopher Sabine Nicholas Bond	http://www.pmel.noaa.gov/OCS/http://uskess.orghttp://www.pmel.noaa.gov/keo/data.html http://www.pmel.noaa.gov/stnP/data.html http://usclivar.org/Organization/wbc-wg.html
f. Weddell Sea Moorings	Bruce Huber, Arnold Gordon	http://www.ldeo.columbia.edu/res/div/ocp/projects/corc.shtml http://www.oceansites.org/
g. Monitoring the Indonesian Throughflow in Makassar Strait	Arnold Gordon, R. Dwi Susanto	
h. Meridional Overturning Variability Experiment	Uwe Send	http://mooring.ucsd.edu
i. CORC: Integrated Boundary Current Observations in the Global Climate System	Uwe Send, Russ Davis, Daniel Rudnick, Dean Roemmich, Peter Niiler, Bruce Cornuelle	http://mooring.ucsd.edu
j. Glider Measurements of the Solomon Sea	William Kessler	http://spray.ucsd.edu/
k. Development of an "Adaptable Bottom Instrument Information Shuttle System" (ABIISS)	Silvia Garzoli, Ulises Rivero, Christopher Meinen	www.aoml.noaa.gov/phod/instrument_development
l. Assimilation, Analysis and Dissemination of Pacific Rain Gauge Data: PACRAIN	Mark Morrissey, Susan Postawko, Scott Greene	http://pacrain.evac.ou.edu/ http://sparce.evac.ou.edu/ http://srdc.evac.ou.edu http://www.pi-gcos.org/ http://pacrain.evac.ou.edu/pacusers.html http://pacrain.evac.ou.edu/changes.html http://gcmd.nasa.gov/records/GCMD_ATOLL_RAIN_PACIFIC.html http://dss.ucar.edu/datasets/ds484.0/ http://www.ncdc.noaa.gov/oa/climate/ghcn-monthly/index.php
5. Ships of Opportunity		
a. SIO High Resolution	Dean Roemmich,	http://www-hrx.ucsd.edu

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XBT Transects	Bruce Cornuelle, Janet Sprintall	
b. Ship of Opportunity Program (SOOP), Volunteer Observing Ships, Expendable Bathythermograph (XBT) and Environmental Data Acquisition Program	Gustavo Goni, Molly Baringer, Silvia Garzoli	http://www.aoml.noaa.gov/phod/goos SEAS: http://www.aoml.noaa.gov/phod/trinanes/SEAS/ HD: http://www.aoml.noaa.gov/phod/hdenxbt FR/LD: http://www.aoml.noaa.gov/phod/goos/ldenxbt http://www.aoml.noaa.gov/phod/VOS/REPORTS/ http://www.aoml.noaa.gov/phod/hdenxbt/high_density_home.php http://www.aoml.noaa.gov/phod/tsg
6. ARGO Profiling Floats		
a. The Argo Project: Global Observations for Understanding and Prediction of Climate Variability	Dean Roemmich, Russ Davis, Stephen Riser, W. Brechner Owens, Silvia Garzoli, Gregory Johnson	http://www.argo.ucsd.edu http://argo.jcommops.org http://www.usgodae.org/ http://www.ifremer.fr/coriolis/cdc/argo.htm http://www-argo.ucsd.edu/Acpres_offset2.html http://www.argo.ucsd.edu/FrBibliography.html http://www.argo.ucsd.edu/FrUse_by_Operational.html http://www.argo.ucsd.edu/FrEducational_use.html http://sio-argo.ucsd.eduhttp://www.aoml.noaa.gov/phod/argo/index.phphttp://flux.ocean.washington.edu/argo/http://floats.pmel.noaa.gov
7. Ocean Carbon Networks		
a. Global Repeat Hydrographic/CO_2/Tracer Surveys In Support of CLIVAR And Global Carbon Cycle Objectives: Carbon Inventories And Fluxes	Richard Feely, Christopher Sabine, Gregory Johnson, John Bullister, Calvin Mordy, Rik Wanninkhof, Molly Baringer, Christopher Langdon, Jia-Zhong Zhang	http://www.pmel.noaa.gov/co2/co2-home.html http://www.aoml.noaa.gov/ocd/gcc/co2research/ http://www.carboncyclescience.gov http://ushydro.ucsd.edu/ http://www.clivar.org http://www.clivar.org/carbon_hydro/index.htm http://www.globalcarbonproject.org/ http://www.ioccp.org http://cchdo.ucsd.edu/data_access/show_cruise?ExpoCode=33RR20090320
b. Surface Water pCO_2 Measurements from Ships	Rik Wanninkhof, Richard Feely, Taro Takahashi, Nicholas Bates, Gustavo Goni, Frank Millero	http://www.aoml.noaa.gov/ocd/gcc/ http://www.pmel.noaa.gov/co2/uwpco2 http://www.bios.edu/Labs/co2lab/ http://www.ldeo.columbia.edu/CO2 http://www.aoml.noaa.gov/phod/tsg/index.php http://www.aoml.noaa.gov/ocd/gcc/rvbrown_data2009.php http://www.aoml.noaa.gov/ocd/gcc/explorer_realtime.php http://www.aoml.noaa.gov/ocd/gcc/rvgunter_realtime.php http://cwcgom.aoml.noaa.gov/erddap/griddap/aomlcarbonfluxes.graph
APPENDIX. Underway CO_2 Measurements aboard the RVIB Palmer and Data Management of the Global VOS Program	Taro Takahashi	http://www.ldeo.columbia.edu/res/pi/CO2/ http://www.bios.edu/Labs/co2lab/ http://www.oceansites.org http://cdiac.ornl.gov/oceans/LDEO_Underway_Database/LDEO_home.html www.ldeo.columbia.edu/CO2
c. High-Resolution	Christopher Sabine	http://www.pmel.noaa.gov/co2/moorings/

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Ocean And Atmosphere pCO_2Time-Series Measurements		http://www.oceansites.org/
8. Arctic Ocean Observing System		
a. Arctic Sea Ice Thickness Observations	Jacqueline Richter-Menge, Humfrey Melling and Don Perovich	http://imb.crrel.usace.army.mil/ http://nsidc.org/noaa/moored_uls/index.html http://iabp.apl.washington.edu/ http://www.aoncadis.org/ http://www.arcus.org/search/seaiceoutlook/index.php
b. RUSALCA: The Pacific Gateway to the Arctic – Quantifying and Understanding Bering Strait Oceanic Fluxes	Rebecca Woodgate, Ron Lindsay, Tom Weingartner and Terry Whitledge	http://psc.apl.washington.edu/BeringStrait.html
9. Ocean Analysis and Data Assimilation		
a. In situ and Satellite Sea Surface Temperature (SST) Analyses	Richard Reynolds, Huai-Min Zhang	http://www.ncdc.noaa.gov/oa/climate/research/sst/oi-daily.php http://www.ncdc.noaa.gov/oa/climate/research/sst/ersstv3.php http://www.ncdc.noaa.gov/oa/climate/research/anomalies/index.html#means http://podaac.jpl.nasa.gov
b. Development of Global Heat and Freshwater Anomaly Analyses	Gregory Johnson, John Lyman, Josh Willis	http://oceans.pmel.noaa.gov/
c. Ocean Heat and Freshwater Content Variability Estimates	Sydney Levitus	http://www.nodc.noaa.gov/
d. Evaluating the Ocean Observing System: Performance Measurement for Heat Storage	Claudia Schmid, Gustavo Goni	http://www.aoml.noaa.gov/phod/sardac/products/hs/introduction.php
e. Quarterly reports on the State of the Ocean: Meridional Heat Transport Variability in the Atlantic Ocean	Molly Baringer, Silvia Garzoli, Gustavo Goni	http://www.aoml.noaa.gov/phod/soto/mht/
f. A Fifty-Year Analysis of Global Ocean Surface Heat Flux to Improve the Understanding of the Role of the Ocean in Climate	Lisan Yu and Robert Weller	http://oaflux.whoi.eduhttp://dss.ucar.edu/datasets/ds260.1/
g. Climate Variability in Ocean Surface	Mark Bourassa, Shawn Smith, Eric	http://www.coaps.fsu.edu/RVSMDC/FSUFluxes/ http://www.coaps.fsu.edu/RVSMDC/SAC/

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	Turbulent Fluxes	Chassignet	http://www.cpc.ncep.noaa.gov/products/CDB/ ftp://www.coaps.fsu.edu/pub/fsu3/research/ http://coaps.fsu.edu/thredds.php
h.	Sea Level Analysis: NOAA's Tide Station Network	Allison Allen, Stephen Gill, Lori Fenstermacher, Carolyn Lindley, Chris Zervas	http://tidesandcurrents.noaa.gov http://tidesandcurrents.noaa.gov/sltrends/sltrends.shtml http://tidesandcurrents.noaa.gov/sltrends/sltrends_global.shtml http://opendap.co-ops.nos.noaa.gov/content/
i.	Evaluating the Ocean Observing System: Surface Currents	Rick Lumpkin, Gustavo Goni	http://www.aoml.noaa.gov/phod/soto/gsc/ http://www.aoml.noaa.gov/phod/altimetry/
j.	Global Carbon Data Management and Synthesis Project	Christopher Sabine, Richard Feely, Steve Hankin, Rik Wanninkhof, Tsung-Hung Peng, Alex Kozyr, Robert Key, Frank Millero, Andrew Dickson	http://cdiac.ornl.gov/oceans/home.html http://cwcgom.aoml.noaa.gov/erddap/griddap/aomlcarbonfluxes.graph
	APPENDIX. Global Carbon Data Management and Synthesis Project	Frank Millero	
k.	Observation-Based Quantification of Seasonal to Interannual Changes in Air-Sea CO_2 Fluxes	Rik Wanninkhof, Richard Feely, Christopher Sabine, Kent Hughes	http://www.aoml.noaa.gov/ocd/gcc http://ioc3.unesco.org/ioccp/Synthesis.html http://www.aoml.noaa.gov/ocd/gcc/movieloop.html http://www.aoml.noaa.gov/ocd/gcc/TGeunHaFlux http://cwcgom.aoml.noaa.gov/erddap/griddap/aomlcarbonfluxes.graph .
l.	Using Models to Improve our Ability to Monitor Ocean Uptake of Anthropogenic Carbon	Keith Rodgers, Anand Gnanadesikan	
m.	Climate Prediction Center Analyses and Monitoring in Support of the Ocean Observing System for Climate	Arun Kumar, Yan Xue, Pingping Xie	http://www.cpc.ncep.noaa.gov/products/GODAS/
n.	Enhanced Ocean Climate Products from NCEP	Stephen Lord, David Behringer	http://www.cpc.ncep.noaa.gov/products/GODAS/ http://nomads.ncdc.noaa.gov/NOAAReanalysis/cfsrr
o.	Ocean Data Assimilation Research at GFDL	Tony Rosati, Shaoqing Zhang, You-Soon Chang	http://www.gfdl.noaa.gov/ocean-data-assimilation
p.	Simulation of the Argo Observing System	Igor Kamenkovich	http://www.hycom.org
q.	Observing System	D.E.Harrison, Andy	http://staff.washington.edu/chiodi/manuscripts/manuscripts.shtml

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Research Studies	Chiodi	
10. Data Management		
a. The Observing System Monitoring Center (OSMC)	Steven Hankin, Kevin Kern, Ted Habermann	http://www.osmc.noaa.gov http://osmc.noaa.gov:8180/beta/OSMC/OSMC.html
b. NDBC OceanSites GDAC	William Burnett	http://www.oceansites.org ftp://data.ndbc.noaa.gov/data/oceansites ftp://ftp.ifremer.fr/ifremer/oceansites http://dods.ndbc.noaa.gov/thredds/catalog/data/oceansites/catalog.html
c. NDBC Metadata Services for the Climate Data Assembly Center	William Burnett	
d. World Ocean Database Project	Sydney Levitus	
e. U.S. Research Vessel Surface Meteorology Data Assembly Center	Shawn Smith, Mark Bourassa, Eric Chassignet	http://samos.coaps.fsu.edu/ http://www.coaps.fsu.edu/RVSMDC/html/data.shtml http://coaps.fsu.edu/thredds.php http://www.nodc.noaa.gov/Archive/Search
f. Ocean Data Management at NCDC: From Ingest to Archive, Blended Products and Data Services	Huai-Min Zhang, Neal Lott, Stephen Delgreco, Richard Reynolds	http://www.ncdc.noaa.gov/oa/rsad/blendedseawinds.html http://www7.ncdc.noaa.gov/CDO/CDOMarineSelect.jsp http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclim.html http://www.ncdc.noaa.gov/oa/rsad/seawinds.html http://www.ncdc.noaa.gov/oa/rsad/air-sea/surfa.html