Appendix 5 – Conductivity-temperature depth (CTD) and optical turbidity measurements from small vessel water sampling.

(Files available at
http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_5/)

The CTD data from both Phase I and II of the Demonstration Project are provided in raw text files (.cnv files). Each file includes all samples from one CTD cast, including the initial samples at the water surface, the downcast, and the upcast. These files are organized by sample date, and each complete sampling of the stations is provided in an unique folder. The folder names have the following format: ***CTD_ YYYY_ MM_DD***, where:

YYYY is the year,
MM is the numerical month, and
DD is the numerical day of the month.

Each file within these folders represents the entire CTD cast for one station. The station name (for example, C08, D14, and Buoy-N) is given in each file name.

The downcast CTD data from Phase II of the Demonstration Project also were depth averaged using a 0.25 m interval and compiled with station latitude and longitude in structured arrays within Matlab (.mat) files. These depth-averaged data are available in the ***Appendix_5_Results_CTD_PhaseII*** folder. Each file contains a complete sampling of all of the stations, which typically encorporates all of the sampling from a single day. Three files are available for the September 30, 2009, because the stations were sampled three complete times. Within each file the sampling data are stored within a structured array entitled ***ctdBin*** that includes the following fields:

name–the original raw data file name,
station–coastal sampling station,
varlable–the original CTD sample variables recorded,
spans–the length of sample record averaged,
samp_interval–the depth interval in meters for averaging,
mtime–the Matlab time of the beginning of sampling,
gtime–the calendar time of the beginning of sampling [year month day hour minute second],
sensors–names of sensors sampled,
latitude–latitude of station in decimal degrees,
longitude–longitude of station in decimal degrees,
tzone–the time zone of sampling,
timeJ–time of sample in Julian days,
timeS–time of sample in seconds after the sensor turned on,
prdM–average pressure of samples in dbar,
depSM–average depth of samples in meters,
c0S–average conductivity of samples in microSiemens per meter,
sal00–average salinity of samples in practical salinity units (psu),
tv290C–average temperature of samples in degrees Celsius,
density00–average density of of samples in kilograms in cubic meters,
v0–average voltage of the tramissometer external sensor (channel #0),
bat–average beam attenuation of the transmissometer sensor in meters^{-1},
v2–average voltage of the optical backscatterance external sensor (channel #3),
flag–'NaN' if no data available for averaging, '0' if adequate data for averaging,
scan–average number of the sequential scan since the CTD was turned on, and

dep_reg–midpoint of the 0.25-meter depth averaged bins.

For more information about the .mat file format, please see Mathworks at *www.mathworks.com.* Note that *NaN* within any of these fields represents 'not a number' and is utilized for fields in which no data were recorded or available.