

## CalCOFI Leg 1 Specifics:

The SCS event that was run on the bridge can be found in the SCS data under **EVENT DATA**. Only one event was run on this cruise titled **Bridge CalCOFI Leg 3**.

Two files will be of particular interest to you:

1. The MOA Snap files are the “snapshot” files that were operated by the bridge officers containing Ins and Outs from the net tows, trawls, and CTDs as well as Sunrise, Sunset, and Start/End Transect whenever possible. These files have time in GMT, position, and all of the same sensors listed below in the MOA Continuous file, in the same order.
2. The MOA Continuous files are comma delimited text files that contain a 30 second continuous recording of date and time in GMT, lat, long, course over ground, speed over ground, gyro, shaft RPM, ES60 200 kHz depth below transducer, true wind speed, true wind direction, air temp, relative humidity, barometric pressure, TSG internal temperature, TSG surface salinity, TSG surface conductivity, and Sea surface temperature, through the duration of the cruise. See below for a further description of these sensors.

## SCS Events in General:

Each event may have a SNAP file containing “snapshots” of data when each button was clicked, as well as a continuous file. Each time an event is restarted the program automatically creates a new file. You may see several files with the same name\_001, 002, etc. On occasion you may see that these files have been compiled into one large file with “\_compiled” appended to the end of it for your viewing pleasure. This \_compiled file is created by the Survey Techs and has been reviewed by the STs and attempts have been made to add any missing occurrences (for example if a bridge officer forgot to note sunrise, the time for sunrise has been added.) Please use the original data when necessary. Survey Techs are responsible for accurate data collection, not data analysis.

The SCS data is in NMEA comma delimited format. NMEA definitions can be found by Google-ing the NMEA code (\$MXGLL).

Occasionally you will see \$DERIV. These are SCS derived sensors, calculations made from other sensors. For example, true wind is calculated in SCS using relative wind and ship position. This data string starts with a \$DERIV code. The first value in this code is the output and the values after that are the factors used in the calculation. You may see sensors with the title Base Derivative. Sensors with this title are used to calculate another useable value. Look for the derived sensor and use that value instead of the base derivative. For example, the Shaft outputs data in a MilliAmps code. SCS then calculates actual Shaft RPM from this value. The MilliAmps code is the base derivative, and actual Shaft RPM is the derived sensor. The base derivatives and their derived sensors are generally in the same folder within SCS.

If a sensor stops logging for any reason, you may see that SCS records the last known value over and over for all eternity, or at least the next 30 seconds. Please be cautious of this when processing data. For example, after a CTD cast is completed, you may see the same values repeat in the SCS raw file until a new cast starts and the data updates.

**SCS organizes the raw data in folders. More than one sensor can be logged to a folder. Some definitions/acronyms worth knowing when looking at the SCS raw data folders:**

**ADCP** – Acoustic Doppler Current Profiler – this is the scientific Doppler located in the Acoustic Lab. The ADCP currently interferes with the EK60 very heavily, and as a result, was not recorded in SCS for this portion of the cruise.

Note- ADCP raw data from the software itself are provided on a separate disc or transferred via external hard drive.

**Centerboard Position and Draft**– this file contains raw data regarding the position of the centerboard. 12.60 means the centerboard is Retracted. 18.20 means the centerboard is Lowered. 15.68 means the centerboard is in Intermediate position.

**Compress** – empty folder, default folder created by SCS.

**Crane Loads** – contains raw data output from port telescoping crane and starboard knuckle crane. These have not been tested this year for scientific accuracy, but can be upon request.

**CTD** – Contains duplicate data from the CTD cast for monitoring and data comparison purposes, files are tab delimited format. Please use Raw CTD files from Seasave software for data analysis.

**CUFES** – Flowmeter - Continuous Underway Fish Egg Sampler – this is flow meter data only.

**EK60** – Single Beam Sonar – Software outputs depth below transducer (not depth below surface!) for each of the five transducers, 18, 38, 70, 120, and 200 kHz to SCS. The bottom detection for the EK60 was off for this leg, so this folder is empty. For approximate depth data, see the ES60.

**ES60-Bridge Single Beam Sonar** – Controlled by the bridge officers, the ES60 is triggered not to interfere with the EK60. Two transducers are outputting depth below transducer data to SCS, 50 & 200 kHz. When the sonar can't find the bottom, it commonly outputs 0.00, so you may see this value frequently.

**Event Data** – contains any event data (the button pushes and continuously recorded files) run during the cruise.

**GPS-Science MX420** – The GPS used for all SCS and scientific data collection.

**Gyro** – There are two gyros, each recording to its own file, Gyro 1, and Gyro 2. The file titled Gyro-HEHDT-MainFeed contains the value from whichever gyro is in use at the time, so these values may be from either Gyro 1, or Gyro 2, but is what the bridge officers used at the time to navigate. For Gyro analysis, use this file.

**ME70** – Multibeam Sonar – SCS records a single Depth Below Transducer output from the ME70. No bottom detection was set on the ME70 for this leg, so these files are empty. For approximate depth data, see the ES60.

**Nav Doppler Speed Log**– This is the Navigational Doppler, also referred to as the speed log, controlled from the bridge. It is turned on during most stations, and off during Acoustic transects, as it interferes

with the EK60. The file contains depth and keel offset of the hull mounted sensor, water temperature, and water/bottom speed data.

**POSMV** – heave pitch and roll data

**Radiometer** – Data from the radiometer mounted on top of the port side trawl tower. (See Shimada Blackline drawing for reference.)

**SavedGISTracklines** – Default folder created by SCS.

**Sea Temp – reference only** – the ship has three Furuno temperature sensors mounted on the starboard side of the hull, high, mid, and low. (See Shimada Blackline drawing for reference.) These thermometers are not scientific grade, and should be used only as a reference. For accurate Sea Surface Temperature, use the SBE 38 hull mounted temperature probe located in the folder Seawater System – TSG and SeaTemp True, file TSG21-SeaSurfTempSalinitySountVelocMessage. This file is tab delimited, and sea temp is the last value. This value is also recorded in the CalCOFI Bridge Event 30 second continuous file.

**Seawater System – Flowmeter** – this is the flowmeter for the entire seawater system (TSG, Fluorometer.) It is mounted in in the bow thruster room, just after the seawater intake, and just before the SBE 38 temperature sensor.

**Seawater System – SCUFA fluorometer** – this is the raw value output from the continuously sampling Turner Fluorometer as part of the seawater system.

**Seawater System – TSG & SeaTemp True** – This folder contains data from both the TSG SBE 21, which includes the SBE 38 sea surface temperature sensor, and the Micro TSG SBE 45. The file TSG21-SBE38\_SeaSurface Temp-F-Message is a derived sensor that converts sea surface temp data from C to F. The first value in the data string is F, the second value is C.

**Shaft RPM** – just that, Shaft Revolutions per minute. Shaft output is a milliAmps code. Actual Shaft RPM is in the file Shaft-RPM-Message.

**Station** – empty folder, default folder created by SCS. May contain station positions entered for use in the SCS Geotrack GIS program

**Winch – side sampling station** – If it's requested to have winch data recorded, this file contains all data output from both winches on the side station including line out, tension, line speed, etc.

**Winch – Trawling** - If it's requested to have winch data recorded, this file contains all data output from both trawl winches including line out, tension, line speed, etc. These do not currently output data to SCS. It's on the long list of things to do, and can be moved near the top of the list upon request.

**Wind & Weather Suite** – This folder contains data for Air Temp, Barometric Pressure, Relative Humidity, Calculated True Wind, and Relative Wind from three different wind birds. The main windbird used for scientific data is the FWD Jack Staff. Other wind birds are mounted on the flying mast, and labeled PortMast and StbdMast. This folder also contains a derived sensor that averages the true wind speed and direction from the FWD Jack Staff over a 2 minute time period. These main weather sensors

are also recorded in the CalCOFI Bridge Event 30 second continuous file found in the EVENT DATA folder.