



# NOAA Scientific Computer System (SCS version 4.0)

INMARTECH 2006  
SCS Presentation  
October 17, 2006





# NOAA Scientific Computer System

## SCS Definition:

A shipboard data acquisition system used to collect environmental, oceanographic and fisheries sensor data in real time.





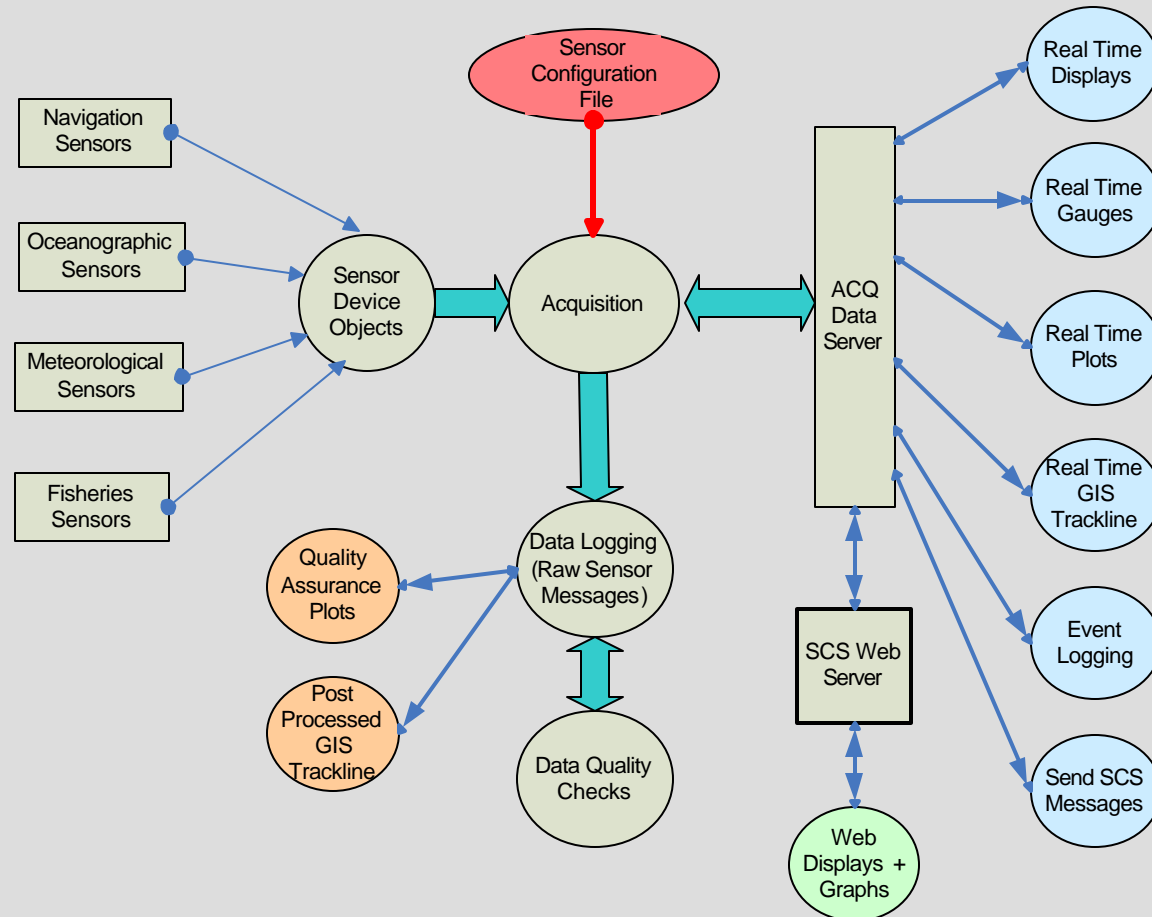


# SCS Primary Functions

- Acquire real time sensor data
- Log raw data to disk
- Monitor incoming data for errors
- Display real time data in text and graphical formats
- Output data to remote PCs (serial and socket)
- User-configurable Event Data Logging
- QA Post Processing of ASCII data set
- Auto-Mailing of summary data (SAMOS and Shiptracker)
- End of cruise data products



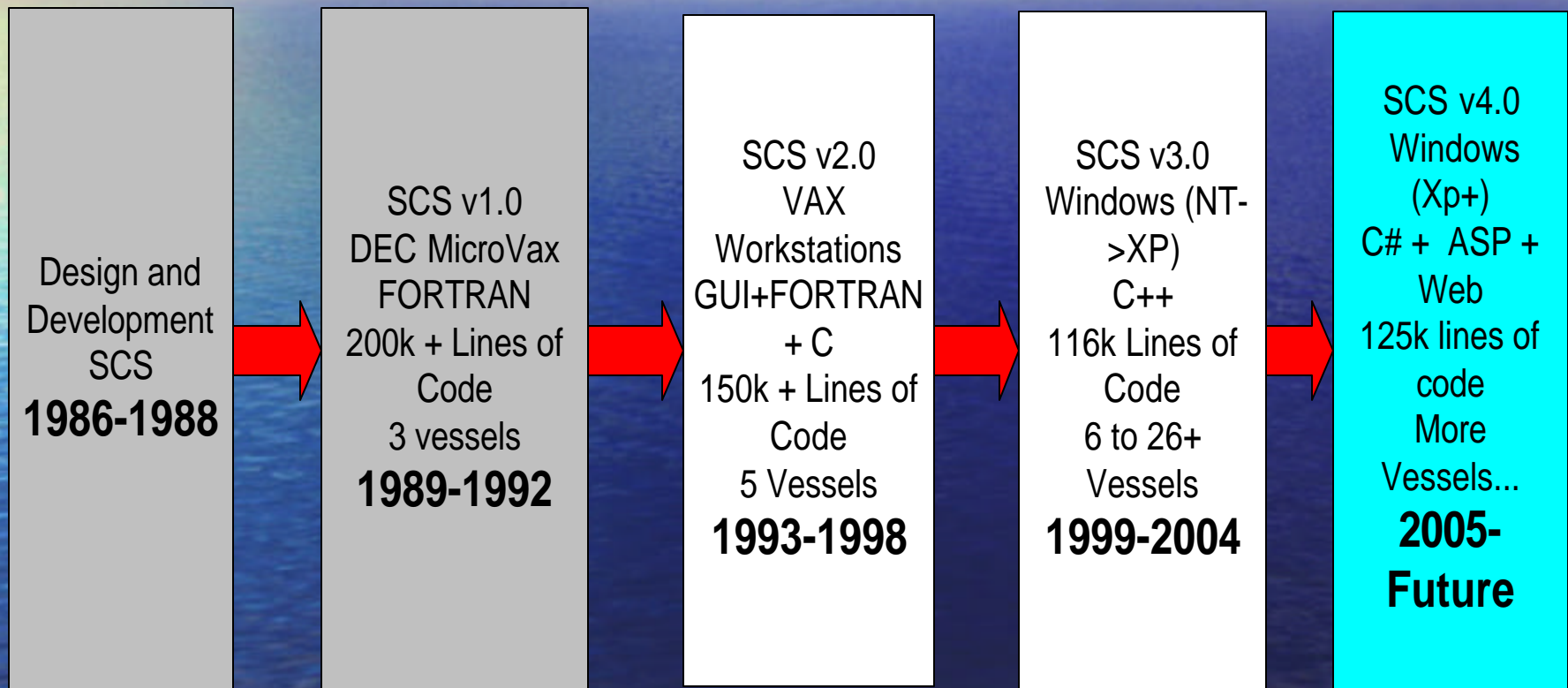
# SCS 4.0 – Data Flow







# SCS System Development Life Cycle





# The Rationale for SCS 4.0

- SCS 3.0 operation for 6+ years
- SCS 3.x limited expansion potential
- Microsoft .NET replaced Win32 API
- New Network Sensor Types emerging
- Web Centric Applications emerging
- FSCS 2.0 compatibility
- Improved Maintenance and reliability
- Re-vitalize Graphics
- Enhance GIS connectivity





# SCS 4.0 – Sensor Definitions

- NMEA sentence label extenders
- TCP/IP and UDP sensor types
- “Calibrator sensors” no longer supported.
- Enhanced Derived Sensor Types
- Translate message codes to plain text
- Disable/Enable Sensors easily
- Internal/External sensor simulation with real data
- Device Object -> Parent Sensor -> Child Sensors
- Architecture Supports Enhanced Sensor Control



# SCS 4.0 – ACQ Data Server

- ACQ Isolated by XML data Server
- Client and server talk in plain text
- XML Packet formatting standard.
- All Clients talk to ACQ via TCP/IP Sockets
- Easy for future apps to ask ACQ for data
  - Usable .NET DLLs for talking to SCS available





# SCS 4.0 – Data Logging

- Simultaneous Dual System Logging
  - All Raw Message Data Logged
- “On demand” Compress and Lab files
  - Identical Format to SCS 3.x
- Event Logger file Formats Identical
- Specialized Site Event Logger
  - Designed for tracking Station/Site Events
  - Directly connects to database



# Event Logger

- Provides scientists with personalized/customized data logging
- Allows metadata to be associated with each event (i.e. vessel, cruise#, etc...)
- Event buttons provide for annotation while the event is running
- Several events can be run simultaneously
- Event Logger re-written for stability





# SCS 4.0 – Graphic Displays

- Dundas-Chart used for time series plots.
  - Time Series (4 sensors on 2 axis)
  - XY Plots
- Dundas-Gauge used for gauge displays.
  - Customizable Gauges for easy viewing
  - Instrument Panels of Mixed Gauges
  - 50 plus Gauge templates available
- Dundas-Chart ASP used for time series plots on Web
  - Time Series (4 sensors on 2 axis)
  - XY Plots



# SCS 4.0 - GIS

- New track line plot app based on ESRI GIS software library.
- Can track ship and towed body simultaneously.
- Can display data in ESRI Shape files, Grids and Coverages.
- Can write track line data as Shape file.
- Tracklines can overlay imagery layers.
- Overlay historic tracklines from RAW files
- Extensible





# SCS 4.0 – Web Service

- Web browser connections to Dedicated SCS Web Service
- Provides Web Text Displays
- Provides Web Time Series Plots
- Provides Web Logging Status Display
- Provides Sensor Configuration Listings
- Extensible in the future by Users/ NMAO



# SCS Installations



Typical SCS Server  
(Dell Poweredge 2850)  
(DIGI Acceleport) serial ports

SCS uses less than 3% of CPU

PC Laptop (1Ghz+)  
Windows XP  
Edgeport USB serial Ports  
Or  
Network Serial Ports







# SCS 4.0 – Installation Wizard

**SCS4.0-Server**

## Select Installation Folder

The installer will install SCS4.0-Server to the following folder.  
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".

Folder:

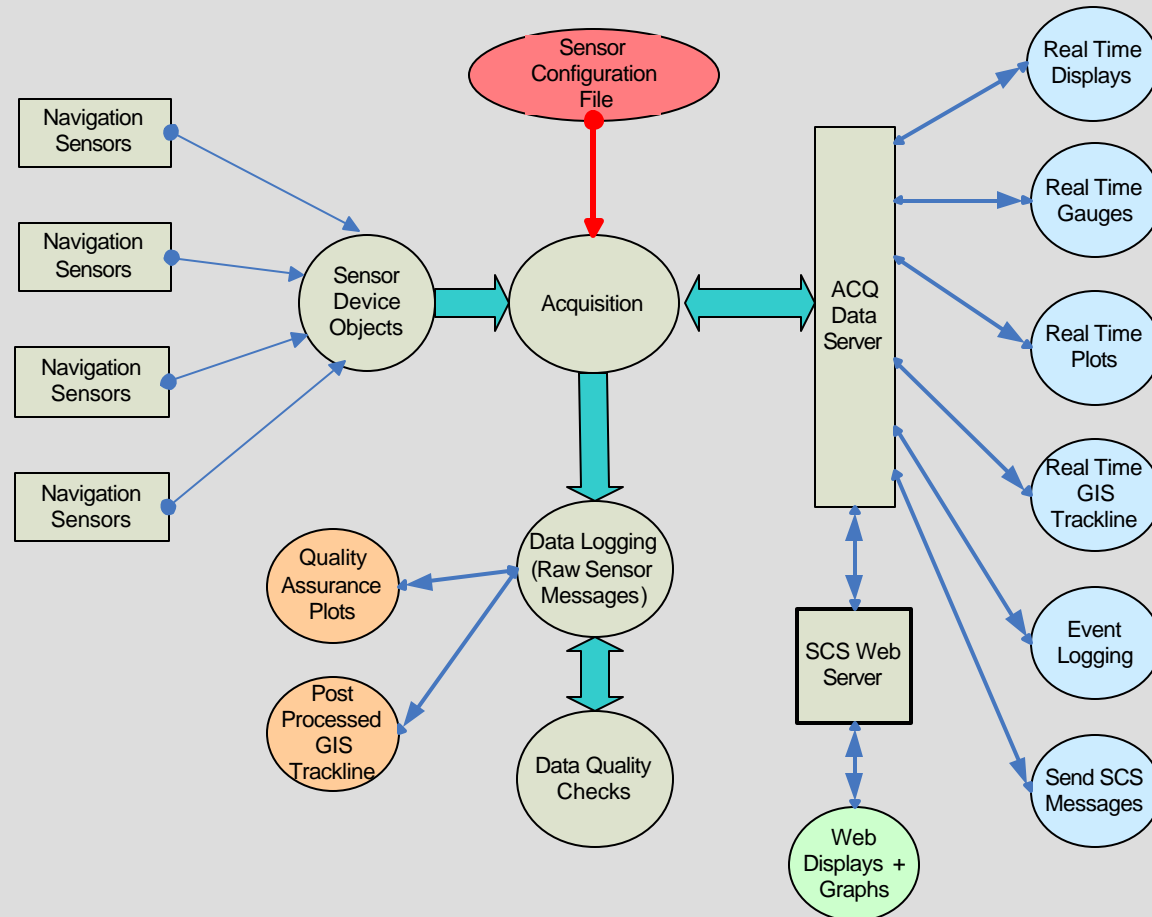
Install SCS4.0-Server for yourself, or for anyone who uses this computer:

☒ **Everyone** 

☐ Just me



# SCS 4.0 – Data Flow







# SCS 4.0 – ACQ Main Window

ACQ - v1.0.0

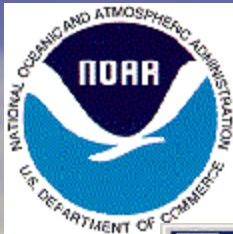
Number Of Sensors	40	Time Stamp	20051211-195855
# Connections	1	Logging Restart	Disabled
Disk Space	172 GB / 172 GB	Logging Status	Active

**ACQ Messages**

Acq Started Normally  
COM3 :NMEA Async: Active: MessageCount:0  
COM5 :NMEA Async: Active: MessageCount:0  
COM7 :NMEA Async: Active: MessageCount:0  
NMEA MANUAL PARENT:1100 :: Starting: MessageCount:0

Log Settings    Device Status    RT Data Monitor    List Sensors    Logger Status

Stop ACQ



# ACQ Logging Status

Logging Status				
	Raw File Name	Log File Time	Log Flag	Log File Siz
	d:/Datalog/GPS1Mx200-GGA_20041101-164042.Raw	20041101-164335	17	1652
	d:/Datalog/GPS1Mx200-VTG_20041101-164042.Raw	20041101-164337	17	1003
	d:/Datalog/X-GPS1Mx200-GGA_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/X-GPS1Mx200-VTG_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/X-Youngf-Wind-forward_20041101-164042.Raw	20041101-164337	17	1360
	d:/Datalog/ADCP-DBS_20041101-164042.Raw	20041101-164338	160	7360
	d:/Datalog/NStar-GPGGA-Raw_20041101-164042.Raw	20041101-164336	10	965
	d:/Datalog/nstar-GPS1Mx200-VTG_20041101-164042.Raw	20041101-164331	10	590
	d:/Datalog/NStar-GPRMB-Raw_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/EK60-D1-Raw_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/EK60-D2-Raw_20041101-164042.Raw	20041101-164334	17	918
	d:/Datalog/TCP-GGA_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/UDP-\$UDP_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/ADCP_20041101-164042.Raw	20041101-164338	33	2838
	d:/Datalog/Port-Trawl-Raw_20041101-164042.Raw	00010101-000000	0	0
	d:/Datalog/RS485-Raw0_20041101-164042.Raw	20041101-164334	18	1458
	d:/Datalog/RS485-Raw2_20041101-164042.Raw	20041101-164334	18	576
	d:/Datalog/PolledSerialParent_20041101-164042.Raw	20041101-164337	33	2673
	d:/Datalog/Youngf-TrueWind-Raw_20041101-164042.Raw	20041101-164332	15	614
	d:/Datalog/Youngf-WindSpeedTrue_20041101-164042.Raw	20041101-164332	15	614
	d:/Datalog/Youngf-WindDirTrue_20041101-164042.Raw	20041101-164332	15	616
	d:/Datalog/Fluro-LineEq-Raw_20041101-164042.Raw	20041101-164332	15	523
	d:/Datalog/Fluro-LineEq_20041101-164042.Raw	20041101-164332	16	559
	d:/Datalog/AvgWindRaw_20041101-164042.Raw	20041101-164332	4	180
	d:/Datalog/Math-Plus-Raw_20041101-164042.Raw	20041101-164339	164	5876
	d:/Datalog/Math-Subtract-Raw_20041101-164042.Raw	20041101-164338	163	6011
	d:/Datalog/Math-Times-Raw_20041101-164042.Raw	20041101-164339	163	5943
	d:/Datalog/Math-divide-Raw_20041101-164042.Raw	20041101-164338	162	7582
	d:/Datalog/avo_20041101-164042.Raw	00010101-000000	0	0





# ACQ Real Time Monitor

- All sensors or just parents
- Status LEDs
- Sort in any column

The screenshot shows a software window titled "RealTimeMonitor" with a menu bar containing "Display" and "Help". The window displays a table with two columns: "Sensor Name" and "Sensor Data". Each row in the table is preceded by a green circular status LED icon. The table lists various sensors and their current data values. At the bottom right of the window is an "Exit" button.

Sensor Name	Sensor Data
GPS1-LAT	4131.4699N
GPS1-LON	06942.9057W
GPS1-QUALITY	1
GPS1-SATS	6
GPS1-HDOPS	01.3
GPS1Mx200-VTG	\$GPVTG,302,T,318,M,02....
GPS1-sog:	02.2
GPS1-cog:	302
GYRO-HDT	\$HEHDT,303.2,V
GYRO-Heading	303.2
YoungWind-forward	\$IIMWV,25.7, 19,13.5,
Youngf-WindDir-Rel	25.7
Youngf-WindSpeed-Rel	13.5
EK60-D2-Raw	D2,22380275, 13.10, -9, ...
EK-D2-VesselLog	22380275
EK-D2-Depth	12.10



# Data Monitoring/QA

- Range Checks
- Delta Checks
- Synch Checks
- Sensor Timeouts

DataMon: 20000113-152627

File View Actions Help

ID	Name	Range	Delta	Sync	Timeout
001	GPS1-GGA			0	1
002	GPS1-TIME	0	0		
003	GPS1-LAT	0	0		
004	GPS1-LON	0	0		
005	GPS1-QUALITY	0	0		
006	GPS1-SATS	0	0		
007	GPS1-HDOPS	0	0		
008	GPS1-MX200-VTG			0	1
009	GPS1-sog:	0	0		
010	GPS1-cog:	0	0		
011	gps2-gga			0	1
012	Gps2-time	0	0		
013	Gps2-lat	0	0		
014	gps2-lon	0	0		
015	IIMDA-MET			0	1
016	WINDSPFD	0	0		





# SCS 4.0 – Real Time Display

RealTimeDisplay - v4.0.42 - all.sel

EK-D2-Depth	12.70
EK-D2-VesselLog	22191177
EK60-D2-Raw	D2,22191177, 12.70, -8, 1,
GPS1-cog:	318
GPS1-HDOPS	01.4
GPS1-LAT	4130.2438N
GPS1-LON	06940.8833W
GPS1-QUALITY	1

☐ Small ☒ Big

Add Display Exit



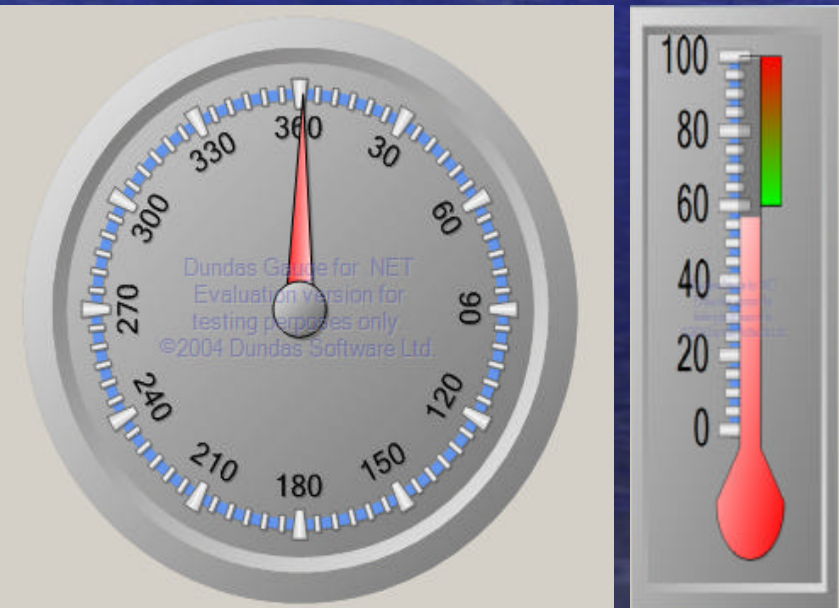
# Real Time Displays/Gauges

- Provides basic visualization of real-time data
- Displays are user-configurable
- Visual indication when data fails to update
- User Configurable Instrument Panels

gps1.sel - Real Time Display Window

GPS1-TIME (HHMMSS)	153209
GPS1-LAT (DEGMIN)	3329.98305N
GPS1-LON (DEGMIN)	07359.97733W
GPS1-QUALITY (1=GOOD)	03
GPS1-SATS (NUMBER)	002
GPS1-HDOPS (NUMBER)	3.10
GPS1-sog: (Knots)	3.90
GPS1-cog: (Degrees)	117.59

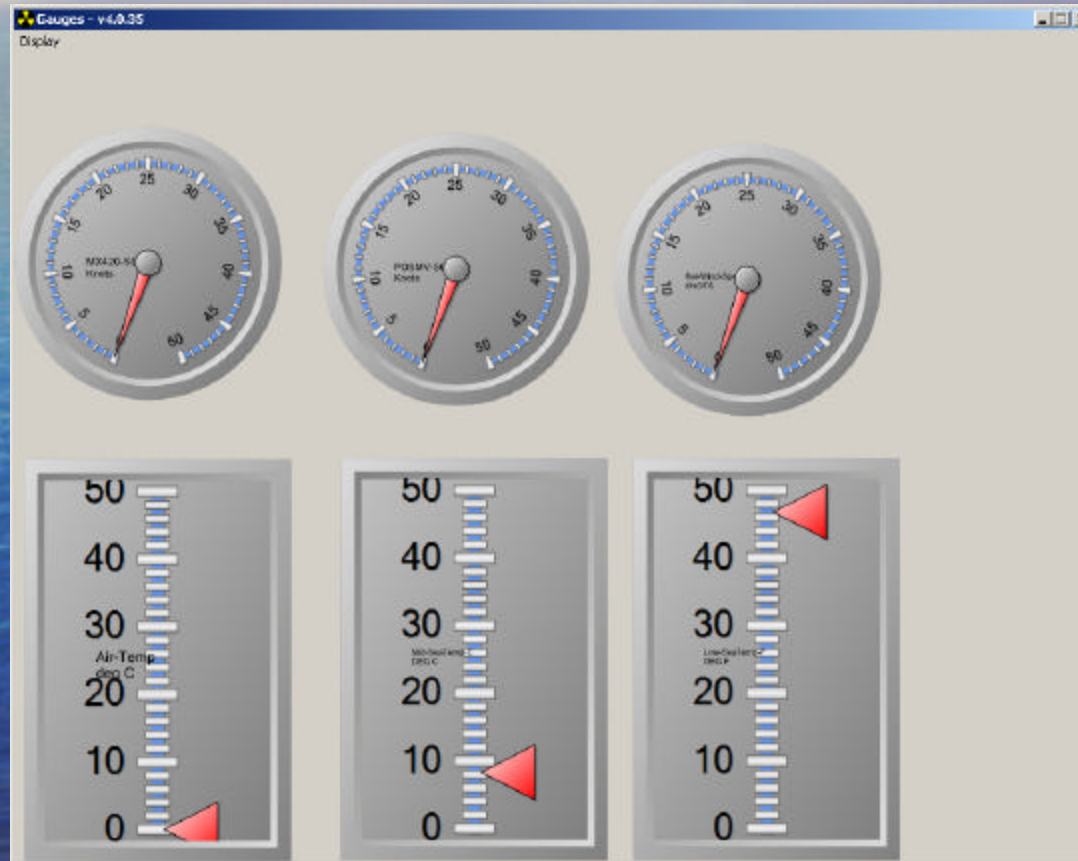
☐ Turn Off Error Checking

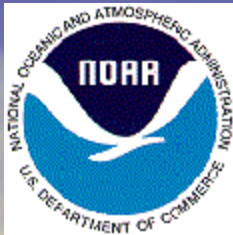




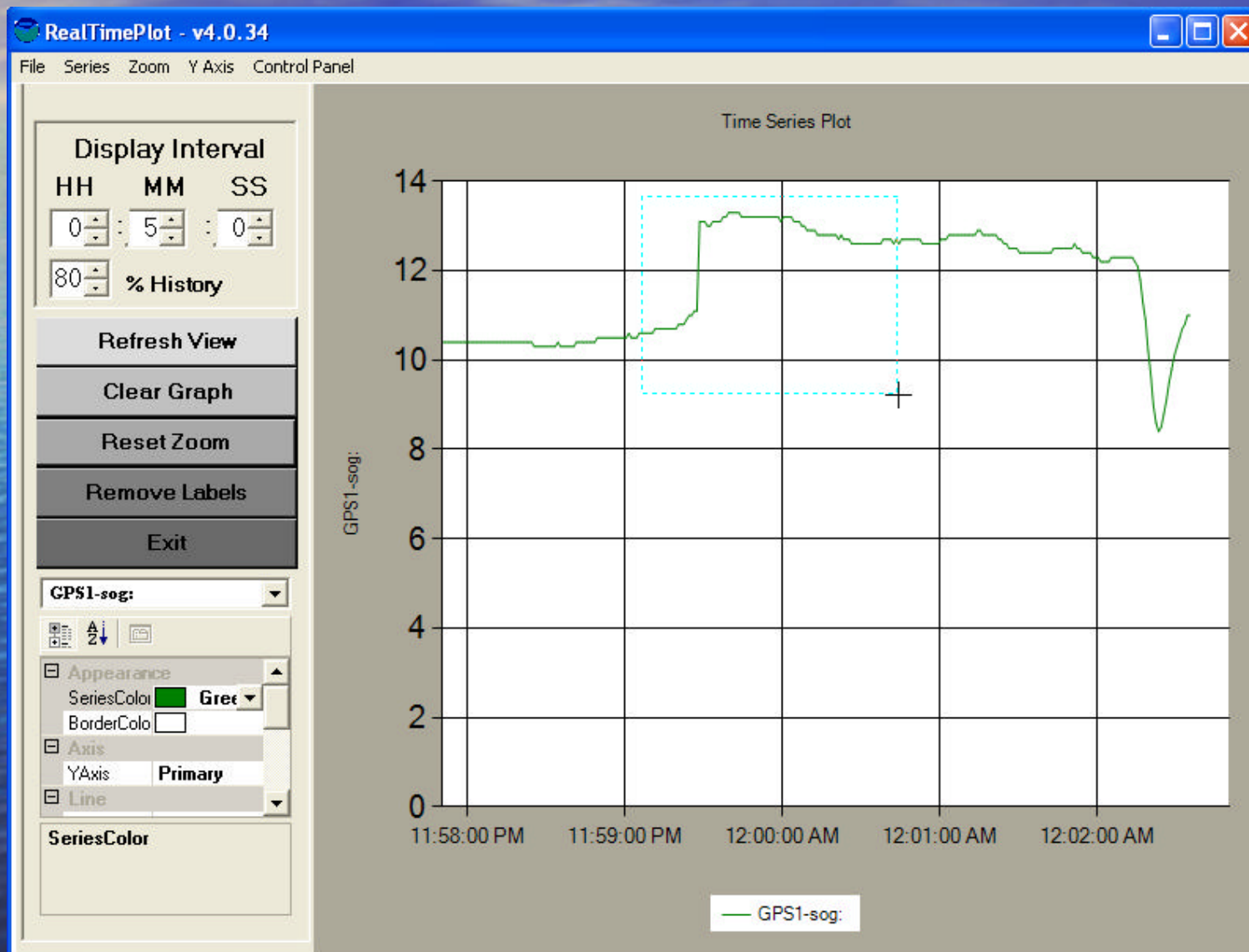


# SCS 4.0 – Gauge Displays





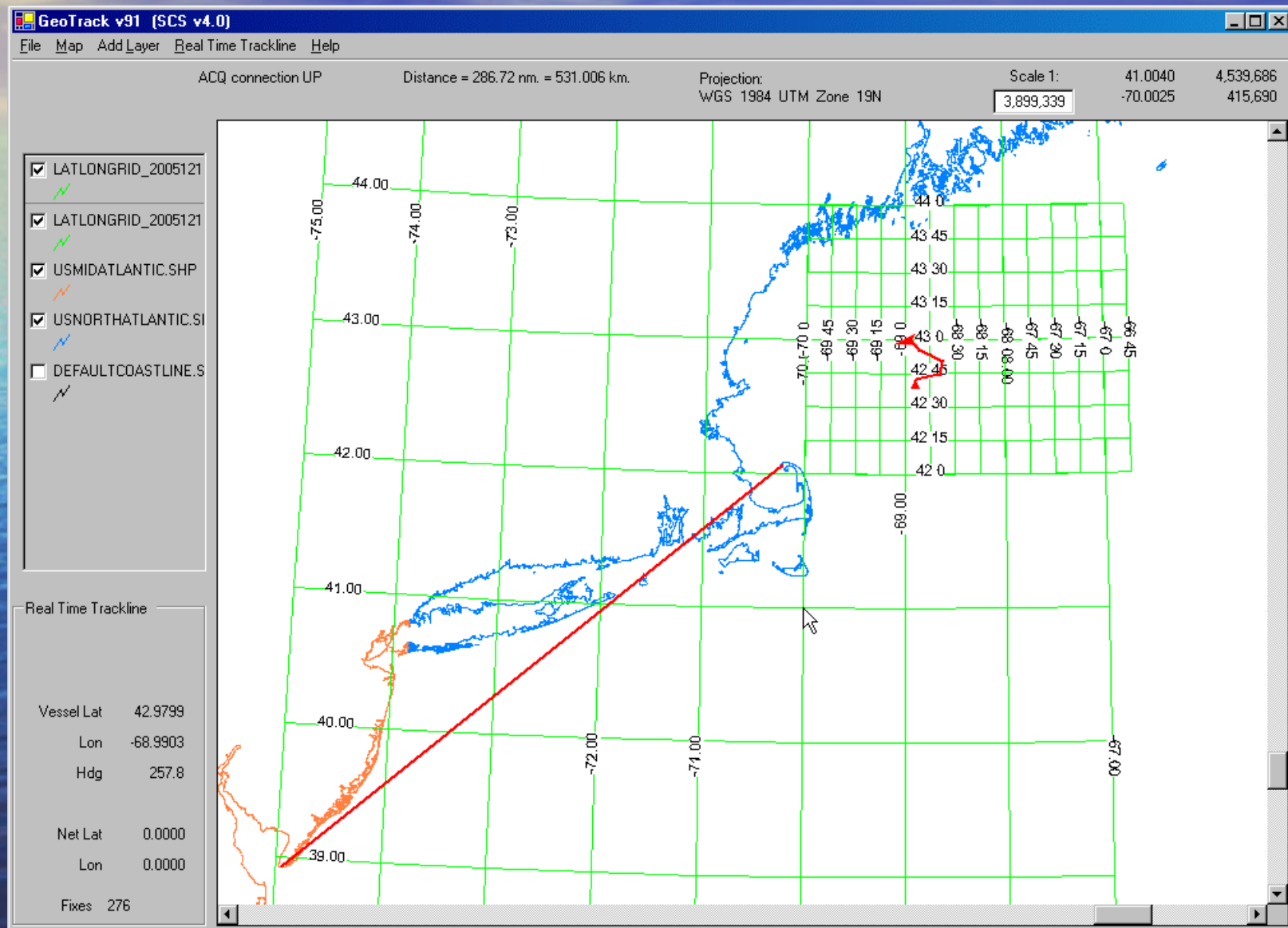
# SCS 4.0 – Real Time Series Plot

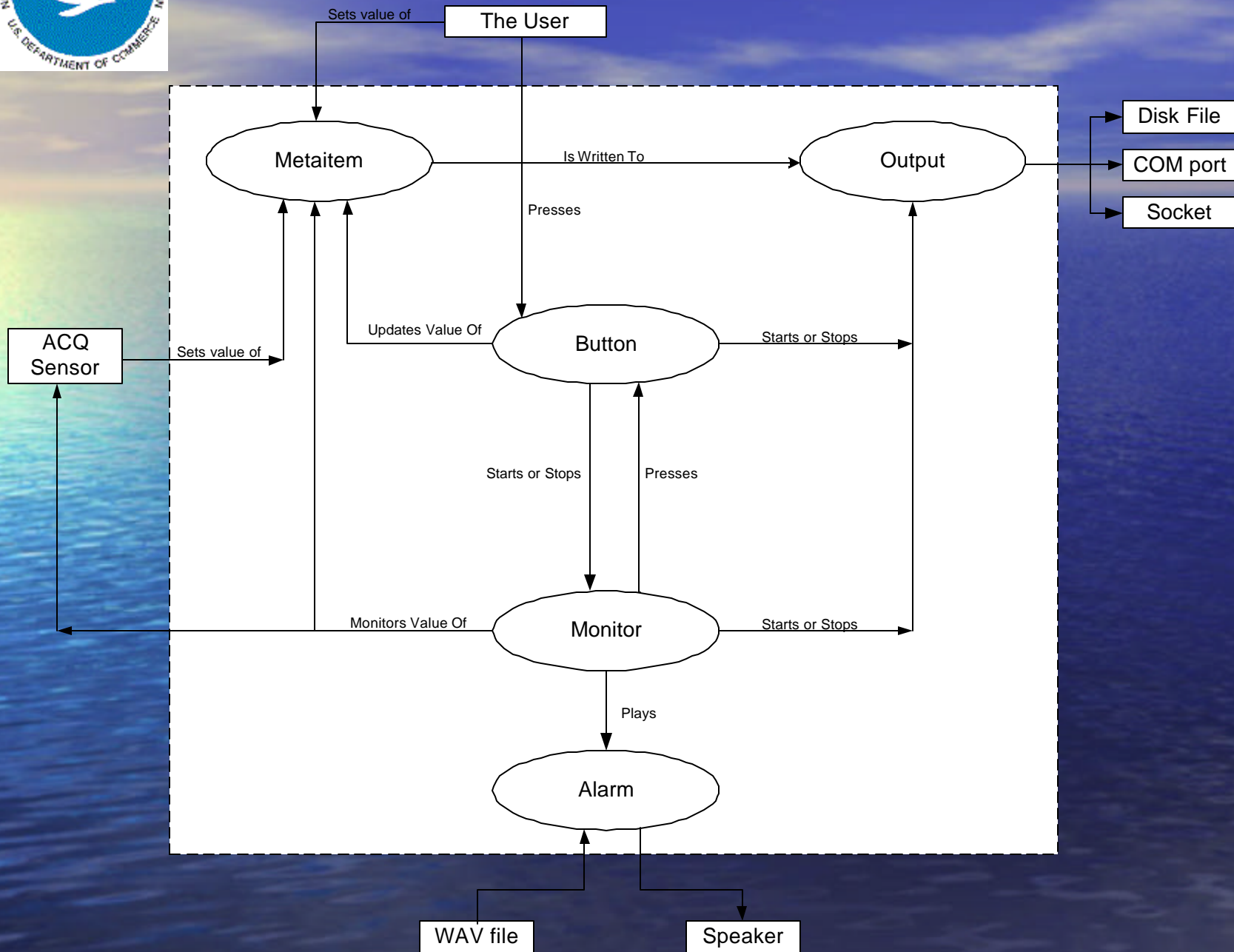






# SCS 4.0 – GIS Track Line Plot









# SCS 4.0 – Event Builder

Event Builder -- TrawlEvent-20010319.tpl

File Add Delete Edit View Help

**Meta Items**

- Cruise
  - ST-CruiseCode
  - ST-StationNumber
  - ST-VesselName
  - ST-SequentialCruiseNumber
  - ST-DesignatedSpeed
  - ST-StratumType
  - ST-Stratum
  - ST-Tow
  - ST-Pitch
  - ST-RPM
  - ST-Comments
- + Weather
- + EventData

Item Up

Item Down

**TrawlData**

- Meta,ST-StationNumber
- Meta,ST-CruiseCode
- 002, GPS1-TIME
- 003, GPS1-LAT
- 004, GPS1-LON
- 009, GPS1-sog:
- 010, GPS1-cog:
- 013, GPS2P-LAT
- 014, GPS2P-LON
- 019, GPS2P-sog:
- 020, GPS2P-cog:
- 150, EK500-Depth-38khz
- 037, GYRO-Heading
- 044, Youngf-WindSpeed-Rel

**Buttons**

- + Event Start / Stop
- Trawl
  - Start Trawl [Stop Trawl]
  - Stop Trawl [Start Trawl]
  - Hang
  - Doors Crossed

Button Up

Button Down

**Monitors**

**Alarms**



# SCS 4.0 – Event Logger

EventLogger - v4.0.66 - xmldriver

File Index **003**

(D:HH:MM:SS)  
**0:00:05:03**  
Elapsed Time Since  
Start Event  
was pressed

**Start**

Button Activity

Outputs & Monitors

**Stop**

Exit

Updates Metadata

gps1time 060102

True Wind Dir \$DERIV,4.56,68.65,6,1,6,31

True Wind Speed \$DERIV,4.56,68.65,6,1,6,31

Sea State 0

Update

UpdateGyro

Update GGA

Update TW





# SCS 4.0 Web Access



## NOAA Marine Operations

NOAA/NMAO/EED  
Electrical Engineering Branch  
Software Engineering Group  
Silver Spring, Maryland, USA

[Sensor Descriptions](#)

[Real-Time Display](#)

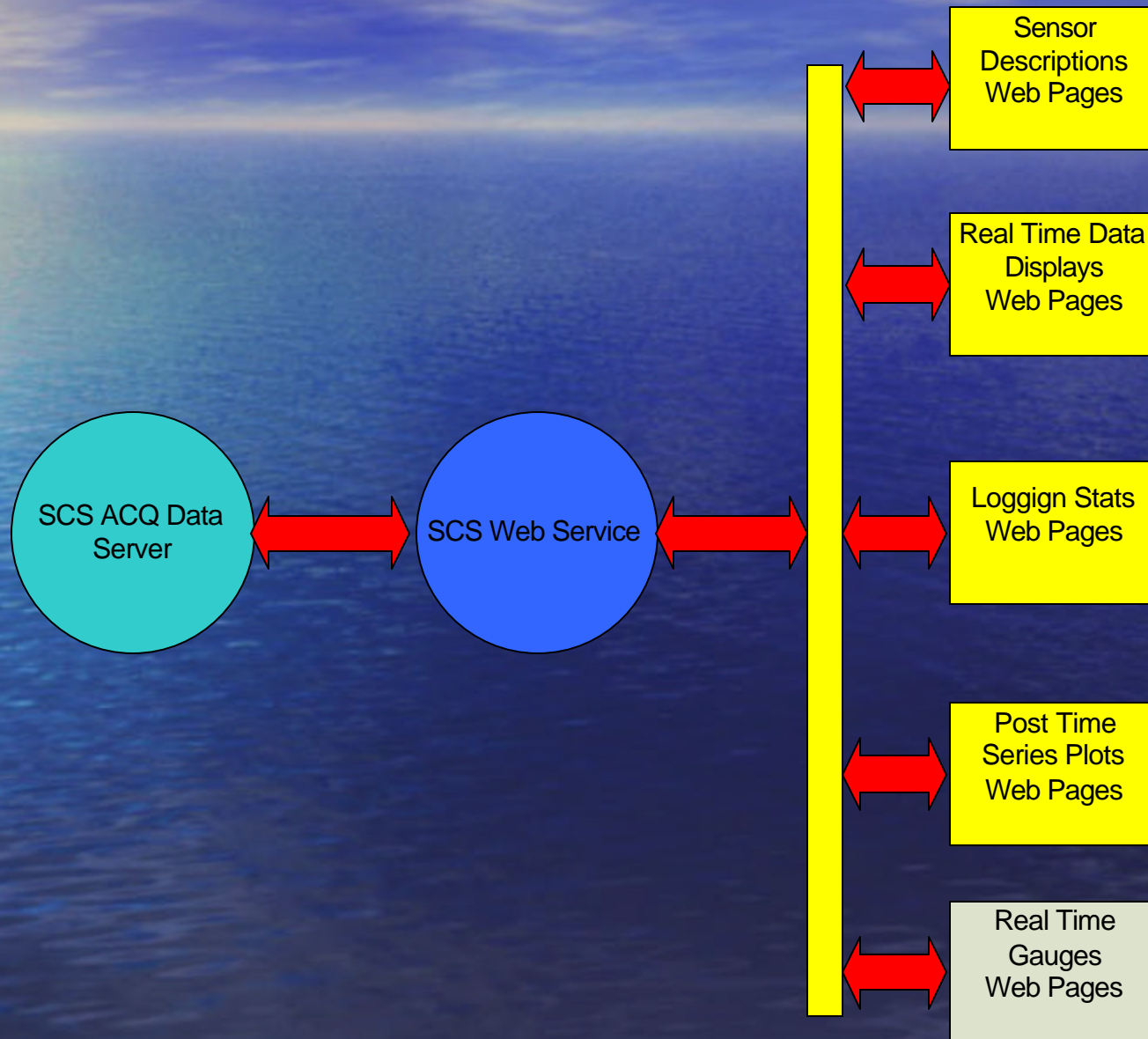
[Logger Status Display](#)

[Plotting](#)





# SCS Web Interface







# SCS Web (Sensor Descriptions)



## NOAA Marine Operations

NOAA/NMAO/EED  
Electrical Engineering Branch  
Software Engineering Group  
Silver Spring, Maryland, USA

[Sensor Descriptions](#)

[Real-Time Display](#)

[Logger Status Display](#)

[Plotting](#)

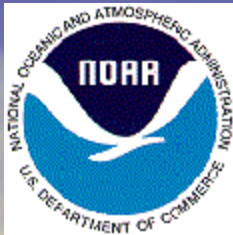
### Sensor List:

PCODE-GPGGA  
PCODE\_TIME  
PCODE\_LAT  
PCODE\_LON  
PCODE\_QUALITY  
PCODE\_SATS  
PCODE\_HDOPS  
PCODE\_VTG  
PCODE\_COG  
PCODE\_SOG  
PCODE-SOG-MSecs  
PCODE-SOG-MSecs-Value  
MX200-GPGGA  
MX200\_TIME  
MX200\_LAT  
MX200\_LON  
MX200\_QUALITY  
MX200\_SATS  
MX200\_HDOPS  
MX200-GPVTG  
MX200\_COG  
MX200\_SOG  
NORTHSTAR-GPGGA  
NSTAR\_TIME  
NSTAR\_LAT  
NSTAR\_LON  
NSTAR\_QUALITY  
NSTAR\_SATS  
NSTAR\_HDOPS  
NORTHSTAR-GPVTG  
NSTAR\_COG  
NSTAR\_SOG



### MX200\_TIME:

OperationType = No Value  
Stopbits = 1  
LoggingFolder = No Value  
RangeLow = 0  
NarrowBeamSensorID = No Value  
SensorType = NMEA ASYNC CHILD  
WindDirectionSensorID = No Value  
QueueMember = 1  
TsgDataType = No Value  
DeltaHigh = 0  
UnitsFieldPosition = No Value  
DeltaCheck = FALSE  
NetAddress = 255.255.255.255  
DataFieldPosition = 1  
SyncPosition = No Value  
CogSensorID = No Value  
NumberOfDataCharacters = 6  
CalibrationFile = No Value  
Socket = 0  
RecordSize = No Value  
DataBits = Four  
NetConnection = No Value  
SoundVelocitySensorID = No Value  
ExtendLabel = FALSE  
NumeratorSensorID = No Value  
SentenceLabel = No Value  
BaudRate = No Value  
SimFileName = No Value  
TranslationList =  
SensorName = MX200\_TIME  
Parity = Mark  
HistoryElements = No Value



# Web SCS Logger Status

Raw File Name	Last Log Time	Log Flag	Log File Size
C:\SCS4.0-Server\DATA\LOG40\PCODE-GP GGA_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\PCODE-VTG_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\MX200-GP GGA_20051212-163853.Raw	20051215-214424	27753	2470017
C:\SCS4.0-Server\DATA\LOG40\MX200-GP VTG_20051212-163853.Raw	20051215-214425	27753	1665180
C:\SCS4.0-Server\DATA\LOG40\NORTHSTAR-GP GGA_20051212-163853.Raw	20051215-214424	27753	2386763
C:\SCS4.0-Server\DATA\LOG40\NORTHSTAR-GP VTG_20051212-163853.Raw	20051215-214424	27753	1637427
C:\SCS4.0-Server\DATA\LOG40\GYRO-RAW_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\YOUNG-MET-RAW_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\Rain-WIMRA_20051212-163853.Raw	20051215-214424	27753	2192487
C:\SCS4.0-Server\DATA\LOG40\Rain-WIMRB_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\Seapath_20051212-163853.Raw	20051215-214424	27753	1470909
C:\SCS4.0-Server\DATA\LOG40\SocketGyro_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\SocketGP GGA_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\IMET-Wind2-RAW_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\SEABIRD-SBE21_20051212-163853.Raw	20051215-214402	9251	296032
C:\SCS4.0-Server\DATA\LOG40\Barometer-RAW_20051212-163853.Raw	20051215-214424	27753	784152
C:\SCS4.0-Server\DATA\LOG40\Fluorometer-RAW_20051212-163853.Raw	20051215-214402	9251	703076
C:\SCS4.0-Server\DATA\LOG40\Bathy-RAW_20051212-163853.Raw	20051215-214425	27753	2470017
C:\SCS4.0-Server\DATA\LOG40\Robertson-RAW_20051212-163853.Raw	20051215-214424	27753	1221129
C:\SCS4.0-Server\DATA\LOG40\Winch-Hydro-RAW_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\Winch-Traction-RAW_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\PCODE-SOG-MSecs_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\Mast-Twind_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\IMET-RWind2-Spd-Knts_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\IMET-TWind2-kts_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\ODEC-Speed-MSecs_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\IMET-TWind2-MSEC_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\Baro-CorrectedSeaLevel_20051212-163853.Raw	20051215-214424	27752	1214886
C:\SCS4.0-Server\DATA\LOG40\AvgRwind2Dir_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\BATHY-FATHOMS_20051212-163853.Raw	00010101-000000	0	0
C:\SCS4.0-Server\DATA\LOG40\ShipNotes_20051212-163853.Raw	20051214-180020	2	68





# Web Displays Based on Window Displays



## NOAA Marine Operations

NOAA/NMAO/EED  
Electrical Engineering Branch  
Software Engineering Group  
Silver Spring, Maryland, USA

[Sensor Descriptions](#)   [Real-Time Display](#)   [Logger Status Display](#)   [Plotting](#)

Click one template below for real-time display:

- ☒ AllParents.sel
- ☐ Bathy.sel
- ☐ christopher.sel
- ☐ COGs.sel
- ☐ DerivedIMET.sel
- ☐ dps1.sel
- ☐ everything.sel
- ☐ gpstestdps.sel
- ☐ Headings.sel
- ☐ MastWind.sel
- ☐ mmmk!.sel
- ☐ SANDY\_GPSTEST\_20051212.sel
- ☐ SOGs.sel
- ☐ TestTwindImet.sel
- ☐ tomgps.sel
- ☐ TT.sel
- ☐ WindSpeeds.sel



Real-Time Display(Full View)

Real-Time Display(Simple View)



# SCS Data Web Display

Sensor Name	Display Flag	Error Flag	Timestamps	Data Length	Data Value
PCODE-GPGGA	0	2	0	0	
PCODE-VTG	0	2	0	0	
MX200-GPGGA	277444	0	12/15/2005,21:43:00.577	65	\$GPGGA,070600,3941.238,N,07226.891,W,1,6,01.5,0002.6,M,-034.9,M,,
MX200-GPVTG	277444	0	12/15/2005,21:43:00.812	36	\$GPVTG,034.0,T,048.3,M,13.8,N,25.5,K
NORTHSTAR-GPGGA	277445	0	12/15/2005,21:43:01.170	62	\$GPGGA,234126,3818.411,N,07337.558,W,2,04,2.60,0,M,,,1,0013*13
NORTHSTAR-GPVTG	277444	0	12/15/2005,21:43:00.671	35	\$GPVTG,045,T,059,M,13.0,N,24.0,K*47
GYRO-RAW	0	2	0	0	
YOUNG-MET-RAW	0	2	0	0	
Rain-WIMRA	277444	0	12/15/2005,21:43:00.421	55	\$WIMRA,3076.0,5239.0,*****,5239.0,000.0,000.0 ,
Rain-WIMRB	0	2	0	0	
IMET-Wind2-RAW	0	2	0	0	
SEABIRD-SBE21	277445	0	12/15/2005,21:43:01.077	8	89FDB6F9
Barometer-RAW	554832	0	12/15/2005,21:43:00.421	4	
Fluorometer-RAW	277431	0	12/15/2005,21:43:00.499	52	050715 013236 38-38.7562 N 073-20.4595 W +12.9 034.8
Bathy-RAW	277444	0	12/15/2005,21:43:00.671	65	\$WIMWV,036,R,011,N,A\$WIMRB,1901.0,5245.0,5244.0 ,
Robertson-RAW	277444	0	12/15/2005,21:43:00.609	20	000878,000,00000,000
Winch-Hydro-RAW	0	2	0	0	
Winch-Traction-RAW	0	2	0	0	
Seapath	277445	0	12/15/2005,21:43:00.796	29	\$PRDID,+001.15,+000.08,043.06



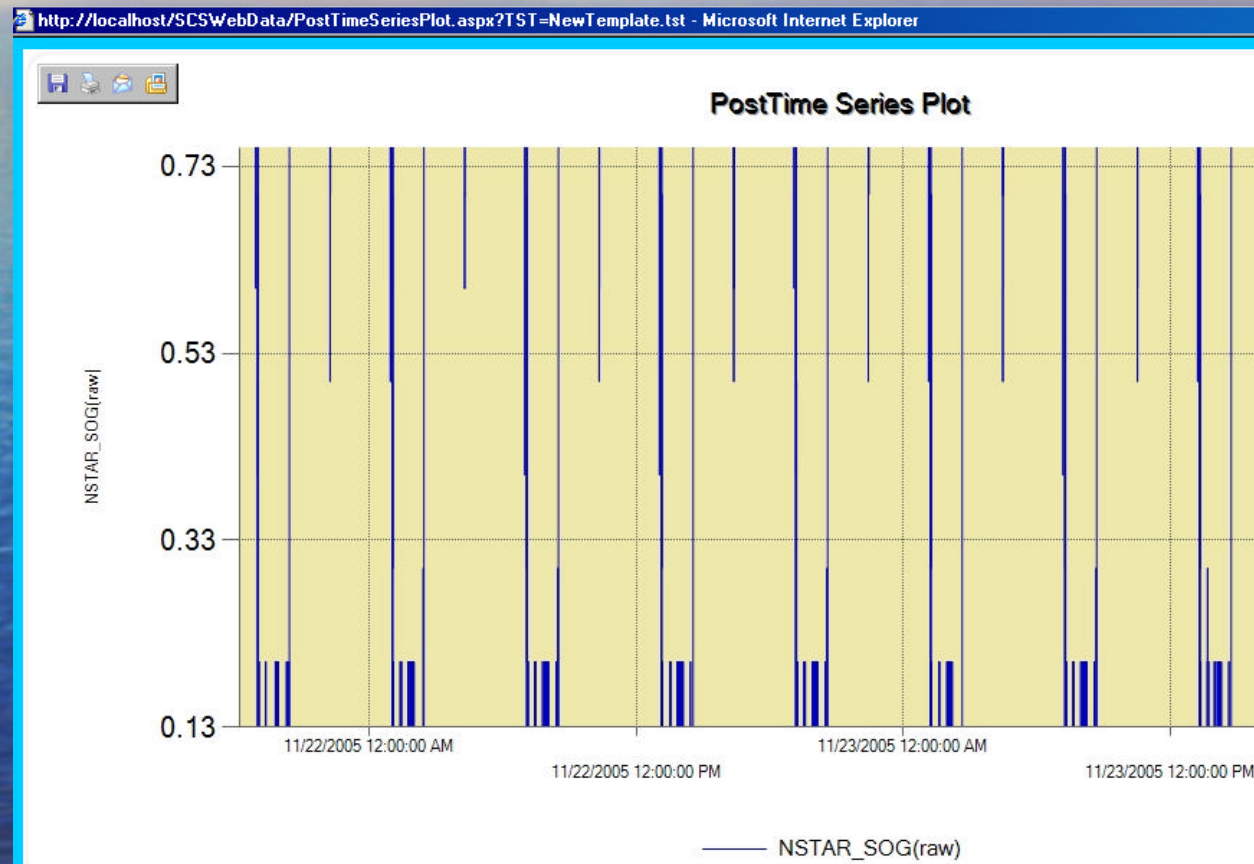


# SCS Brief Data Display

Sensor Name	Data Value
PCODE-GPGGA	
PCODE-VTG	
MX200-GPGGA	\$GPGGA,071120.3942.275,N,07226.017,W,1.6,01.4,0002.5,M,-034.9,M,,
MX200-GPVTG	\$GPVTG,032.1,T,046.4,M,14.0,N,26.0,K
NORTHSTAR-GPGGA	\$GPGGA,234636.3819.294,N,07336.673,W,2.05,1.50,0,M,,,3.0013*17
NORTHSTAR-GPVTG	\$GPVTG,034,T,048,M,13.1,N,24.2,K*42
GYRO-RAW	
YOUNG-MET-RAW	
Rain-WIMRA	\$WIMRA,3101.0,5240.0,*****,5239.0,000.0,000.0,
Rain-WIMRB	
IMET-Wind2-RAW	
SEABIRD-SBE21	8854B46A
Barometer-RAW	
Fluorometer-RAW	050715 013756 38-39.7142 N 073-19.6295 W +13.1 034.4
Bathy-RAW	\$WIMWV,027,R,011,N,A\$WIMRB,1872.0,5244.0,5244.0,
Robertson-RAW	000878,000,00000,000
Winch-Hydro-RAW	
Winch-Traction-RAW	
Seapath	\$PRDID,+000.82,-000.61,032.42



# Web Post Time Series Plot







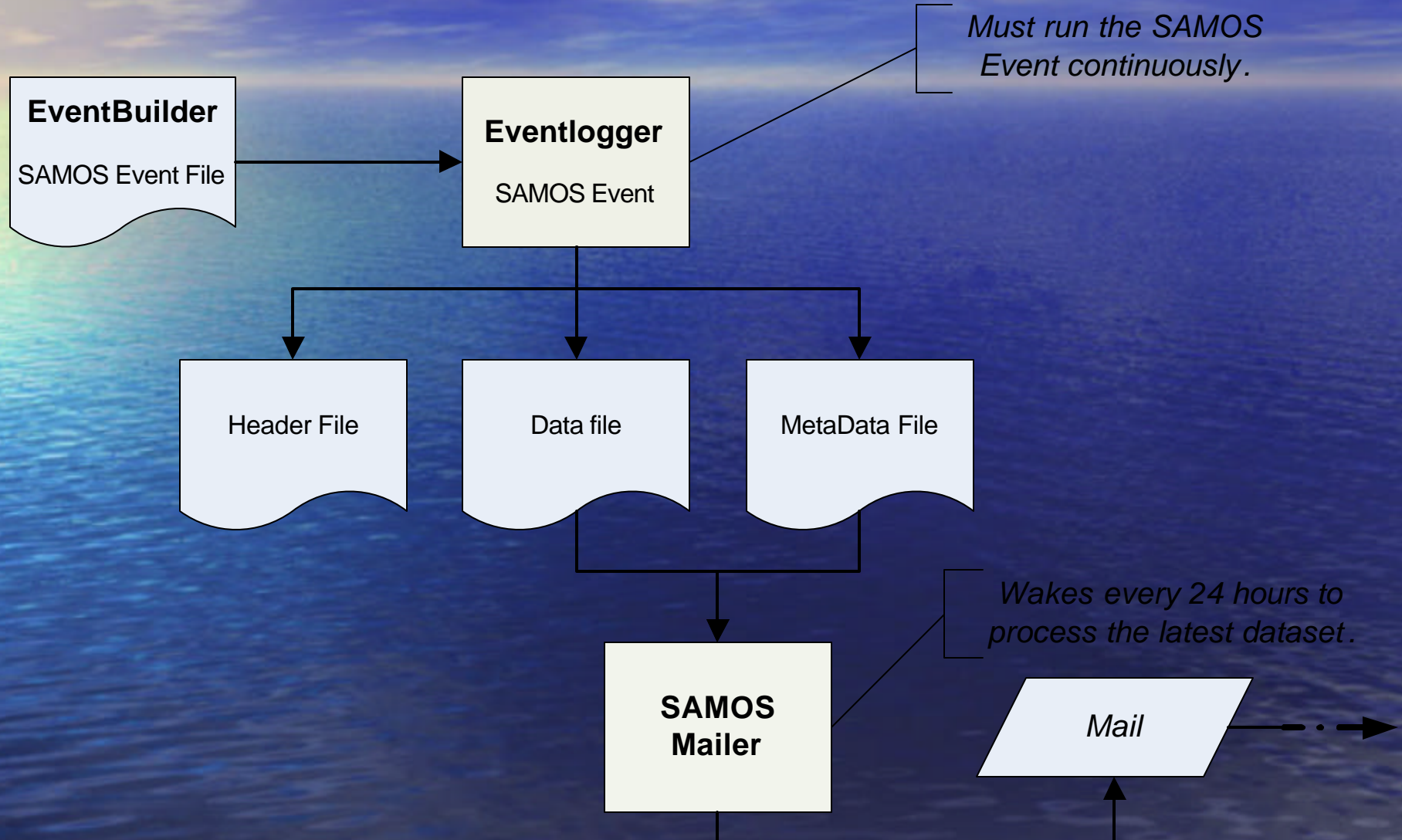
# SAMOS Mailer

- Shipboard data transfer
- Automated
- Quality Assurance
- Unobtrusive
- Easy to install/run
- Requires SCS 4.0





# SAMOS Mailer - DFD

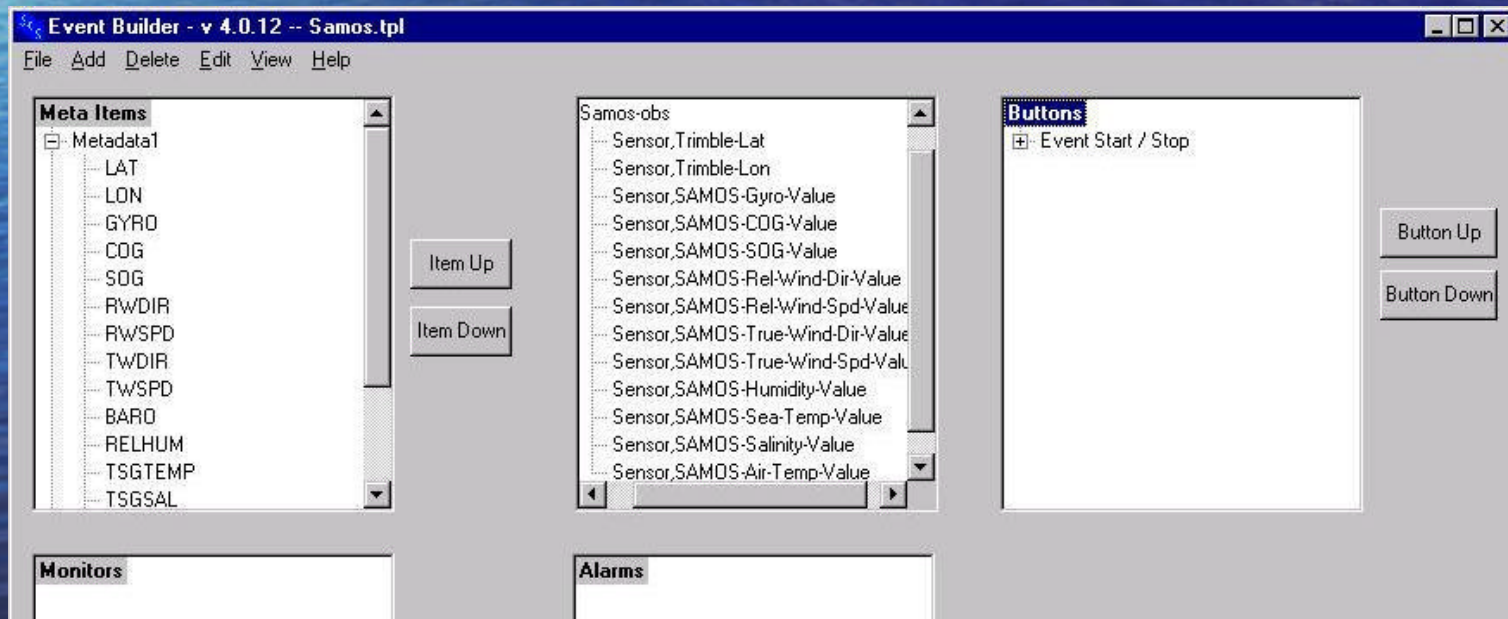






# SAMOS Mailer - Eventlogger

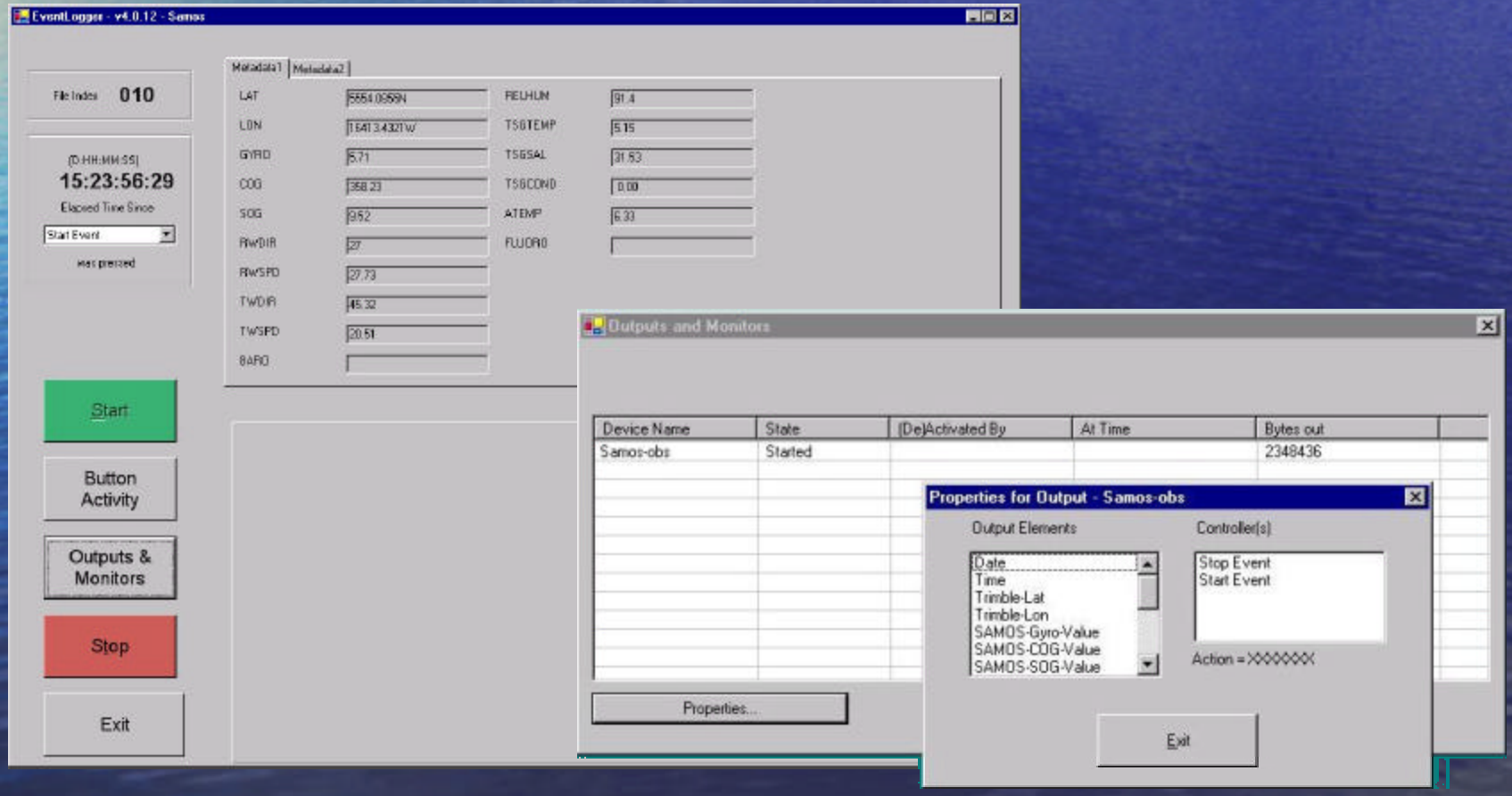
- Relies extensively on Eventlogger features of SCS 4.0
- Dedicated SAMOS Event





# SAMOS Mailer - Eventlogger

- SAMOS Event must run continuously.







# SAMOS Mailer - Eventlogger

- Header file output - \*.hdr
- MetaData file output - \*.csv
- Provides sensor to genre correlation.

Programmer's File Editor - [Samos\_010.hdr]

File Edit Options Template Execute Macro

LAT=5554.8855N  
LON=16413.4321W  
GYRO=5.71  
COG=358.23  
SOG=9.52  
RWDIR=27  
RWSPD=27.73  
TWDIR=45.32  
TWSPD=20.51  
BARO=  
RELHUM=91.4  
TSGTEMP=5.15  
TSGSAL=31.53  
TSGCOND= 0.00  
ATEMP=6.33  
FLUORO=  
CS=WTDM

Microsoft Excel - MetaDataSensorDescription\_010.CSV

File Edit View Insert Format Tools Data Window Help

G8 =

	A	B
1	<b>Header Name</b>	<b>Equipment Name</b>
2	LA	Trimble-Lat
3	LO	Trimble-Lon
4	GY	SAMOS-Gyro-Value
5	CR	SAMOS-COG-Value
6	SP	SAMOS-SOG-Value
7	WD	SAMOS-Rel-Wind-Dir-Value
8	WS	SAMOS-Rel-Wind-Spd-Value
9	TI	SAMOS-True-Wind-Dir-Value
10	TK	SAMOS-True-Wind-Spd-Value
11	BP	Baro-Press
12	RH	SAMOS-Humidity-Value
13	ST	SAMOS-Sea-Temp-Value
14	SA	SAMOS-Salinity-Value
15	TC	Seabird-Conductivity
16	AT	SAMOS-Air-Temp-Value
17	FL	Fluoro-Val-Value
18	CS	MILLER FREEMAN
19		



# SAMOS Mailer - Eventlogger

- Data file output - \*.elg

Microsoft Excel - Samos-obs\_009.elg

File Edit View Insert Format Tools Data Window Help

100% Arial

G4 = 13.18

	A	B	C	D	E	F	G	
1	Date	Time	Trimble-Lat	Trimble-Lon	SAMOS-Gyro-Value	SAMOS-COG-Value	SAMOS-SOG-Value	SAMOS
2	09/11/2006	13:37:01	55.47777	-160.40775	67.25	66.53	13.05	
3	09/11/2006	13:38:01	55.47924	-160.40185	67.37	66.14	13.14	
4	09/11/2006	13:39:01	55.48092	-160.39612	63.71	62.67	13.18	
5	09/11/2006	13:40:01	55.48269	-160.39053	61.04	60.08	13.23	
6	09/11/2006	13:41:01	55.48458	-160.38495	60.29	59.23	13.22	
7	09/11/2006	13:42:01	55.48649	-160.37937	60.29	59.12	13.2	
8	09/11/2006	13:43:01	55.48836	-160.37384	60.11	59.17	13.26	
9	09/11/2006	13:44:01	55.49030	-160.36844	59.24	57.91	13.28	
10	09/11/2006	13:45:01	55.49234	-160.36292	58.63	57.09	13.17	
11	09/11/2006	13:46:01	55.49434	-160.35759	58.21	56.5	13.15	
12	09/11/2006	13:47:01	55.49634	-160.35219	58.18	56.77	13.13	

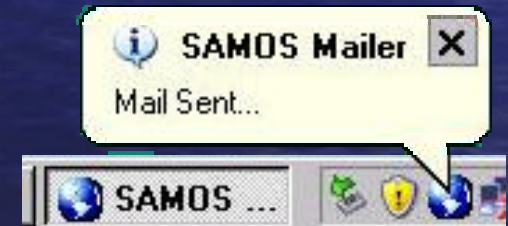




# SAMOS Mailer

- Customized formatting is applied to data output from Event.
- File is then compressed and mailed.

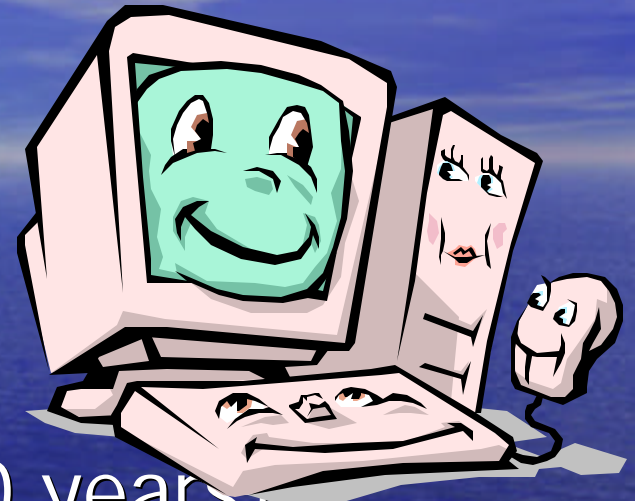
	A	B	C	D	E	F
1	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000026	LA:57.72682	LO:-152.51
2	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000126	LA:57.72685	LO:-152.51
3	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000226	LA:57.72683	LO:-152.51
4	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000326	LA:57.72682	LO:-152.51
5	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000426	LA:57.72681	LO:-152.51
6	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000526	LA:57.72680	LO:-152.51
7	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000626	LA:57.72680	LO:-152.51
8	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000726	LA:57.72681	LO:-152.51
9	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000826	LA:57.72681	LO:-152.51
10	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:000926	LA:57.72681	LO:-152.51
11	\$SAMOS:001	CS:MILLER FREEMAN	YMD:20061010	HMS:001026	LA:57.72682	LO:-152.51





# Overall SCS Advantages

- Simple to use
- Easy to manage
- Fast and easy to configure
- Stability (in use for over 10 years)
- Easy user-access to data
- Can be configured to use on any vessel without the need for new software modules







# Vessels with SCS

- NOAA
  - 13 ships w/ SCS w/integrated sensor suite
  - 5 ships w/ SCS ShipTracker version (FA, RA, TJ, RU, CO)
  - NOAA NWFSC charter vessels
- US Coast Guard
  - Polar Star, Polar Sea, Healy
- Canadian Coast Guard
  - Wilfred Laurier, John P. Tully, W.E. Ricker, Vector
- UNOLS
  - Endeavor (URI), Weather Bird II (BBSR), Clifford A. Barnes (UW), Cape Hatteras
- British Antarctic Survey
  - James Clark Ross, Ernest Shackleton
- State Fisheries Vessels
  - Alabama, Mississippi, Louisiana, others???
- JAMSTEC
  - Marai
- SEACOOS
  - Suncoaster

Direct Support

Indirect Support



# Partnership Efforts



- Brookhaven National Labs
- International SeaKeepers Society
- British Antarctic Survey
- UNOLS
- US Coast Guard
- Canadian Coast Guard
- National Oceanographic Data Center (NODC)
- National Marine Fisheries (NMFS)