OOI/CGSN

Document Number: **3103-00022**

Document Name: **Global Surface Mooring Sampling and Configuration Plan**

By	Date	Description	Ver
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Global Surface Mooring Power Schedule

Surface Buoy	Instrument Code	Power Schedule		Schedule in .cfg file	Instrument Sampling	Comments
		Interval	Duration			
meteorology_bulk	METBK	On continuously		0:xx:xx:xx Initial Power state on (1)	once per minute	Continuous sampling, heater on port 07
meteorology_bulk	METBK	On continuously		0:xx:xx:xx Initial Power state on (1)	once per minute	Continuous sampling, heater on port 07
flux_direct_covariance	FDCHP	60 min	25 min	1:0-23:0:25 Initial Power state on (1)	samples for 20 minutes every hour (at 10 Hz)	Apply power on the hour to deal with day change issue, only processed flux data sent
wave_spectra_surface	WAVSS	60 min	30 min	1:0-23:0:30	Instrument configured to sample for 20 minute, outputs processed data	
pCO2_air-sea	PCO2A	60 min	55 min	1:0-23:25:55	instrument configured to sample once per hour	Powered on at 25 min past hour for a duration of 55 min, has a warm-up period; power cycle to prevent funky state
spectral_irradiance	SPKIR	15 min	3 min	1:15:03 (isched)	Instrument configured to sample once per sec	
oxygen_dissolved_stable	DOSTA	15 min	3 min	1:15:03 (isched)	Instrument configured for 2 sec sample interval	
Fluorometer_three_wavelength	FLORT	15 min	3 min	1:15:03 (isched)	Instruments samples at once per sec (default)	
nutrient_Nitrate	NUTNR	60 min	5 min 3 min	ISUS: 1:0-23:59:5 SUNA plan 1:15:3	Instrument is configured to sample every 30 minutes 17 second interval; 6 light and 1 dark sample	Data Logger uses -b option DCL is only recording hourly data NUTNR clock drifts, so need to start listening before the hour (isched only allows listening on the hour)
attenuation_absorption_optical	OPTAA	60 min	2 min	1:0-23:0:2	default config	
Motion Pack	MOPAK	60 min	20 min	1:0-23:0:20	sample continuously at 10Hz while powered on	Engineering sensor
Hydrogen sensor	HYDRG	60 min	5 min	1:0-23:0:5	sample continuously while powered on (every 12s)	Engineering sensor
Hydrogen sensor	HYDRG	60 min	5 min	1:0-23:0:5	sample continuously while powered on (every 12s)	Engineering sensor
Inductive Modem	IMM	60 min	30 min	1:0-23:5:30	N/A	Telemetry

NSIF	Instrument Code	Power Schedule		Schedule in .cfg file	Instrument Sampling	Comments
		Interval	Duration			
CTD_bottom_pumped	CTDBP	15 min	3 min	1:15:03 (isched) 0:15:03 (work around)	Instrument configured to sample every 10 secs	Work around: Power always on, instrument scheduled to sample once every 15 minutes.
oxygen_dissolved_stable	DOSTA	15 min	3 min	1:15:03 (isched)	Instrument configured for 2 sec sample interval	
Fluorometer_three_wavelength	FLORT	15 min	3 min	1:15:03 (isched)	Instruments samples at once per sec (default)	
spectral_irradiance	SPKIR	15 min	3 min	1:15:03 (isched)	Instrument configured to sample once per sec	
Velocity_point_mean	VELPT	15 min	7 min	1:15:07 (isched)	Instrument samples once per sec and outputs processed data	Instrument config: 180 Average interval (s) 4 Measurement load (%) Data Logger uses -b option
pCO2_water	PCO2W	60 min	16 min	1:0-23:58:16	Instrument samples once every 2 hours	Data Logger uses -b option Instrument configured to sample every 2 hours due to reagent limitations.
nutrient_Nitrate	NUTNR	60 min	5 min 3 min	ISUS: 1:0-23:59:5 SUNA plan 1:15:3	Instrument is configured to sample every 30 minutes 17 second interval; 6 light and 1 dark sample	Data Logger uses -b option DCL is only recording hourly data NUTNR clock drifts, so need to start listening before the hour (isched only allows listening on the hour)
attenuation_absorption_optical	OPTAA	60 min	2 min	1:0-23:0:2	default config	

Riser (Inductive)	Instrument Code	Power Schedule		Schedule in .cfg file	Instrument Sampling	Comments
		Interval	Duration			
CTD_mooring	CTDMO	N/A	N/A	N/A	Instrument configured to sample every 7.5 minutes	
pH_stable	PHSEN	N/A	N/A	N/A	Instrument samples once every hour	Connected to UIMM
CTD_bottom_pumped	CTDBP	N/A	N/A	N/A	Instrument configured to sample every hour	Also records DOSTA and FLORT data
oxygen_dissolved_stable	DOSTA	N/A	N/A	N/A	Instrument configured for 30 sec sample interval	Connected to CTDBP
Fluorometer_two_wavelength	FLORD	N/A	N/A	N/A	Instruments samples at once per sec (default)	Connected to CTDBP
pCO2_water	PCO2W	N/A	N/A	N/A	Instrument samples once every 2 hours	Connected to UIMM
velocity_profile	ADCPS	N/A	N/A	N/A	Configured for once every 3 hours (2.15 sec between pings)	

Command	Description
Mooring Riser	
CR1	Reset to factory defaults
CQ255	Default – transmit power
CF11111	Flow Control (1 = Auto Cycle, 1 = Auto Ping, 2 = Hex and ASCII Data OR 1= Binary, 1 = Enable Serial Output, 1 = Enable Data Recorder
CJ1	Number of ensembles sent to the inductive modem (Default of 1)
EA00000	No heading alignment
EB00000	No heading bias
ED5000	Transducer depth (in decimeters)
ES35	Fixed salinity value (psu)
EX11111	Earth coordinates with tilts, 3 beam solutions and bin mapping
EZ1011101	Calculated soundspeed, using which sensors
PD12	Select data output format (12 = reduced, 0 = full)
PE1	PD12 Ensemble select - this command has no effect if PD is set to other than PD12
PB1,50,1	Bin select for output for PD12 selection
PO1111	Velocity component select
TE03:00:00.00	Time per ensemble
TGccyy/mm/dd, hh:mm:ss	Set date and time for instrument to start sampling
TTccyy/mm/dd, hh:mm:ss	Set date and time on the instrument
TP00:02.15	Time between pings
WA50	Default – false target threshold
WB1	Bandwidth Control (0 = wide, 1 = Narrow)
WD111100000	Default – Data to recorder = (hdr, leader) vel, corr, amp, %gd
WF500	Blank after transmit (cm)
WN50	Number depth bins
WP80	Pings per ensemble
WS1000	Bin size (cm)
WV150	Default – ambiguity velocity threshold 175 cm/s
CK	Save parameters as user defaults
CS	Go! (but wait until time set with TG command)

Command	Description
NSIF	
OUTPUTEXECUTEDTAG=N	Returns a prompt during communication
ECHO=Y	Enables echo from instrument
OUTPUTSAL=N	Sets output of salinity data
OUTPUTSV=N	Sets output of sound velocity
OUTPUTUCSD=N	Sets the output of sigma-t, voltage, and current with each sample
NCYCLES=4	Sets number of measurements to take and average per sample
PUMPMODE=1	Mode of the pump (1 = run pump for 0.5 seconds prior to sample)
SAMPLEINTERVAL=10	Time between samples (seconds)
OUTPUTFORMAT=3	Instrument output format (3 = converted engineering units in decimal)
TXREALTIME=Y	Transmit real time data
OPTODE=N	Diables the optional Optode
OPTODE=N	Verification of previous command

Instrument deployed with batteries and is powered continuously for a 3 minute interval

Work around:

Command	Description
OUTPUTEXECUTEDTAG=N	Returns a prompt during communication
ECHO=Y	Enables echo from instrument
OUTPUTSAL=N	Sets output of salinity data
OUTPUTSV=N	Sets output of sound velocity
OUTPUTUCSD=N	Sets the output of sigma-t, voltage, and current with each sample
NCYCLES=4	Sets number of measurements to take and average per sample
PUMPMODE=1	Mode of the pump (1 = run pump for 0.5 seconds prior to sample)
SAMPLEINTERVAL=900	Time between samples (seconds)
OUTPUTFORMAT=3	Instrument output format (3 = converted engineering units in decimal)
TXREALTIME=Y	Transmit real time data
StartDateTime=mmddyyyyhhm	Sets the time and date the instrument will start sampling
StartLater	Puts instrument in sleep mode and sets it to start at predetermined time

Instrument deployed with batteries in scheduled mode

Command	Description
Mooring Riser (Inductive)	
SampleInterval=3600	Time between samples (seconds)
OUTPUTEXECUTEDTAG=N	Returns a prompt during communication
ECHO=Y	Enables echo from instrument
TXREALTIME=Y	Transmit real time data
ParosIntegration=1	
OUTPUTFORMAT=3	Instrument output format (3 = converted engineering units in decimal)
PUMPMODE=1	Mode of the pump (1 = run pump for 0.5 seconds prior to sample)
NCYCLES=4	Sets number of measurements to take and average per sample
OUTPUTSAL=N	Sets output of salinity data
OUTPUTSV=N	Sets output of sound velocity
OutputSampleNumber=N	
OUTPUTUCSD=N	Sets the output of sigma-t, voltage, and current with each sample
Volt0=Y	
Volt1=Y	
Volt2=Y	
Volt3=Y	
Volt4=N	
Volt5=N	
OPTODE=N	Diables the optional Optode
BioWiper=Y	
DelayBeforeSampling=2	
DelayAfterSampling=0	

Instrument deployed with batteries and samples every hour

Command	Description
Wire	
#iiSAMPLEINTERVAL=450	Time between samples (seconds)
#iiOUTPUTFORMAT=0	Instrument output format (0=HEX converted engineering)

Command	Description
Buoy	
Set Interval(2)	Sets the time interval between sampling
Set Passkey(1000)	This will set a new passkey and allow the instrument configuration to be altered.
Set Mode(Smart Sensor Terminal)	Sets mode to default (readable) output
Set Comm Timeout(Always On)	RS232 communication activation timeout
Set Enable Comm Indicator(Yes)	Enable the Communication Sleep ('%') and Communication Ready ('!') indicators
Set Enable Sleep(No)	Enable sleep mode
Set Enable Polled Mode(No)	Enable Polled Mode when set to 'yes' the sensor will wait for the 'Do Sample' command.
Set Enable Text(No)	When set to 'no' the start up info and the parameter text is removed
Set Enable Decimalformat(Yes)	Controls the use of decimal format in the output string
Set Flow Control(None)	RS232 flow control: None or Xon/Xoff
Set Enable AirSaturation(Yes)	Controls inclusion of air saturation(%) in the output
Set Enable Rawdata(Yes)	Controls inclusion of raw data in the output string
Set Enable Temperature(Yes)	Controls inclusion of Temperature in the output
set salinity(0)	Sets the salinity within optode for oxygen calculation
save	Saves new configuration
reset	Reboots the sensor to run new configuration
NSIF	
Set Interval(2)	Sets the time interval between sampling
Set Passkey(1000)	This will set a new passkey and allow the instrument configuration to be altered.
Set Mode(Smart Sensor Terminal)	Sets mode to default (readable) output
Set Comm Timeout(Always On)	RS232 communication activation timeout
Set Enable Comm Indicator(Yes)	Enable the Communication Sleep ('%') and Communication Ready ('!') indicators
Set Enable Sleep(No)	Enable sleep mode
Set Enable Polled Mode(No)	Enable Polled Mode when set to 'yes' the sensor will wait for the 'Do Sample' command.
Set Enable Text(No)	When set to 'no' the start up info and the parameter text is removed
Set Enable Decimalformat(Yes)	Controls the use of decimal format in the output string
Set Flow Control(None)	RS232 flow control: None or Xon/Xoff
Set Enable AirSaturation(Yes)	Controls inclusion of air saturation(%) in the output
Set Enable Rawdata(Yes)	Controls inclusion of raw data in the output string
Set Enable Temperature(Yes)	Controls inclusion of Temperature in the output
set salinity(0)	Sets the salinity within optode for oxygen calculation
save	Saves new configuration
reset	Reboots the sensor to run new configuration
Mounted to CTDBP	
Set Interval(30)	Sets the time interval between sampling
Set Passkey(1000)	This will set a new passkey and allow the instrument configuration to be altered.
Set Comm Timeout(Always On)	RS232 communication activation timeout
Set Enable Comm Indicator(Yes)	Enable the Communication Sleep ('%') and Communication Ready ('!') indicators
Set Enable Sleep(No)	Enable sleep mode
Set Enable Polled Mode(No)	Enable Polled Mode when set to 'yes' the sensor will wait for the 'Do Sample' command.
Set Enable Text(No)	When set to 'no' the start up info and the parameter text is removed
Set Enable Decimalformat(Yes)	Controls the use of decimal format in the output string
Set Flow Control(None)	RS232 flow control: None or Xon/Xoff
Set Enable AirSaturation(Yes)	Controls inclusion of air saturation(%) in the output
Set Enable Rawdata(Yes)	Controls inclusion of raw data in the output string
Set Enable Temperature(Yes)	Controls inclusion of Temperature in the output
Set Salinity(0)	Sets the salinity within optode for oxygen calculation
Set Mode(Analog Output)	Allows output of analog voltage
Set Analog Output(CalPhase)	Sets output to calphase
save	Saves new configuration
reset	Reboots the sensor to run new configuration

Command	Description
Buoy	

*** Instrument used in factory default condition ***

Command	Description
Mounted to CTDBP	
$Ave 30	Sets the number of measurements that make up each row of output
$Pkt 1	Sets the number of rows of data that are output between the selected time intervals
$Set 1	Set the number of rows of data that are output between low-power states
$Int 000005	Sets the time interval between sets of measurements
$Rec 0	Turns off the sensors internal memory
$Sto	Stores all settings to instrument flash memory

Command	Description
Buoy	
$rfd	Reloads original factory settings
$rec 1	Allows recording of samples to memory
NSIF	
$rfd	Reloads original factory settings
$rec 1	Allows recording of samples to memory

Command	Description
Buoy	

Instrument used in factory default condition

Command	Description
BUOY	
S	Setup Menu
O	Output Setup Menu
S	Status messages
Y	Yes to alter
0	**Disable status messages**
T	Transfer frame mode
Y	Yes to alter
1	**Full ASCII telemetry**
L	Logging frame mode
Y	Yes to alter
1	**Full ASCII logging**
Q	Quit current menu
D	Deployment Setup Menu
O	Operational Mode
Y	Yes to alter
0	**Scheduled mode**
Q	Quit current menu
L	Lamp setup menu
P	Power on warmup period menu
Y	Yes to alter
5	**5 second warmup period**
Q	Quit current menu
Q	Quit current menu
Y	Save current settings
Y	Replace existing setup
B	Reboot the instrument to apply new settings

Instrument deployed with batteries in scheduled mode (17 second power interval for 6 light, 1 dark sample, every 60 min)

Command	Description
NSIF	
S	Setup Menu
O	Output Setup Menu
S	Status messages
Y	Yes to alter
0	**Disable status messages**
T	Transfer frame mode
Y	Yes to alter
1	**Full ASCII telemetry**
L	Logging frame mode
Y	Yes to alter
1	**Full ASCII logging**
Q	Quit current menu
D	Deployment Setup Menu
O	Operational Mode
Y	Yes to alter
0	**Scheduled mode**
Q	Quit current menu
L	Lamp setup menu
P	Power on warmup period menu
Y	Yes to alter
5	**5 second warmup period**
Q	Quit current menu
Q	Quit current menu
Y	Save current settings
Y	Replace existing setup
B	Reboot the instrument to apply new settings

Instrument deployed with batteries in scheduled mode (17 second power interval for 6 light, 1 dark sample, every 60 min)

Command	Description
BUOY	
	Instrument used in factory default condition
NSIF	
	Instrument used in factory default condition

Command	Description
Buoy	
5	Go to Auto Start Settings
1	Go to Change Auto Start Program
2	Set to 1 hour Ato Start
2	Change number of samples
9	Set 9 samples
3	Go to change Re-Zero Interval
36	Set number of samples before re-zeroing
4	Change sampling mode
2	Set Both Water & Atomosphere Mode
5	Reset Zero Count
6	Go to Change Menu Timer
005	Set 5 Second Timer
0	Go to Main Menu
7	Sleep Now

Command	Description
NSIF	
120	Sample Interval
42	Cycles between blanks
Not checked	Do not start with blank flush
16	Pump pulse (1/16)
32	Pump on to meas (1/16)
255	# of samples/meas
24	# Blank cycles
28	# Reagent cycles
1	Flush pump interval (sec)
Not checked	Meas after each pump pulse
1	# extra pump cycles
24	Cycle Interval (1/4 sec)
Power Out	Device 1 - Main drop down
Checked	After SAMI/AFT
10	Interval Minutes
10	Power on interval seconds
Use 12V Power	Power Select

Instrument deployed with batteries in scheduled mode, samples on the hour

Command	Description
Mooring Riser (Inductive)	
120	Sample Interval
42	Cycles between blanks
Not checked	Do not start with blank flush
16	Pump pulse (1/16)
32	Pump on to meas (1/16)
255	# of samples/meas
24	# Blank cycles
28	# Reagent cycles
1	Flush pump interval (sec)
Not checked	Meas after each pump pulse
1	# extra pump cycles
24	Cycle Interval (1/4 sec)
Power Out	Device 1 - Main drop down
Checked	After SAMI/AFT
10	Interval Minutes
10	Power on interval seconds
Use 12V Power	Power Select
Sea-Bird UIMM	Comm settings

Instrument deployed with batteries in scheduled mode attached to UIMM, samples on the hour

Command	Description
Mooring Riser (Inductive)	
60	Sample Interval
35	Salinity Default
0	Cycles between Stds
1	# samples averaged
55	# flushes
4	Pump on - Flush (1/16s)
32	Pump off - Flush (1/16s)
1	# reagent pumps
8	Valve delay (1/16s)
8	Pump on - ind (1/16s)
16	P/V off - ind (1/16s)
4	# blanks
8	Pump meas T (1/16s)
16	Pump off to meas (1/16s)
8	Meas to pump on (1/16s)
23	# Measurements (<27)
0	Salinity Delay (1/16s)
Sea-Bird UIMM	Comm settings

Instrument deployed with batteries in scheduled mode attached to UIMM, samples on the hour

Command	Description
Buoy	
set maxrate 1	Setting the frame rate (sampling rate) to 1 Hz
set initsm off	Initialize silent mode
set initpd on	Initialize power down mode
set initat on	Initialize automatic telemetry
set netmode off	Setting network mode
exit	Save changes
y	Verify save
NSIF	
set maxrate 1	Setting the frame rate (sampling rate) to 1 Hz
set initsm off	Initialize silent mode
set initpd on	Initialize power down mode
set initat on	Initialize automatic telemetry
set netmode off	Setting network mode
exit	Save changes
y	Verify save

Command	Description
NSIF	
900	Measurement Interval
Alakaline	Battery Pack
100	Battery capacity (wh)
420	Assumed duration (days)
343	Battery utilization (% of capacity)
5	Memory required (MB)
1.4	Vertical vel. prec. (cm/s)
0.8	Horizontal vel. prec. (cm/s)
180	Average interval (s)
4	Measurement load (%)
0.37	Blanking dist (m)
1	Compass update rate (s)
Measured	Speed of sound
35	Salinity (ppt)
High	Power level
Not checked	File wrapping
Checked	Diagnostics
720	Diagnostics Interval (min)
100	Number of Samples
ENU	Coordinate System
None	External inputs - Input #1
None	External inputs - Input #2
None	External inputs - Input #3

Instrument deployed with batteries in schedule mode
Select *Start Recorder Deployment*;be sure to check Enable Serial Output

Command	Description
Buoy	
!F0,3,3,3,3,3	Enables Wave Statistics; disables Status, Nondirspec, Dirspec, Meandir, HNE
!FT1	Enables automatic transmission of the MFB data at end of sampling period
!R20	Sets a sampling time of 20 minutes