

ARVOR/PROVOR SBD Iridium costs

Sampling strategy

- Argos floats : Standard set to about 120 CTD points (6 hours minimum transmission time)

Total profile:	1 Day unit
Total month @ 10day/profile:	3 Day units
Total month @ 4 euro/DU:	12 Euros
Total month + 15 euros:	27 Euros
Total profile:	9 Euros

- Iridium SBD : Generally over 1000 CTD (O2) points

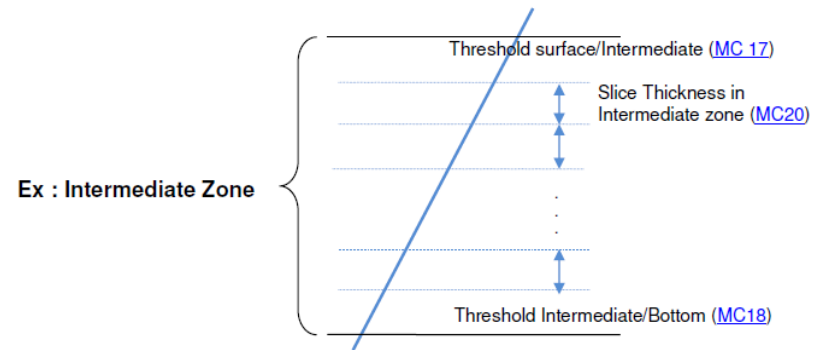
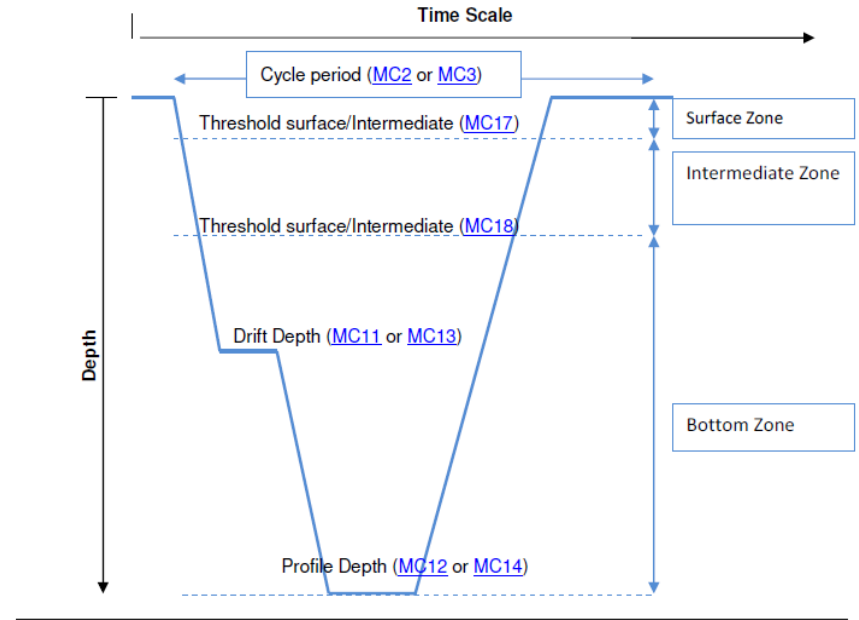


Figure 9- Zone & Slice thickness description

SBD packets

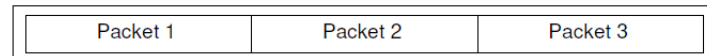
- 300 bytes SBD messages
- One CTD02 floats sends about twice as much data as a CTD float with the same sampling

Data	Nb bytes	Resolution
Type (=1)	1	1
Cycle number	2	
1st CTD sample		
Date of the first CTD sample:		
Hours (2 bytes)	4	1 hour
Minutes (1 byte)		1 minute
Seconds (1 byte)		1 second
Pressure	2	0.1 dBar
Temperature	2	0.001°C
Salinity	2	1 mPSU
2nd CTD sample		
Pressure	2	0.1 dBar
Temperature	2	1 m°C
Salinity	2	1 mPSU
3rd CTD sample		
...	...	
15th CTD sample		
Pressure	2	0.1 dBar
Temperature	2	1 m°C
Salinity	2	1 mPSU
Not used (filled by zeros)	3	
TOTAL	100	

Data	Nb bytes	Resolution
Type (=8)	1	1
Cycle number	2	
1st CTD sample		
Date of the first CTD sample:		
Hours (2 bytes)	4	1 hour
Minutes (1 byte)		1 minute
Seconds (1 byte)		1 second
Pressure	2	0.1 dBar
Temperature	2	0.001°C
Salinity	2	1 mPSU
C1Phase	2	0.002 °
C2Phase	2	0.002 °
Optode temperature	2	0.001 °C
2nd CTD sample		
...	...	
7th CTD sample		
Pressure	2	0.1 dBar
Temperature	2	1 m°C
Salinity	2	1 mPSU
C1Phase	2	0.002 °
C2Phase	2	0.002 °
Optode temperature	2	0.001 °C
Not used (filled by zeros)	9	
TOTAL	100	

SBD message contains one, 2 or 3 packets. One packet is a 100 bytes length

Message (up to 3 packets)



Different types of packets are generated according to the content of the data frame:

Packet type number	Message Type
0	Technical packet n°1
1	Descent CTD packet
2	Drift CTD packet
3	Ascent CTD packet
4	Technical packet n°2
5	Float parameter packet
6	Hydraulic packet
7	Float parameter n°2 packet
8	Descent CTDO packet
9	Drift CTDO packet
10	Ascent CTDO packet
11	CTDO « Near Surface » packet
12	CTDO « In Air » packet
13	CTD « Near Surface » packet
14	CTD « In Air » packet



300 bytes message N°1 sent

300 bytes message N°2 sent



100 or 200 or 300 bytes message N°n sent (size of last message depends on remaining packet number)

« Standard » Arvor/Provior HD sampling :

MC0	500	300		Total cycle nb
MC1	500	300		Nb cycles with Cycle period 1
MC2	240	240	hours	Cycle period 1
MC3	240	240	hours	Cycle Period 2
MC4	2	2	internal day number	Reference Day
MC5	12	6	hour	Hour at surface
MC6	30	0	minutes	Delay Before Mission
MC7	1	1		CTD sampling mode (1=Std, 2=Eco, 3=Mixed, 4=Spot sampling)
MC8	0	0	seconds	Descent CTD sampling period
MC9	3	12	hours	Drift CTD sampling period
MC10	10	10	seconds	Ascent CTD sampling period
MC11	1000	1000	decibars	Drift pressure 1
MC12	2000	###	decibars	Profile pressure 1
MC13	1000	1000	decibars	Drift pressure 2
MC14	2000	###	decibars	Profile pressure 2
MC15	1	1		Alternate cycle number (1=not used, x=1/x alternated profile)
MC16	2000	###	decibars	Alternate profile pressure
MC17	400	10	decibars	Threshold Zone 1/2
MC18	1400	200	decibars	Threshold Zone 2/3
MC19	1	1	decibars	Slice thickness in zone 1-Surface
MC20	2	10	decibars	Slice thickness in zone 2-Intermediate
MC21	5	25	decibars	Slice thickness in zone 3-Deep
MC22	60	60	minutes	Iridium End of Life Period
MC23	20	0	minutes	Time between 1st&2nd Iridium session(0=no 2nd session)
MC24	0	0		Grounding mode (0=Shift, 1=Stay grounded)
MC25	50	50	decibars	Grounding shift
MC26	10	1	minutes	Wait at surface if grounding
MC27	0	0		Optode type (0=no optode, 1=4330, 2=3830, 3=ext. sensor)
MC28	2	5	decibars	CTD CutOff pressure
MC29	0	0		In air acq.: Periodicity of in air measurement (0=no acq., 1=acq. on t
MC30	30	30	seconds	In air acq.: Sampling period
MC31	5	5	minutes	In air acq.: Acquisition duration

Nb of CTDO measurements per profile	On descent	On ascent	On drift
Surface zone	0	400	72
Intermediate zone	0	500	
Bottom Zone	0	120	
TOTAL	1092	(max 2015)	

Nb CTDO measurements packet per profile	0	68	5
Nb In air measurements packets per profile	0		
Nb Technical packets per profile	2		
Nb Hydraulics packets per profile	3		
Nb Parameters packets per profile	2		
TOTAL packets per profile	80		
Nb of SBD sent per profile	27		

Total profile:	8100
Total month @ 10day/profile:	24300
Total month @ 1 euro/kb:	24.3 €
Total month + 15 euros:	39.3 €
Total profile:	13.1 €

Arvor WMO 6902916 example:

About Float

WMO: **6902916**
Platform maker: **NKE**

Inst reference: **AI2600-18FR007**
Platform type: **ARVOR**

Transmission system: **IRIDIUM**
PTT: **596758**

Owner: **IFREMER**
Data Centre: **CORIOLIS**

Sensors: **CTD_PRES, CTD_TEMP, CTD_CNDC**

Deployment

Launched: **12 months ago**
12/02/2019 14:53:00

Deployment Latitude: **21.5255**
Deployment Longitude: **-63.9685**

Ship: **ATALANTE**
Cruise: **TV ATLANTIQUE**

Project: **CORIOLIS**
Principal Investigator: **Guillaume MAZE**

Cycle activity

Status: **Active**
Age: **0.94 years old**

Last station date: **20/01/2020 11:45:30**
Cycle: **35**

Last Surface Data: **3 dbar 26.226°C 36.016 PSU**

Last Bottom Data: **2011.1 dbar 3.474°C 34.966 PSU**

Stations data: [in Ascii](#) [in Netcdf](#)
Trajectory data: [in Ascii](#) [in Netcdf](#)

[Grey List](#)

MONTH (2019)	January	February	March	April	May	June	July	August	September	October	November	December	Total
Mailbox check MSG (Number)	1	7	6	6	6	6	6	6	6	6	6	8	70
Mailbox check MSG (Cost)	0.03	0.18	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.22	1.87
SBD call (Volume)	0.56	19.42	24.54	26.49	26.90	24.35	24.06	23.85	24.21	24.32	24.17	32.35	275.22
SBD call (Cost)	0.59	20.22	25.49	27.54	27.84	24.91	24.69	24.32	24.61	24.61	24.61	32.82	282.24
TOTAL (cost)	0.62	20.40	25.65	27.70	28.00	25.07	24.85	24.48	24.77	24.77	24.77	33.04	284.11

« Standard » DEEP Arvor (O2) HD sampling :

PM0	255	255	cycle	Number of cycles
PM1	10	10	day	Cycle period
PM2	2	2	internal day number	Reference day
PM3	7	6	hour	Estimated time at the surface
PM4	5	0	minute	Delay before mission
PM5	0	0	second	Descent sampling period
PM6	3	12	hour	Drift sampling period
PM7	10	10	second	Ascent sampling period
PM8	2100	1000	dbar	Drift depth
PM9	4000	3500	dbar	Profile depth
PM10	400	10	dbar	Threshold surface/middle pressure
PM11	1400	200	dbar	Threshold middle/bottom pressure
PM12	1	1	dbar	Thickness of the surface slices
PM13	5	10	dbar	Thickness of the middle slices
PM14	7	25	dbar	Thickness of the bottom slices
PM15	60	60	minute	EOL Iridium period
PM16	0	0	minute	Delai before a second Iridium session
PM17	60	60	minute	Delai before a new try when grounded at the surface

Nb of CTDO measurements per profile	On descent	On ascent	On drift
Surface zone	0	400	72
Intermediate zone	0	200	
Bottom Zone	0	371	
TOTAL	1043	(max 4000)	

Nb CTDO measurements packet per profile	0	139	10
Nb In air measurements packets per profile	4		
Nb Technical packets per profile	2		
Nb Hydraulics packets per profile	3		
Nb Parameters packets per profile	2		
TOTAL packets per profile	160		
Nb of SBD sent per profile	54		

Total profile:	16200
Total month @ 10day/profile:	48600
Total month @ 1 euro/kb:	48.6 €
Total month + 15 euros:	63.6 €
Total profile:	21.2 €