

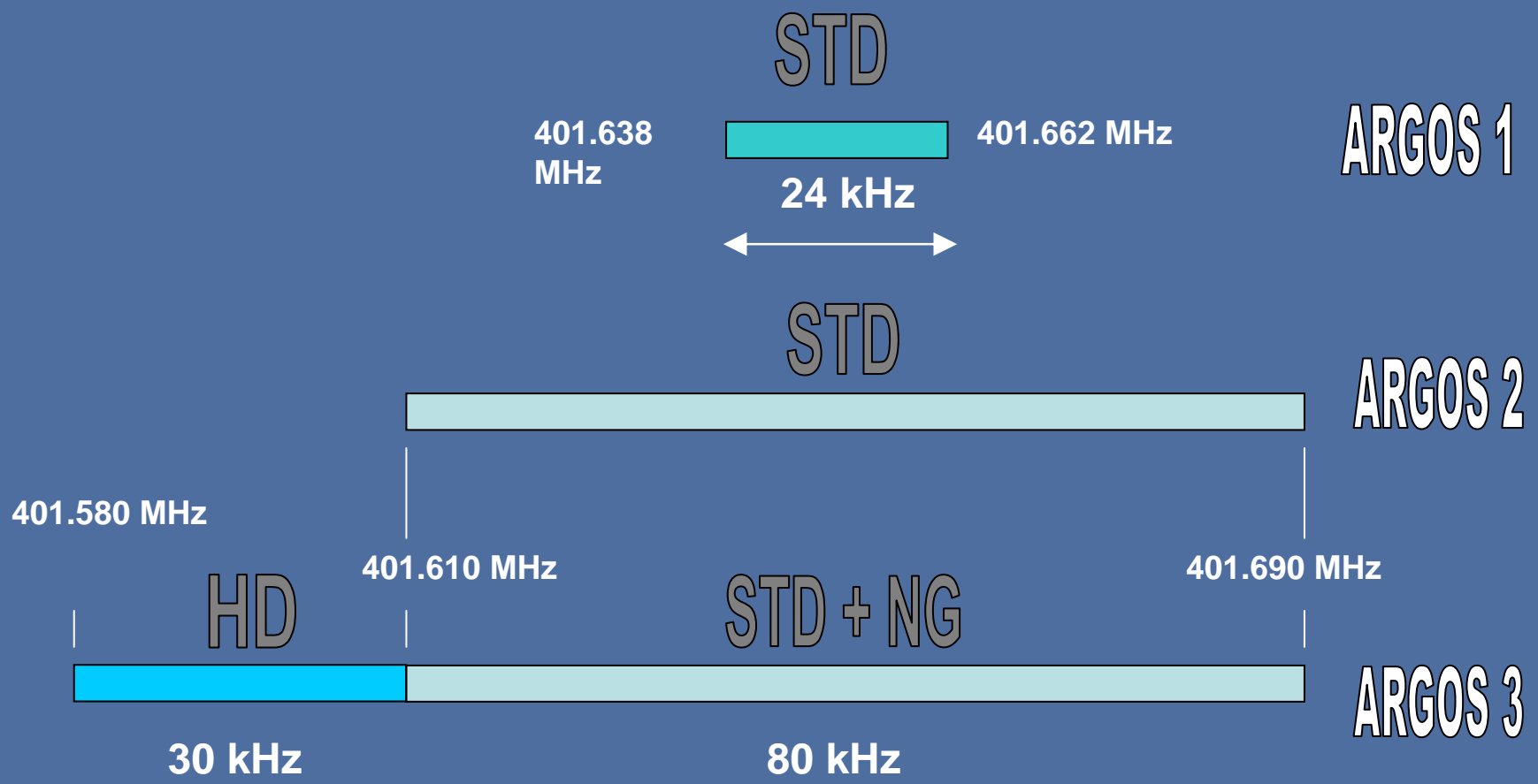
Putting Argos-3 Two-way Capabilities into Practice

Christian Ortega, CLS

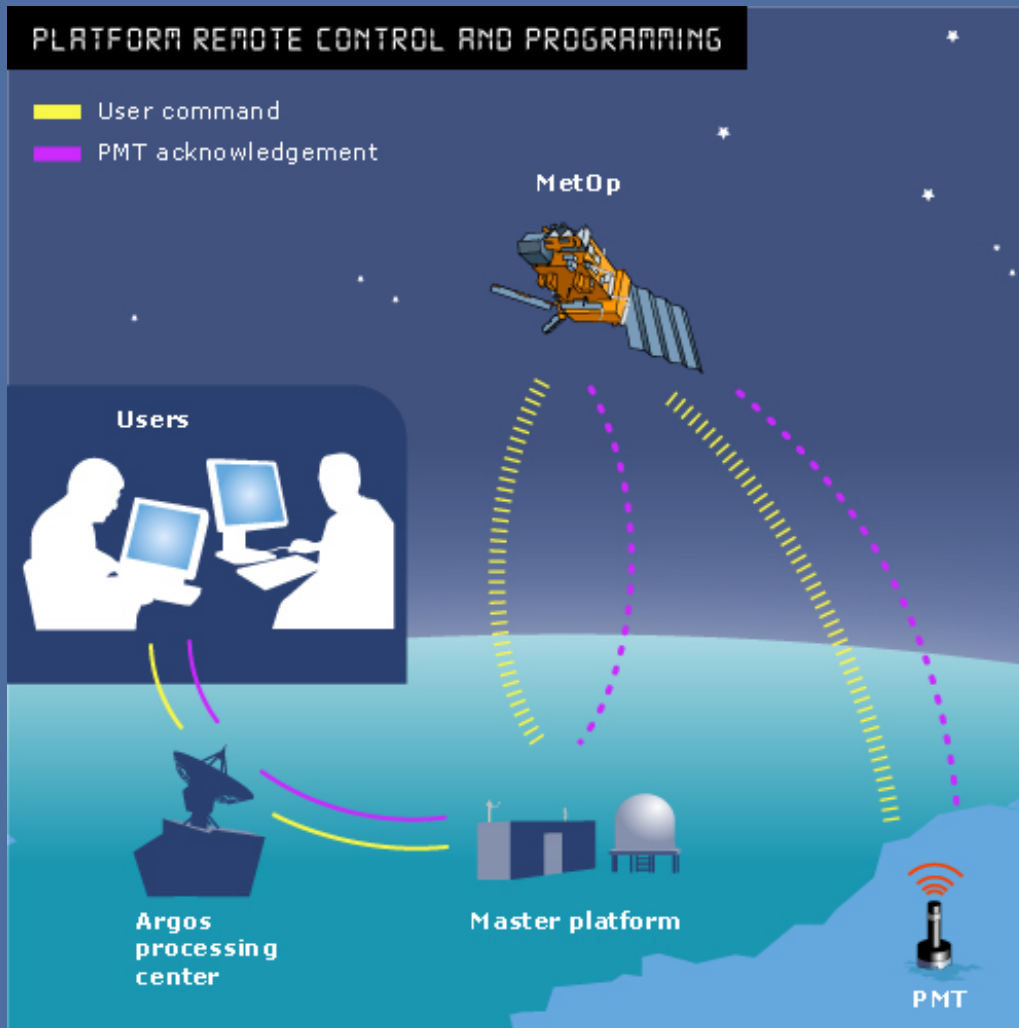
Menu!

- Argos-3 capabilities « reminder »
- MetOp1 Status
- The PMT development
- Data processing & Observations online
- Conclusion, 2008 Plans

Argos-3 Channels & Msgs

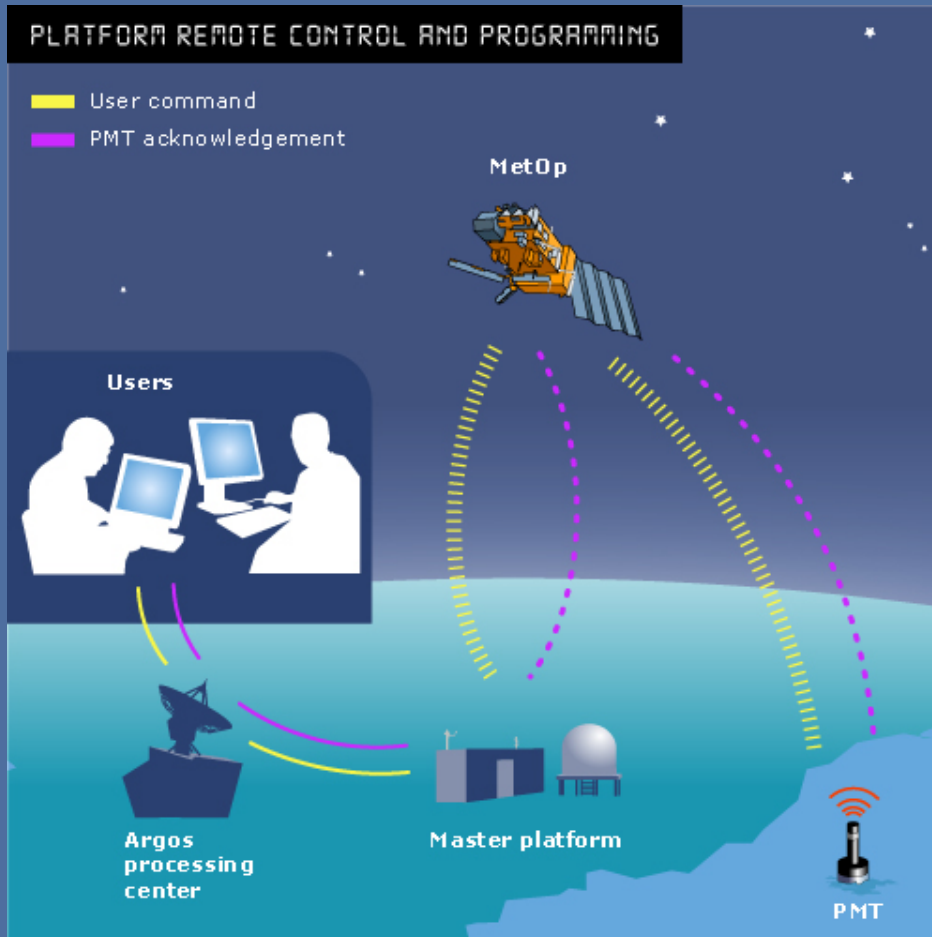


Sending Commands to PMTs



- Posting commands via ArgosWeb
- Loading on Sat.
- Sat Relay to the PMT
- PMT Ack to Sat.
- PMT Ack on ArgosWeb

Managing Transmission, Sending more data



- ✓ Rendez-vous with satellites
- ✓ Efficient transmissions: power saving
- ✓ Sending more Data
 - with the Interactive data Collection (reception ack)

MetOp-1 Status

- Launched on 18th October 2006,
Live at DBCP 22 !!
- April-Aug 07: CLS tests of the new capabilities (High data rate, Two-way)
- May 07: start of pilot projects with buoys and floats
- August 2007: Data delivered to users

PMT developments



Seimac-Martec

1st Generation -Modular



2nd Generation –Single board

Kenwood PMT

Output Power	HD: 5 W LD: 0.5, 1, 2W
Two-way	Simplex
Size	2.5 x 8 x 6 cm
Weight	200 g
Power supply	7 ~ 14V
GPS	included
Data link	Serial (0 – 3.3V)
Available	Fall 2007

Developed by CLS



4 Test Projects, Overview

Project 1: TRITON Moored buoys

Objective: Transmit more data

Project 2: Argo Floats

Objective: Transmit more data in less time

Project 3: Drifters

Objective: Reduce price, increase lifetime

Project 4: Other interested users/ manufacturers

Objective: various, integrate Argos-3 in off-the-shelf products

Project 1: TRITON moored buoys

Protocol

- Send ~240 kbits per day with Argos-3 high data rate, ack, sat. Pass etc...
- Send downlink commands : change buoy parameters such as data acquisition rate, change data transmission rate, etc...

Type of PMT

- Kenwood

Test period

- May 2007 – June 2008

Users/Manufacturers

- JAMSTEC



Project 2: Floats

Protocol

- Achieve rendez-vous with the satellite (program surfacing for satellite arrival)
- Transmit 80 P-T-S levels in one satellite pass (10 mn)
- Transmit 800 P-T-S levels in one satellite pass (10 mn)
- Send commands to the float: modify submersion cycle, parking depth,

Type of PMT

- 2 Seimac + 2 Kenwood

Test period

- May 07 – June 08

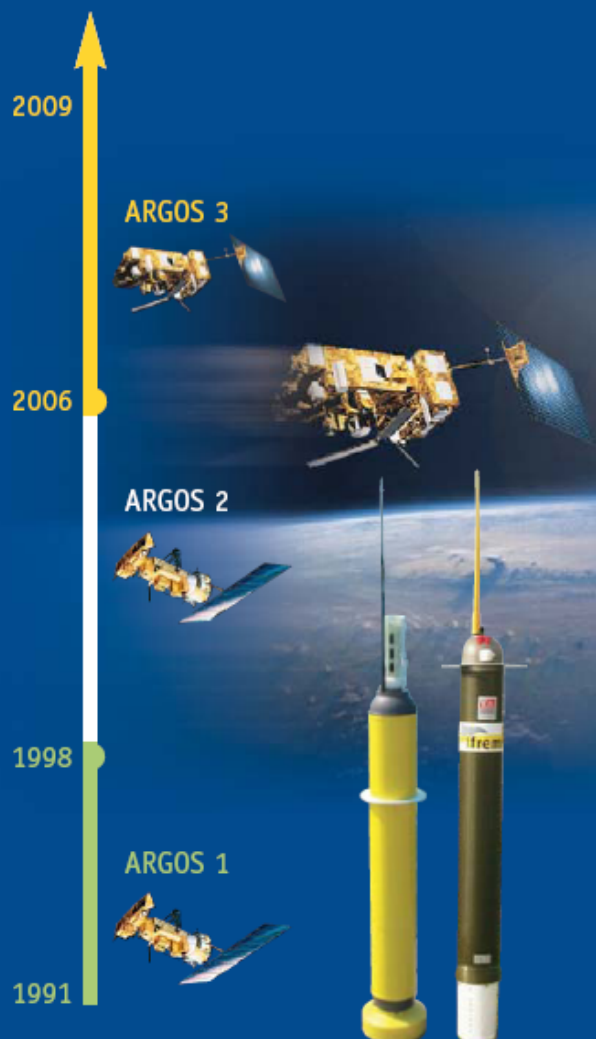
Users/Manufacturers

- Users: Dana Swift (UW)
- Manufacturers: Webb Research/Bathy Systems



Enhancing float performance with Argos-3 features

TRANSMITTING MORE DATA



	today	tomorrow
Argos Message	PTS PTS PTS PTS	PTS PTS PTS PTS PTS --- PTS PTS PTS PTS
Profile Resolution	 75 levels 15 messages	 800 levels 10 messages One satellite pass

BETTER TRANSMISSION EFFICIENCY / SHORTER SURFACE TIME

	today	tomorrow
Transmission	 Random access Message repetition	 Transmission during sat pass Message reception Acknowledgement by satellite
Surface time	 10 hours	 10 minutes Programming Float-satellite rendez-vous

FLOAT REMOTE CONTROL AND PROGRAMMING

	today	tomorrow
Satellite Link	 One way	 Two way Orbital parameters Dedicated control commands

Project 3: Drifters

Protocol

- Transmit only during satellite passes
- Show improvement in power consumption
- Transmit more data – Hurricane buoys (HD, data Ack)
- Send commands: ON/OFF, configuration change, acquisition change

Type of PMT

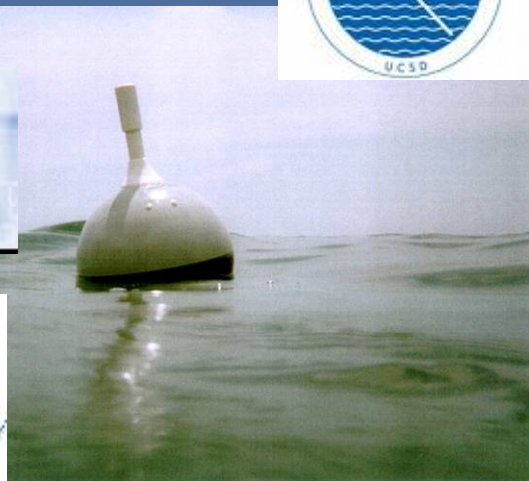
- 3 Seimac + 2 Kenwood

Test period

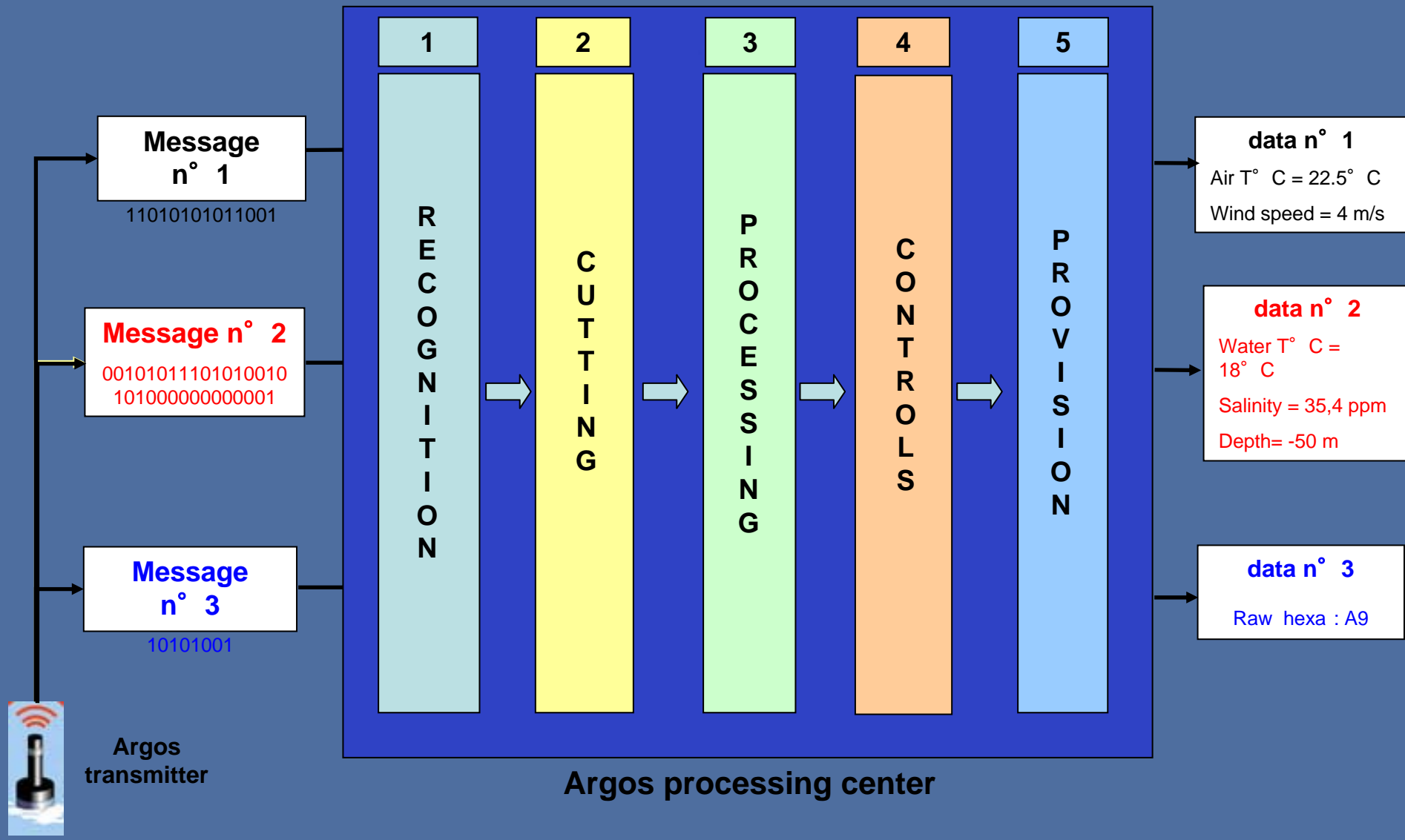
- May 07 – June 08

Users/Manufacturers

- Users: GDC/Scripps
- Manufacturers: Clearwater/Pacific Gyre



Data Processing



Data Display - Observations

- Enhancements for PMT data processing
 - FCS Argos-3, Msg concatenation
 - Observation via ArgosWeb & ArgosDirect

Consultation	+ Observations
Cartographie	
Données	
Dernières Données	
Téléchargement Données	
Téléchargement COM/PRV/DIAG	
Déclarations	
Prévisions de passages	
Préférences	
Aide Globale	
Accueil	

Obs. Date	Obs. Time	Lat.	Long.	Loc. Date	Loc. Time	Loc. class	Level	Water Temp.	Water Sal.	Water Pressure
04/04/07	14:05:00	56.725	142.547	04/04/07	14:04:35	3	-4.4	28.229	35.421	4.4
04/04/07	14:05:00	56.725	142.547	04/04/07	14:04:35	3	-8.8	28.229	35.421	8.9
04/04/07	14:05:00	56.725	142.547	04/04/07	14:04:35	3	-19.1	28.196	35.441	19.2
04/04/07	14:05:00	56.725	142.547	04/04/07	14:04:35	3	-28.9	28.184	35.462	29.1
04/04/07	14:05:00	56.725	142.547	04/04/07	14:04:35	3	-39	28.106	35.497	39.2

2008 Plans

- Jan-Feb: 500 Kenwood PMT delivery
- Expansion of Pilot operations
- Performance analysis & Evaluation
- User seminar debriefing on Argos-3 capabilities
- Off-the-Shelf products from several manufacturers in end 2008

Live Demonstration & Drinks

- Meeting Tuesday 9:15 p.m. at Floor 16th

Demonstration of:

- High data rate data transfer
- Two-way messaging
- Command sending on ArgosWeb
- Observation data display on ArgosWeb
- How to handle one glass.... or more!

Thank you for your attention

