

# Satellite Communications for Gliders

**Bill WOODWARD**

**Yann BERNARD**

**Seema OWEN**

**Michel GUIGUE**

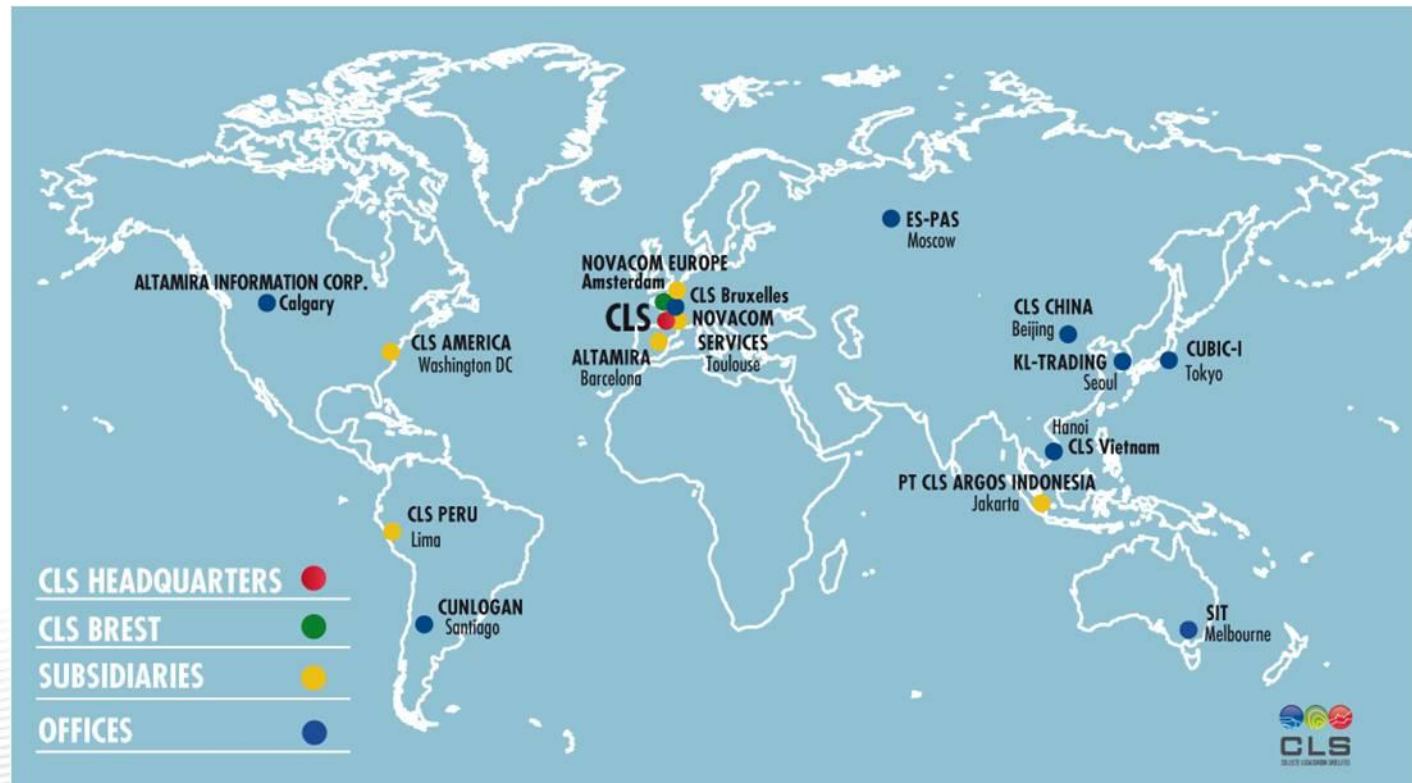
*5<sup>th</sup> EGO Meeting hosted by PLOCAN, Gran Canarias - SPAIN, 16 – 18 March 2011*

# CLS GROUP



PAGE 2

***An international network:*** 15 offices and subsidiaries  
***Almost 400 employees*** at different points around the world





# Active in the following sectors

Environmental  
Monitoring



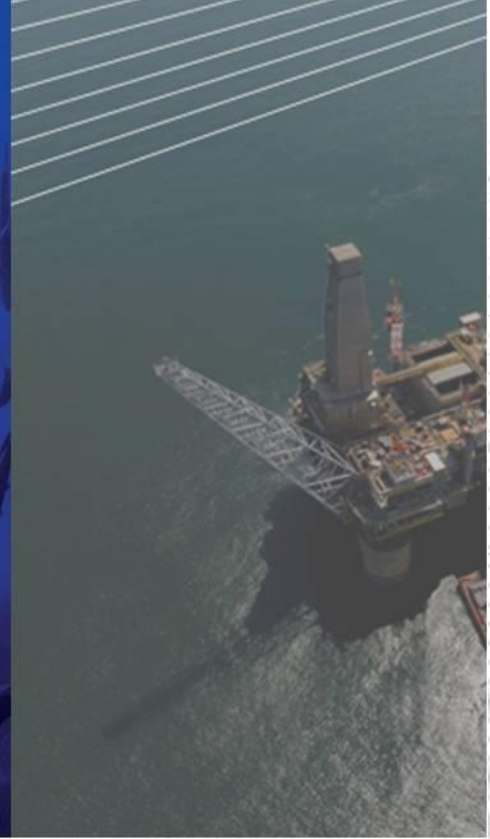
Maritime  
safety



SUSTAINABLE MANAGEMENT  
of marine resources



OFFSHORE  
Oil & Gas



# 24/7 operations



Receiving, processing, validating, distributing and archiving data from approximately 80 instruments carried on almost 40 satellites

PAGE 4

**POSITIONING AND DATA COLLECTION**

2,000,000 messages processed and 1,900,000 positions supplied every day

**SATELLITE OCEANOGRAPHY**

Centimetre-precision ocean topography in 48 hours

**RADAR SURVEILLANCE**

15,000 radar images processed each year

ht



# Platforms tracked by CLS with Argos and Iridium

*In January 2011:*

3 260 Argo floats

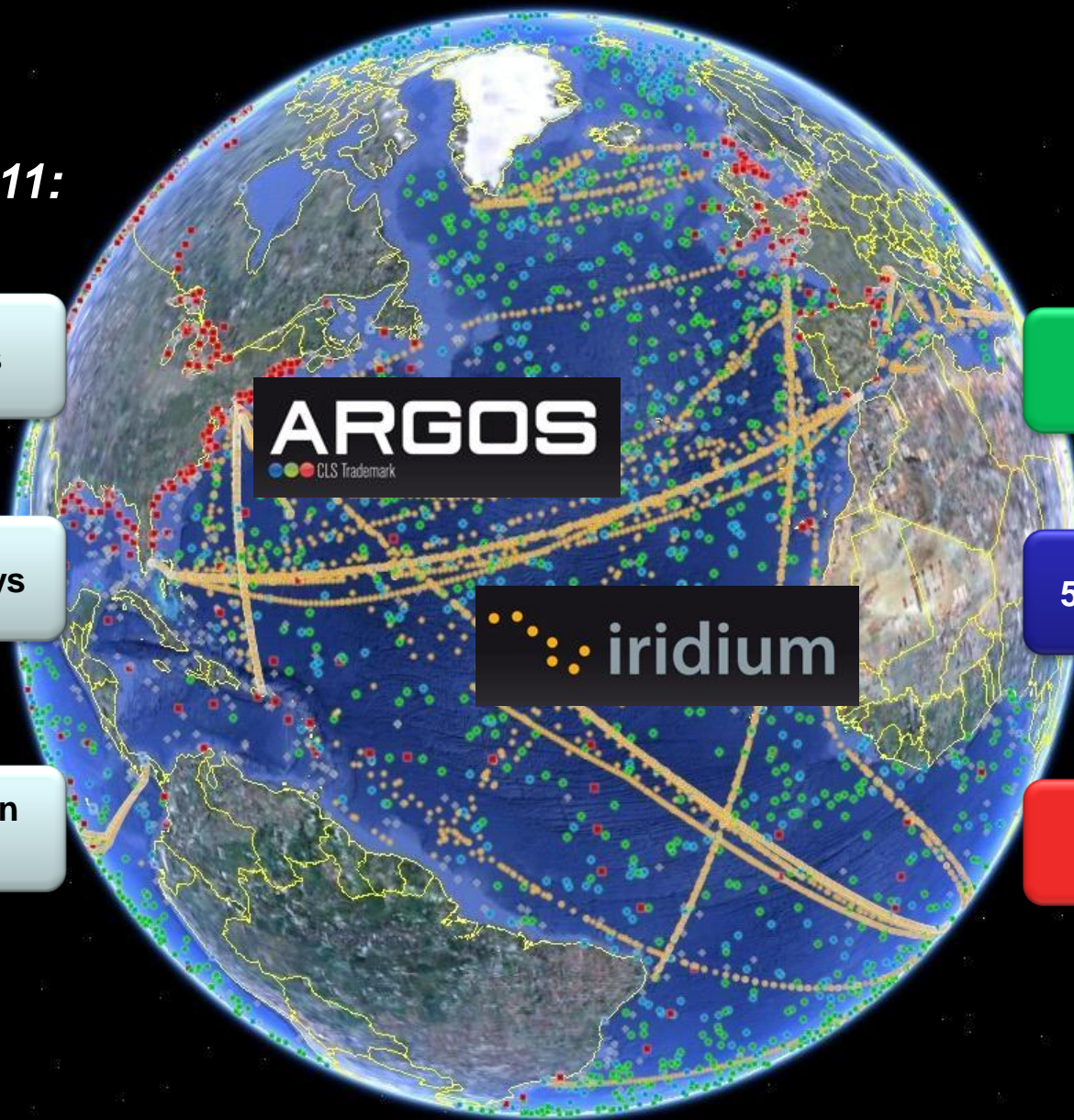
1 900 drifting buoys

1 410 others ocean  
platforms

6840 animal tags

5570 fishing vessels

13 240 ships



# CLS and GOOS

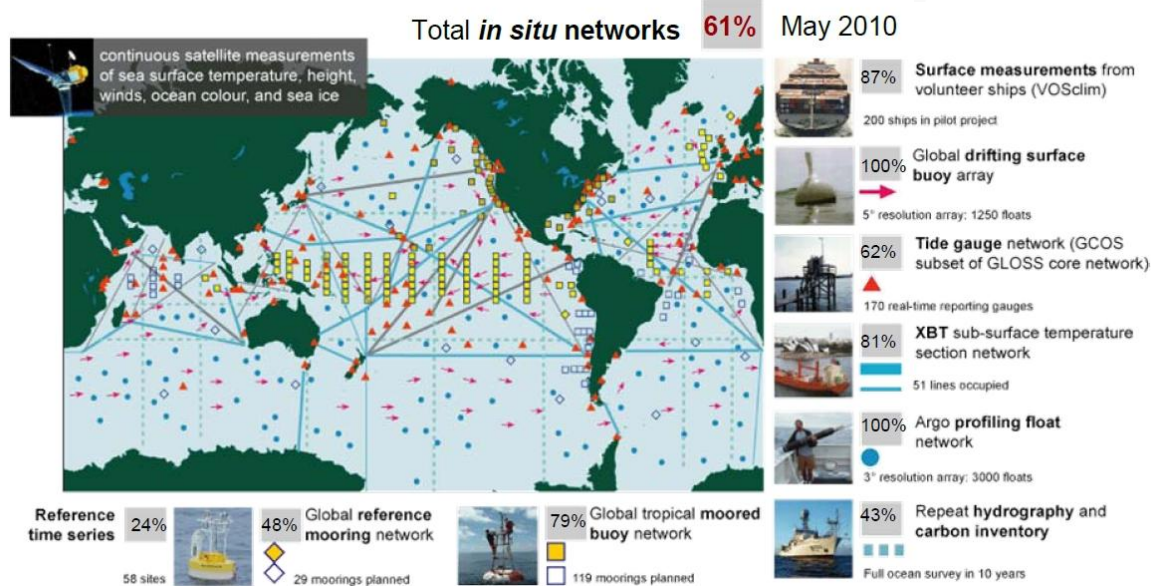
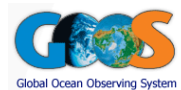


PAGE 6

- 25 years of close collaboration with IOC and WMO
- The key international in-situ oceanography programs use Argos



## Initial Global Ocean Observing System for Climate Status against the GCOS Implementation Plan and JCOMM targets



- Transmission of in-situ data from ocean buoys to information networks (GTS, Coriolis,...)
- CLS hosts and work closely with the JCOMMOPS



# ARGOS



PAGE 7



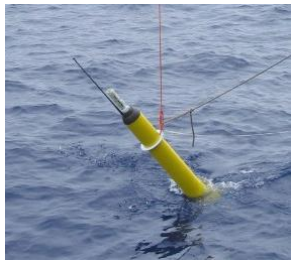
## FEATURES

Global coverage

GPS free positioning

Low power consumption

Robust in harsh conditions



## ARGOS-3

2-way service

Interactive mode with ACK

Transmission only over sat. pass

|                  |          |
|------------------|----------|
| Argos-3 uplink   | 4800 bps |
| Argos-3 downlink | 400 bps  |

**GPS**

**Argos with Kalman  
filtering method**

**Example: INSU Slocum glider "Campe"  
[19/05/10 – 08/07/10] Deployed off the  
coast of Toulon (France)**

Image © 2011 IGN-France

Image © 2011 GeoEye

Data SIO, NOAA, U.S. Navy, NGA, GEBCO





# IRIDIUM



PAGE 9



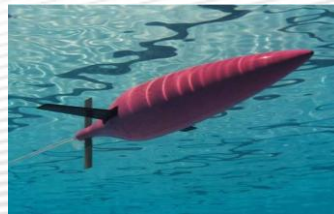
## FEATURES

Real time system

High data rate: 2400 bps

Dial-Up or Short Burst COMS

2-way service



## RUDICS

Integrated data solutions

End-to-End IP connection

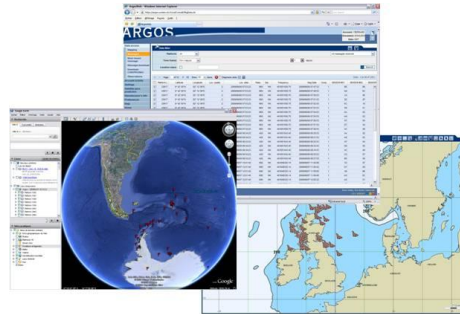
Designed to support several remote units

# One stop shopping for Argos & Iridium



## CLS provides :

- IDs and SIM cards
  - Airtime, COMS services
  - RUDICS Accounts
  - Several ways to easily access your data
- 
- Material and expertise
  - Engineering support





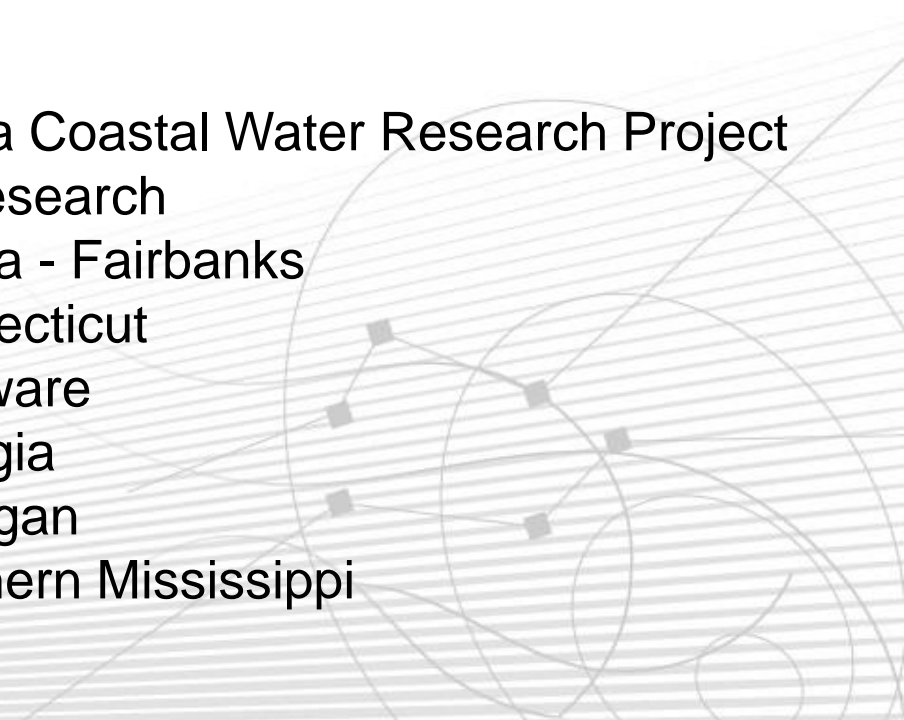
# Glider programs supported by CLS

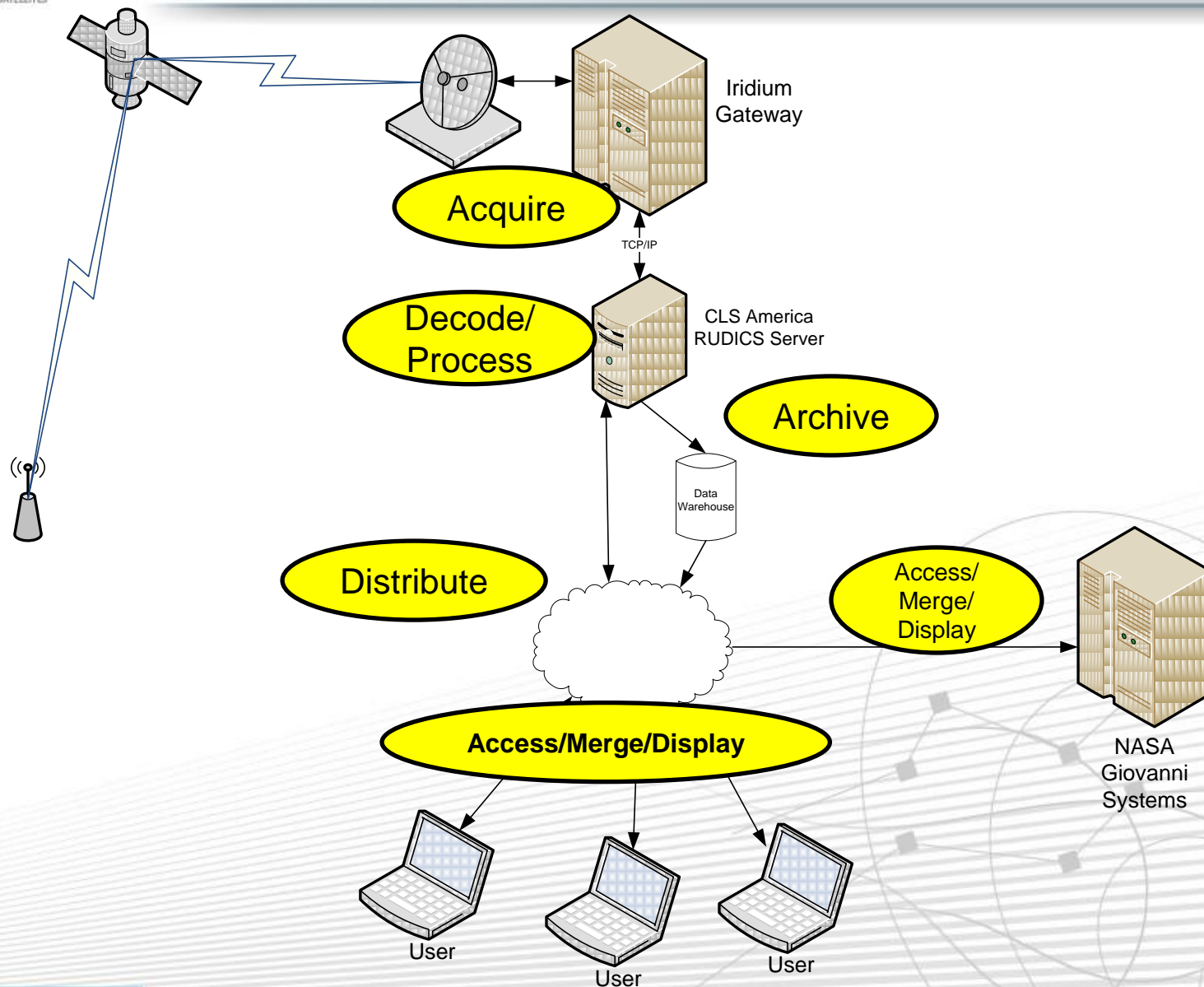


PAGE



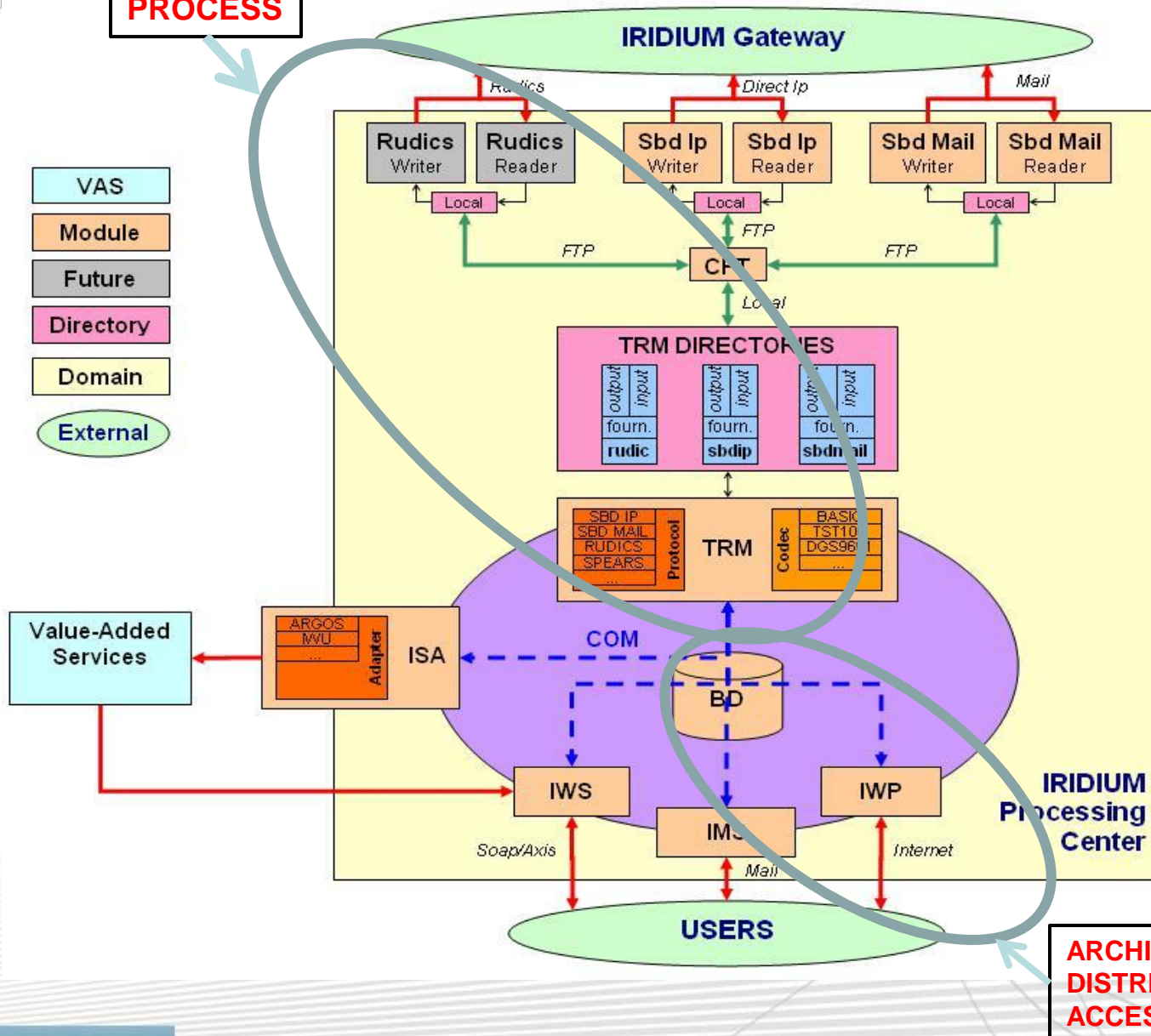
- Dalhousie University
- Florida State University
- IFM - GEOMAR
- King Abdullah University Of Science & Technology
- MOTE Marine Lab
- NURC
- Optimare (for AWI)
- Rutgers University
- Southern California Coastal Water Research Project
- Teledyne Webb Research
- University of Alaska - Fairbanks
- University of Connecticut
- University of Delaware
- University of Georgia
- University of Michigan
- University of Southern Mississippi







**ACQUIRE  
DECODE  
PROCESS**



**ARCHIVE  
DISTRIBUTE  
ACCESS/MERGE/DISPLAY**

# THANK YOU !!!

## CONTACTS :

[oceanservices@cls.fr](mailto:oceanservices@cls.fr)

US & CANADA: [Iridiumservices@clsamerica.com](mailto:Iridiumservices@clsamerica.com)