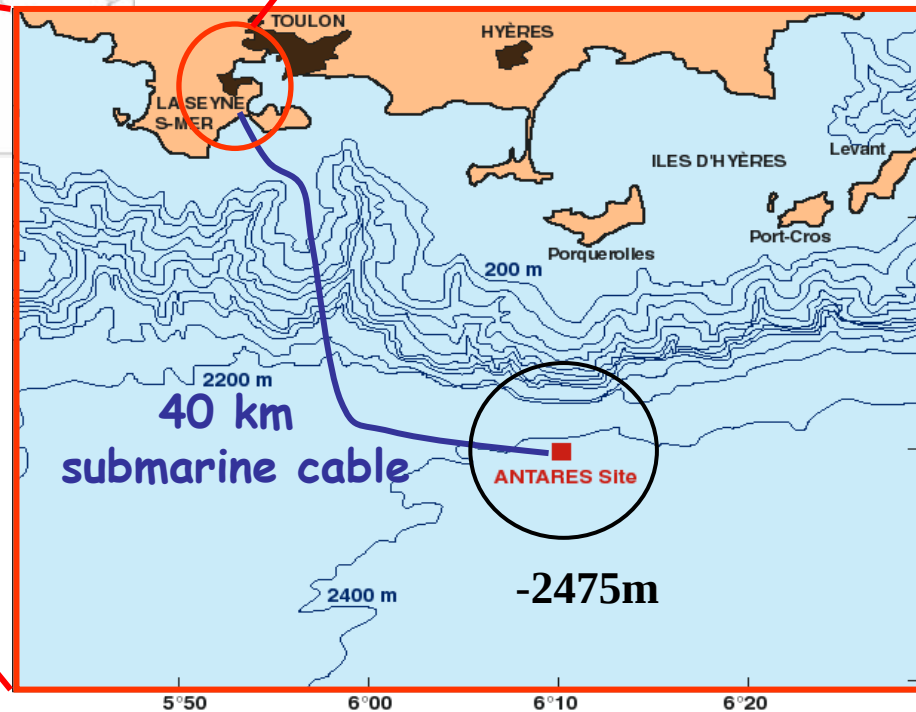
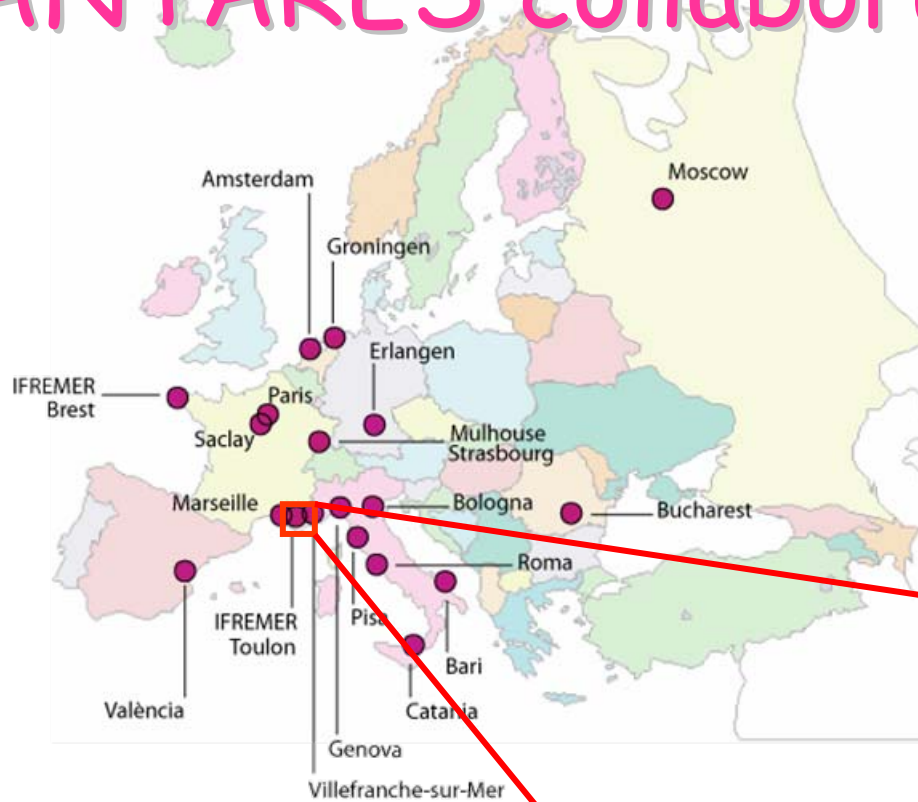


Antares Slow Control Status

Jean-Michel Gallone
on behalf of the **ANTARES** Collaboration

**2007 International Conference on Accelerator and Large Experimental
Physics Control Systems - Knoxville, Tennessee - October 15-19, 2007**

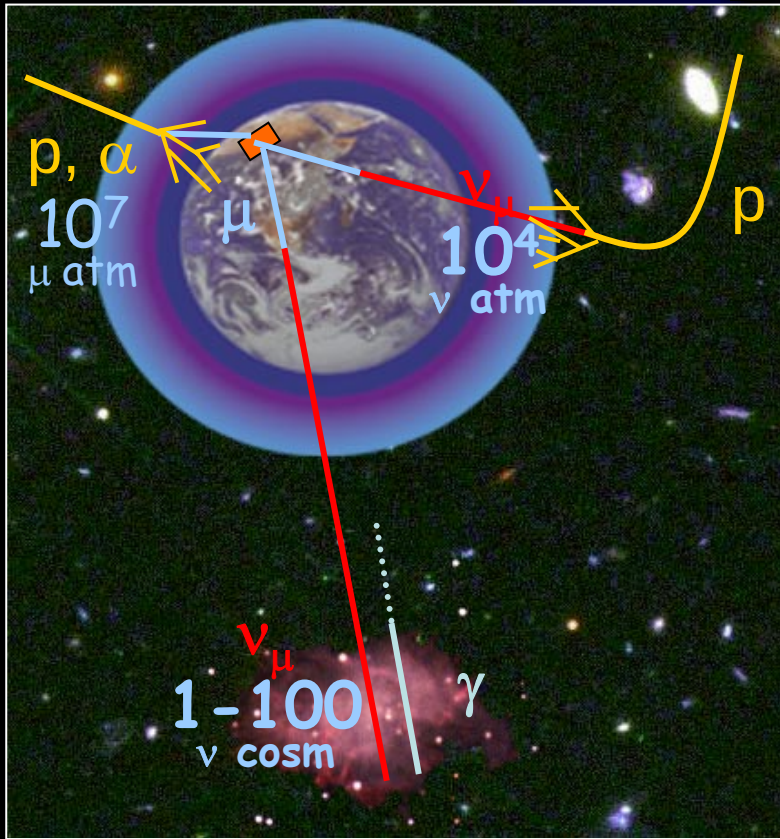
ANTARES collaboration and location



23 Institutes from
7 European countries



Neutrino telescope: Detection principle



Cherenkov light from μ

3D PMT array

$\gamma_{\check{c}}$

Sea floor

43°

interaction

μ

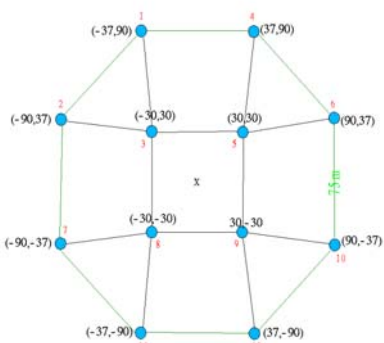
Reconstruction of μ trajectory ($\sim \nu$) from timing and position of PMT hits

Detector layout

12 lines (900 PMTs)

25 storeys / line

3 PMTs/storey



Horizontal layout

14.5 m

350 m

40 km to
shore

100 m

Junction
box

Readout cables

Sea bed ~ -2500 m

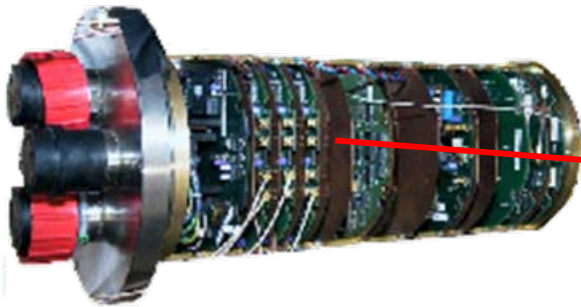
a storey



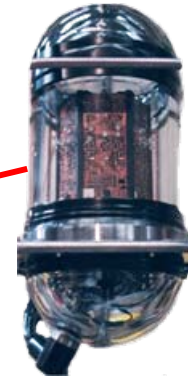
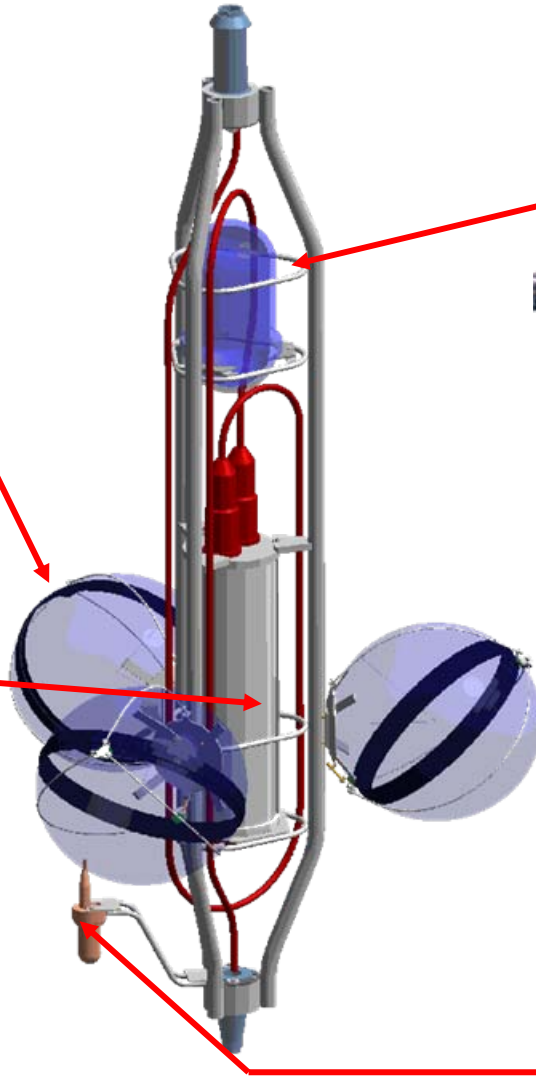
Basic detection and calibration elements



Optical Module:
10" PMT in 17" glass sphere
photon detection



Local Control Module
(in Ti container):
*Front-end ASIC,
Clock, DAQ/SC,
compass/roll/pitch*

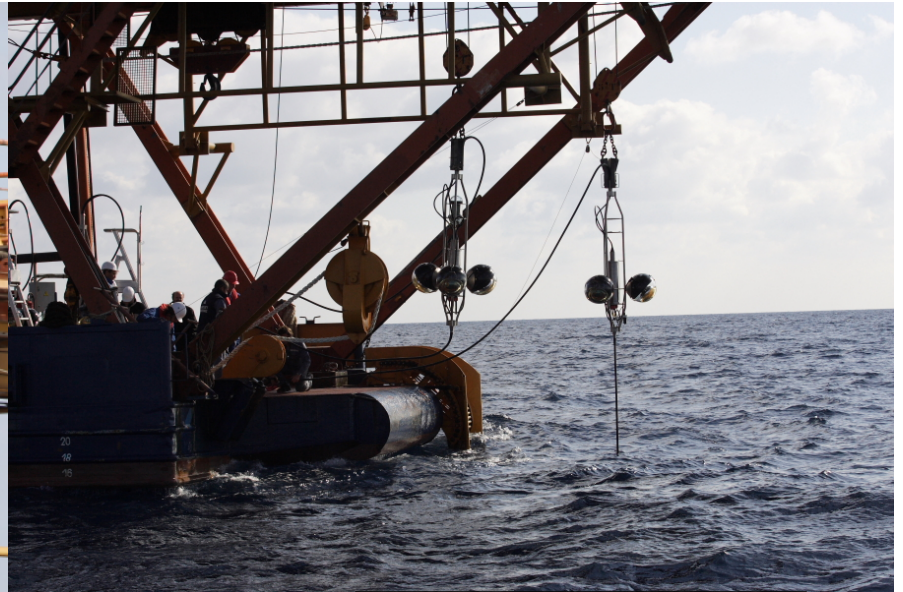


Optical Beacon
with blue LEDs:
*timing
calibration*

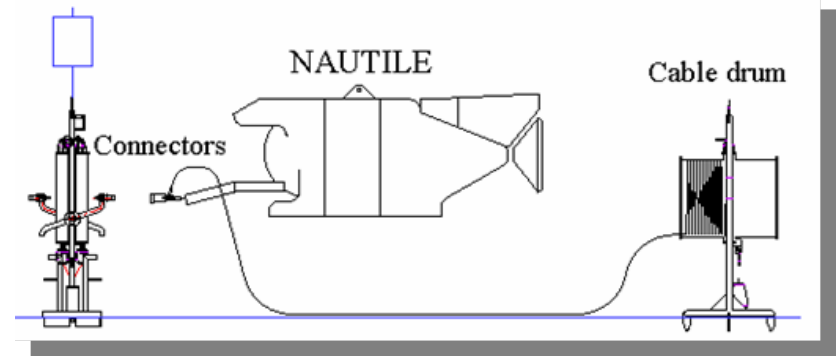
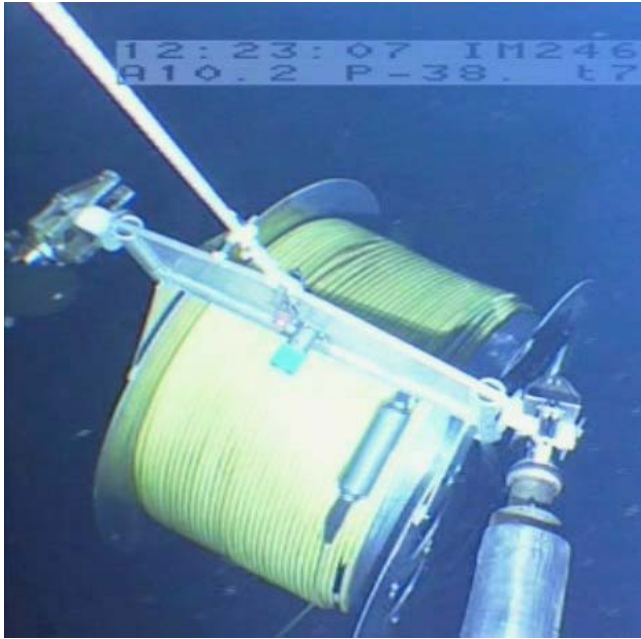


Hydrophone:
acoustic positioning

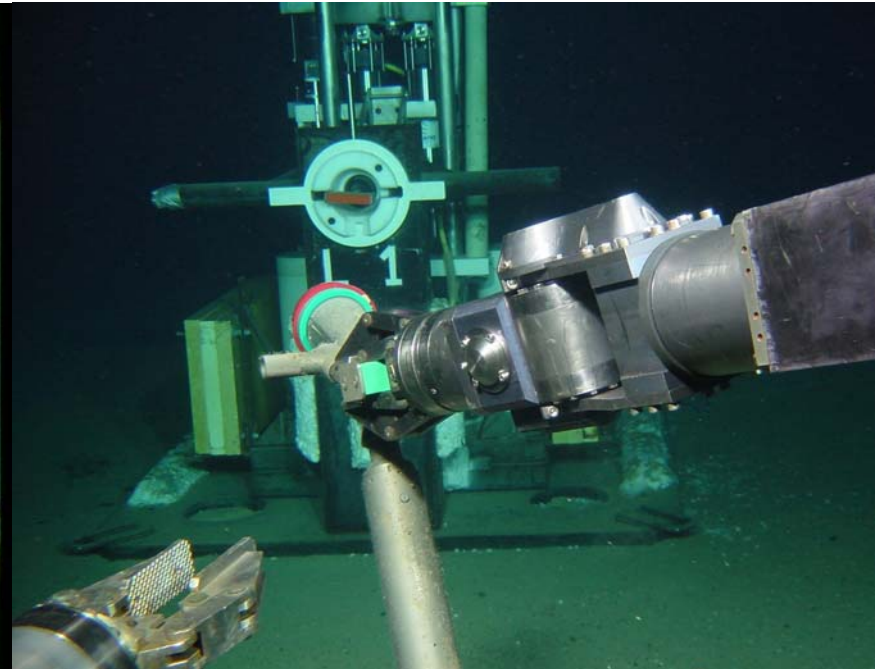
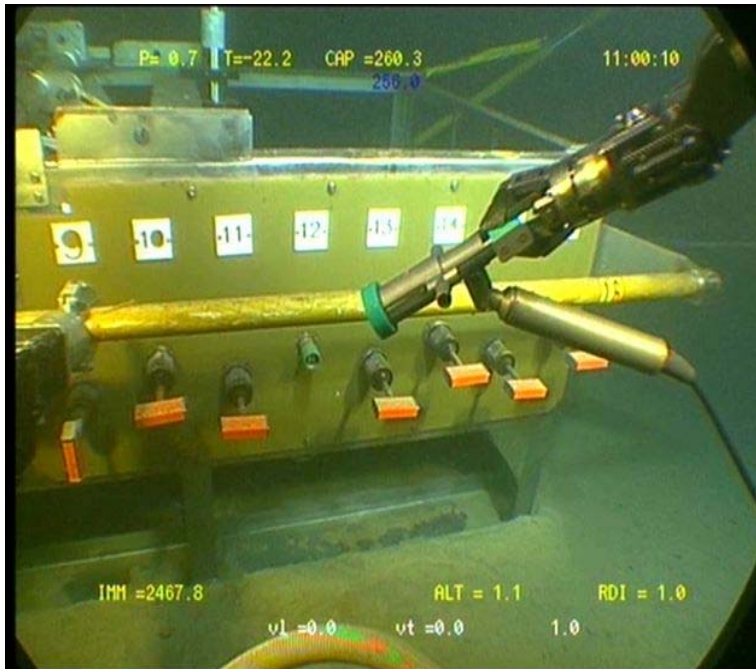
Detector line deployment



Submarine detector line connection



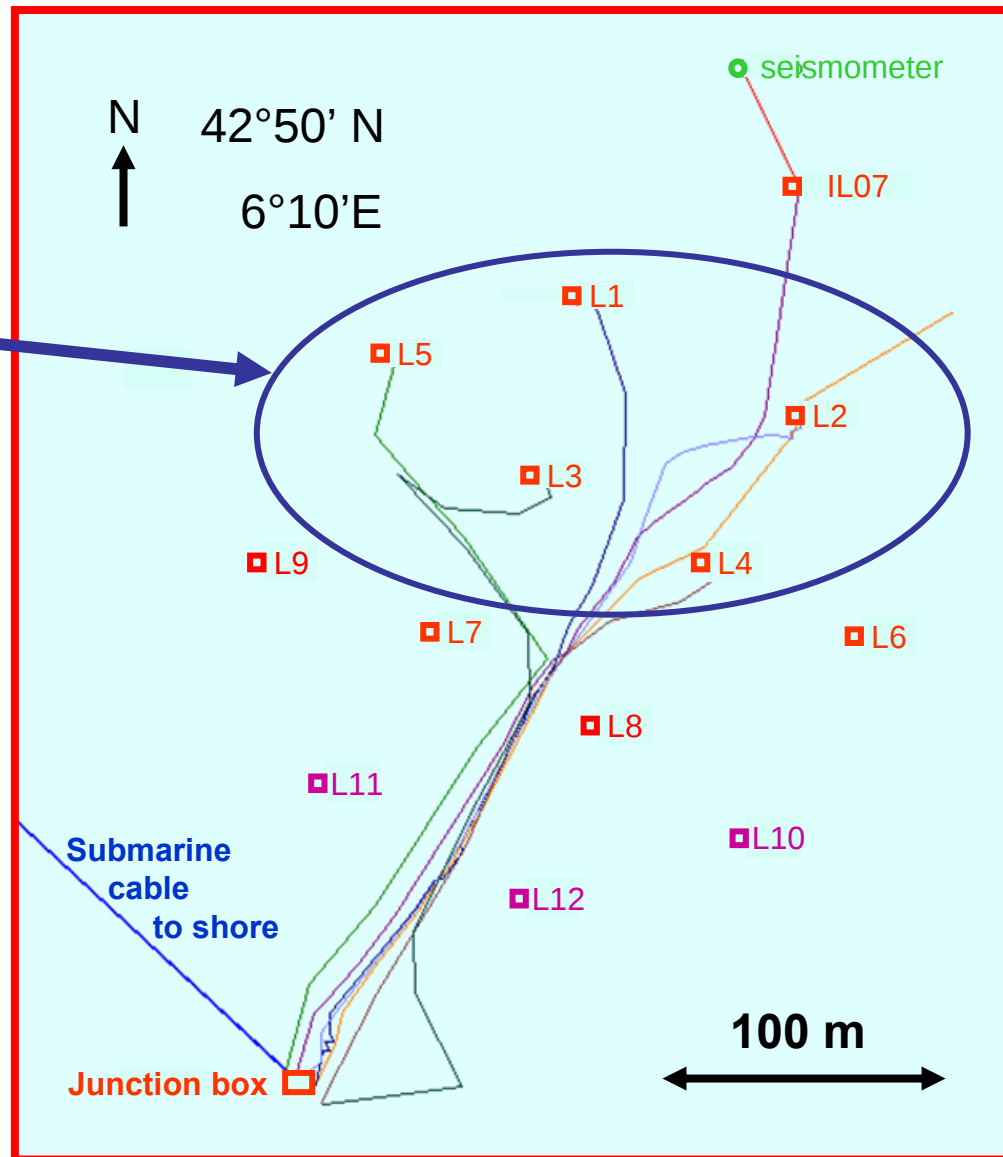
Submarine detector line connection



9+1 lines in sea, 5 in operation

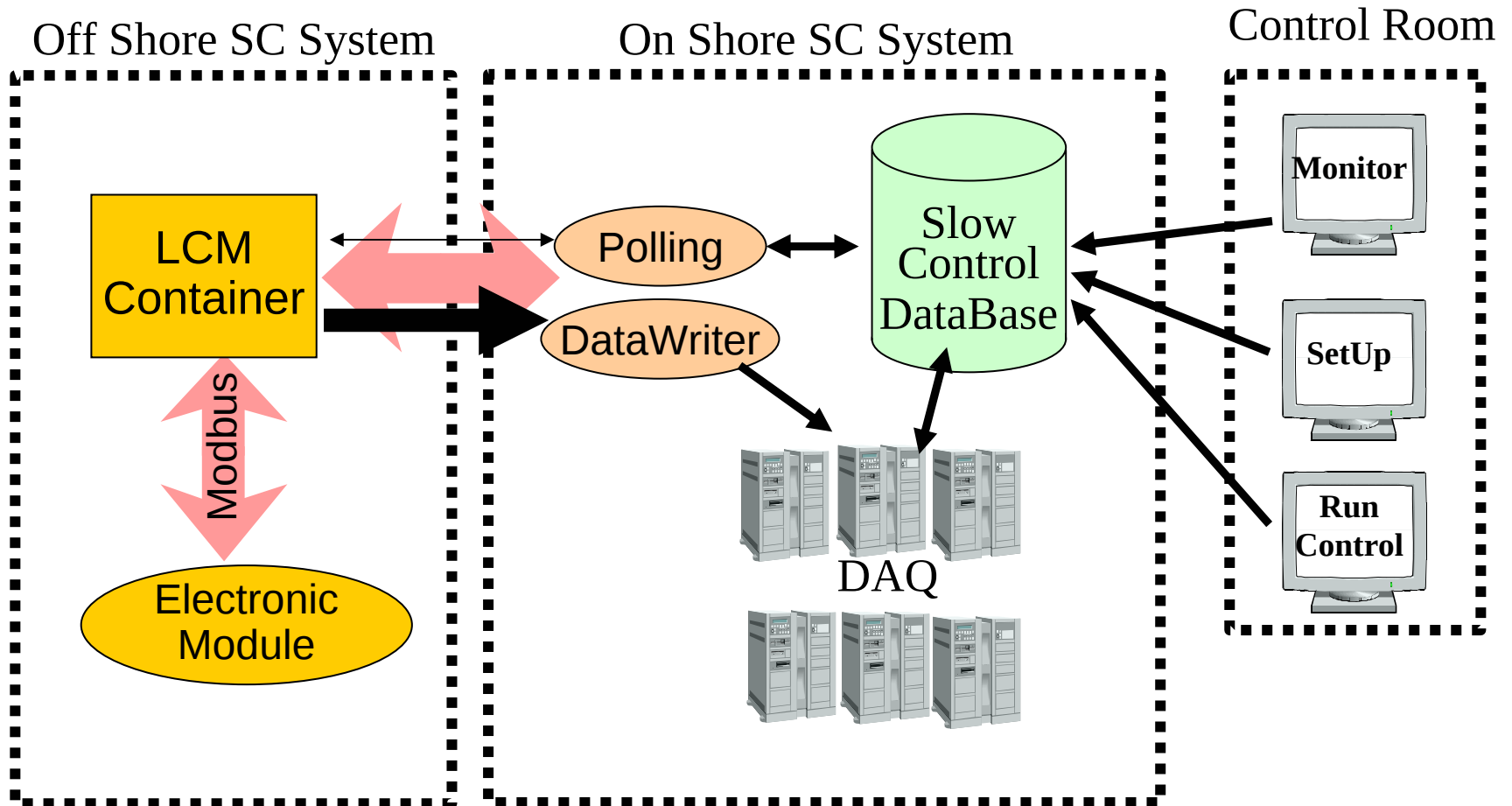
(Sept. 2007)

5 lines detector
(since January 29th)





Status store in Database





Database Tables

Oracle DataBase – Store in CCIn2p3 @ Lyon

**Product Structure
Tables**

**Construction
Tables**

**Integration
Tables**

**Set Up
Tables**

**Modbus
Tables**

**Polling
Tables**

**Process List
Tables**

**Raw Data
Tables**

**Parameter
Tables**

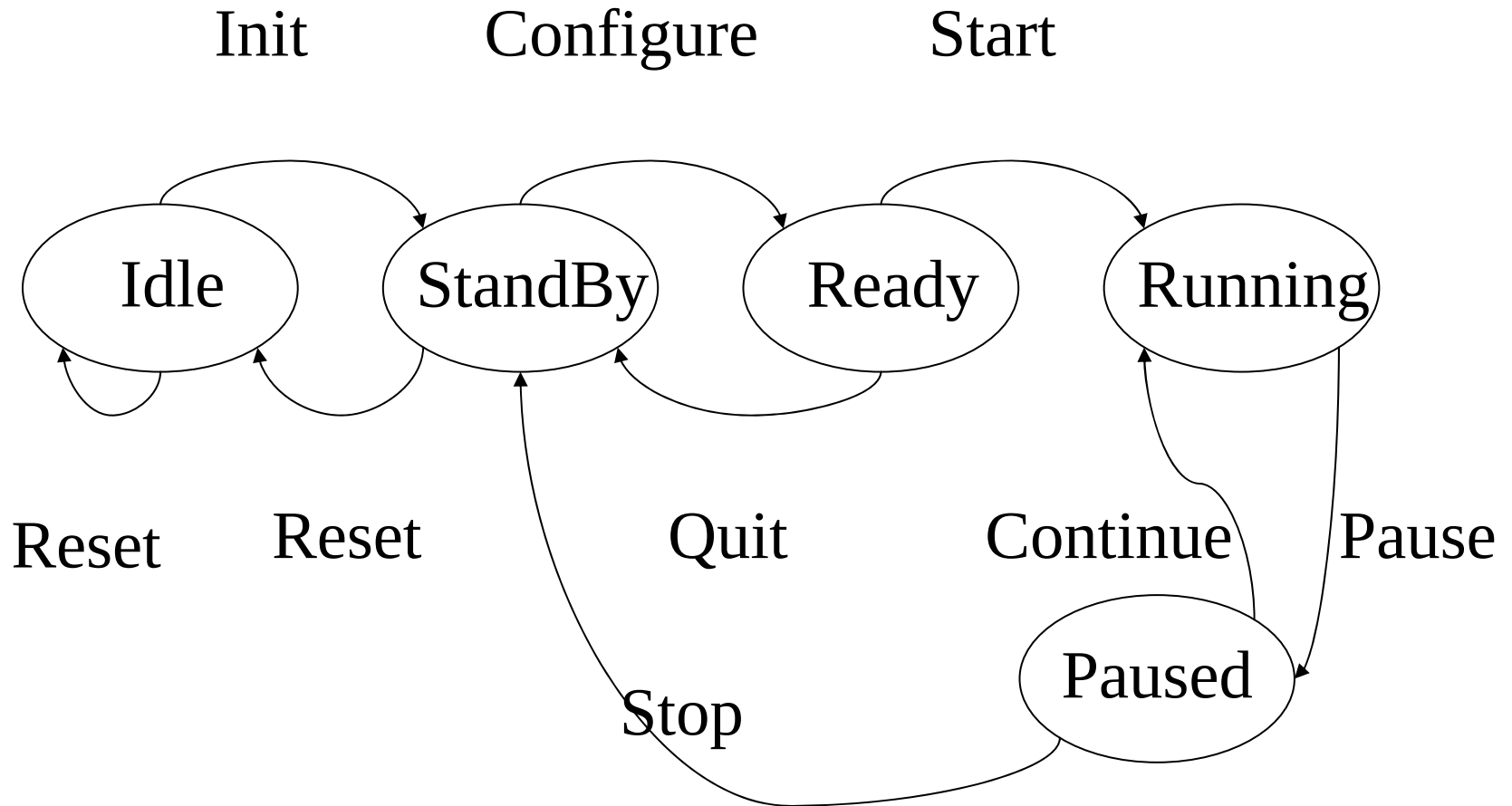
**Run
Tables**

**Monitored Values
Tables**

**Calibration
Tables**

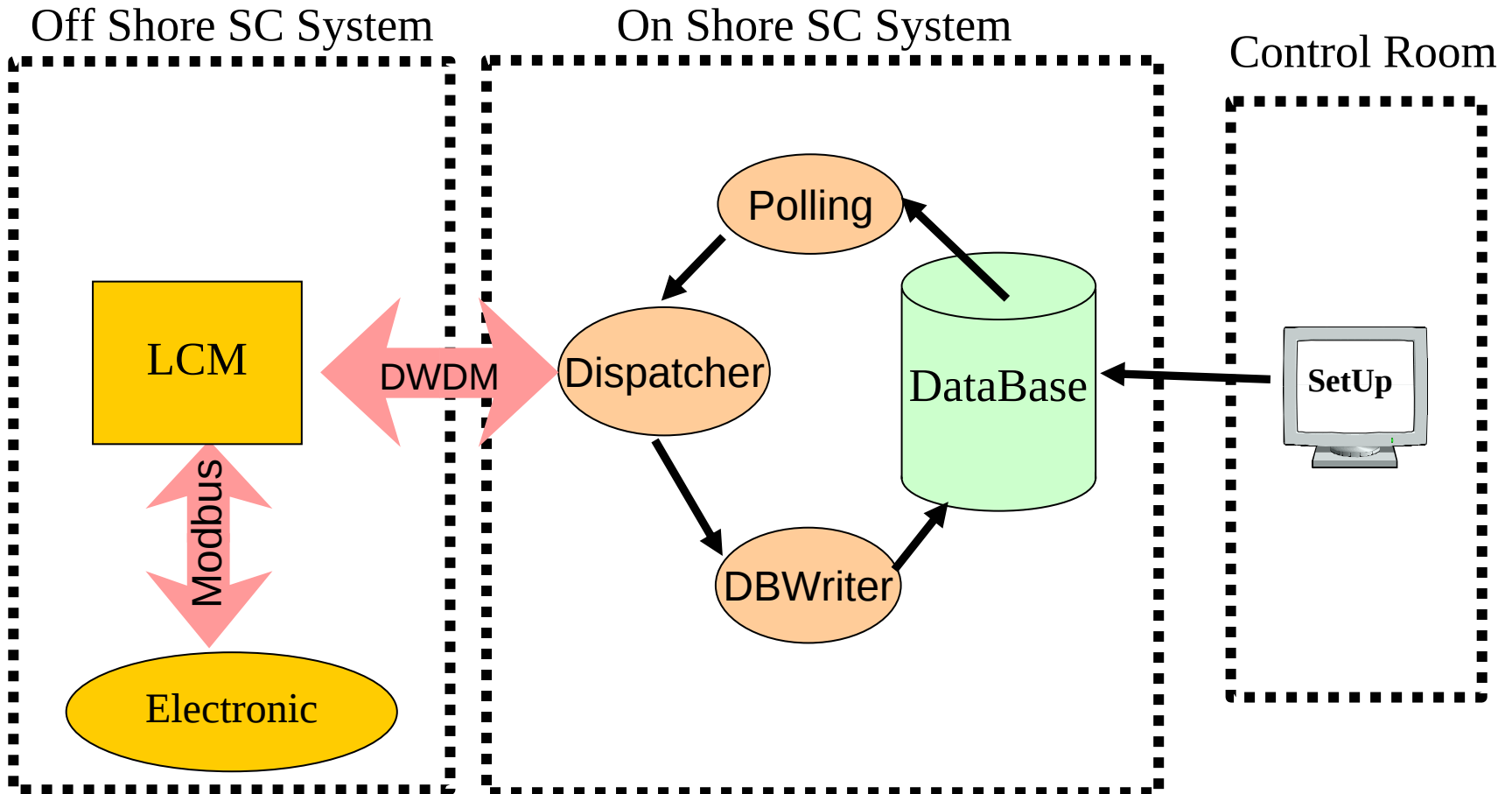


DAQ / SC Synchronisation



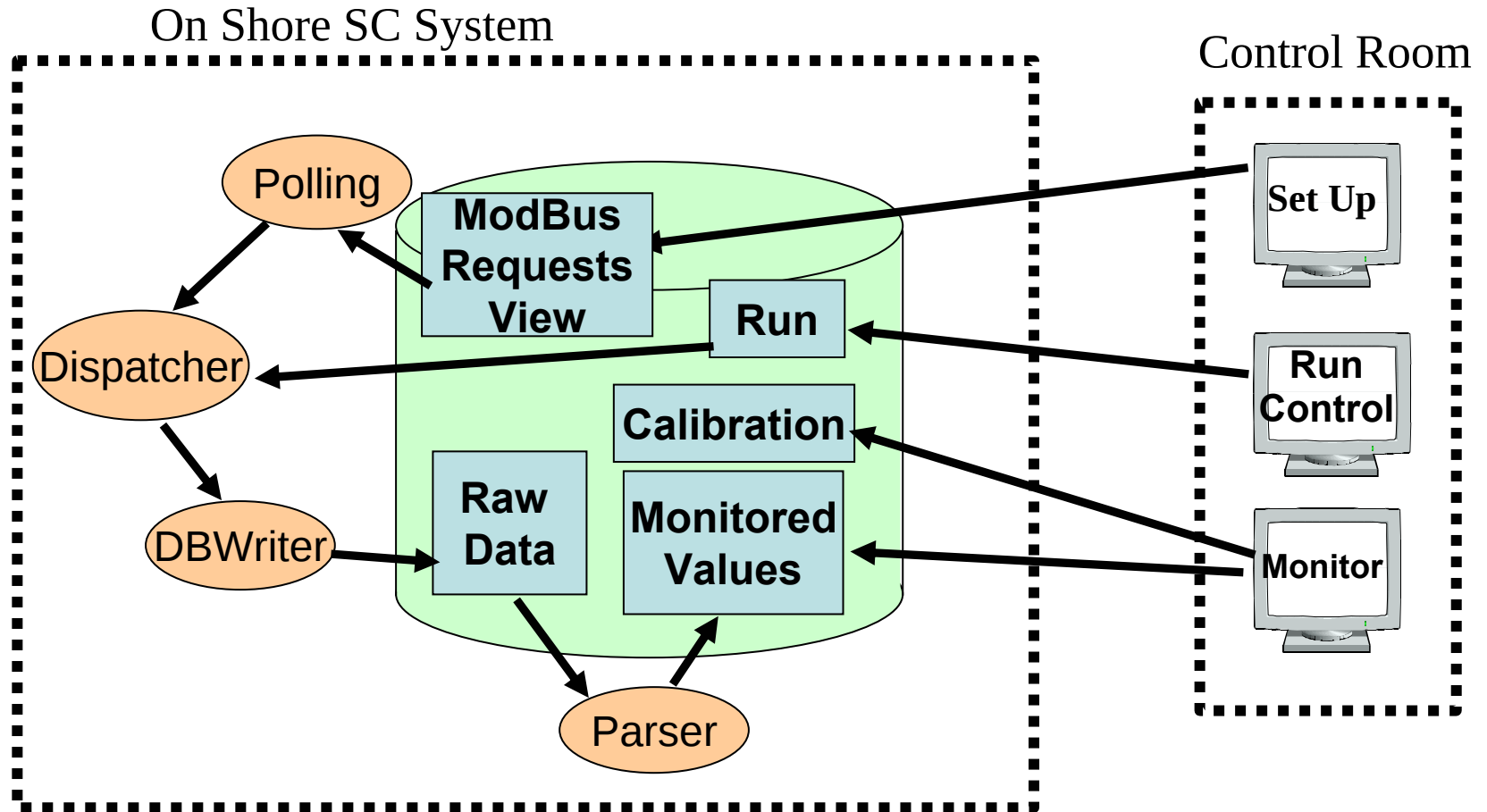


Raw Data Update



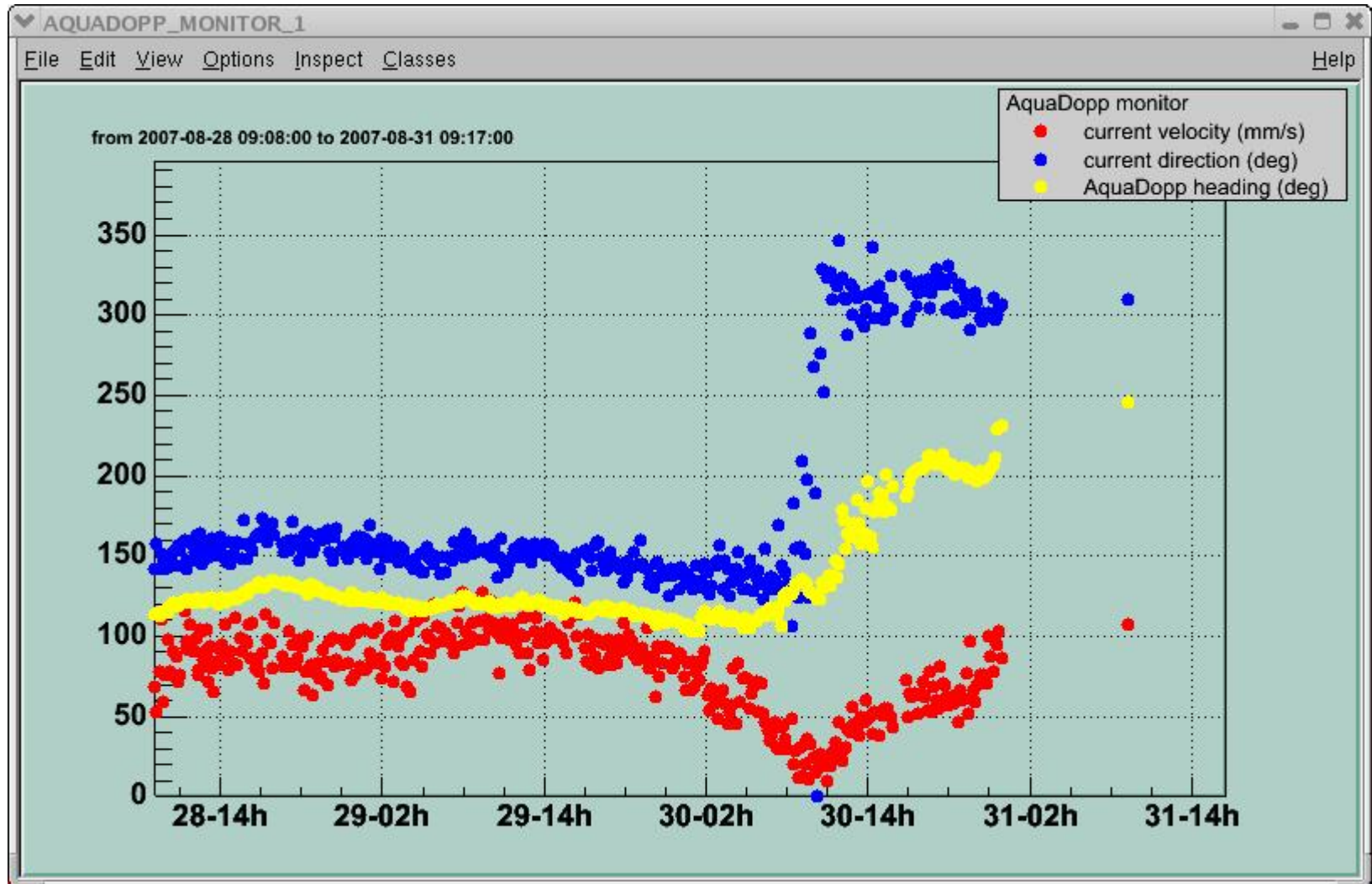


Monitoring Data Path



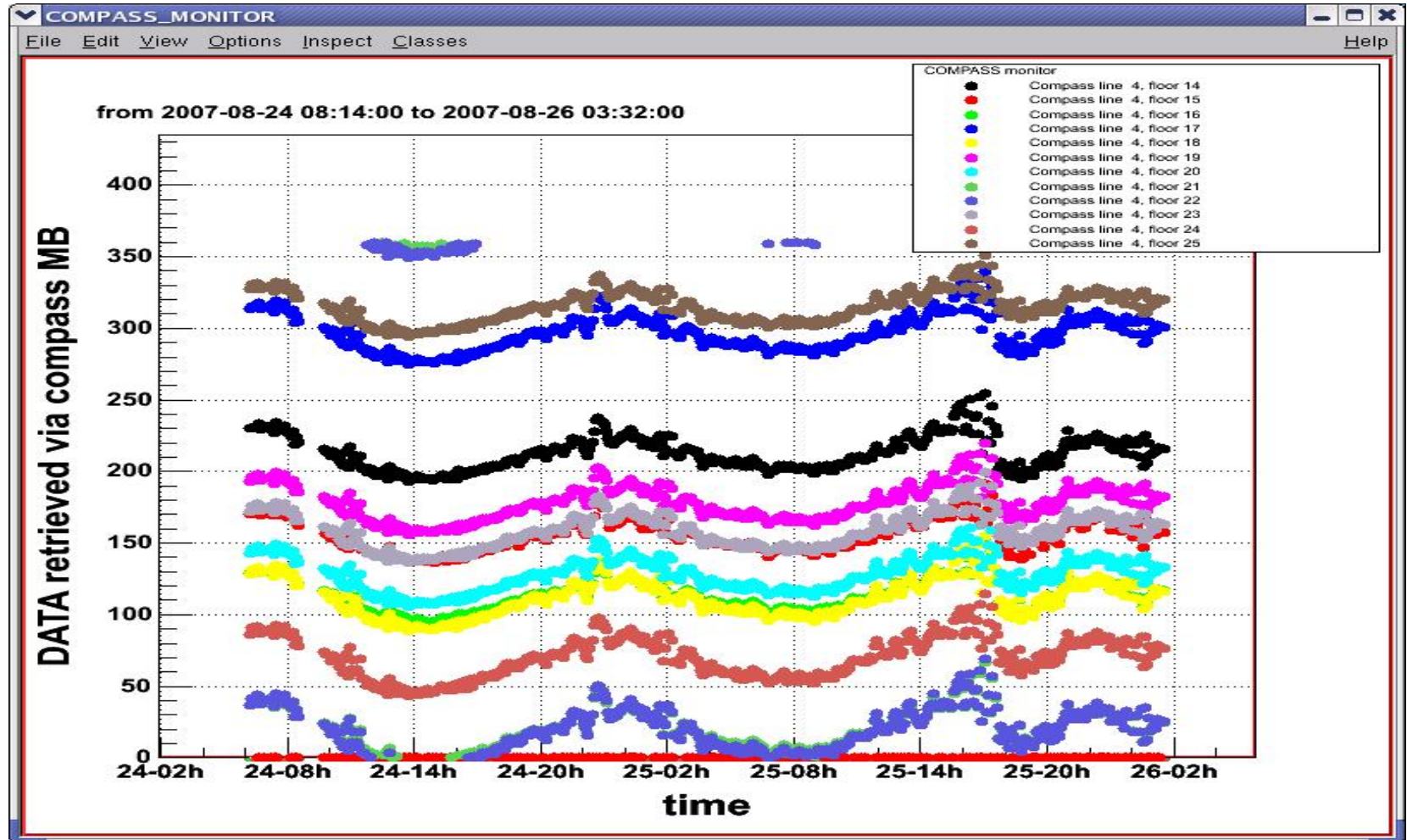


Sample 1 : Aquadopp Monitor





Sample 2 : Compass Monitor



Summary

- 3D ANTARES detector operational with 5 lines; 4 extra lines in the sea waiting to be connected, 12 lines detector completed early 2008
- Slow control records detector status in database
- Biggest tables are about 1 GB / Years / Line
- Monitor GUI are provided but can be easily generated by users
- Several millions of down going events available to study detector behavior in various bioluminescence conditions
- First underwater neutrino candidates reconstructed in the Mediterranean sea
- More on <http://antares.in2p3.fr>