



# Discussion on shifts

Anne Stutz for the LPSC team

# Objectives

- Switch to shift mode next week for training and completion of the procedures
- List all items to be monitored
- Make a list of experts
- Check that tools to control and monitor the entire detecting system are developed and deployed
- Prepare missing documentation

# Normal operation shifts

- Every day, the shifter must control the safe state of the detector, the data taking and the data quality.
- The shifter must be reachable 24h/24h in case of alarm.
- Experts are on call in case of problem
- 1 shifter/day → 2 weeks/person/year (on the basis of 24 physicists)
- Proposition to have one week per lab ?

Shifter	Permanents	PHD/Postdoc	<b>Total</b>
CEA/Irfu	3	3	<b>6</b>
ILL	1	1	<b>2</b>
LAPP	2	1	<b>3</b>
LPSC	5	3	<b>8</b>
MPIK	1	4	<b>5</b>
Total	12	12	<b>24</b>

# Commissioning shifts

- We will have very short time for commissioning if we want to use the next 2 reactor cycles before march for physics analysis
- Control the detector as in normal operation
- Perform first studies of the detector response and of the background to adjust the trigger conditions and understand the data
- All experts must be present at start-up operations
- **More than 1 shifter per day in the first 2 weeks ?**
- **We need to perform fast analysis to have quick feedback**
- **We need to organize an efficient commissioning and analysis task force**

# Control the safe state of the detector

- Detector sensors: Pressure, Temperature, LS Level (Irfu-MPIK-LPSC)
  - ✓ All sensors are deployed and tested in lab
  - ✓ Readout and Alarms via NOMAD
  - ✓ Alarms are reported to the reactor staff (to be finalized – Y. Piret Saclay)
  - ✓ Values are stored in real time in DB and **controlled with the WebSite**
- Veto sensors: water level, temperature (LPSC)
  - ✓ Temperature same as for the detector
  - ✓ Water level data are not recorded → **need a periodical check on site**
- Gas system (MPIK)
  - ✓ **Visual control on site**
- Actions in normal operation
  - **N2 bottle replacement**, once a month ? ...
- **We need to write documentation and Procedures in case of alarms**
  - HV Shutdown, emptying in case of LS leakage ...

# Control the data taking

- PMT HV (LPSC – JSR)
  - ✓ Configure, readout and alarms can be done with NOMAD
  - ✓ Script to fill values in the Database
  - ✓ Control status and values on the Stereo Monitoring Website
- Status of Electronics boards (FEs, Trigger and LED boards) (LPSC –OB)
  - ✓ Tested by NOMAD at beginning of run
  - ✓ Script to fill values in the Database
  - ✓ Control status on the Stereo Monitoring WebSite
- Status of the DAQ/NOMAD (ILL ?, LPSC)
  - ✓ to be developed / discussed with ILL
- Control that the DAQ parameters are correct (LPSC – VH)
  - ✓ Protect DAQParam files in normal operation (LPSC - JL)
- Documentation on NOMAD and DAQ parameters in progress
- Training courses on NOMAD at the end of the meeting

# Control the Data taking

- Scalers (individual PMTs) (LPSC – JSR, VH)
  - ✓ Instantaneous values are displayed on the local PC
  - ✓ DB filling during Pre-processing at the end of the Run
  - ✓ Control the rates on the Website available after the end of the Run
- Trigger rates (LPSC – JSR, VH)
  - ✓ Instantaneous values on the local PC
  - ✓ Transfer to the DB to be developed in Pre-processing (LPSC - VH)
  - ✓ Control on the WebSite after the end of the Run in progress (LPSC - AS)
- Individual spectra (LPSC – JSR)
  - ✓ Online visualization for the current Run on the local PC

# Control the Data taking

- ✓ Data transfer NOMAD PC → ILL data server Serdon (ILL-SCI)
- ✓ Backup on Serdon (ILL-S.Info)
- Data transfer Serdon → LPSC (ILL-S.Info)
  - ✓ Rsync (ILL-S.Info)
  - ✓ Control the status on the WebSite, TBD (LPSC -AS)
- Pre-processing at LPSC
  - ✓ Script to produce 'friendly' ROOT file and analyze PE Runs (LPSC – VH)
  - ✓ Control the status of the script on the WebSite, TBD (LPSC - AS)
- Data transfer LPSC → CCIN2P3
  - ✓ Script to transfer data via iRODS (LPSC - AS)
  - ✓ Control the status of the script on WebSite TBD (LPSC - AS)



# Control the Data Quality

- PE runs (LPSC – VH)
  - ✓ Automatic analysis (PE fit) during Pre-processing
  - ✓ Control and validation of the fit on the WebSite
- Single LED runs
  - ✓ Automatic analysis during Pre-processing (LPSC - VH)
  - ✓ Control on the WebSite (LPSC - AS)
- Linearity runs
  - ✓ Analysis code exists, to be automatized (LPSC - TS)
- Calibration spectra with sources
  - ✓ Reference spectra to be developed (Analysis team)
- Reconstructed spectra
  - ✓ Reference spectra to be developed (Analysis team)
- Veto efficiency
  - ✓ To be developed (Analysis team)

# Control the Data Quality

- Check that all external quantities are recorded (to be developed)
  - ✓ Magnetic field (Jacob)
  - ✓ Neutron background (Jacob)
  - ✓ IN20 and D19 configurations (ILL/Felix ?)
  - ✓ Reactor status (ILL/Felix ?)
  - ✓ Atmospheric pressure (Anne)

<https://data.ill.fr/reactor/>

# Conclusion

- During the shift training phase
  - Finalize and test all tools required to control and monitor the detector
  - Write missing documentations and procedures
- STEREO Office, ILL1 room 52
- ILL Logbook (ILL visitor club user)  
<https://logs.ill.fr>
- Nomad status  
<http://nomad.ill.fr/?stereo>
- Reactor shutter status  
<https://data.ill.fr/reactor/>
- STEREO Monitoring WebSite  
<http://lpsc.in2p3.fr/stereo/WebSite>

# Nomad logbook

<https://logs.ill.fr>

The screenshot displays the Nomad logbook interface. At the top, there are navigation elements: 'Logs', 'My experiments', and 'Logout stutz'. Below this, there are filters for 'All families', 'Now', and 'Period'. The main content area shows the following details:

- Cycle: 2016-2
- Instrument: STEREO
- Proposal: ST-4
- Actions: [gear icon]

The log entries are as follows:

Timestamp	Event
2016-10-12 12:04:54	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:04:57	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:05:04	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:05:04	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:06:34	Count stopped
2016-10-12 12:06:34	Count Numor: 90 Time: 115.19 Detector: 141087 (1224.87)
2016-10-12 12:07:36	Nomad server is running
2016-10-12 12:08:01	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:08:01	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:08:08	Users'scripts --> cosmic
2016-10-12 12:08:10	DAQ_param Run 20161012_120810 started
2016-10-12 12:08:11	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:08:21	ERROR ::ICPCon7217_2 Timed out -> Read Modbus
2016-10-12 12:10:56	Count stopped
2016-10-12 12:10:56	Count Numor: 91 Time: 165.80 Detector: 199941 (1205.88)
2016-10-12 12:10:59	Users'scripts --> cosmic
2016-10-12 12:11:01	DAQ_param Run 20161012_121101 started
2016-10-12 12:11:45	Count stopped
2016-10-12 12:11:45	Count Numor: 92 Time: 43.69 Detector: 52204 (1194.87)
2016-10-12 12:13:14	Users'scripts --> cosmic
2016-10-12 12:13:15	DAQ_param Run 20161012_121315 started

# Access to data on Serdon

- <https://data.ill.fr/proposal/>

The screenshot displays the Data Portal interface. At the top, there is a navigation bar with the logo, 'Data Portal', and links for 'Experimental Data', 'Reactor Shutters', and 'Help'. The user is signed in as 'Anne STUTZ'. The main content area is divided into several sections:

- Global Search:** A search bar with a 'Search' button and an option to 'Include experiments without data'.
- Advanced Search:** A section with various filters including 'My role in the experiment', 'Member', 'Cycle', 'Instrument', 'Proposer', 'Attached documents', and 'Data Metadata or Numor'. It also includes a 'Search' button and an option to 'Include experiments without data'.
- Experiments list:** A section showing a list of experiments. The selected experiment is 'Experiment ST-4', which is expanded to show a tree view of folders: '161/stereo/exp\_ST-4' (containing 'histo', 'logfiles', 'processed', 'rawdata') and '162/stereo/exp\_ST-4' (containing 'histo', 'logfiles', 'processed').
- Data:** A section showing a list of data files with checkboxes and file names and sizes, such as 'data\_20160822\_085226.root416 MB'.

# Nomad status

<http://nomad.ill.fr/?stereo>

Instrument: stereo 12/10/2016 - 12:21:04 Nb.Columns: 4

REC		Temperature		Pressure		Caen_HV	
Type	Count	TDet1	27.3019°C	Pabs	970.122mbar	i0set.0	500
run	93	TDet2	27.1187°C	Prel	1.03128mbar	i0set.1	500
Σ mon1	0	TDet3	27.192°C	PLevel1	0.0238041mbar	i0set.2	500
rate mon1	0	TDet4	27.2652°C	PLevel2	0.197757mbar	i0set.3	500
Σ det	554924	TVeto1	25.9468°C	PLevel3	0mbar	i0set.4	500
rate	1185.59	TVeto2	25.8919°C	PLevel4	0.131838mbar	i0set.5	500
0h7m / 1 hrs - finishes at 01:13:58		SampleTemp7	-100.003°C			i0set.6	500
		TLEDBox1	26.4229°C			i0set.7	500
PMTs		TLEDBox2	26.4779°C			i0set.8	500
		TLEDBox3	26.3314°C			i0set.9	500
		TLEDBox4	26.1849°C			i0set.10	500
		TLEDBox5	26.1299°C			i0set.11	500
		SampleTemp13	-100.003°C			i0set.12	500
		SampleTemp14	-100.003°C			i0set.13	500
		TLevel1	32.5521°C			i0set.14	500
		TLevel2	32.5049°C			i0set.15	500
		TLevel3	31.7954°C			i0set.16	500
		TLevel4	32.2577°C			i0set.17	500
						i0set.18	500
						i0set.19	500
						i0set.20	500
						i0set.21	500
						i0set.22	500
						i0set.23	500
						i0set.24	500

User: real  
 Title: Run Cosmic trigger Detector or Veto  
 Subtitle: cosmic

# Reactor shutter status

<https://data.ill.fr/reactor/>

**Data Portal** Experimental Data Reactor Shutters Help ▾ Signed in as Anne STUTZ

B-H3	OS-BRISP	OS-IN1/D4
B-IH3	OS1-CRYO-EDM	OS-IN3
B-H4	OS-CT1	OS-IN4C
BOG-H5	OS-CT2	OS-IN5
<b>B-H8</b>	OS-CYCLOPS	OS-IN6
B-H10	OS-D1B	OS-IN8
B-H11	OS-D3	OS-IN10
B-H12	OS-D7	OS-IN11
B-H13	OS-D9	OS-IN12
	OS-D10	OS-IN13
	OS-D11	OS IN15
	OS-D16	OS-IN16b
	OS-D17	OS-IN20
	OS-D19	OS-IN22
	OS-D20	OS-LADI
	OS-D22	OS-ORIENT
	OS-D23	OS-PF2/VCN
	OS-D2B	OS-S18
	OS-D33	OS-SALSA
	OS D50	OS-SUN
	OS-DIGRA	OS-SUPERADAM
	OS-FIGARO	OS-T3

**Legend**

- Open
- Close
- Fault
- Close Fault
- Security Loop Fault
- Out of order

**Reactor Power**  
**0.00 MW**  
As of 12/10/2016 14:07

**Favourite Shutters**

**Shutters Map**

Leave the mouse pointer over a shutter to get its last event information.

Click on a shutter or the reactor power to get history information about the given element.

Use the top right *Favourite Shutters* button to highlight your favourite shutters.

# STEREO Monitoring WebSite

<http://lpsc.in2p3.fr/stereo/WebSite>

