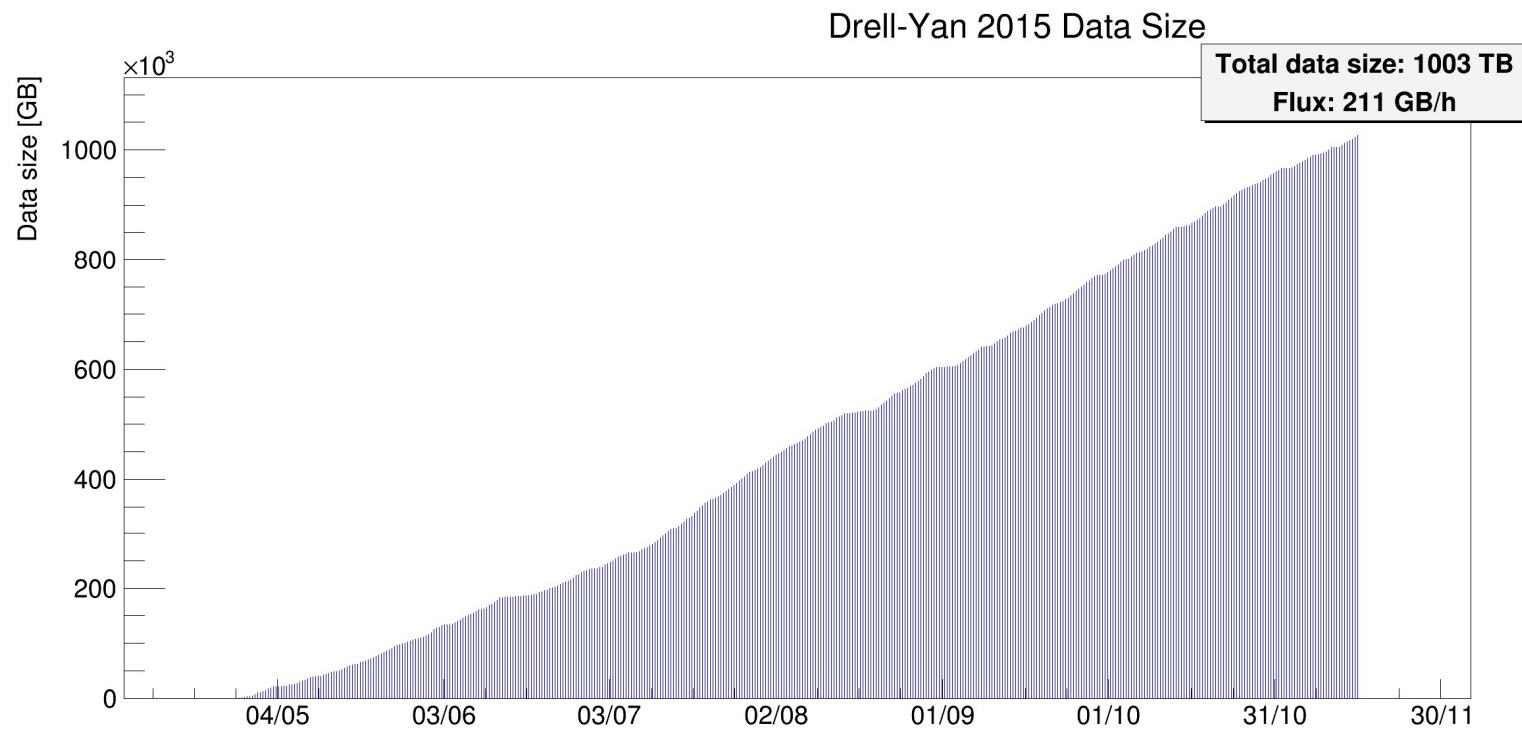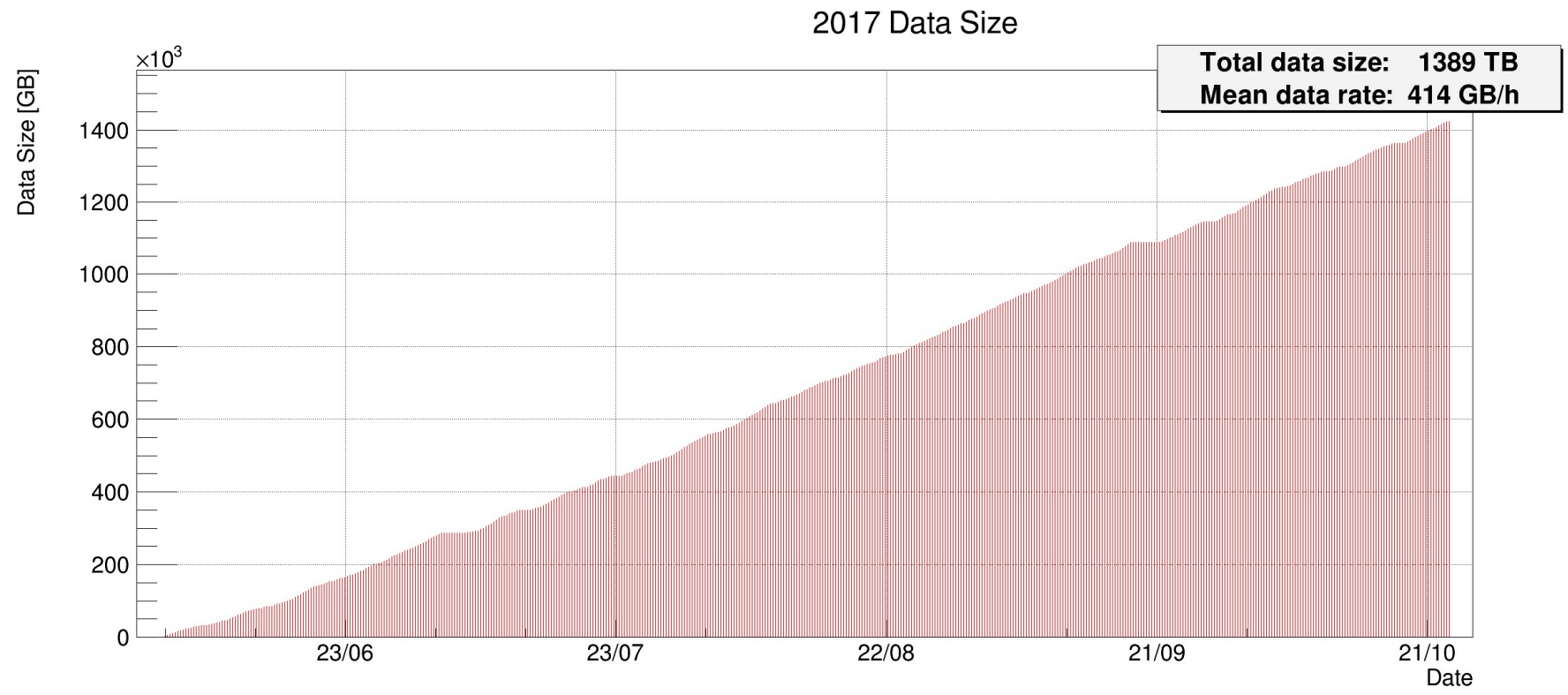# DAQ status

V.Frolov

Joint Institute for Nuclear Research (JINR)

Data taking in 2015

Data taking in 2017

DAQ Downtime in 2017

Intelligence Elements and Performance of the FPGA-based DAQ of the COMPASS Experiment
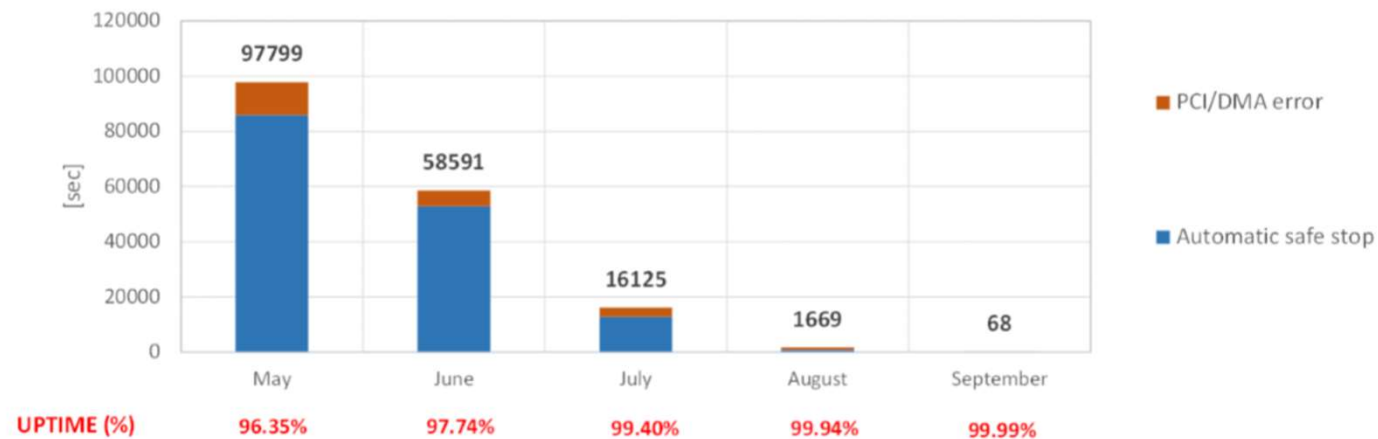Dominik Steffen

Figure 2: Downtime in each month of the run in 2017 until September 10th and corresponding DAQ availability

2017-2018 winter shutdown.

- Upgrade of COMPASS File Server. The disk space was increased from 6 to 15TB;
- The OS on all RC, DB and RE servers was upgraded from SLC6.6 to SLC6.9;
- New "emergency" File Server was prepared;
- Electronic check-list was prepared by Czech group;
- Remote power switches are installed in the hall for most problematic network switches near SM1 and SM2;
- Igor has prepared new FW for using UDP data transfer between MUX and readout computer, it was tested and shows following results:
  - Maximal data rate: up to 90MB/s (60M UDP packets per second) (for 1GB/s Ethernet link);
  - Number of UDP packets lost: ~10 packets/hour (UDP does not guarantee delivering of the data transactions);
  - Nevertheless it requests further improvements and tests before it can be used in the DAQ.

Expecting DAQ problems in 2018 DY run.

- 10Gbit Ethernet issues:

  ~1 error per 2 weeks. It requests expert's intervention and takes 15-30 min of beam time;

- "PCI/DMA error" during data taking:

  ~1 error per week and about 15 min for recovering (if no Ethernet problem);

- Radiation damage of the network switches:

  4 switches in the hall and 1 switch in tunnel;

- Radiation damage of VME CPUs:

  Can be rebooted remotely, but could take long time in case of FE LOADing problem;

- Radiation damage of R/O electronics and APV/MSADC:

  In case of problem with CATCHes or/and GeSiCa's it requests to power cycle of the full crate, what can lead problem of LOADing of the FE and could take some time.

Current DAQ status

- All detectors, except SciFi's and CEDAR are included to DAQ and tested with random trigger;

- No major problems with FE electronics and DAQ were found;

- DAQ dead time is the same as in 2017: 4--30--10x25

- Spare status:
  - No spare CATCH's scaler mezzanine cards;
  - No spare CATCH's TDC mezzanine cards (not important in 2018);
  - 2 spare 9U VME crates are not equipped by PS and fan-trays.