ToT drift investigation

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TOC drift investigation

- ORCA DU1 had some DOMs that showed some TOC drift.
- DOM16 was selected for the TOC drift investigation (fully acceptable and not in the list of the DOMs to be re-opened for the replacement of the penetrator).
- DOM16 is in the dark box since 28/1/2020.
- TOC is recorded once a day in order to verify if a drift will be observed in the lab.
✓ A decrease of ToT over time is observed for 18 PMTs
✓ 10 PMTs show ToT drift >= 2ns
✓ 4 PMTs show lower ToT than minimum acceptable value (< 23ns) after 1st week

PMTs with ToT drift >= 2 nsec
PMTs with ToT drift $\geq 2$ns

- **pmt0**
  - ToT (nsec) vs Run number plot

- **pmt1**
  - ToT (nsec) vs Run number plot

- **pmt2**
  - ToT (nsec) vs Run number plot

- **pmt11**
  - ToT (nsec) vs Run number plot
PMTs with ToT drift >= 2ns

- **pmt12**

- **pmt14**

- **pmt15**

- **pmt17**
PMTs with ToT drift $\geq 2$ns

![Graph of ToT vs Run number for pmt22 and pmt23](chart.png)
8 PMTs show 1ns < ToT drift <= 2ns

A decrease of ToT over time is observed
PMTs with 1ns < ToT drift <= 2ns

**pmt4**

![Graph showing ToT (nsec) vs. Run number for pmt4]

**pmt5**

![Graph showing ToT (nsec) vs. Run number for pmt5]

**pmt8**

![Graph showing ToT (nsec) vs. Run number for pmt8]

**pmt9**

![Graph showing ToT (nsec) vs. Run number for pmt9]
PMTs with 1ns < ToT drift <= 2ns

- **pmt13**
  - Run number vs. ToT (nsec)
  - Data points for run numbers 0 to 30

- **pmt16**
  - Run number vs. ToT (nsec)
  - Data points for run numbers 0 to 30

- **pmt18**
  - Run number vs. ToT (nsec)
  - Data points for run numbers 0 to 30

- **pmt19**
  - Run number vs. ToT (nsec)
  - Data points for run numbers 0 to 30
PMTs with stable ToT

✓ 13 PMTs show stable ToT over the time