The MINERνA Operations Report
All Experimenters Meeting

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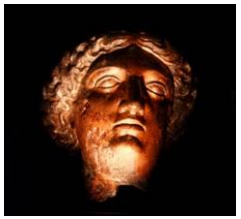
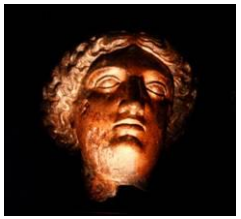
Dec 16, 2013

Taking Data



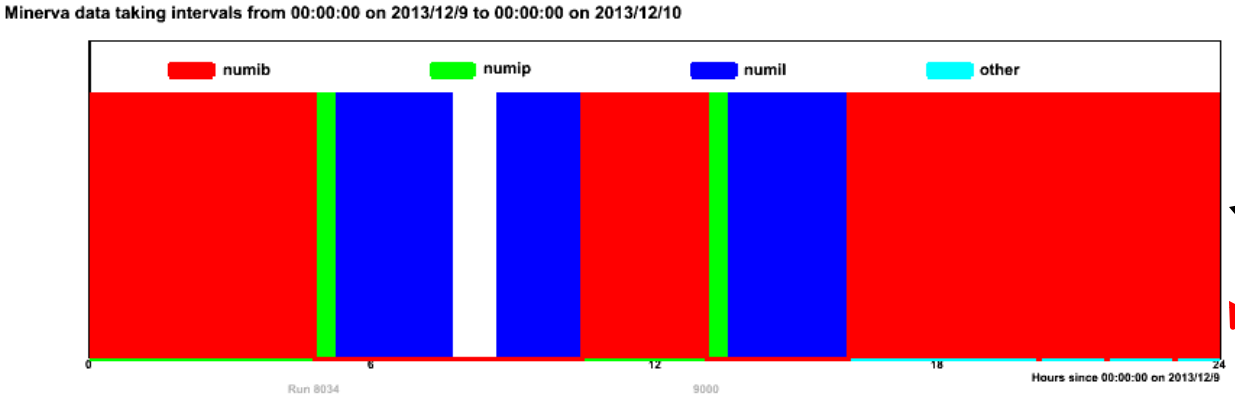
- We are taking data with very small downtimes
  - For some runs we take a LI trigger just after a beam trigger. We looked at about 1 week of LI runs
    - ~1% of LI Runs have no light
    - ~5% of LI Runs have low light
    - The percentage of these failures is small right now, but the origin of these failures is not understood.
- From Dec 9 – 16 NuMI ran with the horn off
  - 0.701×10^{19} POT
  - MINOS requested 0.5×10^{19} POT
  - MINERvA requested 0.7×10^{19} POT
  - We thank AD for delivering such steady beam that our request could be granted so quickly!

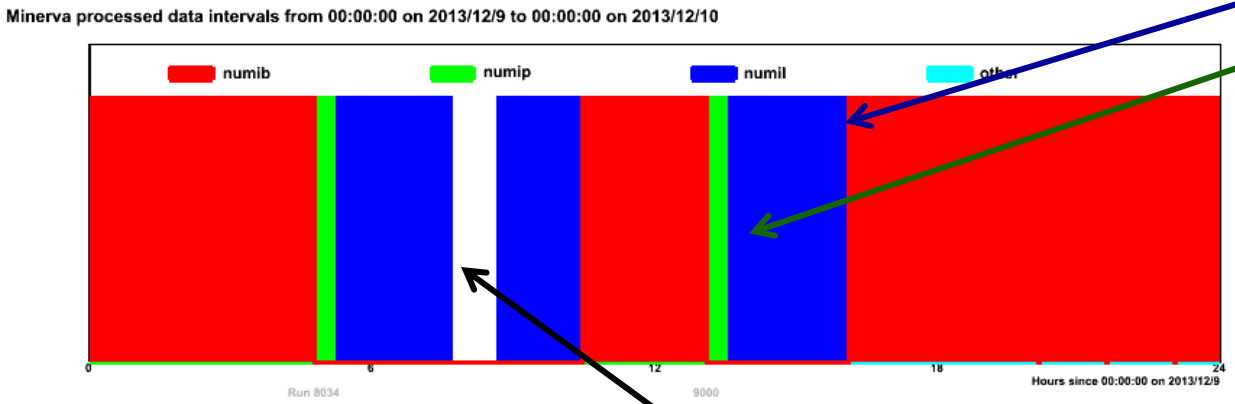
Live Time, Dec 5-11



- Dec 5-6 there was no beam
- Dec 6,7 the calculated live times were 99%
- Dec 12, 13, and 14 the calculated live times were 36%, 0% and 0% (but this must be wrong)
- We have another way to check that these live times make sense
- We can plot the raw and analyzed data files vs time to see if there are any gaps. We expect gaps if there is no A9

Plot of the Data Files From SAM Database





X axis is time, in this case over one day. There is no variable for the y axis

Raw Data

RED Beam

BLUE Beam + LI

GREEN BEAM + PED

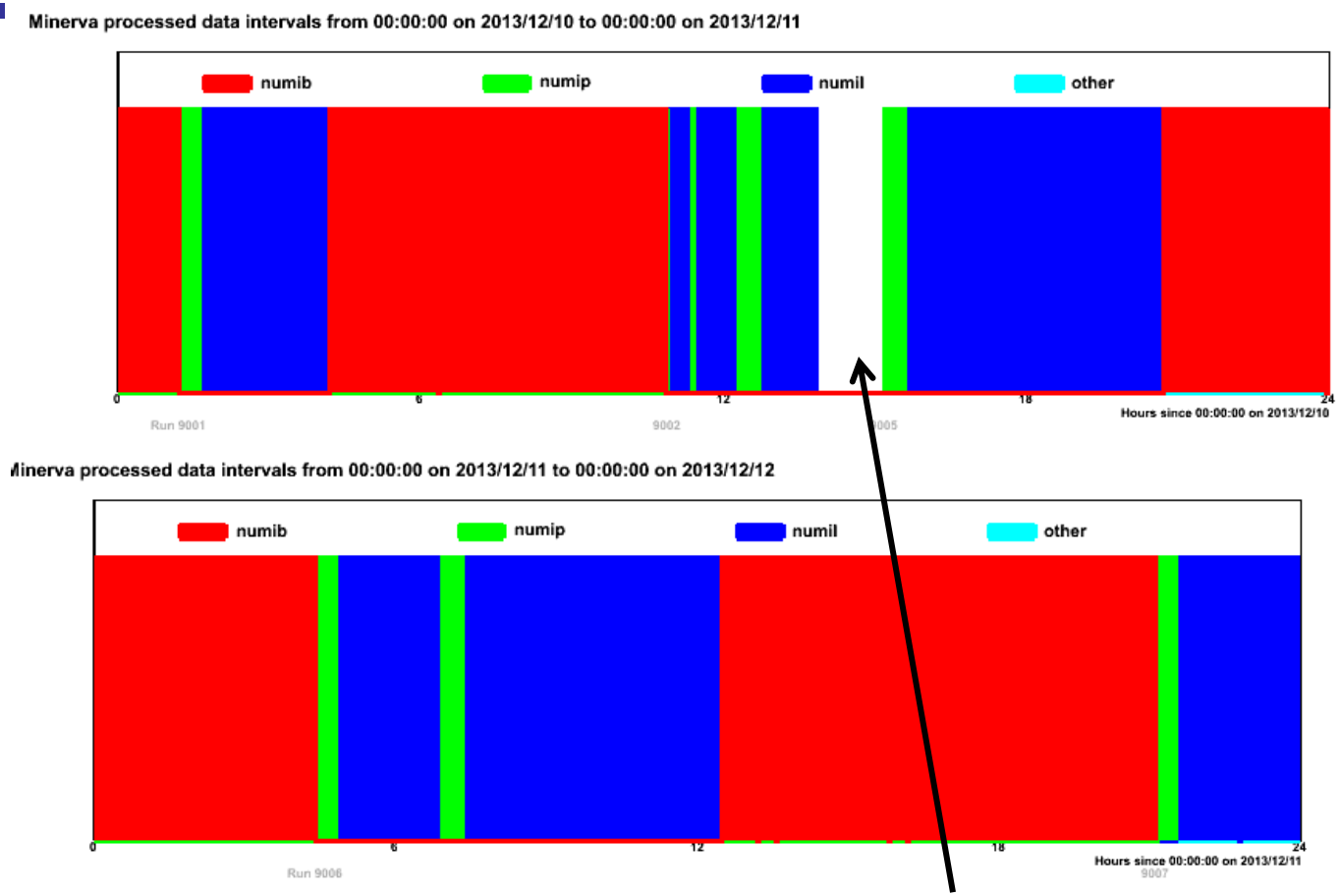
CYAN – Only LI or PED

White – No Data Taking

Processed Data

- Plot of the data files for Dec 9, Red are Beam only runs …
- A white or cyan gap indicates a no beam data taken
- There was no beam during this white gap
- The plot indicates we were fully efficient, but it does not give number

File Plots

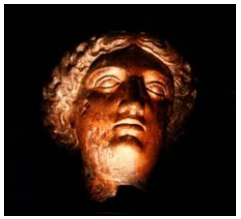


Dec 10

Dec 11

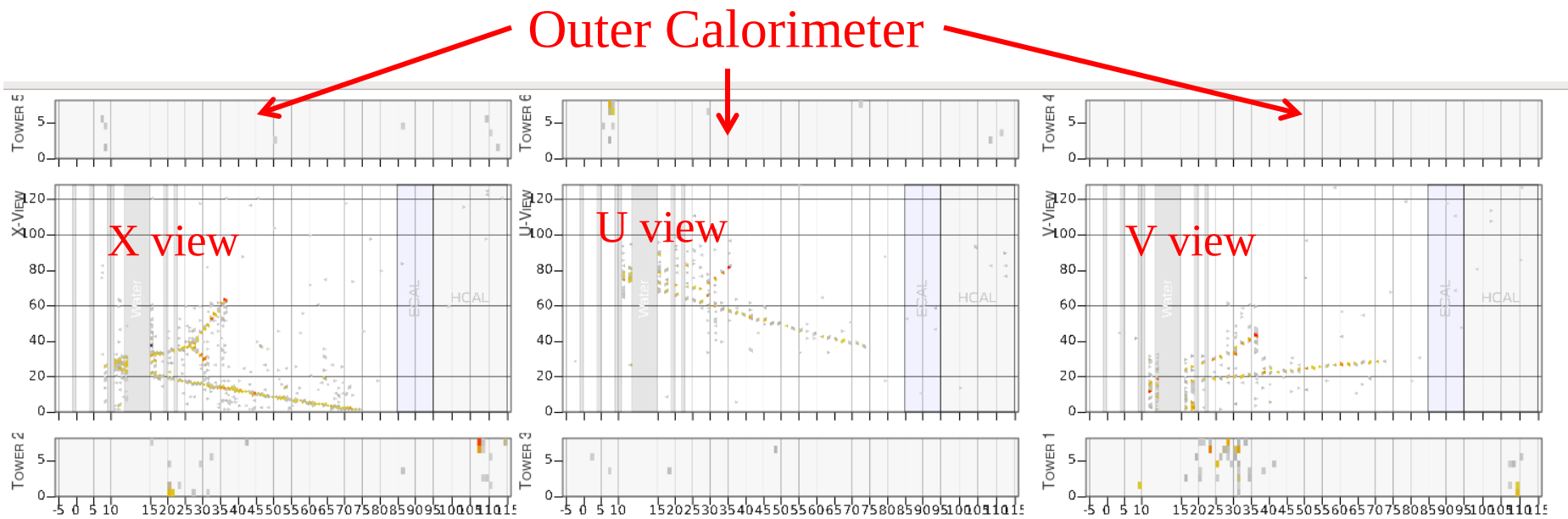
- Plots of processed files, there was no beam during white space for Dec 11
- The live times should be high so the calculated live times are not correct.
- Note, these plots are very useful to find out where inefficiencies are in time

FEB Firmware Upgrade



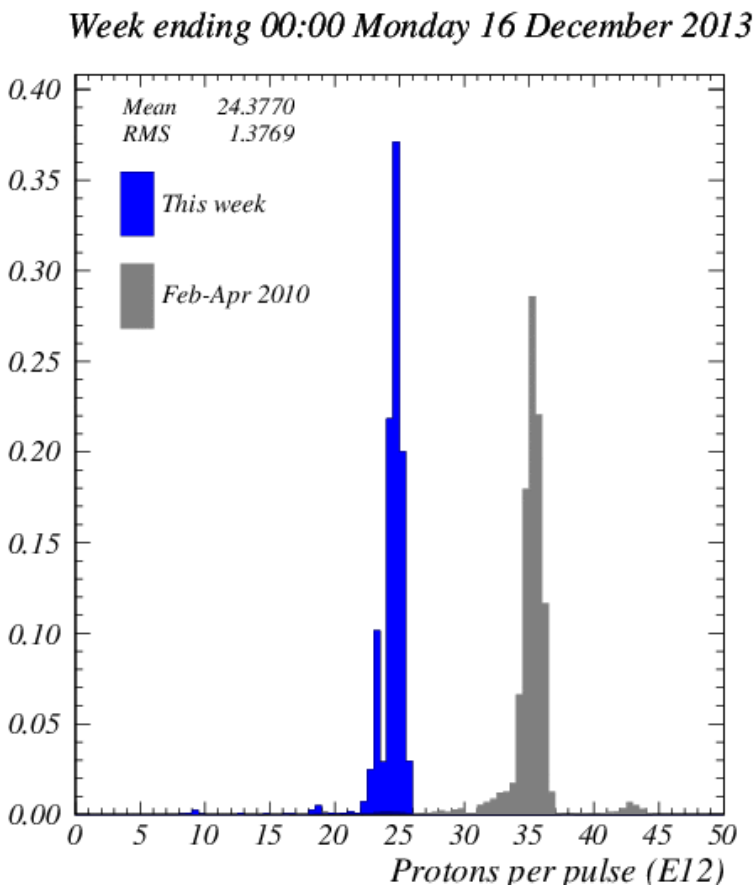
- The FEBs can store 7 hits for a channel in a gate.
  - In fact what actually happens if one channel has a hit above threshold, it causes 32 channels (½ PMT) to store their ADC and TDC values. These 32 channels can store their values in a beam gate 7 times.
- This limit will need to increase as the beam intensity increases.
  - A new FEB firmware increases the number of times these 32 channels can store their data from 7 times to 19 times.
  - We have a test setup on the 14 floor which can generate as many light pulses as are needed to test the new firmware.
  - Worked on by Cristian Gingu & Paul Rubinov (PPD EED).
  - Cristian should be finished with writing and testing the software this month
- After the 1st of the year we will test the firmware,
- Can be installed in place, but may require ¾ day to install to 507 FEBs
  - Requires a 2 day shutdown, including testing

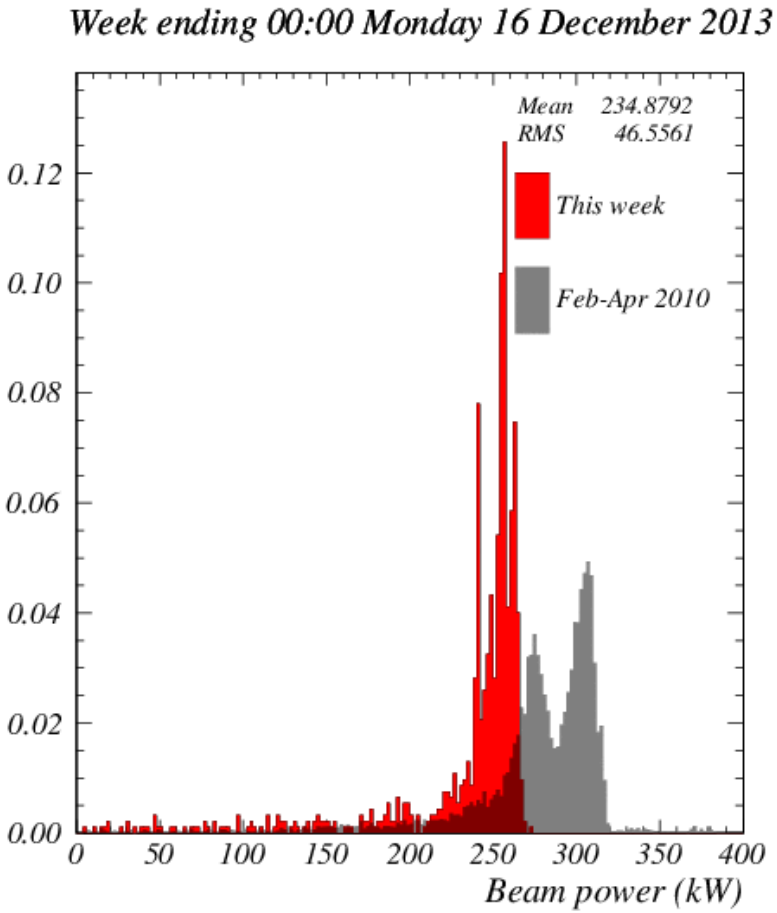
Event Display



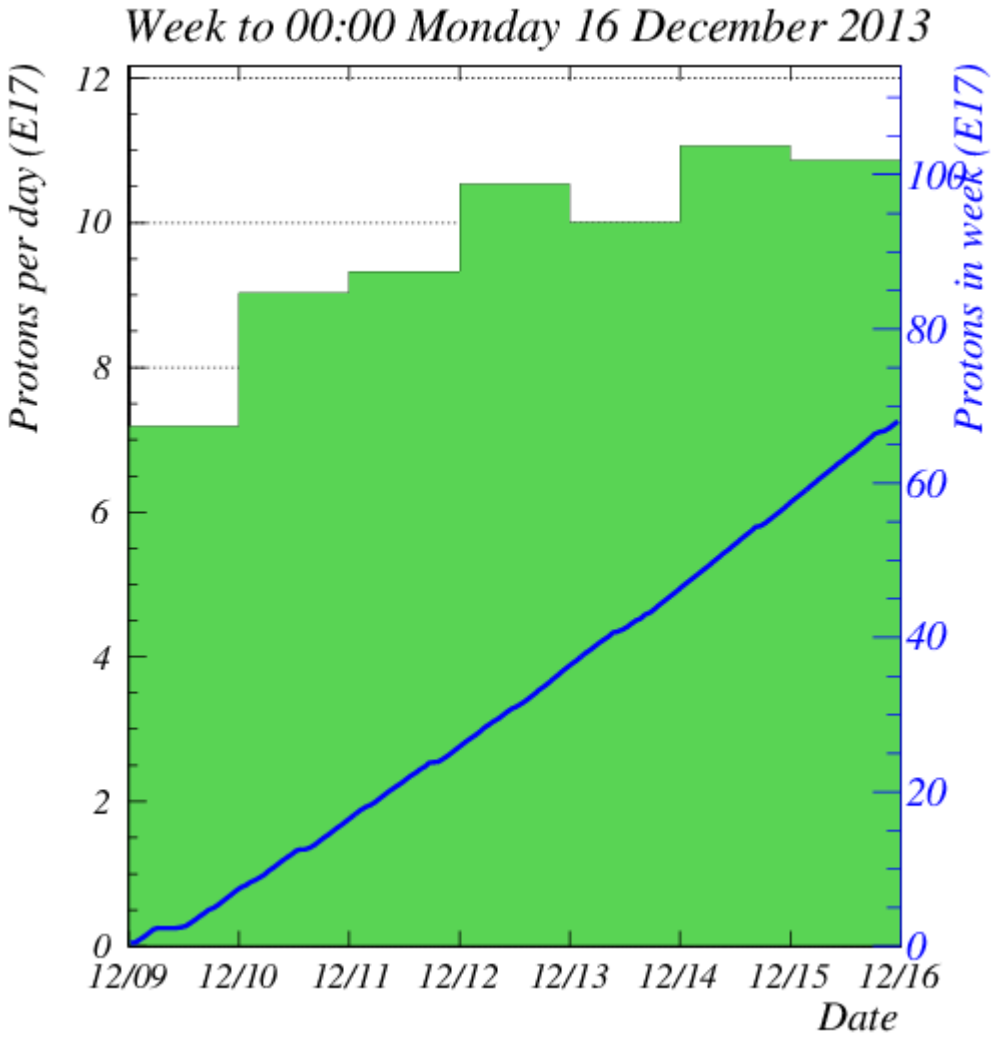
- Nuclear target event

NuMI Beam Plots



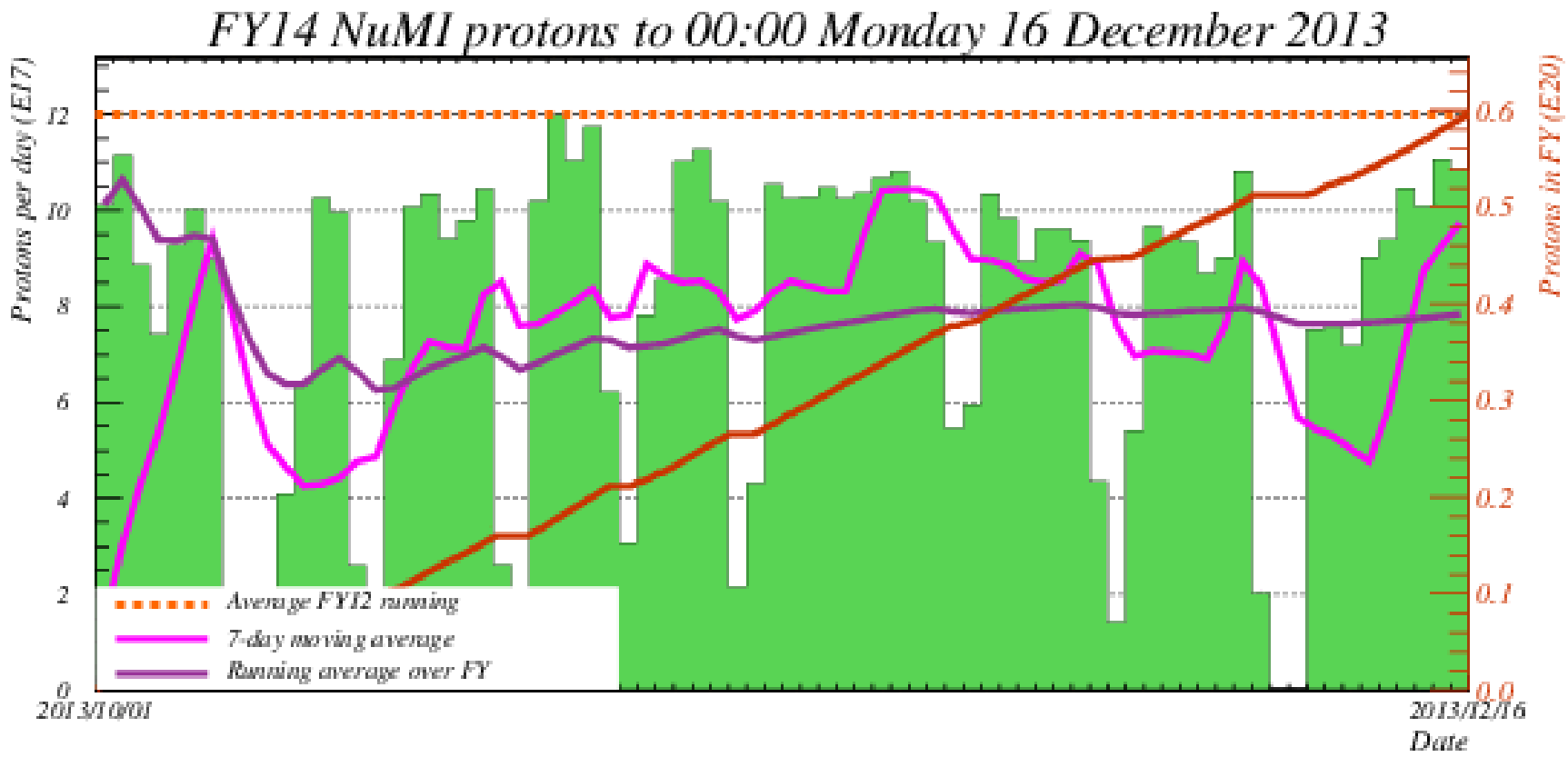


Protons for the Week



0.680×10^{19} POT
Dec 9-15

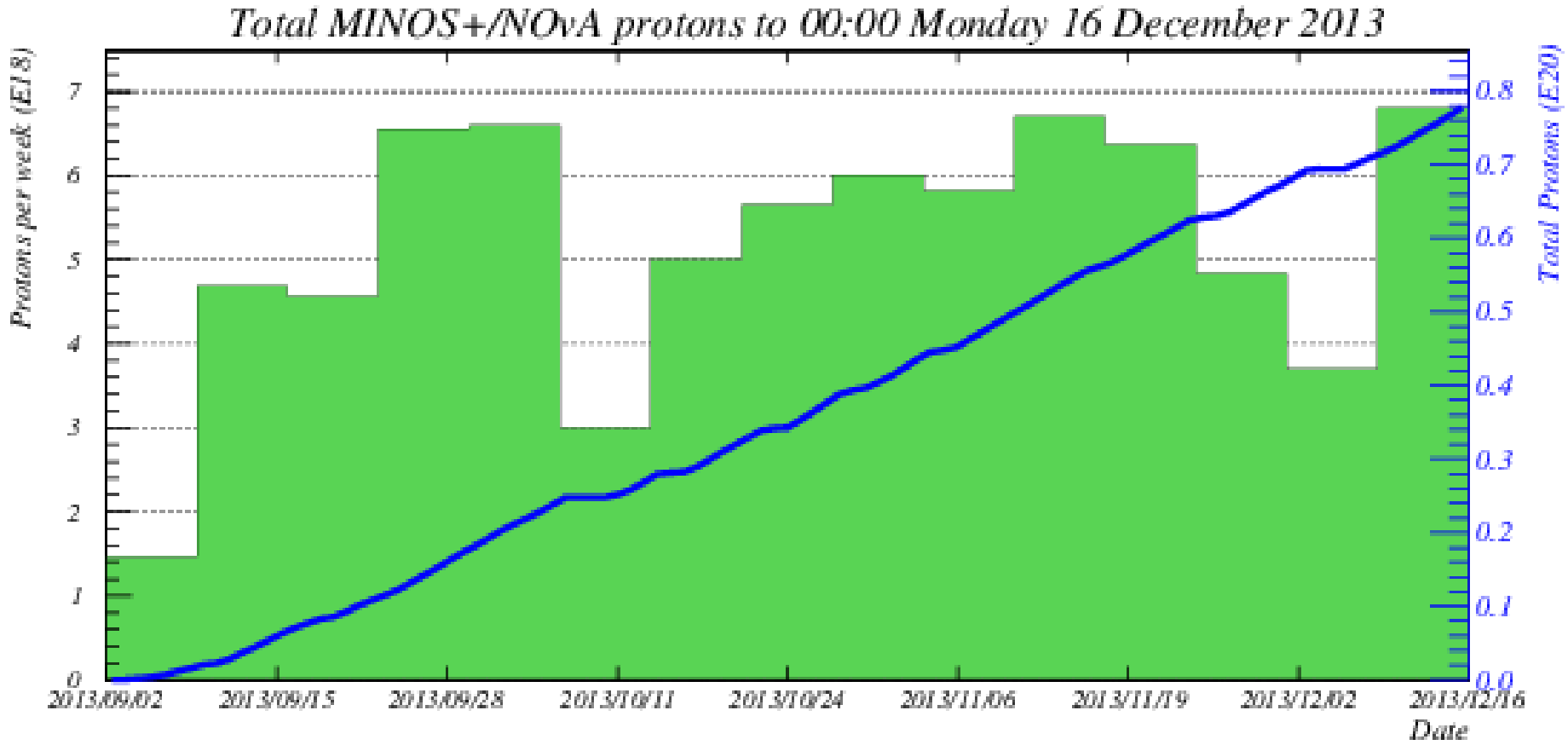
FY2014 Protons



5.95×10^{19} POT

Oct 1- Dec 15

Protons for ME Run



7.73×10^{19} POT

Sep 6 2013 at 15:00 – Dec 15