



# MINOS+ Status Report



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All Experimenters' Meeting  
April 18, 2016



# Near Detector



## DAQ



- One DAQ crash early this morning

## Electronics/Detector

- Light Injection (LI) issues:
  - Discovered one hot channel in Trigger PMT Minder board
  - Fixed by calibrating the board
  - DQ program flag data as BAD, but only the LI data is bad
- Two cold and one hot channels
  - We'll replace the Minder boards at the next opportunity
  - Bad channels are masked in offline production



# Far Detector



## DAQ

- No issues: ran well the whole week

## Electronics/Detector

- Magnet's Super Module 2 (SM2) tripped off at 5:30 am this morning
  - Recovered by 6:30
  - Not sure yet what caused the trip
- No detector issues
- Taking CI special runs during beam downtimes



# MINOS+ Status



| Start Date/Time    | End Date/Time      | Near Detector |                    | Far Detector |                    |
|--------------------|--------------------|---------------|--------------------|--------------|--------------------|
|                    |                    | POT Fraction  | Live Time Fraction | POT Fraction | Live Time Fraction |
| 1/4/2016 00:00:00  | 1/11/2015 00:00:00 | 97.5%         | 97.1%              | 99.8%        | 99.8%              |
| 1/11/2016 00:00:00 | 1/18/2016 00:00:00 | 81.0%(&)      | 71.5%(&)           | 92.1%        | 96.5%              |
| 1/18/2016 00:00:00 | 1/25/2016 00:00:00 | 97.1%         | 97.3%              | 99.7%        | 99.8%              |
| 1/25/2016 00:00:00 | 2/1/2016 00:00:00  | 98.8%         | 97.2%              | 98.7%        | 96.5%              |
| 2/1/2016 00:00:00  | 2/8/2016 00:00:00  | 99.1%         | 99.8%              | 87.2%        | 86%                |
| 2/8/2016 00:00:00  | 2/15/2016 00:00:00 | 99.4%         | 88.2%(#)           | 99.2%        | 88.3%(#)           |
| 2/15/2016 00:00:00 | 2/22/2016 00:00:00 | 86%           | 87%(*)             | 95%          | 96%                |
| 2/22/2016 00:00:00 | 2/29/2016 00:00:00 | 98%           | 98%                | 99%          | 98%                |
| 2/29/2016 00:00:00 | 3/07/2016 00:00:00 | 91.7%         | 73%(!!)            | 92%          | 92%(!!)            |
| 3/07/2016 00:00:00 | 4/14/2016 00:00:00 | 99%           | 95.2%              | 99.9%        | 99.7%              |
| 3/14/2016 00:00:00 | 3/28/2016 00:00:00 | 99.3%         | 96.5%              | 99.8%        | 99.5%              |
| 3/21/2016 00:00:00 | 3/28/2016 00:00:00 | 99.7%         | 99.7%              | 99.8%        | 99.8%              |
| 3/28/2016 00:00:00 | 4/4/2016 00:00:00  | 98.5%         | 96.5%              | 98.3%        | 98.2%              |
| 4/4/2016 00:00:00  | 4/11/2016 00:00:00 | 92.4%         | 91.9%              | 99.9%        | 97.9%              |
| 4/11/2016 00:00:00 | 4/18/2016 00:00:00 | 58%(**)       | 58%(**)            | 99.8%        | 99.8%              |

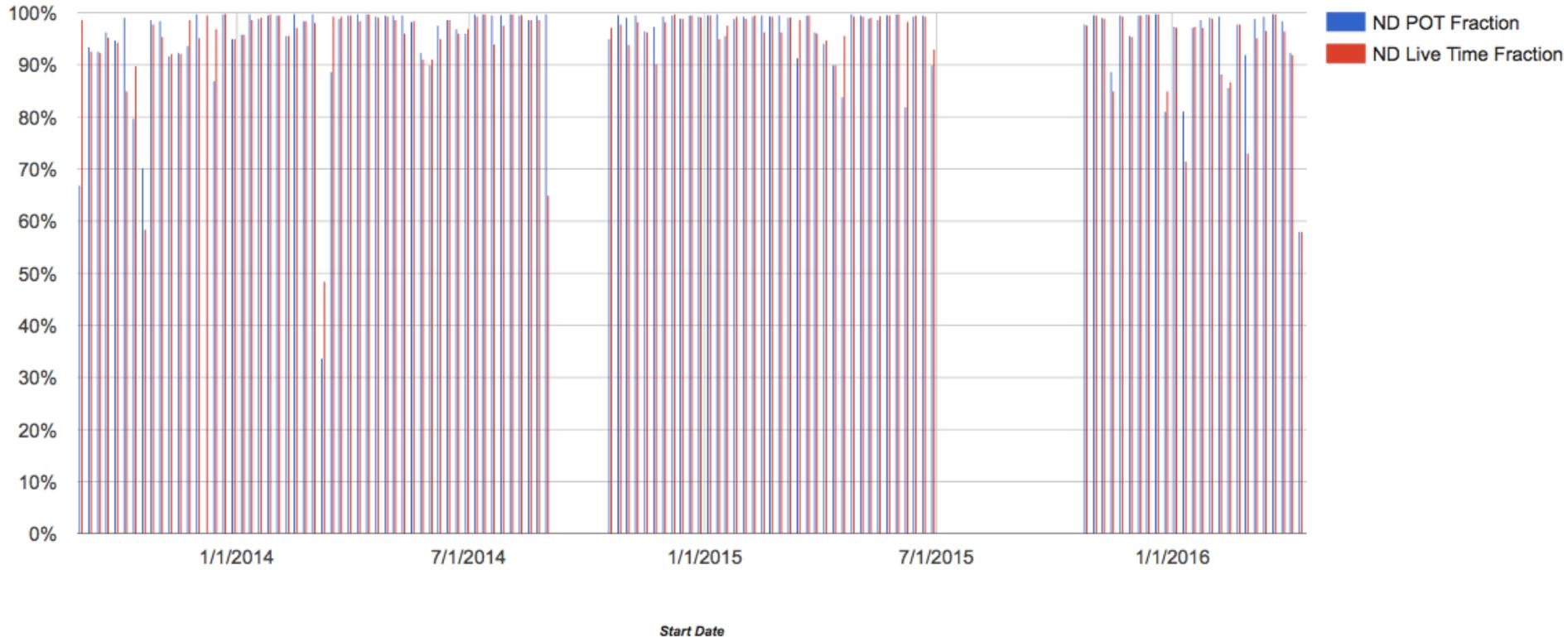
(&) Numi Breaker power glitches (#) GPS/Timing issues (\*) Ntp config file overwritten (!! ) ND GPS Timing issues (\*\* ) LI issues



# MINOS+ ND Status



ND POT fraction and Live Time Fraction





# MINOS+ FD Status



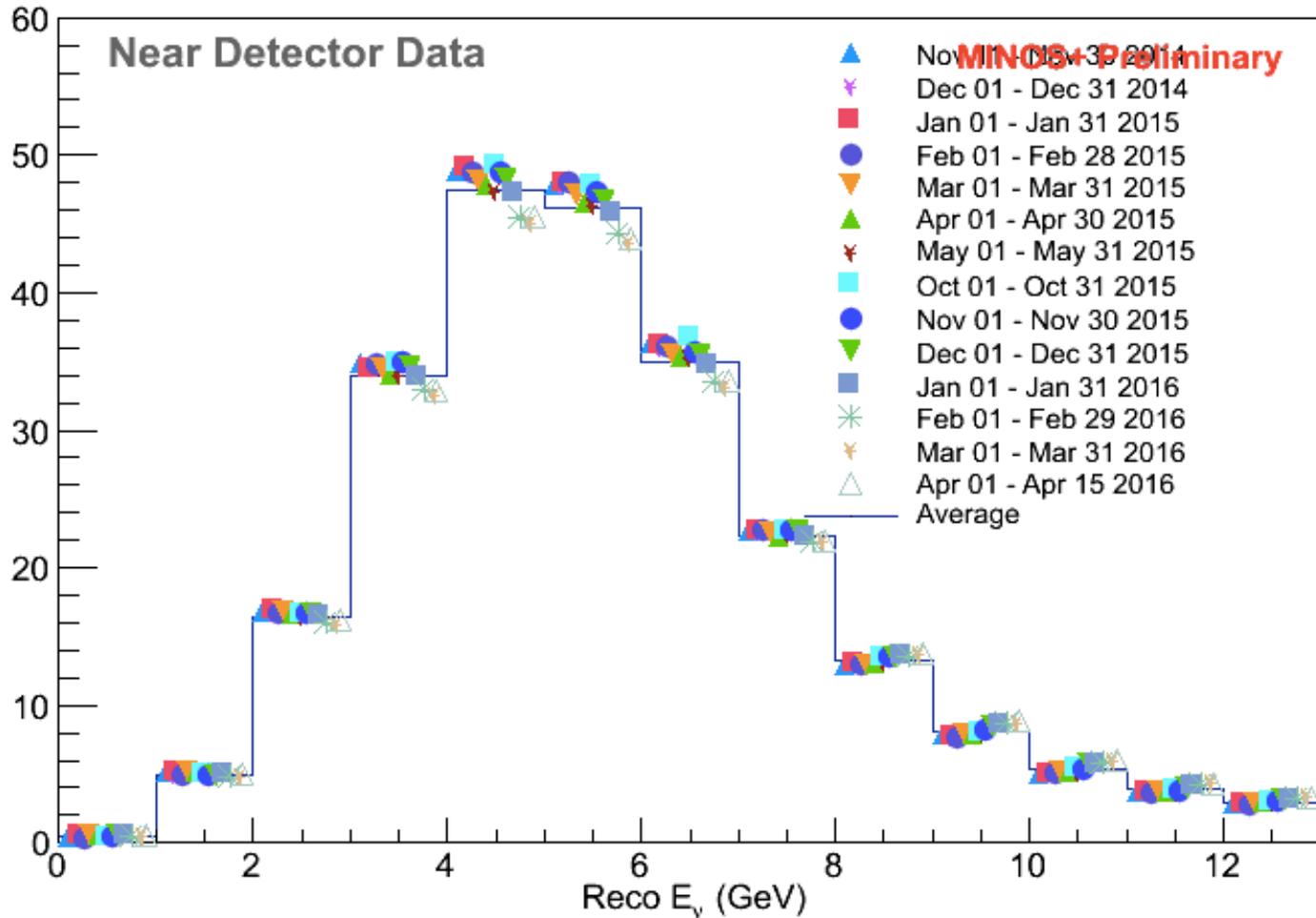
FD POT Fraction and Live Time Fraction





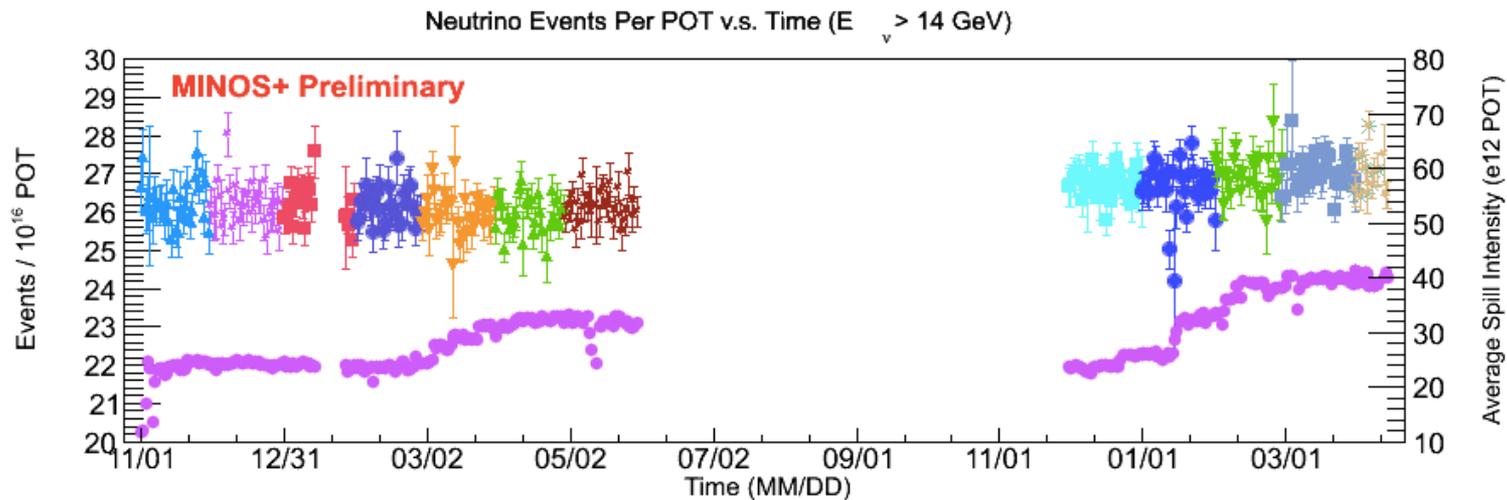
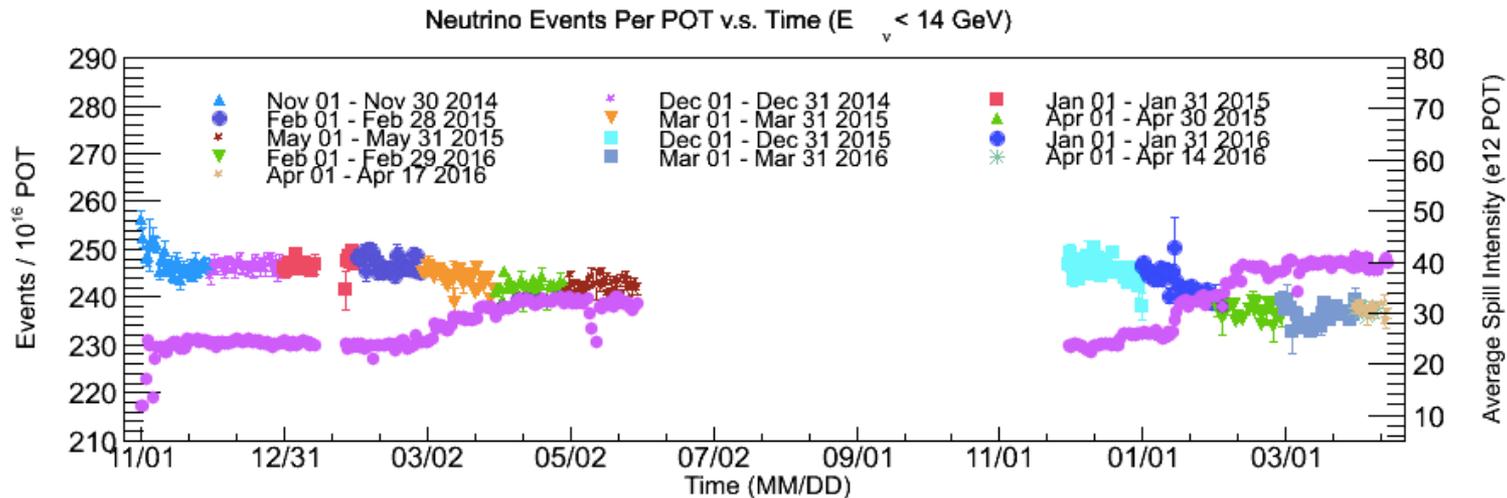
# Energy Spectrum

Neutrino Energy Spectrum Stability (PQ and NQ)





# Events/POT + Intensity

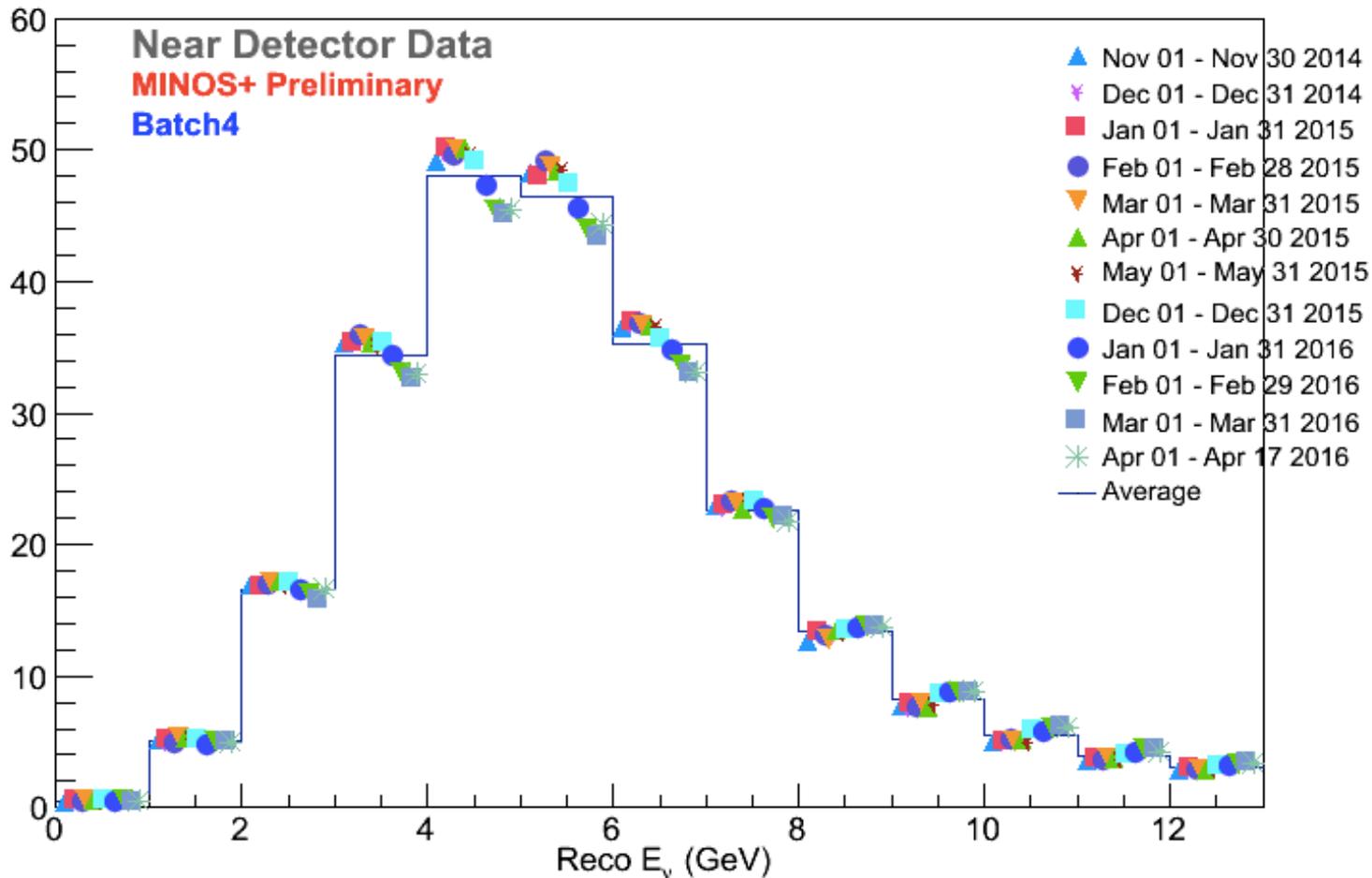




# Energy Spectrum (batch #4)



Neutrino Selected Batch Energy Spectrum Stability (PQ and NQ)

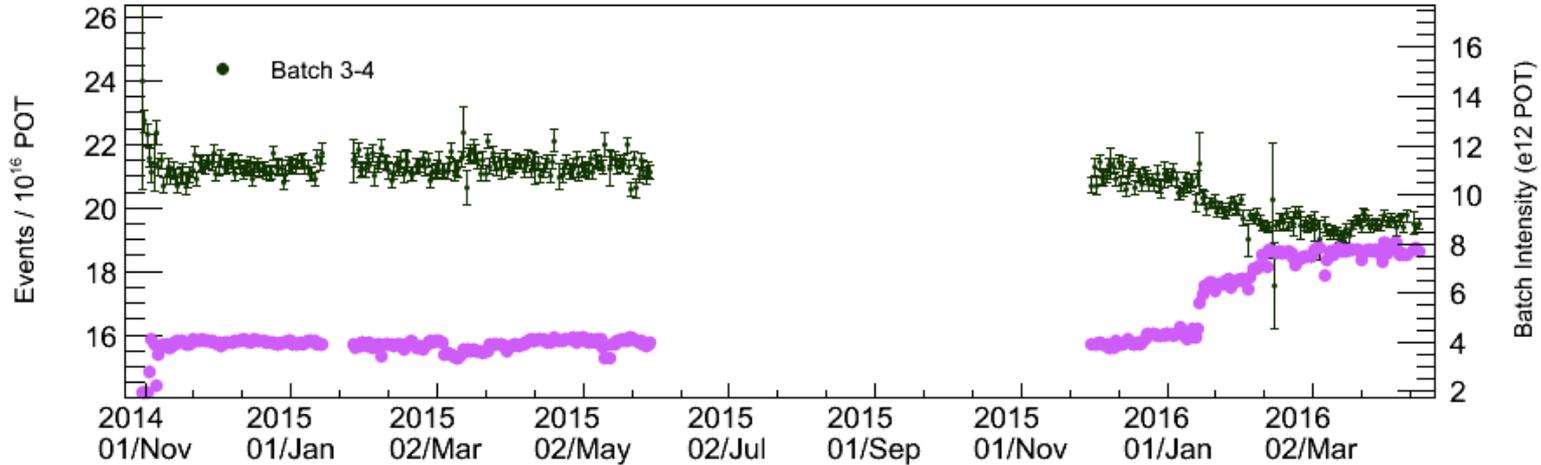




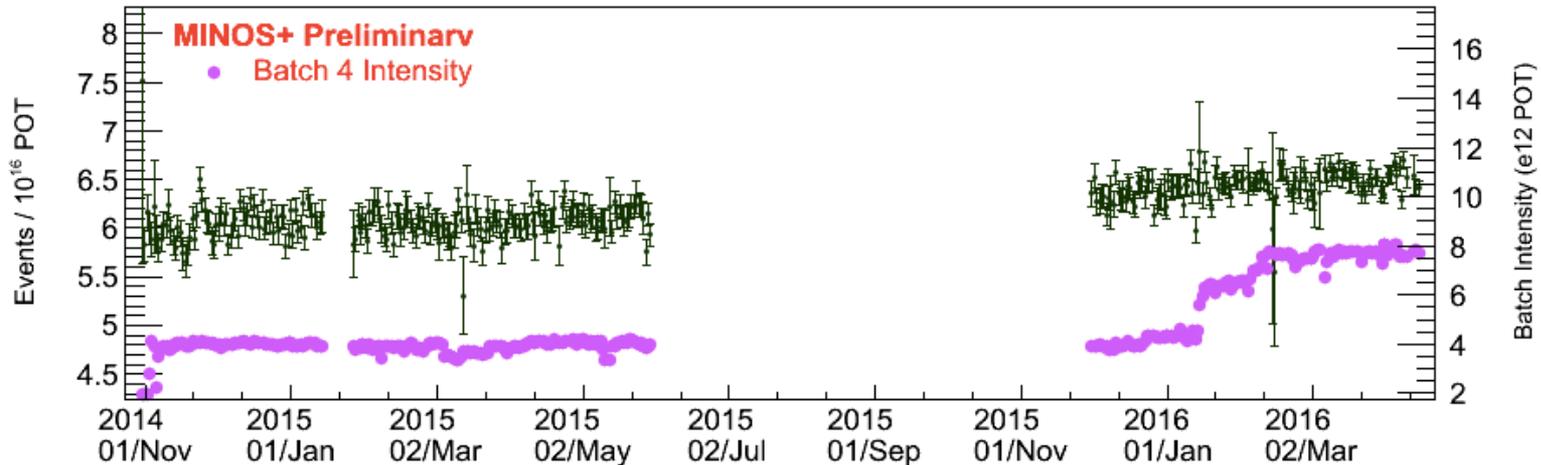
# Events/POT vs. time (3+4) (4)



Neutrino Events Per POT v.s. Time ( $E_{\nu} < 8 \text{ GeV}$ )



Neutrino Events Per POT v.s. Time ( $E_{\nu} > 8 \text{ GeV}$ )

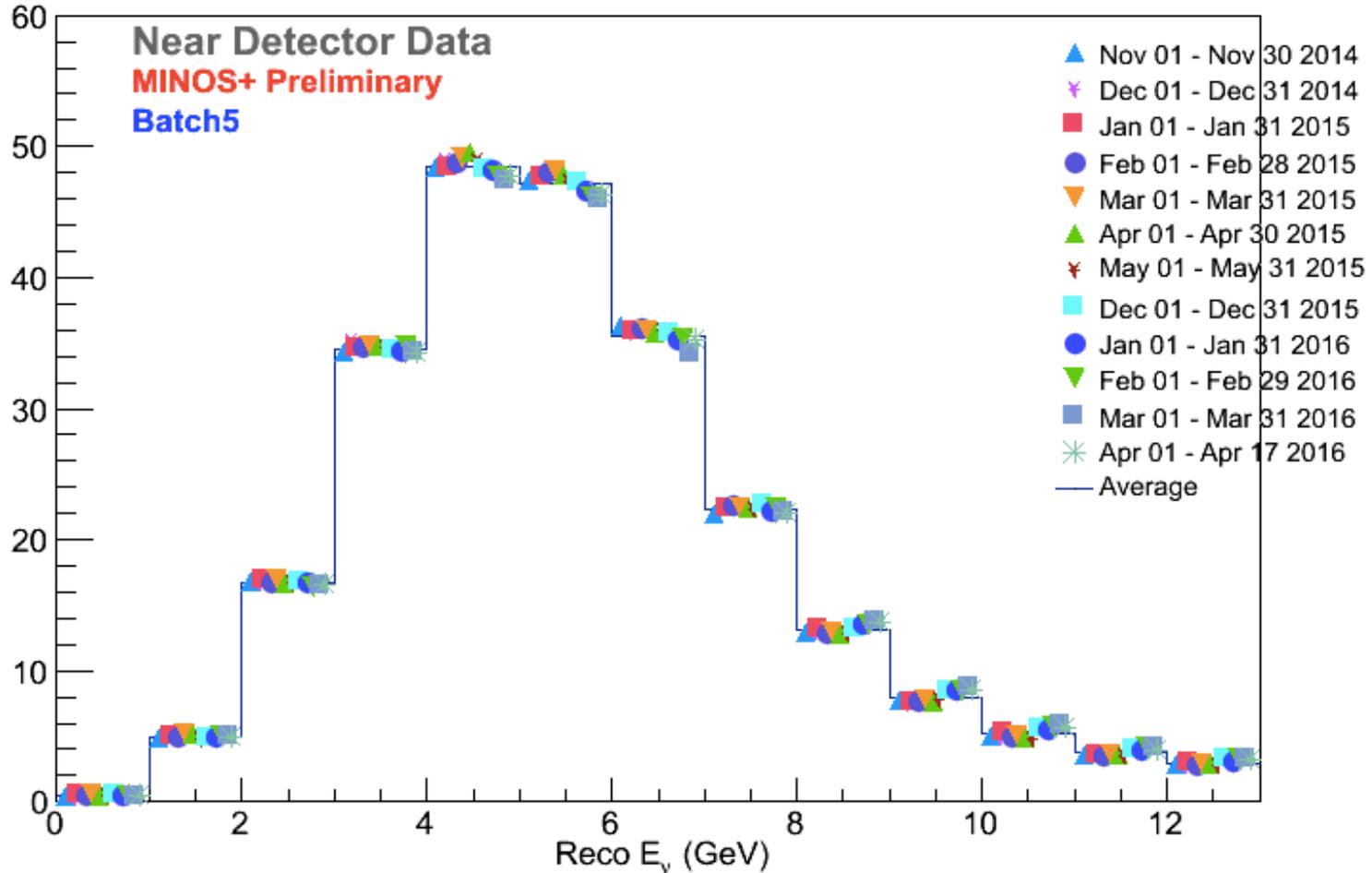




# Energy Spectrum (batch #5)



Neutrino Selected Batch Energy Spectrum Stability (PQ and NQ)

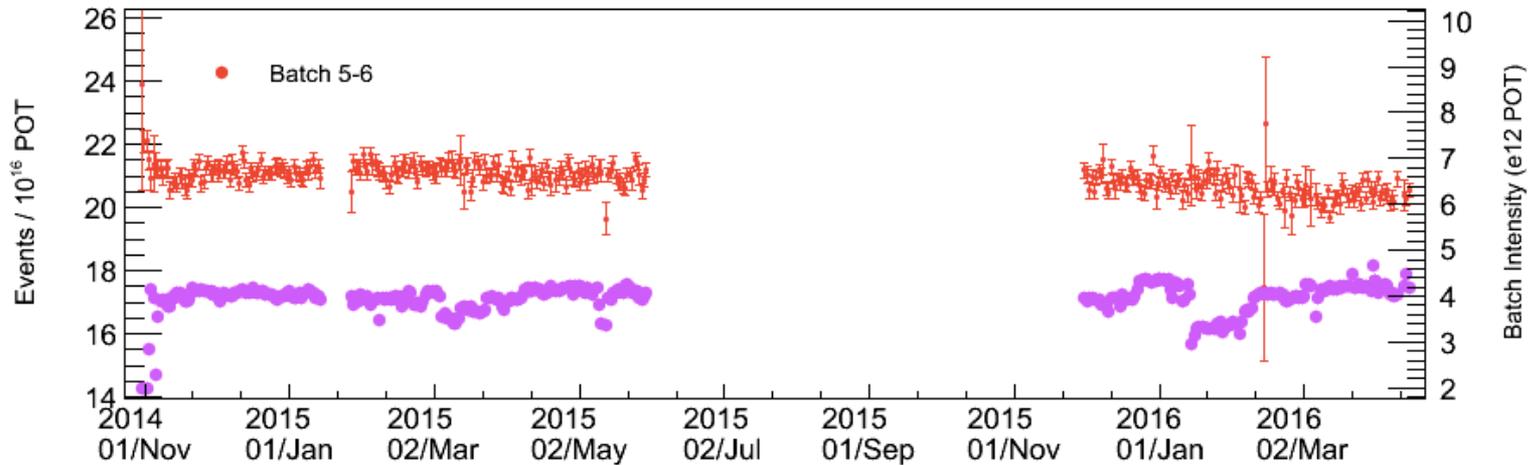




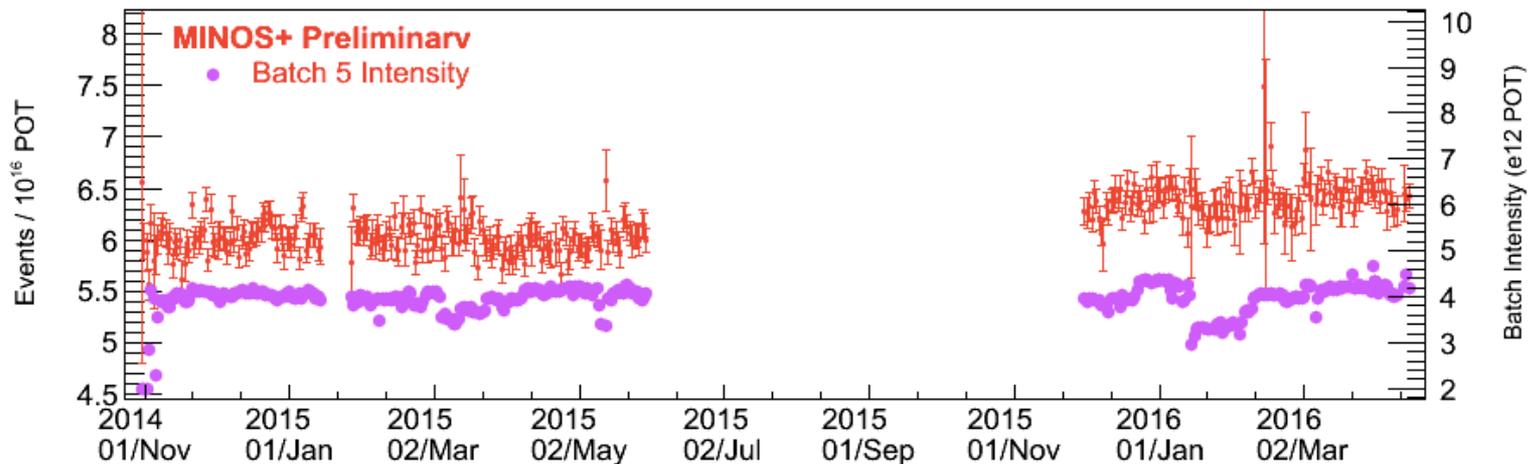
# Events/POT vs. time (5+6)(5)



Neutrino Events Per POT v.s. Time ( $E_\nu < 8$  GeV)



Neutrino Events Per POT v.s. Time ( $E_\nu > 8$  GeV)

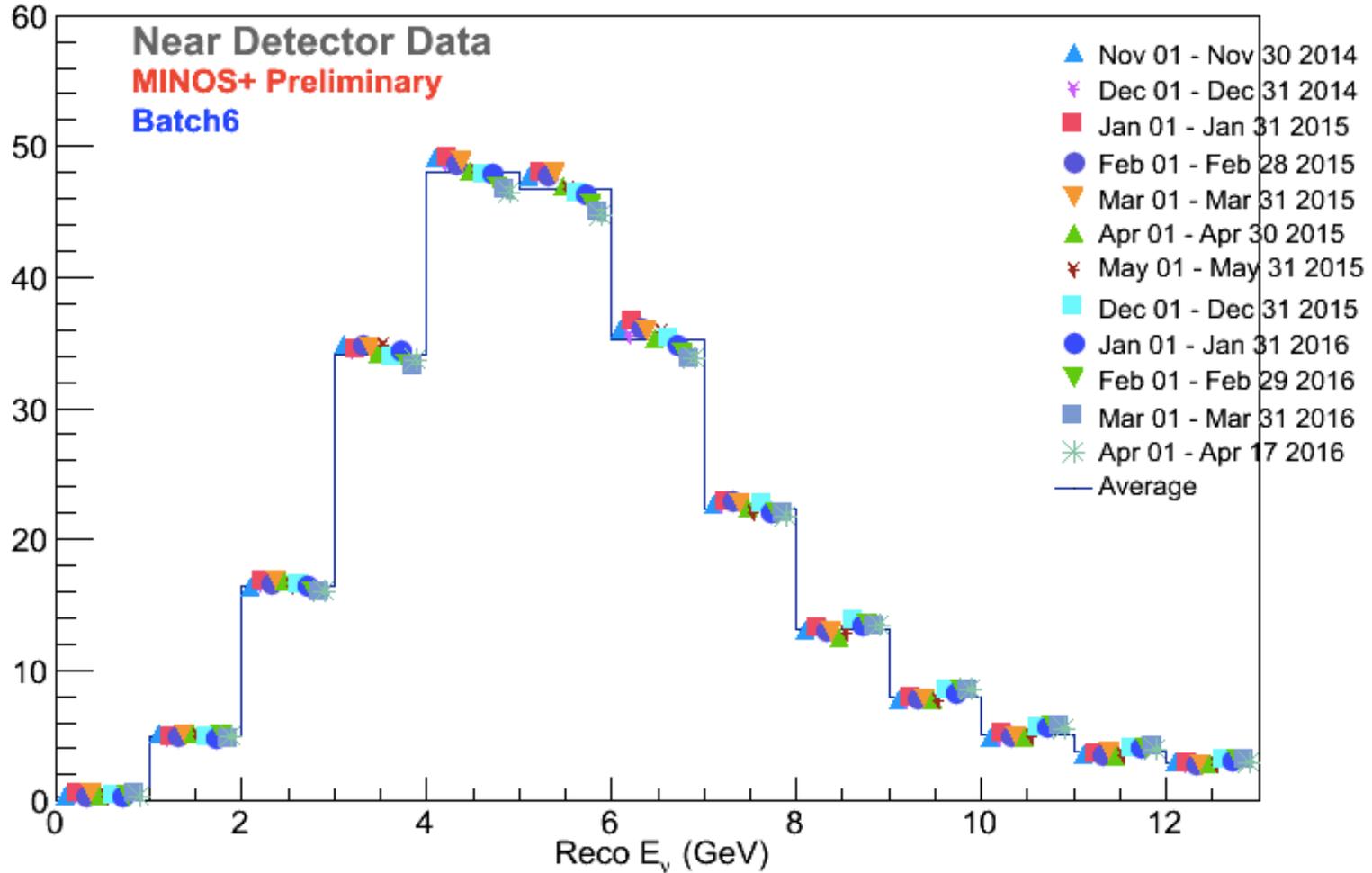


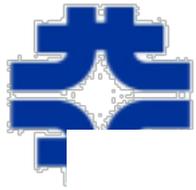


# Energy Spectrum (batch #6)



Neutrino Selected Batch Energy Spectrum Stability (PQ and NQ)

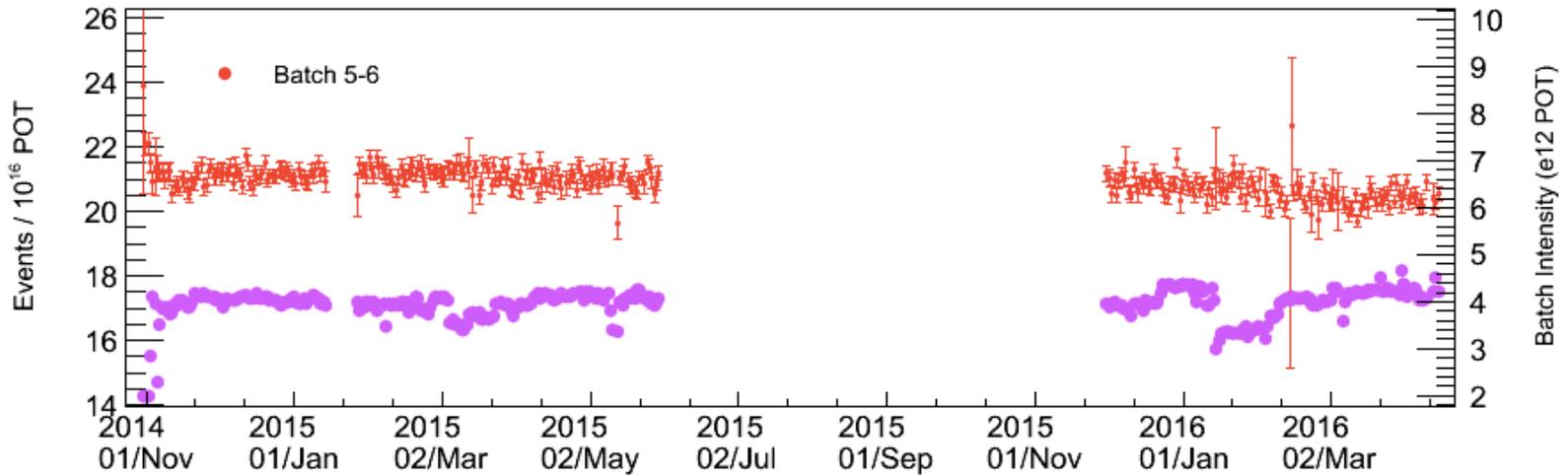




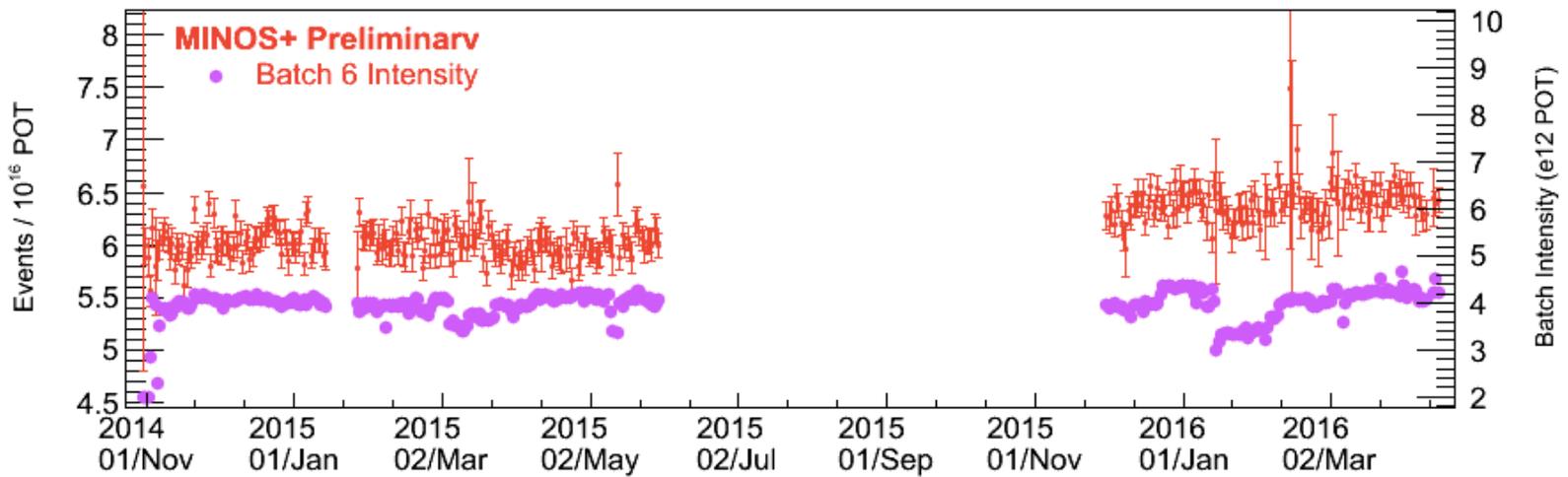
# Events/POT vs. time (5+6) (6)



Neutrino Events Per POT v.s. Time ( $E_{\nu} < 8$  GeV)



Neutrino Events Per POT v.s. Time ( $E_{\nu} > 8$  GeV)





# Beam news



- Many congratulations to AD for:
- $> 9 \times 10^{20}$  POT
- successful tests 6+6 at a power record of 610 kW !!