

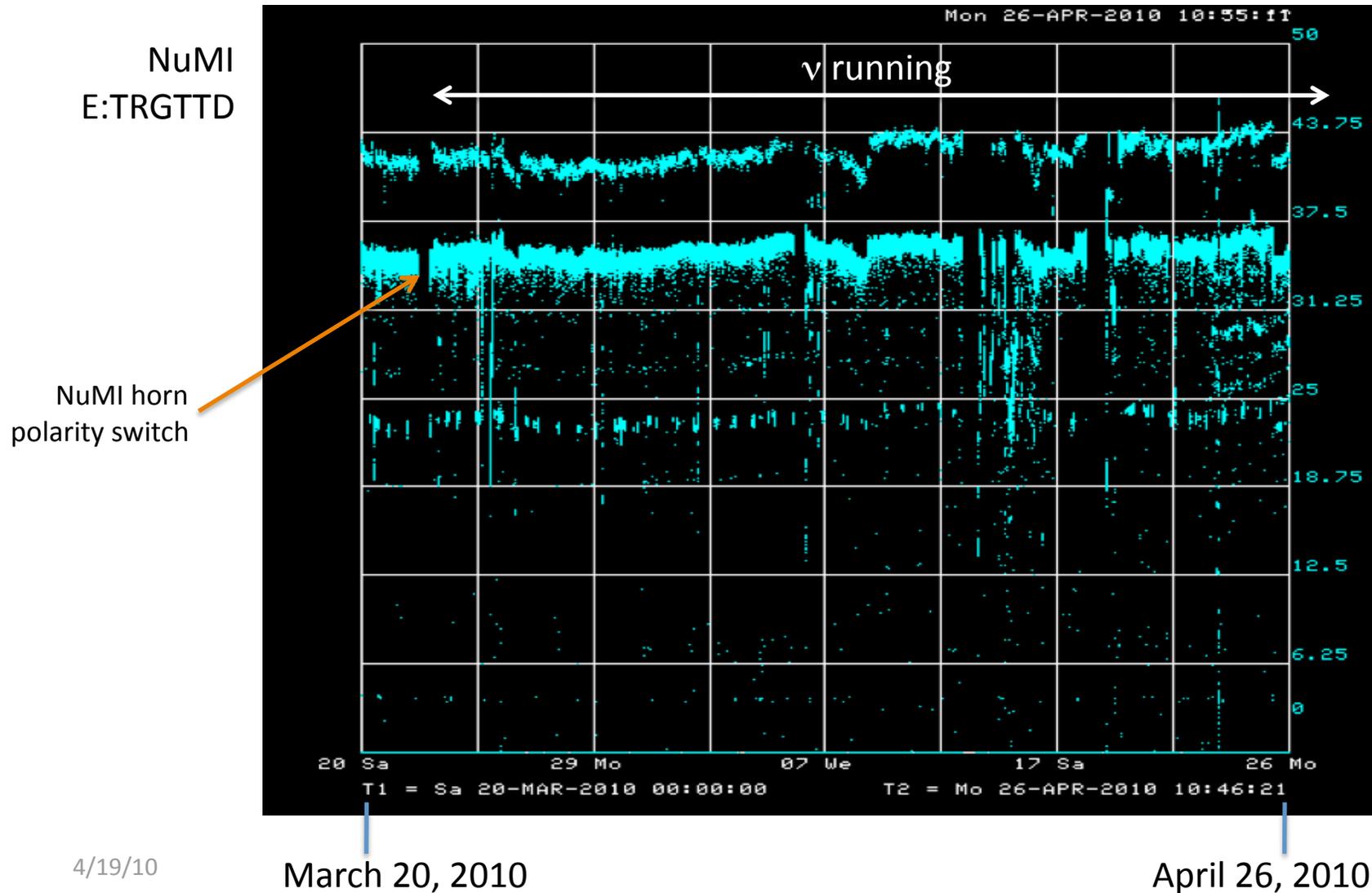
# MINERνA Operations Report

## Fermilab AEM

April 26, 2010

Dave Schmitz, Fermilab

# NuMI POT since switch to neutrino mode



# Estimating detector live-time (a reminder)

- **MINERvA relies on MINOS data** for reconstructing muons which escape the back of MINERvA
- MINOS data is also currently our conduit to NuMI beam data from ACNET

Live-time = (MINERvA det live-time) x (MINERvA-MINOS matching eff.)

- This is basically the MINOS near detector live-time

# Estimating detector live time

Start	End	Days	POT		MINOS-MNv	Thru MINOS	
			delivered	recorded	matching	Live Time	
Mon Mar 22 23:30:05 2010	Thu Mar 25 00:21:32 2010	2.04	2.41E+18	2.12E+18	99.88%	87.80%	
Wed Mar 24 23:44:34 2010	Wed Mar 31 20:32:01 2010	6.87	8.44E+18	7.29E+18	99.83%	86.41%	
Thu Apr 1 07:06:22 2010	Thu Apr 8 06:03:59 2010	6.96	8.36E+18	7.16E+18	99.64%	85.62%	
Thu Apr 8 05:38:46 2010	Sat Apr 10 01:59:30 2010	1.85	2.27E+18	2.12E+18	99.63%	93.20%	
Sat Apr 10 02:26:11 2010	Tue Apr 13 05:48:21 2010	3.14	3.99E+18	3.82E+18	99.78%	95.62%	
Tue Apr 13 21:53:47 2010	Sun Apr 18 06:28:32 2010	4.36	4.53E+18	3.13E+18	72.36%	69.01%	
Mon Apr 19 02:59:45 2010	Fri Apr 23 00:07:30 2010	3.88	4.64E+18	3.43E+18	78.38%	74.01%	
			29.08	3.46E+19	<b>2.906E+19</b>	92.79%	<b>83.88%</b>

Recall that Chris told us in this meeting last week about some downtime for the MINOS near detector, and this is evident here

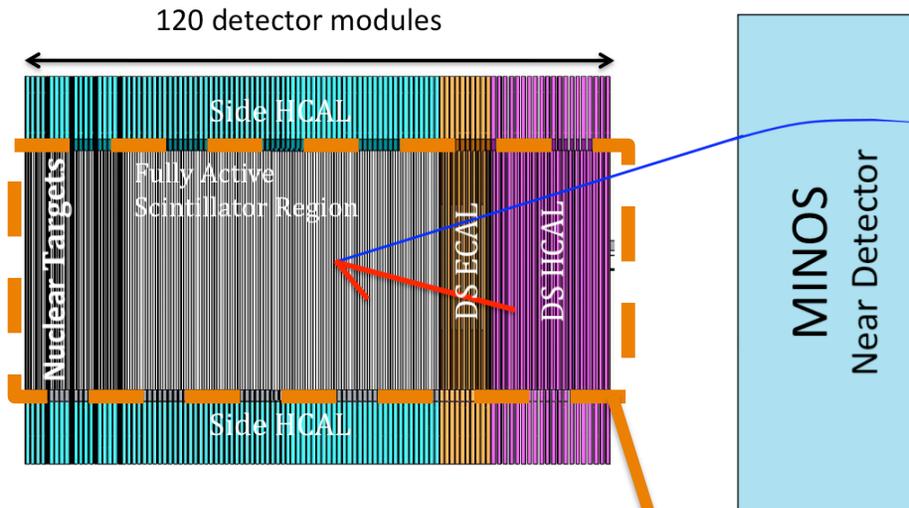
Current estimated **detector live time** during this period includes the MINOS near detector matching efficiency

# Estimating detector live time

Live-time = (MINERvA det live-time) x (MINERvA-MINOS matching eff.)

- The MINOS near detector is very stable and almost always live, so any effect is very small overall
- For many analyses, this combined live-time is actually the parameter that matters
- For others (samples where events are fully contained within the MINERvA detector), we can recover the small amount of data taken when MINOS near detector is off
- We are starting work on tools to merge beamline data directly with ours separately from MINOS ND.

# MINERνA Detector Performance

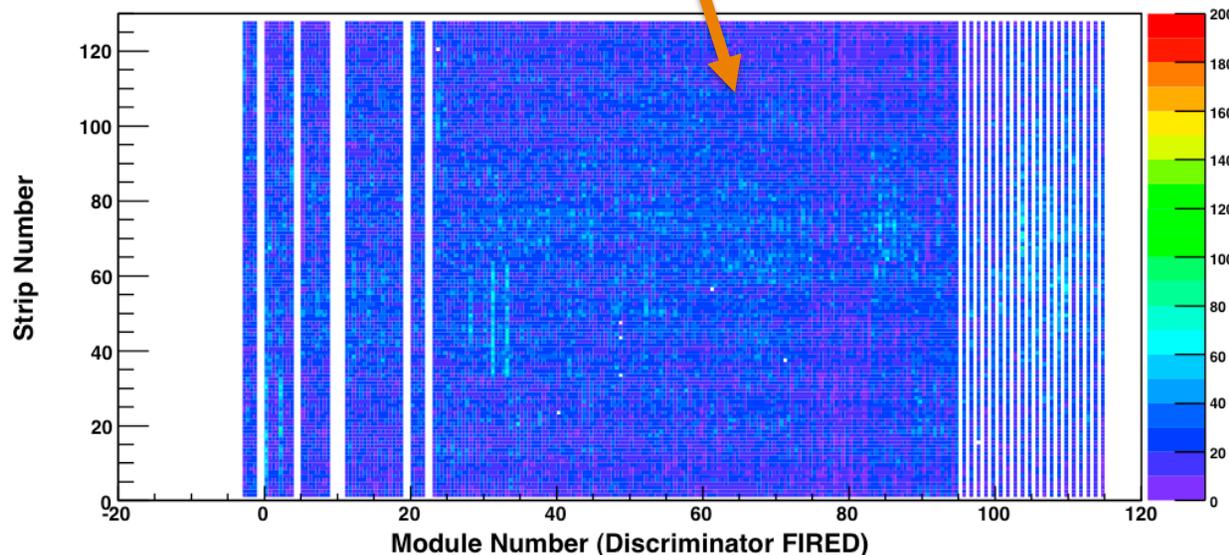


Shifters monitor the hit occupancies and average pulse heights for each subrun (currently about 45 minutes of data taking) in order to catch any electronics problems quickly

Tools provide a list of channels with no hits through the subrun for closer checking

This subrun (taken Sunday morning ) shows [8 dead pixels in the Inner Detector region out of 25,908 ID strips \(similar for OD, not shown\)](#)

Avg Qhi for Strip (y) vs Module (x)



Typically, electronics problems show up in multiples of 16 (basic electronics unit is a Trip-t chip on the front end boards) making them fairly easy to spot, and components can be replaced when necessary.

Where possible, wait for opportune beam down times to swap components

# Summary

- MINERvA detector has recorded >2.9e19 POT worth of physics data with completed detector between *March 22* and *April 22* (horn polarity switch occurred on March 22)
- Average detector live-time (calculated through matching with the MINOS near detector) during this first month is estimated to be 84%