MiniBooNE Report

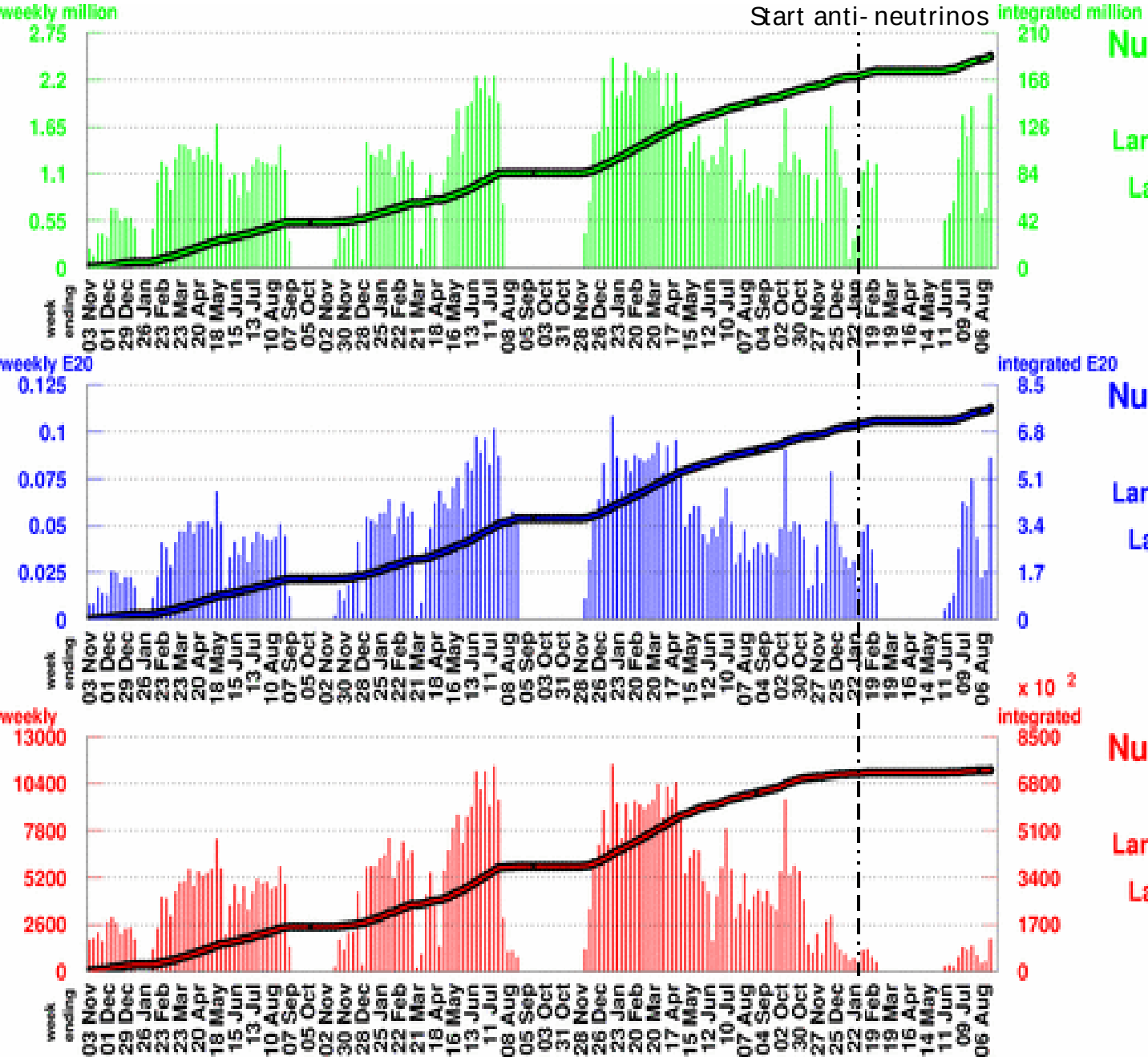
Richard Van de Water
Los Alamos National Lab
for the MiniBooNE collaboration

21 August 2006

Weekly Summary 14 Aug – 21 Aug
9.8E18 POT, 92% Uptime

- Best ever anti-neutrino week!
- Linac/Booster running exceptionally well: ~4.5E12ppp, ~7E16p/hr, and high uptime. Kudos to experts and ops!
- Major Downtime:
  - 4 hrs, Booster kicker (Aug16).
  - 16 hrs, ACNET file merge problem, data recoverable (Aug 18).
  - 2 hrs, Tank DAQ problem (Aug 18).
  - 3 hrs, MI12 dehumidifier fuse (Aug 19).
  - 2 hrs, Booster water leak (Aug 19).

14 Aug – 21 Aug



Number of Horn Pulses

To date: 188.86 million

Largest week: 2.46 million

Latest week: 2.03 million

Number of Protons on Target

To date: 7.6433 E20

Largest week: 0.1084 E20

Latest week: 0.0862 E20

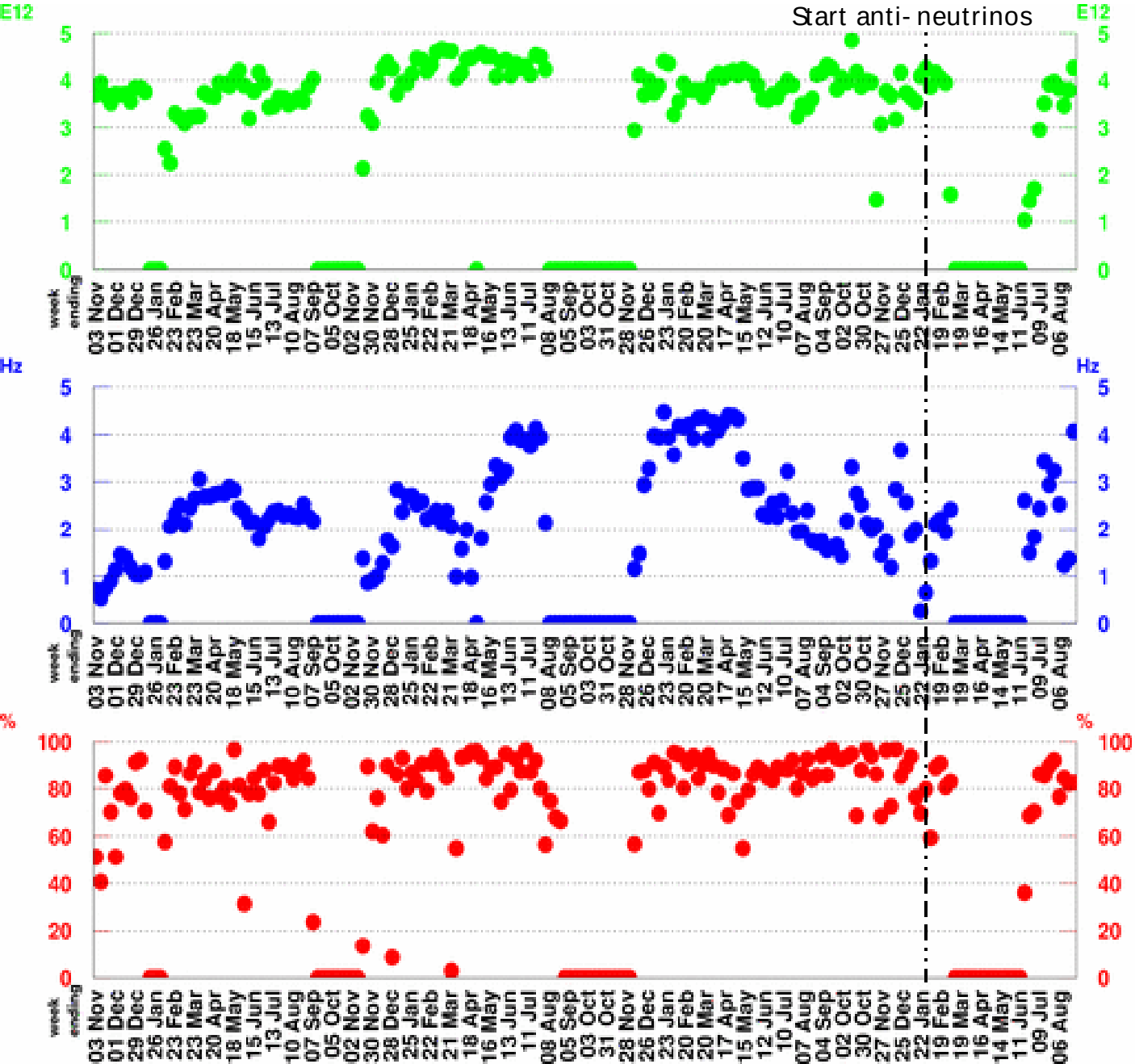
Number of Neutrino Events

To date:730082

Largest week: 11447

Latest week: 1825

14 Aug – 21 Aug



POT per Horn Pulse

Largest week: 4.85 E12

Latest week: 4.26 E12

Horn Rate

(for time periods with beam)

Largest week: 4.48 Hz

Latest week: 4.07 Hz

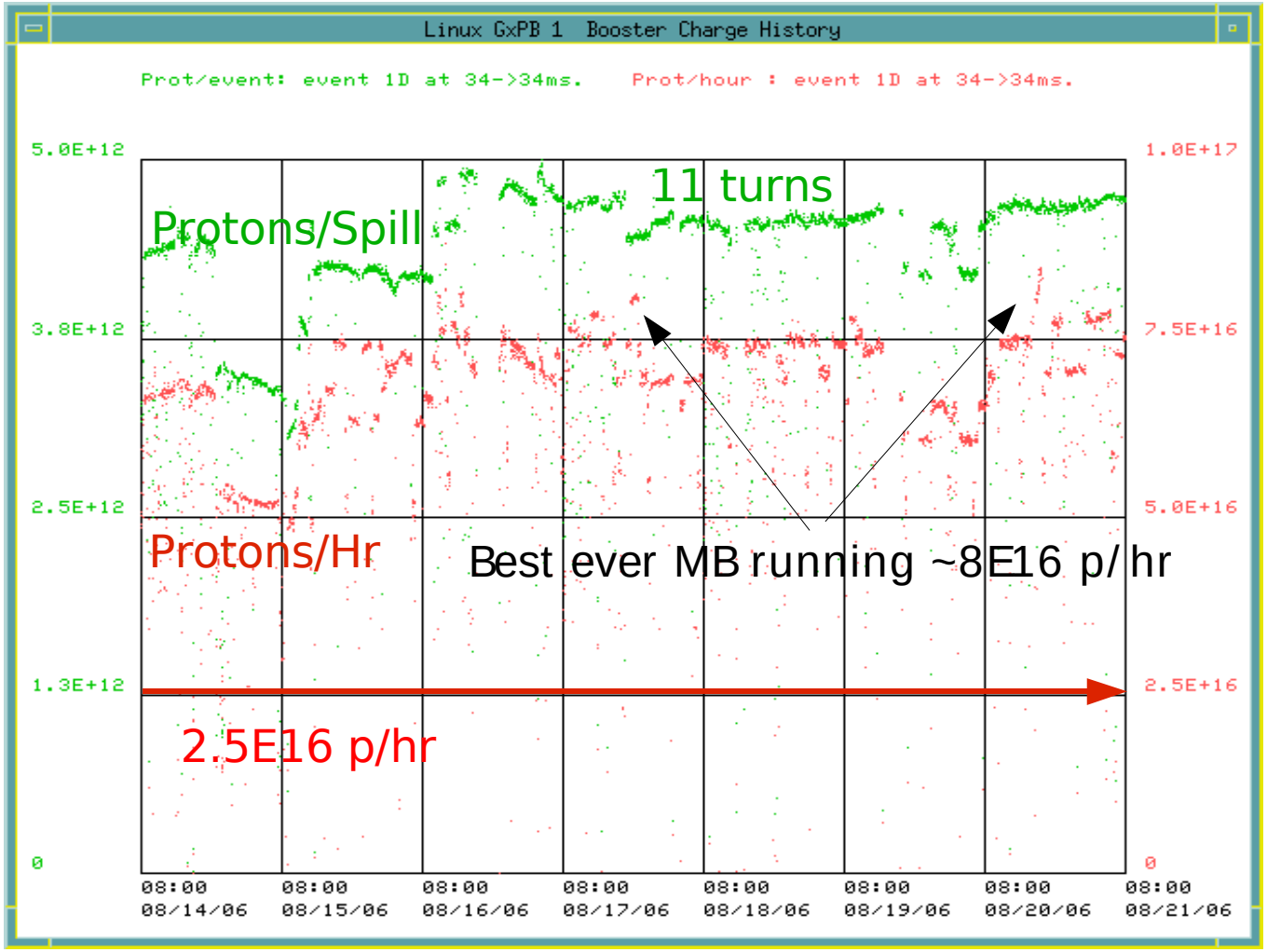
Beam Uptime Fraction

(fraction of time with beam)

Largest week: 97.4 %

Latest week: 82.8 %

One Week MB Proton/Hr Summary



14 Aug

21 Aug

Outstanding Booster running!

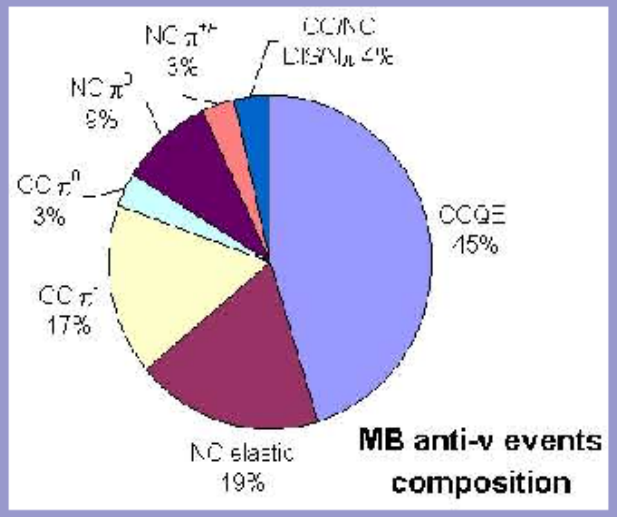
Antineutrino Scattering with MiniBooNE

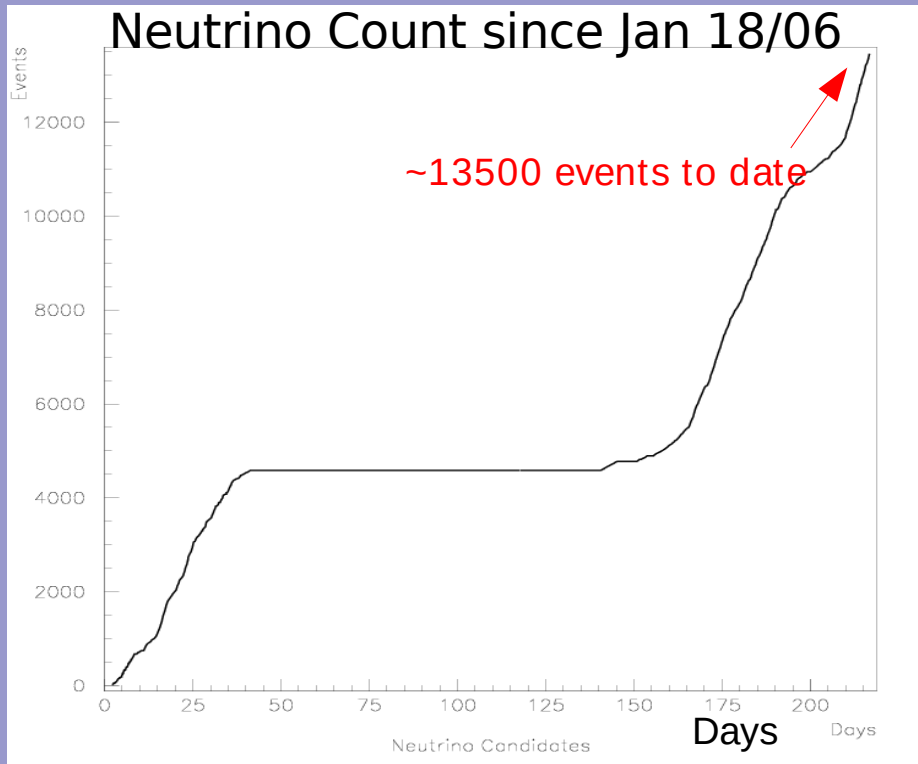
$\bar{\nu}$ events expected in next year:

- from 2E20 "protons-on-target" (POT)
- with fiducial radius of 500cm
- before cuts
- ν event (wrong-sign) contribution not included

$\bar{\nu}$ channel	events
all channels	54k
CC quasielastic	24k
NC elastic	10k
CC π^-	8.9k
CC π^0	1.7k
NC π^0	4.9k
NC $\pi^{+/-}$	1.8k

"CC" = charged current
"NC" = neutral current





0.63E20 POT collected so far....

2.5E16 Pr/Hr => 1.5E20 POT/yr

Neutrino Data Set

- Determine usable POT for oscillation analysis:
- 6.30E20 POT delivered.
  - 0.33E20 POT systematic studies.
  - 0.24E20 POT beam off target.
  - 0.04E20 POT toroid disagreement.
- 5.69E20 POT for oscillation search.
- ~90% efficiency, 95% if we exclude systematic studies!

This Weeks Plan

- Try to maintain good uptime to take advantage of excellent beam.
- Continue taking quality anti-neutrino physics data!