All Experimenter's Meeting

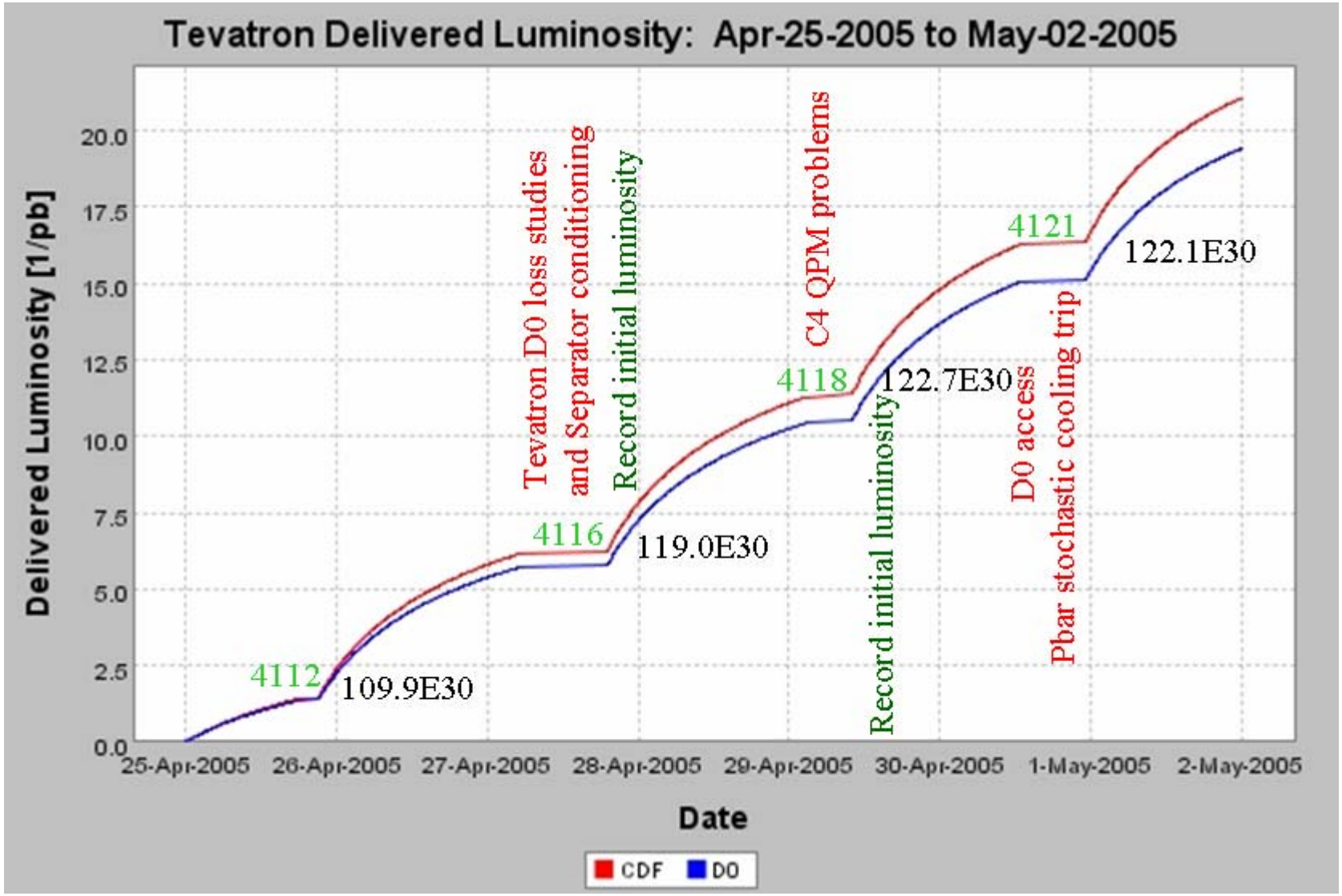
Dave McGinnis

May 2, 2005

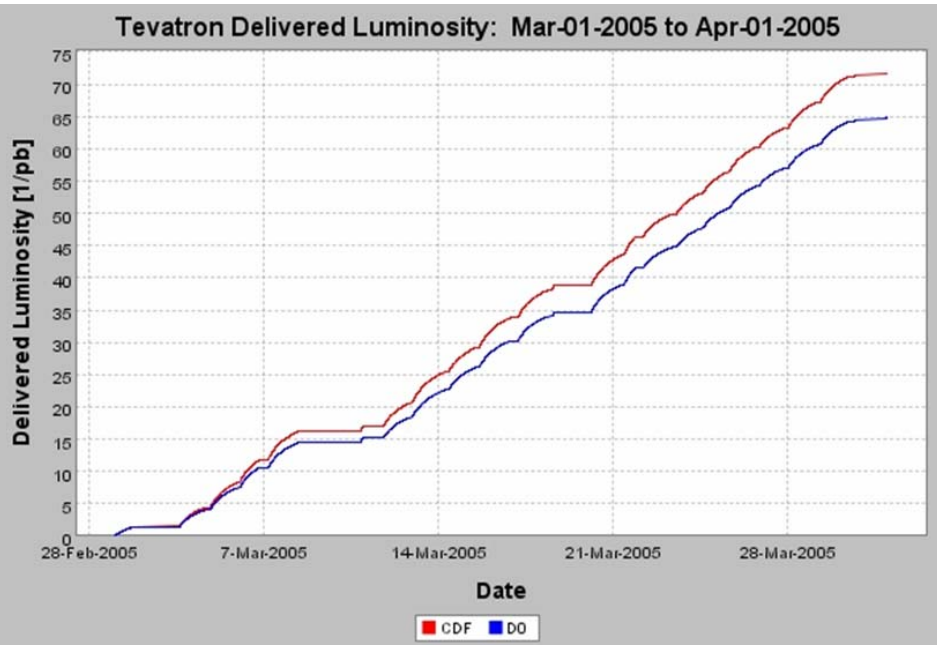
Store Summary

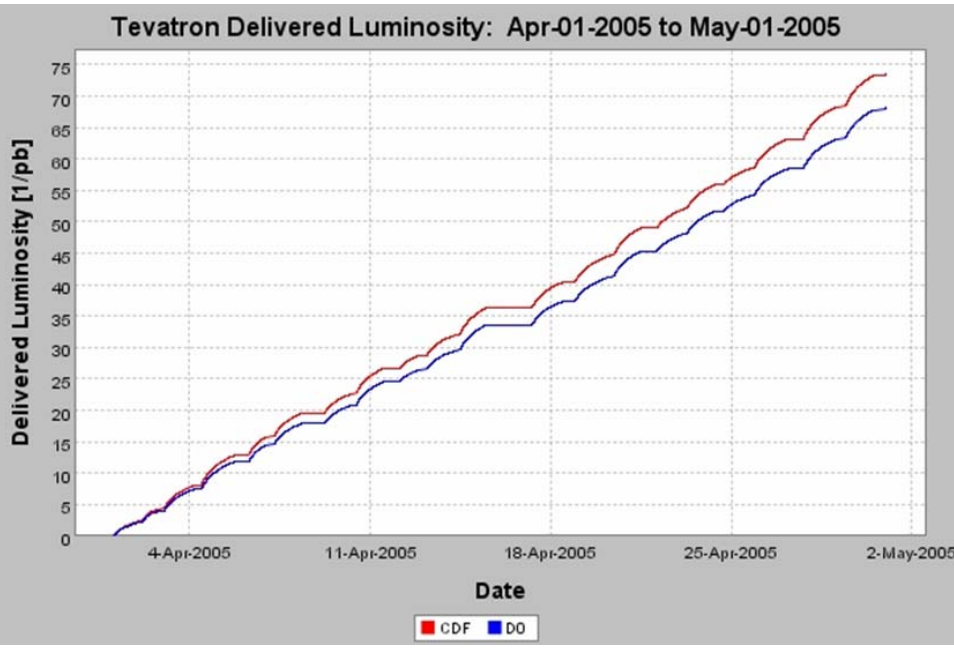
Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
4112	109.9	4,754	Planned	32.1	209.5	Combination shot (119.6/89.9E10)
4116	119.0	5,155	Planned	32.2	294.8	Combination shot (157.6/137.2E10), Record initial luminosity, Record integrated luminosity
4118	122.7	4,996	Planned	27.1	269.0	Combination shot (145.4/123.6E10), Record initial luminosity
4121	122.1	5,181	Planned	29.9	274.9	Combination shot (154.0/120.9E10), Record integrated luminosity

Store Summary

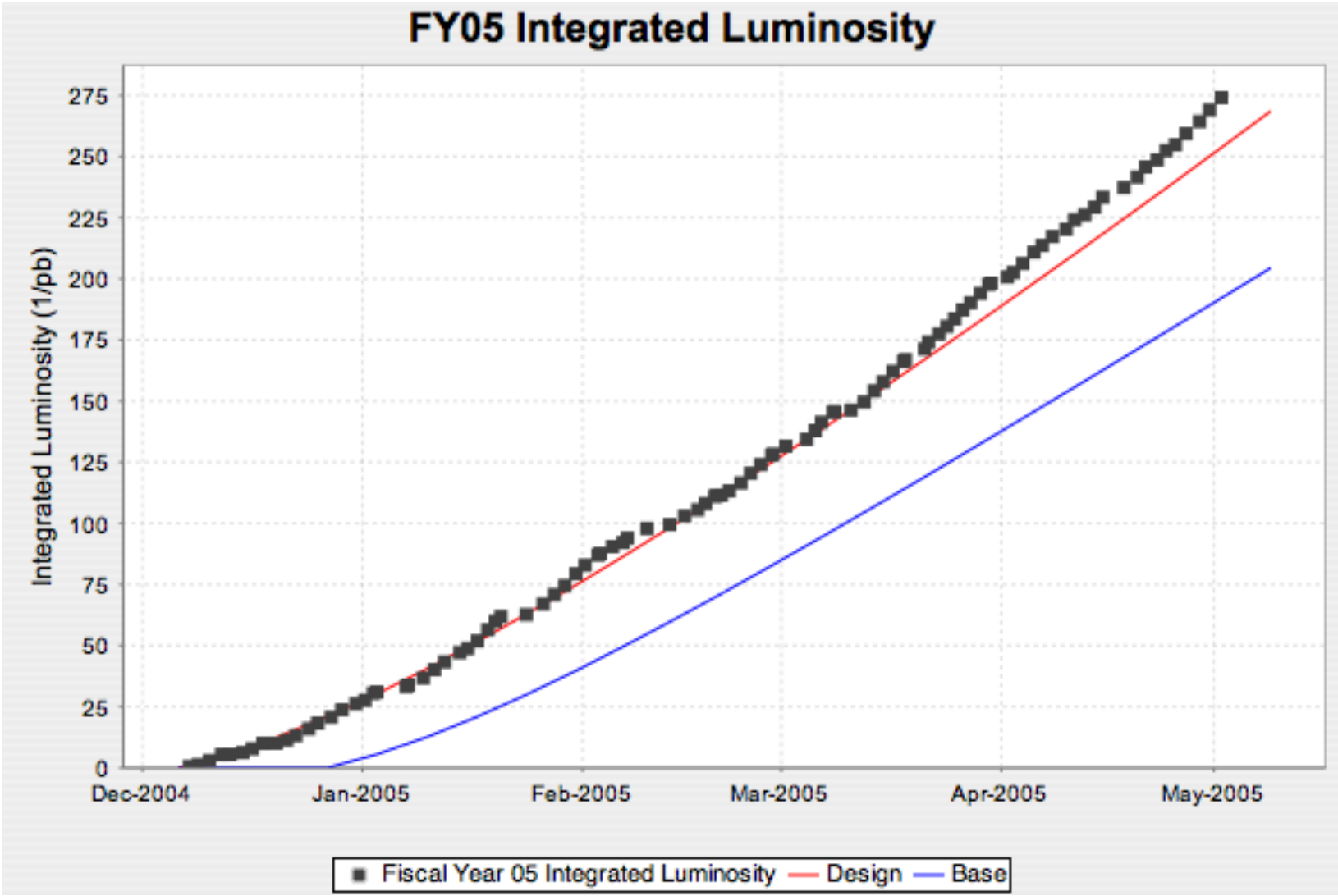


March-April Integrated Luminosity

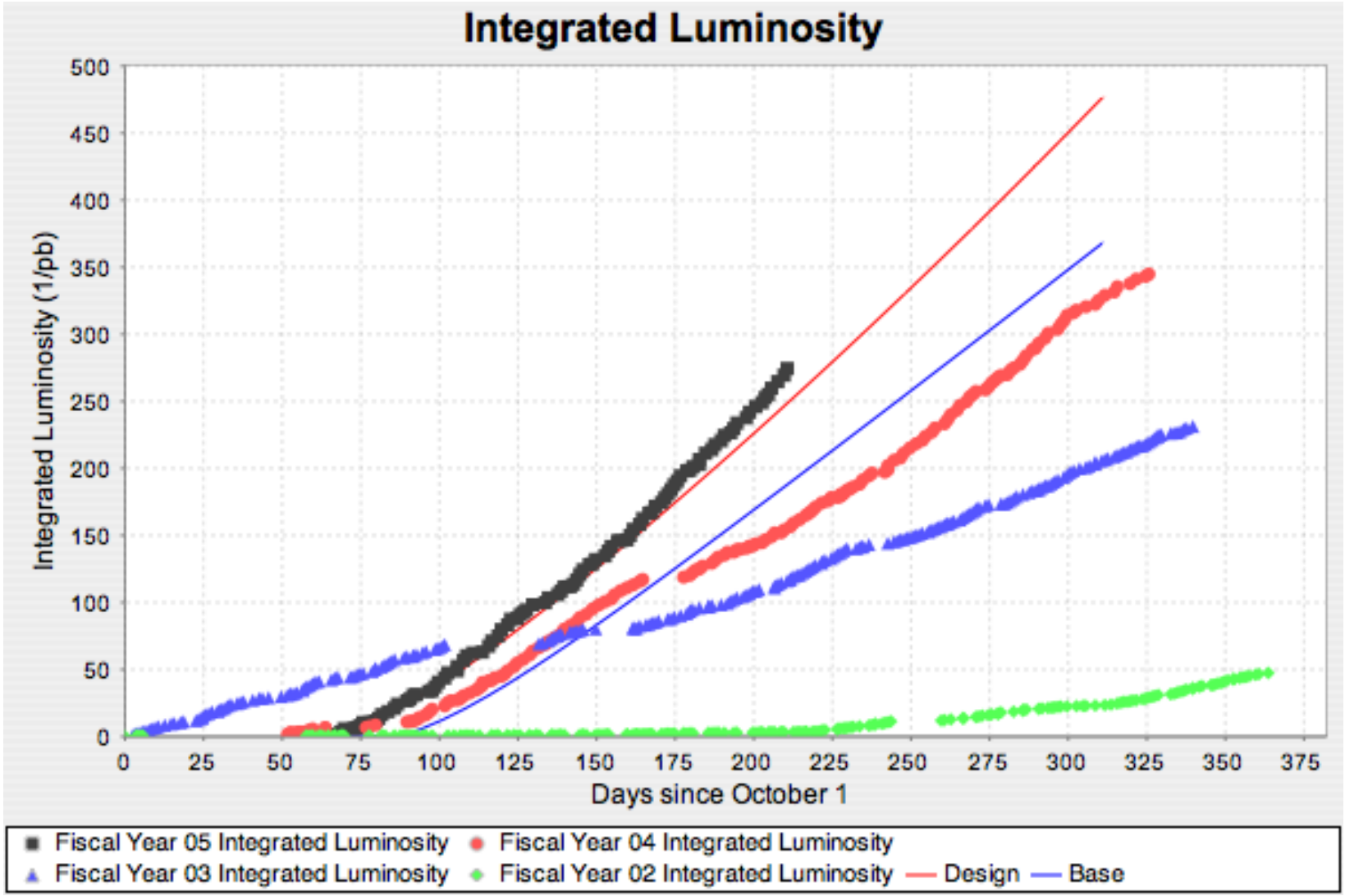




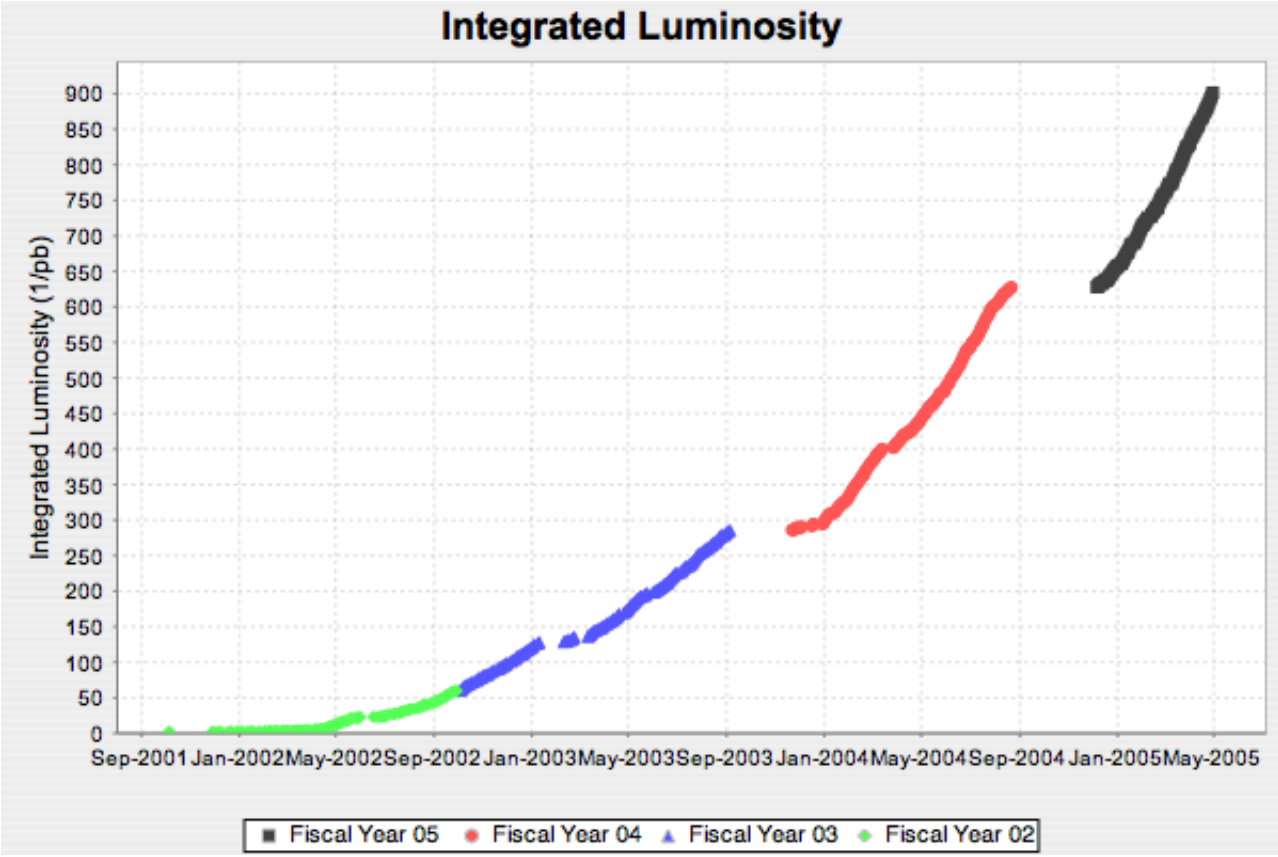
FY05 Integrated Luminosity



Integrated Luminosity



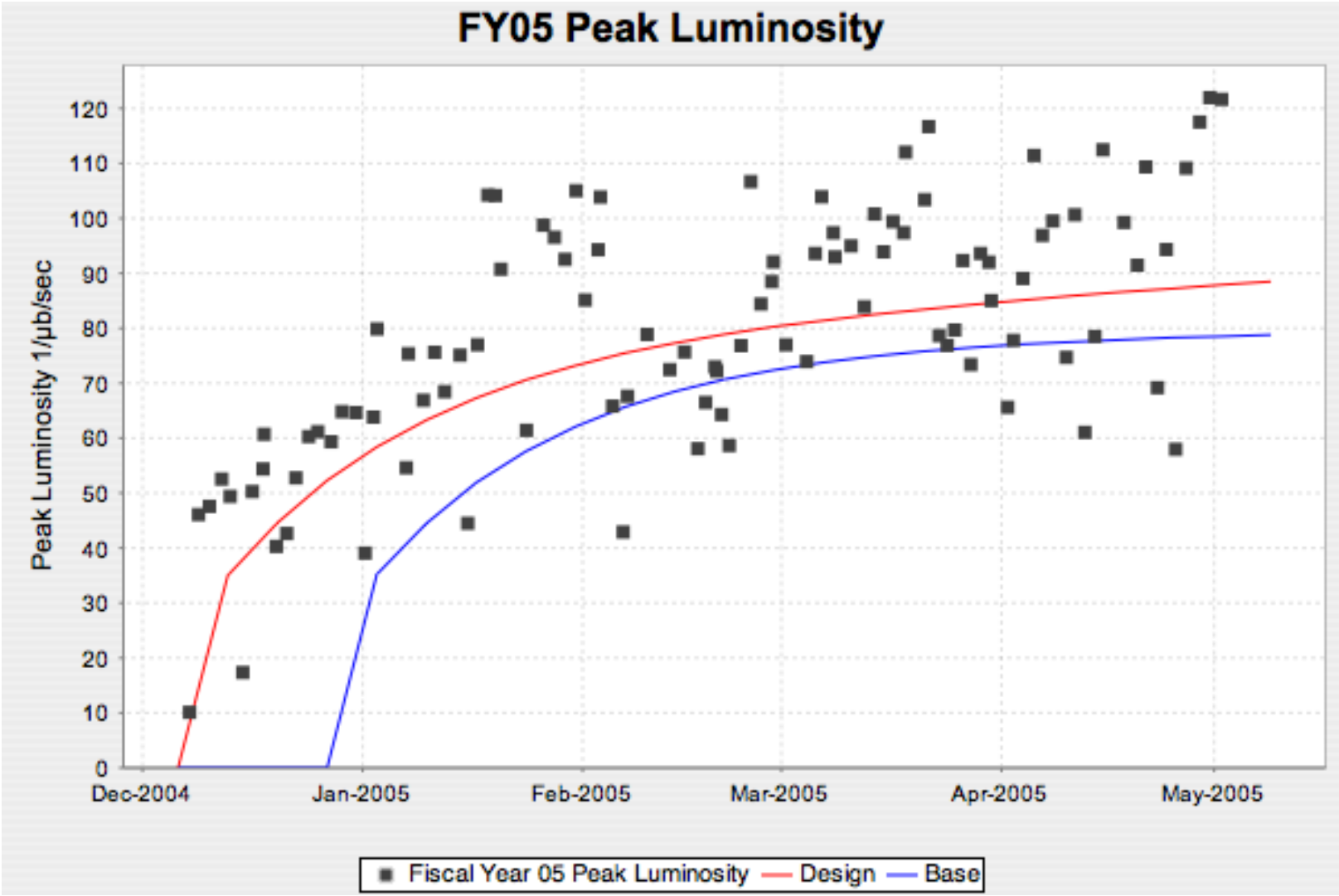
1 fb^{-1} Watch



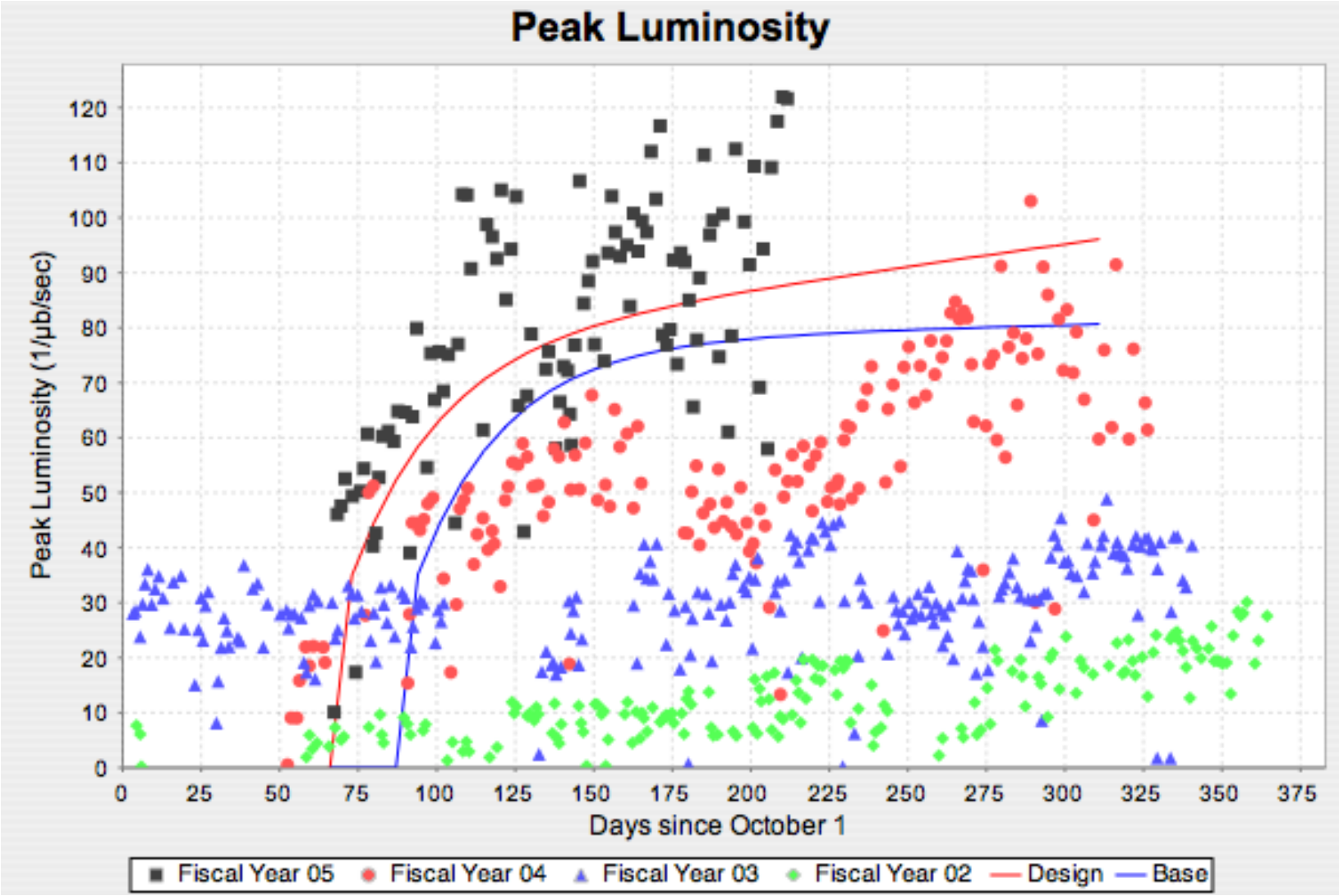
Projection: June 24, 2005 02:46:37.12 - (over-under)

Pot: $42.36

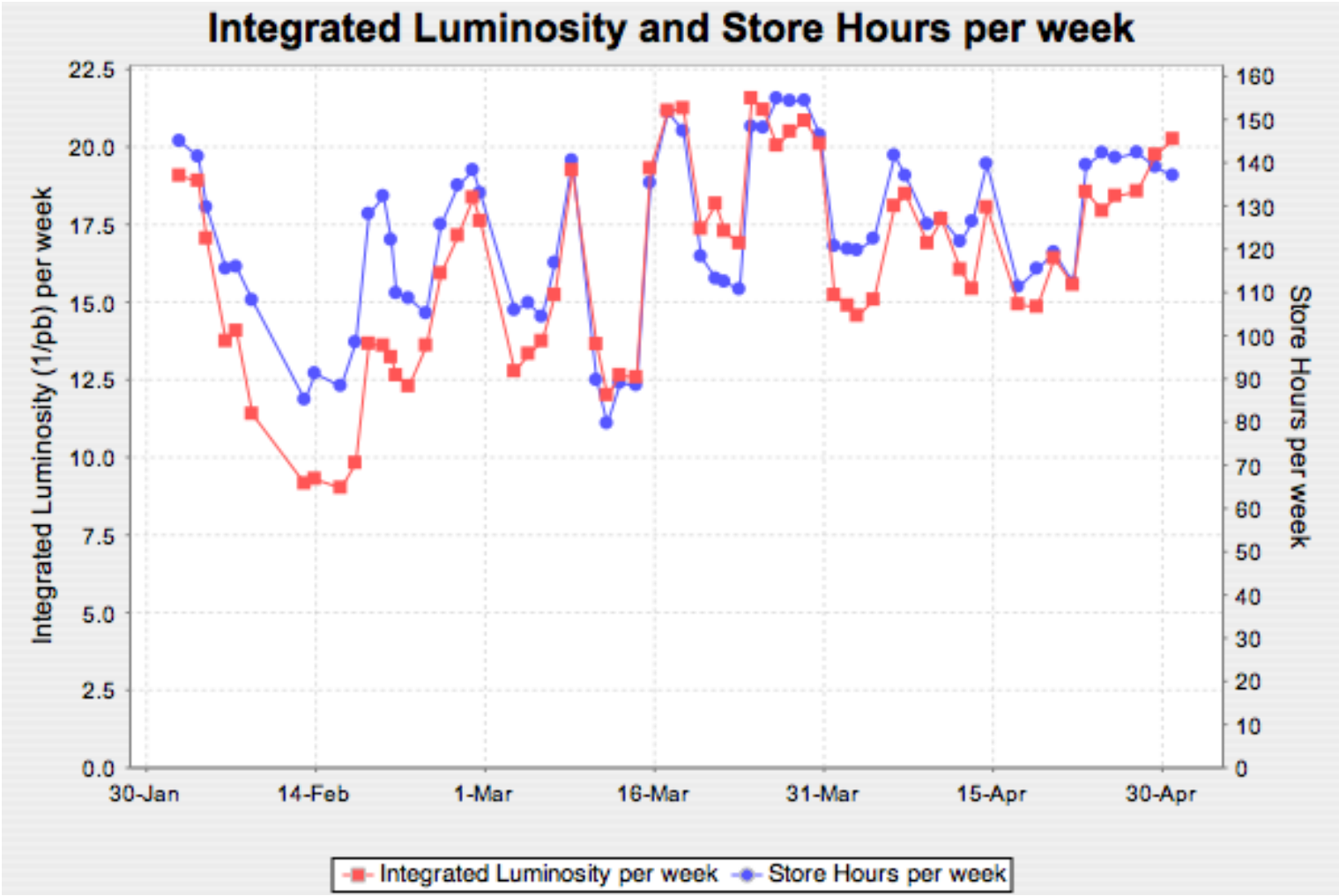
FY05 Peak Luminosity



FY05 Goals Peak Luminosity

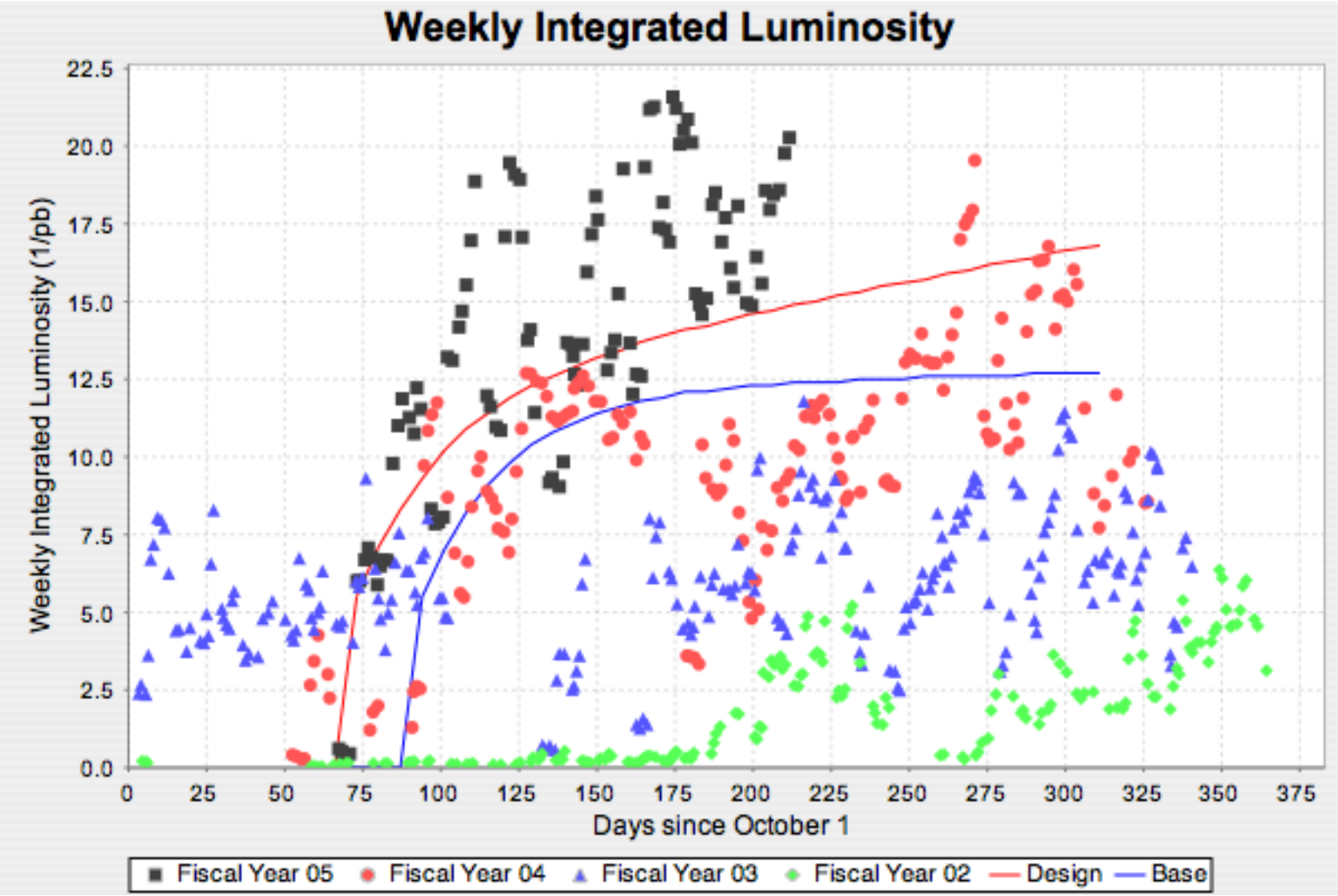


Integrated Luminosity and Store Hours per Week



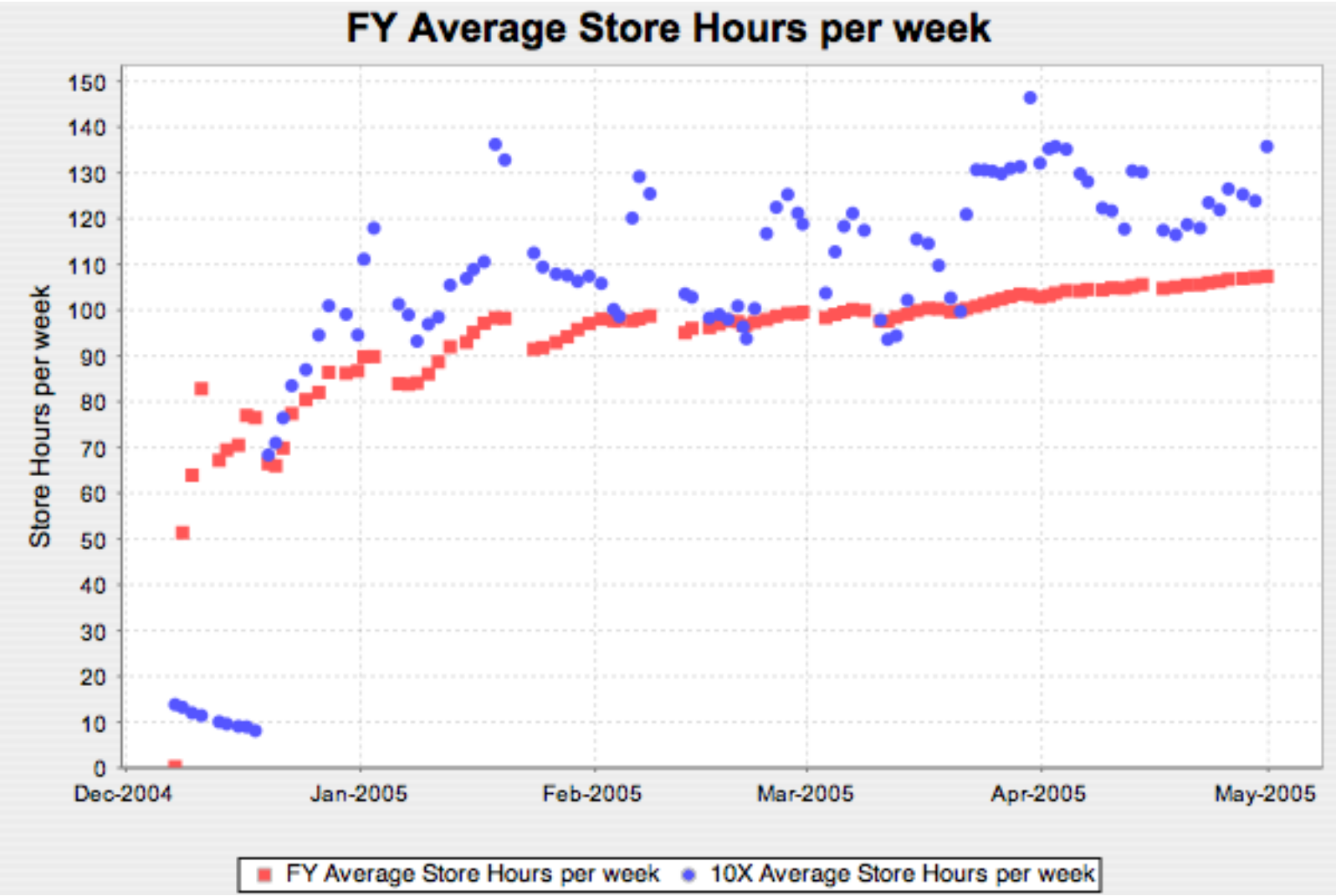
5 Store Running Average

FY05 Goals Weekly Integrated Luminosity

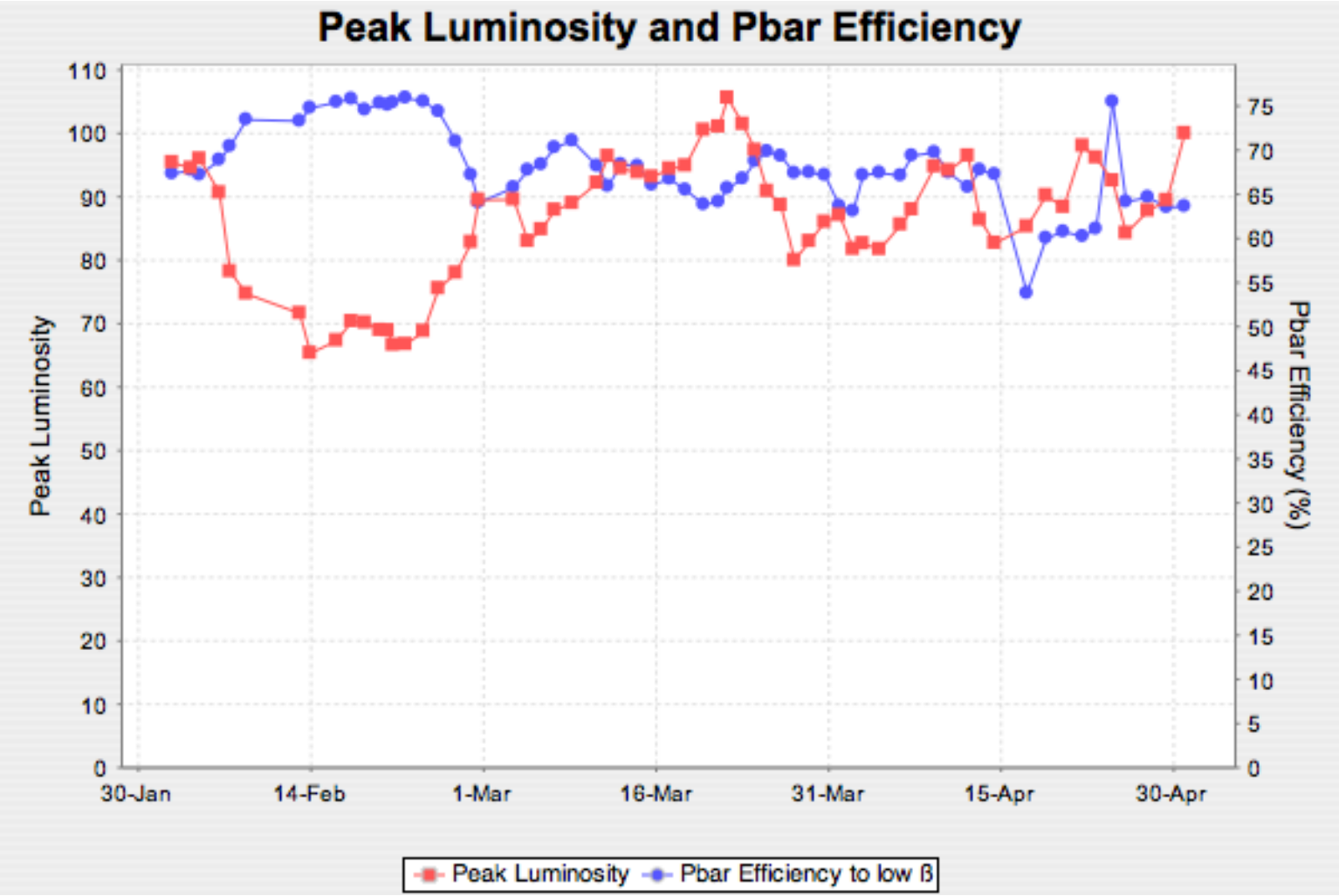


5 Store Running Average

FY05 Average Store Hours per Week



Peak Luminosity and Pbar Efficiency

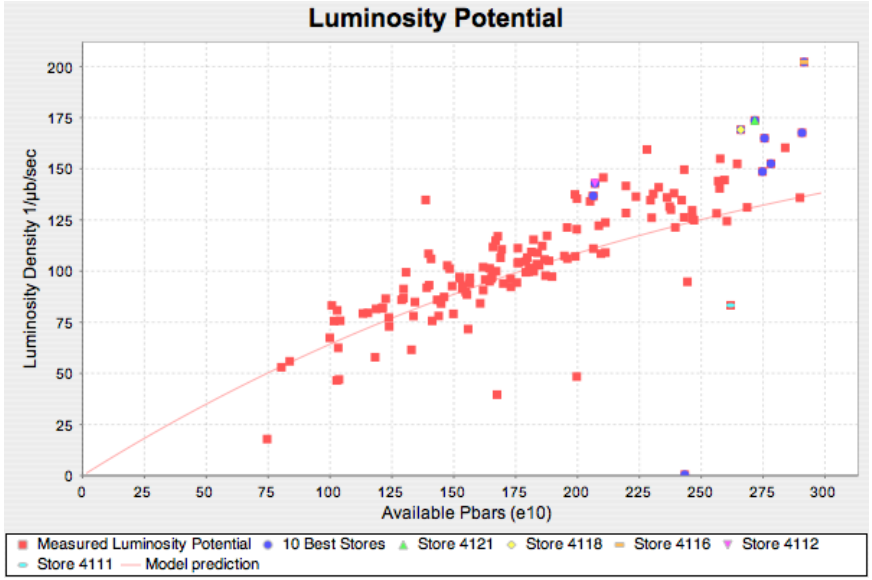


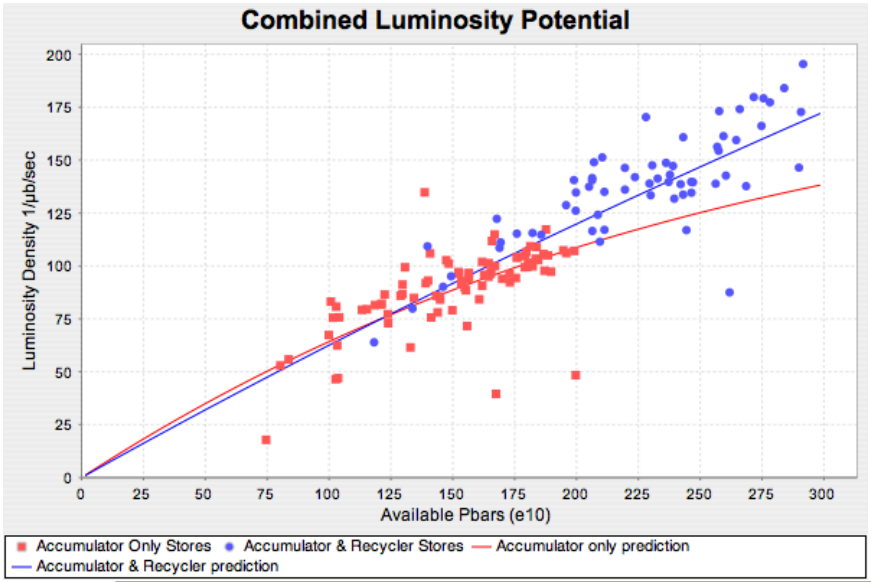
5 Store Running Average

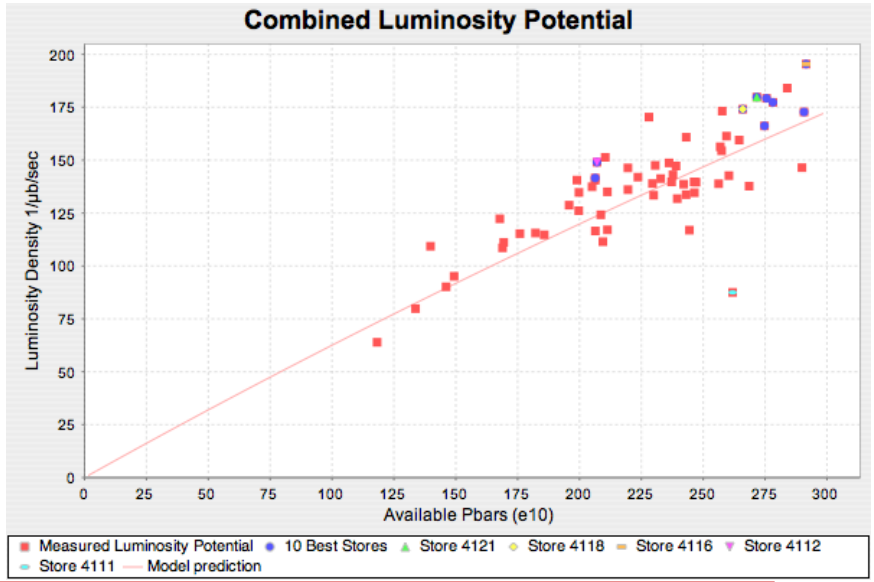
Data Summary Table

		Luminosity Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Initial Luminosity (Average)	121.5	121.8	98.1	113.7	78.5	71.1	96.1	80.7	$x10^{30}cm^{-2}sec^{-1}$
Integrated Luminosity per Store (Avera	4957	4806	4066.6	3977.5	2762.6	2660	3369	3190	nb^{-1}
Luminosity per week (Averaged)	-	-	19	-	13.2	11.8	16.8	12.7	pb^{-1}
Store Length	30.1	27.3	29	24.4	22.5	24.5	20	25	Hours
Store Hours per week	-	-	135.5	-	107.9	108.3	100	100	Hours
Shot Setup Time	2	2	2.8	2.6	2.9	2.6	2.6	2.6	Hours
		TEVATRON Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Protons per bunch	232.3	243.1	238.5	237.2	226	247.3	260	260	$x10^{9}$
Antiprotons per bunch	43.5	42.8	35.5	41.1	31.8	29.9	42	34	$x10^{9}$
Proton Efficiency to Low Beta	63.3	62.4	57.9	55.9	61.9	72.7	-	-	%
Pbar Transfer efficiency to Low Beta	68.4	68.1	62.3	60.9	69.7	74	76	74	%
HourGlass Factor	0.66	0.66	0.67	0.66	0.67	0.68	0.65	0.65	
Effective Emittance	13.5	13.9	14.3	14	15.4	18.1	18.5	17	π-mm-mrad
		Antiproton Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Zero Stack Stack Rate	16.4	13.4	14.8	14.6	13.3	12.2	24.5	14	$x10^{10}$/hour
Normalized Zero Stack Stack Rate	2.5	2.2	2.3	2.3	2.3	2.3	3.1	2.3	$x10^{-2}$/hour
Average Stacking Rate	9.2	6.3	7.2	7.3	7.4	6.2	10.1	6.6	$x10^{10}$/hour
Stacking Time Line Factor	79.4	60.6	63.7	67.3	75.1	76.6	75	75	%
Stack Size at Zero Stack Rate	307.5	382.5	364.1	359.2	382.9	332.6	300	300	$x10^{10}$
Protons on Target	6.4	6.2	6.3	6.2	5.9	5.2	8	6.2	$x10^{12}$
Start Stack	271.9	266.3	219.7	260.8	190.1	170.7	216	181	$x10^{10}$
End Stack	43.2	40.5	31.2	42.6	22.3	15.8	15	15	$x10^{10}$
Unstacked Pbars	228.7	225.8	188.5	218.2	167.8	154.9	201	166	$x10^{10}$

Stack Size Potential







Studies

TEV Studies

Date	Duration (Hr)	Description
4/25/2005	0.5	Helix amplitude vs. luminosity
4/27/2005	8.0	Low beta step 24 parse and separator conditioning
	8.5	Sum for Week
	224.5	Sum for Year
	10.9	Average per week

Pbar Studies

Date	Duration (Hr)	Description
4/27/2005	6.5	Reverse protons, Debuncher orbit and lost pbars
4/28/2005	6.0	Reverse protons, Debuncher orbit
	12.5	Sum for week
	72.8	Sum for year
	3.5	Average per week

MiniBoone

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Summary for Event 1D
From 18-APR-2005 00:00:00
  to 25-APR-2005 00:00:00

Percentage up time: 82.7
Total Events:     2445088
Total Protons:    8.96E+18
Average Events/second:        4.6
Average protons/Event:        3.90E+12
Average protons/hour:         6.45E+16
Maximum protons/hour:         7.89E+16   04/20/05
(protons out)/(protons in):   .832
(Joules lost)/(1e12 prot):    20.7
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Summary for Event 1D
From 25-APR-2005 00:00:00
  to 02-MAY-2005 00:00:00

Percentage up time: 79.6
Total Events:     2238720
Total Protons:    8.33E+18
Average Events/second:        4.47
Average protons/Event:        3.87E+12
Average protons/hour:         6.23E+16
Maximum protons/hour:         7.60E+16   04/30/05
(protons out)/(protons in):   .819
(Joules lost)/(1e12 prot):    21.5

Beam on averages of collected data
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Down 7% from last week

Plan for the Week

- Complex
  - Safety System Tests
- Proton Source
  - Slip Stacking
  - Cogging
- Main Injector
  - Slip Stacking Studies
  - NUMI Startup
  - Pbar Transverse Injection Dampers
  - 2.5 MHz Acceleration in concert with electron cooling commissioning
- Recycler
  - Recycler Only Store
  - Accumulator to Recycler Transfers
  - Electron Cooling commissioning
- Pbar
  - Beam Based Alignment
    - D-A line
    - Debuncher
  - Slip Stacking Studies
    - Production vs Beam on Target
  - Accumulator to Recycler Transfers
  - Core adjustments
    - Chromaticity
    - Coupling
- Tevatron
  - Step 24-25 loss
    - Store to Store Chromaticity Adjustments
  - Tune Tracker Studies
  - 150 GeV Lattice Measurements
  - CDF-DO Low Beta lattice measurements