All Experimenter's Meeting

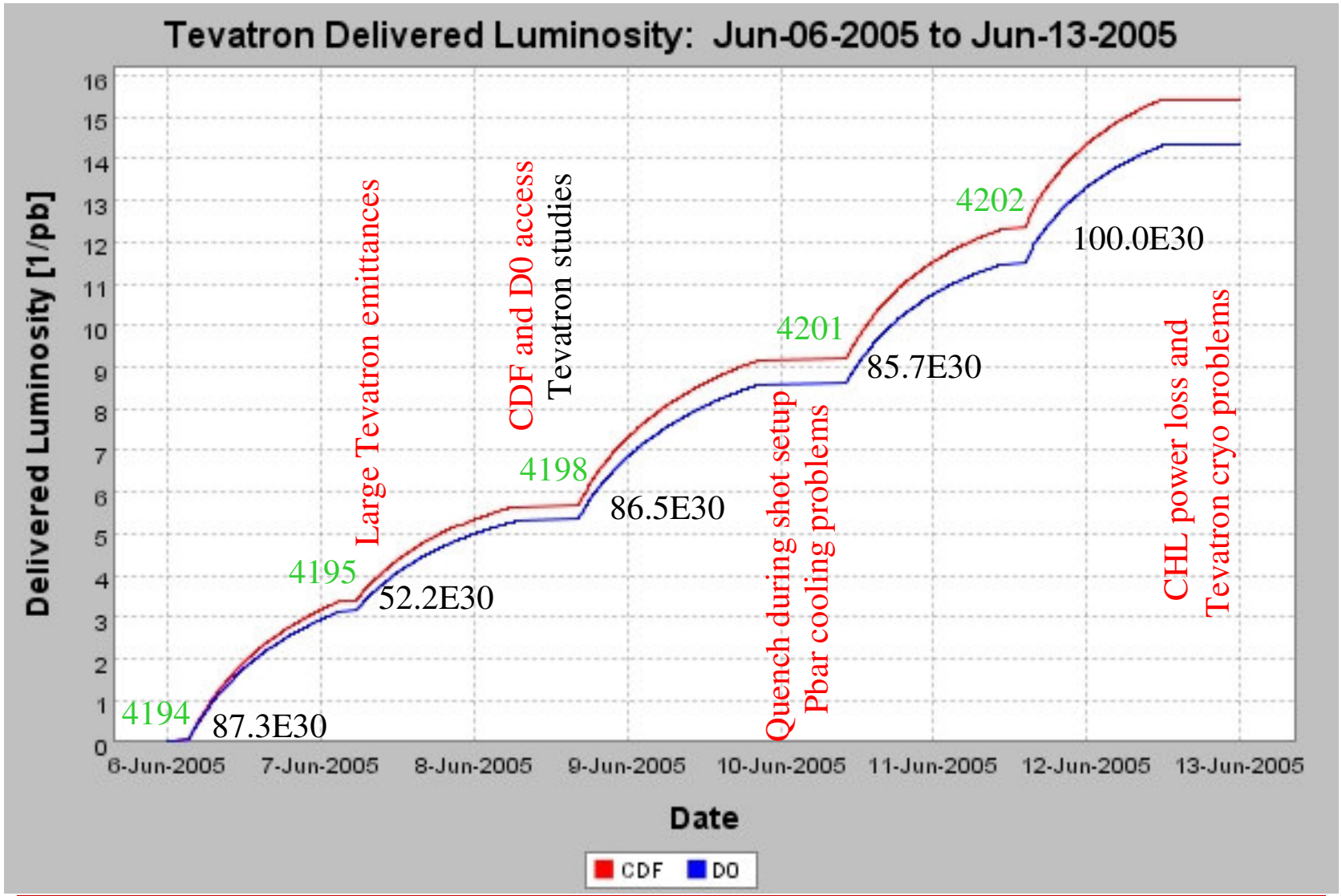
Jim Morgan

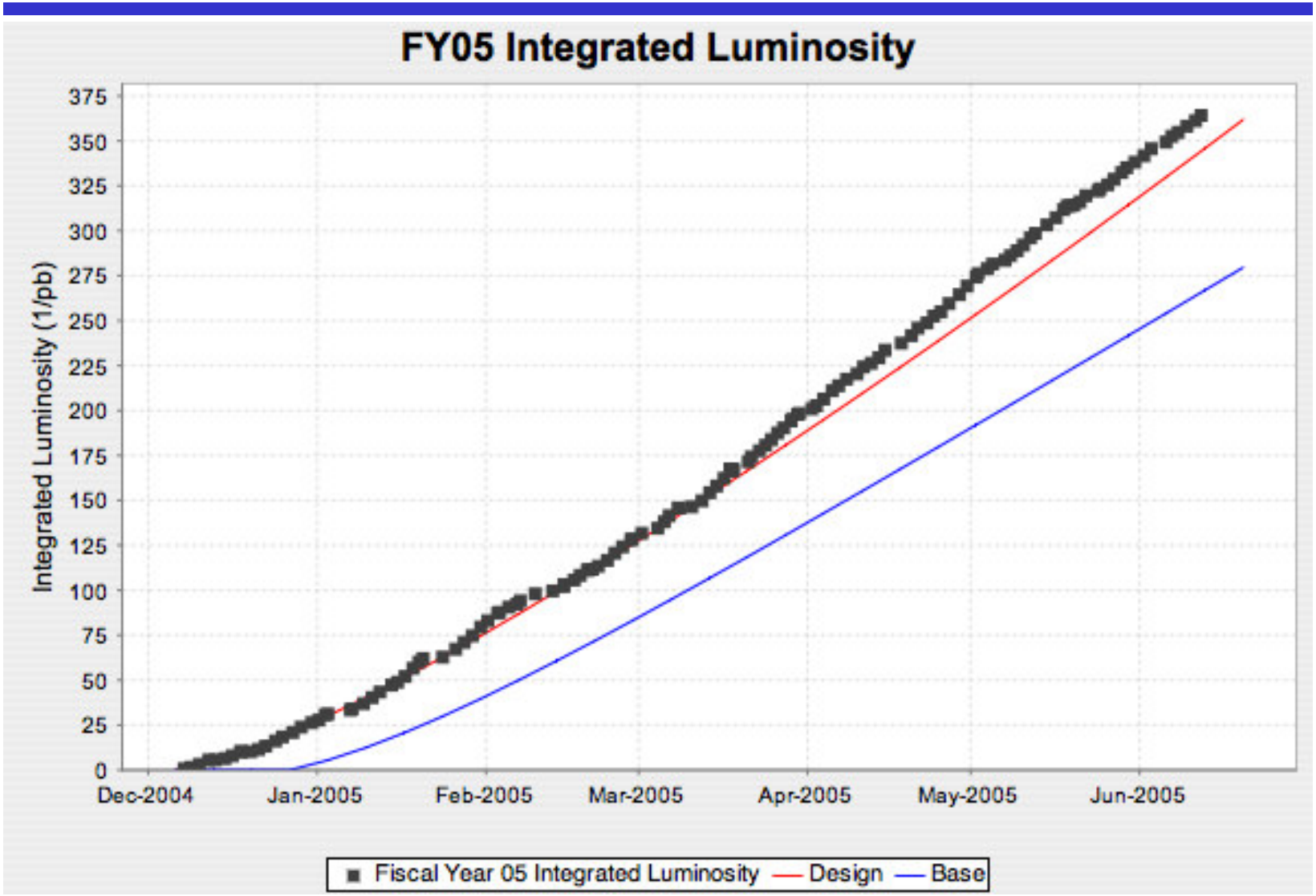
June 13, 2005

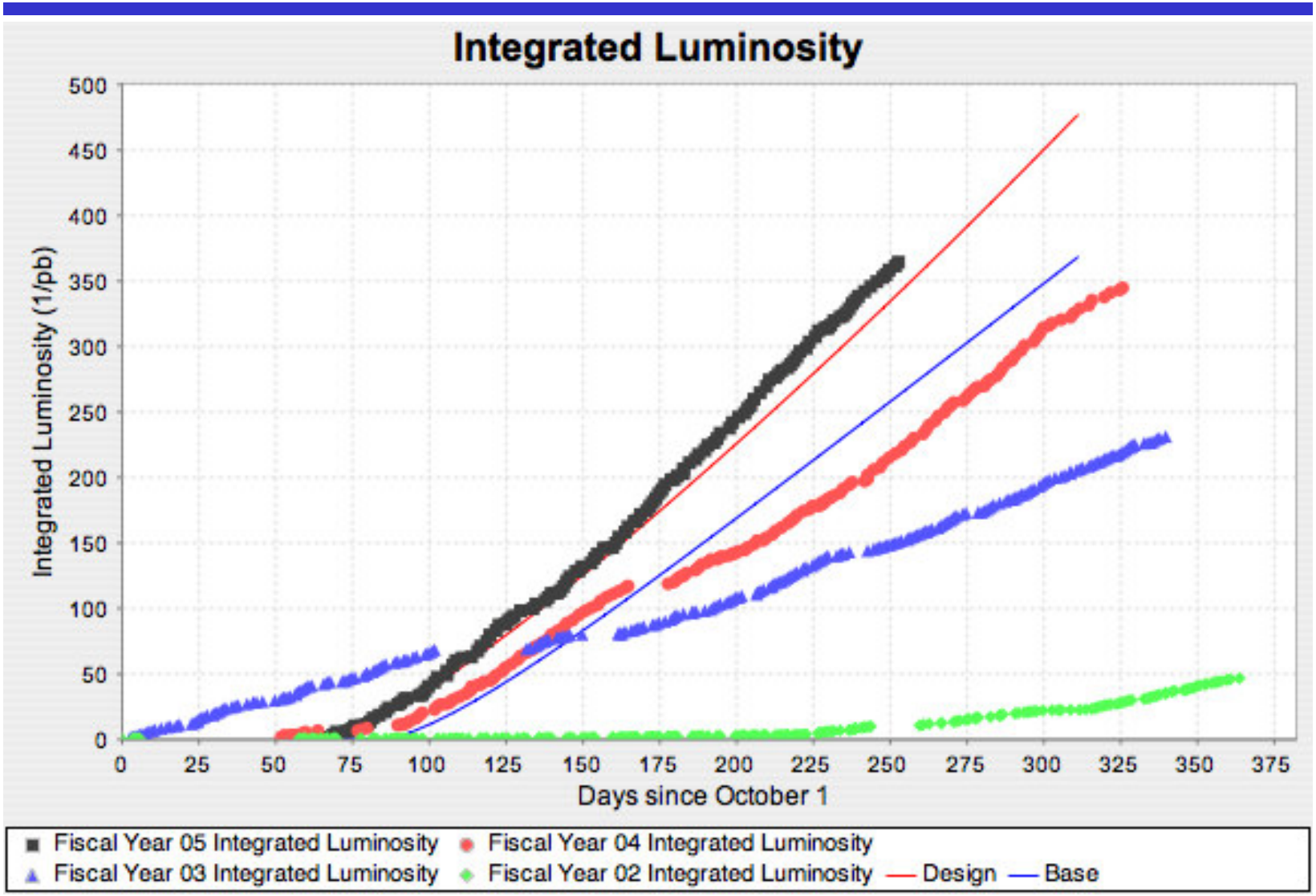
Stores Summary

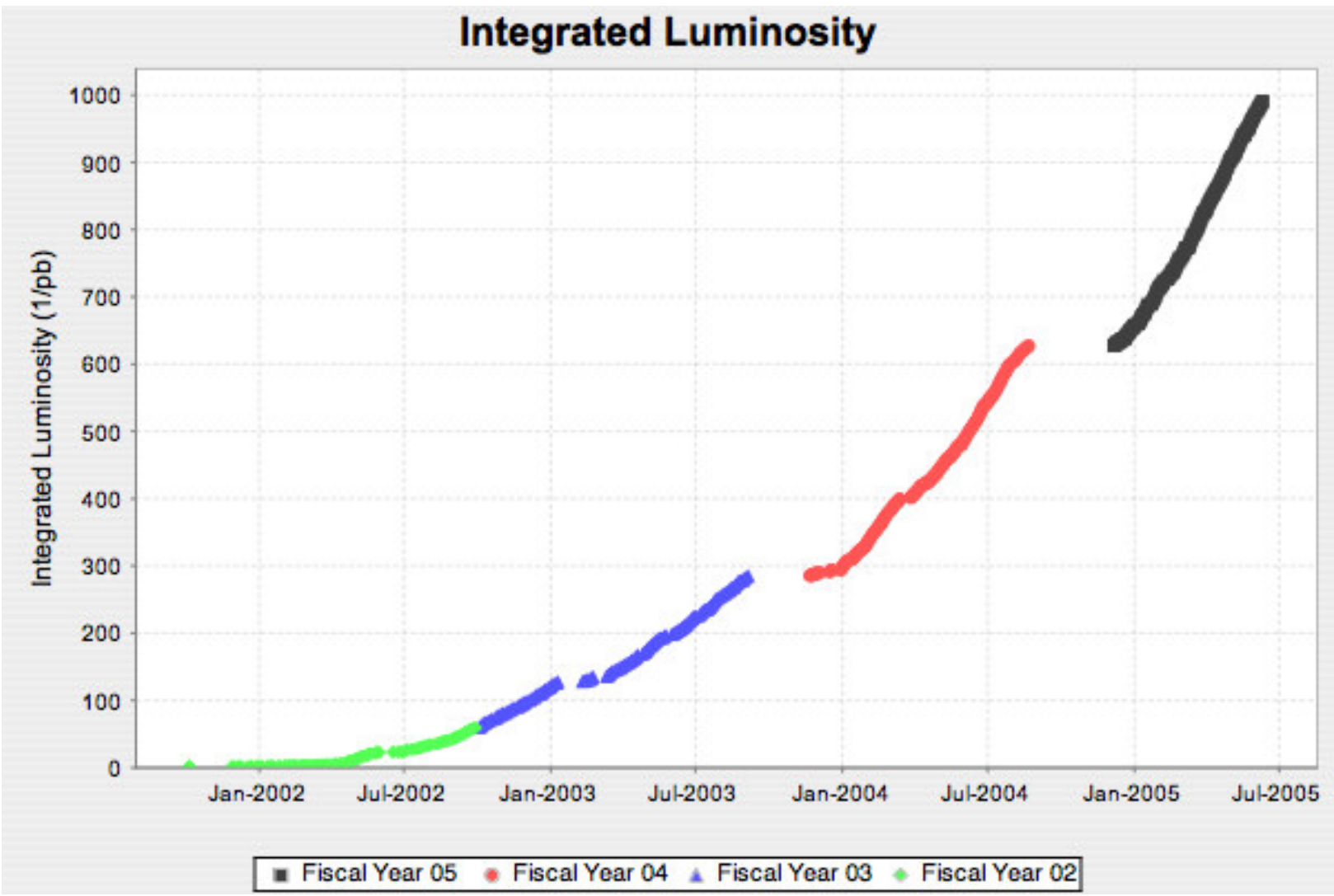
Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
4194	87.3	3,324	Planned	23.7	218.8	Combination shot (90.7/128.1E10)
4195	52.2	2,282	Planned	25.5	237.2	Combination shot (152.9/84.3E10), emittance blow-up in Tev
4198	86.5	3,534	Planned	28.7	180.9	Combination shot (130.1/50.8E10)
4201	85.7	3,155	Planned	24.6	198.4	Combination shot (139.4/59.0E10), Tev at150 GeV longer than desired
4203	100.0	3,119	Planned	21.8	210.5	Combination shot (136.5/74.0E10), ended early due to CHL power loss

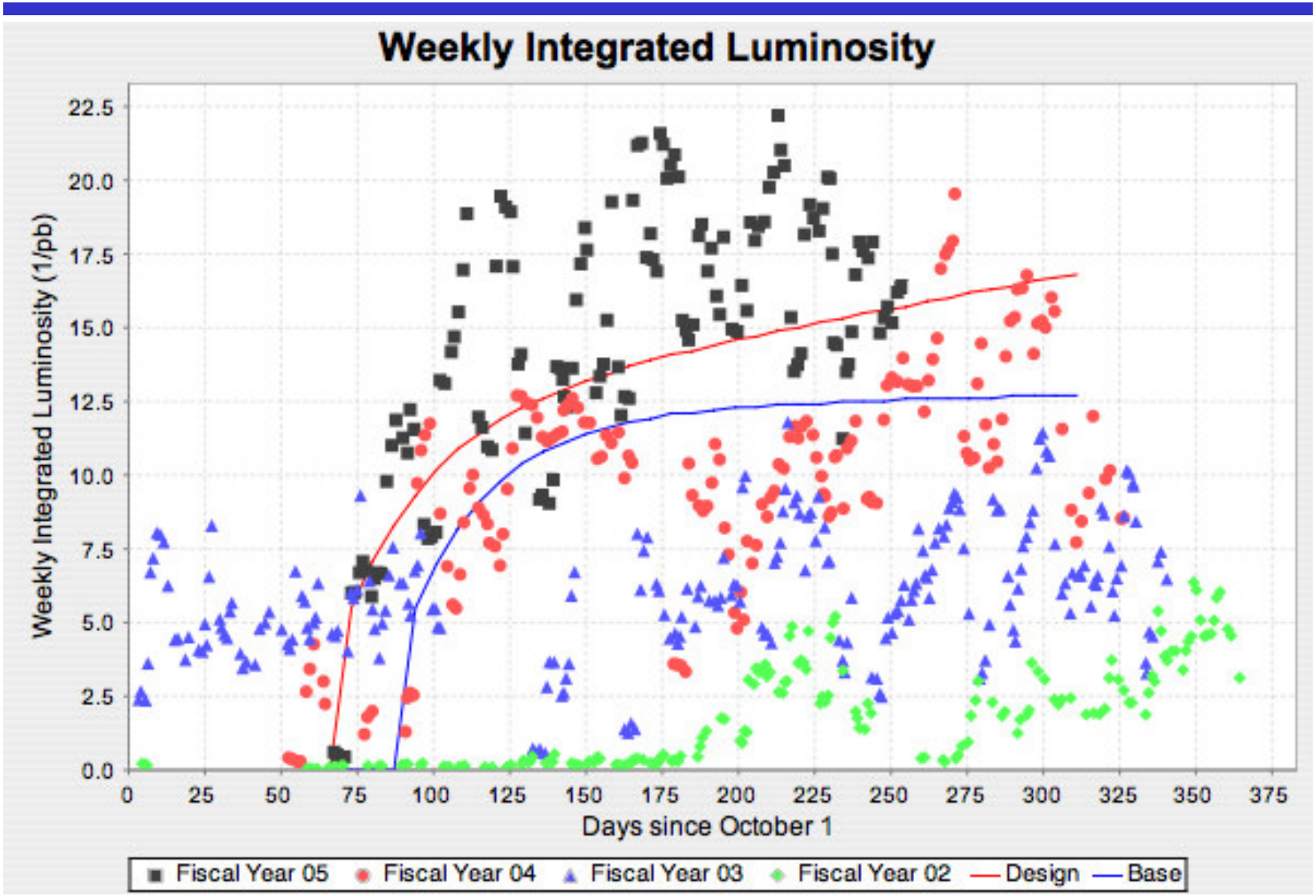
Integrated Luminosity for the week

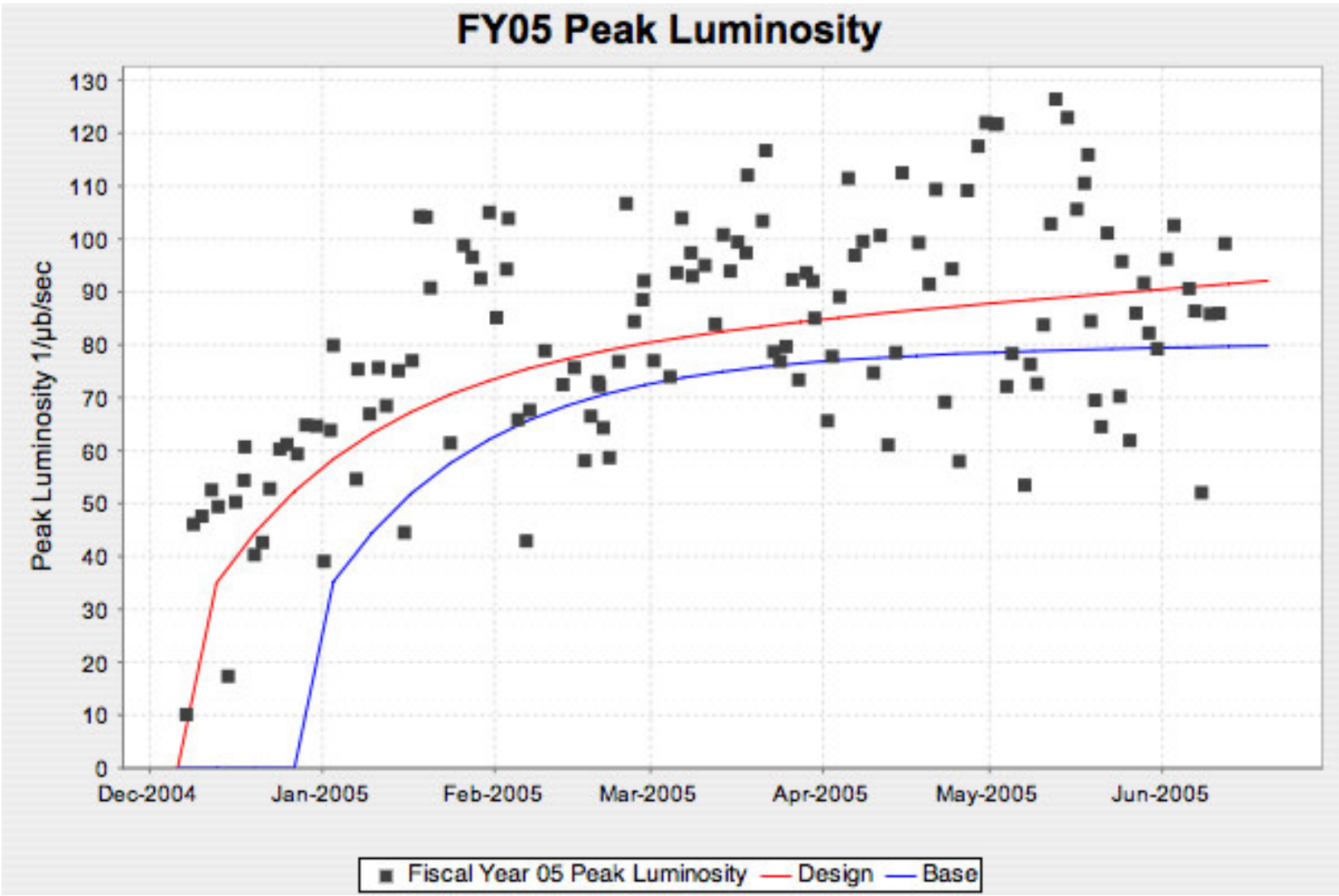


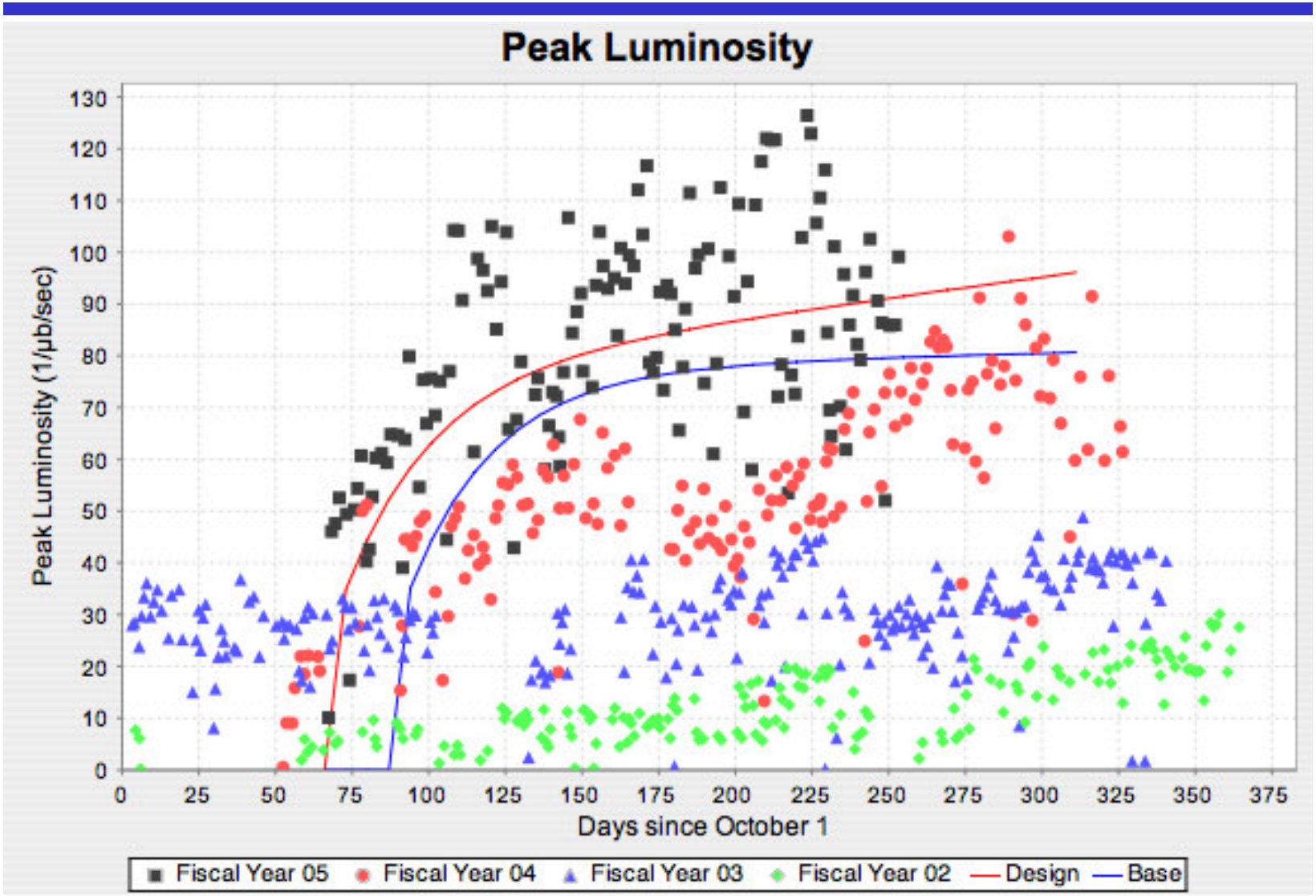

FY05 Integrated Luminosity
Integrated Luminosity (1/pb)
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
Dec-2004
Jan-2005
Feb-2005
Mar-2005
Apr-2005
May-2005
Jun-2005
Fiscal Year 05 Integrated Luminosity
Design
Base

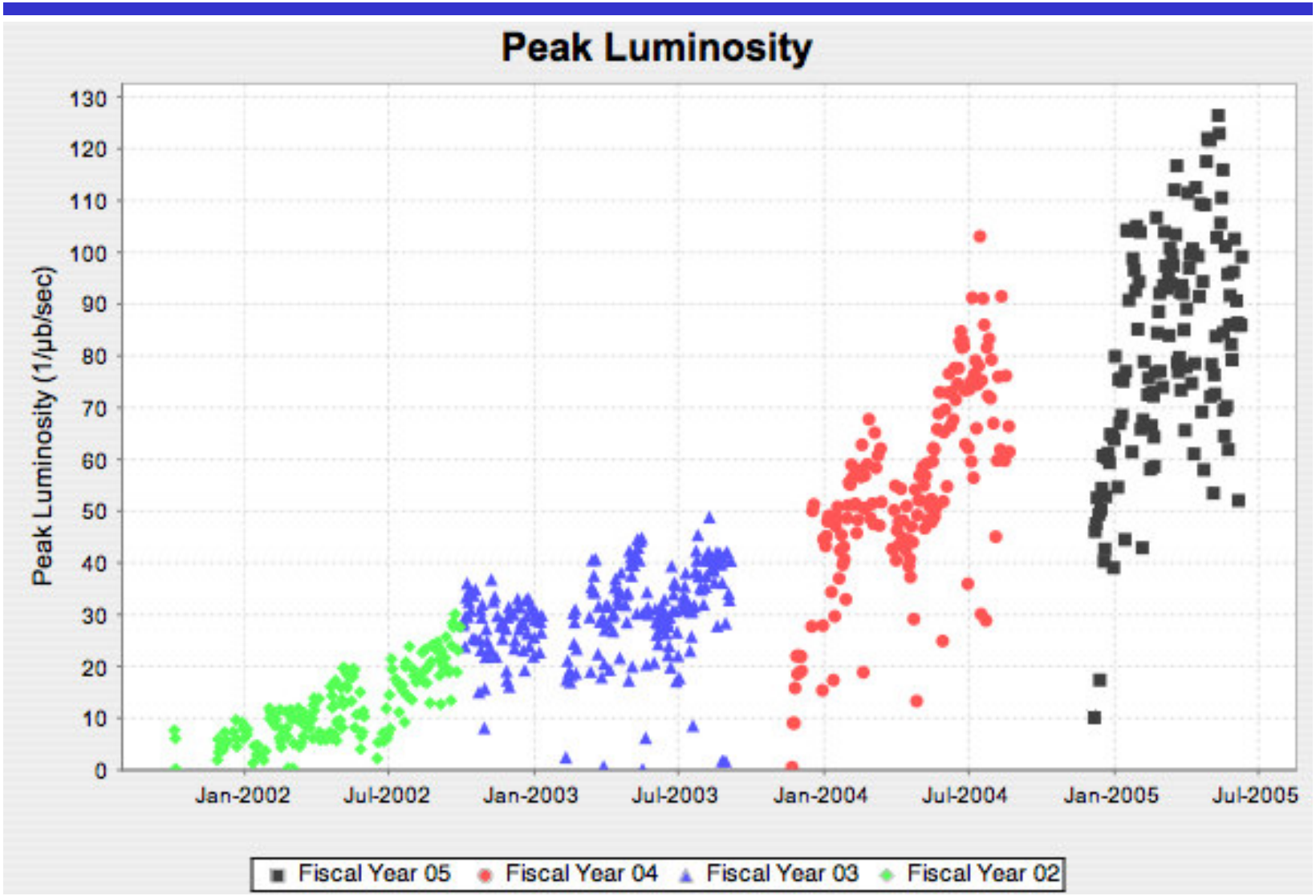

Integrated Luminosity
Integrated Luminosity (1/pb)
500
450
400
350
300
250
200
150
100
50
0
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
Days since October 1
Fiscal Year 05 Integrated Luminosity
Fiscal Year 04 Integrated Luminosity
Fiscal Year 03 Integrated Luminosity
Fiscal Year 02 Integrated Luminosity
Design
Base

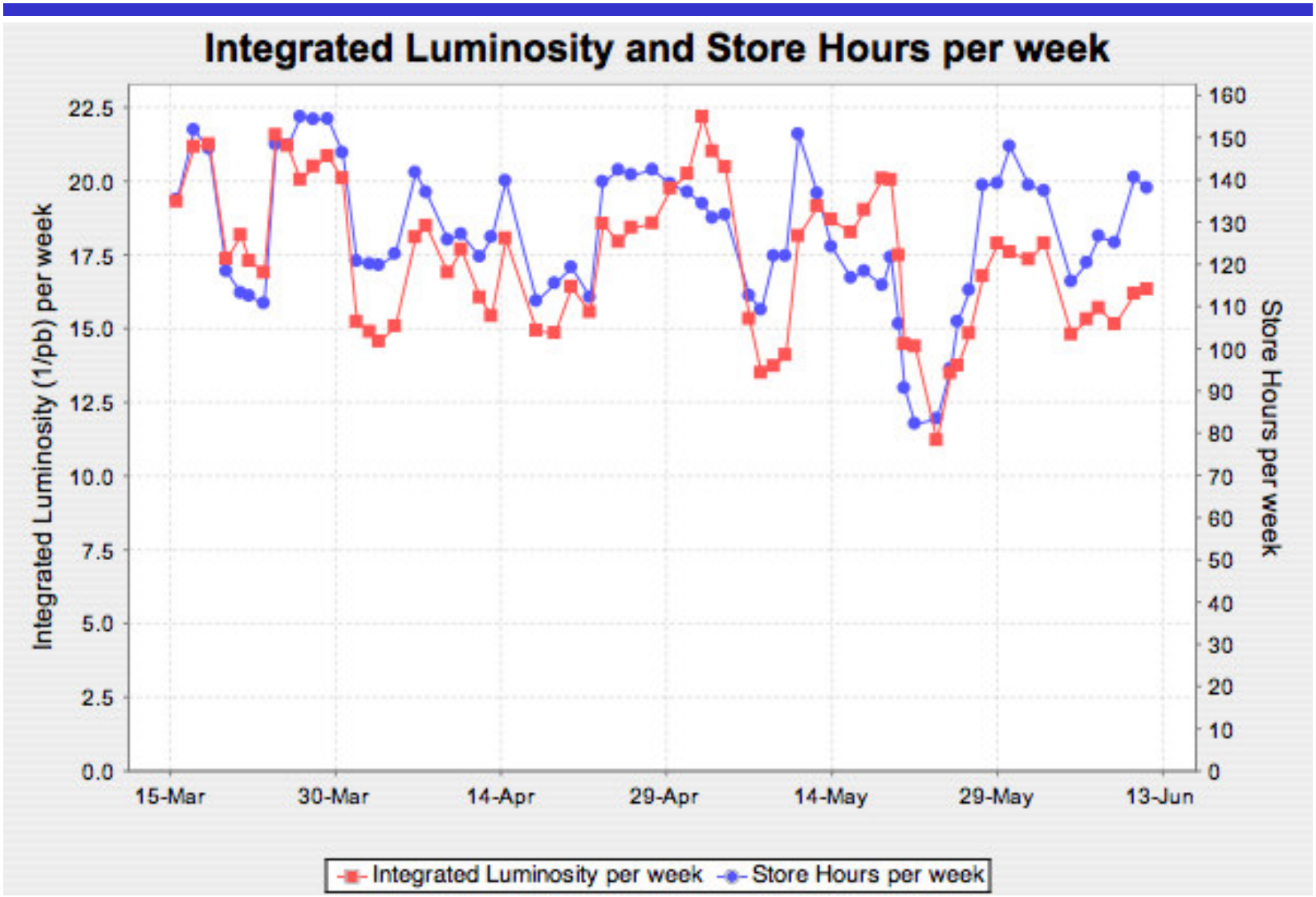

Integrated Luminosity
Integrated Luminosity (1/pb)
1000
900
800
700
600
500
400
300
200
100
0
Jan-2002
Jul-2002
Jan-2003
Jul-2003
Jan-2004
Jul-2004
Jan-2005
Jul-2005
Fiscal Year 05
Fiscal Year 04
Fiscal Year 03
Fiscal Year 02

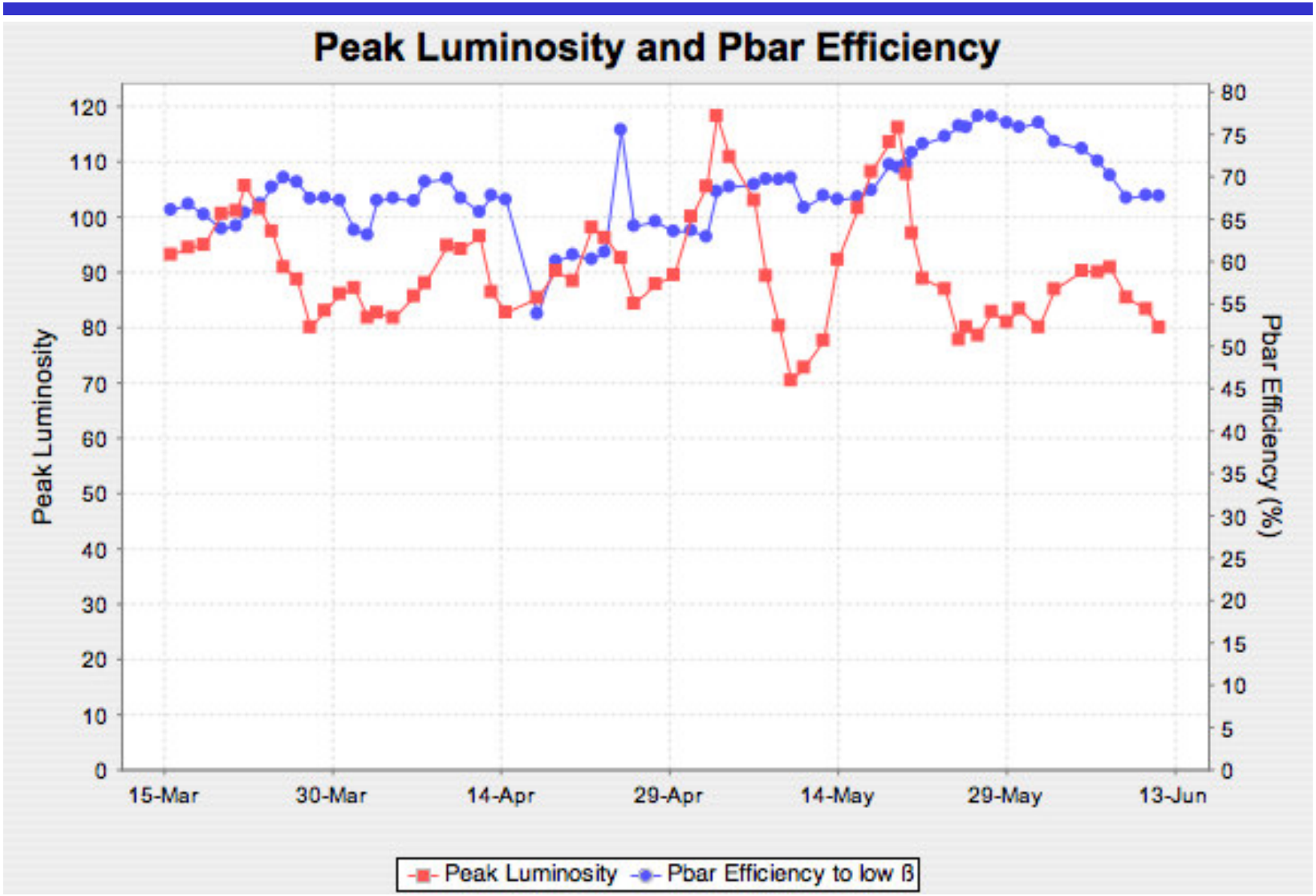

Weekly Integrated Luminosity
Weekly Integrated Luminosity (1/pb)
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
Days since October 1
Fiscal Year 05
Fiscal Year 04
Fiscal Year 03
Fiscal Year 02
Design
Base

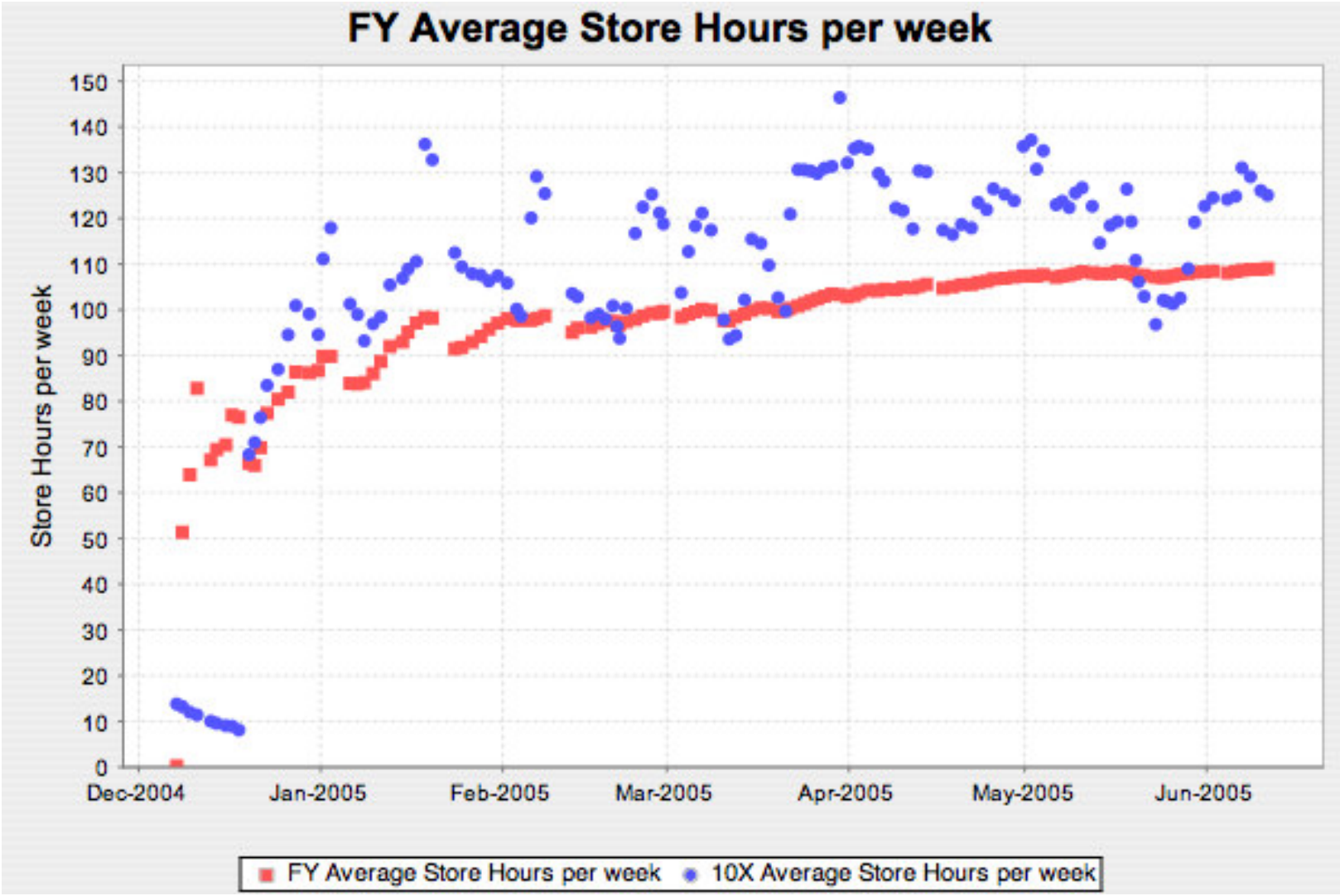

FY05 Peak Luminosity
Peak Luminosity 1/μb/sec
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Dec-2004
Jan-2005
Feb-2005
Mar-2005
Apr-2005
May-2005
Jun-2005
Fiscal Year 05 Peak Luminosity
Design
Base

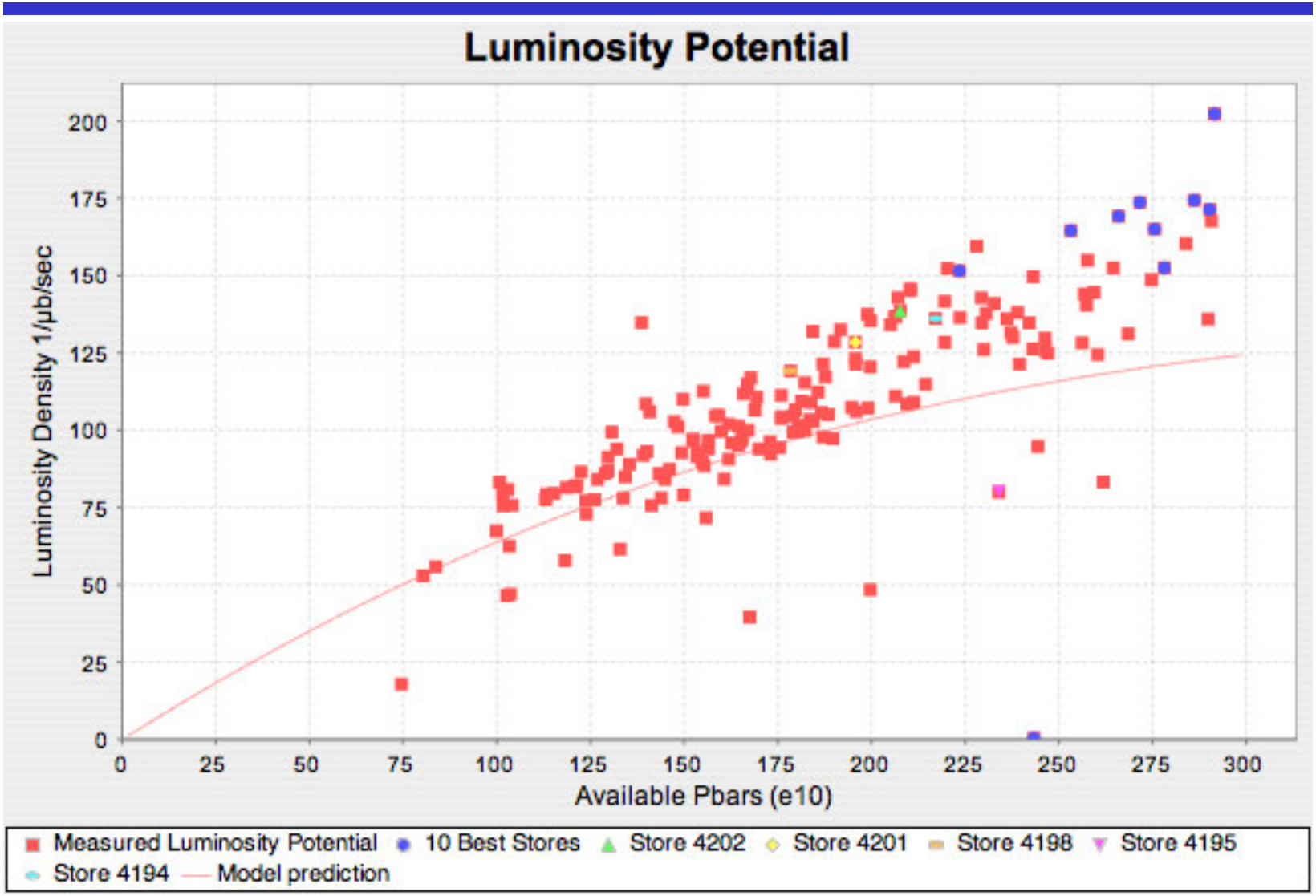

Peak Luminosity
Peak Luminosity (1/μb/sec)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
Days since October 1
Fiscal Year 05
Fiscal Year 04
Fiscal Year 03
Fiscal Year 02
Design
Base

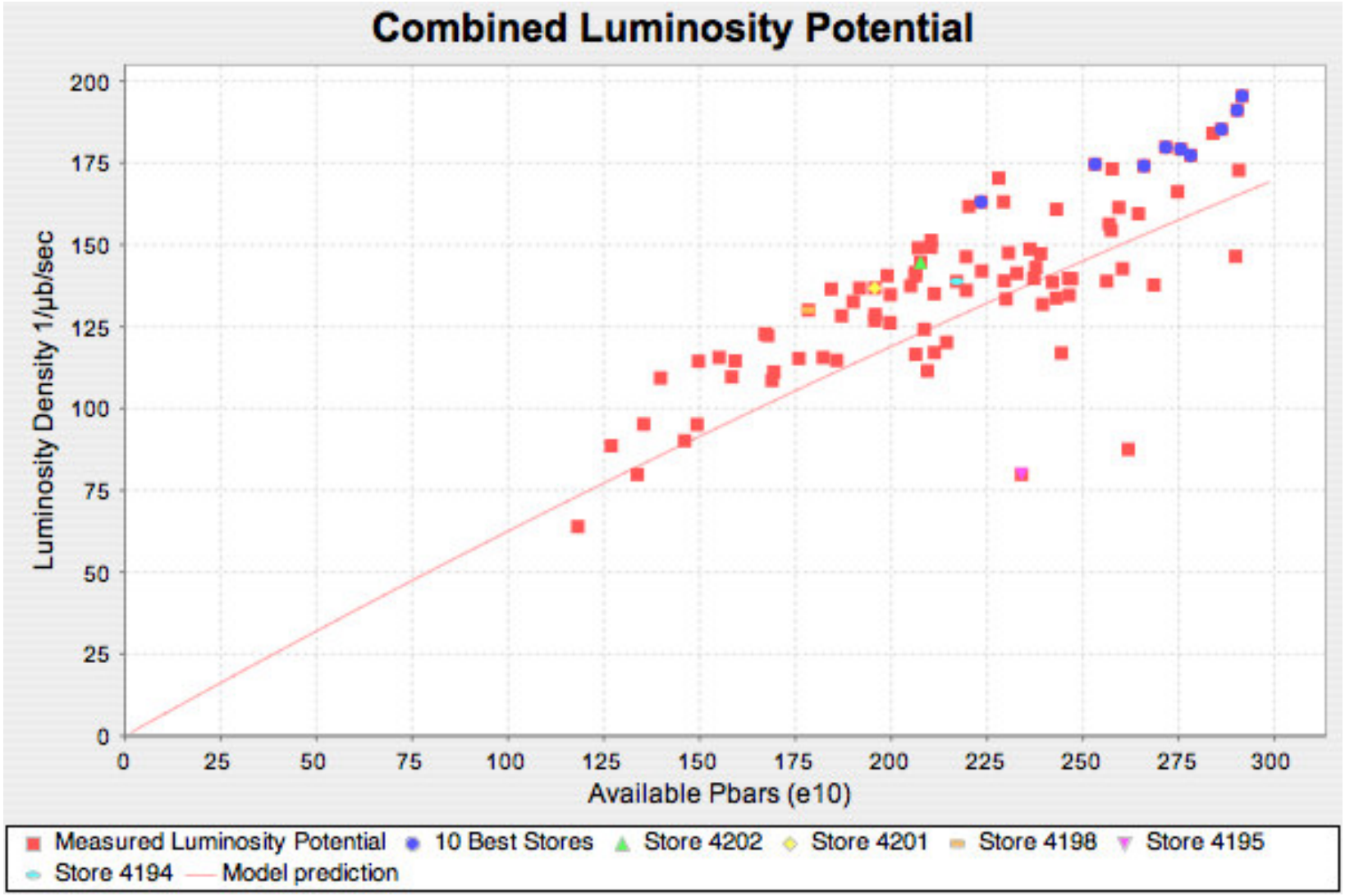

Peak Luminosity
Peak Luminosity (1/μb/sec)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Jan-2002
Jul-2002
Jan-2003
Jul-2003
Jan-2004
Jul-2004
Jan-2005
Jul-2005
Fiscal Year 05
Fiscal Year 04
Fiscal Year 03
Fiscal Year 02


Integrated Luminosity and Store Hours per week
Integrated Luminosity (1/pb) per week
Store Hours per week
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
15-Mar
30-Mar
14-Apr
29-Apr
14-May
29-May
13-Jun
Integrated Luminosity per week
Store Hours per week


Peak Luminosity and Pbar Efficiency
Peak Luminosity
Pbar Efficiency (%)
120
110
100
90
80
70
60
50
40
30
20
10
0
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
15-Mar
30-Mar
14-Apr
29-Apr
14-May
29-May
13-Jun
Peak Luminosity
Pbar Efficiency to low ß


FY Average Store Hours per week
Store Hours per week
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Dec-2004
Jan-2005
Feb-2005
Mar-2005
Apr-2005
May-2005
Jun-2005
FY Average Store Hours per week
10X Average Store Hours per week


Luminosity Potential
Luminosity Density 1/μb/sec
0
25
50
75
100
125
150
175
200
0
25
50
75
100
125
150
175
200
225
250
275
300
Available Pbars (e10)
Measured Luminosity Potential
10 Best Stores
Store 4202
Store 4201
Store 4198
Store 4195
Store 4194
Model prediction


Combined Luminosity Potential
Luminosity Density 1/μb/sec
Available Pbars (e10)
0
25
50
75
100
125
150
175
200
225
250
275
300
Measured Luminosity Potential
10 Best Stores
Store 4202
Store 4201
Store 4198
Store 4195
Store 4194
Model prediction

Plan for the week

- Proton Source
  - Support slip-stacking and work on cogging
- Main Injector
  - Slip-stacking studies
    - Reduce bunch length and losses
  - NuMI
    - Reduce losses on mixed-mode cyclesMI-8 optics match
  - 120 GeV energy on different cycles
  - 2.5MHz slow acceleration
- NuMI
  - Increase number of cycles during shot setup
  - Reduce number of spurious permit trips
- Pbar
  - Stacktail heating
    - Center kicker tanks
  - Debuncher Cooling
  - D/A efficiency
  - 120 GeV optics
  - Debuncher orbits/aperture
- Recycler
  - Commission ECOOL
- Tevatron
  - D0 losses during squeeze
  - Orbit motion from CDF low beta quadrupoles
  - Low beta optics
  - Tune tracker
  - High intensity protons