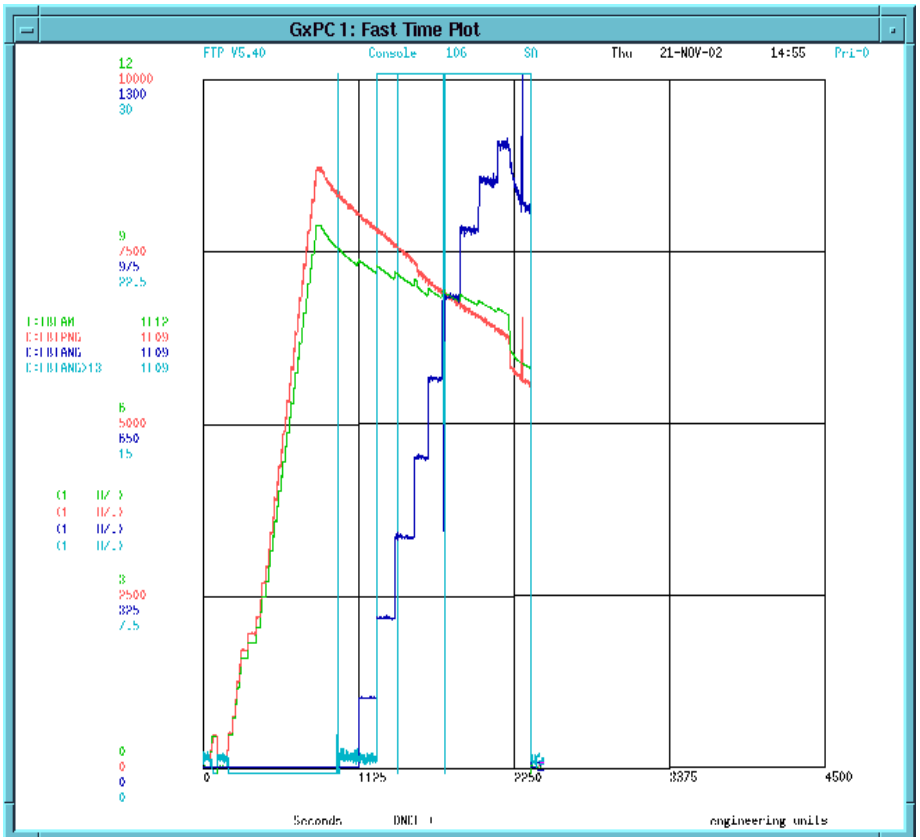
Accelerator Performance (11/18-11/24)

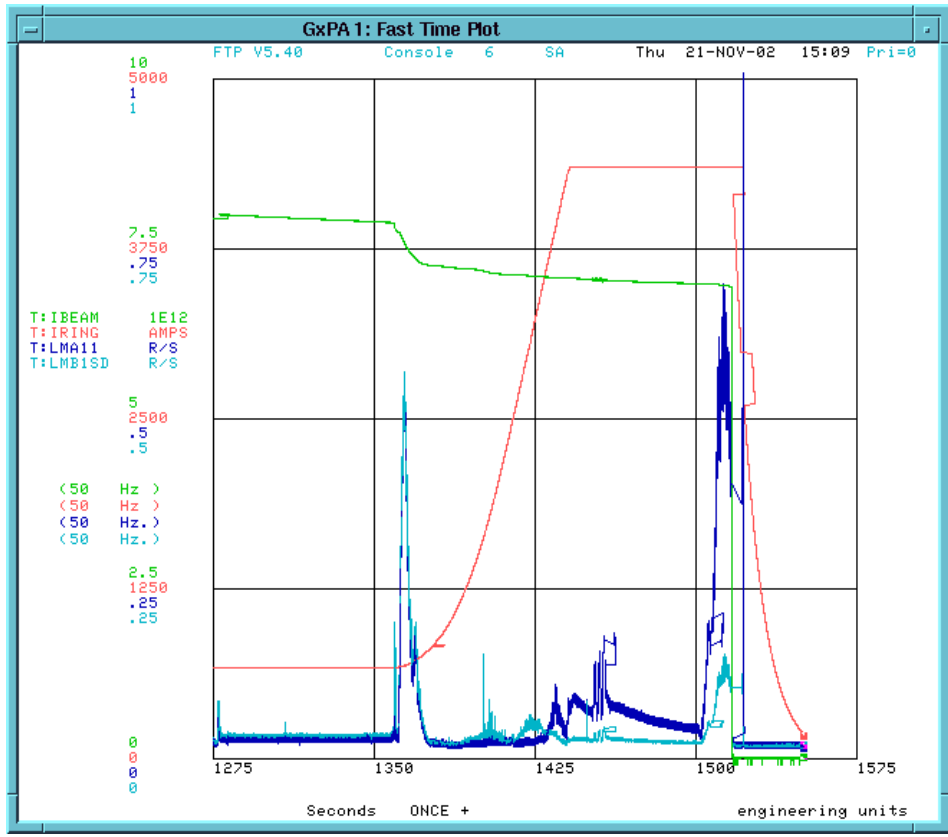
- Accelerator Studies Week
- Accelerator Shutdown
  - MP02 power supply
- Pbar abort kicker pre-fire and quench
- Smooth weekend

Store Summary

Store	Initial Luminosity	Duration	Termination	Comments
1981	2.77E31	24 hrs	intentional	121 mA, lower pbar helix chrom
1983	0.0		quench	145 mA, lost during squeeze
1991	2.84E31	3 hrs	Abort kicker pre-fire	128 mA, flattop coupling adj, orbits, re-parse squeeze
1993	2.52E31	15 hrs	intentional	103 mA,
1995	2.77E31	20.5 hrs	intentional	120 mA,
1997	2.77E31	current		145 mA,

Store 1983 lost





Tevatron Abort kickers

- A second abort kicker pre-fire (on a different tube) in less than 2 weeks occurred last Friday during store 1991.
- The Beams Division continues to investigate means to reduce the number of pre-fires and alternate protection schemes (A48 collimator).

Tevatron Studies

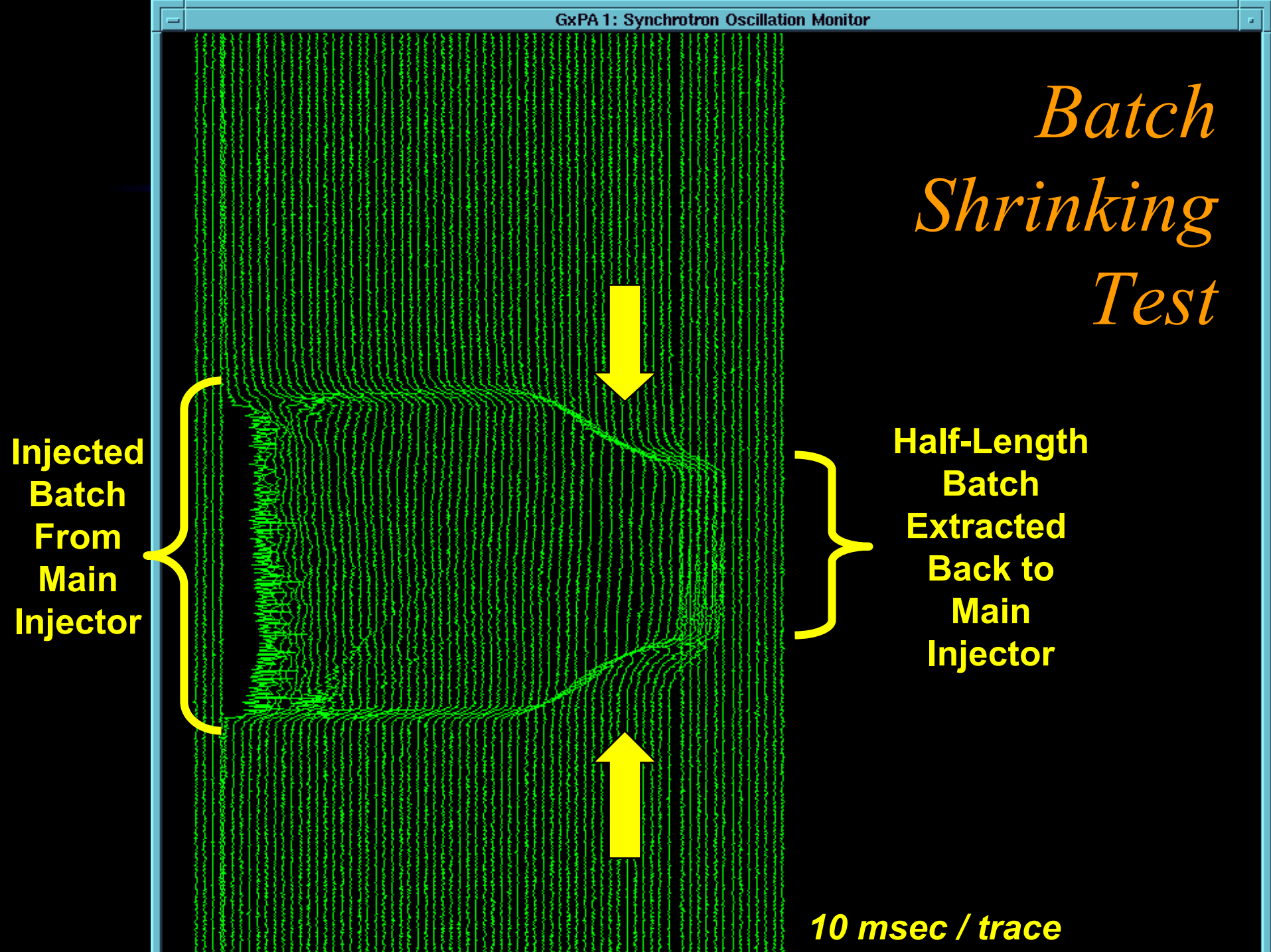
- ✓ Measurement of pbar tunes using the TEL as a noise source
- ✓ Removal of pbars for instrumentation calibration
- ✓ Utilize Octupoles at injection to suppress Tevatron instabilities
- ➢ Tune-up squeeze

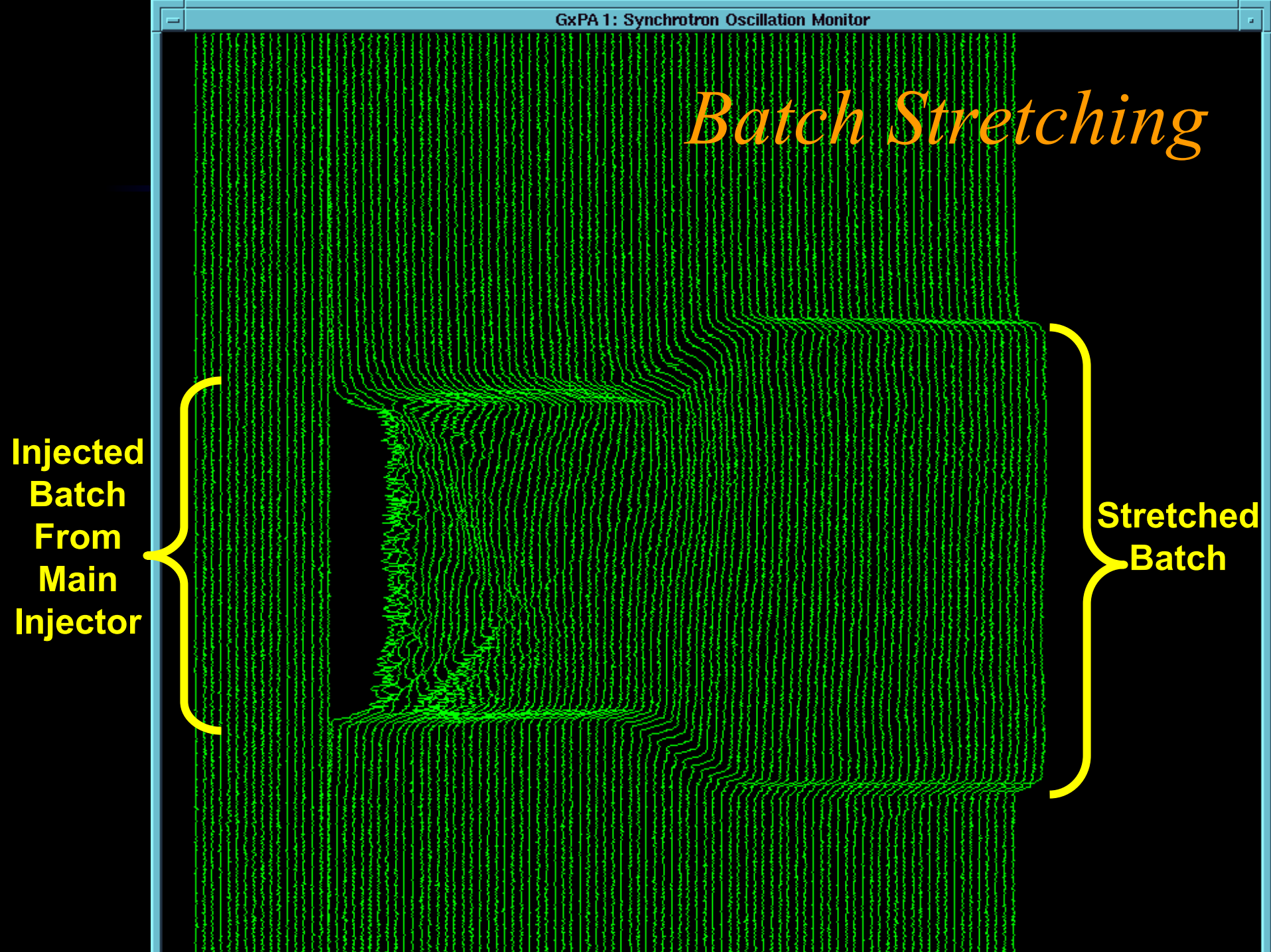
Issues on Luminosity

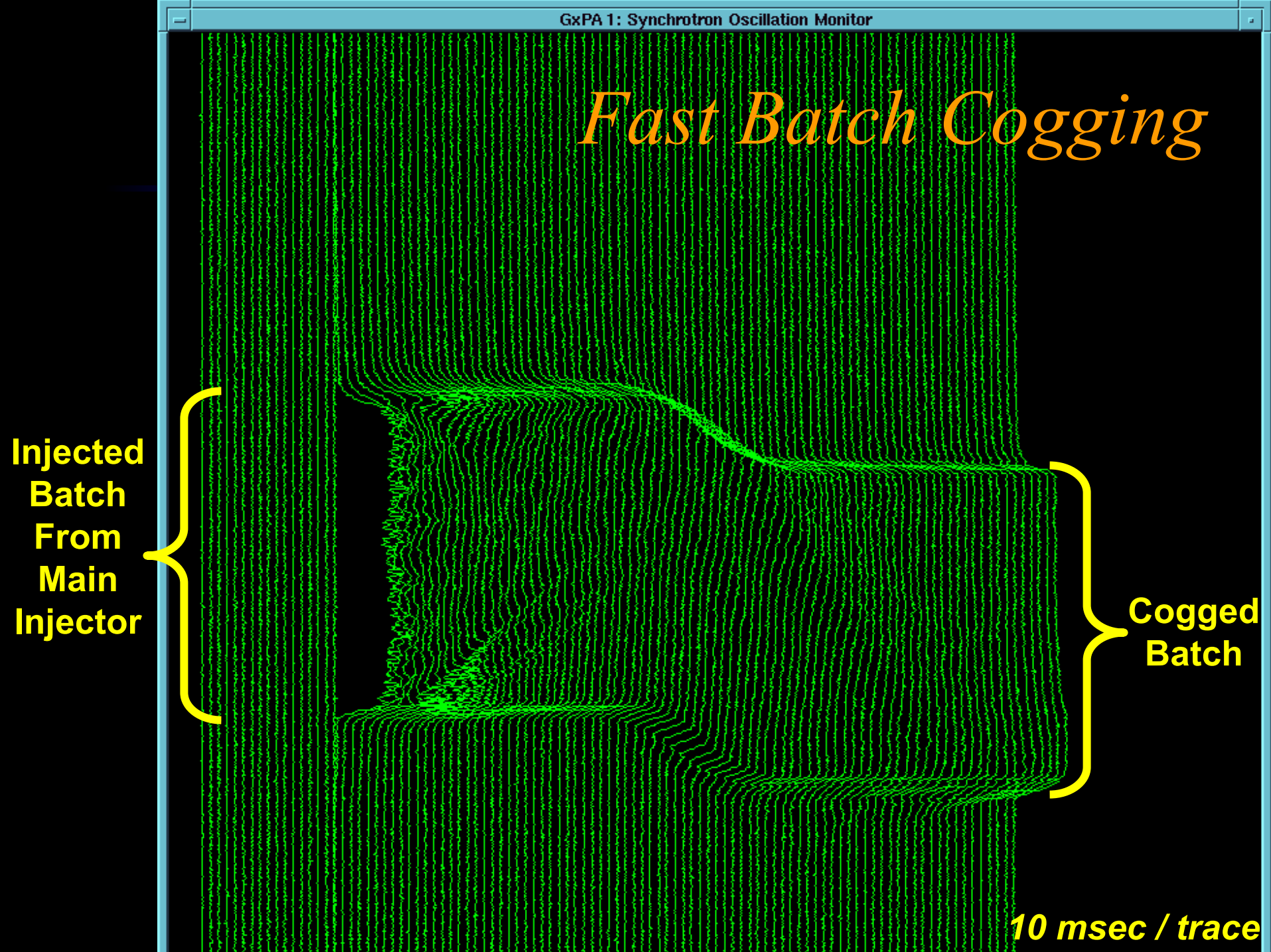
- We seem to hit a plateau in luminosity.
- The number of protons and pbars at collisions from store 1997 was slightly larger that the record store 1953 – but the luminosity was down 25%.
- Pbar vertical emittance growth at various steps continues to be an issue

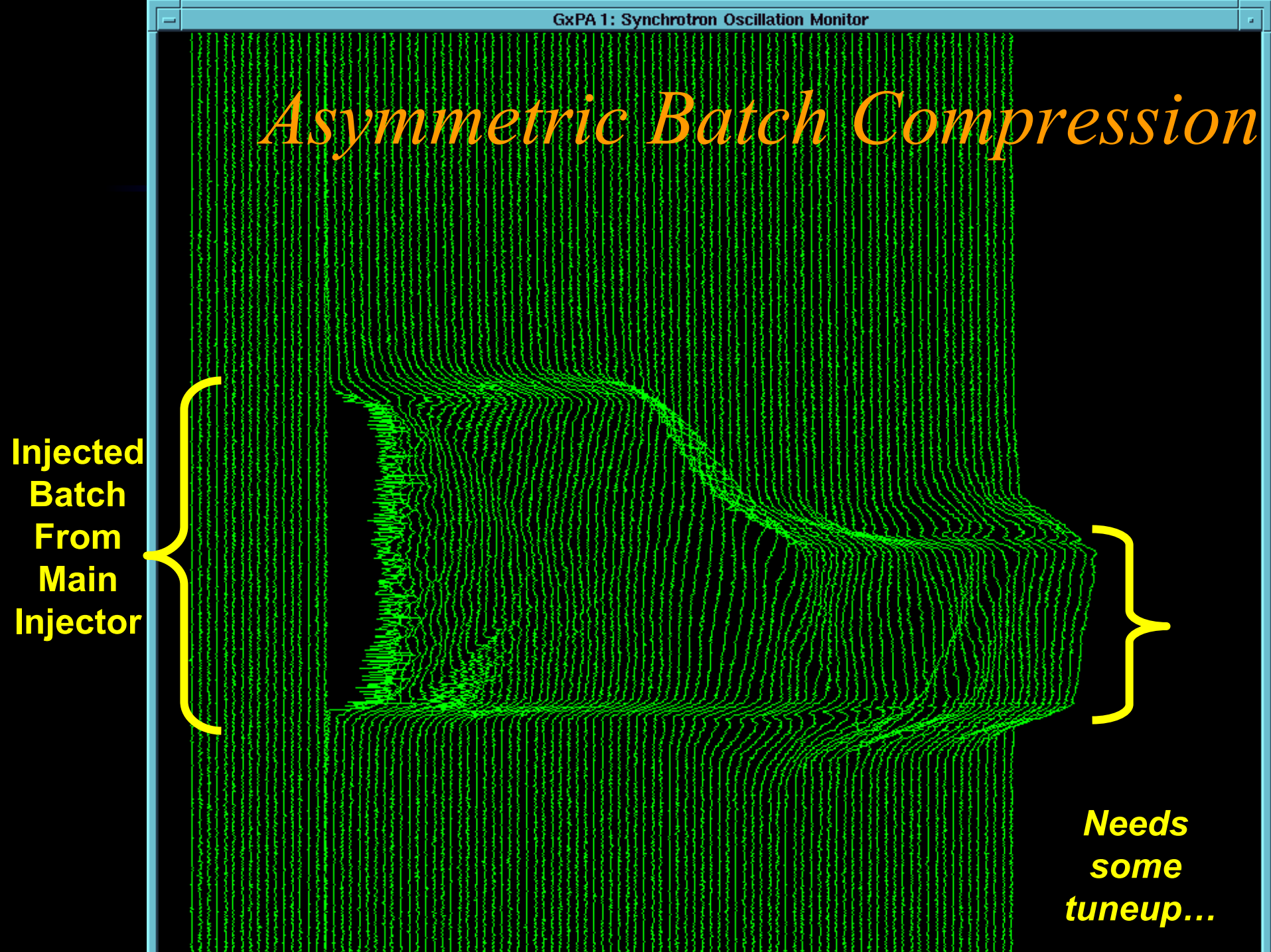
Fast Recycler Stacking Tests

- New Method of Proton Stacking
- Works by Shrinking Batches in Time
- Uses combination of Barrier Buckets and Reversing-Ramp Waveform
- Possible Alternative to Slip Stacking for Pbar Production
  - Less sensitivity to beam loading
  - In principle, no longitudinal emittance growth
  - Considerable flexibility in stacking scenarios
- Initial Tests MI-RR-MI (*Kiyomi Seiya et. al. –last Weds.*)
  - Successful fast shrinking, stretching, cogging, etc.

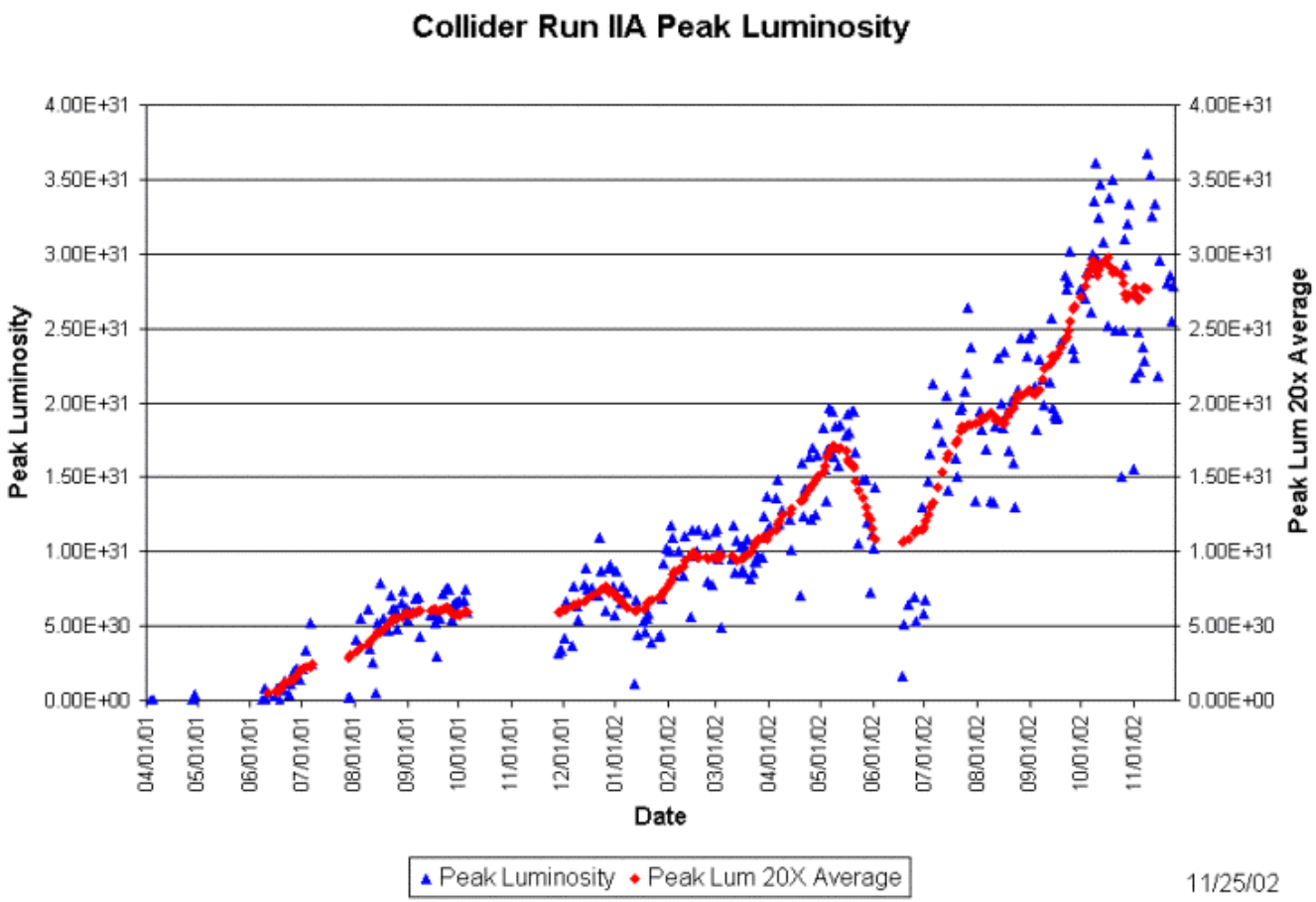

GxPA 1: Synchrotron Oscillation Monitor
Batch Shrinking Test
Injected Batch From Main Injector
Half-Length Batch Extracted Back to Main Injector
10 msec / trace


GxPA 1: Synchrotron Oscillation Monitor
Batch Stretching
Injected Batch From Main Injector
Stretched Batch

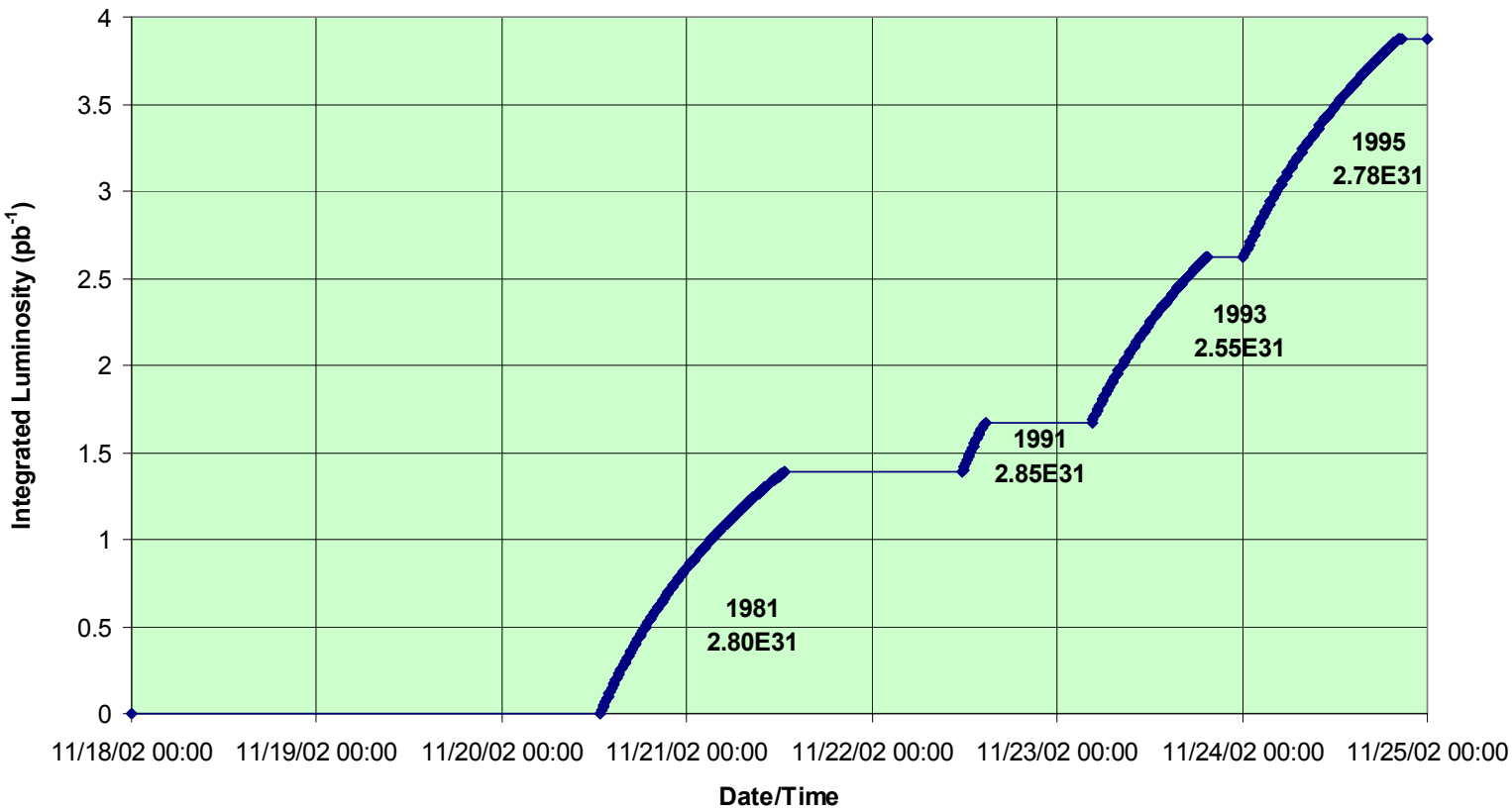

GxPA 1: Synchrotron Oscillation Monitor
Fast Batch Cogging
Injected Batch From Main Injector
Cogged Batch
10 msec / trace


GxPA 1: Synchrotron Oscillation Monitor
Asymmetric Batch Compression
Injected Batch From Main Injector
Needs some tuneup…

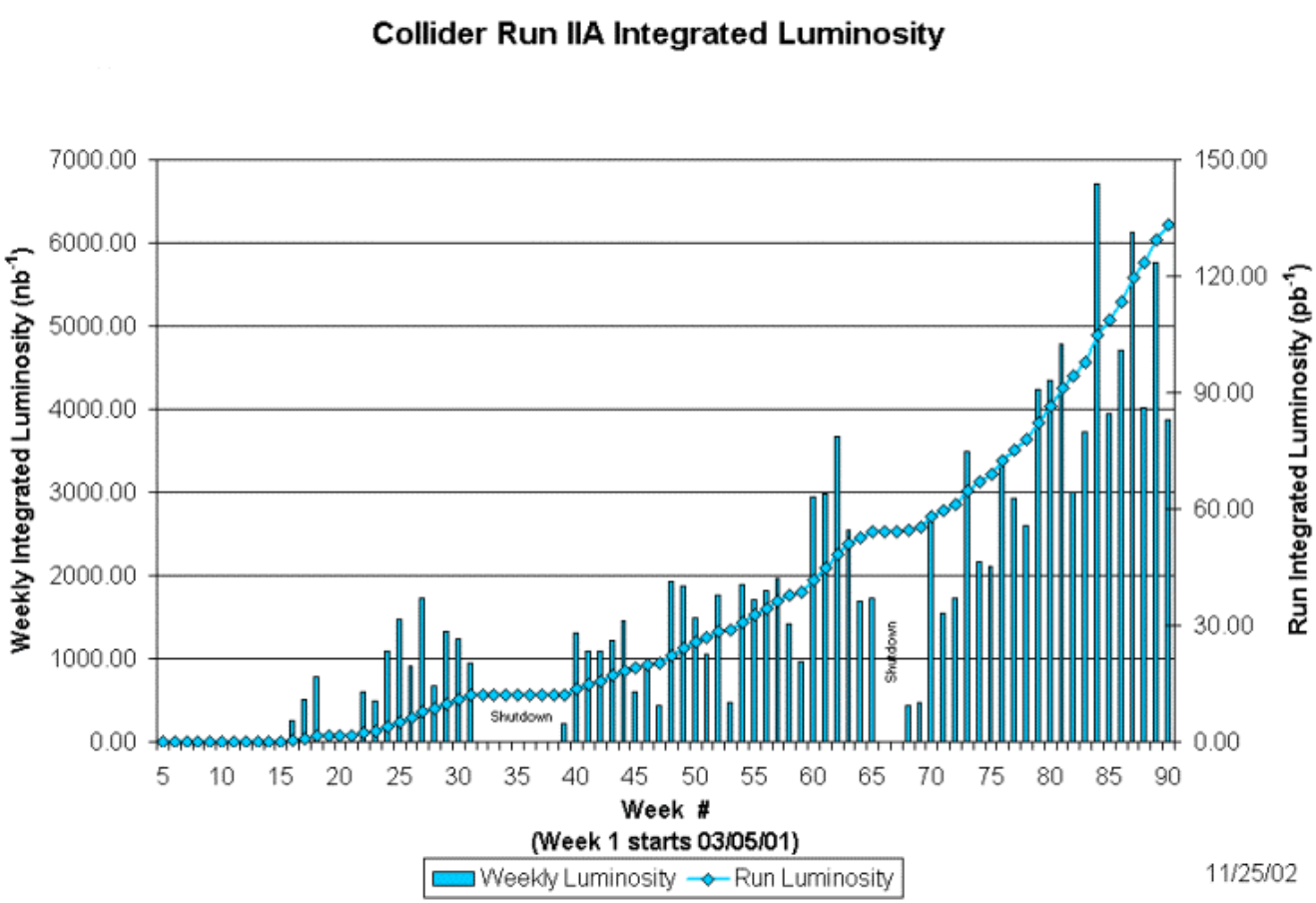
Peak Luminosity



Integrated Luminosity for the Week



Integrated Luminosity



Schedule for the Week

- Week 11/25 (Thanksgiving week)
  - Stack ‘n store
- Week 12/1
  - Accelerator studies

Changing of the Guard

- I have enjoyed working with the staff of the Beams Division, CDF, and D0 during my tenure as Run Coordinator.
- The Next Run Coordinator (1 Dec – 31 Mar 03)
  - Ron Moore (Tevatron Department, CDF)
- The Next,Next Run Coordinator (1 Apr – 31 July)
  - Keith Gollwitzer (Pbar Source)