

# The Story So Far

February 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11 4K Wave	12	13	14	15 Cold in both rings	16
17	18 PP12 lattice test evening	19	20	21	22	23
24	25	26	27	28	29	30
PS gave us e-lens		First Collisions			Overnight Stores 109x109	
					Start Physics	

## March 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11 6 hour stores with tune between				15 PA Maintenance	16
17	18	19	20 PA Maintenance	21	22	23
24	25 8hr Stores		27 APEX	28	29	30
31	Inject = 200e11					

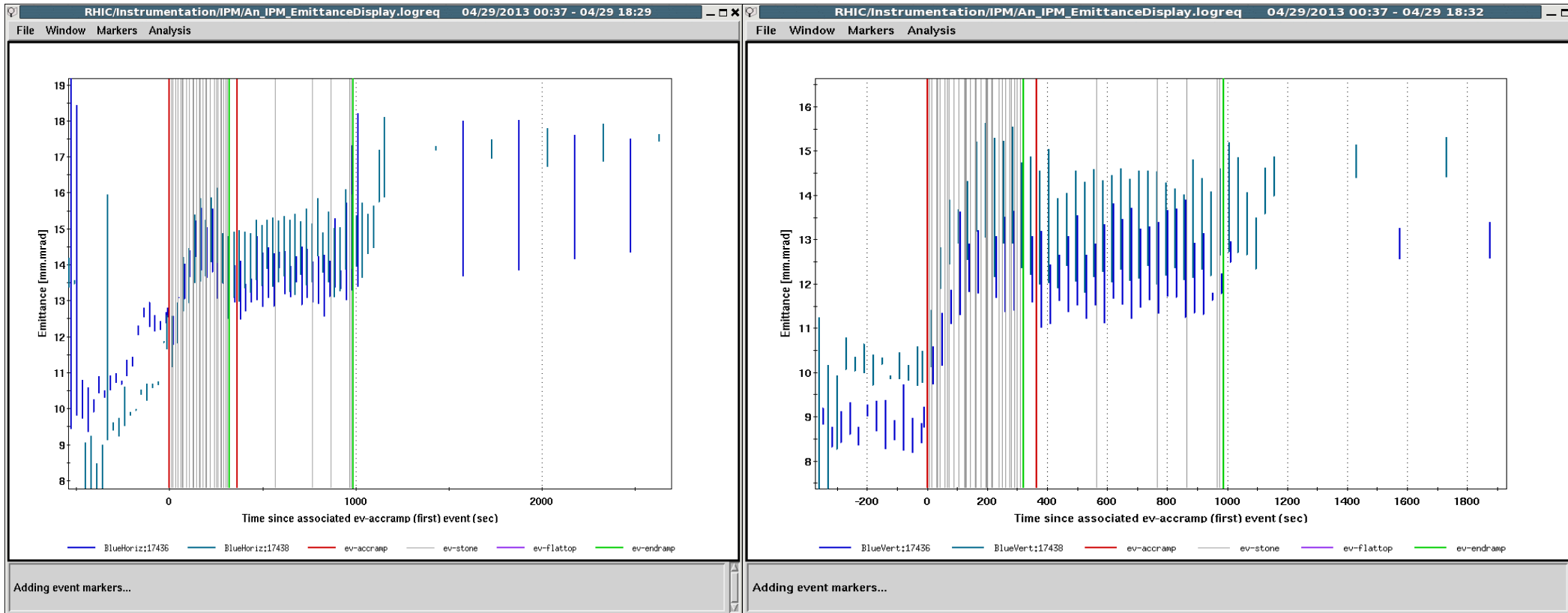
# April 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 Maintenance	4 Switch Fy12 Lattice	5	6 Pushed Intensity
7 Reach 200e11 At FT	8	9	10 APEX	11 Rotator Tuning	12	13
14	15 MD Studies	16	17 Maintenance Golden Store 17396	18	19	20
21	22	23	24 APEX	25 Machine Dev.	26 Pushed Bunch Intensity	27
28	29	30 Test corrected Optics	APEX	Machine Dev.		

# Past week

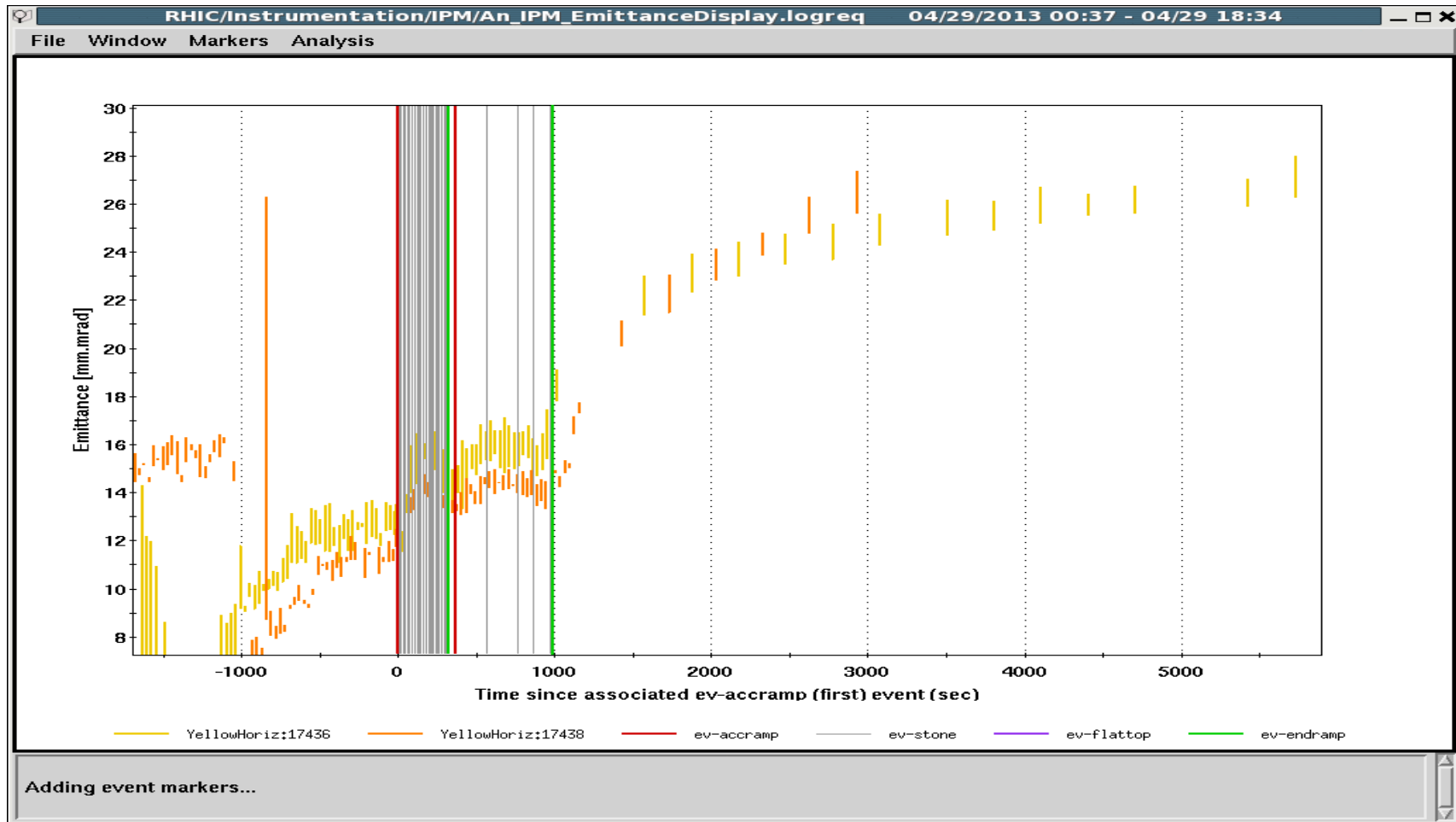
- Progress in understanding emittance growth on the ramp
  - Clearly Multi-bunch phenomena re-bucketing makes worse
    - Needs scrubbing around rotators?
  - Moved re-bucketing to end of rotator ramp
    - We managed to push intensity
      - Blue  $2.2 \times 10^{11}$ /bunch Yellow  $2.1 \times 10^{11}$ /bunch
      - Minimal emittance blow up on ramp
        - Blow up in collisions
          - → beam-beam effect (need e-lens)
      - Yellow intensity limited by longitudinal instability, Blue by beam-beam
- Developed Dpx matching solution for store:
  - Reduce spin tune spread

# Blue Horizontal Emittance



Blue  $2.2e11$ /bunch intensity Horizontal and Vertical through the ramps. We can make it  
Without huge blow up but Yellow gets killed after collisions.

# Yellow high intensity blown up by Blue.



# Future Plans

- Understand and address Yellow longitudinal instability intensity limits
- Carefully explore Store tune space make sure we are optimized
- Test new optics corrections
- Test new Dpx matching corrections.
- Measure and fix Spin tunes
- Lower Horizontal tunes on ramp 0.678