

Effectiveness of PCRS Peak-Up

Jim Ingalls

(Spitzer Science Center)

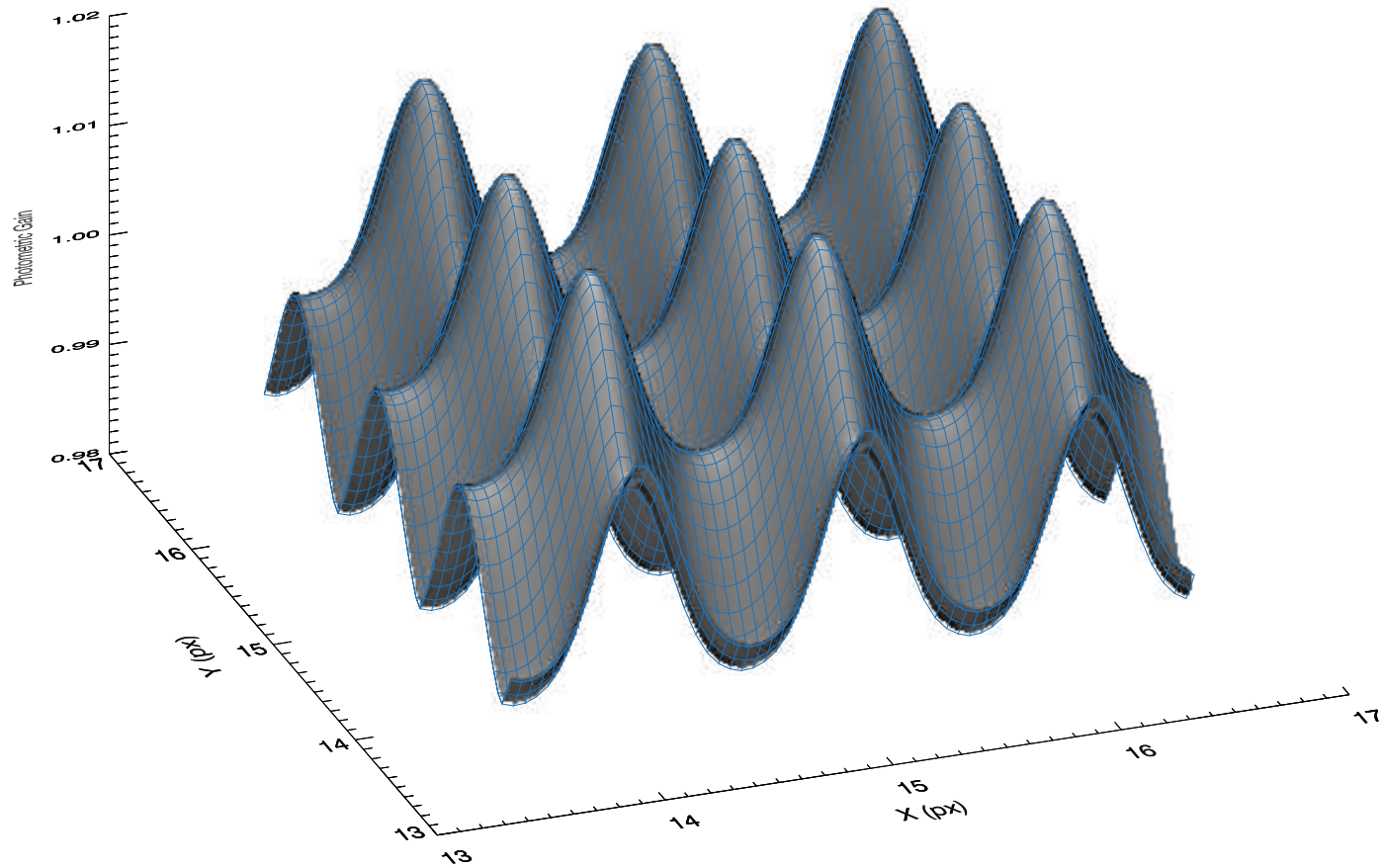
J. Krick, S. Carey,

S. Laine, J. Surace, W. Glaccum, C. Grillmair, P.

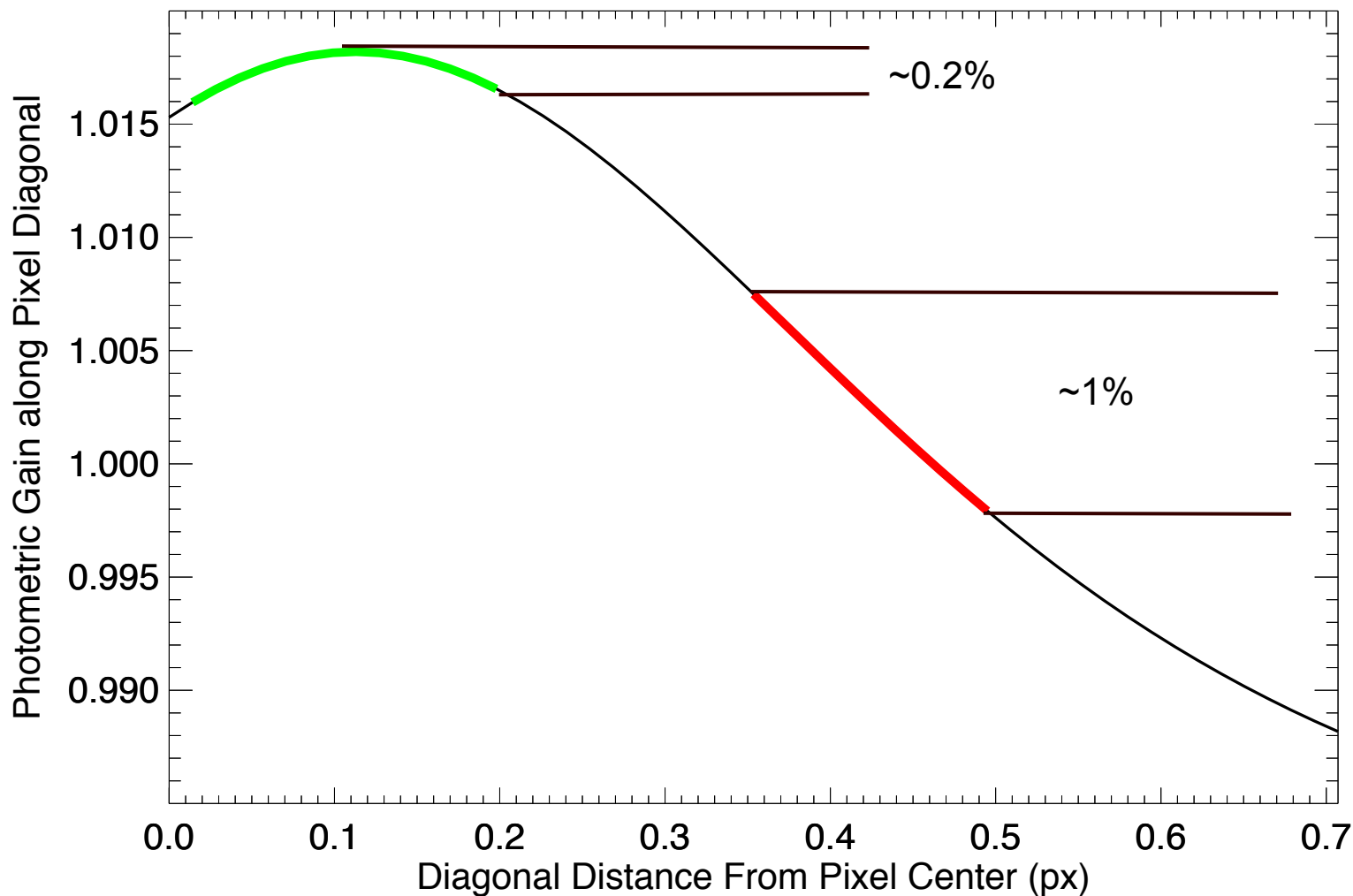
Lowrance

(SSC)

Limits to Photometric Precision



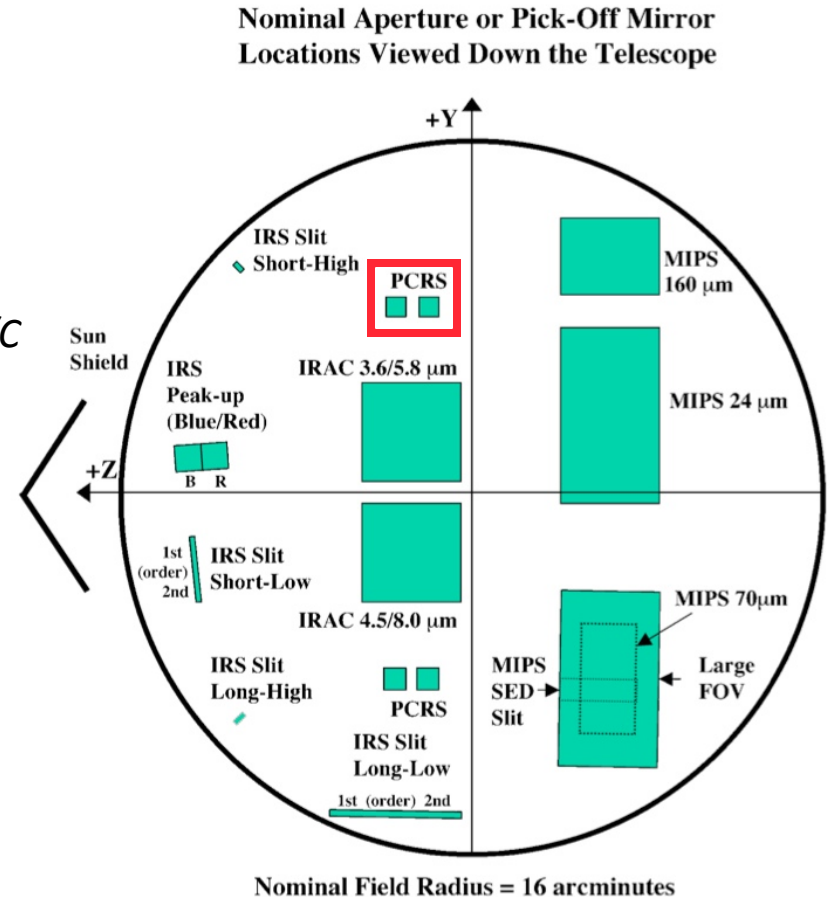
Limits to Photometric Precision



Improving Pointing Repeatability: PCRS Peak-Up



- Use existing optical peak-up imager on Spitzer (PCRS)
 - Centroiding accuracy ~ 0.1 arcsecond
 - Small offset to IRAC array
 - Minimal modifications to operations, none to S/C hardware, software
 - Peakup on $V = 7-12$
 - Use guide star for other sources
- Place all observations on same spot
 - Minimize intra-pixel gain
 - Snapshot program to sample light phase curve sparsely
 - Improve weak signal extraction masked by self-calibration



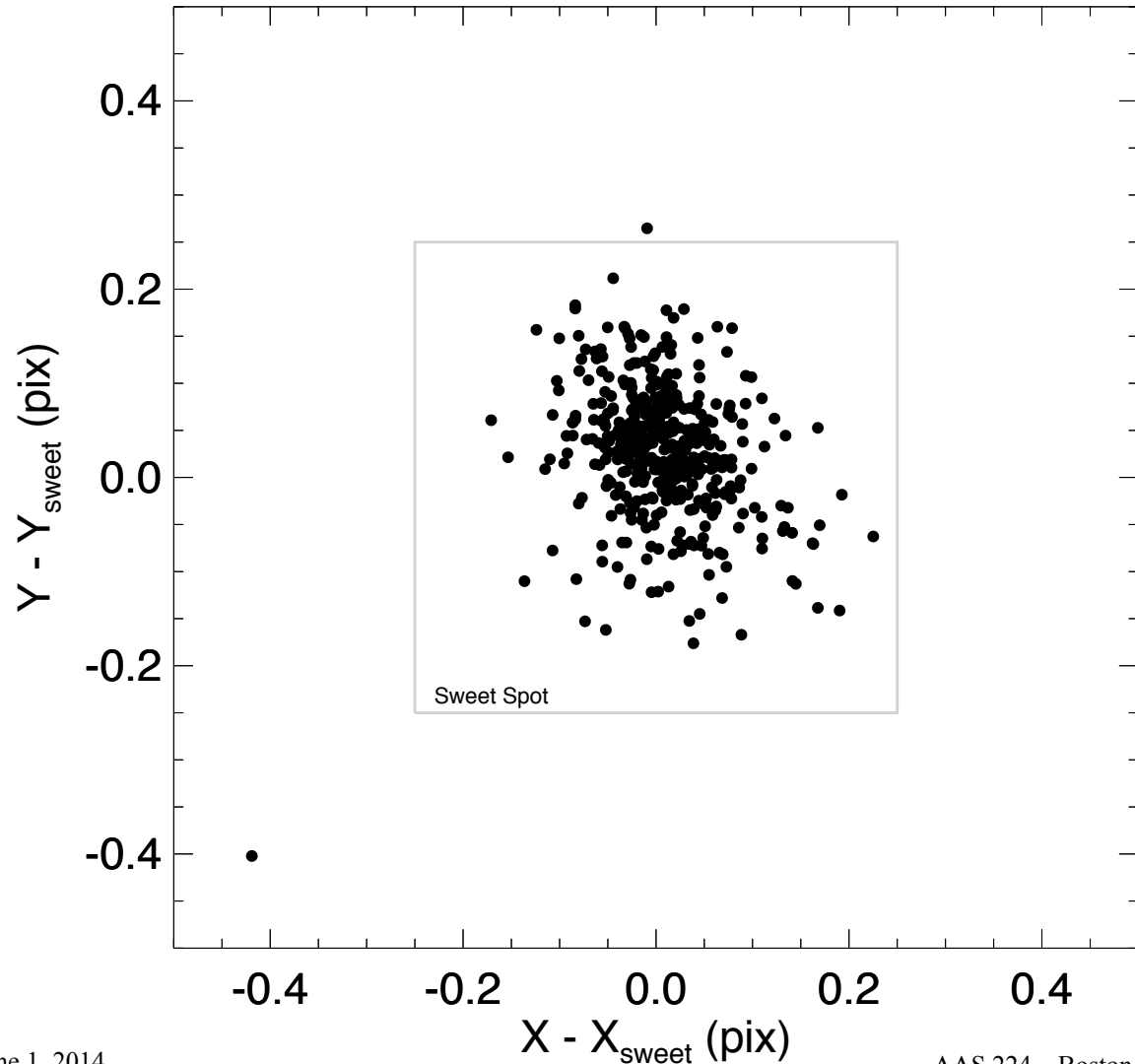
Peakup mode commissioned for
general use (Jan 2012)

Improving Pointing Repeatability: PCRS Peakup



CH 2

- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in “Sweet Spot”

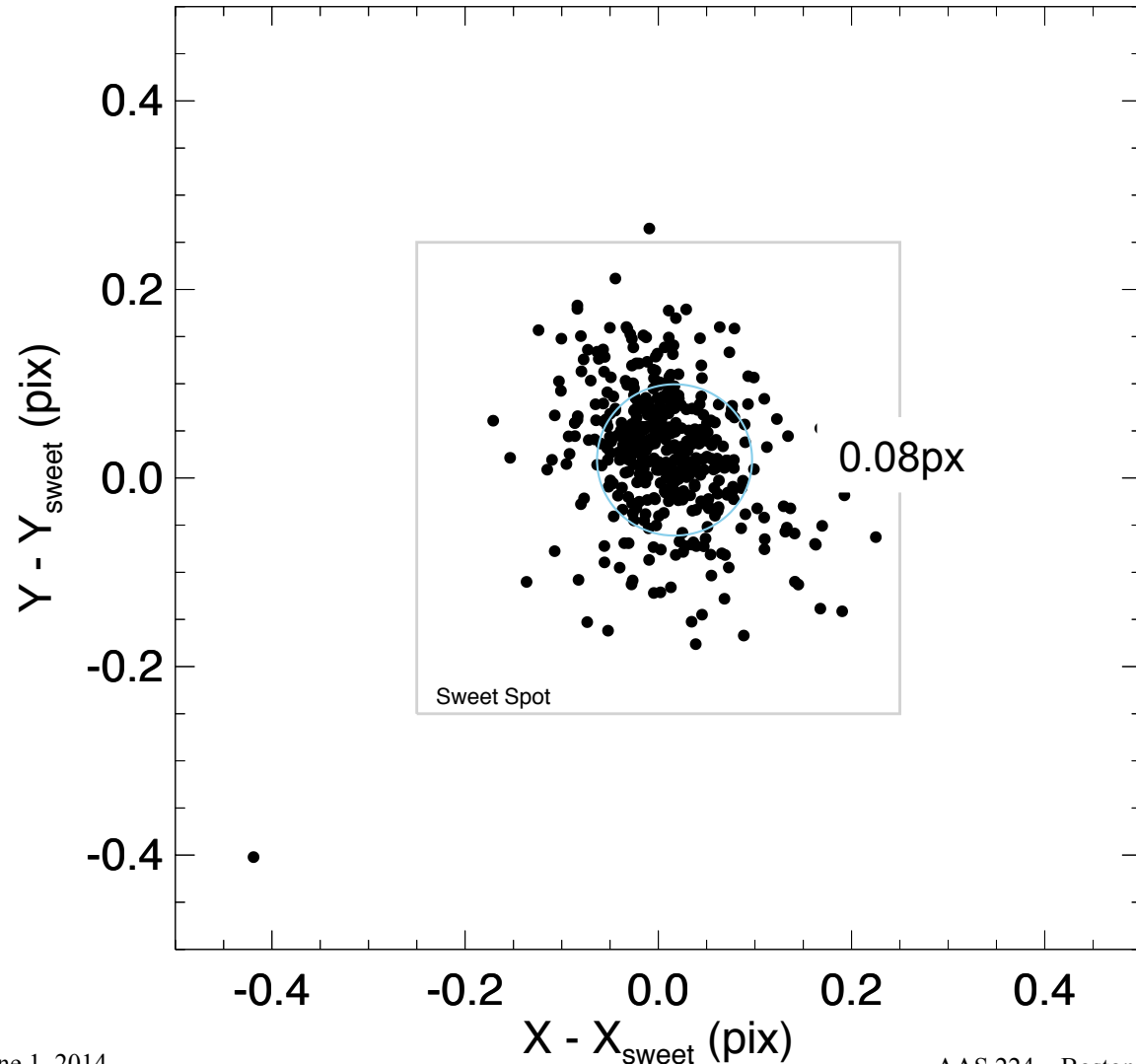


Improving Pointing Repeatability: PCRS Peakup



CH 2

- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in "Sweet Spot"
- 68% within 0.08 px

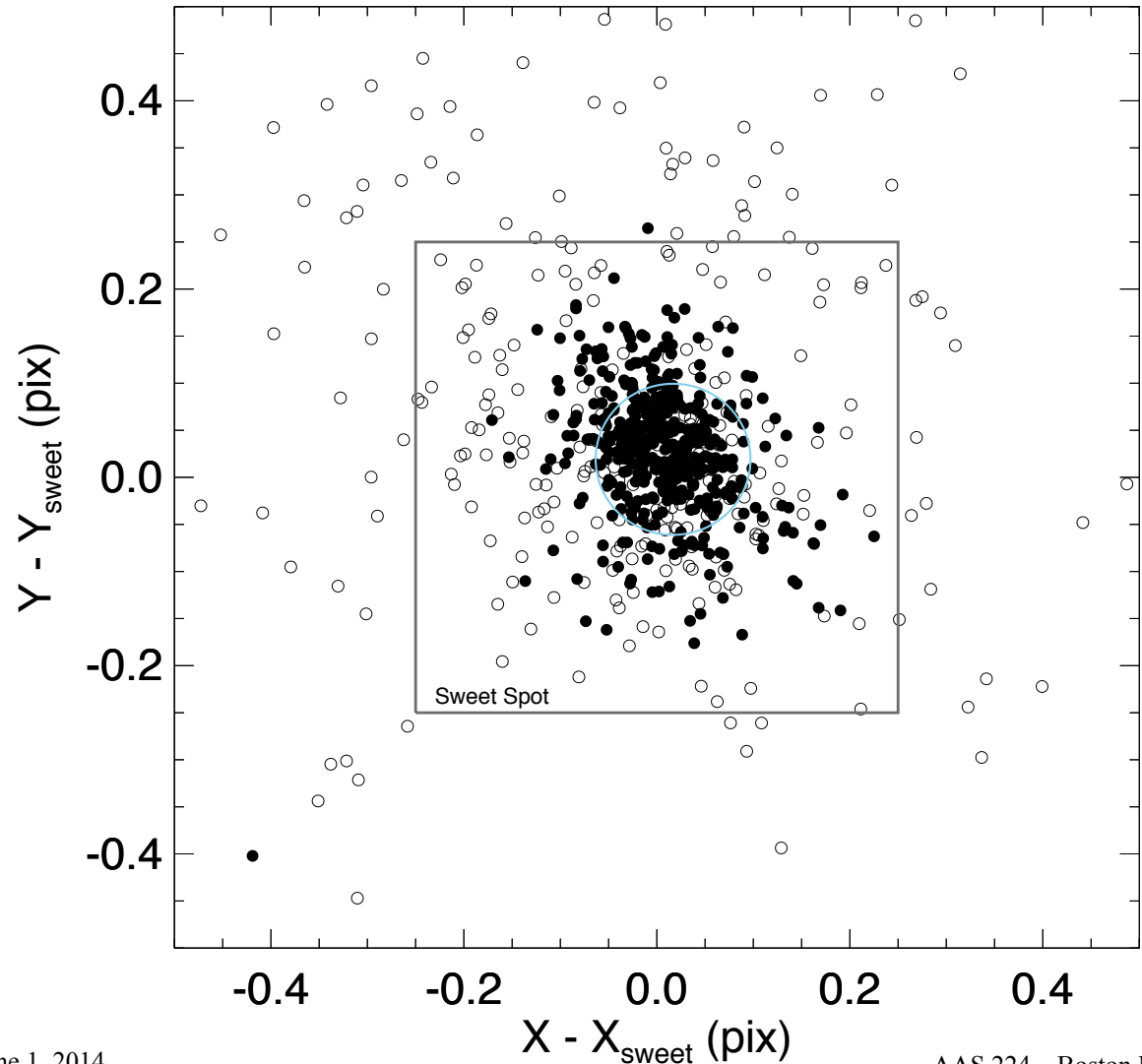


Improving Pointing Repeatability: PCRS Peakup



CH 2

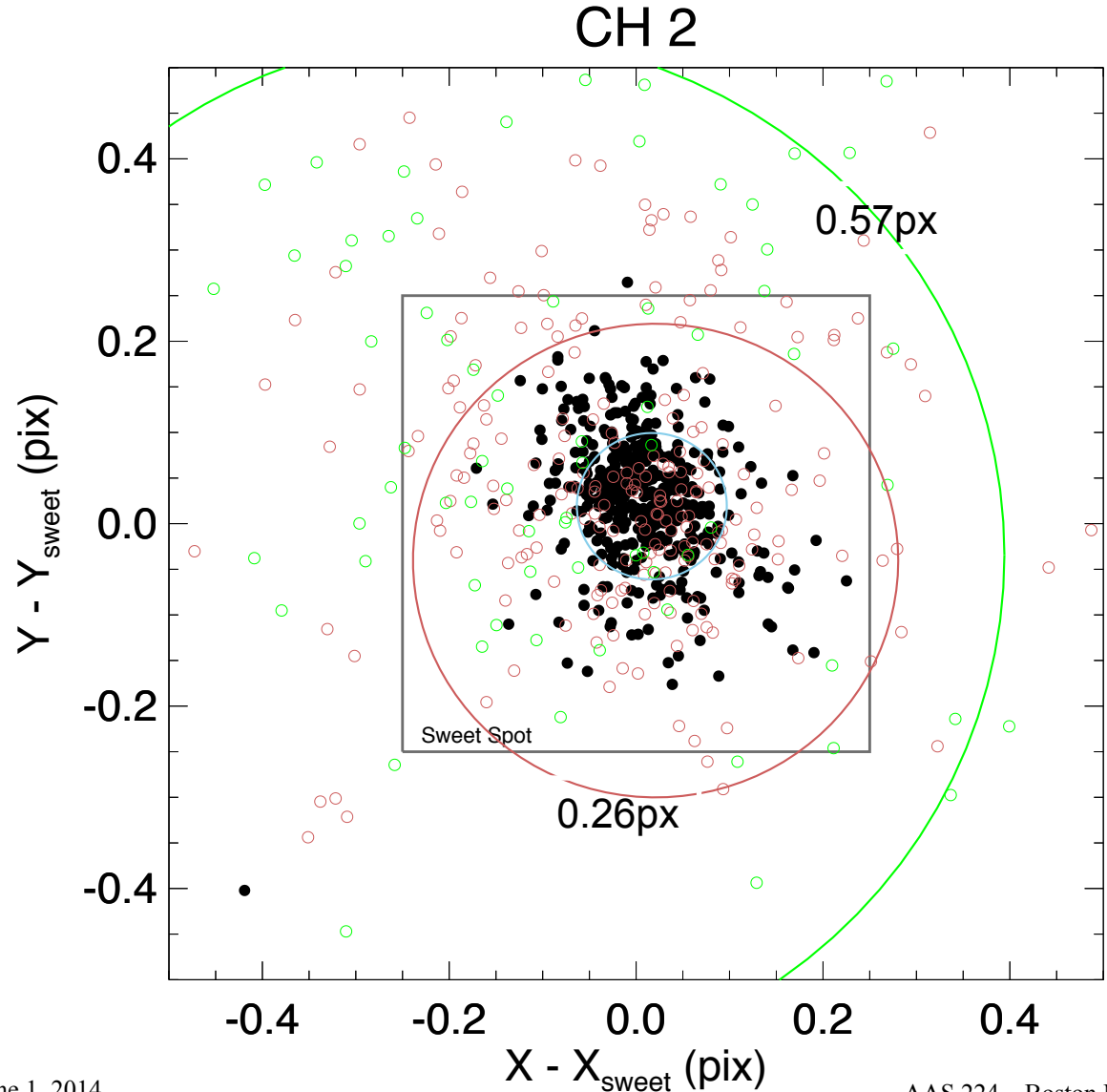
- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in "Sweet Spot"
- 68% within 0.08 px
- Guide Star 68% within 0.33px



Improving Pointing Repeatability: PCRS Peakup



- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in "Sweet Spot"
- 68% within 0.08 px
- Low PM (red) 0.26 px
- High PM (green) 0.57px

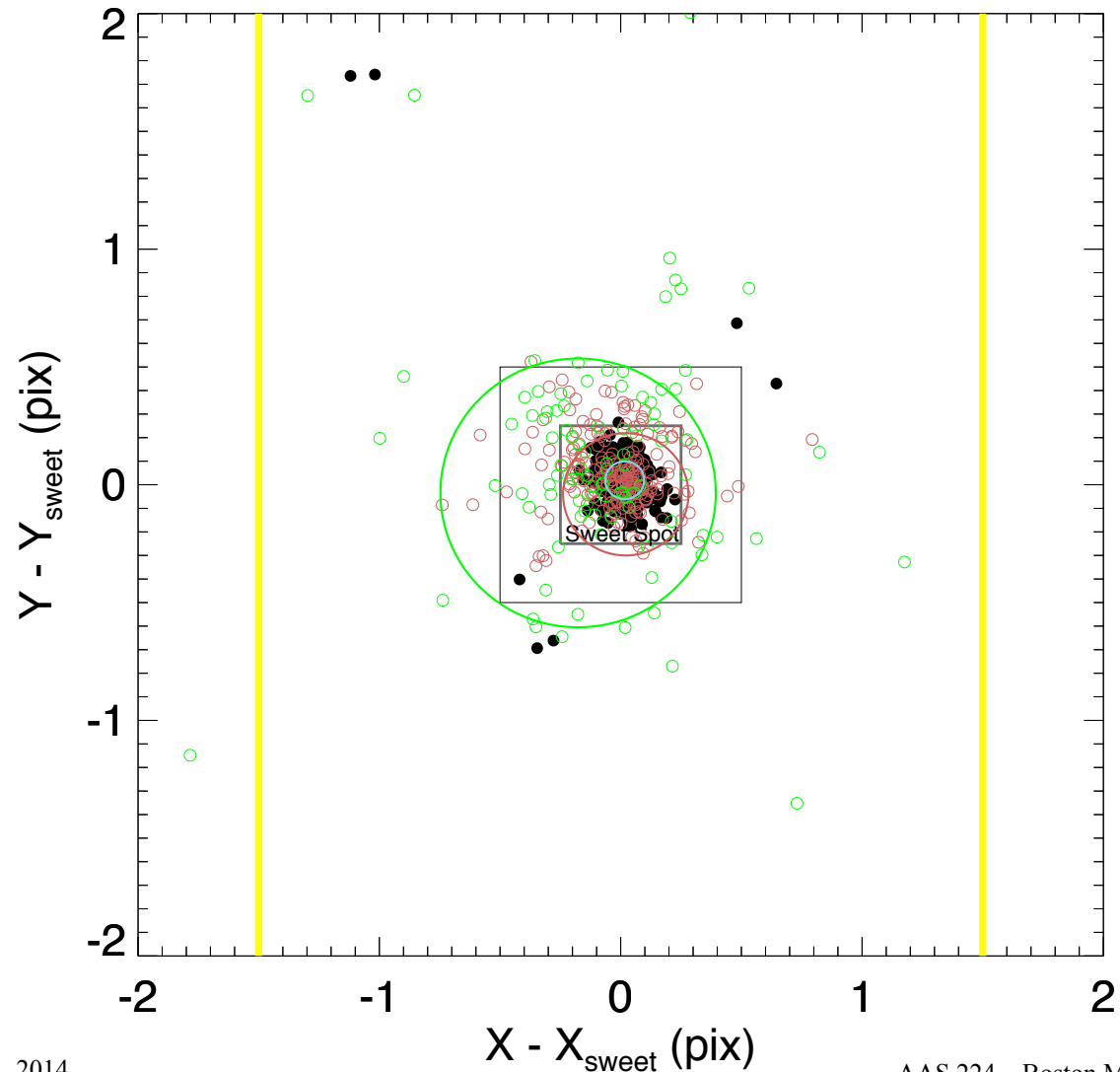


Improving Pointing Repeatability: PCRS Peakup



CH 2

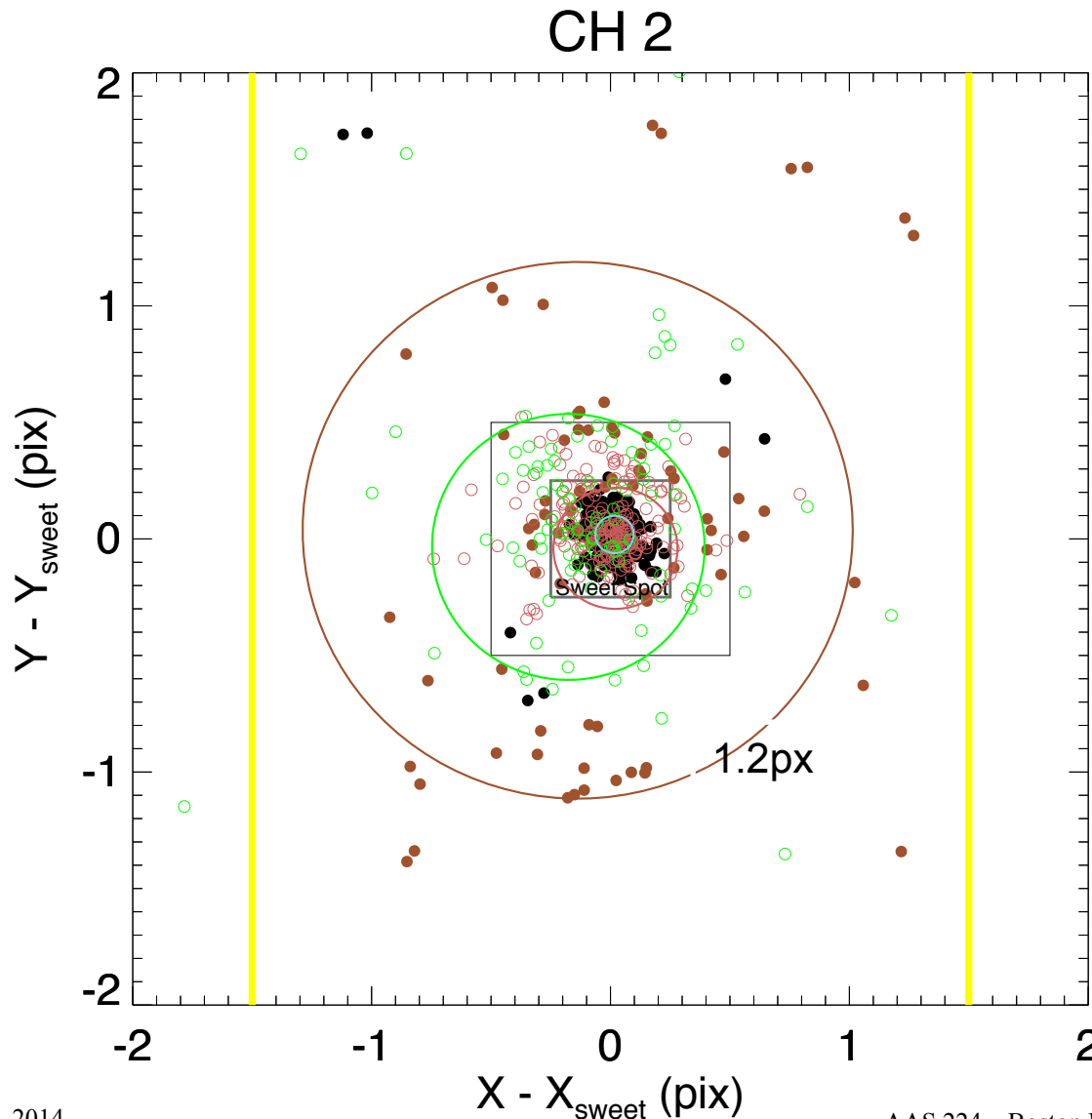
- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in “Sweet Spot”
- 68% within 0.08 px
- Low PM (red) 0.26 px
- High PM (green) 0.57px



Improving Pointing Repeatability: PCRS Peakup



- 776 CH2 PU AORs
- 454 Self, 322 Guide Star
- Self-PU 98% in “Sweet Spot”
- 68% within 0.08 px
- Low PM (red) 0.26 px
- High PM (green) 0.57px
- Blind (brown) 1.2 px



Limits to Photometric Precision

