

2006 335 16:00:04 Z

G & C Sensors

- DSAD HEAD 1
- IMU IMU1
- ST USAGE ALLOWED
- GT USAGE ALLOWED

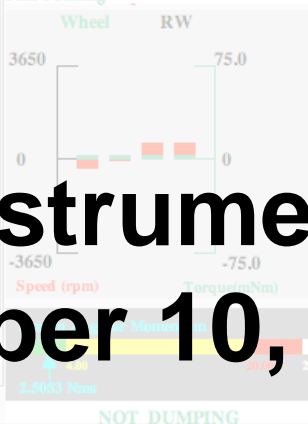
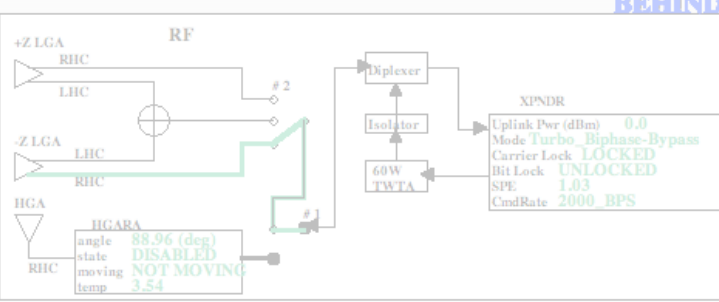
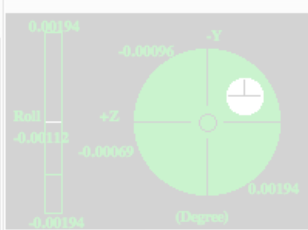
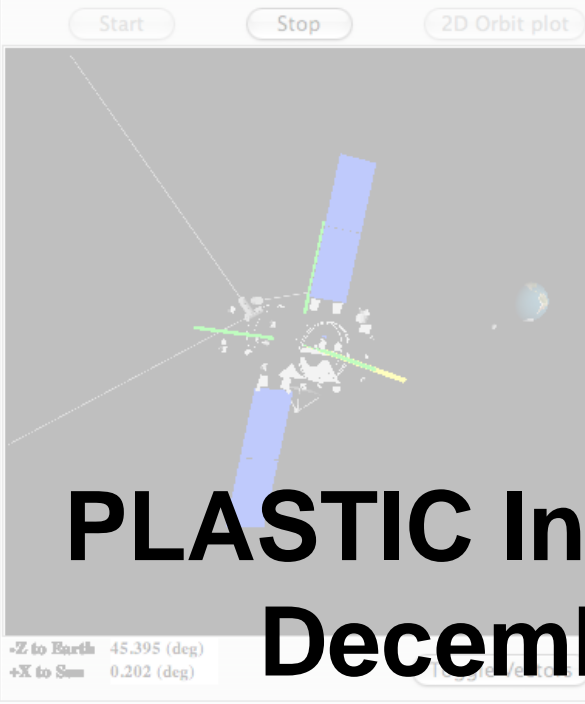
WAITING_FOR_CMD

Delta V Magnitude (m/s)

49.42

G&C Events (RAM) 10

G&C Anomalies (RAM) 0



C&DH Observatory Mode STANDBY

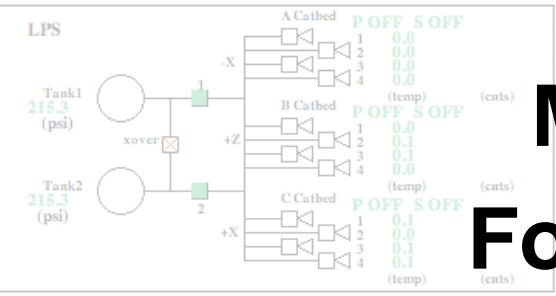
Ground Count	0
COP-1 bypass	COP1
Last onero max fired	469
Last fired timing max	419
Last fault rate fired	0
Last onero rate fired	236

Cmd Counts

RT	0
Macro	139
TimeTag	46362
CCD	0
Autonomy	0
Total	258783
Events	321097
Anomalies	2094

DSN

Cmd Band	UNBOUND
Cmd Rate	2000.0
TCTP Sent	319
TLM/TX Recv	39981
Transmit Power	



Power

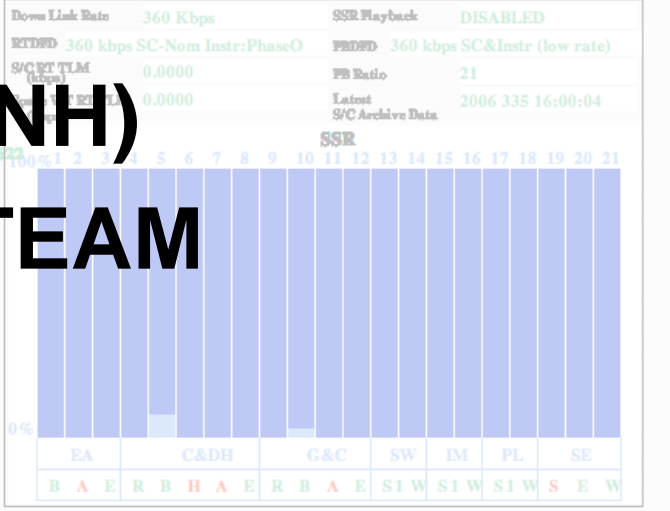
90C(%)	100.0	Main Bus Volt (V)	32.6
Battery Pres 1 (psi)	843.2	Main Bus Curr (A)	10.7
Battery Pres 2 (psi)	816.2	SA +Y Curr (A)	3.1
Battery Temp (C)	-3.4	SA -Y Curr (A)	3.2
Battery Current(A)	0.2	SA Volt (V)	61.2

Instruments

	IM	PL	SE	SW
Power	0	0	0	0
ADPL	0	0	0	0
SE	0	0	0	0
SW	0	0	0	0
FOC_IF	Enabled	Enabled	Enabled	Enabled
Biocell	Disabled	Disabled	Disabled	Disabled
Stanchion	Enabled	Enabled	Enabled	Enabled
SCMs Sent	45	118	0	0
SCB Pkt Counts	2	0	0	8
RT TLM Rate (kbps)	0.0000	0.0000	0.0000	0.0000

Latest Archive Data

IM	2006 335 15:59:08
PL	2006 335 15:59:03
SE	2006 335 16:00:00
SW	2006 335 15:59:25



PLASTIC Instrument Status

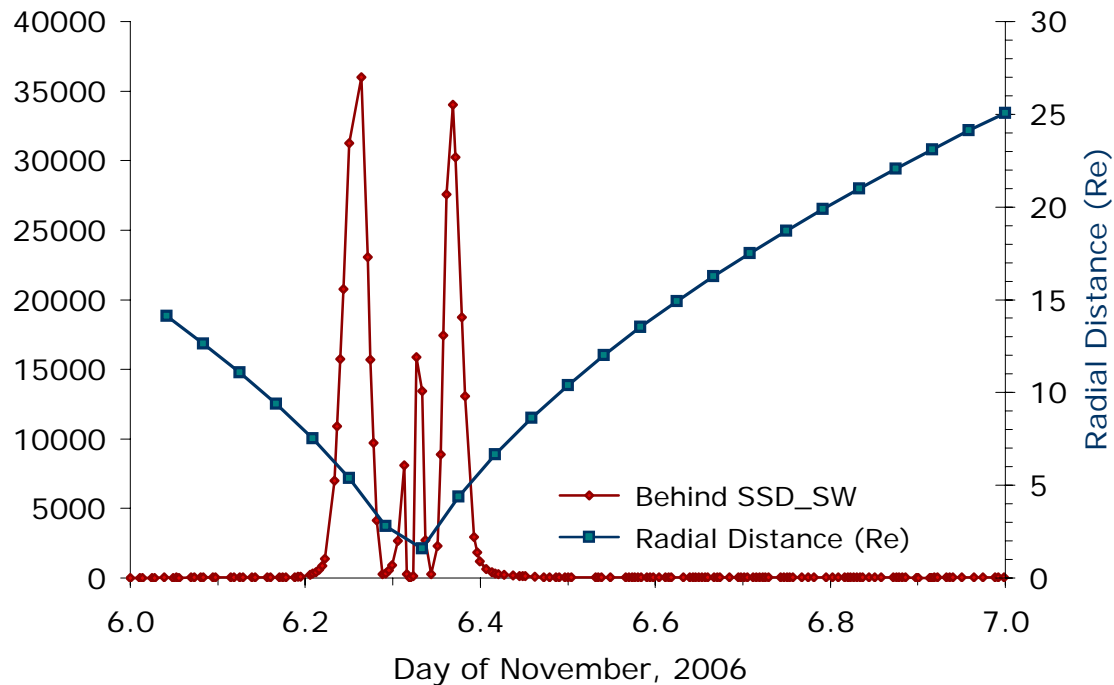
December 10, 2006

Mark Popecki (UNH)
For the PLASTIC TEAM

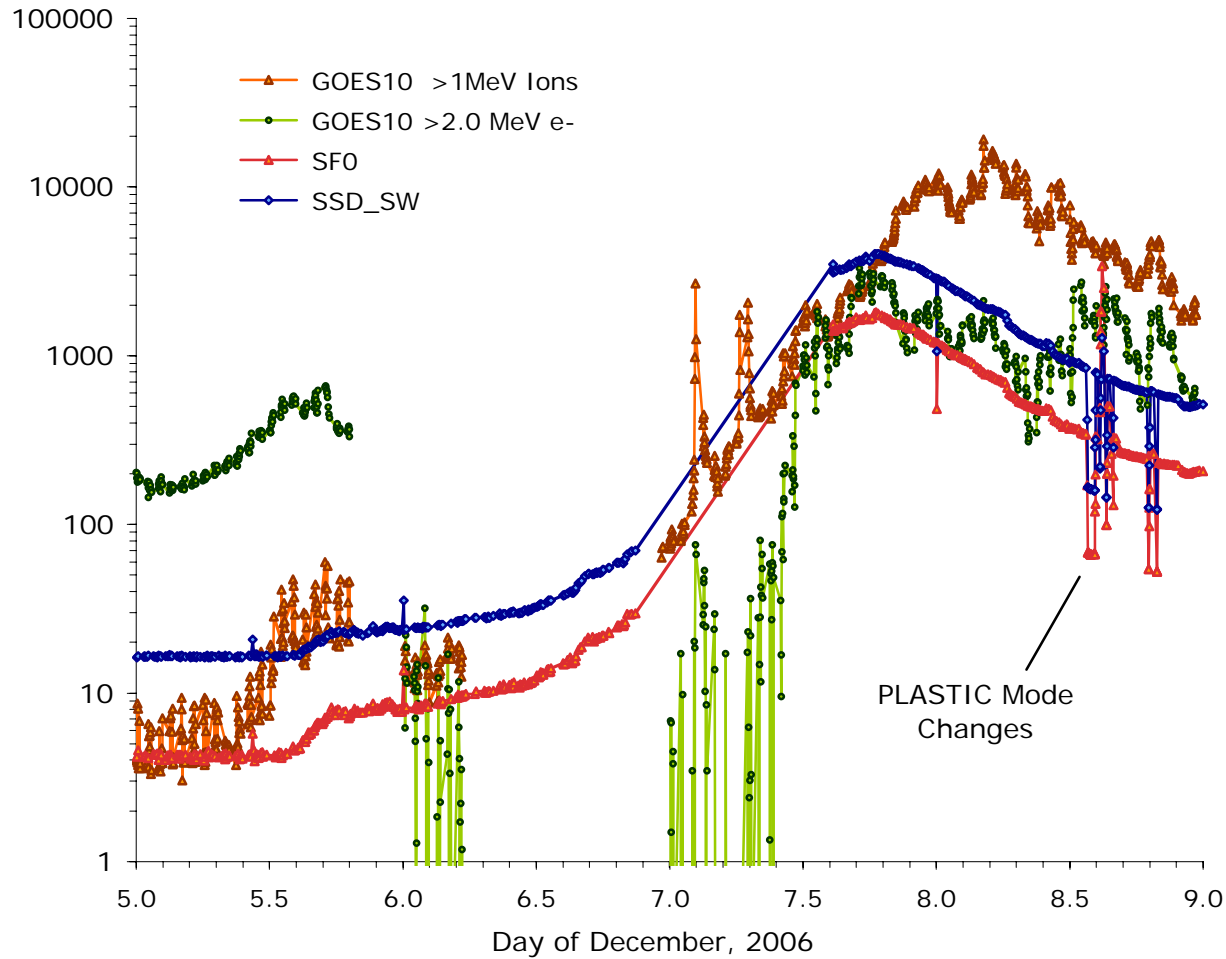
Present State

- Most high voltages are on to ~80% of operational values, except the entrance system.
- PAC (internal acceleration of ions prior to carbon foil) is -17.3kV on both units
 - (eventually -21 kV)
- MCP (microchannel plate supply) is at:
 - 2300 (B)-2500V (A)
 - (eventually 2800-3000 V)
- SSD is at full voltage (98V) on both units
- Instruments have been powered up 5x (A) and 4x (B)

Radiation Belt Passage: Penetrating Particles (B)



December 5, 2006 Event (A)



Final Subsystem to Commission: Entrance System

- Entrance system was operated in a limited manner for the first time in flight on Dec 8, 2006 (both units).
- High voltages that are involved in the Entrance System:
 - ESA (top-hat),
 - out-of ecliptic deflectors
 - proton/He reduced aperture channel (“S-ch”)
- Only the ESA was operated during this test. ESA was placed at fixed voltages in steps to admit ions from 7 to 86 keV/e.

Solar wind conditions at time of test:

Real-time solar wind data from ACE was not available.

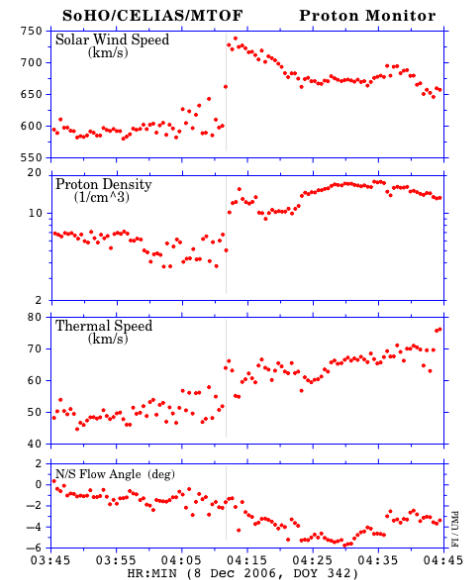
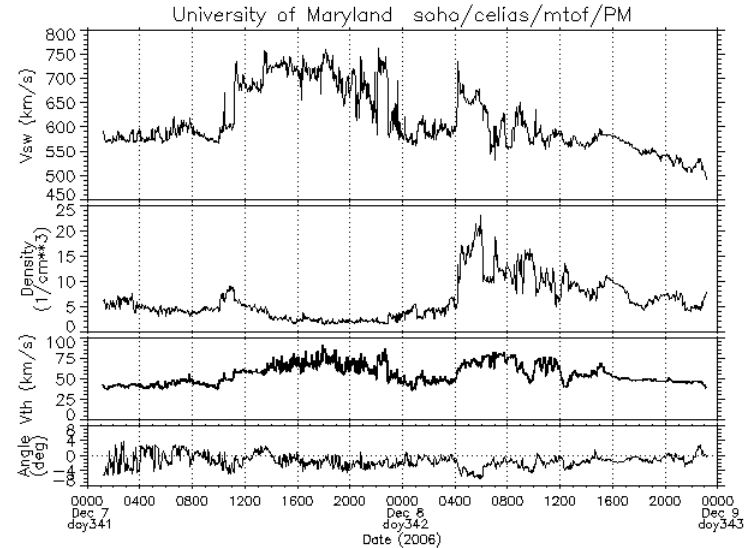
SOHO PM data became available, but not realtime.

Solar wind from SOHO/PM shows we were in a high speed stream (from a near equatorial coronal hole), when a shock arrived (Dec 8 at 0411 UT).

Possible associated solar events: 06 Dec 1847 [X6.5 x-ray flare](#) in AR0930 with a 3B optical flare at S06E63; est. travel time 33 hours.

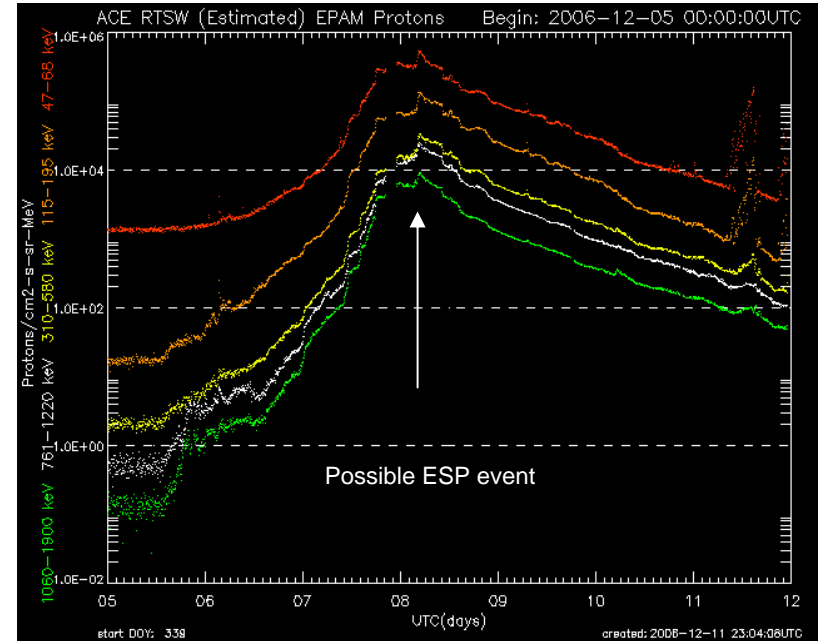
(courtesy F.Ipavich, PM LeadCol)

STA PLASTIC test started about 1400 UT.

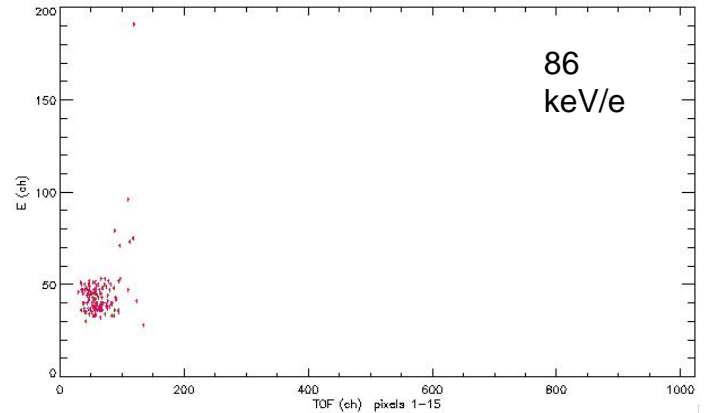
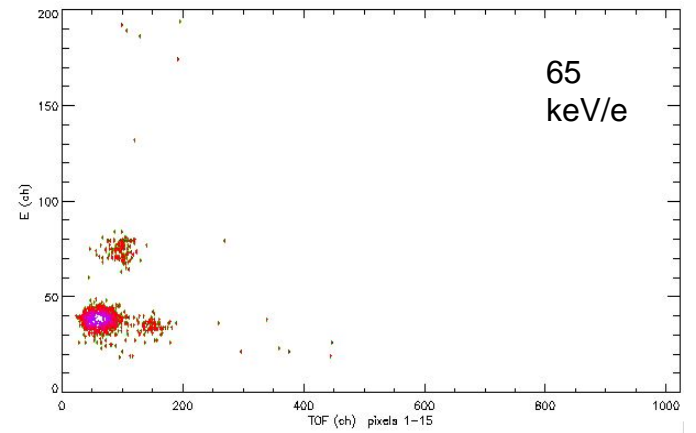
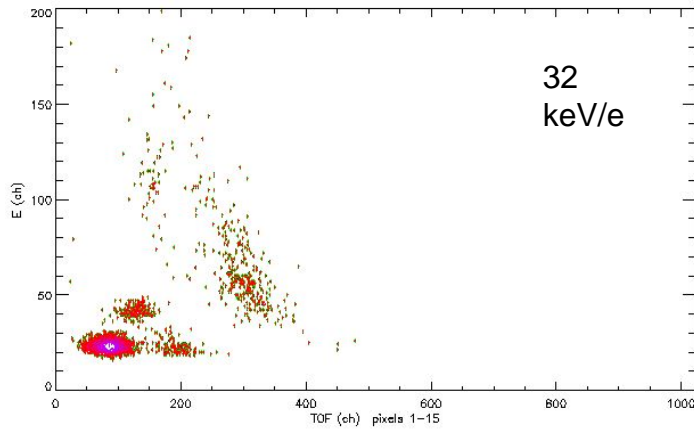
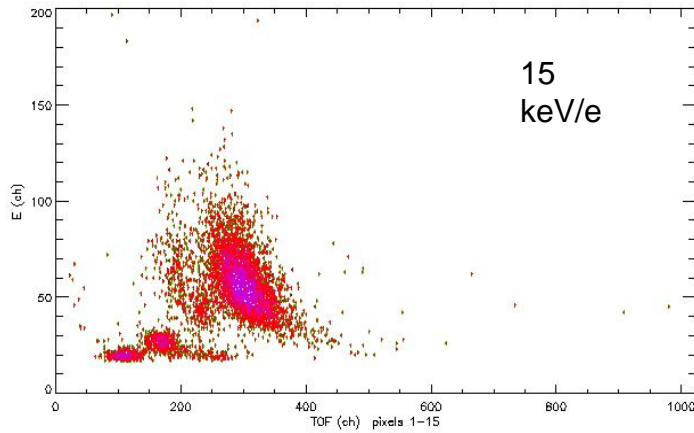
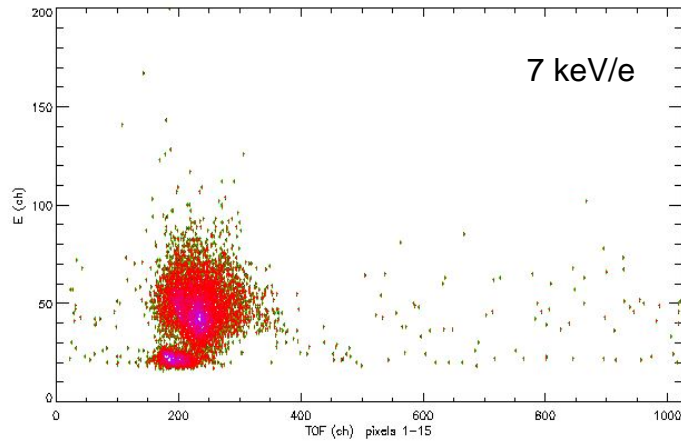


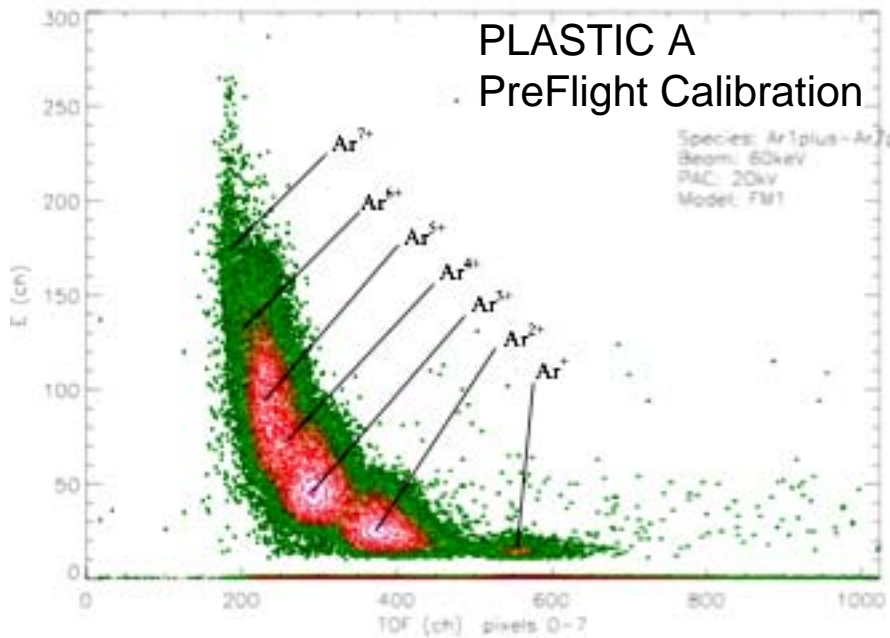
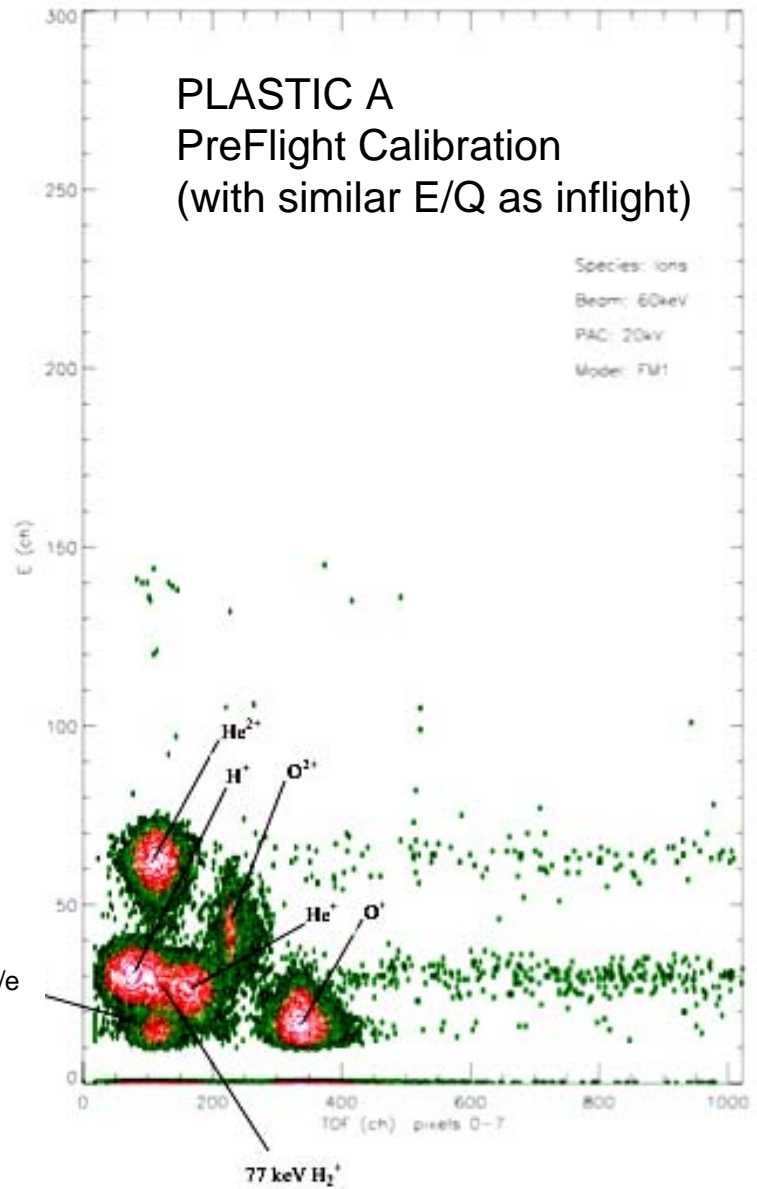
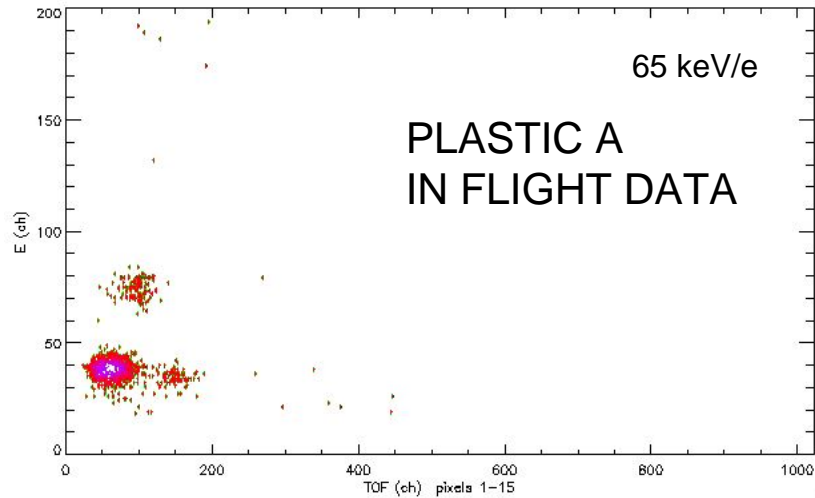
ESP and SEP EVENTS

- Busy Day for solar wind. CH high speed stream. Shock earlier in the day, about 10 hours before PLASTIC test, maybe (?) from a solar event. An associated ESP event may be present in Epam.
- (Thanks to Fred Ipavich, Murray Dryer, Ghee Fry --the HAFv.2 developer while at the Univ. of Alaska, and the USAF/AFWA forecasters for preliminary fast “analysis”).
- AND there was an ongoing SEP event.



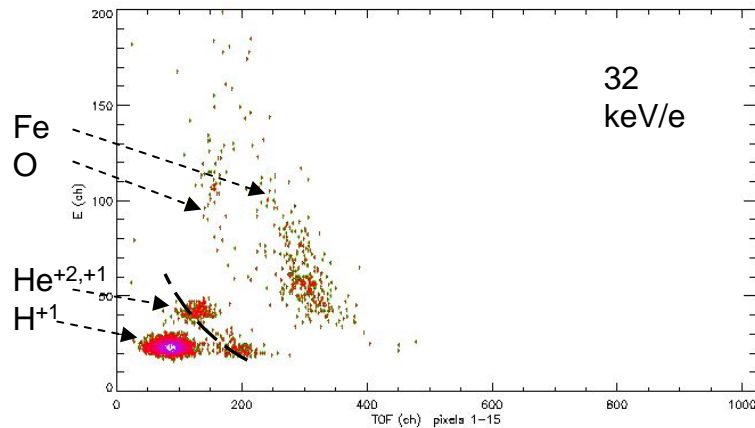
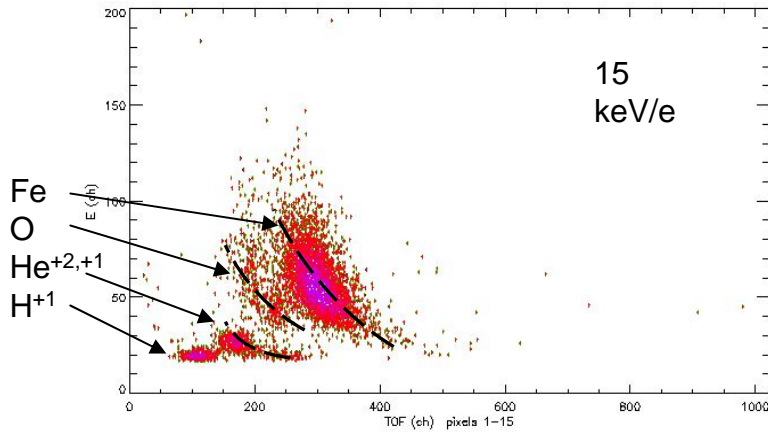
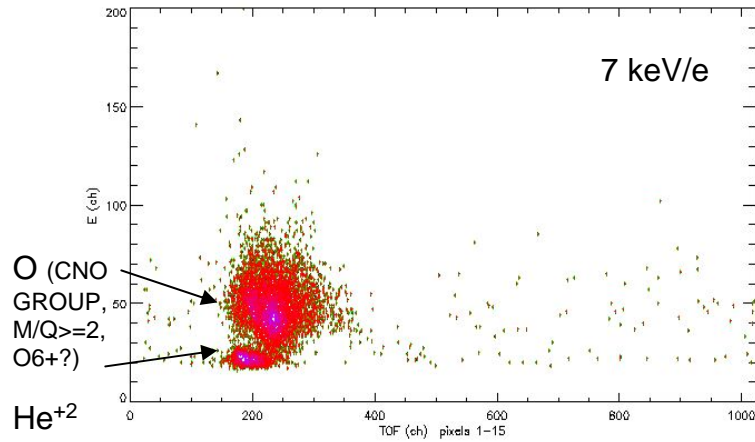
STEREO A Entrance System Test PHA DATA vs. E/Q (Composition)



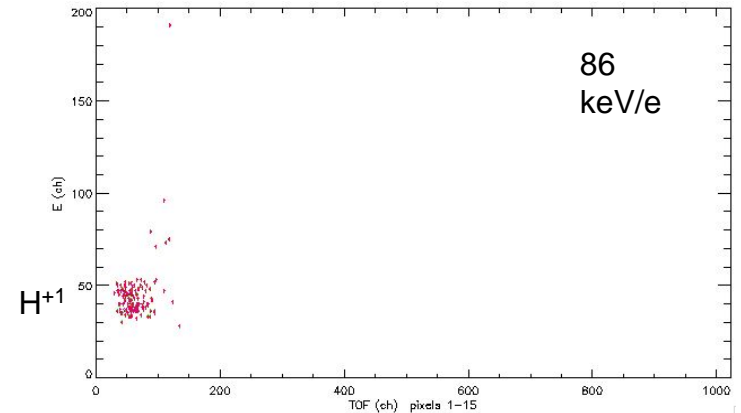
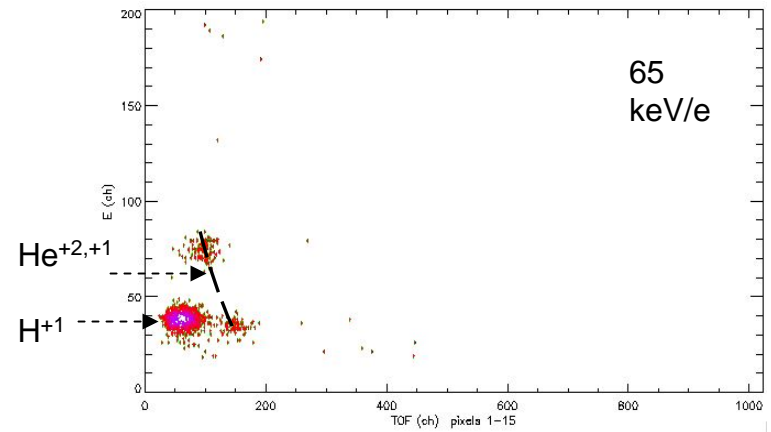


Composition as “E-T Tracks”

- Each Element has its own track in Energy vs. Time-of-flight.
- Position on track depends on incident Energy. [Faster particles move to higher E and lower Time-of-flight.]
- For a fixed E/Q, different charge states of a given element will show as “clumps” in that species’ E-T track.
- Now let’s look at that data from STEREO A again...



- He⁺ may be from accelerated pickup ions (instrument points away from magnetosphere)
 - S/W ions would tend to appear at a single TOF for a given E/Q
 - The O, He and H ions have higher energies than expected from the S/W.



STEREO A - PLASTIC

- Background levels on PLASTIC “singles” rates due to SEP penetration were high, but did not interfere with coincidence composition measurements.
- Test was limited to high E/Q values, to provide an extra safety margin. Suprathermal ion populations observed (not bulk solar wind per se, possibly sw tails and local-shock acceleration of sw-like particles and of He⁺).
- PLASTIC A composition in the “solar wind sector” for this test case looks excellent.