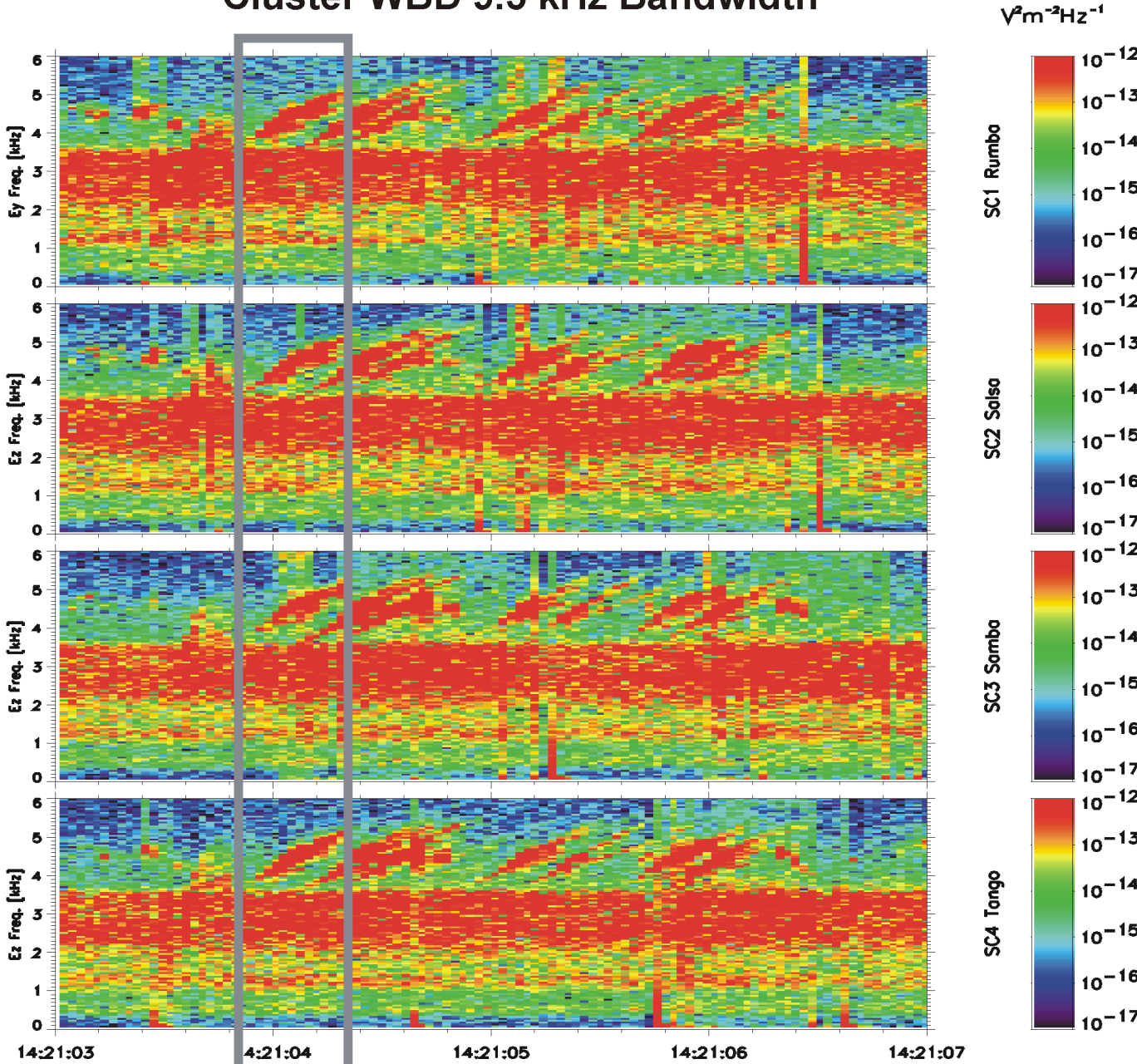


- *3.5-4.5 kHz fine-structured triggered emissions observed on all spacecraft for ~ 6 seconds*
- *Triggered emissions appear as risers*
- *Highlighted riser to be analyzed as to delay time of arrival at each spacecraft*

Cluster WBD 9.5 kHz Bandwidth



R_E	4.38	4.38	4.38	4.38	4.38
λ_m	4.50	4.51	4.52	4.53	4.54
MLT	22.50	22.50	22.50	22.50	22.50
L	4.40	4.40	4.40	4.40	4.40

UT_OBT: 2002-03-25T14:21:03 to 2002-03-25T14:21:07

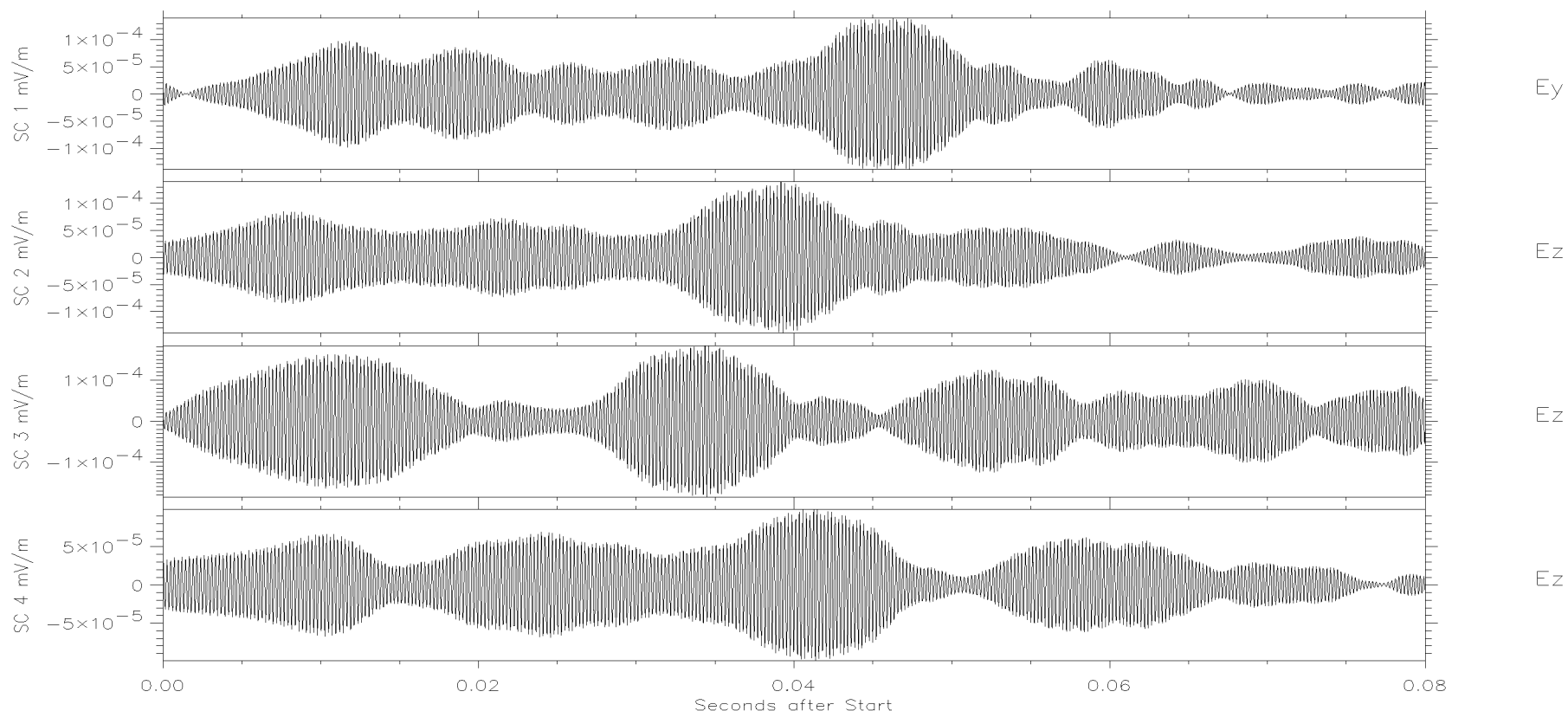
- ***Fir digitally filtered (4.3 to 4.5 kHz) waveform of highlighted riser***
- ***Note the wave packet near the middle of the plot, which has been analyzed for delay time of arrival***

- ***Spacecraft order of observance: 3, 2, 4, 1***

- ***Delay times of arrival: S/C Pair Delay Time (milliseconds)***

S/C Pair	Delay Time (milliseconds)
3/2	4.649
2/4	2.582
4/1	4.833

Cluster WBD 9.5 kHz Waveform



Filtered out frequencies below 4.3 kHz and above 4.5 kHz

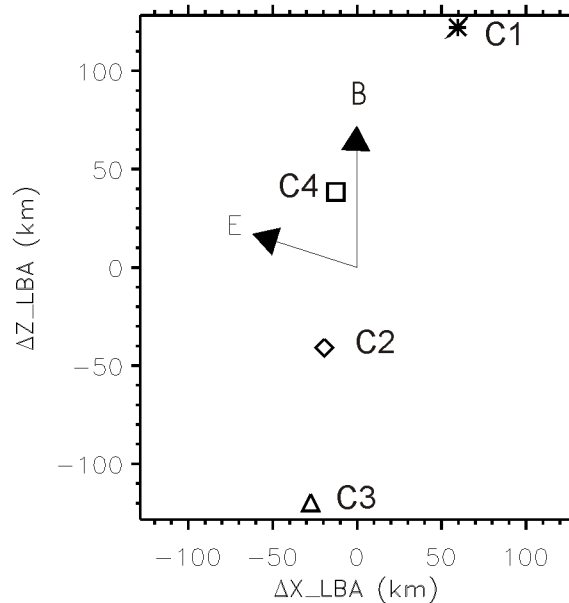
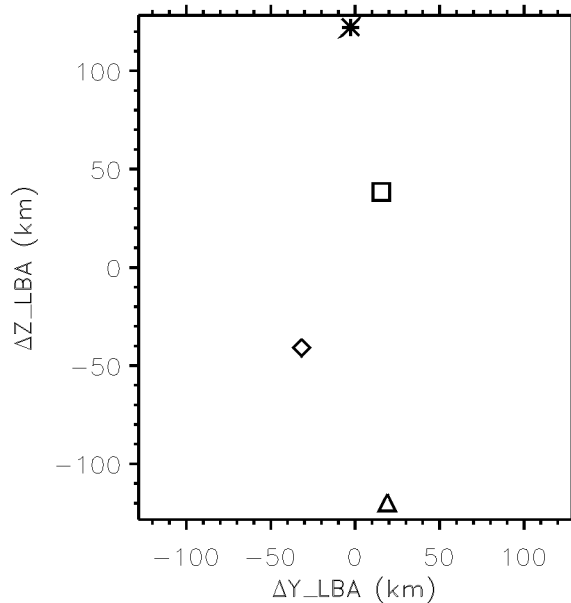
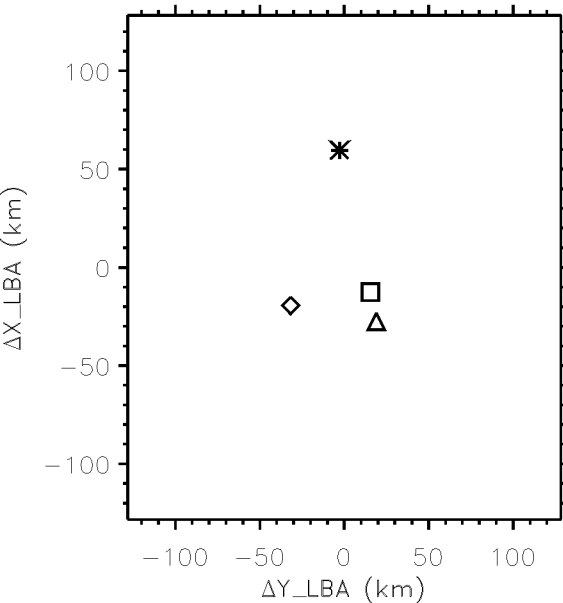
2002-03-25T14:21:04.019

- **Relative locations of the 4 Cluster spacecraft in a magnetic field-aligned coordinate system (origin at center of mass)**

- **Separations:**

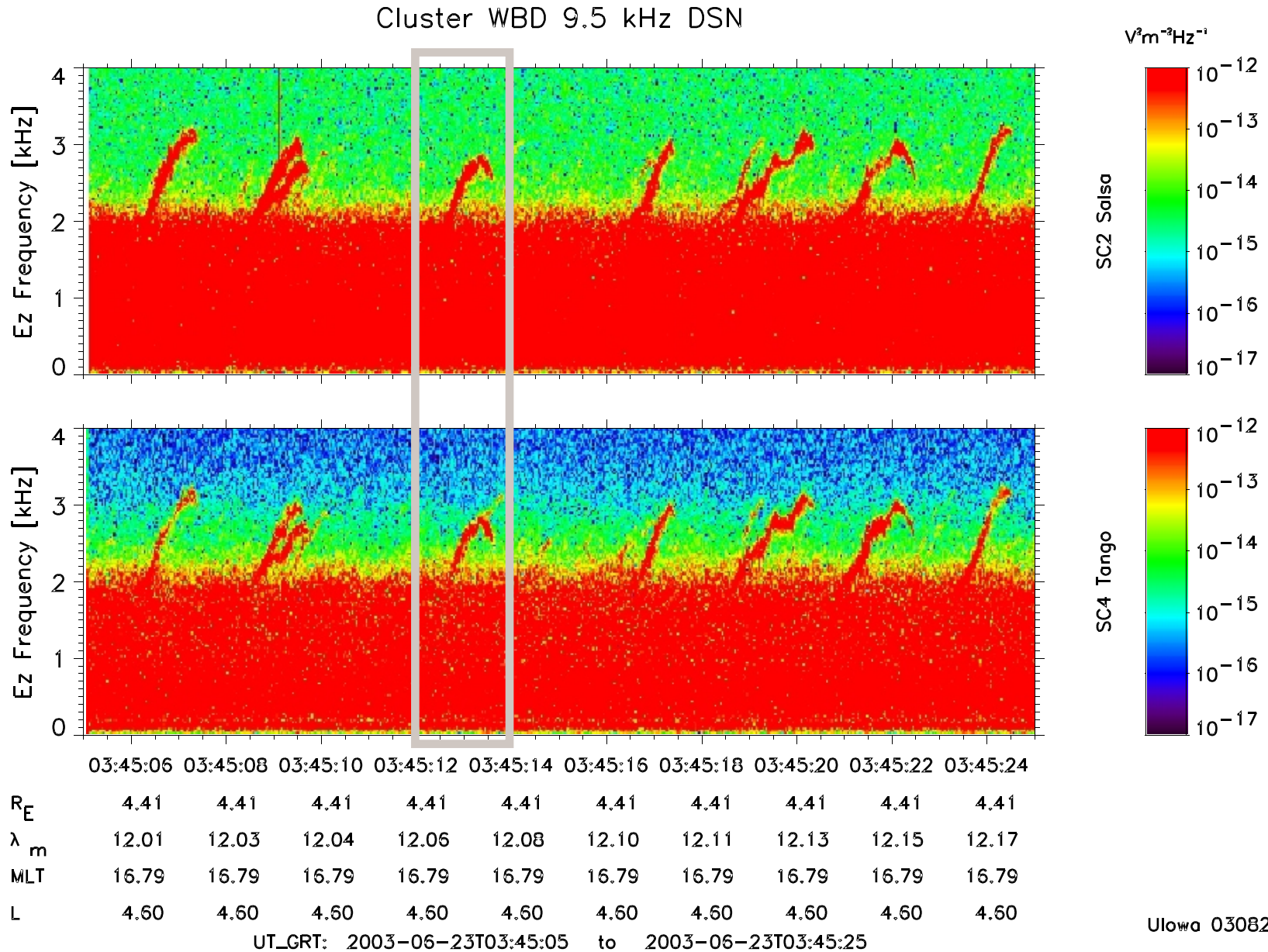
S/C Pair	Along B (km)	Across B (km)
3/2	78.8	52.5
2/4	79.4	47.7
4/1	83.7	74.5

SCET: 2002-Mar-25T14:21:04



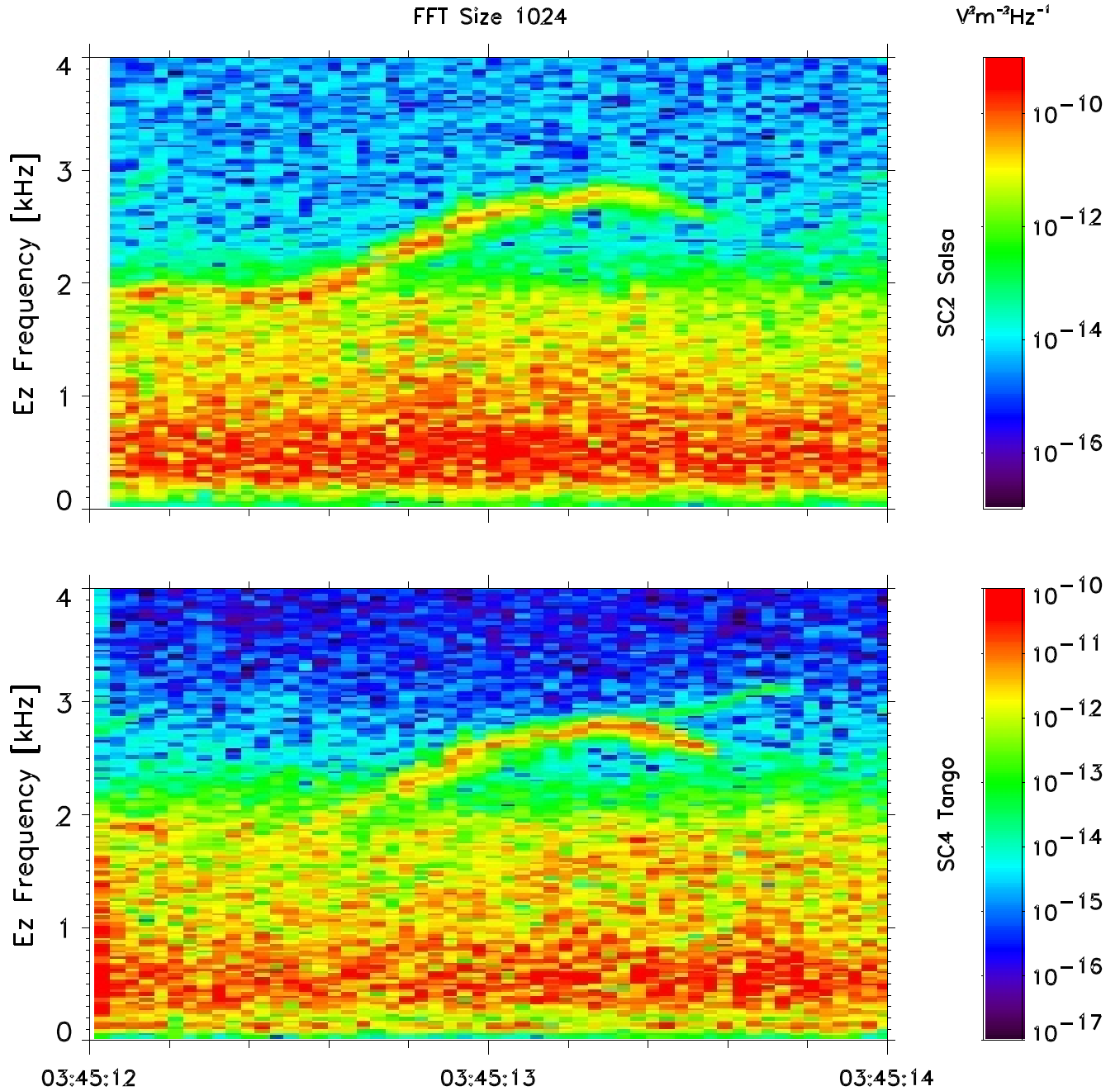
Cluster	1 *	2 ◇	3 △	4 □
GMLat	4.72°	4.35°	4.19°	4.51°
Re	4.38	4.38	4.38	4.38
L	4.41	4.40	4.40	4.40
MLT	22.29	22.29	22.29	22.29

- 2.2-3.2 kHz fine-structured triggered emissions observed on C2 and C4 for ~ 20 seconds
- Triggered emissions appear as risers and hooks
- Highlighted riser will be analyzed in detail.



- Triggered Emission on C2 and C4 in form of riser and hook in frequency band ~ 2 to 3 kHz covering ~1 second.
- Additional trigger off of triggered emission on C4.

Cluster WBD 9.5 kHz DSN



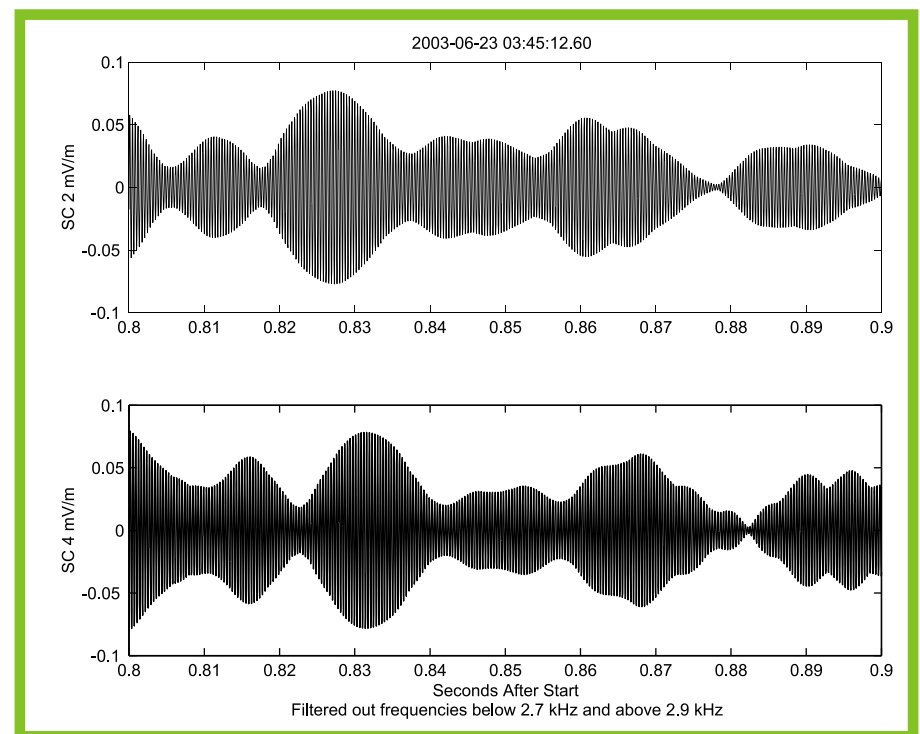
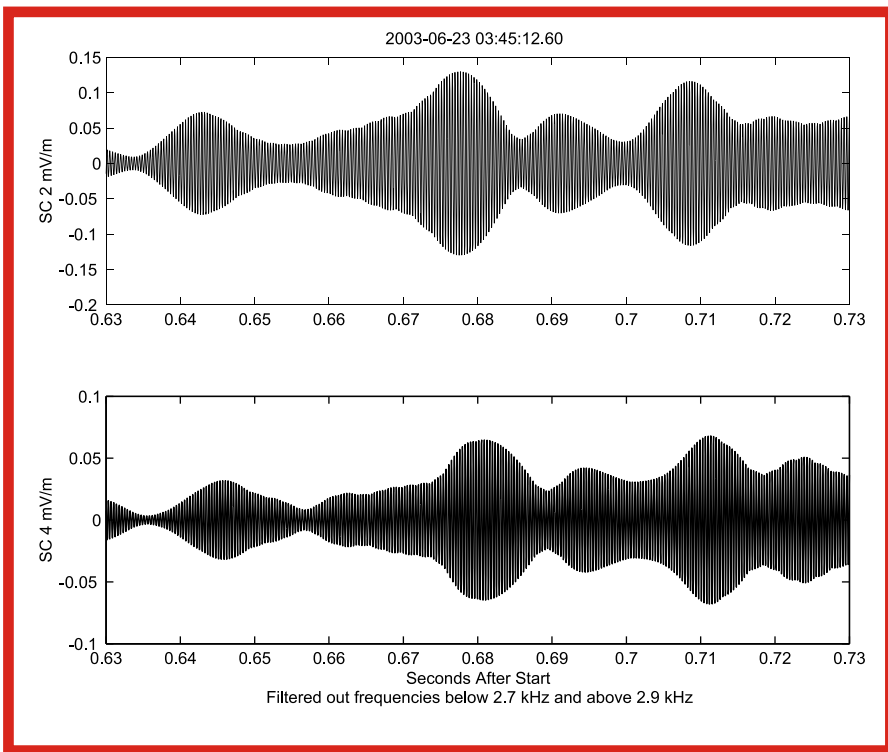
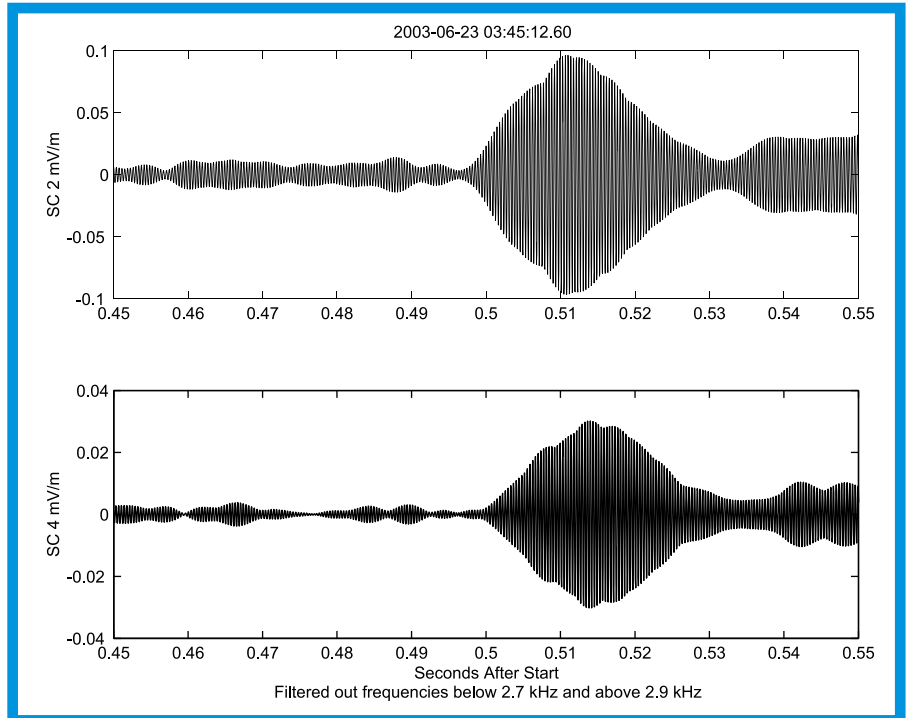
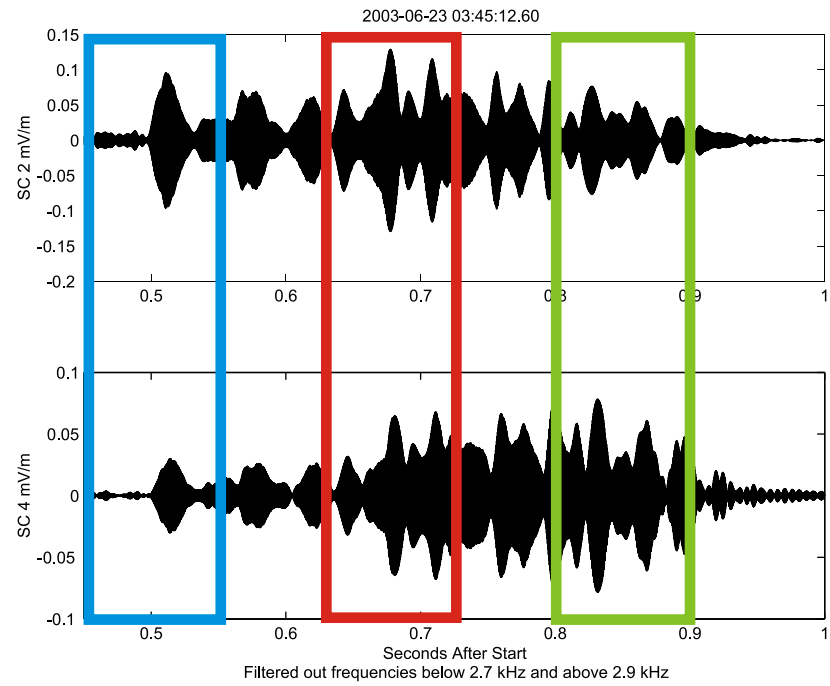
R_E	4.41	4.41	4.41
λ_m	12.06	12.07	12.08
MLT	16.79	16.79	16.79
L	4.60	4.60	4.60

UT_GRT: 2003-06-23T03:45:12 to 2003-06-23T03:45:14

Ulowa 030826

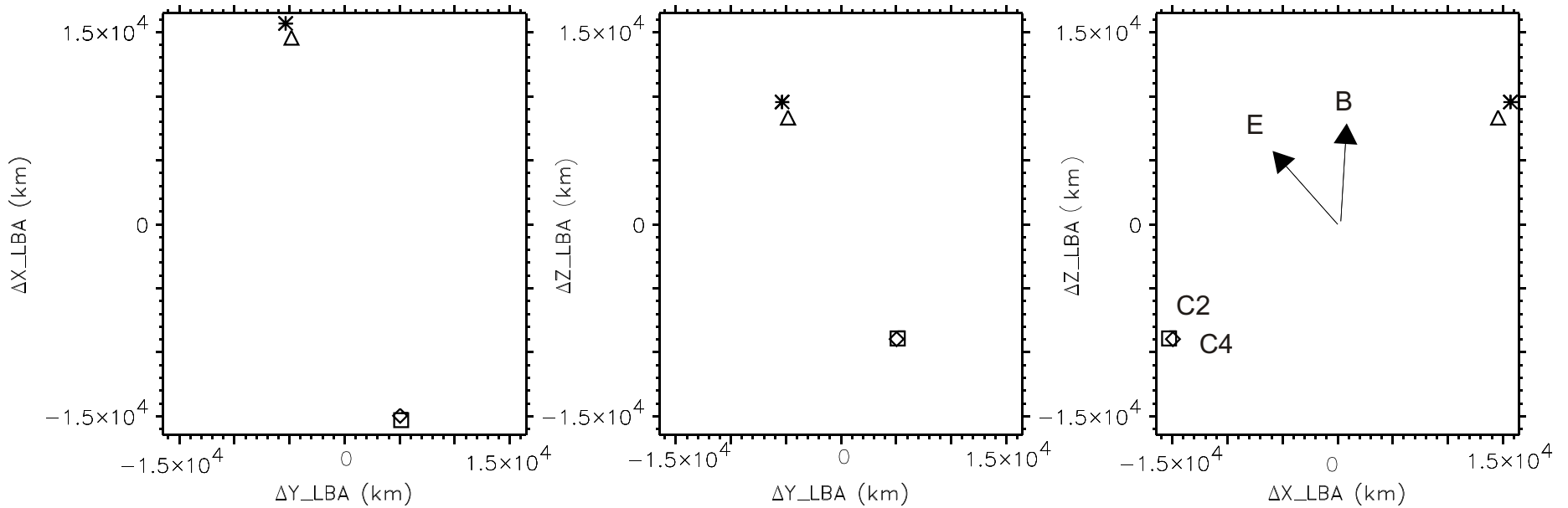
Fir digitally filtered 2.7 to 2.9 kHz riser/hook on C2 and C4

Average Delay C2-->C4: 3.2 msec



- Relative locations of the 4 Cluster spacecraft in a magnetic field-aligned coordinate system (origin at center of mass)
- Separation of spacecraft pair C2/C4: Along B: 33.5 km Cross B: 118.6 km

SCET: 2003-Jun-23T03:45:12.000



Cluster	1 *	2 ◇	3 △	4 □
GMLat	78.15°	12.77°	76.47°	12.09°
Re	5.69	4.43	5.57	4.42
L	135.14	4.66	101.65	4.62
MLT	13.68	16.78	14.22	16.79

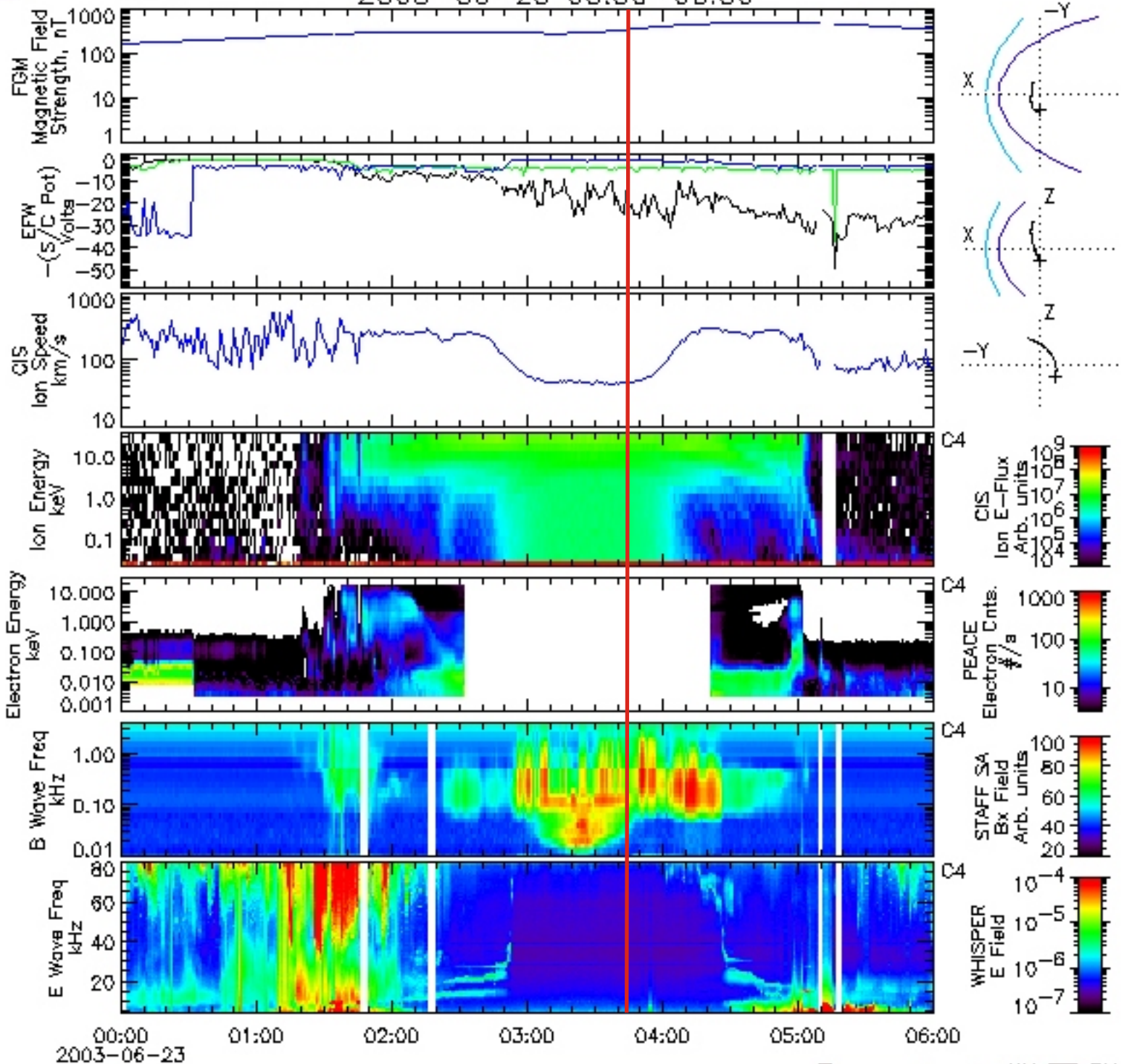
Ulowa 030905



Cluster Quicklook 6-hour: Overview

2003-06-23 00:00-06:00

SCIENCE

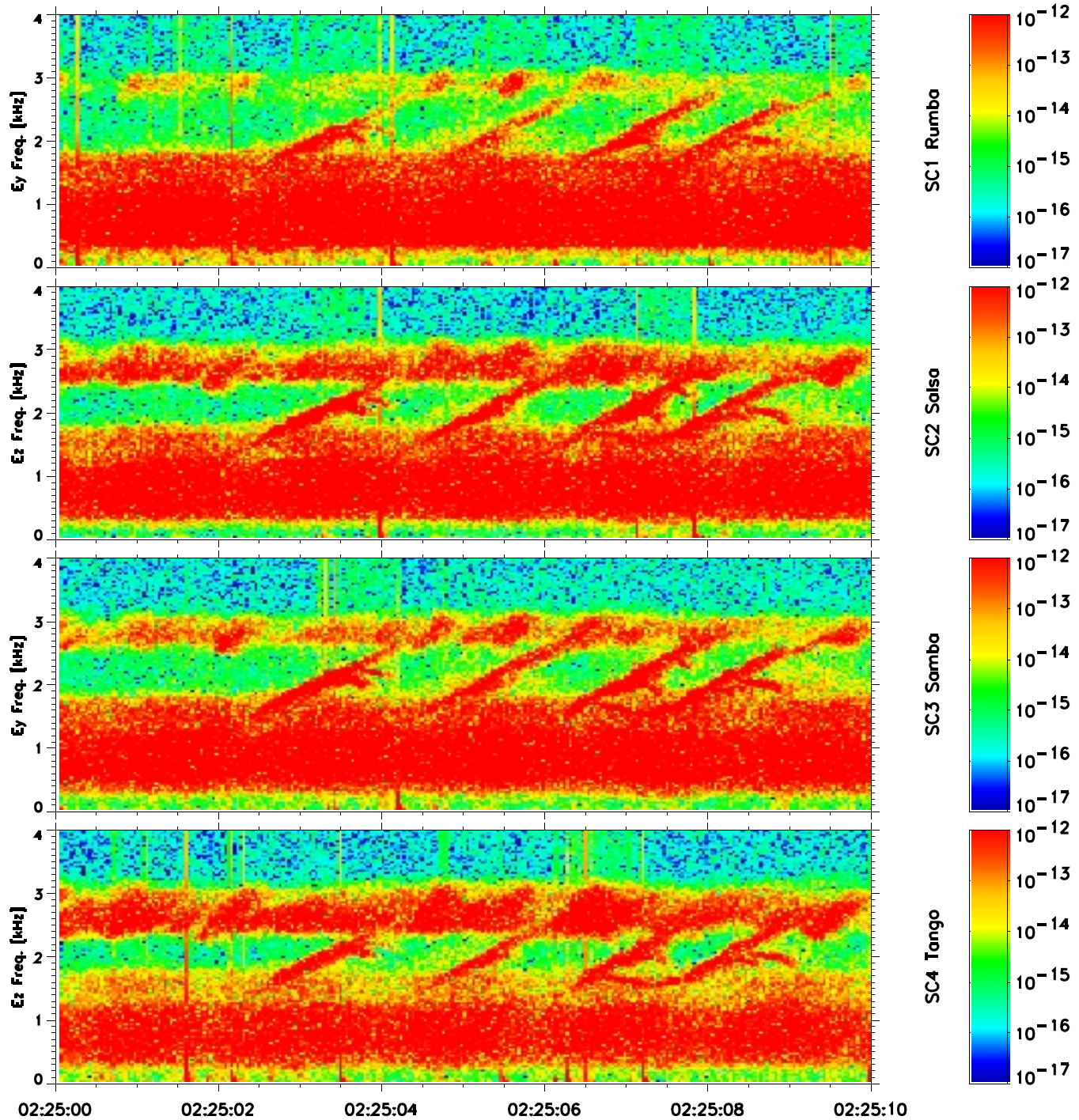


Last Updated: Mon Jun 23 22:55:07 2003

<http://www.cluster.rdg.ac.uk/cadswab/>

- 1.5-2.5 kHz fine-structured triggered emissions observed on all 4 spacecraft for ~ 10 seconds
 - Triggered emissions appear as risers and hooks.

Cluster WBD 9.5 kHz DSN

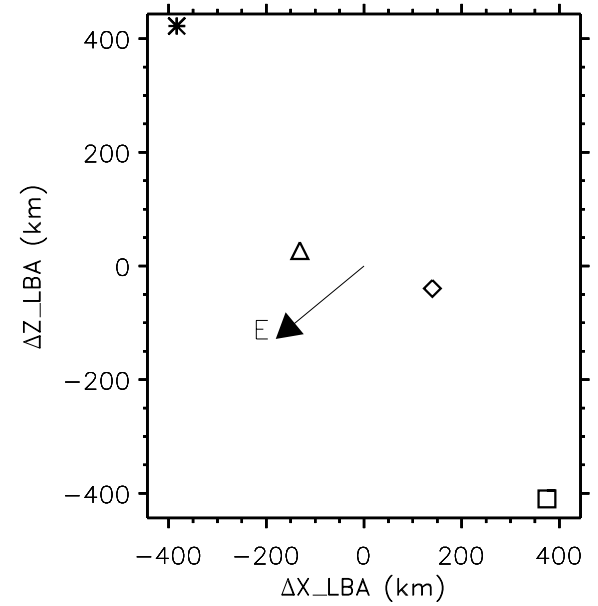
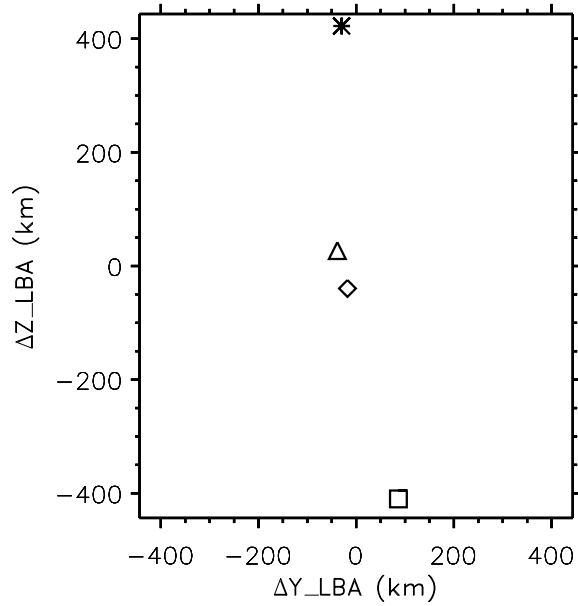
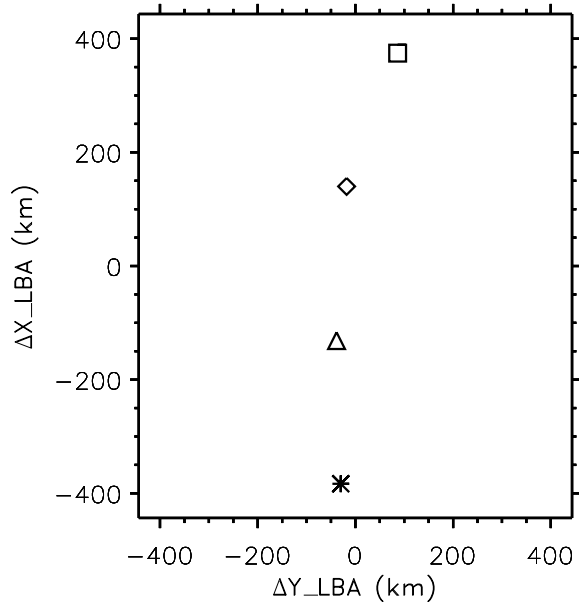


R_E	4.63	4.63	4.63	4.63	4.63	4.62
λ_m	-19.29	-19.28	-19.26	-19.24	-19.23	-19.21
MLT	12.53	12.53	12.53	12.53	12.53	12.53
L	5.20	5.20	5.20	5.20	5.20	5.20

UT_OBT: 2003-08-31T02:25:00 to 2003-08-31T02:25:10

Cluster Relative Positions

SCET: 2003-Aug-31T02:25:00.000



Cluster	1 *	2 ◇	3 △	4 □
GMLat	-17.39°	-18.72°	-18.30°	-19.56°
Re	4.61	4.64	4.61	4.63
L	5.07	5.17	5.11	5.22
MLT	12.52	12.52	12.52	12.54

Ulowa 030905

Cluster Quicklook 6-hour: Overview

2003-08-31 00:00-06:00

