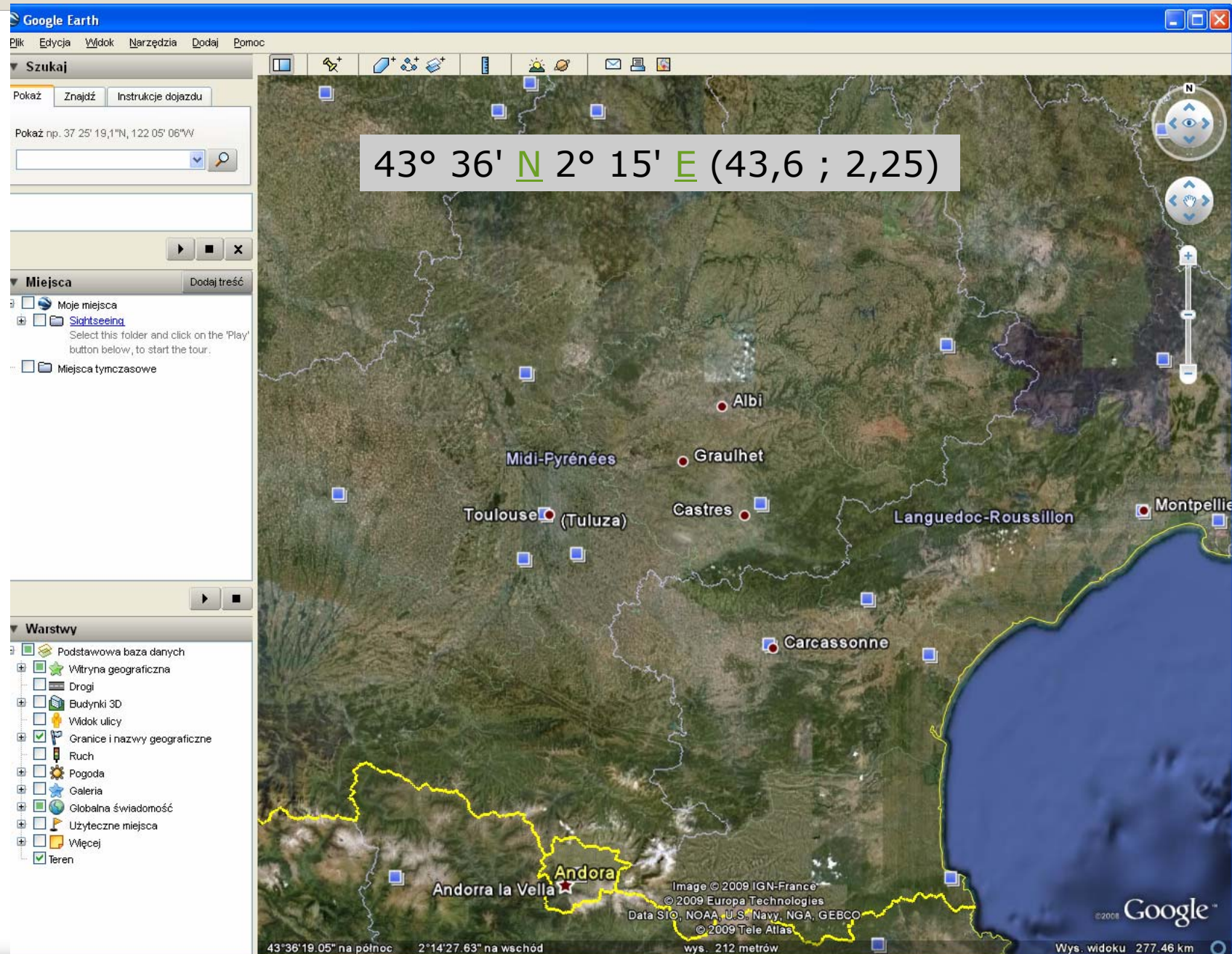


The strong ELF/VLF emissions associated with the thunderstorm over Southern FRANCE on October 8, 2009

Jan Błęcki
Michel Parrot
Roman Wronowski



Burst mode 21:04:33-21:06:53 21:05:40 – 230km

Mozilla Firefox

http://demeter.cbk.waw.pl/

Event geographic position

lat (°) lon (°) dist (km) 2009-09-20 13:55:30 record < 68415 2009-10-14 08:02:30

43.6 2.25 1000 52704

Coordinates geographic

Home

Orbit:

Demeter past

predicted

Double Star 1

Double Star 2

Jason

Conjugations:

Demeter-Jason

Info:

software

server

POLISH ACADEMY OF SCIENCES SPACE RESEARCH CENTRE

LPCE

CE TP

CESR

OKS

ESTEC

Contact:

J. Grygorczuk

Conjugate point of the epicenter at 710 km + geomag lat 42.11 lon 83.42

lat -5.8 lon 220.0

UT	lat	lon	tloc	dist	dist
20.52.30	-6.46	14.92	21.9	5659	4425
20.53.00	-4.65	14.54	21.9	5453	4630
20.53.30	-2.83	14.16	21.8	5246	4837
20.54.00	-1.01	13.78	21.8	5039	5044
20.54.30	0.81	13.40	21.8	4832	5251
20.55.00	2.63	13.02	21.8	4625	5458
20.55.30	4.45	12.64	21.8	4418	5665
20.56.00	6.27	12.26	21.8	4211	5871
20.56.30	8.09	11.88	21.7	4004	6078
20.57.00	9.91	11.49	21.7	3797	6285
20.57.30	11.73	11.10	21.7	3590	6492
20.58.00	13.55	10.71	21.7	3383	6699
20.58.30	15.37	10.31	21.7	3176	6906
20.59.00	17.19	9.91	21.6	2969	7113
20.59.30	19.00	9.50	21.6	2763	7319
21.00.00	20.82	9.09	21.6	2556	7526
21.00.30	22.64	8.67	21.6	2349	7734
21.01.00	24.46	8.24	21.6	2142	7941
21.01.30	26.27	7.80	21.6	1935	8147
21.02.00	28.09	7.36	21.5	1728	8354
21.02.30	29.91	6.90	21.5	1521	8562
21.03.00	31.72	6.43	21.5	1315	8768
21.03.30	33.54	5.94	21.4	1108	8976
21.04.00	35.35	5.45	21.4	902	9182
21.04.30	37.16	4.93	21.4	696	9389
21.05.00	38.97	4.39	21.4	491	9596
21.05.30	40.78	3.83	21.4	290	9803
21.06.00	42.59	3.25	21.3	112	10010
21.06.30	44.39	2.64	21.3	163	10217
21.07.00	46.20	2.00	21.3	356	10424
21.07.30	48.00	1.33	21.2	559	10631

1 2009-10-08 20.52.30.000

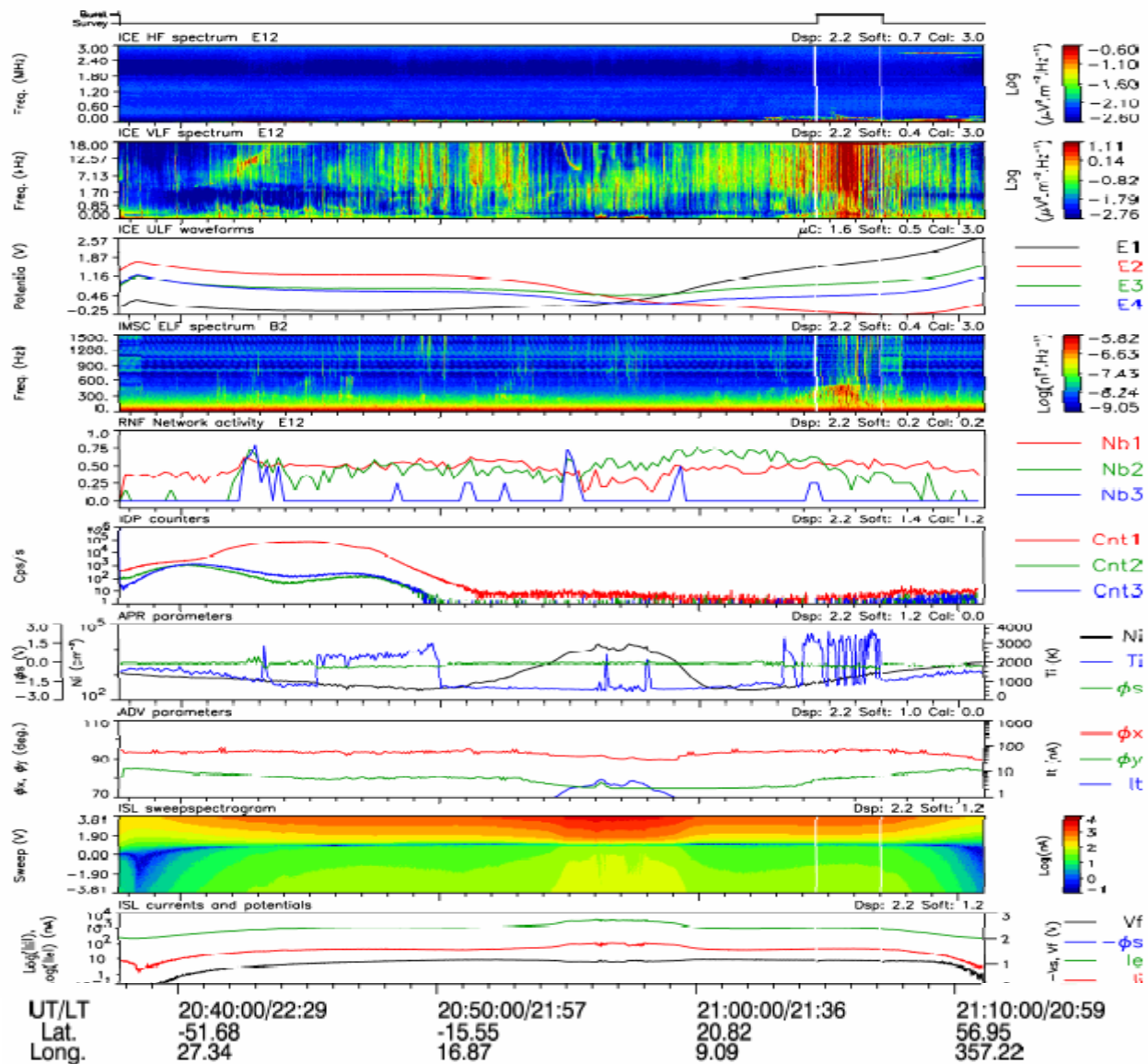
2 2009-10-08 21.07.30.000

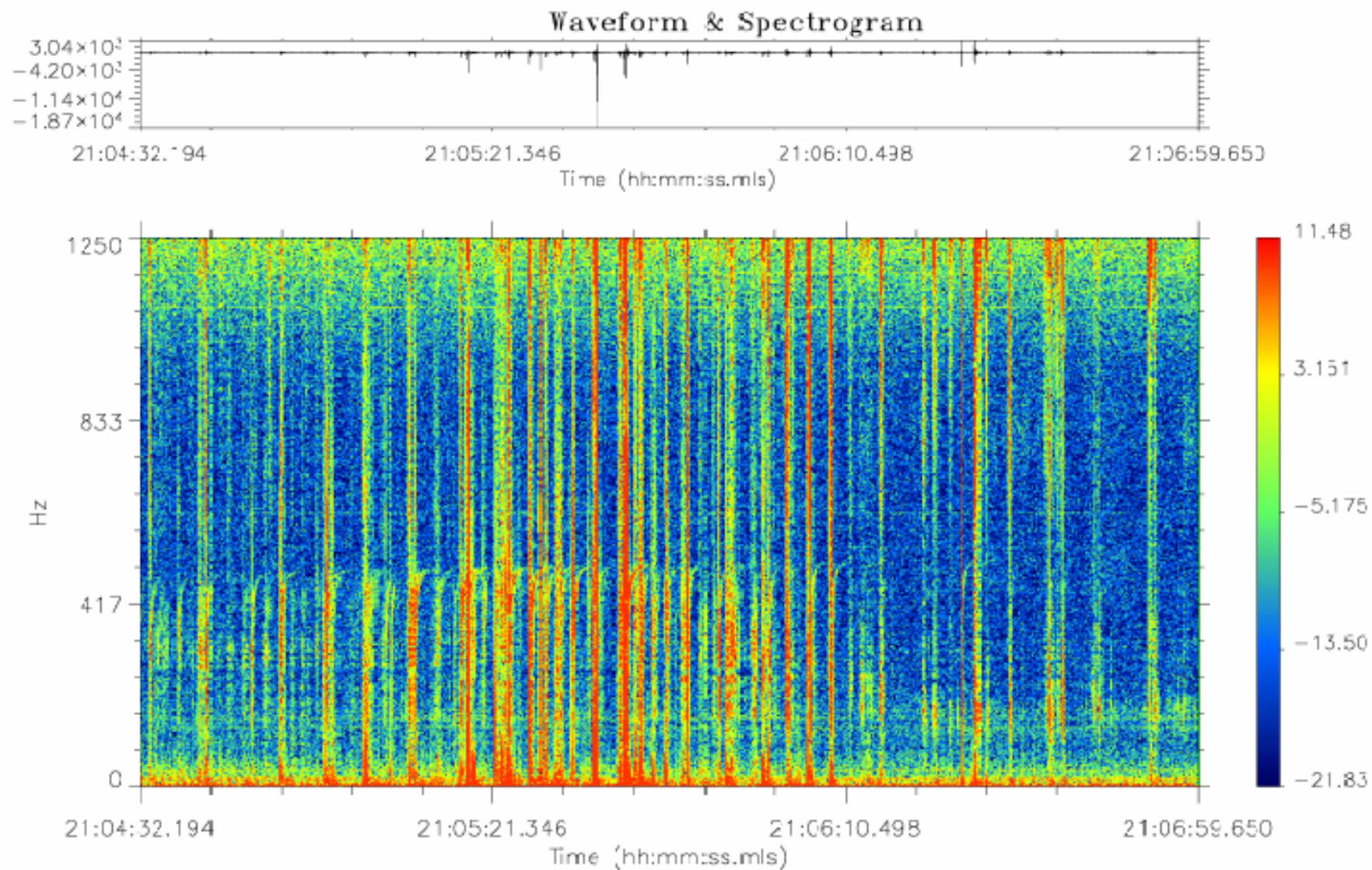
DEMETER / QUICKLOOK

Date (gmtd): 2009/10/08

Orbit: 28195_1

Produced by LPCE 2009/10/09 15:31:39 v3.6





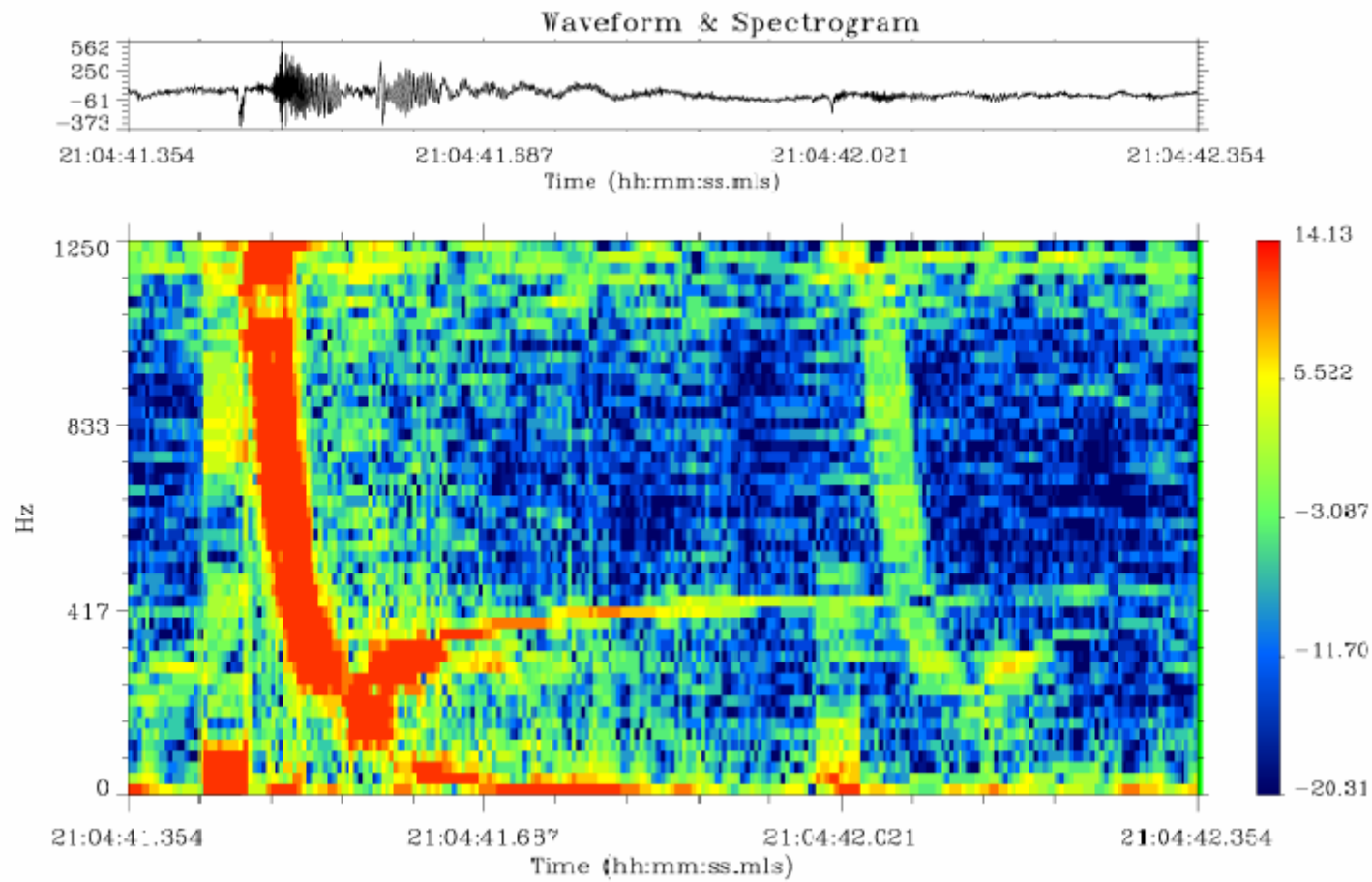
08/10/2009 21:04:41

43.3829

4.0669

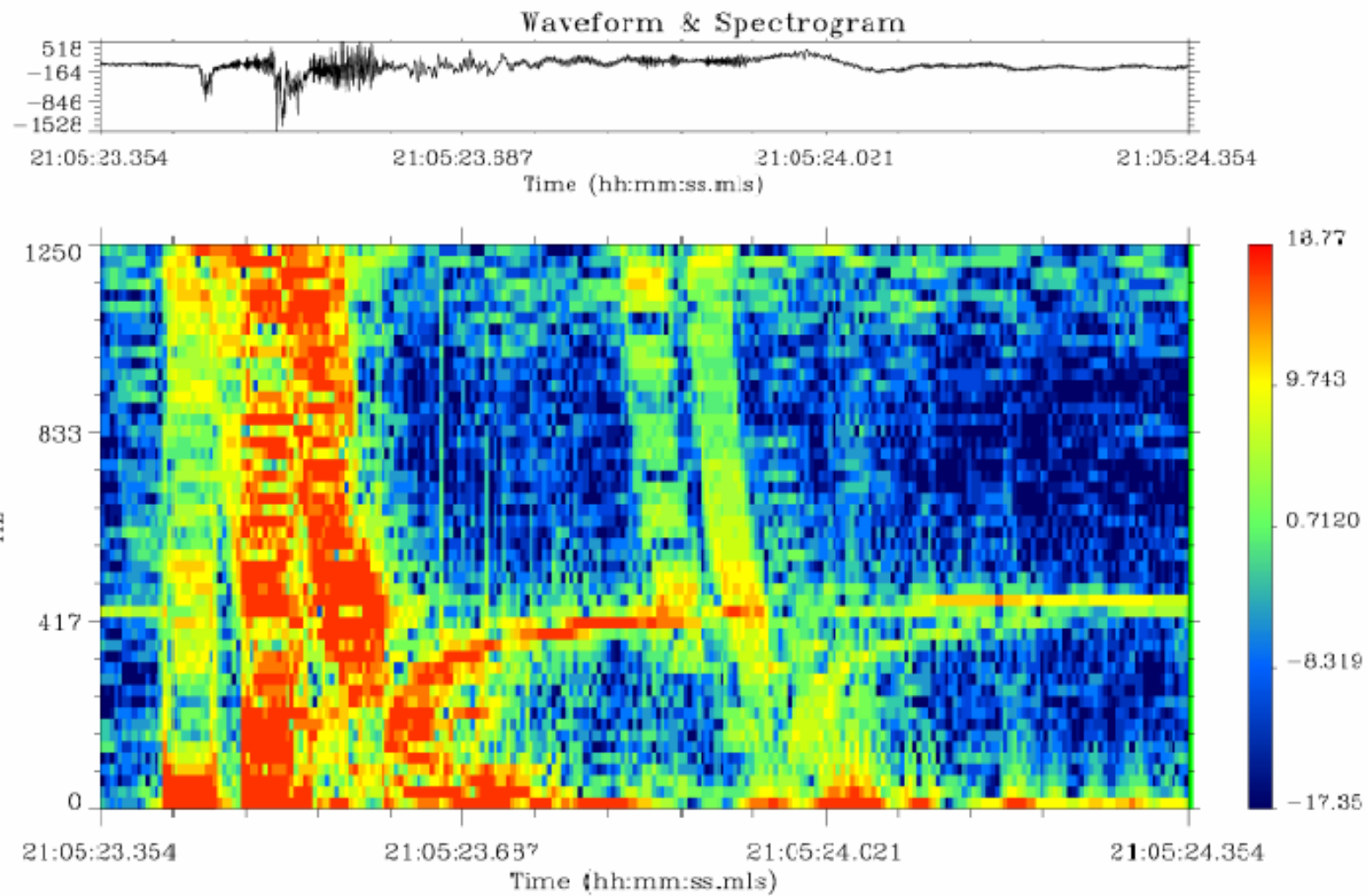
26.3

500435810

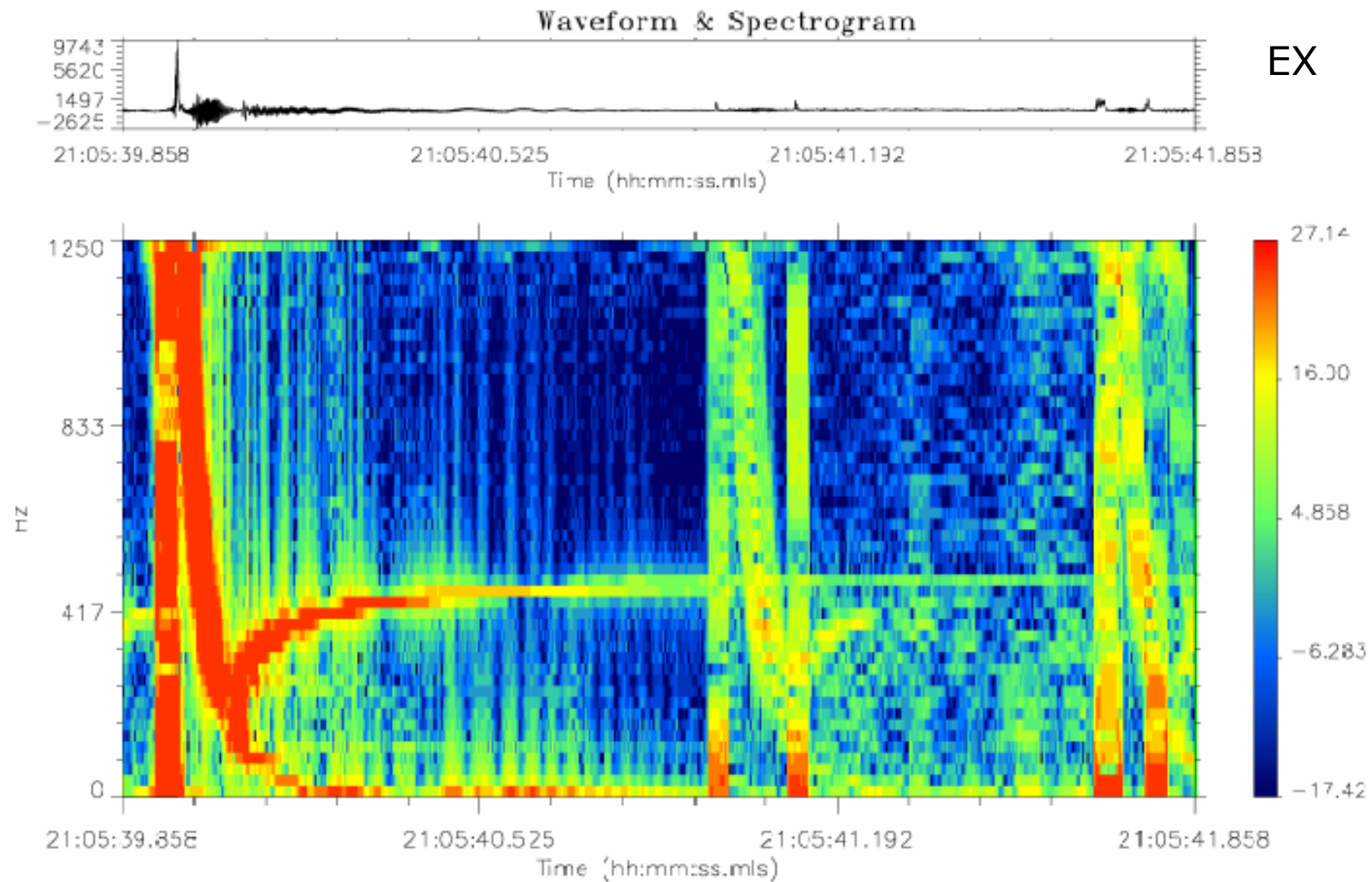


DEMETER WORKSHOP, PARIS
OCTOBER 12, 2011

08/10/2009	21:05:23	43.1883	4.0487	-9.3	10473500
08/10/2009	21:05:23	43.1940	4.0443	-16.1	493864900
08/10/2009	21:05:23	44.2332	2.3485	9.9	563877669

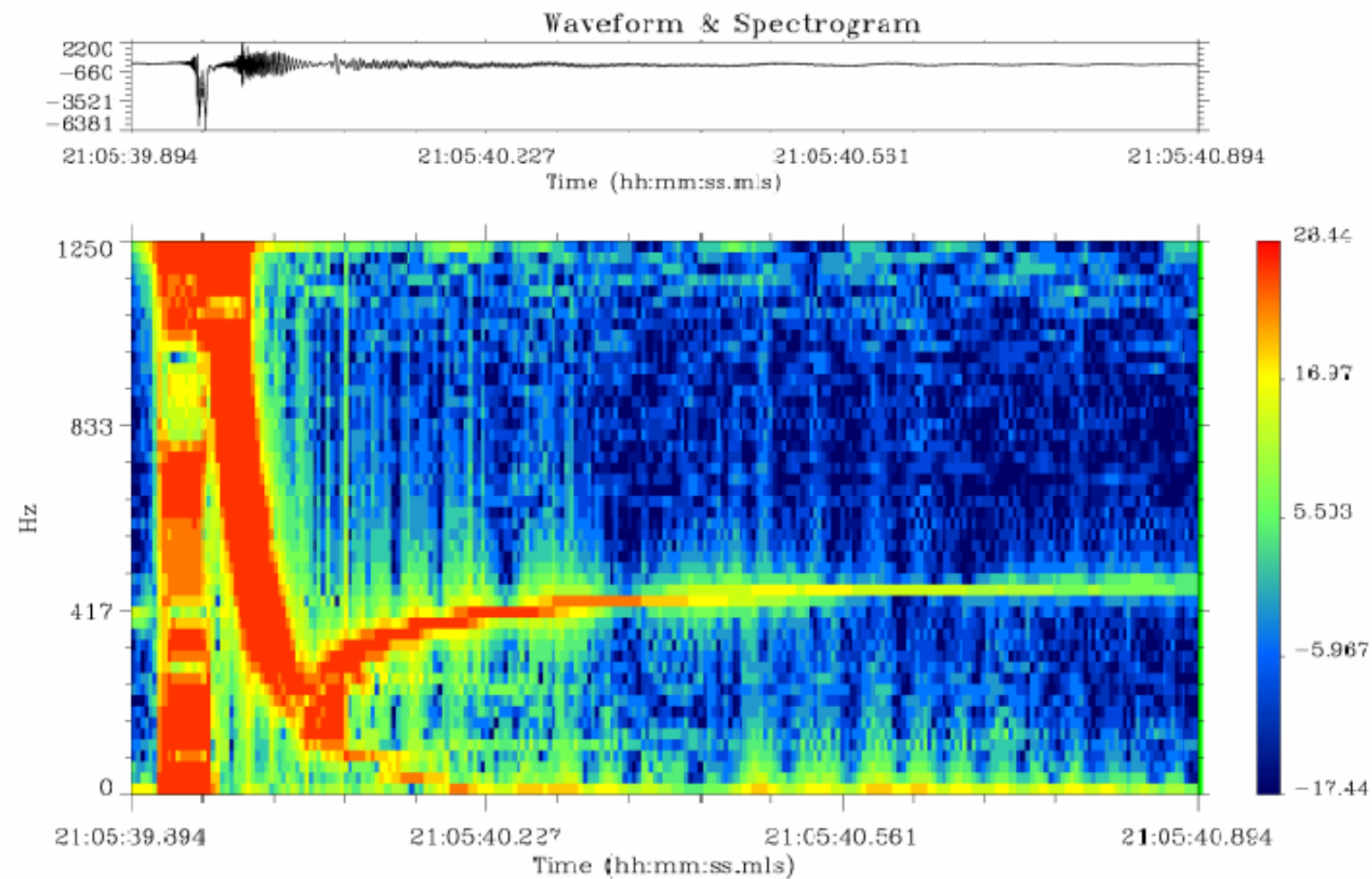


08/10/09 21:05:39	43.1157	3.9521	-20.6	674356400
08/10/09 21:05:40	43.8132	3.9013	-68.0	5787087
08/10/09 21:05:40	44.5801	4.3780	-30.0	6201475

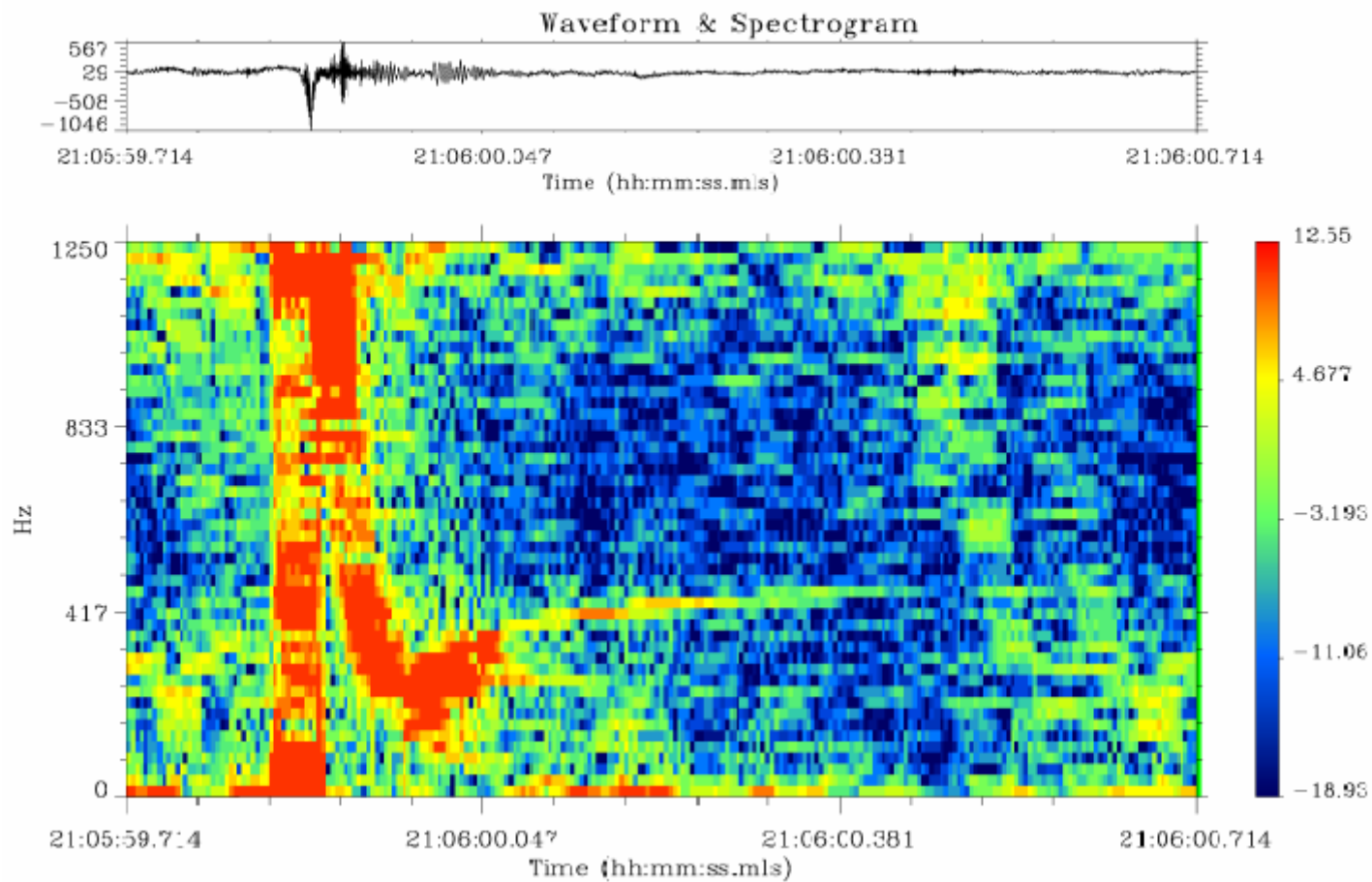


08/10/2009	21:05:39	43.1157	3.9521	-20.6	674356400
08/10/2009	21:05:40	43.8132	3.9013	-68.0	5787087
08/10/2009	21:05:40	44.5801	4.3780	-30.0	6201475

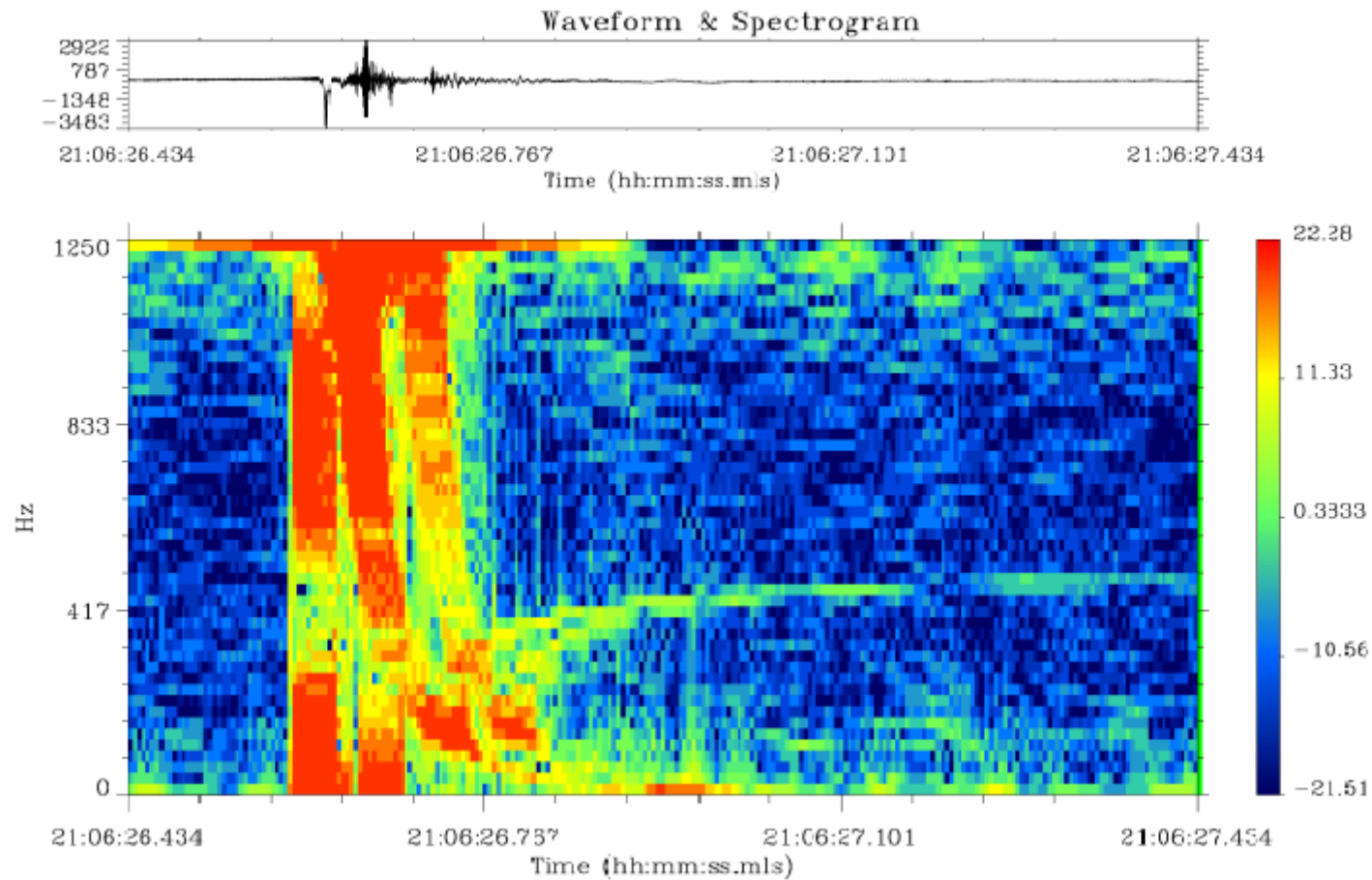
EZ



08/10/2009 21:05:59	43.2881	3.9587	-21.8	924698796
08/10/2009 21:05:59	43.2771	3.9276	52.5	926191103



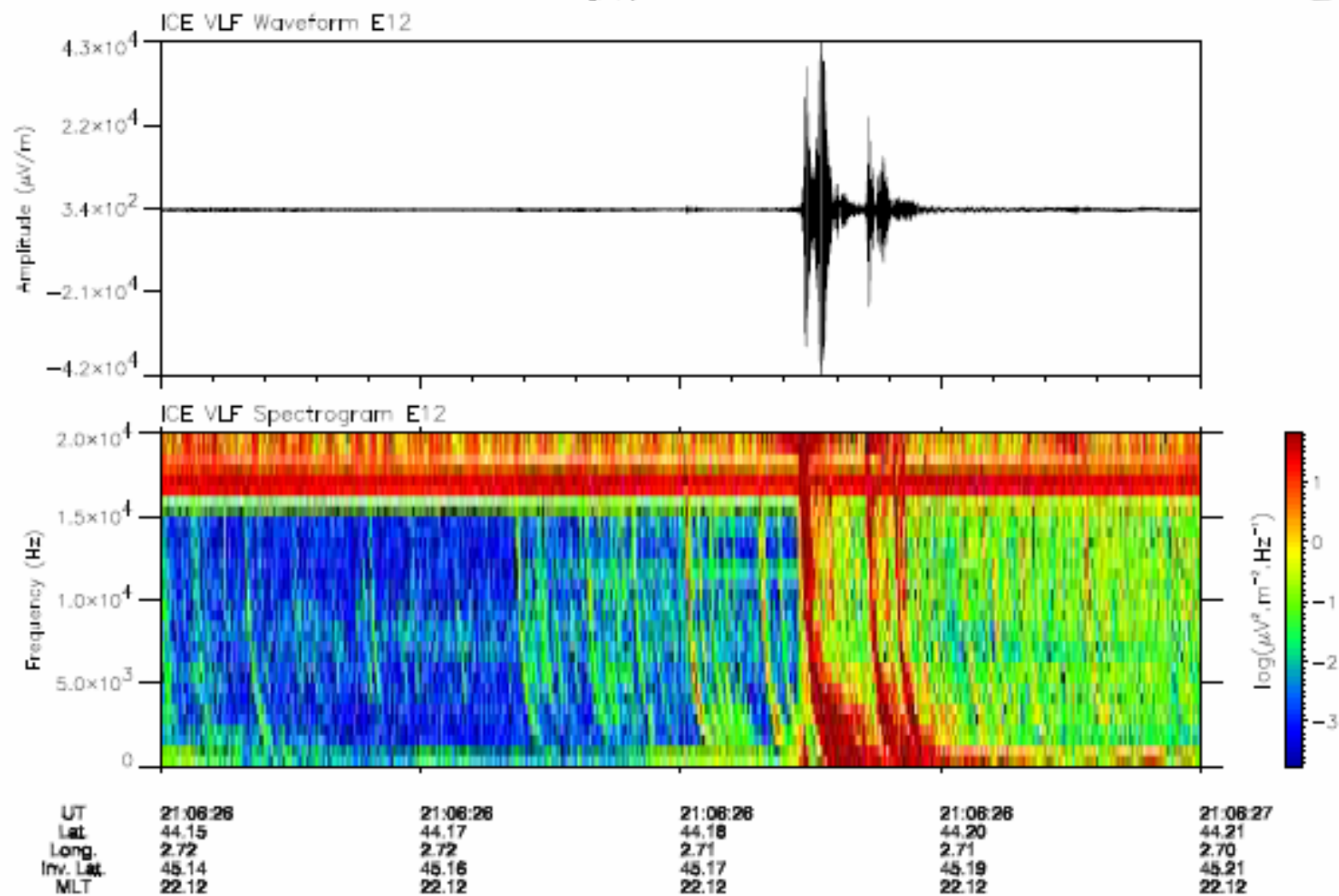
08/10/2009	21:06:26	43.4709	3.9191	-118.4	665306636
08/10/2009	21:06:26	43.5870	4.4042	-31.3	726776153
08/10/2009	21:06:28	43.0593	4.0521	-155.0	549379210



DEMETER

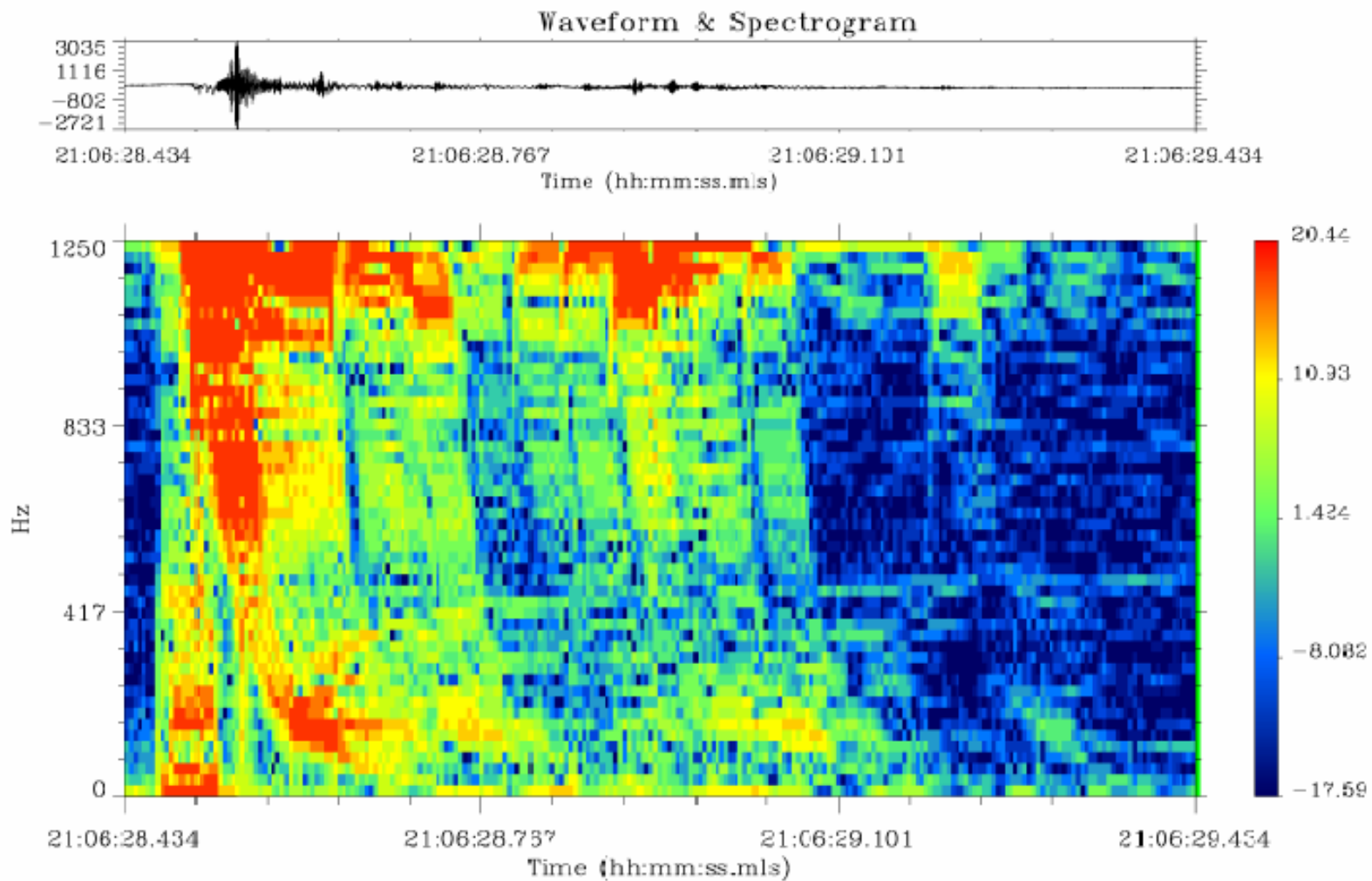
Date _(UTC): 2009/10/08

Orbit: 28195_1



DEMETER WORKSHOP, PARIS
OCTOBER 12, 2011

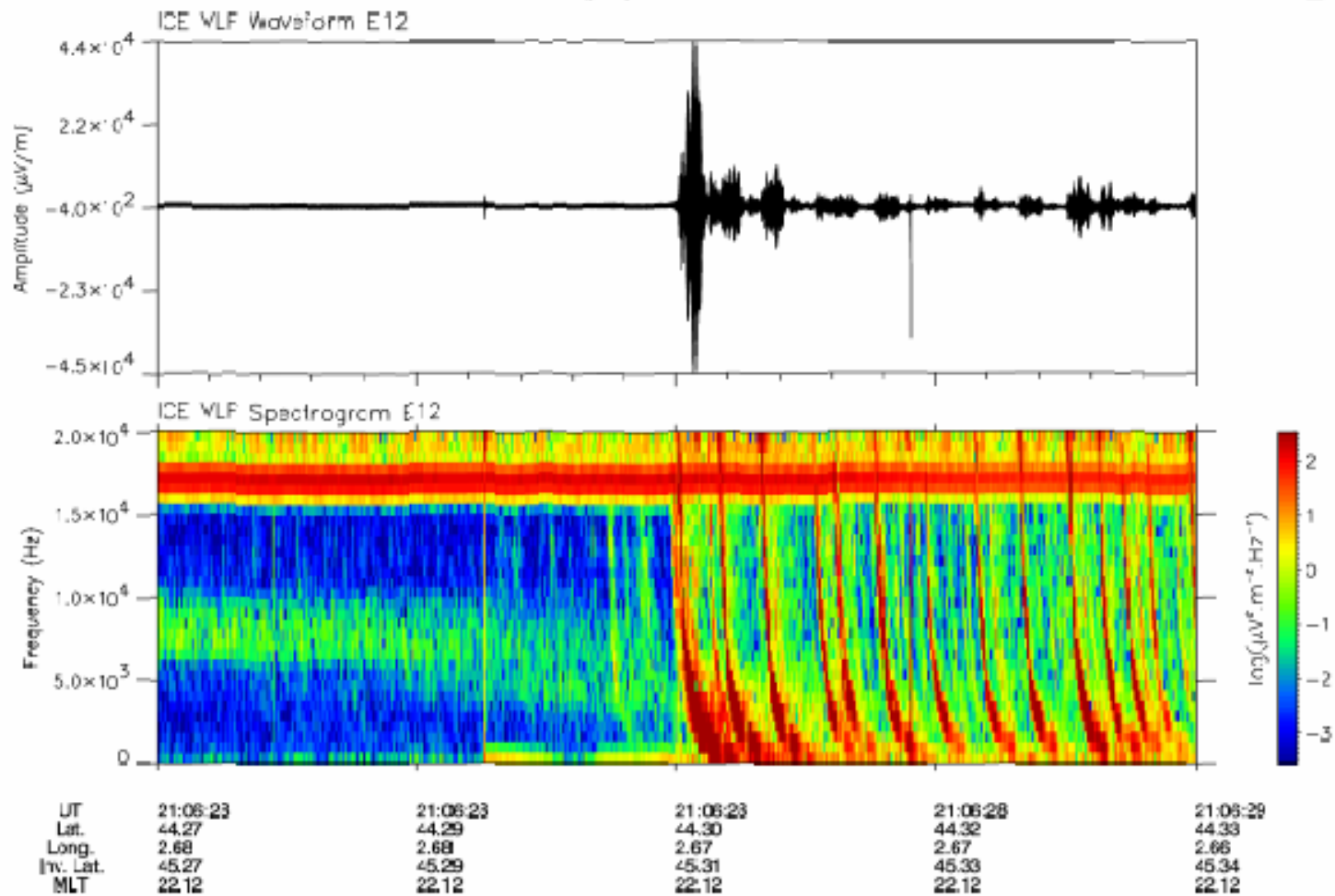
08/10/2009	21:06:28	43.0593	4.0521	-155.0	549379210
08/10/2009	21:06:28	43.0492	4.0515	-49.4	588125255
08/10/2009	21:06:28	43.0500	4.0535	-51.2	628182999
08/10/2009	21:06:28	43.0428	4.0602	-18.7	680155700



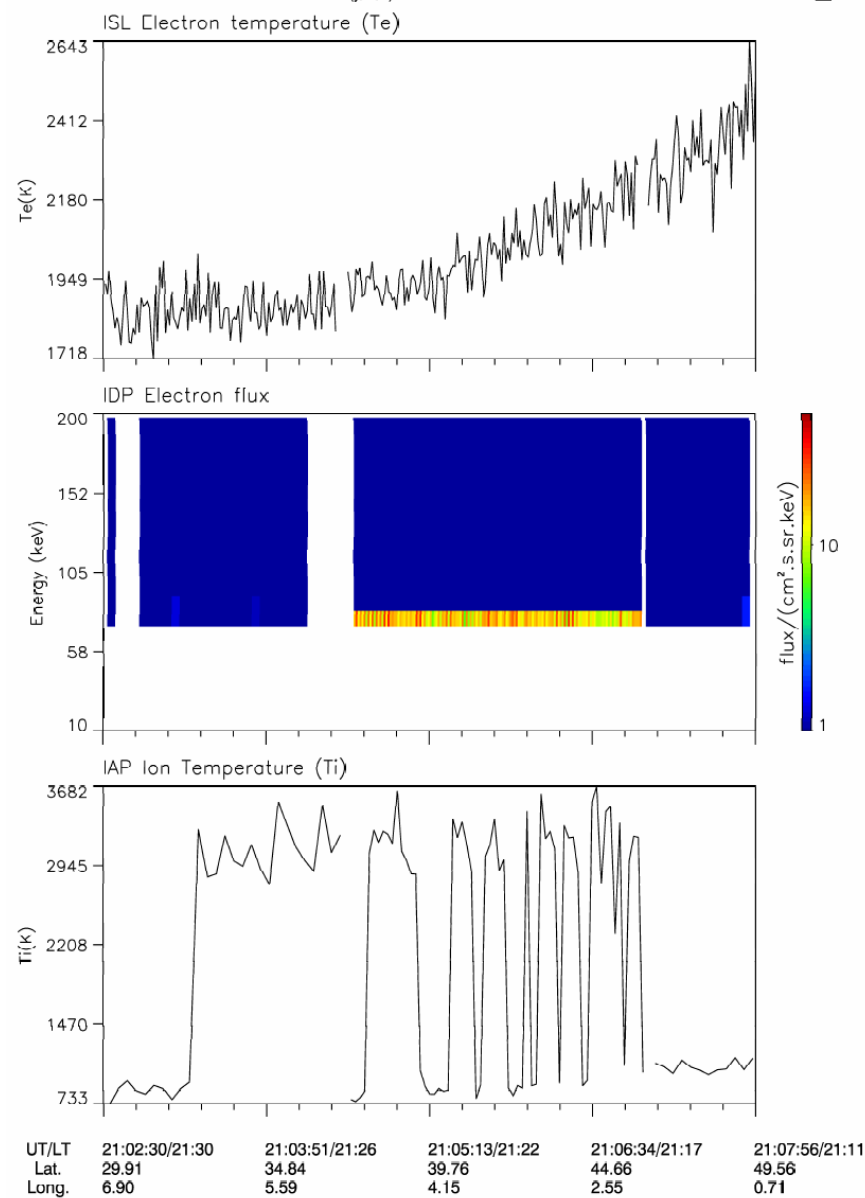
DEMETER

Date (y/m/c): 2009/10/08

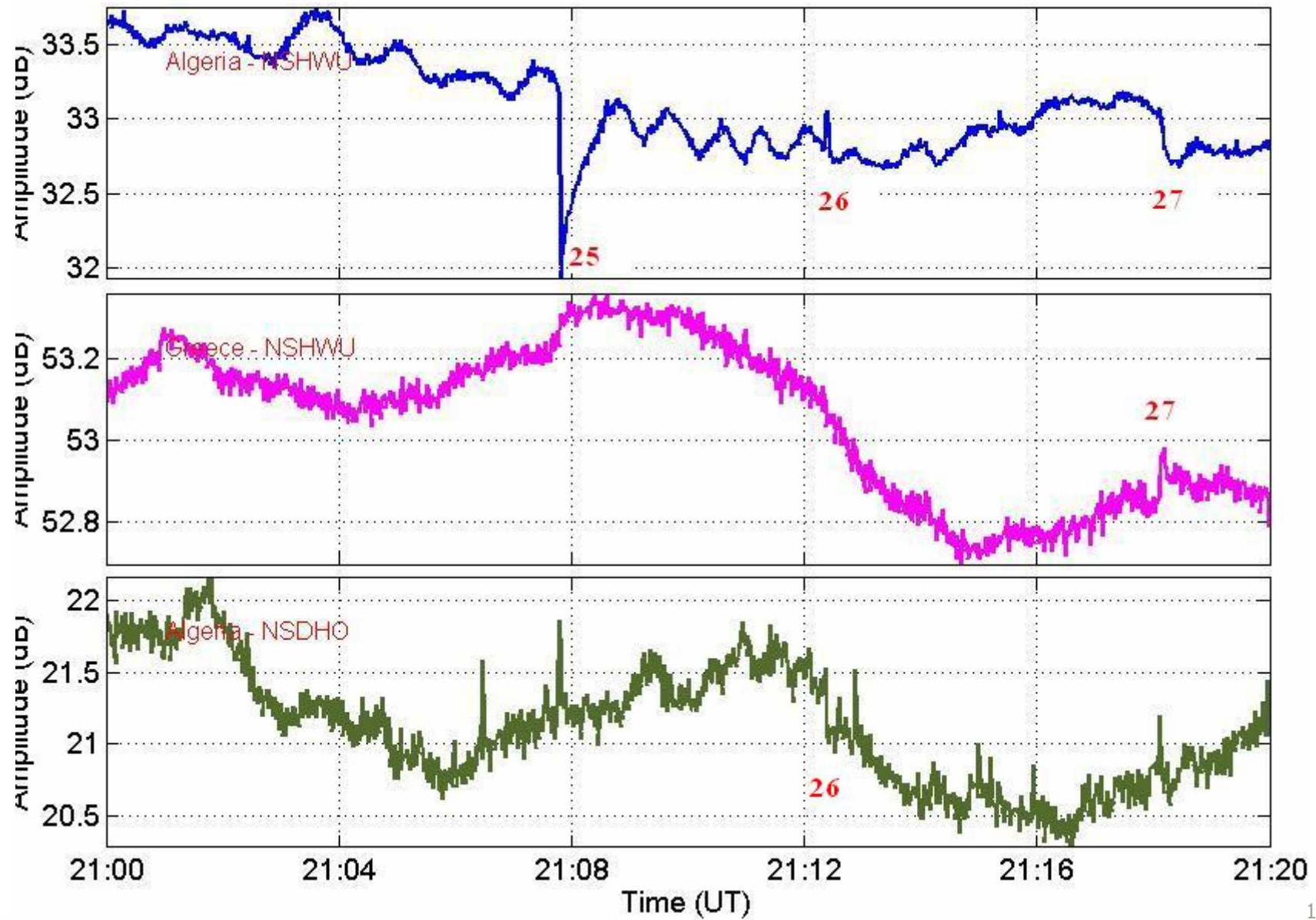
Orbit: 28195_1



DEMETER WORKSHOP, PARIS
OCTOBER 12, 2011



08-Oct-2009



Summary

The strong emissions in ELF/VLF ranges correlates with strokes positive and negative.

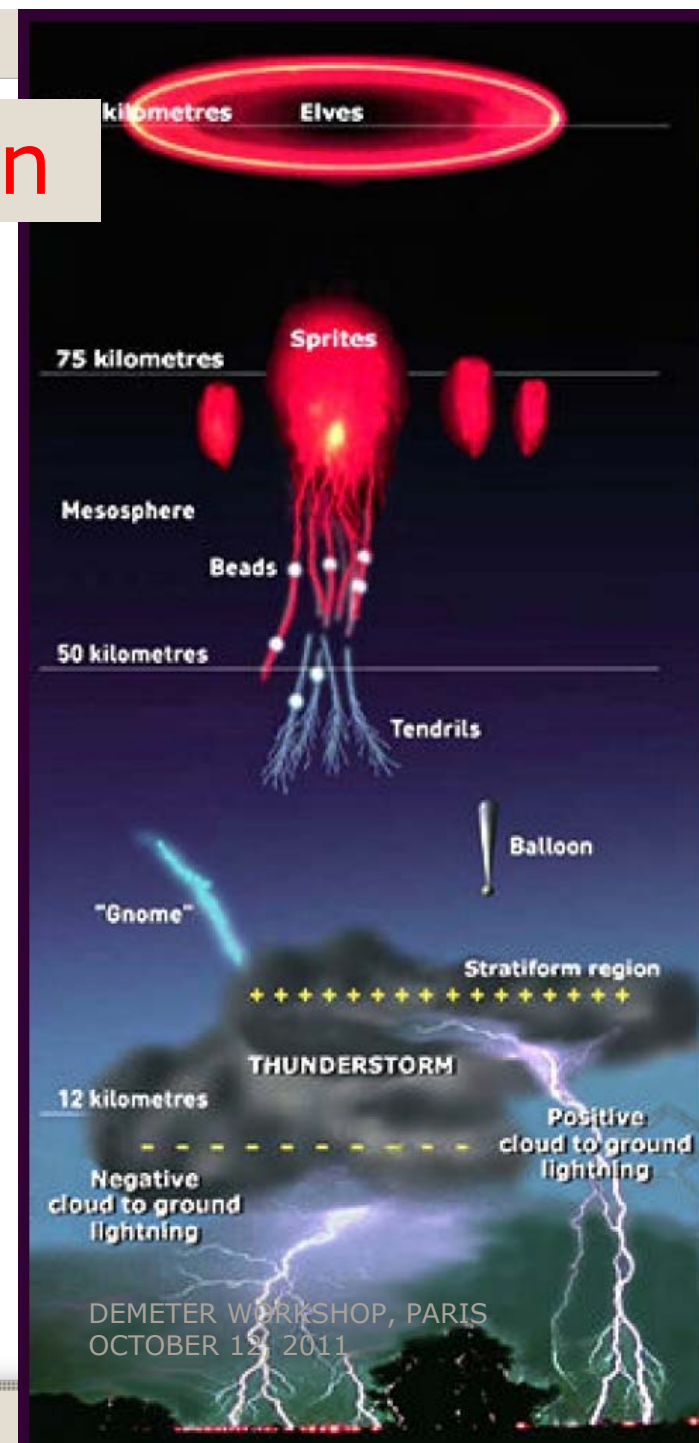
The ion whistler were present during these lightnings.

There was not registered strong positive stroke (max 52.5kA)during our observations.

The spectra of ELF/VLF emissions are similar to that registered by DEMETER during sprite event on 2007

There were no ground based observations of the sprites during reported event

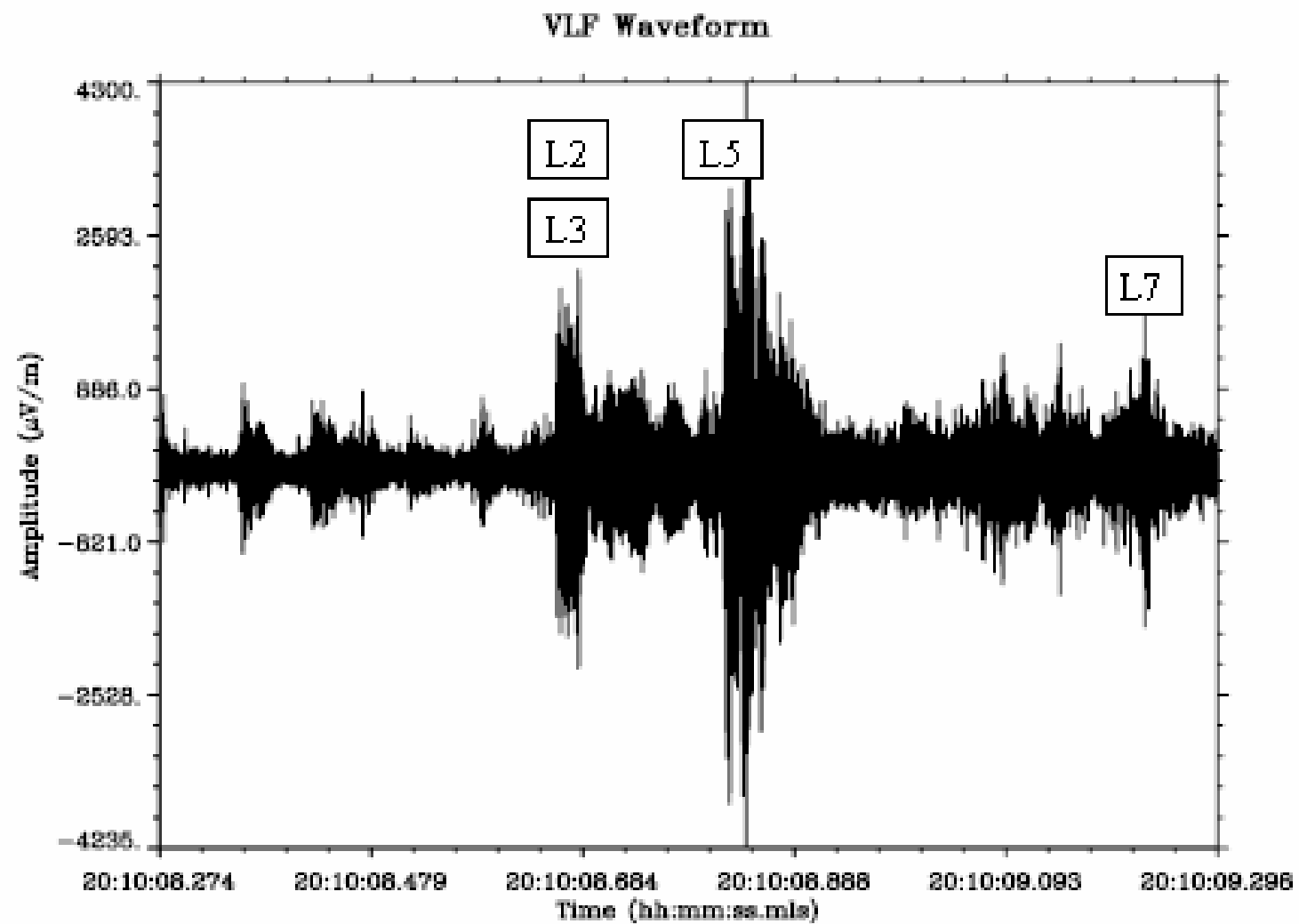
Thank you for your attention

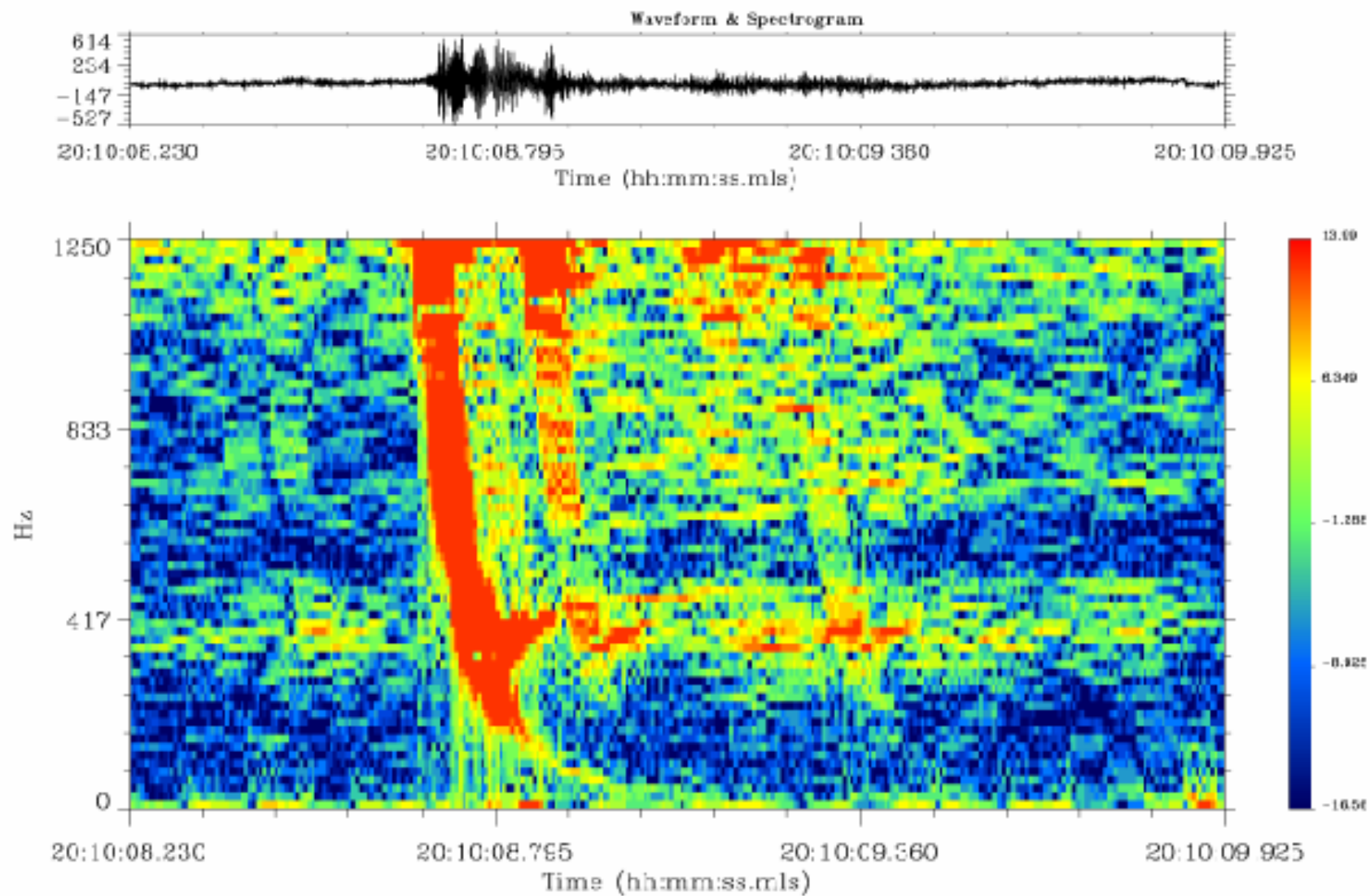


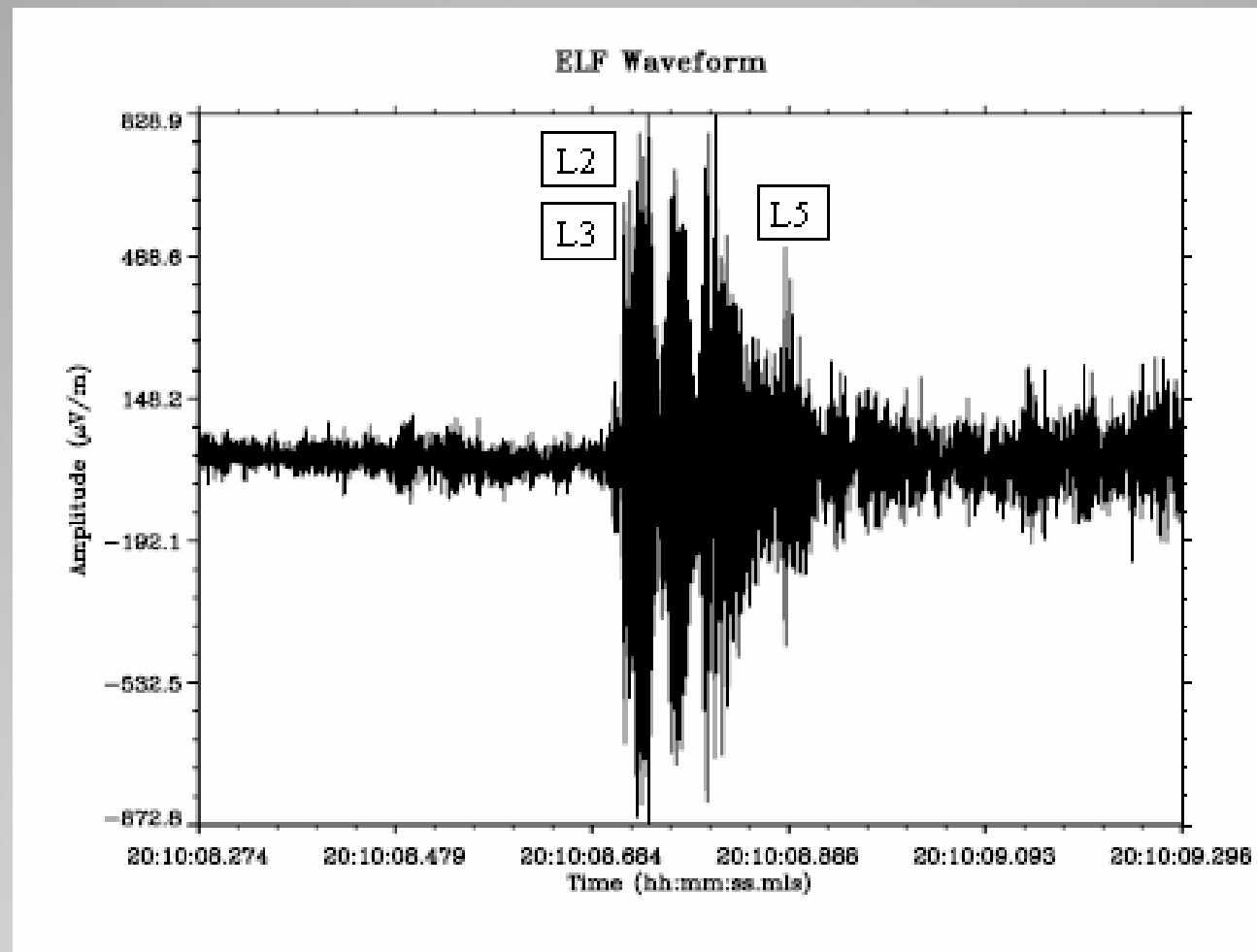
Lightning	Day	Time	Position (lat. long)	Current (kA)
1	2007/07/20	20:10:01 885	52.357600 22.064000	-81
2	2007/07/20	20:10:08 666	51.449100 14.715100	101
3	2007/07/20	20:10:08 666	51.375400 14.597900	107
4	2007/07/20	20:10:08 829	51.749900 20.300600	-23
5	2007/07/20	20:10:08 833	52.466900 22.606200	-79
6	2007/07/20	20:10:08 834	51.066300 21.680100	-22
7	2007/07/20	20:10:09 226	51.504100 14.427000	-35

Table 1: Parameters of the most intense lightning strokes observed by the EUCLID network close in time and space to the sprites shown in Figure 1. It must be noticed that L1, L4, L5 and L6 which are eastward are not detected by the LINET network.

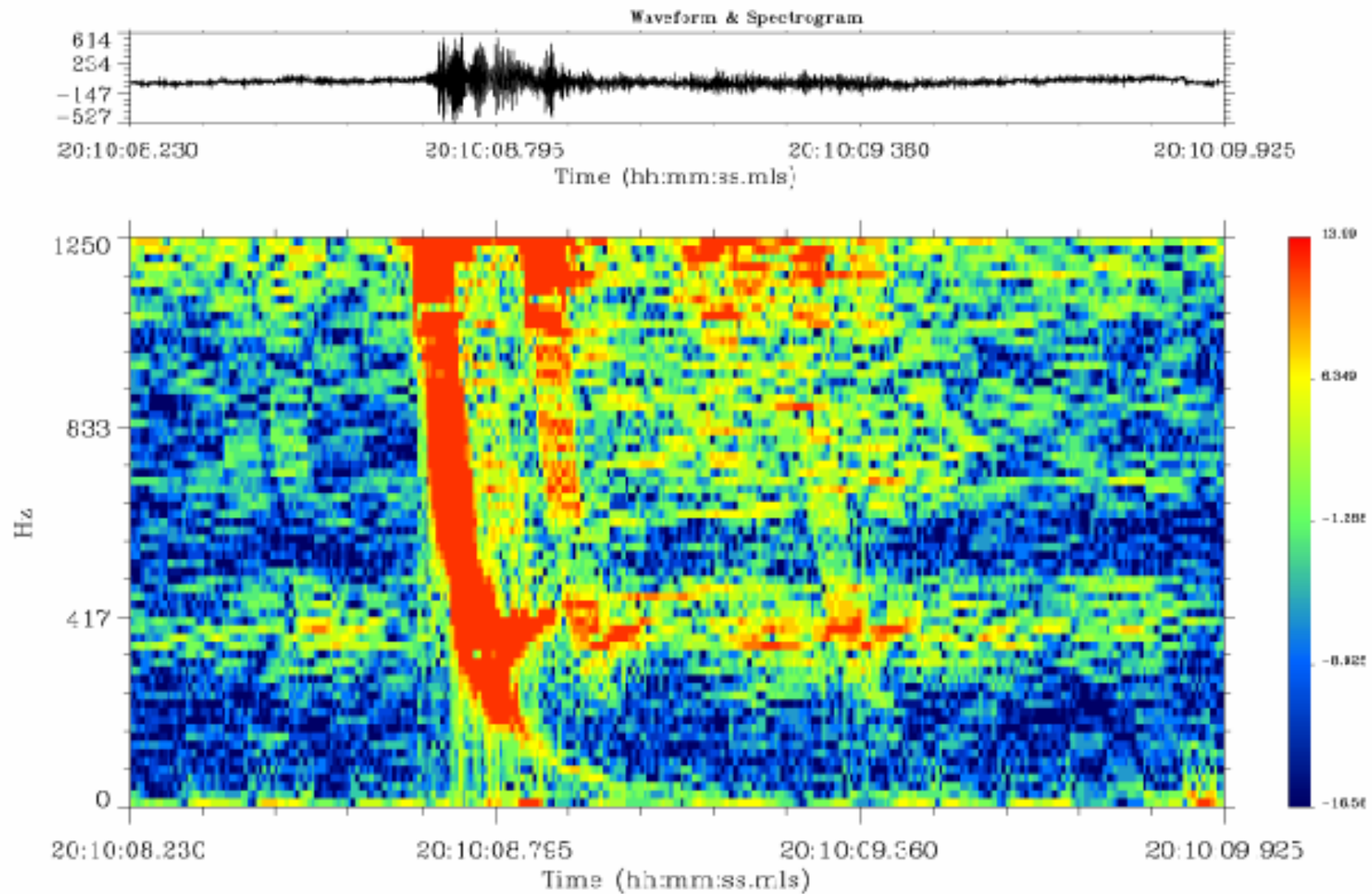
Data from EUCLID system







Wave form of the ELF signal



CARNESS ISSI BERN
28.01.2009