



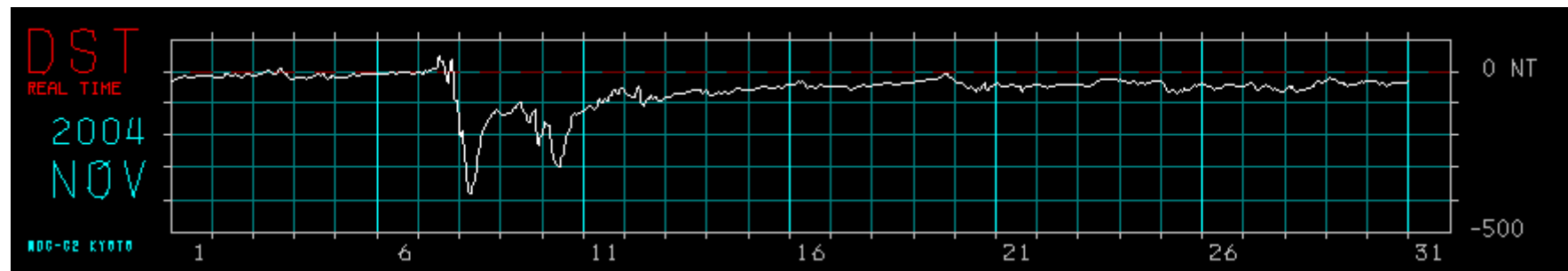
Ionospheric data recorded by DEMETER during large magnetic storms

M. Parrot
LPC2E/CNRS, Univ. Orléans

2nd International DEMETER
workshop - Paris 2011



The super magnetic storm of November 8-10, 2004





QP emissions

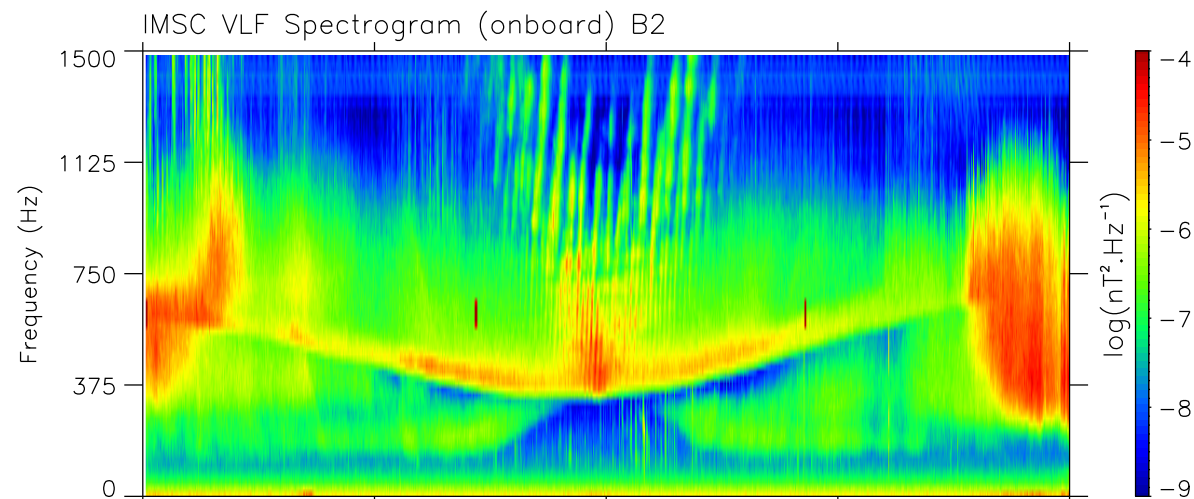
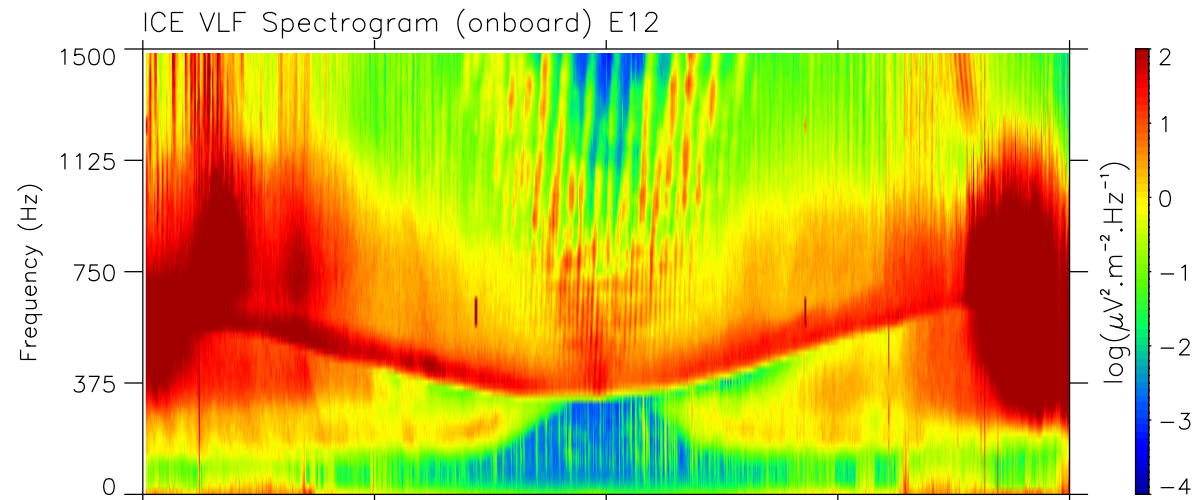
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DEMETER

Date (y/m/d): 2004/11/10

Orbit: 01913_0



UT/LT	23:37:00/11:38	23:45:30/10:40	23:54:00/10:18	00:02:30/10:00	00:11:00/09:29
Lat.	67.88	37.98	7.37	-23.30	-53.71
Long.	180.21	163.67	156.11	149.33	139.39
L	5.34	1.48	1.07	1.51	6.93

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Berthelier et al., 2006



MLR

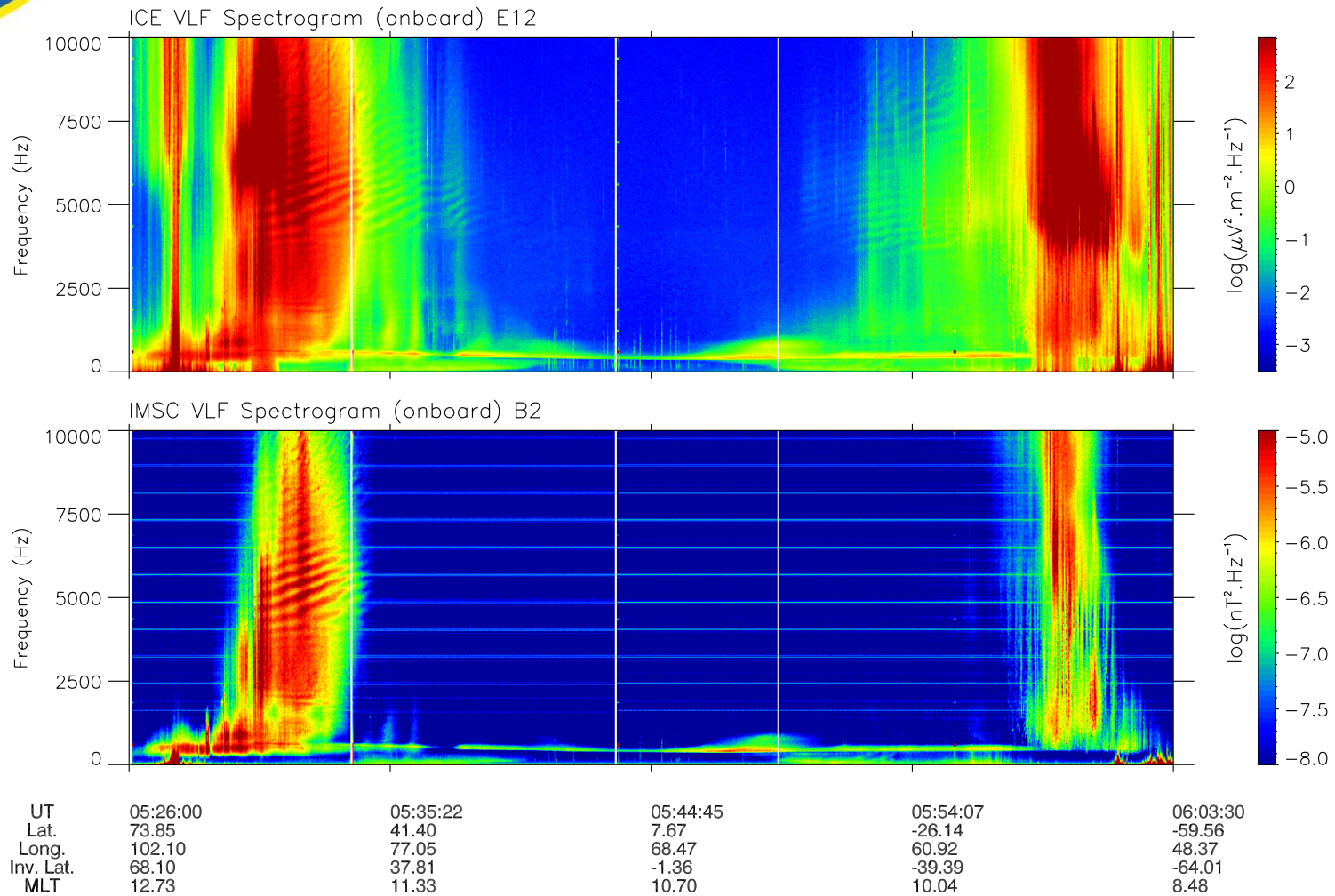
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DEMETER

Date (y/m/d): 2004/11/10

Orbit: 01902_0

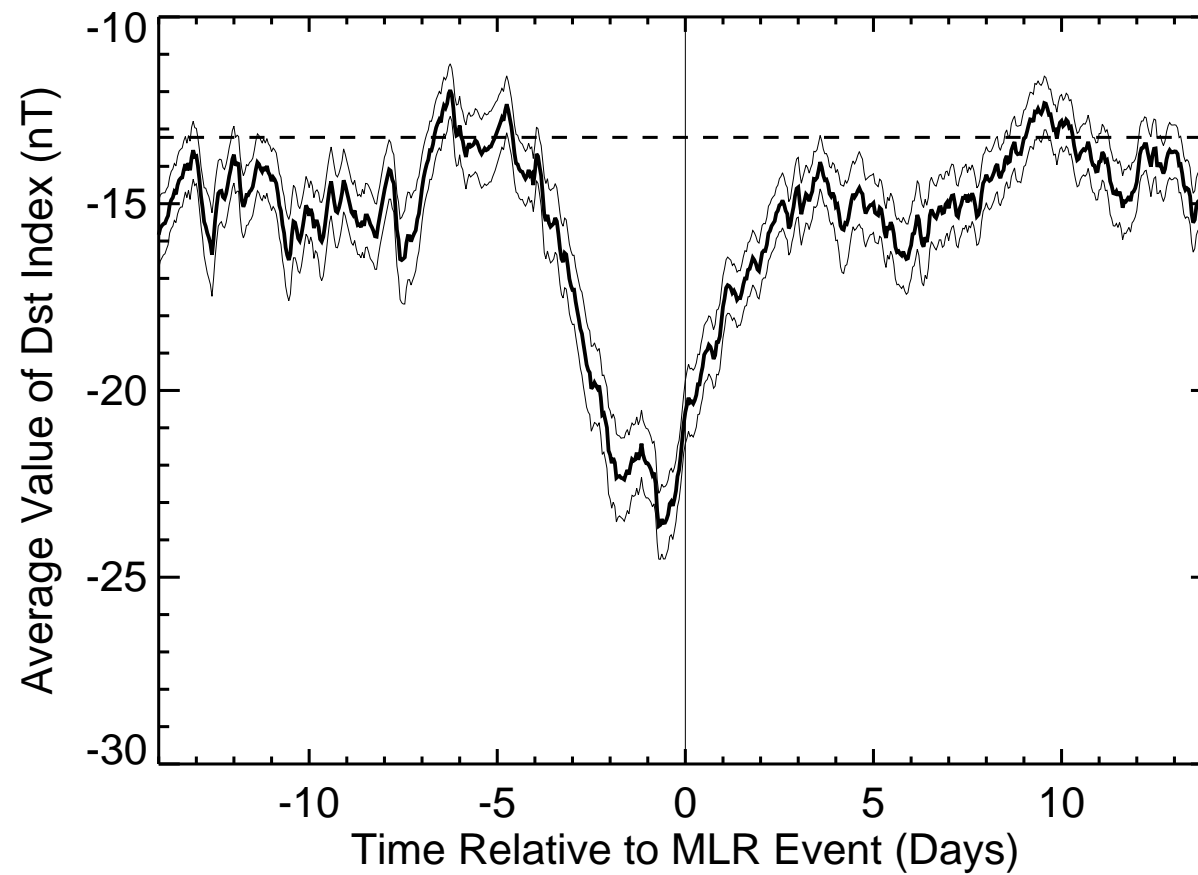


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Nemec et al., 2009

MLR occurrence

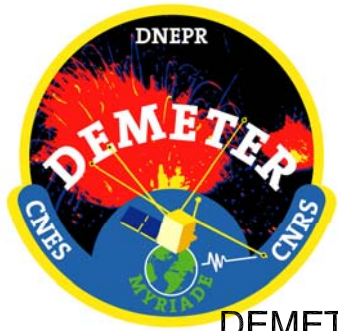


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ELF equatorial emissions EMIC waves

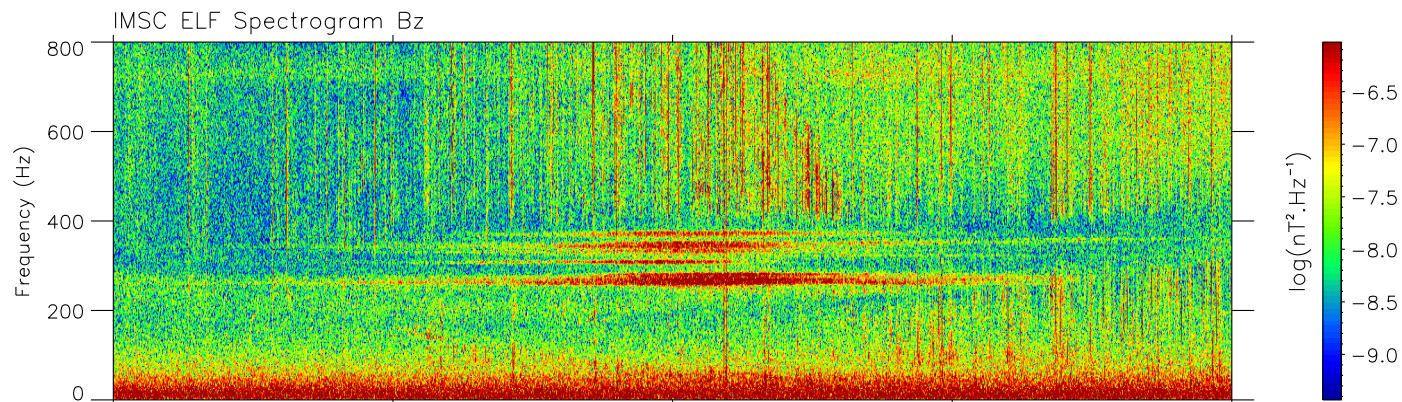
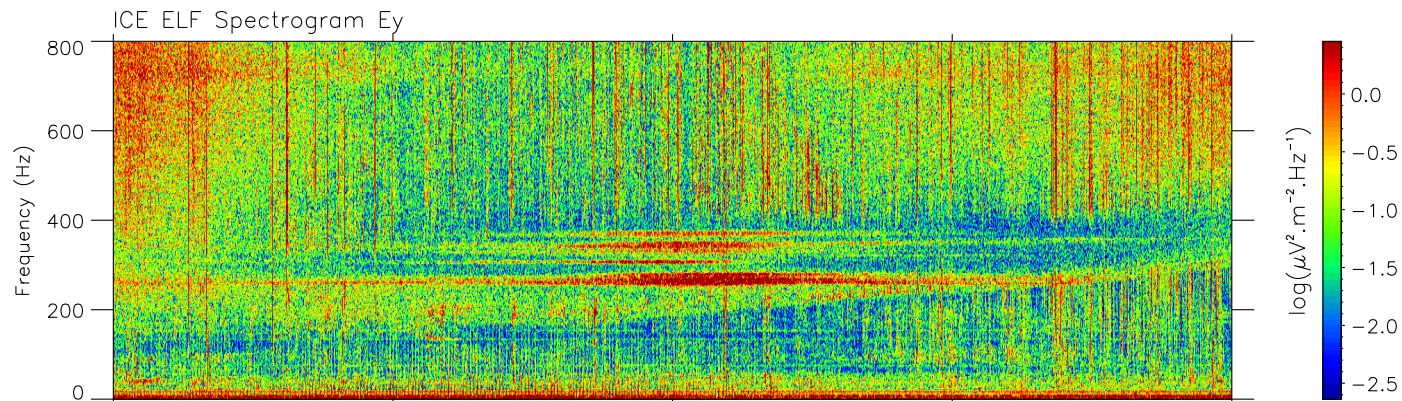
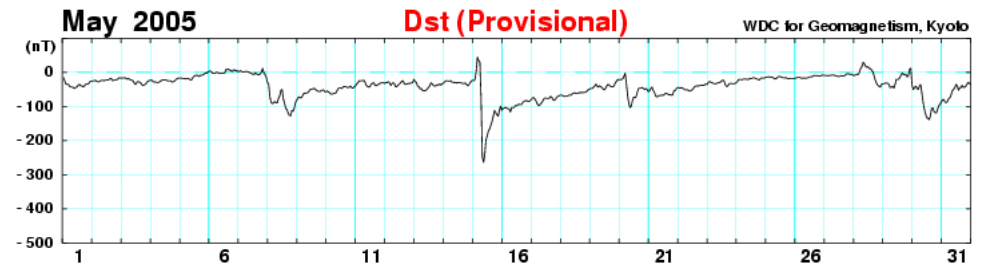
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DEMETER

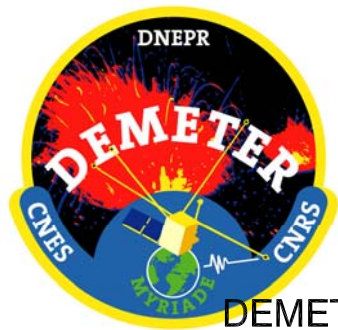
Date (y/m/d): 2005/05/16

Orbit: 04621_1



UT/LT	03:11:00/22:38	03:13:45/22:31	03:16:30/22:24	03:19:15/22:18	03:22:00/22:12
Lat.	-34.81	-24.94	-15.06	-5.15	4.76
Long.	291.82	289.22	286.90	284.73	282.61
Geom. Lat.	-24.57	-14.69	-4.81	5.08	14.96

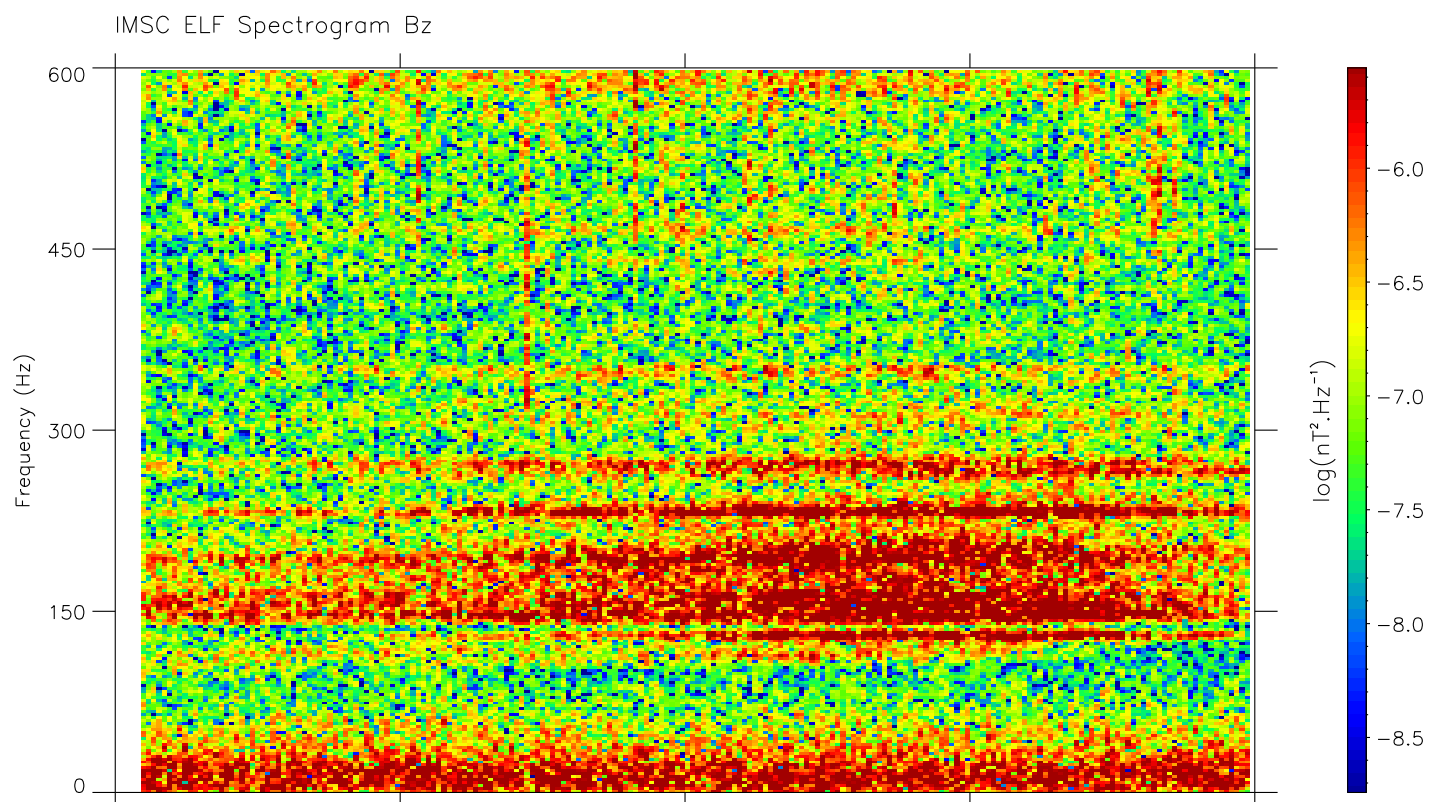
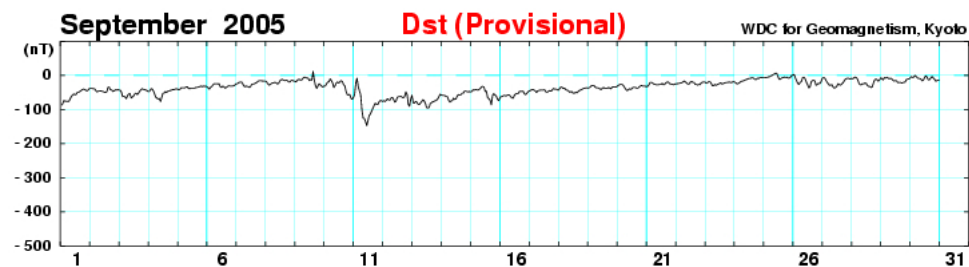
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DEMETER

Date (y/m/d): 2005/09/12

Orbit: 06354_1



UT/LT	03:22:30/22:26	03:22:52/22:25	03:23:15/22:25	03:23:37/22:24	03:24:00/22:23
Lat.	-17.47	-16.12	-14.77	-13.42	-12.07
Long.	285.94	285.63	285.33	285.03	284.73
Geom. Lat.	-7.22	-5.88	-4.53	-3.18	-1.84

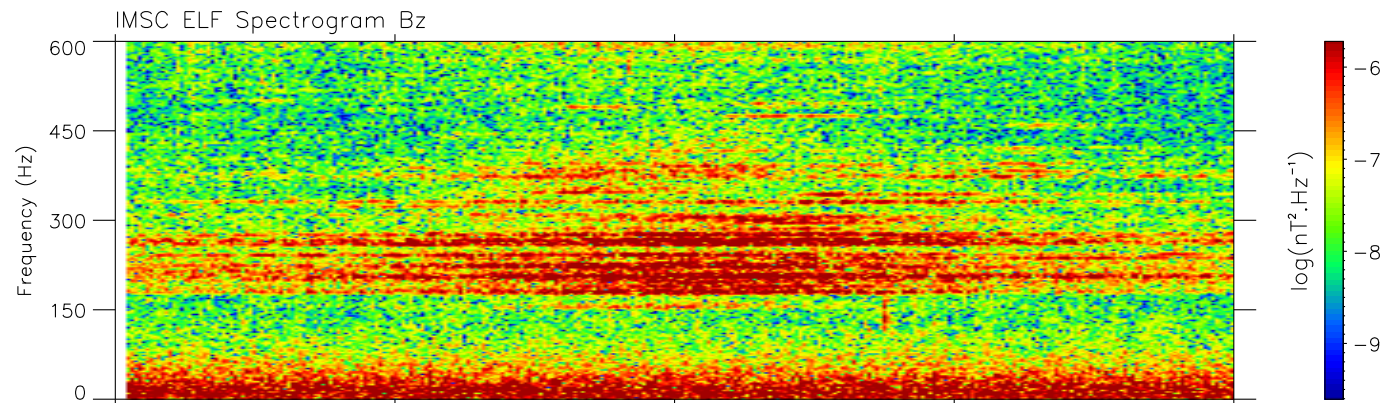
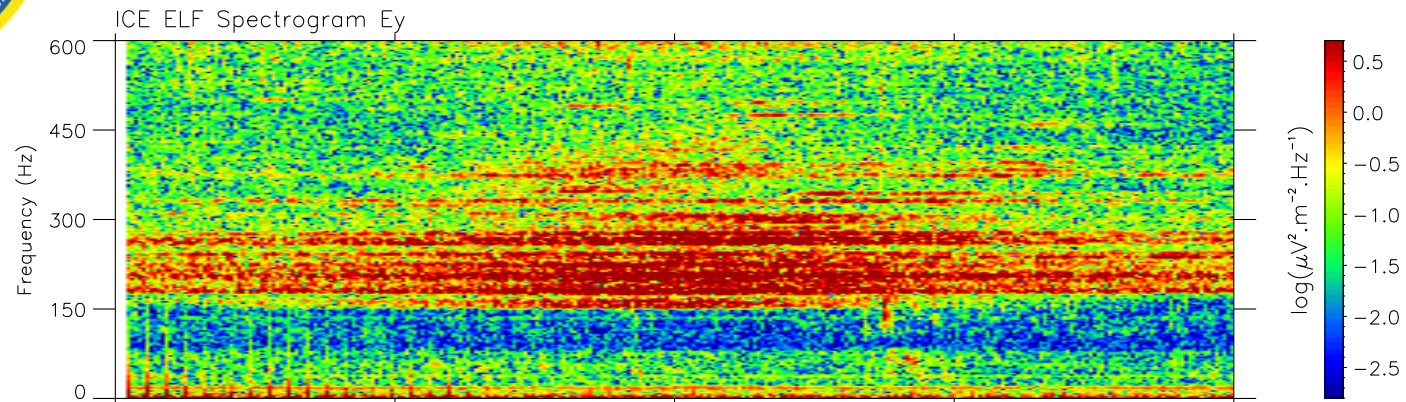
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DEMETER

Date (y/m/d): 2005/09/12

Orbit: 06357_1



UT/LT	08:23:00/22:18	08:23:30/22:17	08:24:00/22:16	08:24:30/22:15	08:25:00/22:14
Lat.	-3.62	-1.82	-0.01	1.79	3.59
Long.	208.73	208.35	207.96	207.58	207.19
Geom. Lat.	-1.71	-0.00	1.70	3.41	5.12

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Harmonic Waves close to the trough

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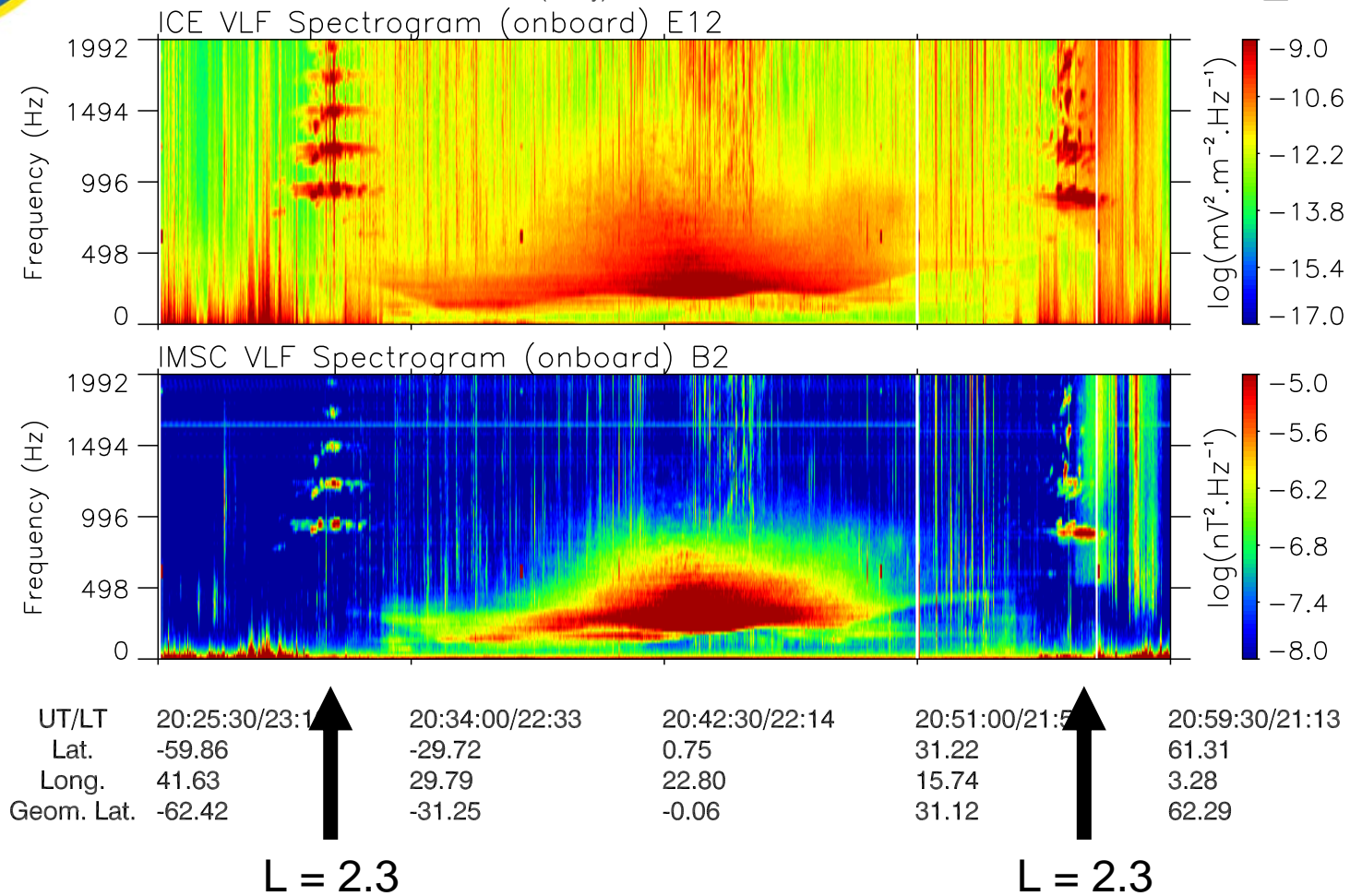


Parrot et al., 2006

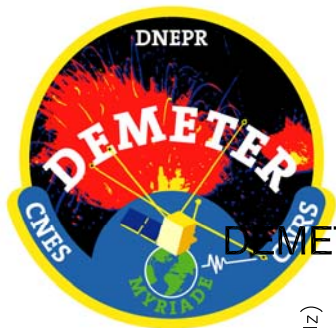
DEMETER

Date (m/d/y): 11/09/2004

Orbit: 01896_1



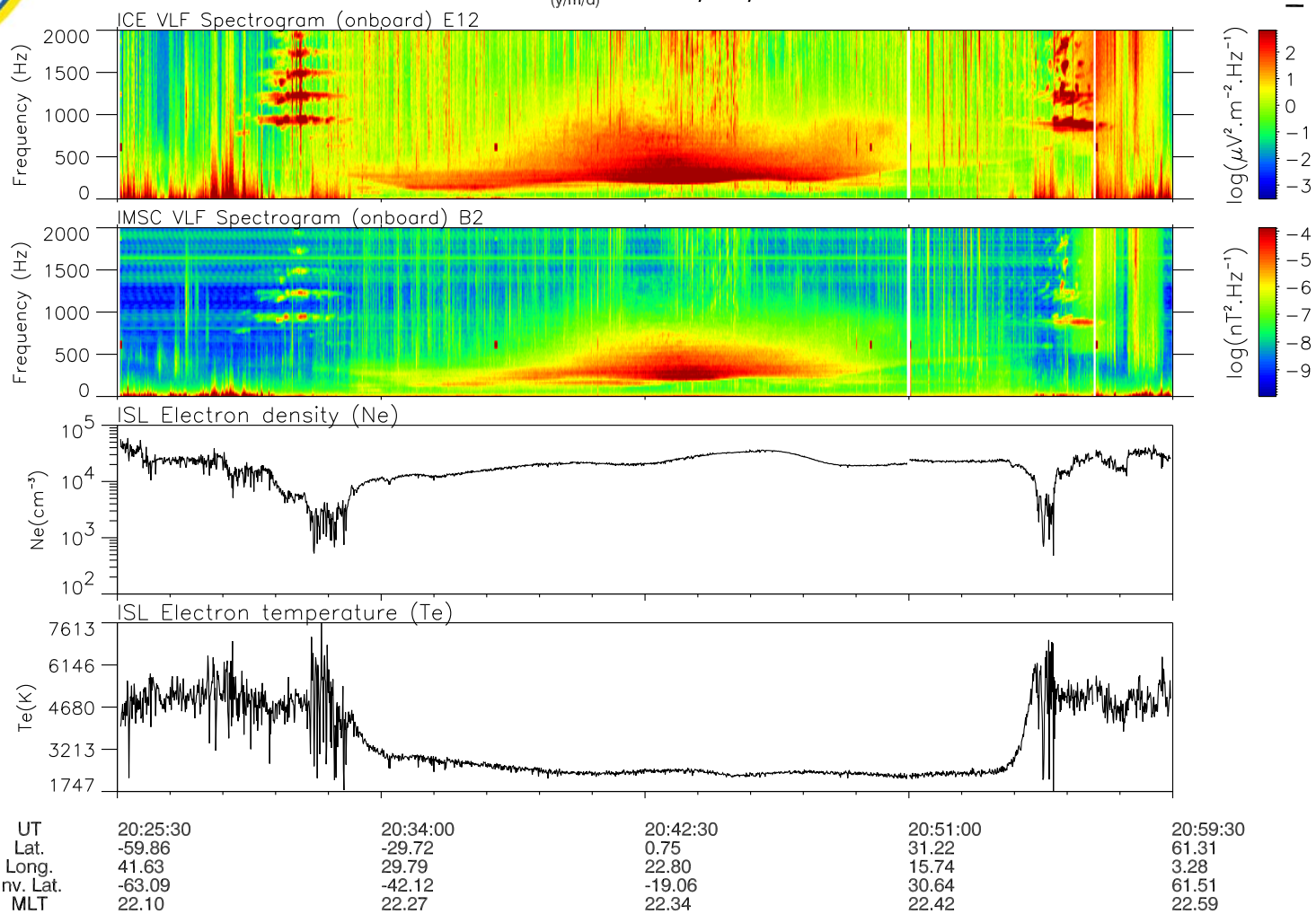
2nd International DEMETER
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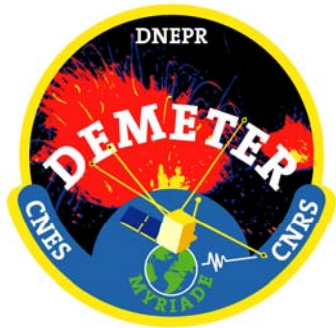
DEMETER

Date (y/m/d): 2004/11/09

Orbit: 01896_1



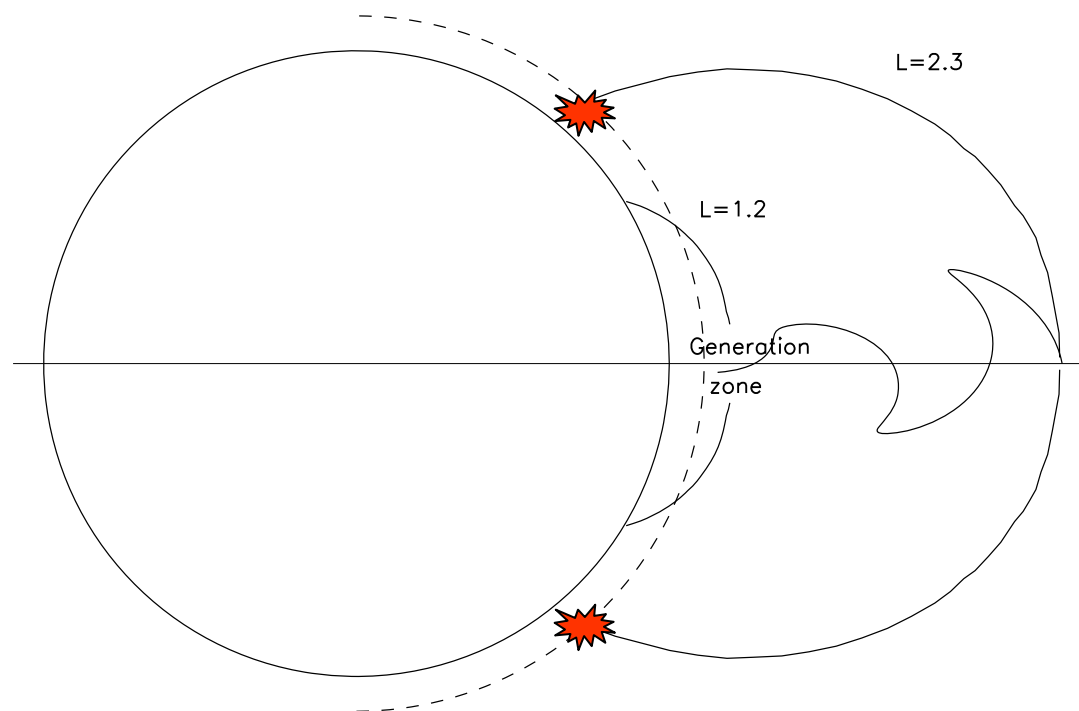
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DEMETER

Date: 2004/11/09

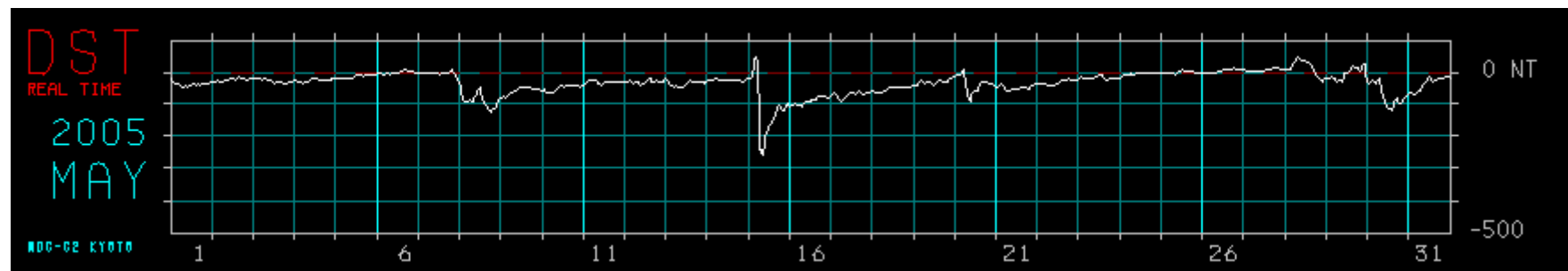
Orbit: 01896_1



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The magnetic storm of May 15, 2005

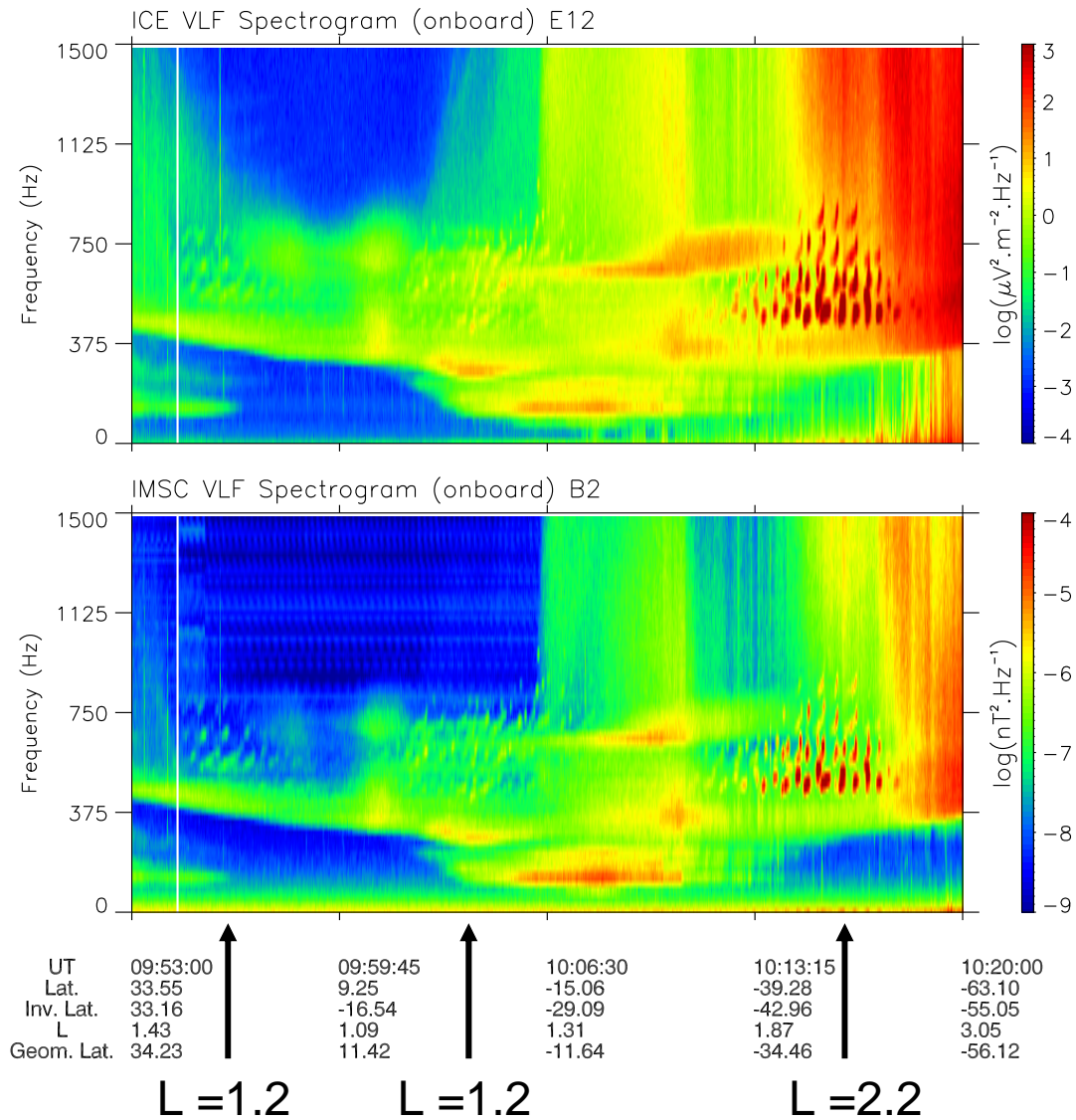




DEMETER

Date (y/m/d): 2005/05/15

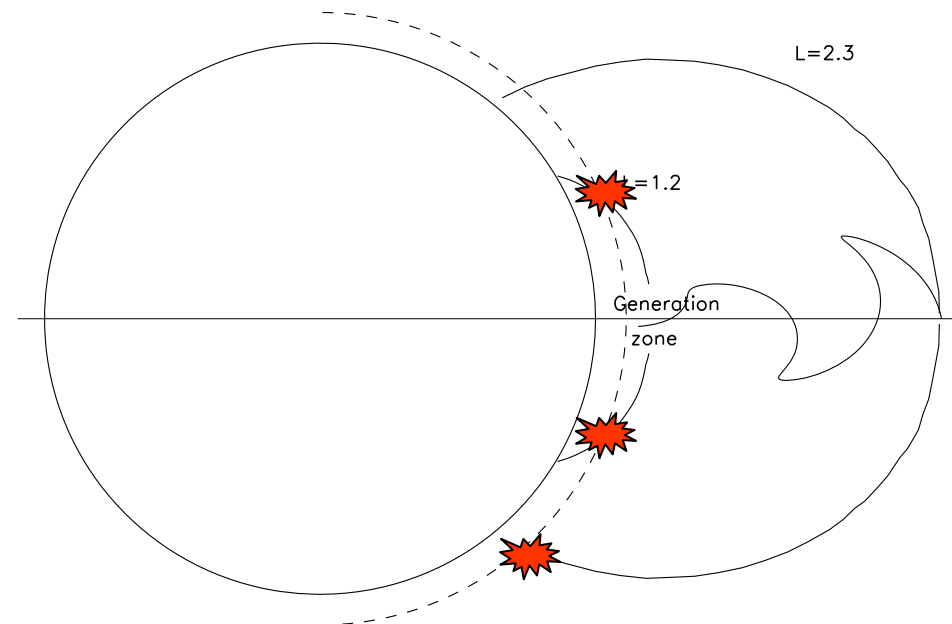
Orbit: 04611_0



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DEMETER Date: 2005/05/15 Orbit: 4611_0

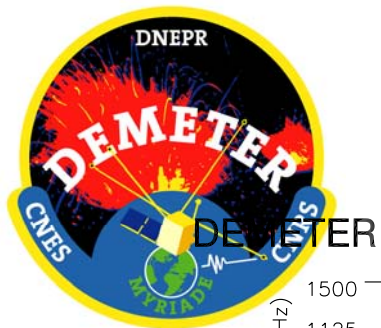


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Various Waves

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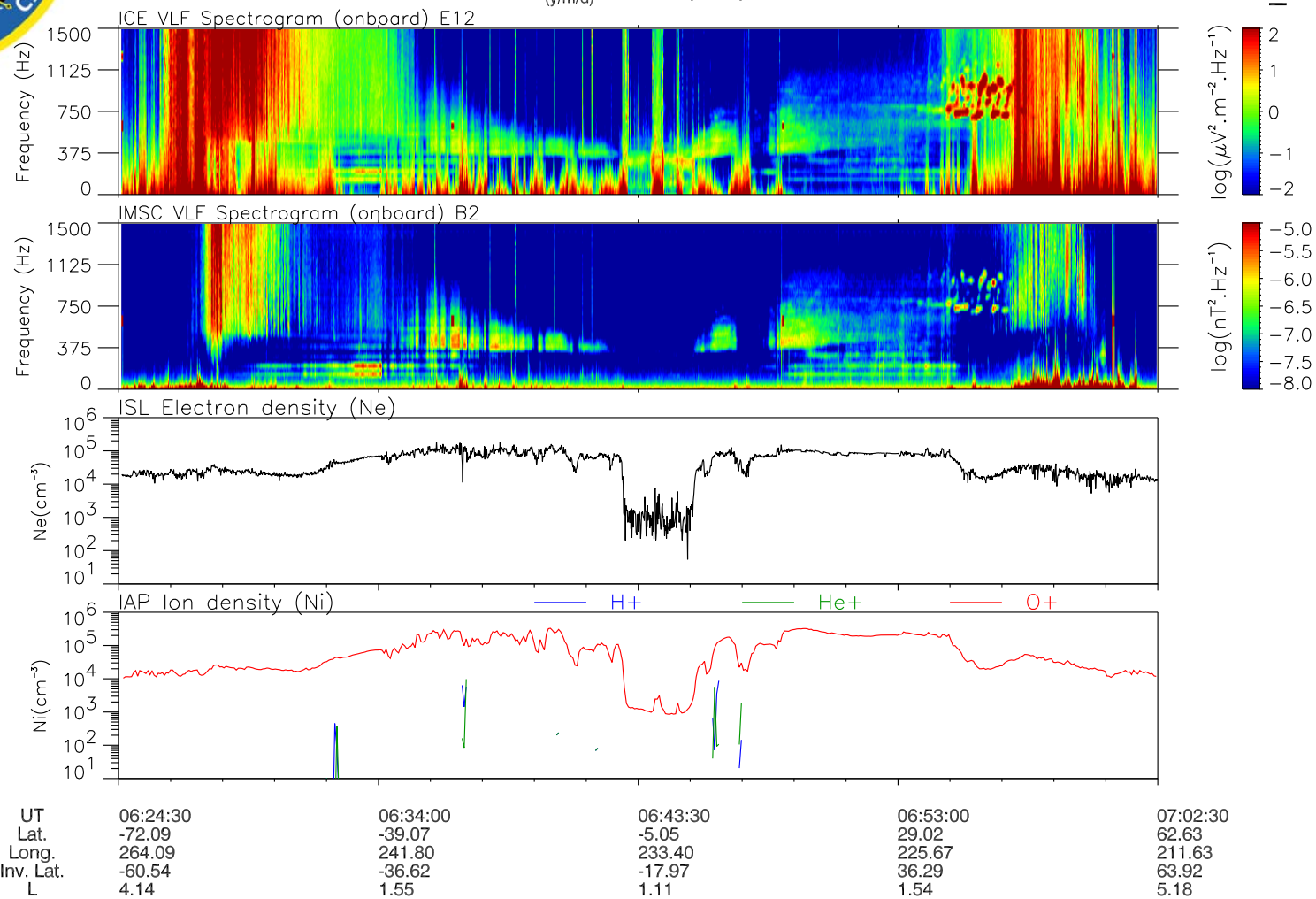


Colpitts et al., submitted, 2011

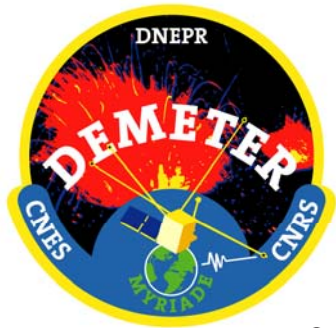
DEMETER

Date (y/m/d): 2004/11/08

Orbit: 01873_1



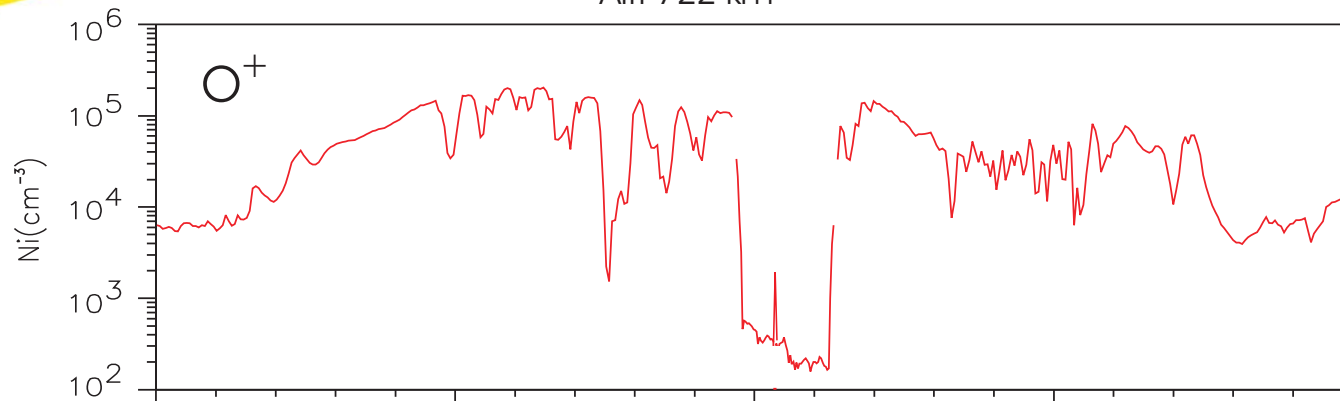
2nd International DEMETER
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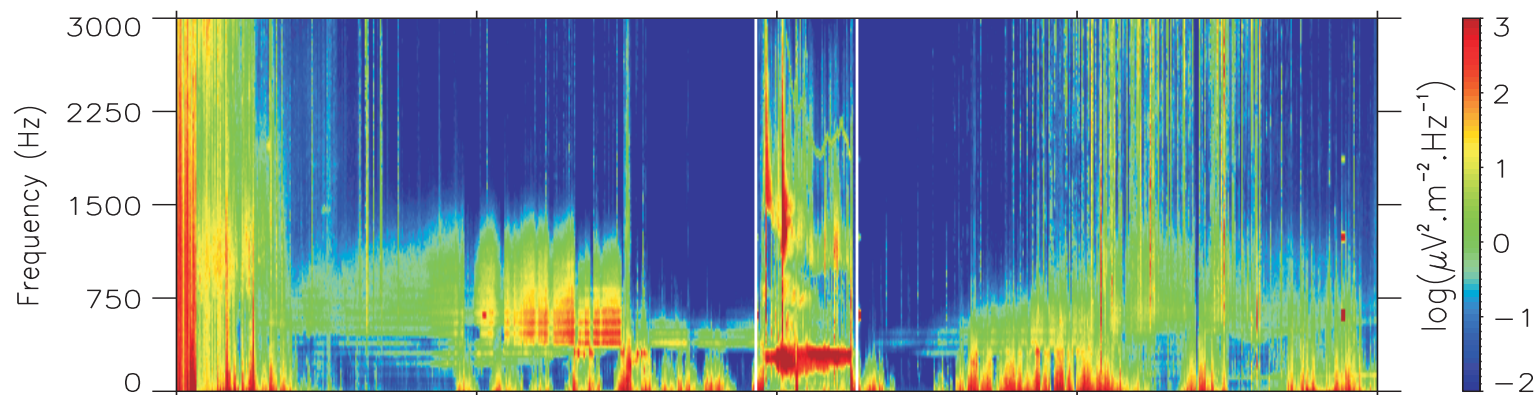
Berthelier et al., 2008
Malingre et al., 2008

DEMETER - 10 November 2004 - Orbit: 1903_1

Alt: 722 km



(a)



UT	08:00:00	08:07:30	08:15:00	08:22:30	08:30:00
LT	23:02	22:32	22:15	21:58	21:31
Lat.	-54.99	-28.32	-1.44	25.46	52.17
Long.	225.50	216.15	210.00	203.95	195.27
Geom. Lat.	-49.38	-24.75	0.66	26.03	50.48

(b)

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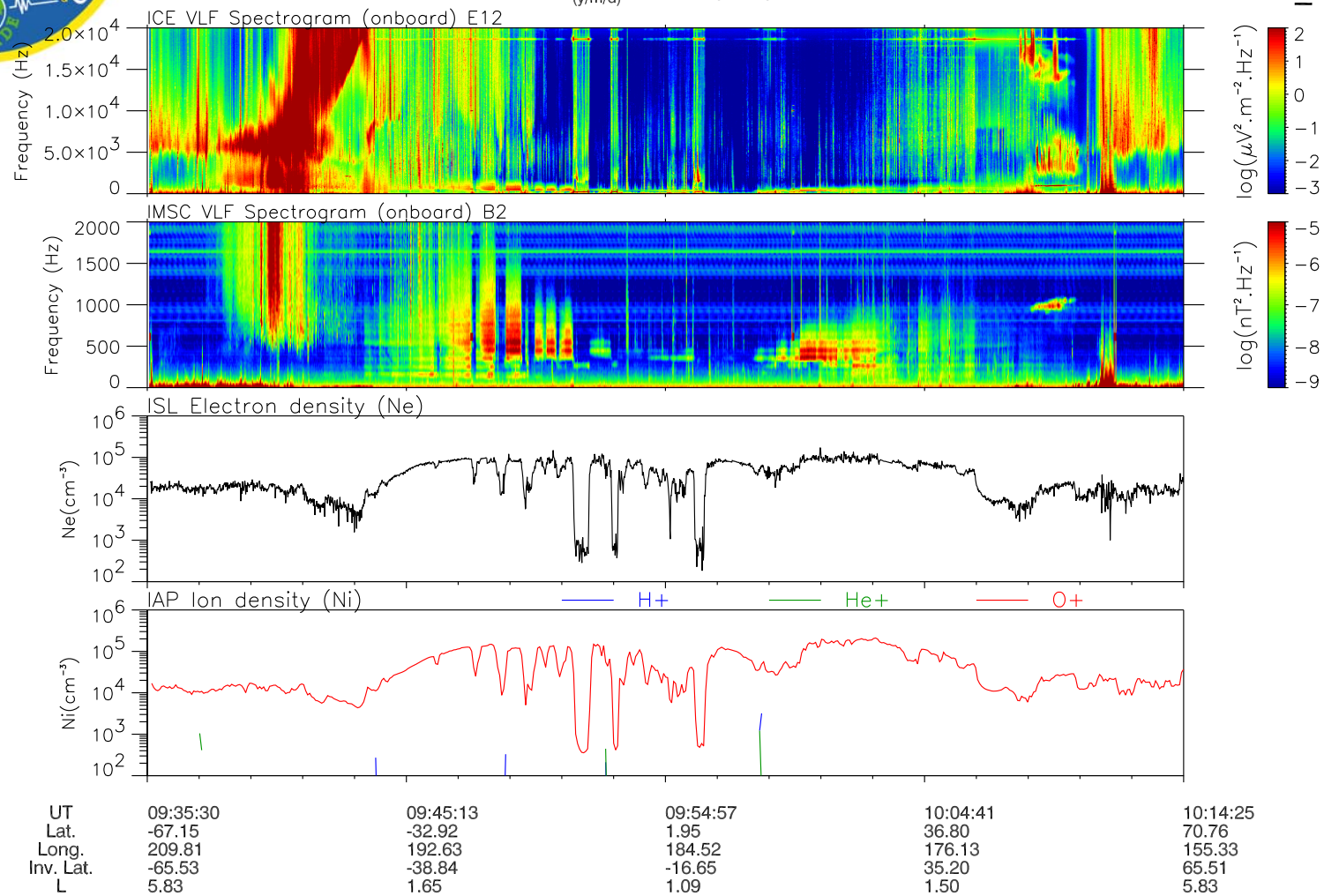


Pfaff et al., 2008

DEMETER

Date (y/m/d): 2004/11/10

Orbit: 01904_1



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AKR

2nd International DEMETER
workshop - Paris 2011

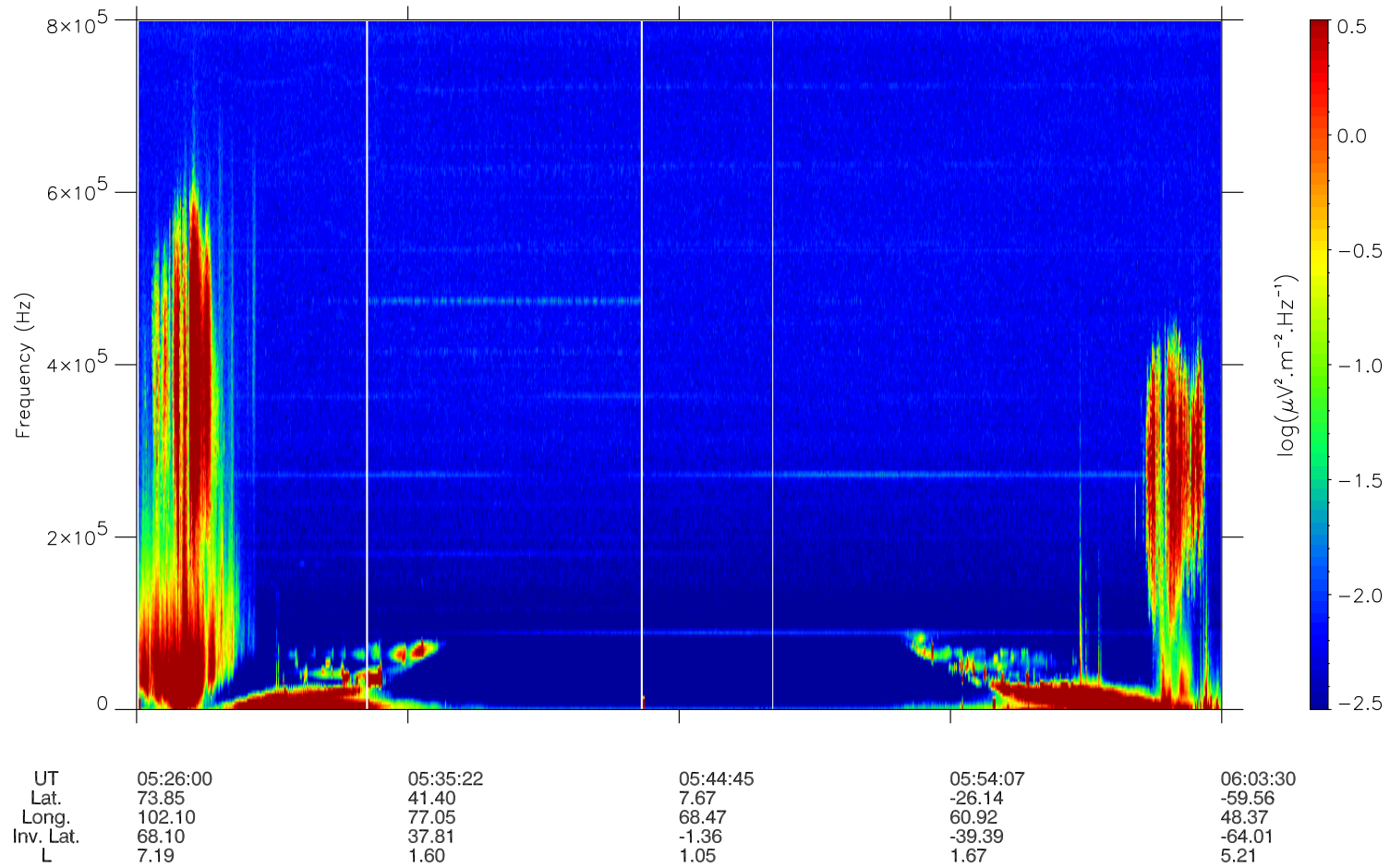


DEMETER

Date (y/m/d): 2004/11/10

Orbit: 01902_0

ICE HF Spectrogram (onboard) E12



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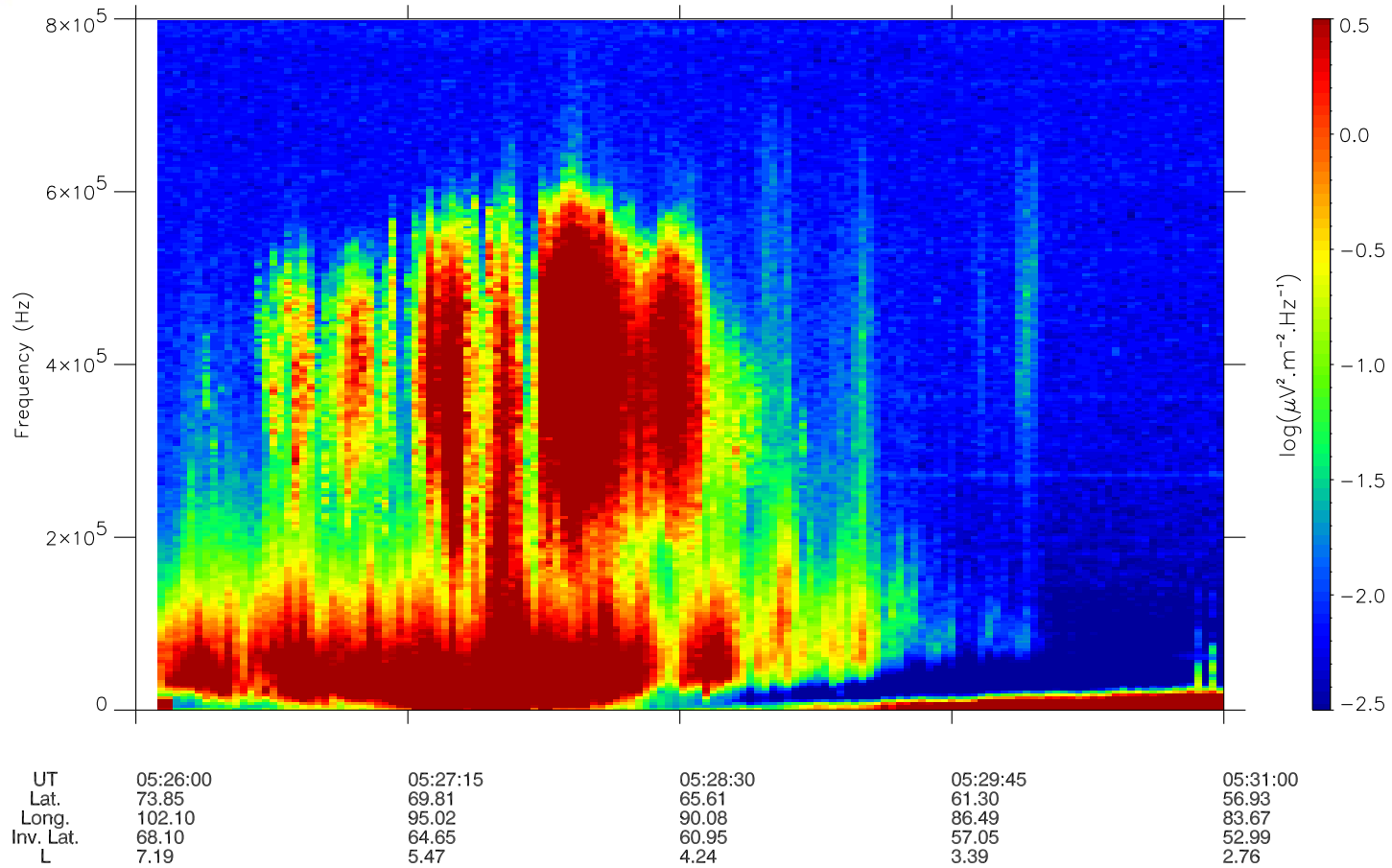


DEMETER

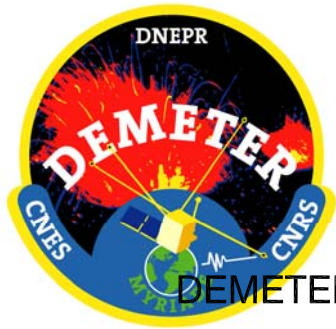
Date (y/m/d): 2004/11/10

Orbit: 01902_0

ICE HF Spectrogram (onboard) E12



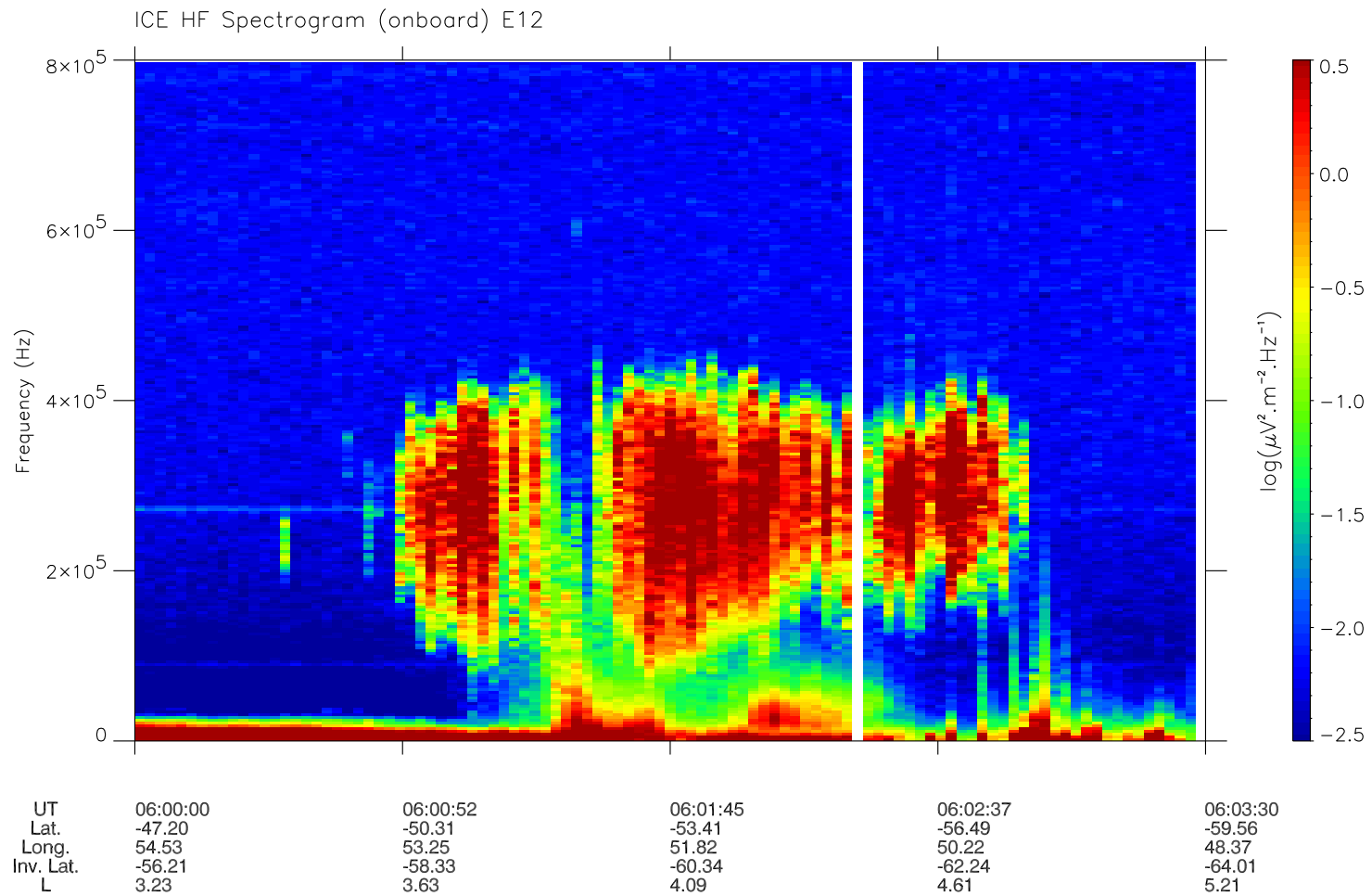
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DEMETER

Date (y/m/d): 2004/11/10

Orbit: 01902_0

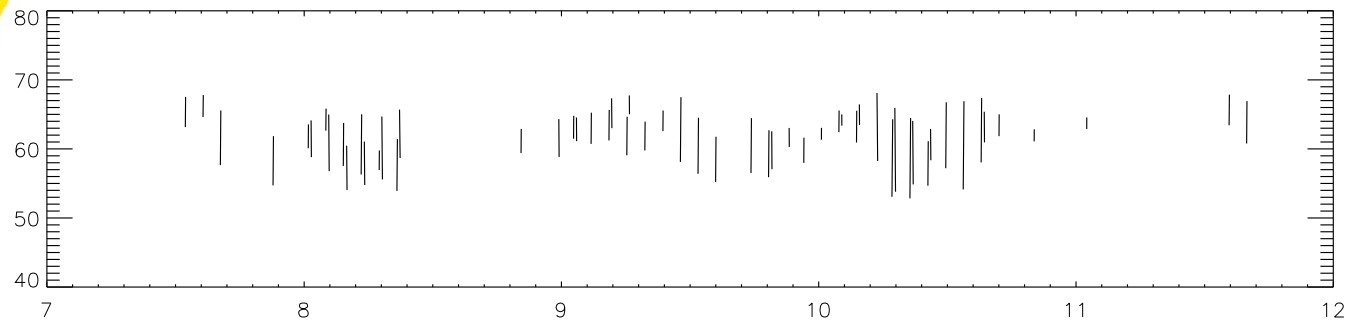


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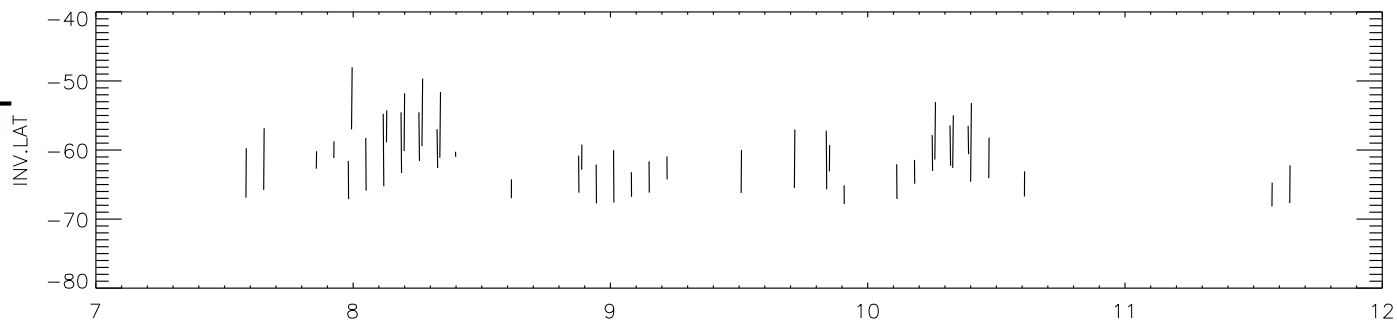


November 2004, 7-12

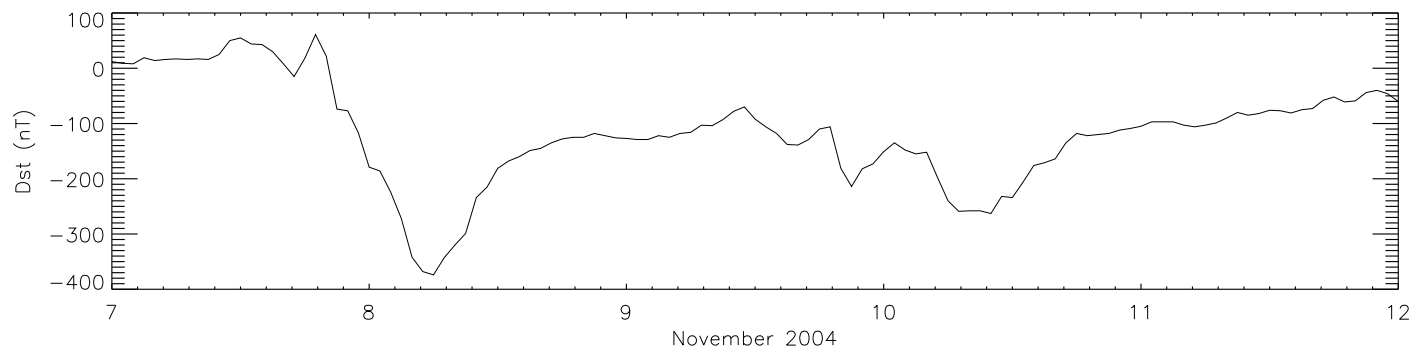
INV. LAT
North



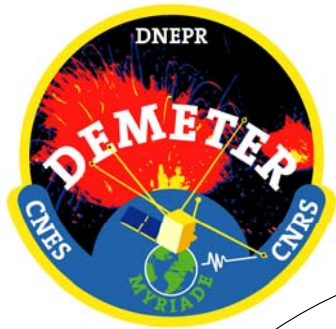
INV. LAT
South



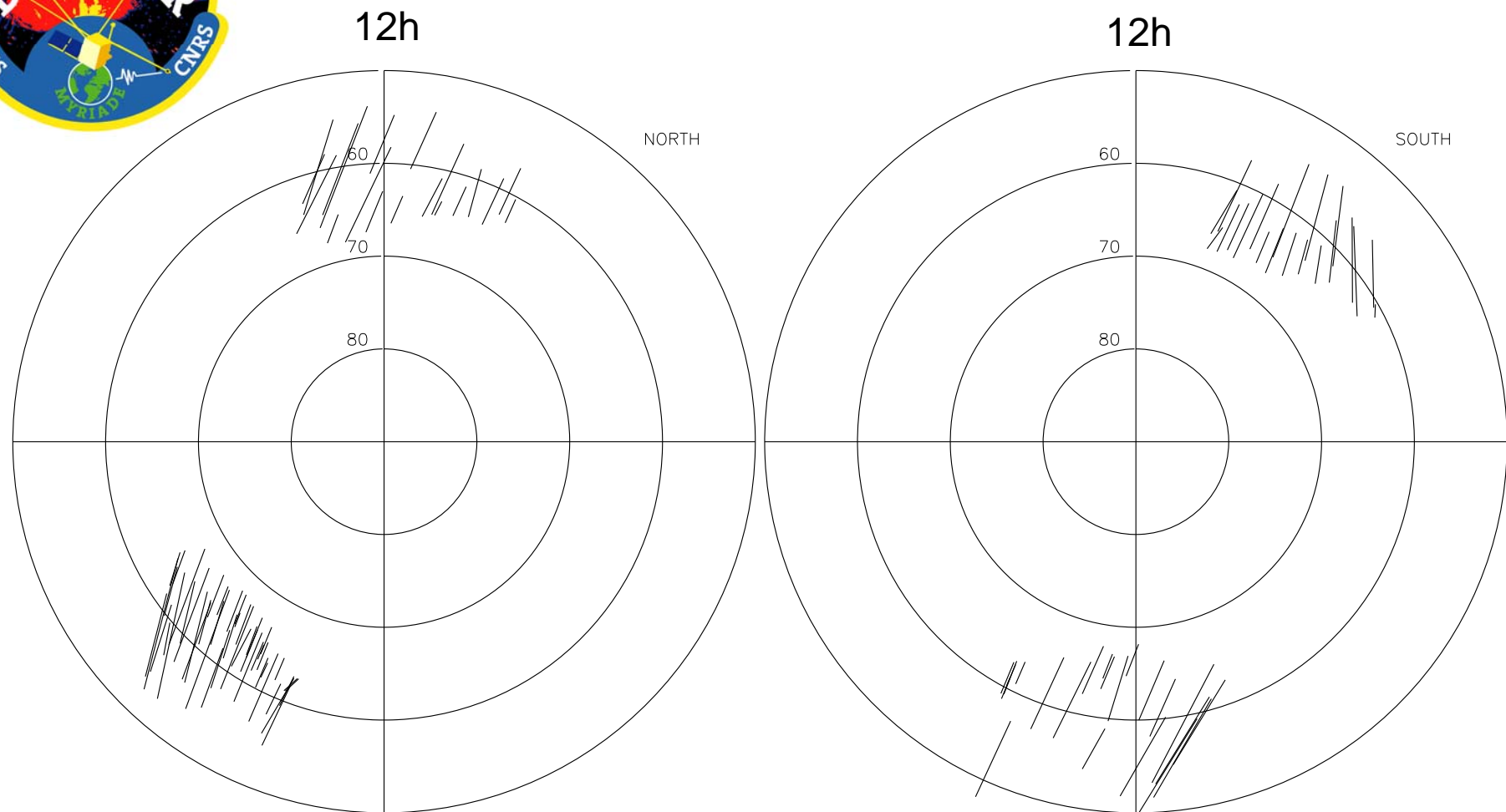
Dst
(nT)



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November 2004, 7-12



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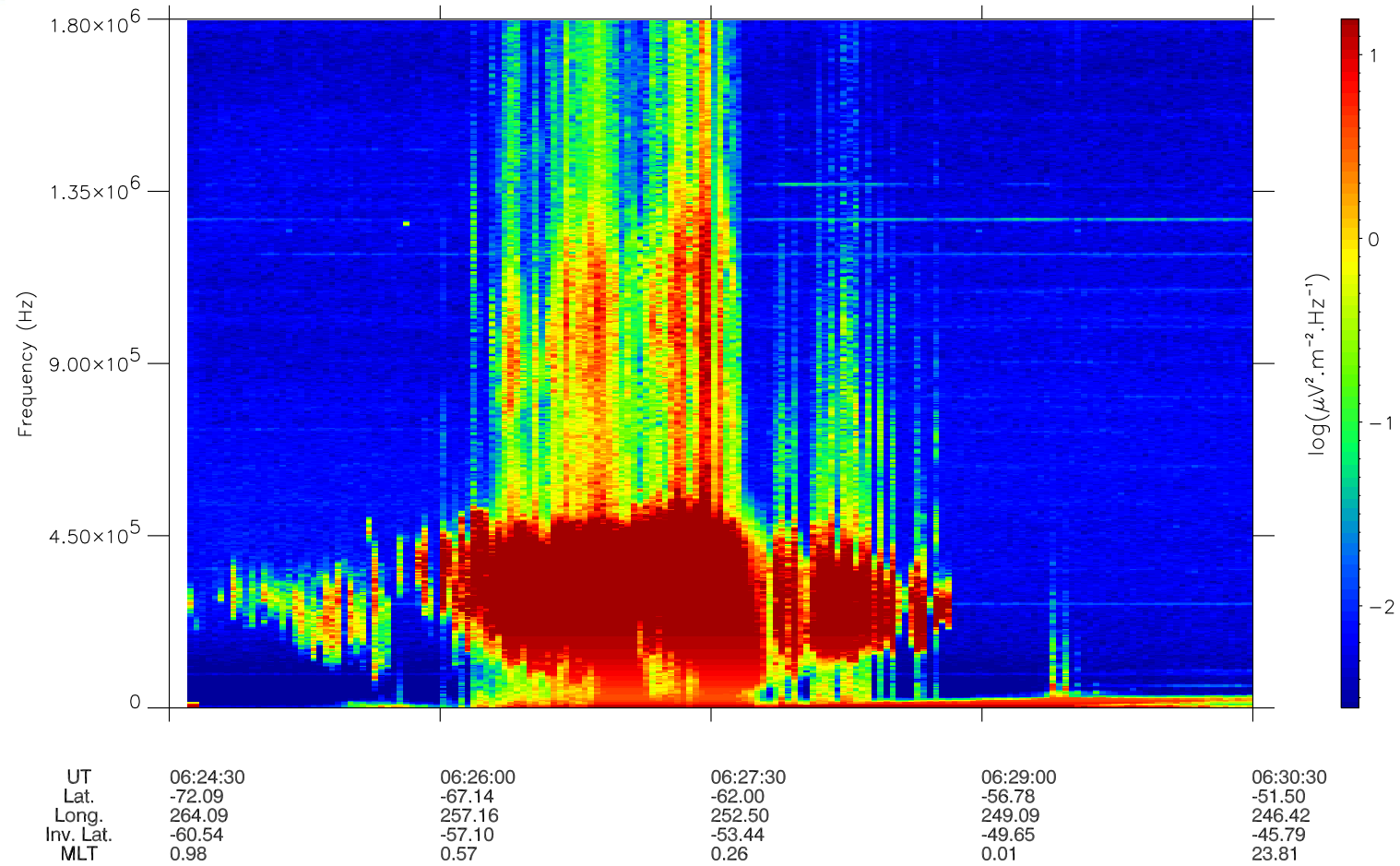


DEMETER

Date (y/m/d): 2004/11/08

Orbit: 01873_1

ICE HF Spectrogram (onboard) E12



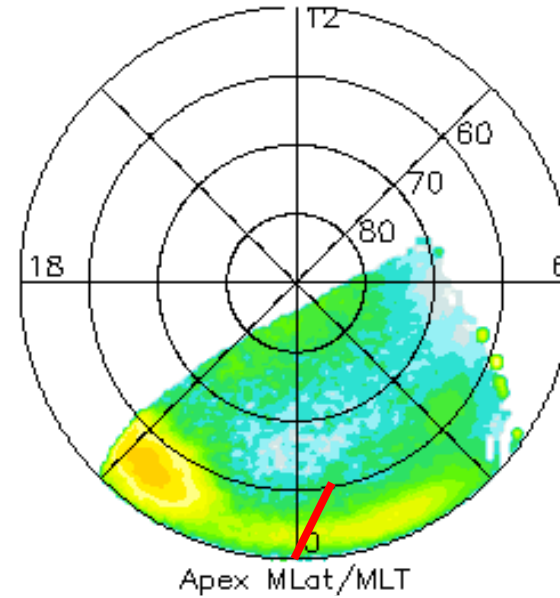
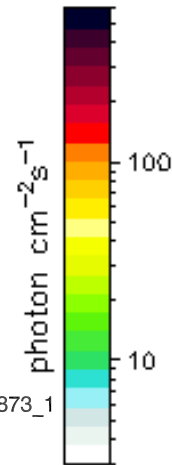
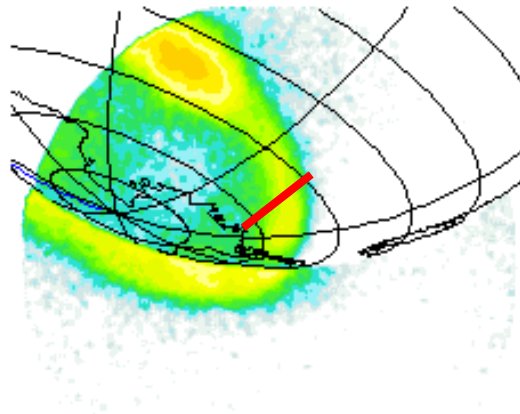
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POLAR UVI

Ultraviolet Imager

08 Nov 04

06:27:56 UT

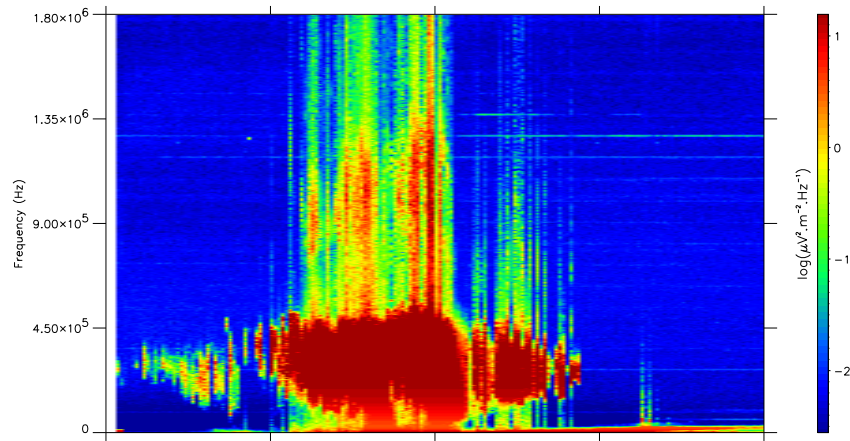


DEMETER

Date (y/m/d): 2004/11/08

Orbit: 01873_1

ICE HF Spectrogram (onboard) E12



UT	06:24:30	06:26:00	06:27:30	06:29:00
Lat.	-72.09	-67.14	-62.00	-56.78
Long.	264.09	257.16	252.50	249.09
Inv. Lat.	-60.54	-57.10	-53.44	-49.65
MLT	0.98	0.57	0.26	0.01

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