

Properties of Ion-Inertial Scale Plasmoids Observed by the Juno Spacecraft in the Jovian Magnetotail

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Introduction

- This file contains a list of 87 plasmoids which were identified in the Jovian magnetotail. (Table S1)
- Magnetic field and Waves spectra, along with the results of MVA analysis are shown for each event. (Figures S1 – S87)
- Energetic particle spectra is shown for selective events for which high cadence JEDI data was available. (Figures S88 – S120)

Event #	Start	End	Reversal Sense	Plasmoid Type	Duration (s)	$\langle B \rangle$ (nT)	ΔB_θ (nT)
1	2017-075T23:57:09	2017-075T23:58:14	tailward	o-line	65	1.16	2.07
2	2017-075T09:55:25	2017-075T09:56:27	tailward	flux-rope	62	3.85	3.84
3	2017-075T09:35:23	2017-075T09:36:08	planetward	o-line	45	2.13	4.79
4	2017-076T06:44:50	2017-076T06:46:05	planetward	flux-rope	75	4.13	6.82
5	2017-076T15:56:33	2017-076T15:56:58	planetward	o-line	25	2.34	2.93
6	2017-076T00:09:54	2017-076T00:11:45	planetward	flux-rope	111	2.58	3.64
7	2017-077T02:57:16	2017-077T02:59:55	tailward	flux-rope	159	2.22	3.16
8	2017-078T18:31:53	2017-078T18:32:15	tailward	o-line	22	1.63	3.48
9	2017-083T13:01:29	2017-083T13:02:02	tailward	o-line	33	2.87	8.45
10	2017-096T03:20:06	2017-096T03:21:31	planetward	o-line	85	2.86	5.19
11	2017-096T03:16:48	2017-096T03:17:12	tailward	o-line	24	1.62	2.05
12	2017-129T23:24:18	2017-129T23:26:02	planetward	flux-rope	104	2.10	2.92
13	2017-132T05:23:39	2017-132T05:25:09	tailward	flux-rope	90	3.26	2.09
14	2017-136T02:37:05	2017-136T02:41:32	tailward	o-line	267	1.93	4.58
15	2017-150T18:31:35	2017-150T18:31:51	tailward	o-line	16	1.63	3.22
16	2017-186T04:22:10	2017-186T04:24:32	tailward	flux-rope	142	2.25	2.49
17	2017-189T17:56:00	2017-189T17:56:15	tailward	flux-rope	15	1.06	2.31
18	2017-234T07:44:32	2017-234T07:45:17	tailward	o-line	45	2.30	3.68
19	2017-234T16:41:50	2017-234T16:42:51	planetward	o-line	61	1.95	5.67
20	2017-235T10:11:28	2017-235T10:13:45	tailward	o-line	137	1.18	3.00
21	2017-235T02:26:06	2017-235T02:26:41	tailward	o-line	35	2.17	2.49
22	2017-236T20:21:14	2017-236T20:21:34	planetward	flux-rope	20	3.67	3.50
23	2017-239T12:46:13	2017-239T12:46:40	tailward	flux-rope	27	2.00	2.31
24	2017-239T08:31:58	2017-239T08:32:27	tailward	flux-rope	29	2.67	3.23
25	2017-239T22:54:38	2017-239T22:55:07	tailward	o-line	29	1.63	2.42
26	2017-239T08:31:05	2017-239T08:31:43	planetward	o-line	38	1.73	3.33
27	2017-241T03:48:43	2017-241T03:49:08	tailward	o-line	25	5.23	11.12
28	2017-242T08:56:02	2017-242T08:56:15	planetward	o-line	13	2.19	2.48
29	2017-287T13:20:33	2017-287T13:23:05	tailward	o-line	152	2.97	7.91

30	2017-287T07:07:40	2017-287T07:09:11	tailward	o-line	91	1.71	4.29
31	2017-289T09:00:42	2017-289T09:02:16	tailward	o-line	94	4.96	2.22
32	2017-289T09:11:43	2017-289T09:12:46	planetward	o-line	63	2.28	4.18
33	2017-291T16:09:44	2017-291T16:10:27	tailward	o-line	43	1.06	2.18
34	2017-291T15:48:32	2017-291T15:49:04	tailward	flux-rope	32	3.58	4.85
35	2017-291T19:27:19	2017-291T19:27:35	planetward	o-line	16	1.93	2.20
36	2017-291T10:22:01	2017-291T10:23:45	tailward	o-line	104	1.87	3.29
37	2017-293T16:36:31	2017-293T16:37:37	planetward	o-line	66	1.88	4.29
38	2017-294T18:13:43	2017-294T18:14:09	planetward	o-line	26	2.31	3.68
39	2017-338T20:58:39	2017-338T20:59:11	planetward	o-line	32	1.67	2.67
40	2017-338T21:49:25	2017-338T21:51:52	tailward	flux-rope	147	4.54	5.87
41	2017-338T21:33:00	2017-338T21:33:18	planetward	flux-rope	18	1.35	3.53
42	2017-338T20:55:15	2017-338T20:56:04	tailward	o-line	49	3.51	5.32
43	2017-338T21:43:31	2017-338T21:43:47	tailward	o-line	16	2.89	2.12
44	2017-340T13:13:23	2017-340T13:13:36	planetward	o-line	13	0.94	2.75
45	2017-342T03:00:19	2017-342T03:02:21	tailward	o-line	122	1.64	2.13
46	2017-345T00:02:43	2017-345T00:04:13	planetward	o-line	90	1.47	2.30
47	2018-026T20:15:53	2018-026T20:17:51	tailward	flux-rope	118	3.76	3.82
48	2018-027T15:12:45	2018-027T15:16:54	tailward	o-line	249	2.31	2.56
49	2018-027T16:26:19	2018-027T16:26:51	tailward	o-line	32	1.26	2.19
50	2018-027T16:16:08	2018-027T16:16:30	tailward	o-line	22	2.19	2.25
51	2018-028T12:26:21	2018-028T12:30:13	tailward	flux-rope	232	2.04	2.05
52	2018-029T18:17:07	2018-029T18:20:05	planetward	o-line	178	1.26	3.42
53	2018-030T13:38:18	2018-030T13:39:12	planetward	o-line	54	1.67	3.27
54	2018-030T21:26:31	2018-030T21:27:11	tailward	flux-rope	40	1.84	2.16
55	2018-030T01:27:08	2018-030T01:28:41	tailward	o-line	93	1.38	3.12
56	2018-032T22:47:36	2018-032T22:48:27	planetward	flux-rope	51	2.68	2.62
57	2018-033T11:30:05	2018-033T11:31:06	tailward	o-line	61	1.69	3.09
58	2018-036T10:36:44	2018-036T10:36:59	planetward	o-line	15	1.94	4.82
59	2018-083T11:21:16	2018-083T11:21:44	tailward	o-line	28	1.34	3.33
60	2018-085T11:18:14	2018-085T11:19:09	tailward	flux-rope	55	2.59	4.27
61	2018-139T18:52:52	2018-139T18:53:30	planetward	o-line	38	4.15	6.16

62	2018-140T14:27:52	2018-140T14:28:15	planetward	o-line	23	2.42	3.25
63	2018-142T01:27:49	2018-142T01:28:18	planetward	o-line	29	4.73	6.55
64	2018-188T23:12:51	2018-188T23:14:44	tailward	flux-rope	113	1.86	2.27
65	2018-190T14:48:13	2018-190T14:48:41	planetward	flux-rope	28	1.54	3.01
66	2018-191T10:23:12	2018-191T10:23:35	planetward	o-line	23	5.36	4.88
67	2018-245T15:02:56	2018-245T15:03:20	planetward	o-line	24	0.89	2.21
68	2018-297T14:55:14	2018-297T14:58:31	tailward	o-line	197	2.34	3.60
69	2018-297T17:05:54	2018-297T17:06:24	planetward	o-line	30	1.11	2.58
70	2018-298T01:02:35	2018-298T01:03:48	planetward	flux-rope	73	3.59	5.47
71	2018-298T10:48:22	2018-298T10:48:53	planetward	o-line	31	1.84	4.51
72	2018-350T04:57:17	2018-350T04:57:30	tailward	flux-rope	13	2.41	2.72
73	2018-351T10:04:44	2018-351T10:05:03	planetward	flux-rope	19	1.93	2.08
74	2018-352T04:27:41	2018-352T04:28:18	planetward	flux-rope	37	4.27	9.31
75	2018-353T14:00:16	2018-353T14:02:33	tailward	o-line	137	2.71	4.46
76	2018-353T13:59:12	2018-353T13:59:40	tailward	o-line	28	1.95	5.25
77	2019-089T20:35:44	2019-089T20:36:34	tailward	flux-rope	50	4.46	2.59
78	2019-090T05:24:56	2019-090T05:27:20	tailward	flux-rope	144	6.35	3.12
79	2019-091T21:33:28	2019-091T21:35:36	tailward	flux-rope	128	3.56	2.81
80	2019-091T00:47:51	2019-091T00:50:08	tailward	flux-rope	137	2.02	3.63
81	2019-092T17:30:38	2019-092T17:32:03	planetward	o-line	85	2.33	4.62
82	2019-093T20:50:14	2019-093T20:50:31	planetward	o-line	17	2.04	5.95
83	2019-093T01:38:18	2019-093T01:39:10	planetward	o-line	52	2.72	3.23
84	2019-144T19:03:24	2019-144T19:03:37	planetward	flux-rope	13	2.63	4.10
85	2019-199T17:28:05	2019-199T17:28:22	planetward	flux-rope	17	1.72	3.52
86	2019-249T19:23:52	2019-249T19:24:35	planetward	o-line	43	1.09	2.30
87	2019-301T22:13:15	2019-301T22:14:05	planetward	o-line	50	2.29	4.75

Table S1. List of plasmoids identified by the algorithm.

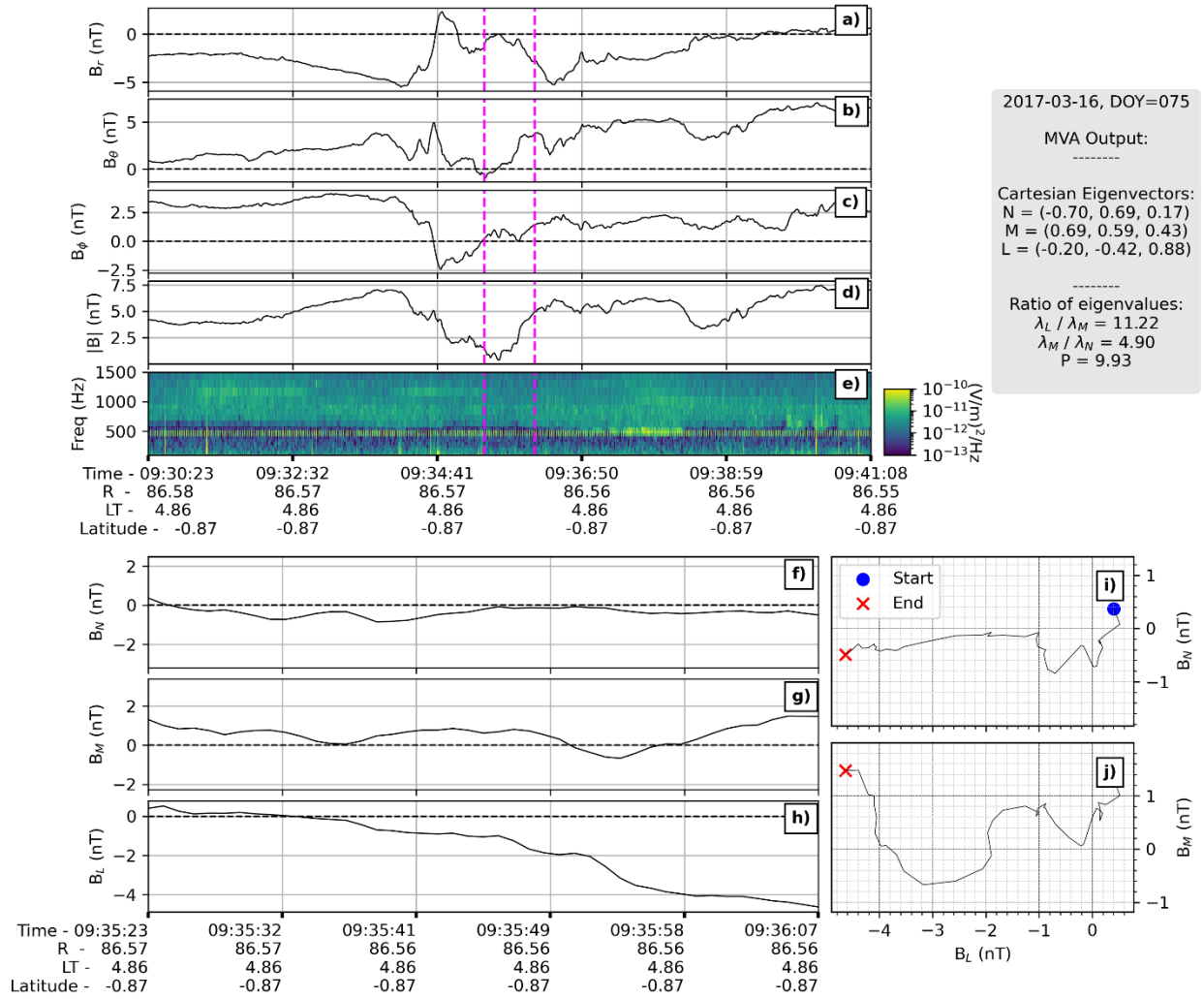


Figure S1

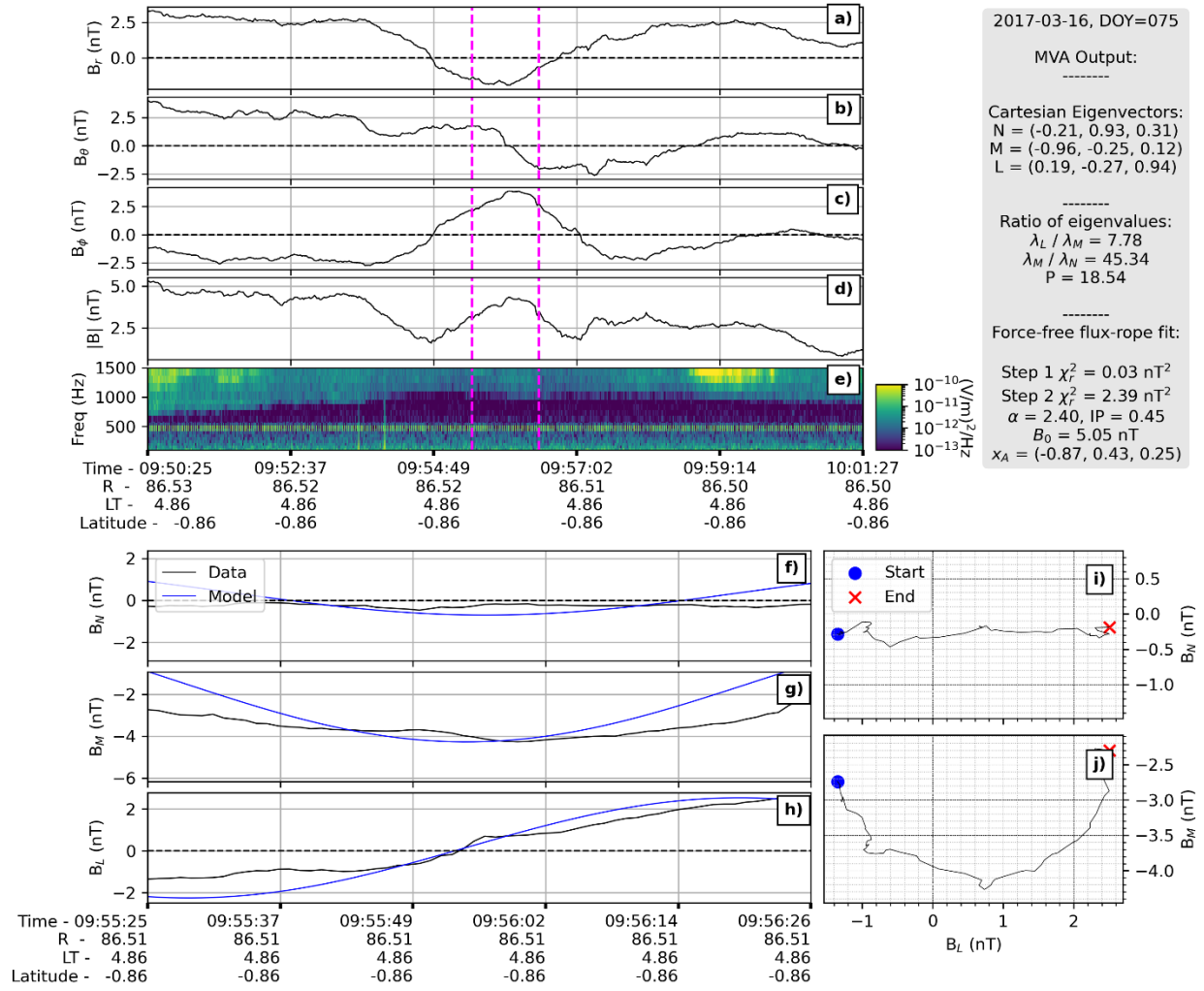


Figure S2

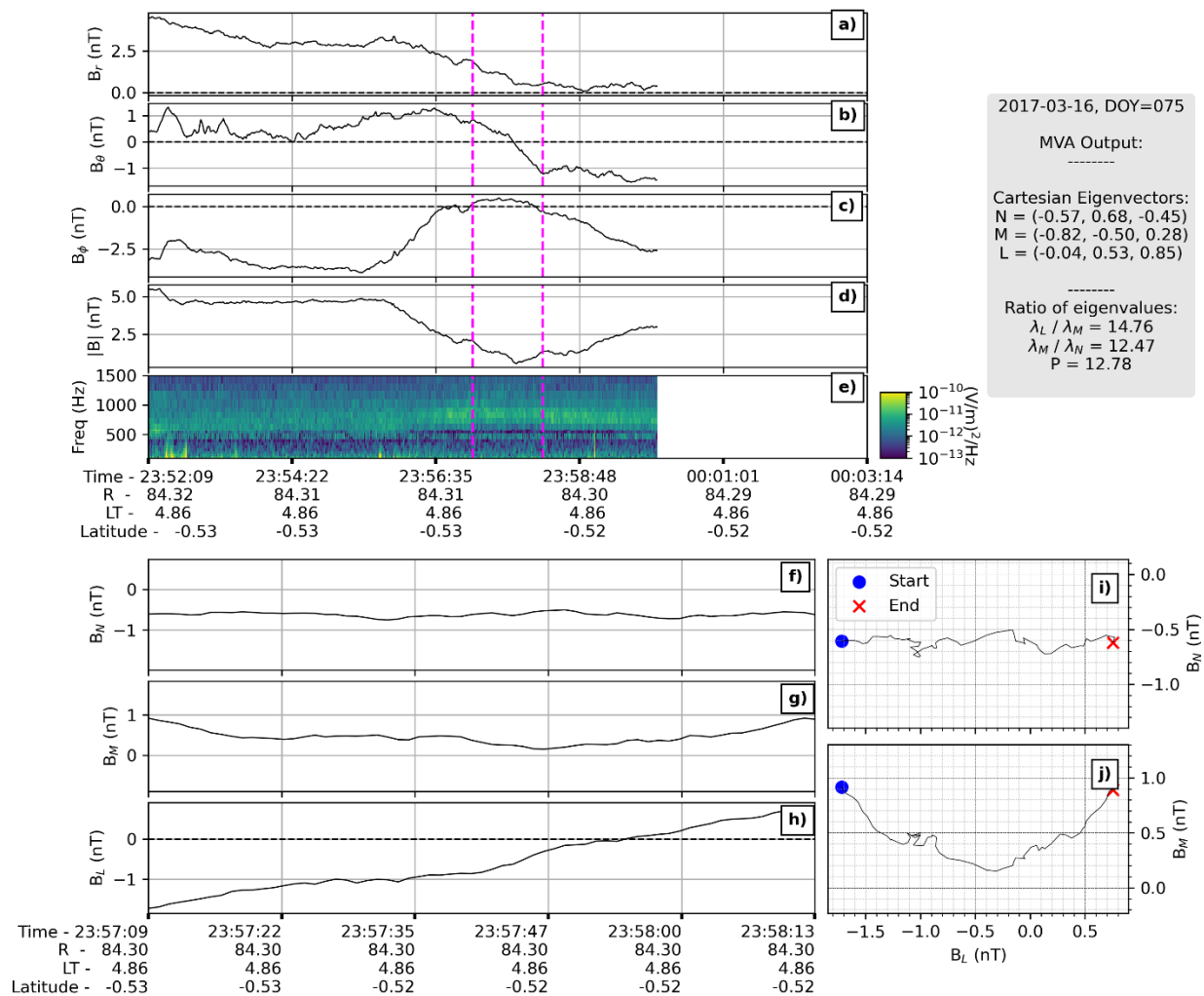


Figure S3

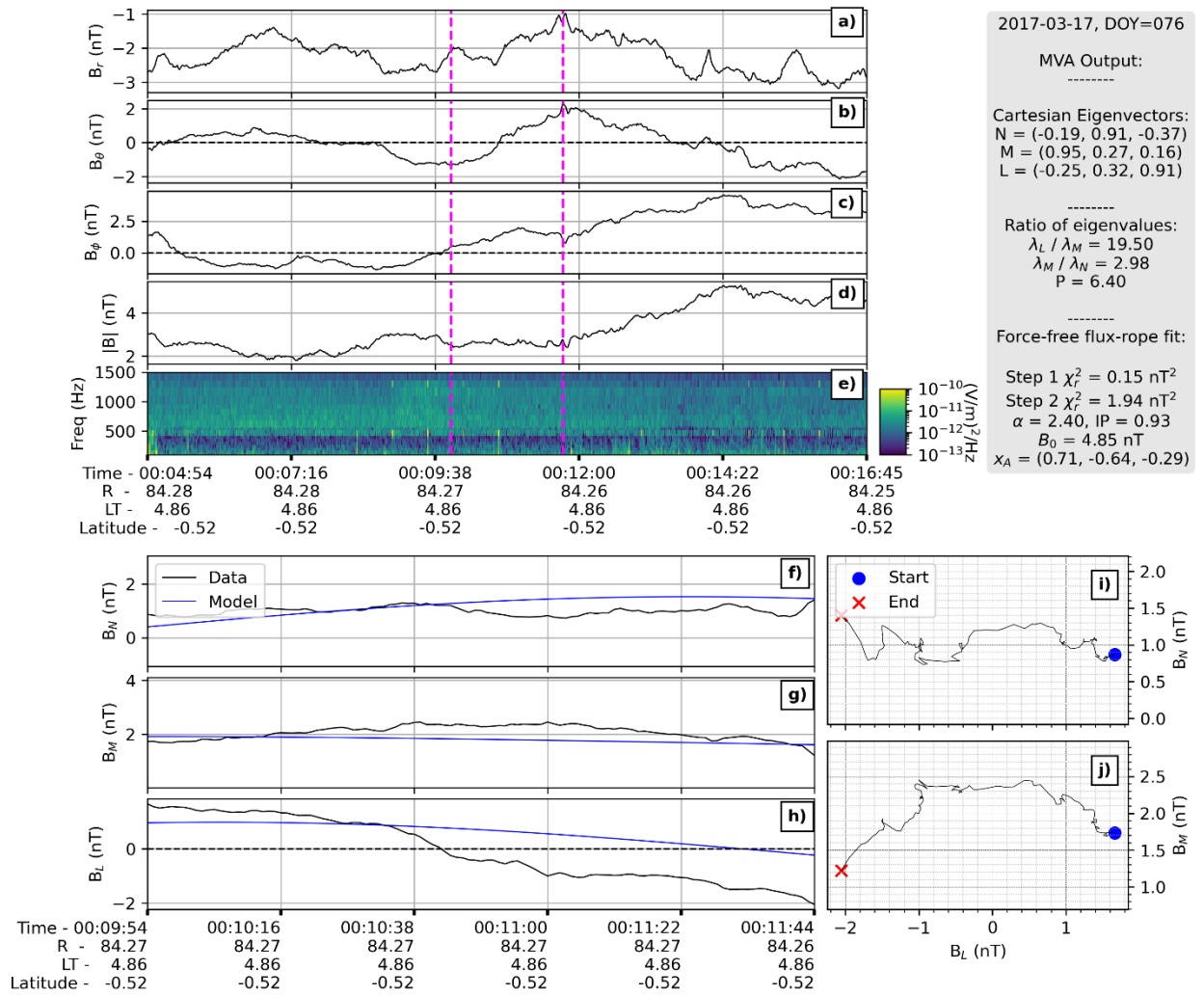


Figure S4

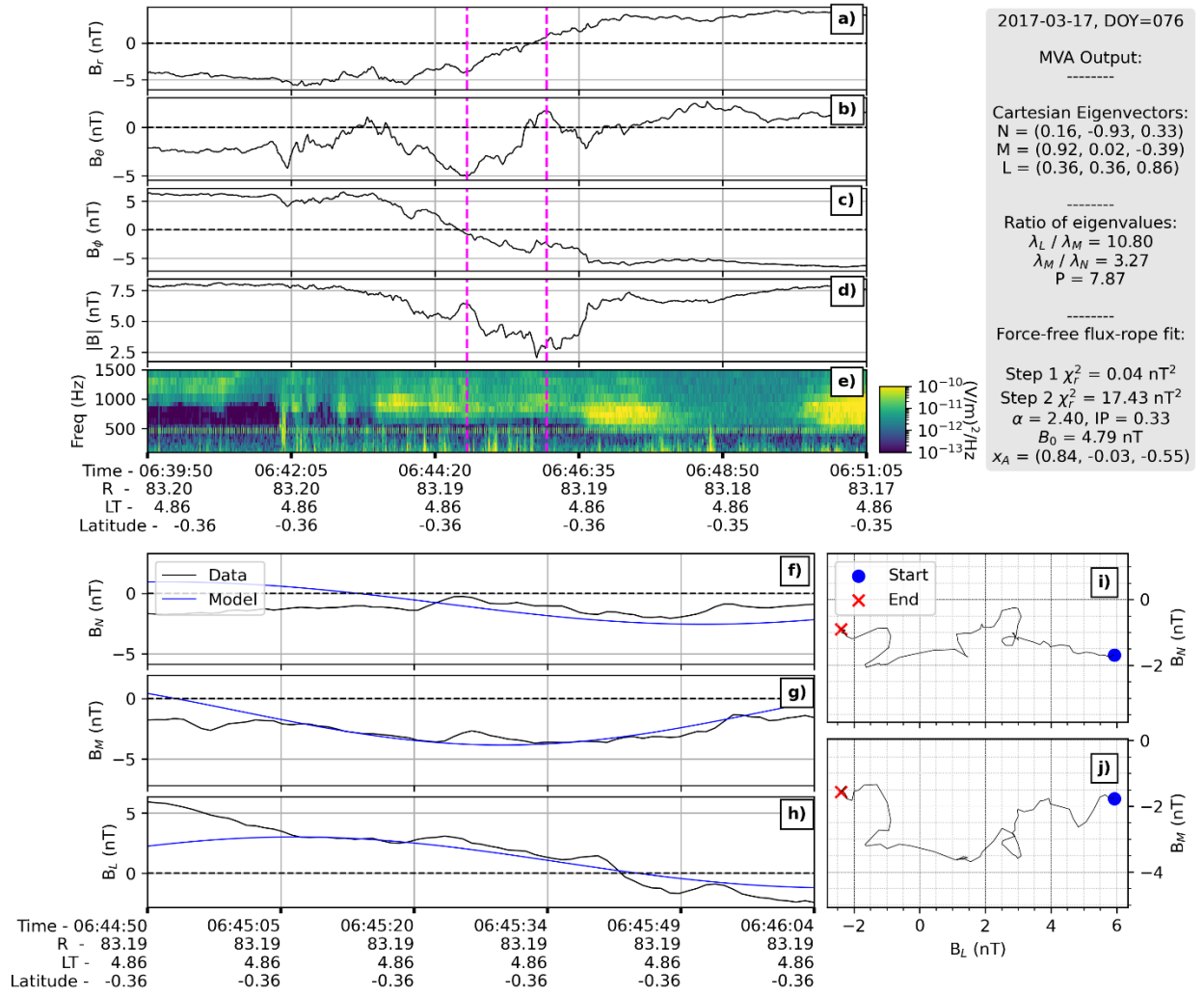


Figure S5

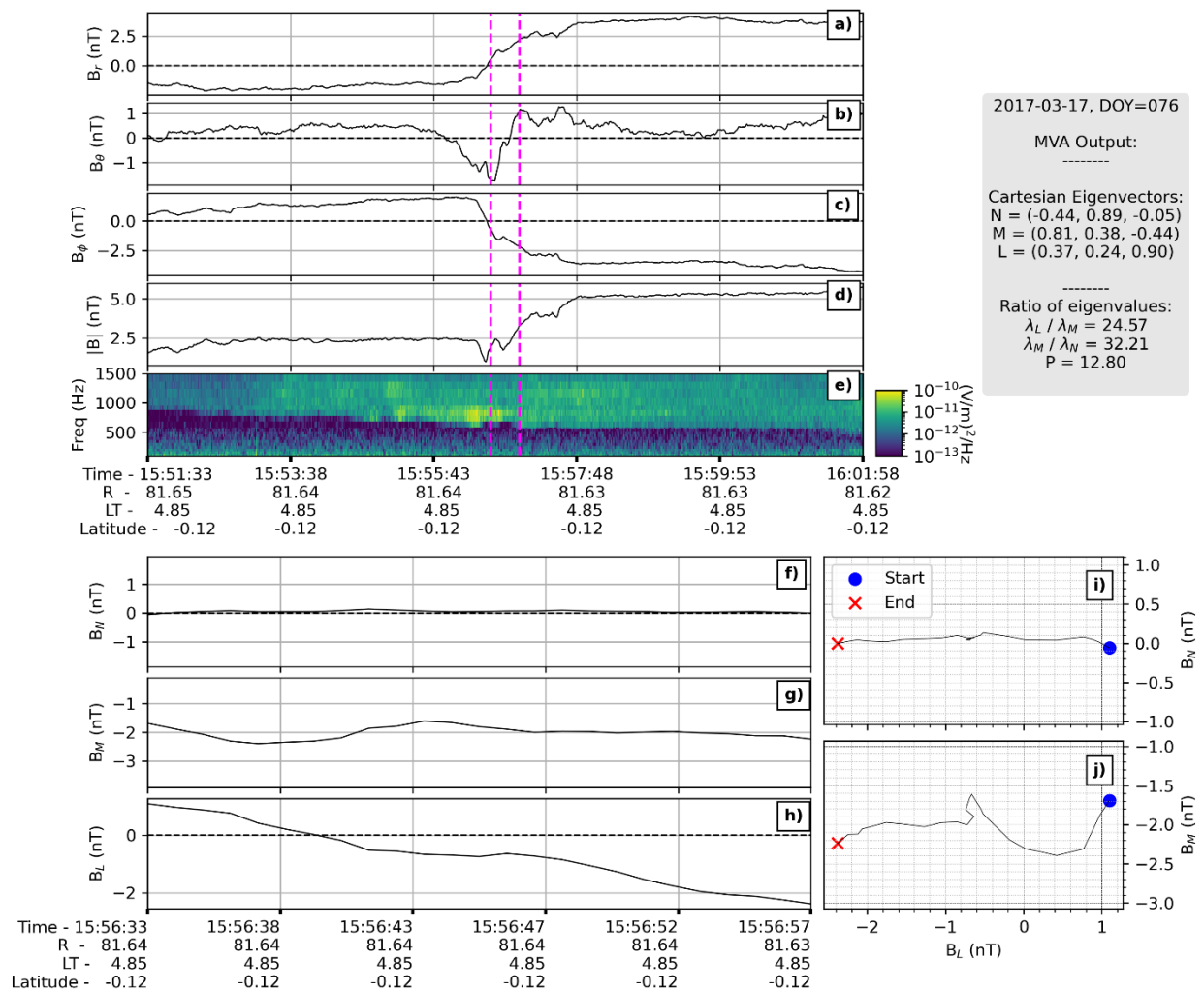


Figure S6

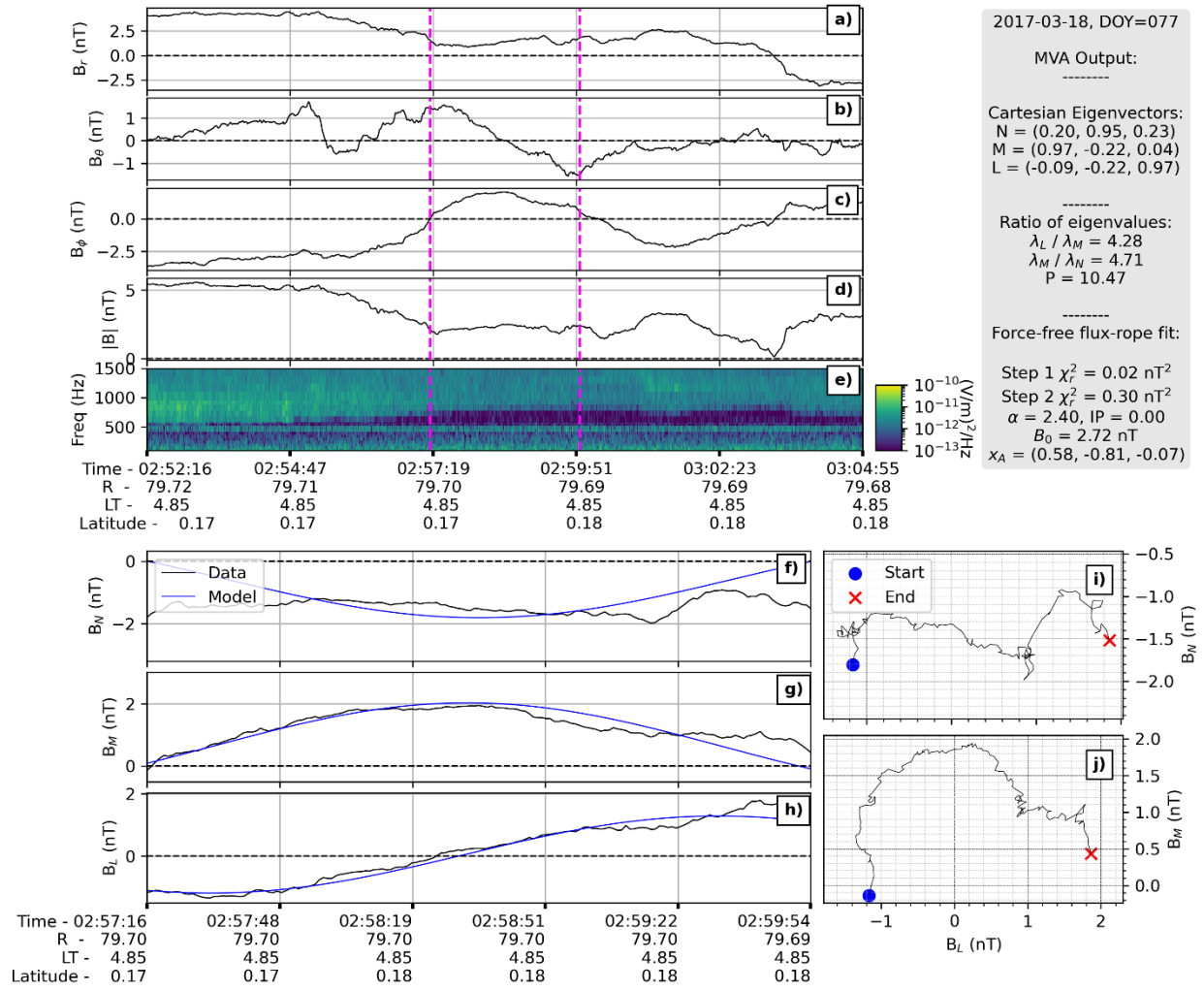


Figure S7

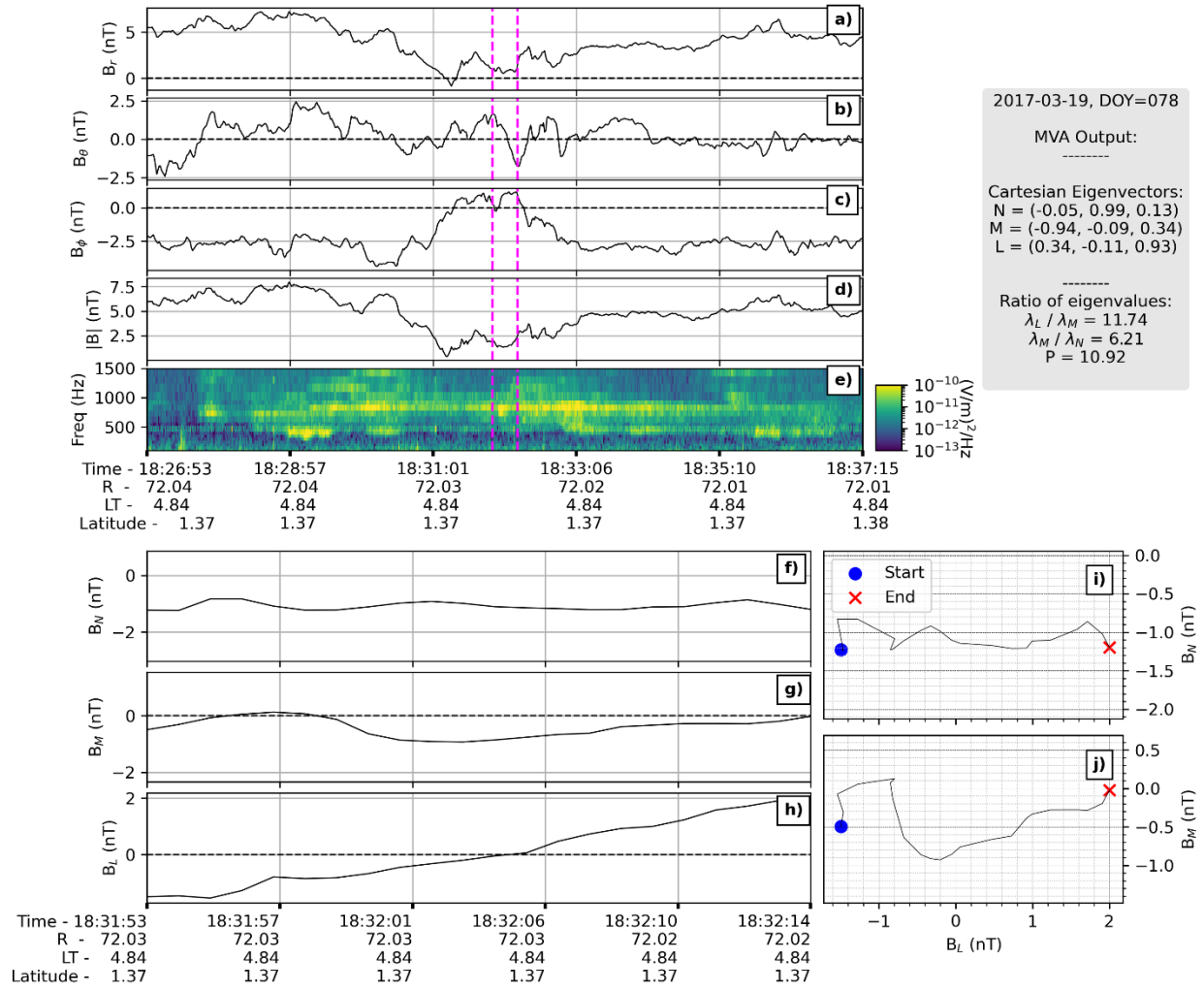


Figure S8

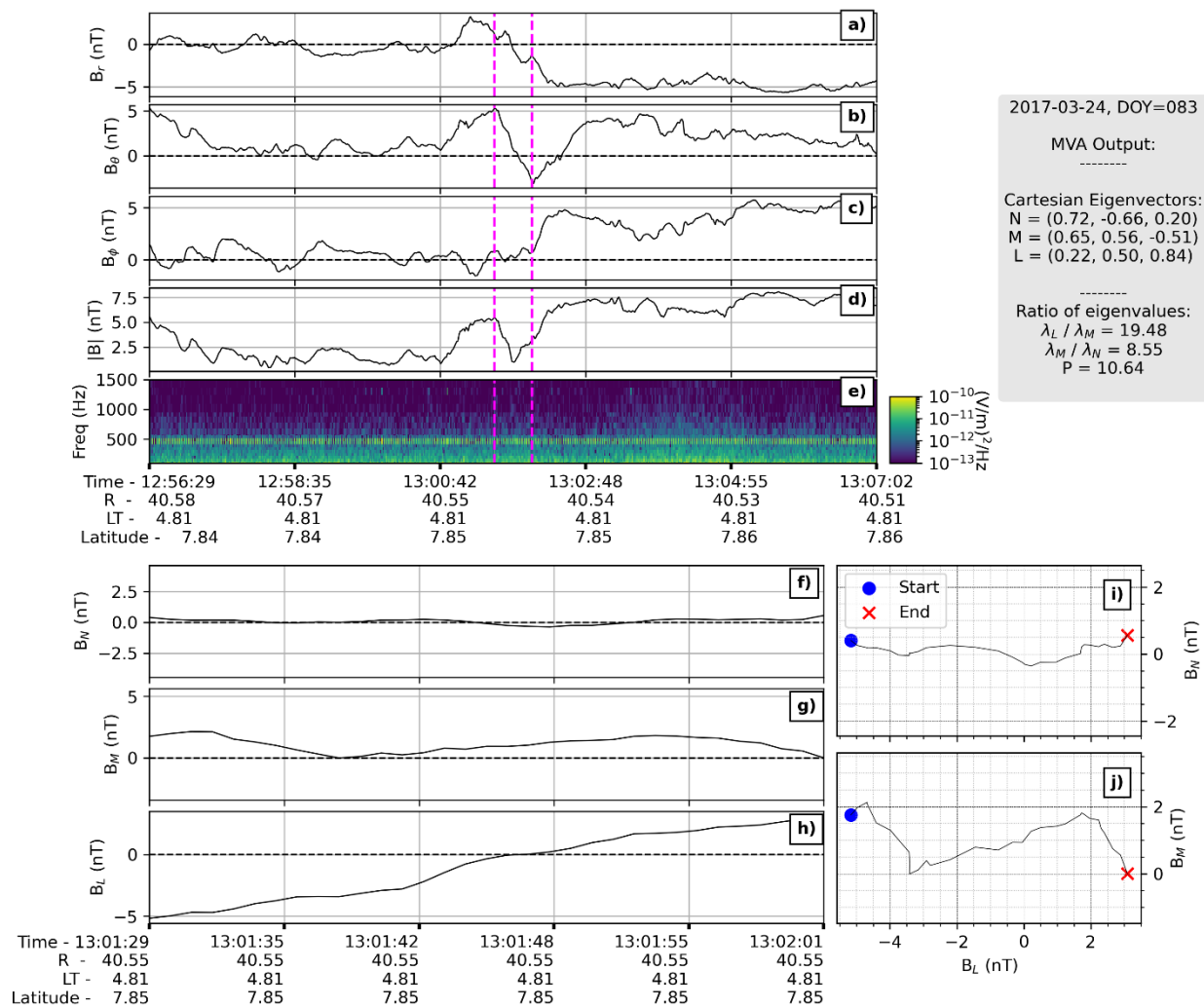


Figure S9

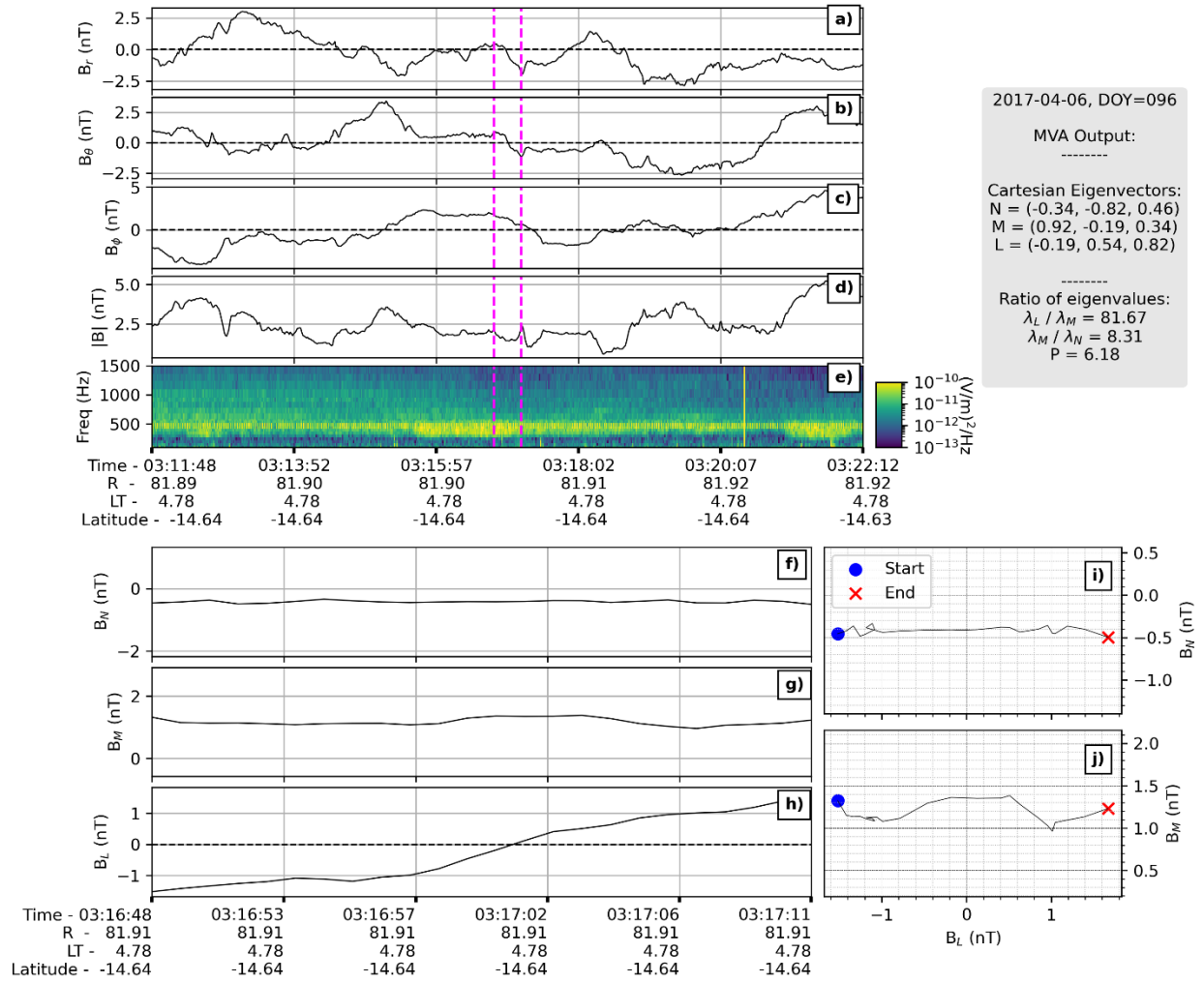


Figure S10

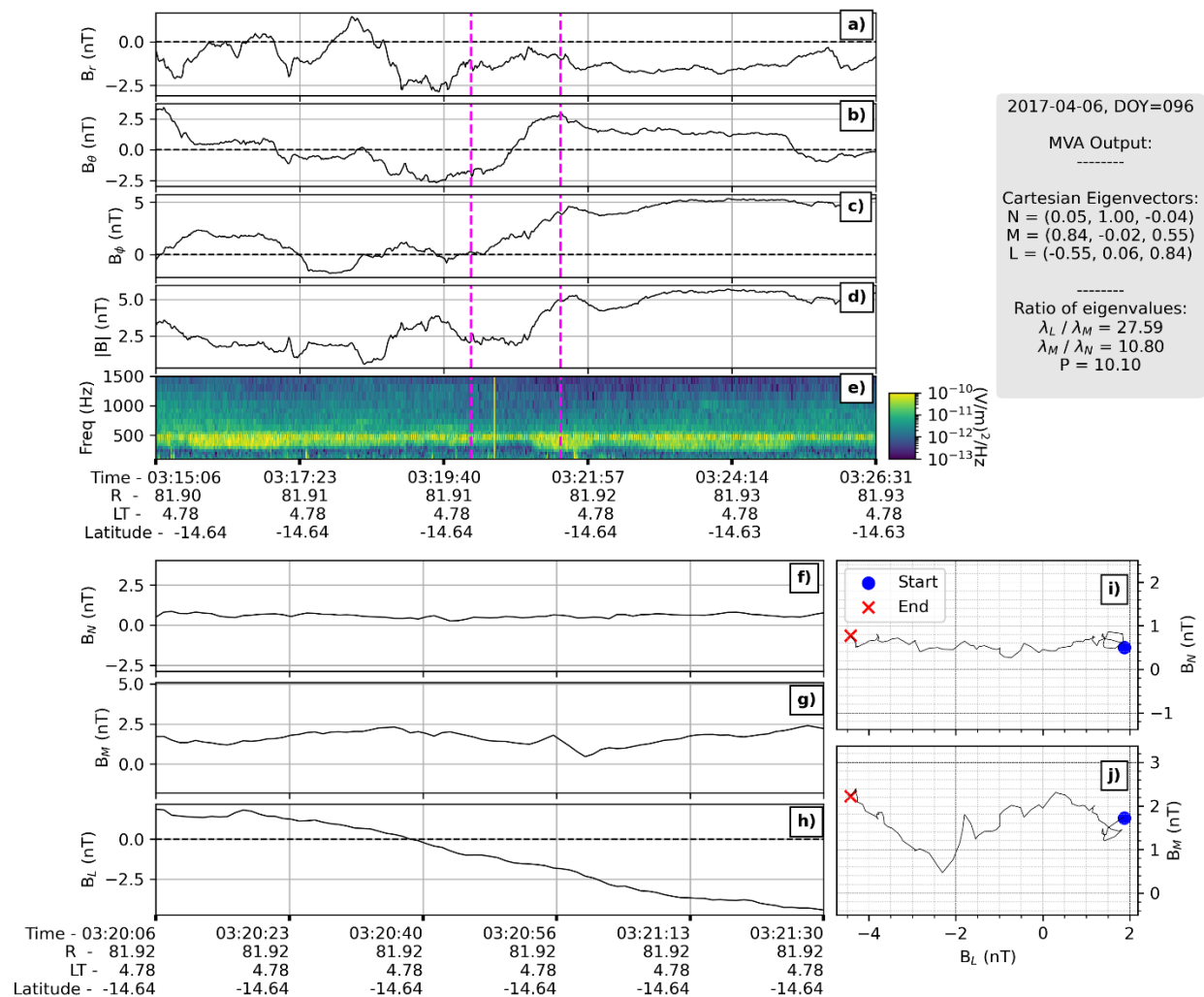


Figure S11

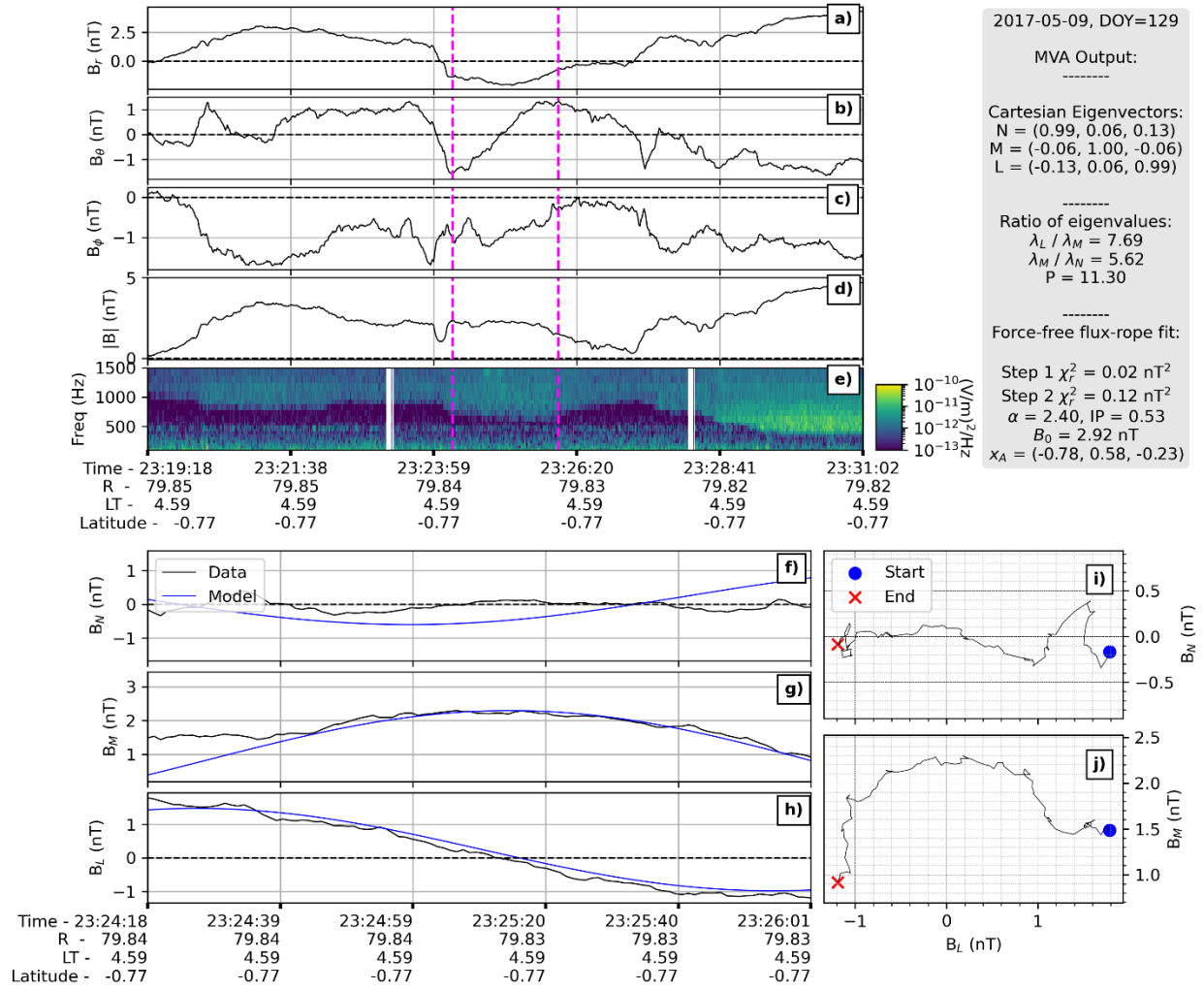


Figure S12

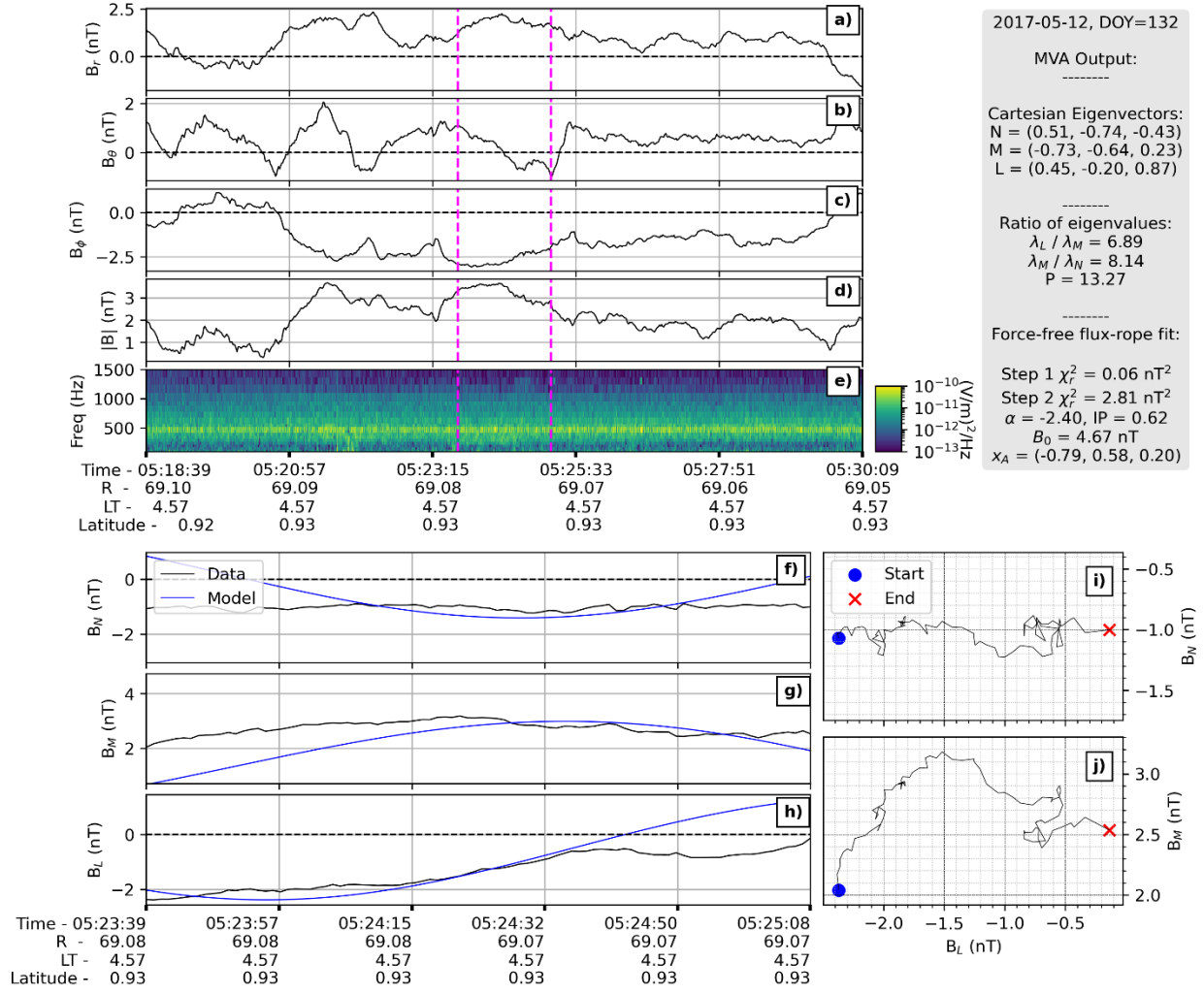


Figure S13

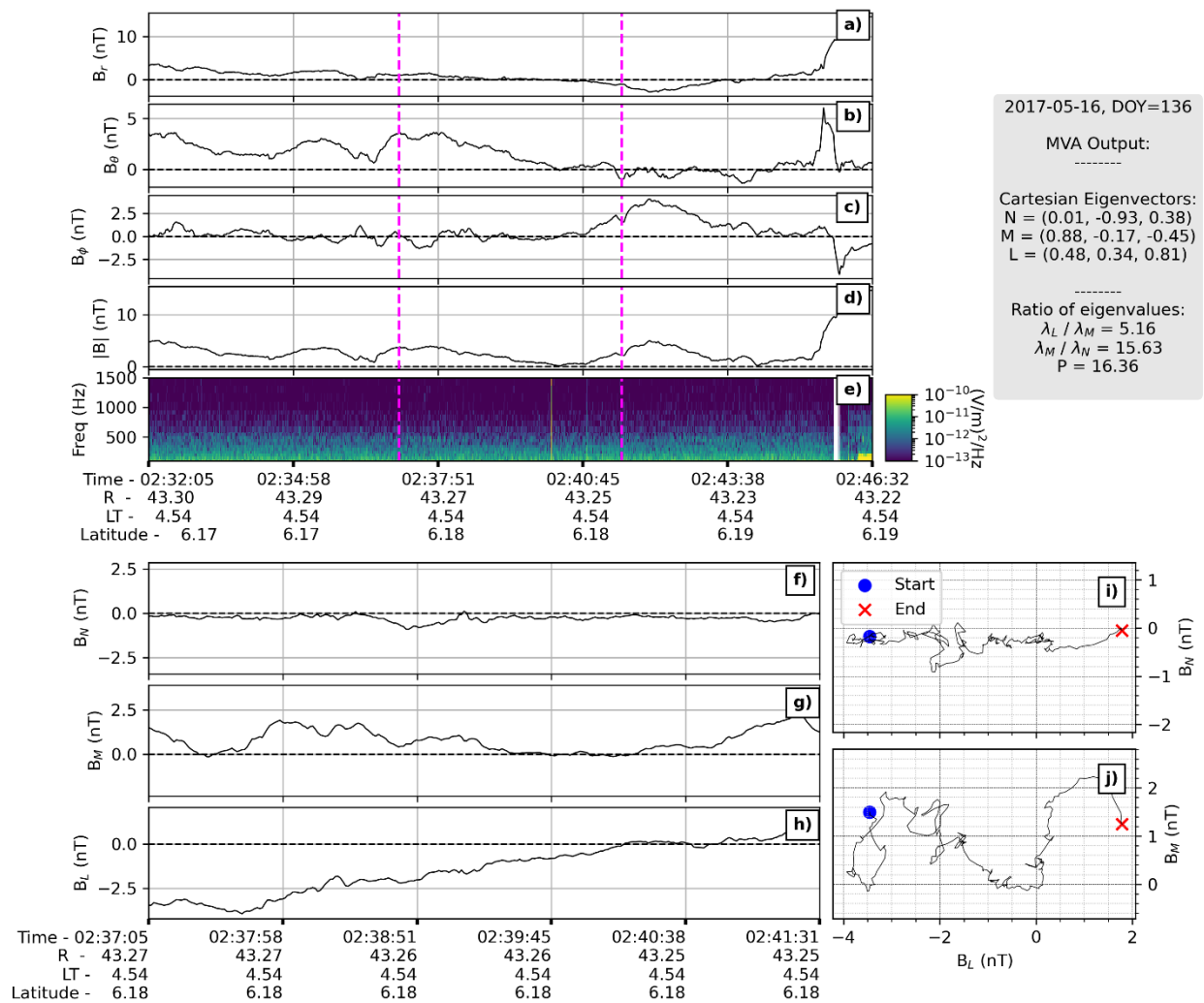


Figure S14

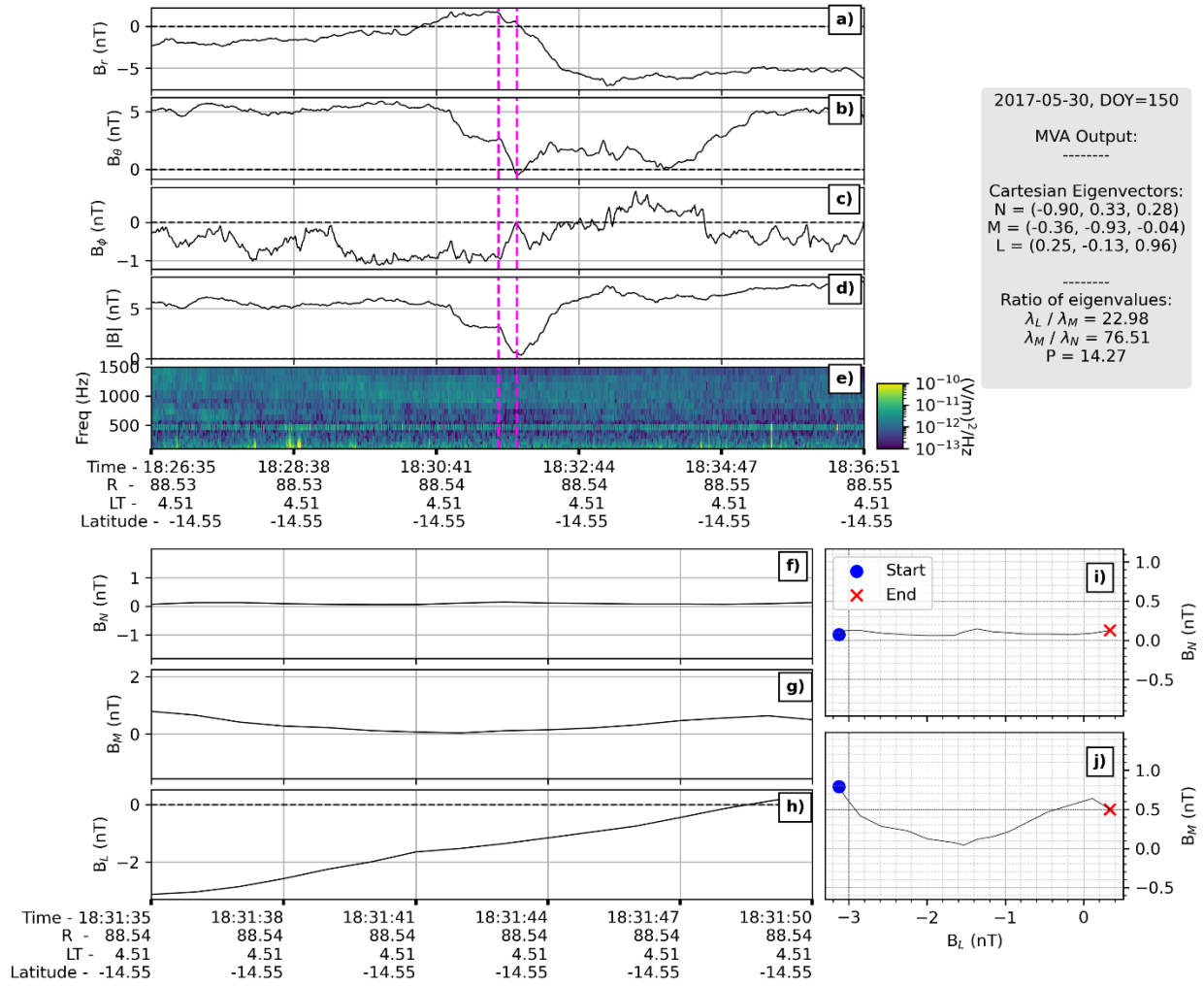


Figure S15

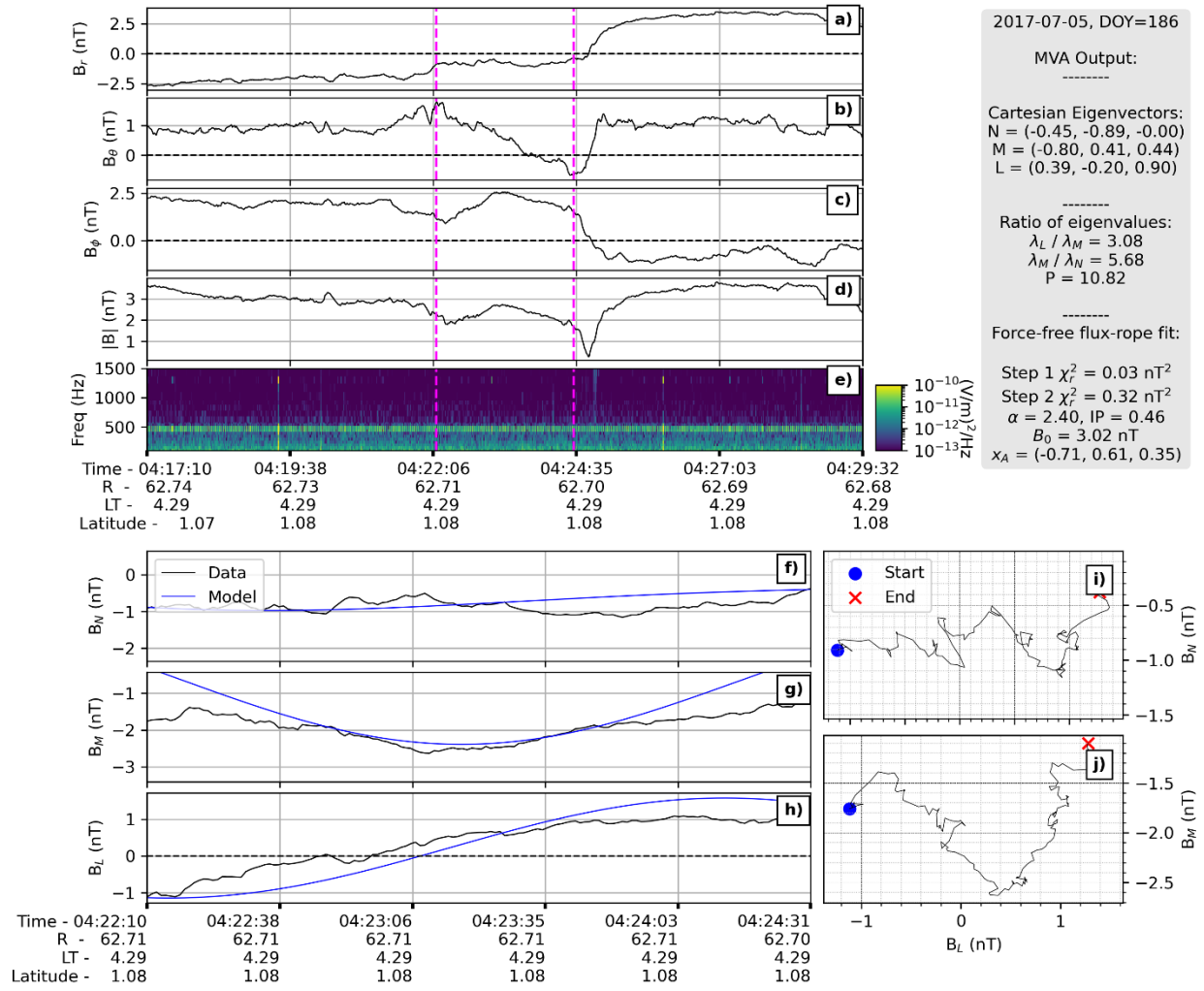


Figure S16

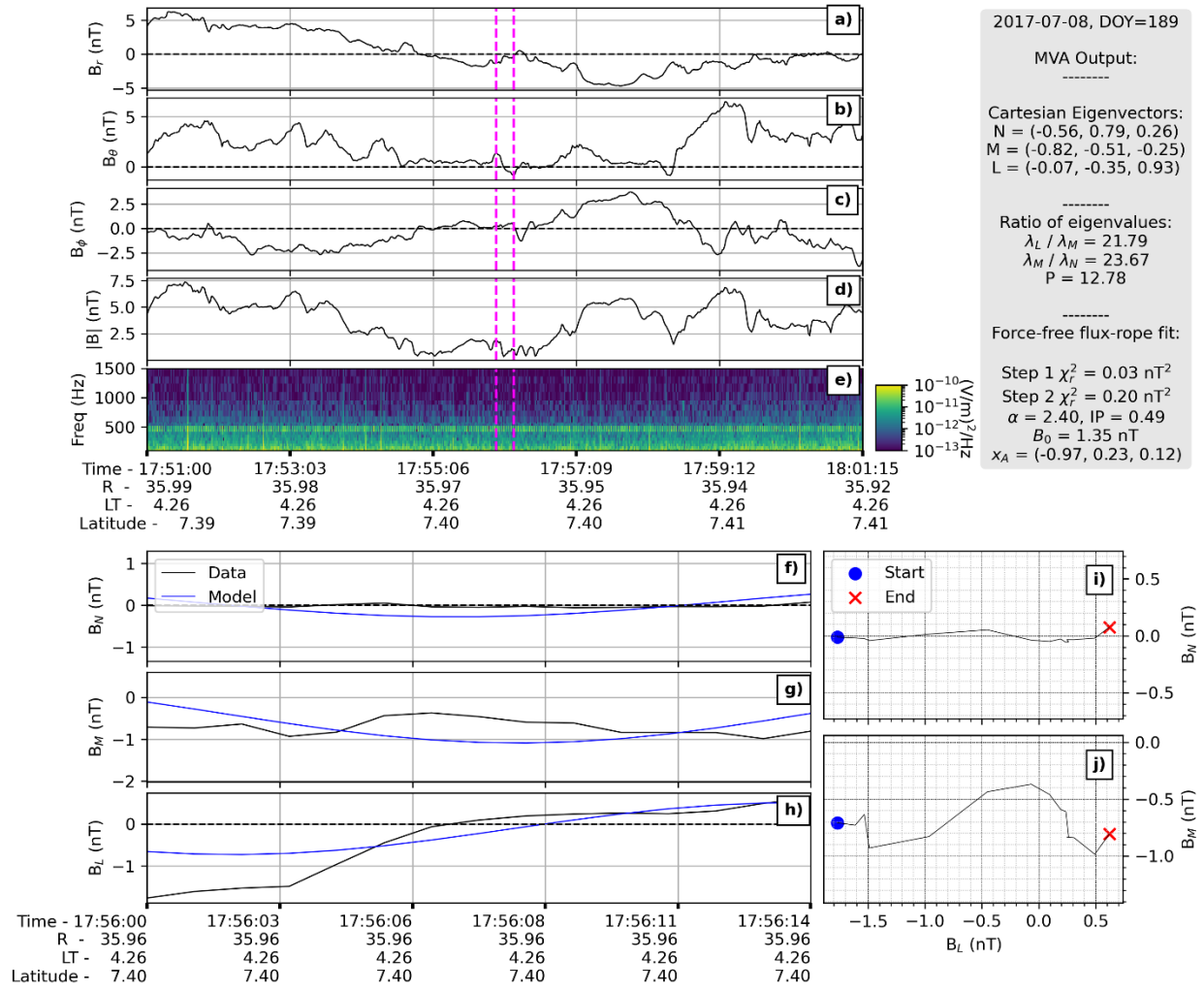


Figure S17

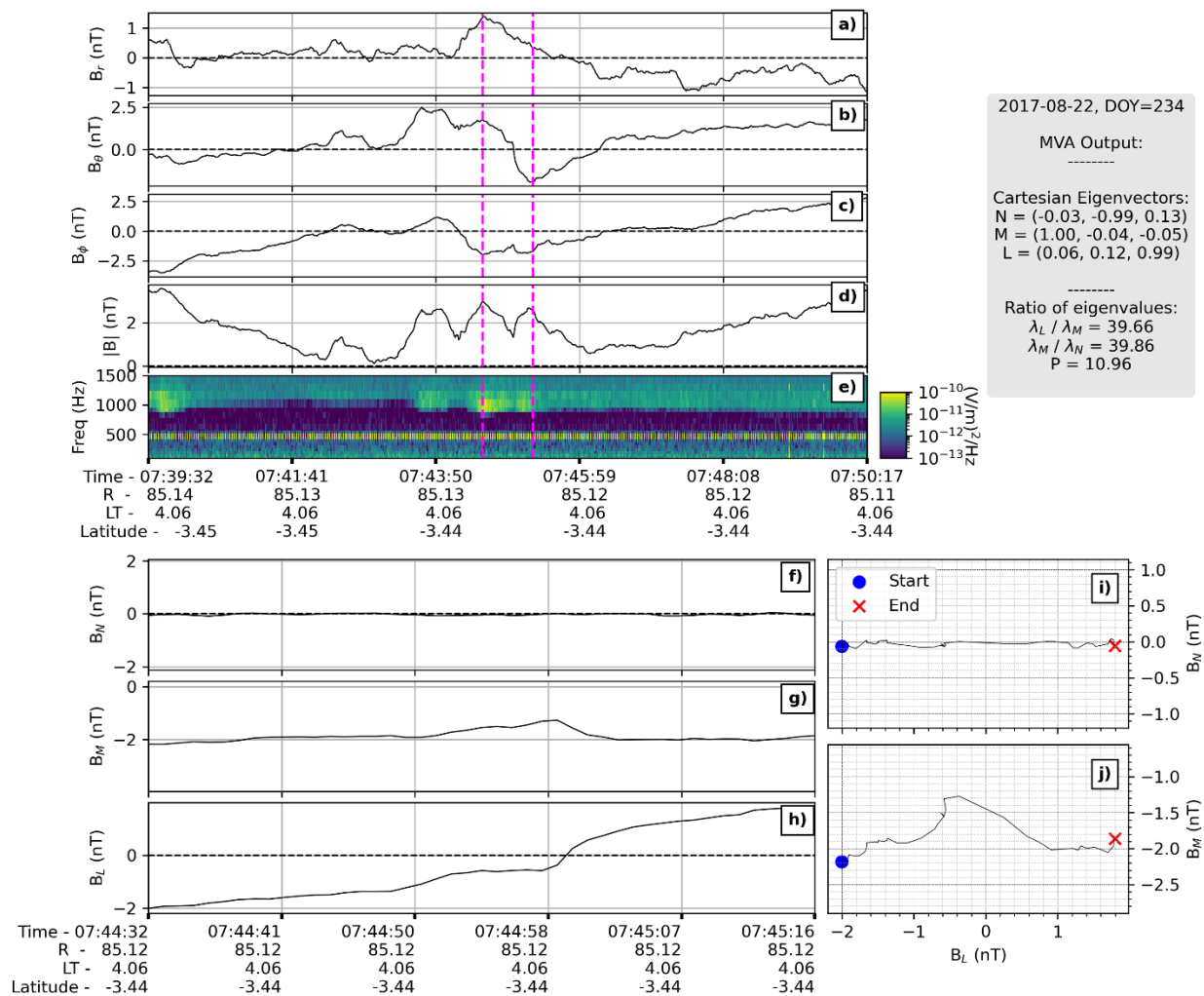


Figure S18

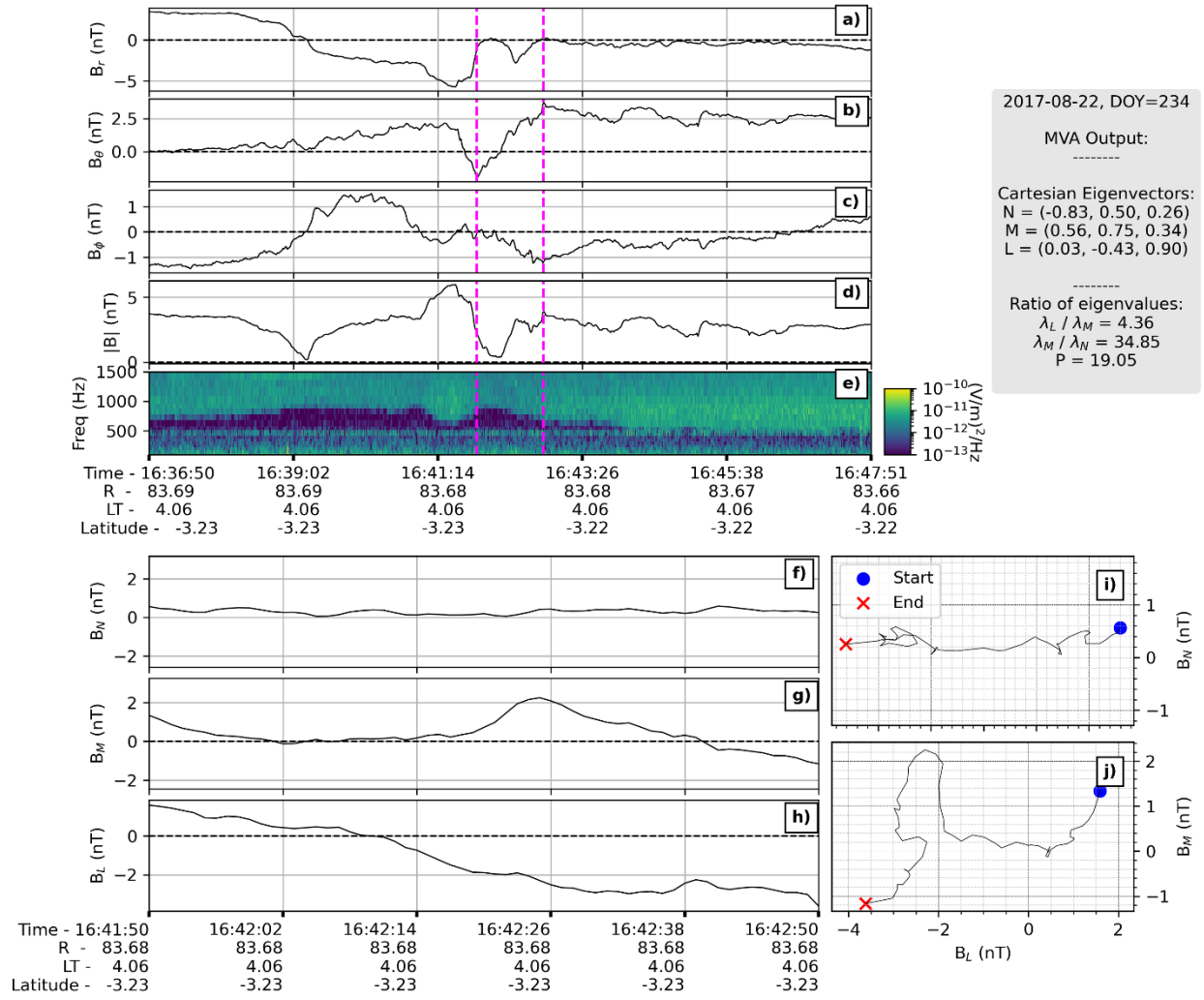


Figure S19

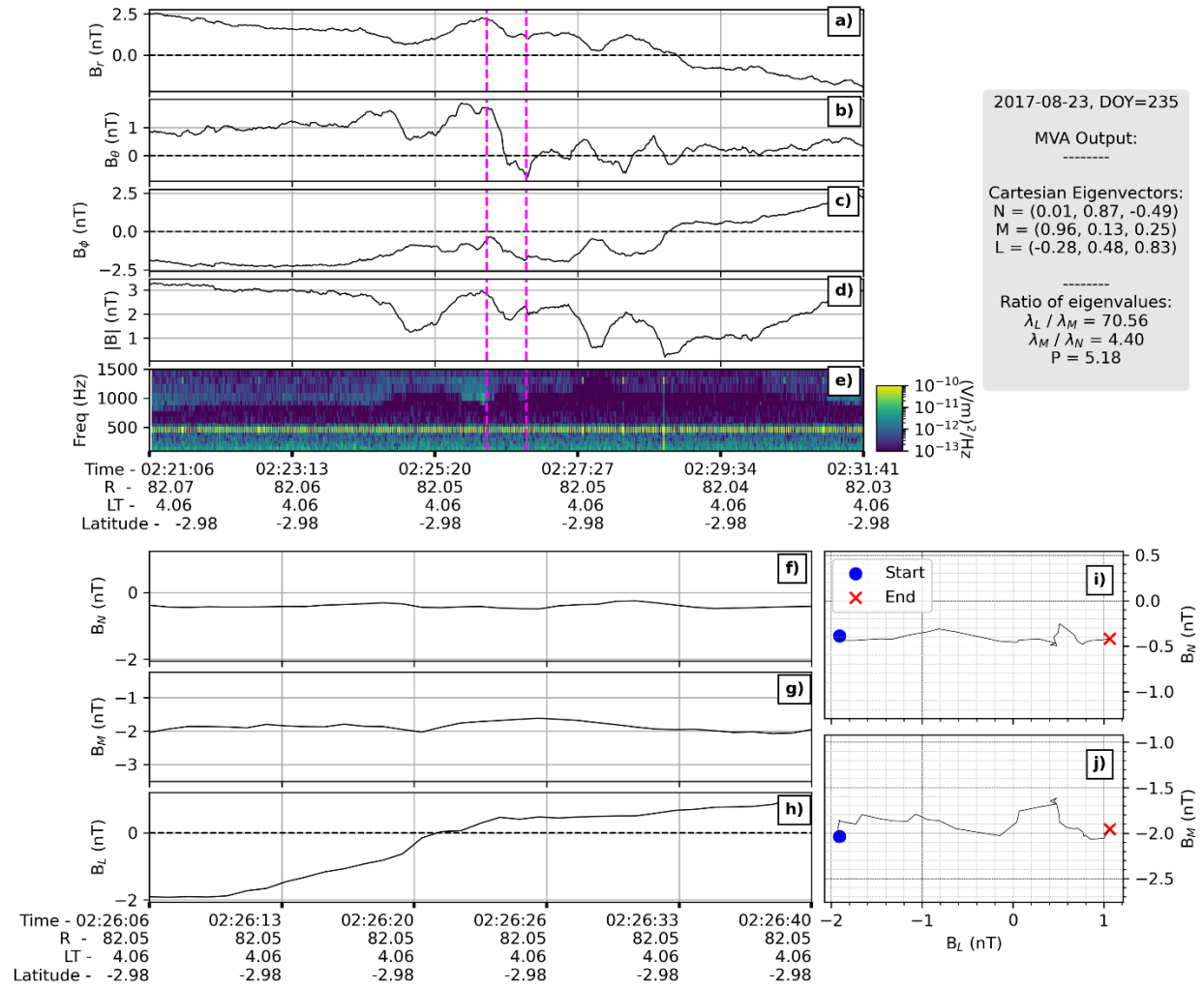


Figure S20

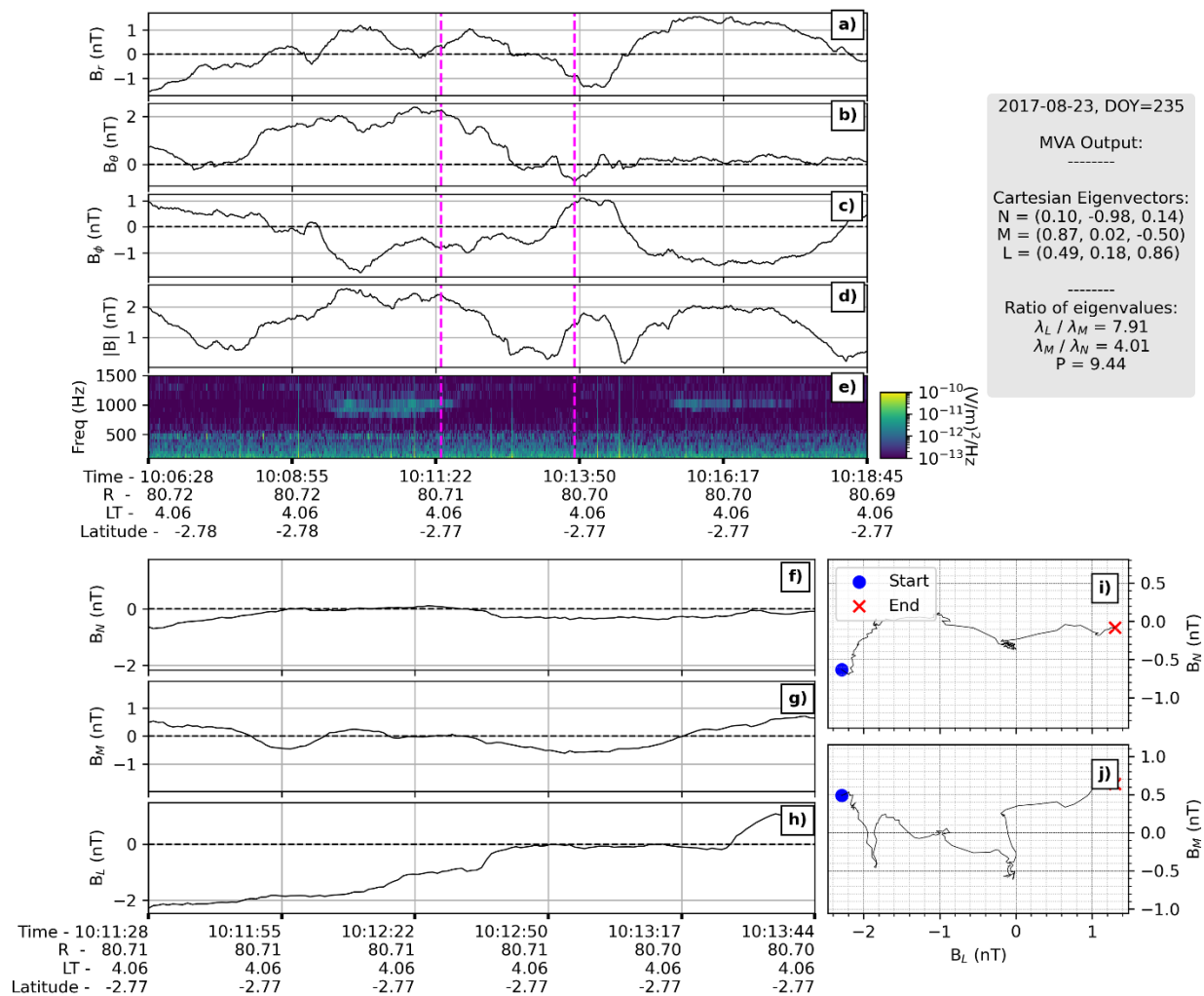


Figure S21

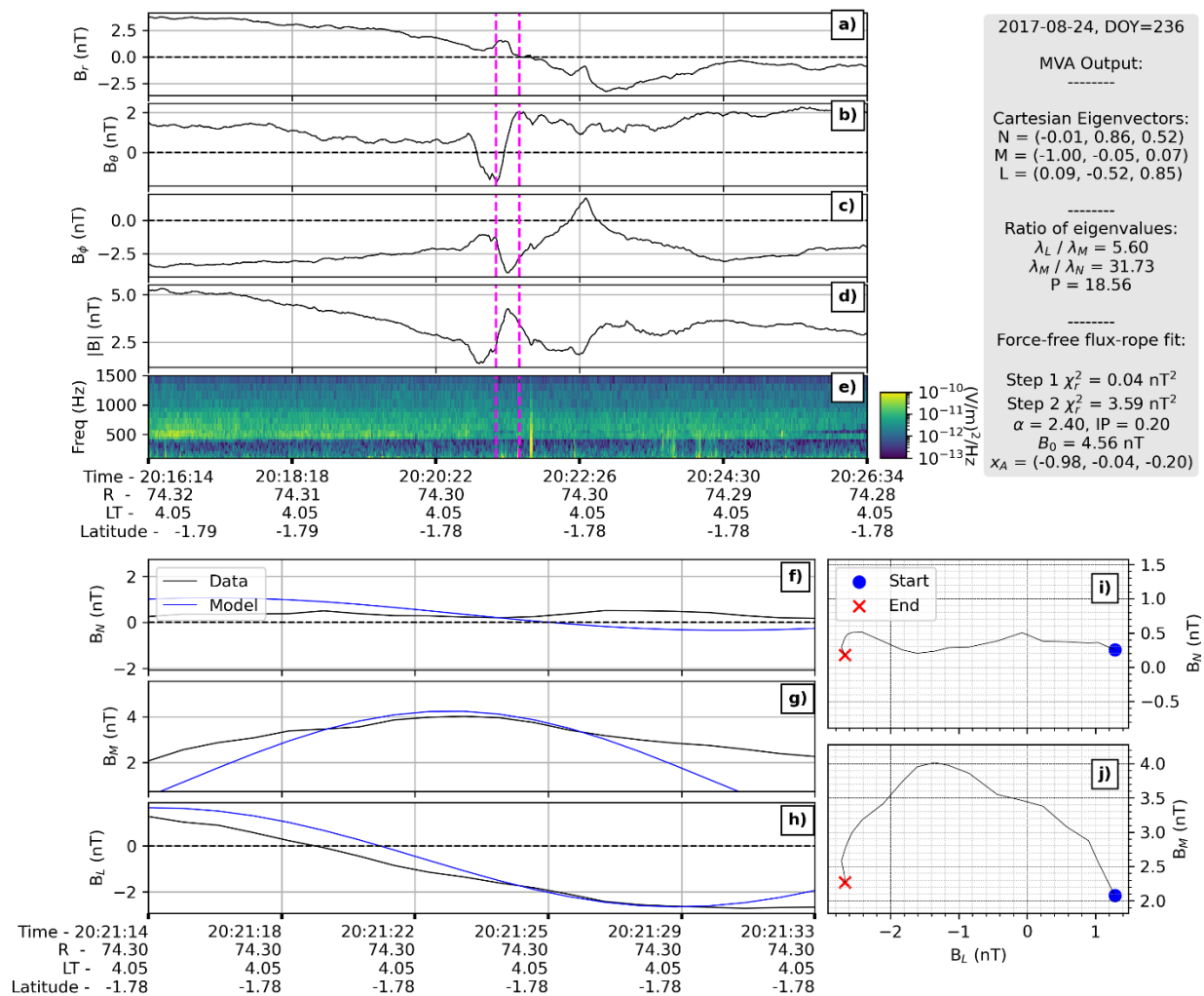


Figure S22

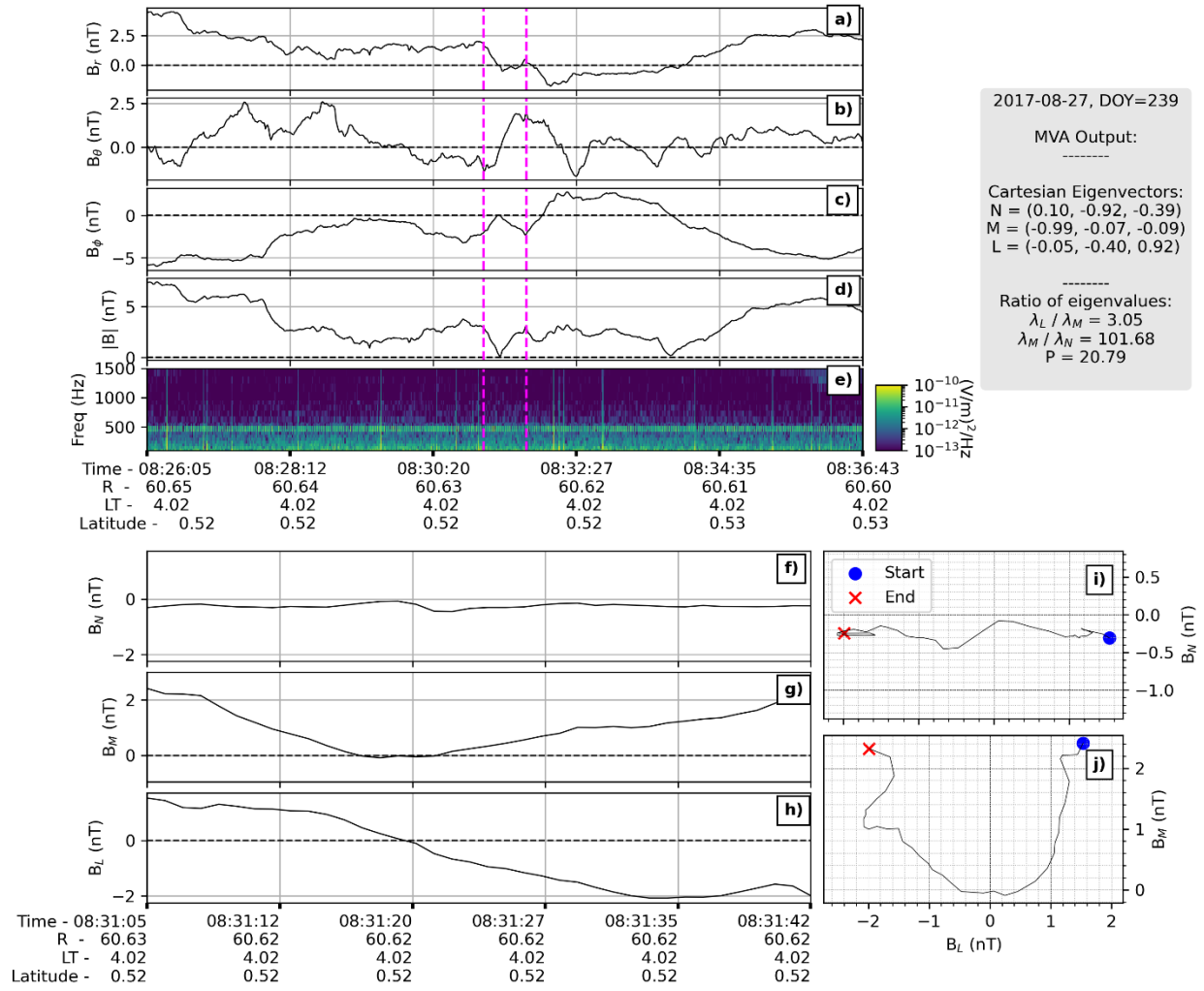


Figure S23

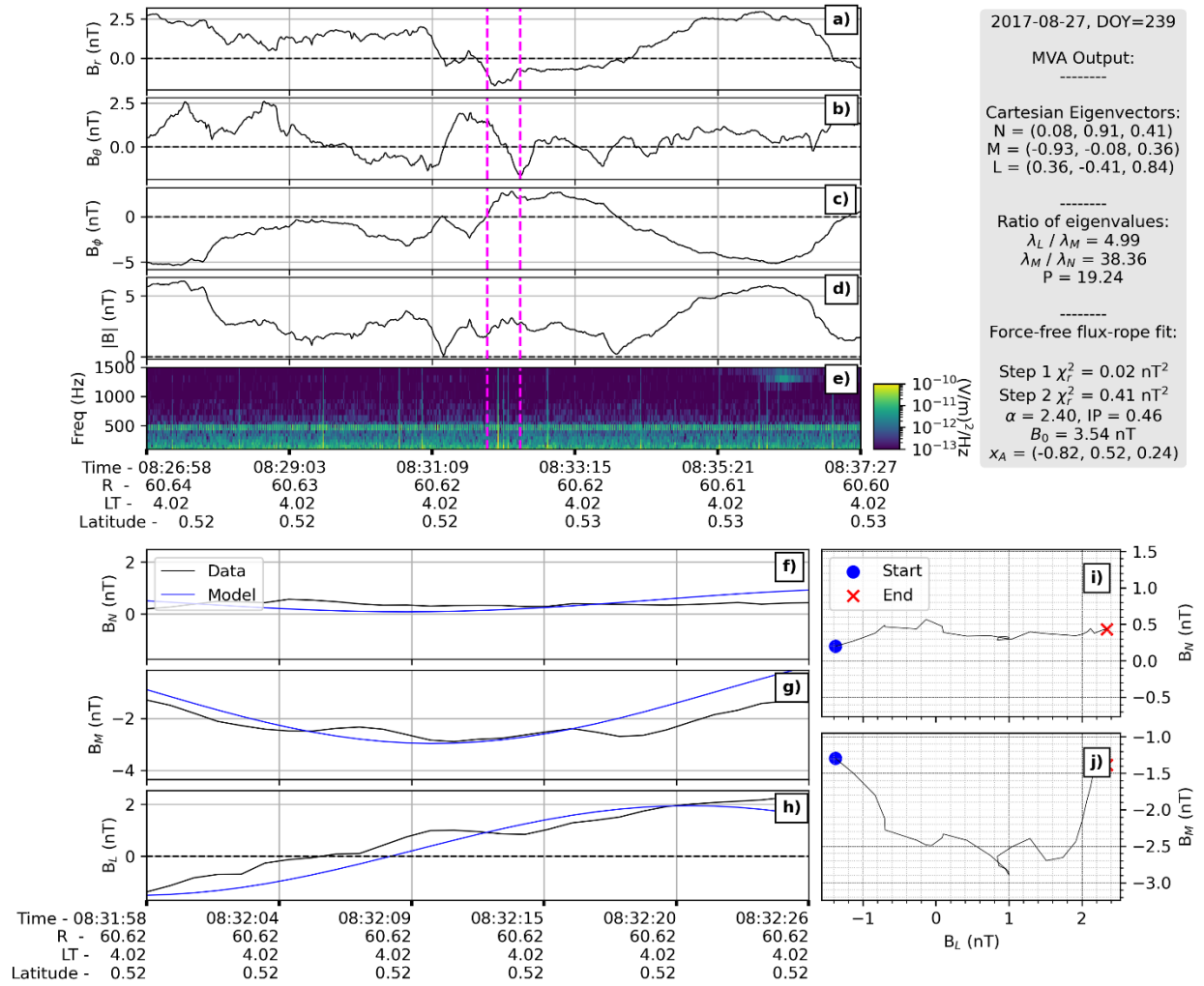


Figure S24

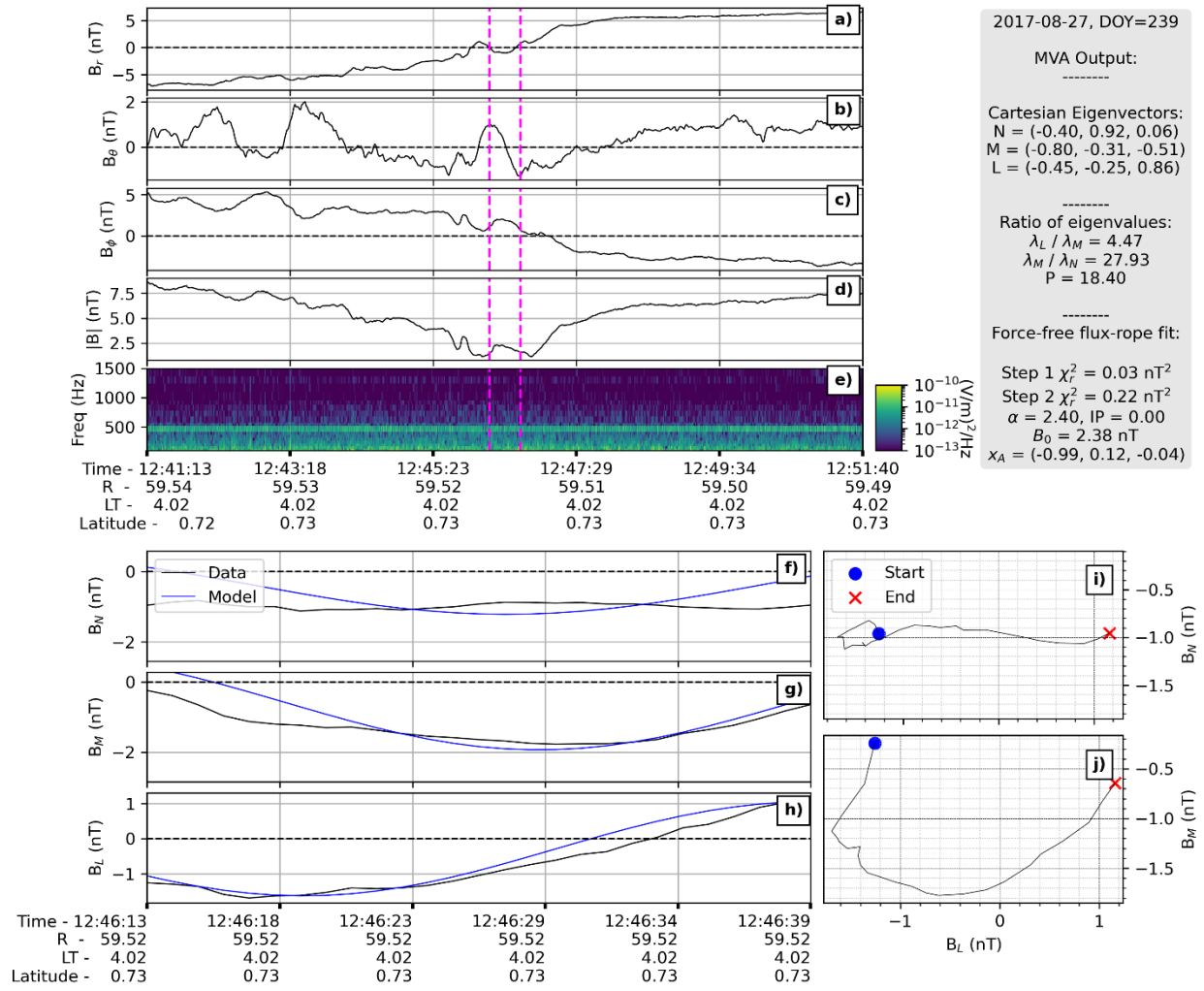


Figure S25

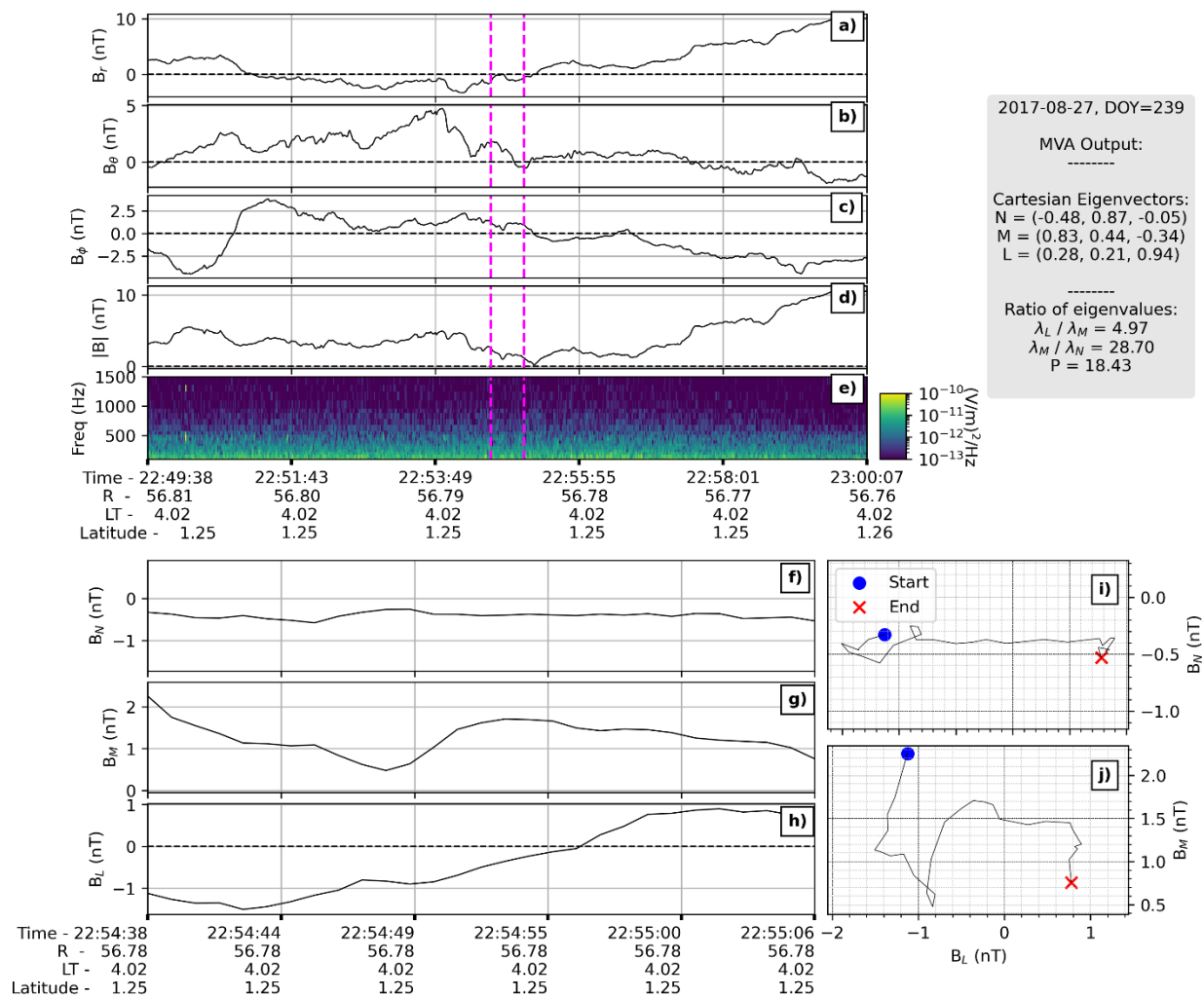


Figure S26

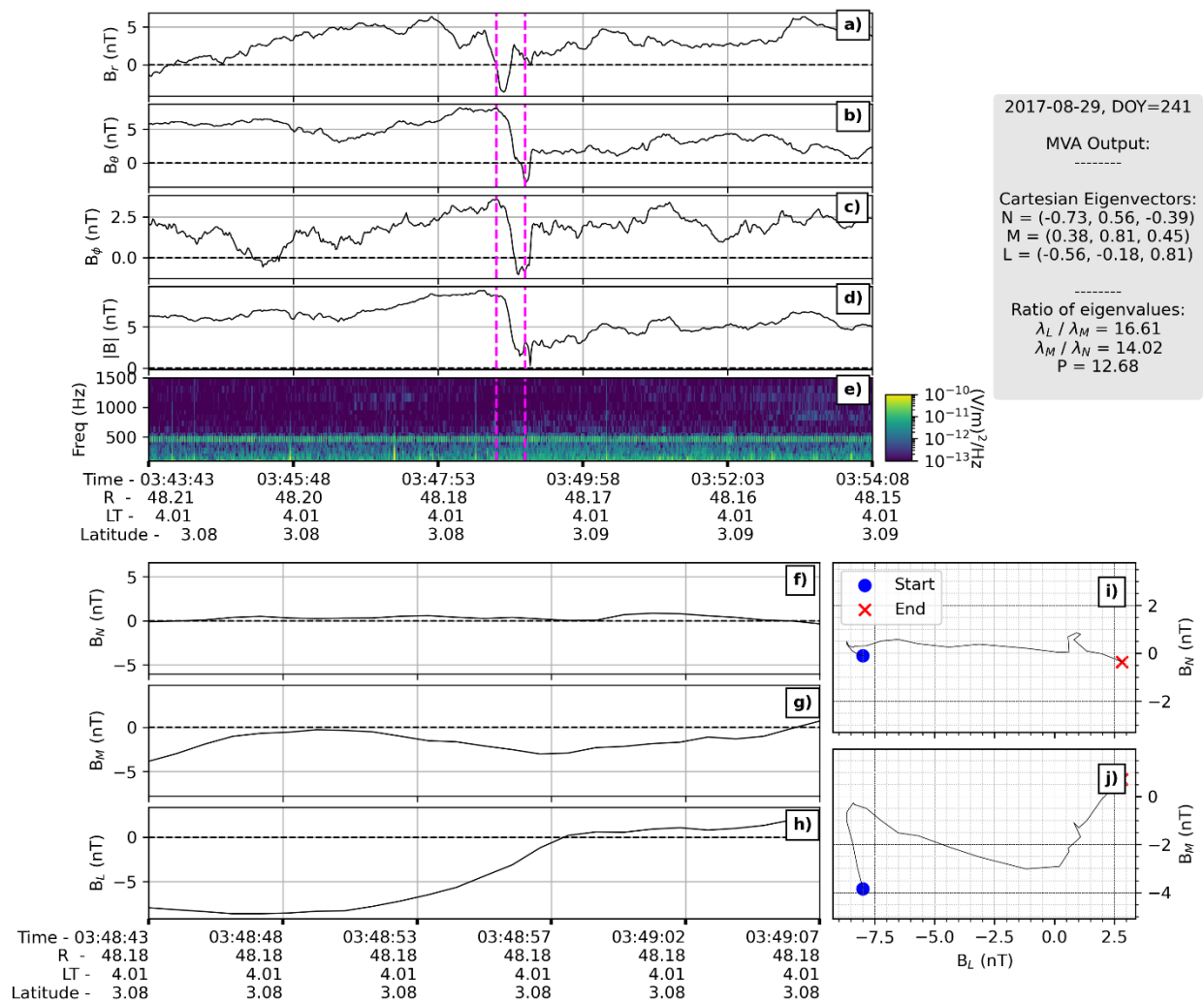


Figure S27

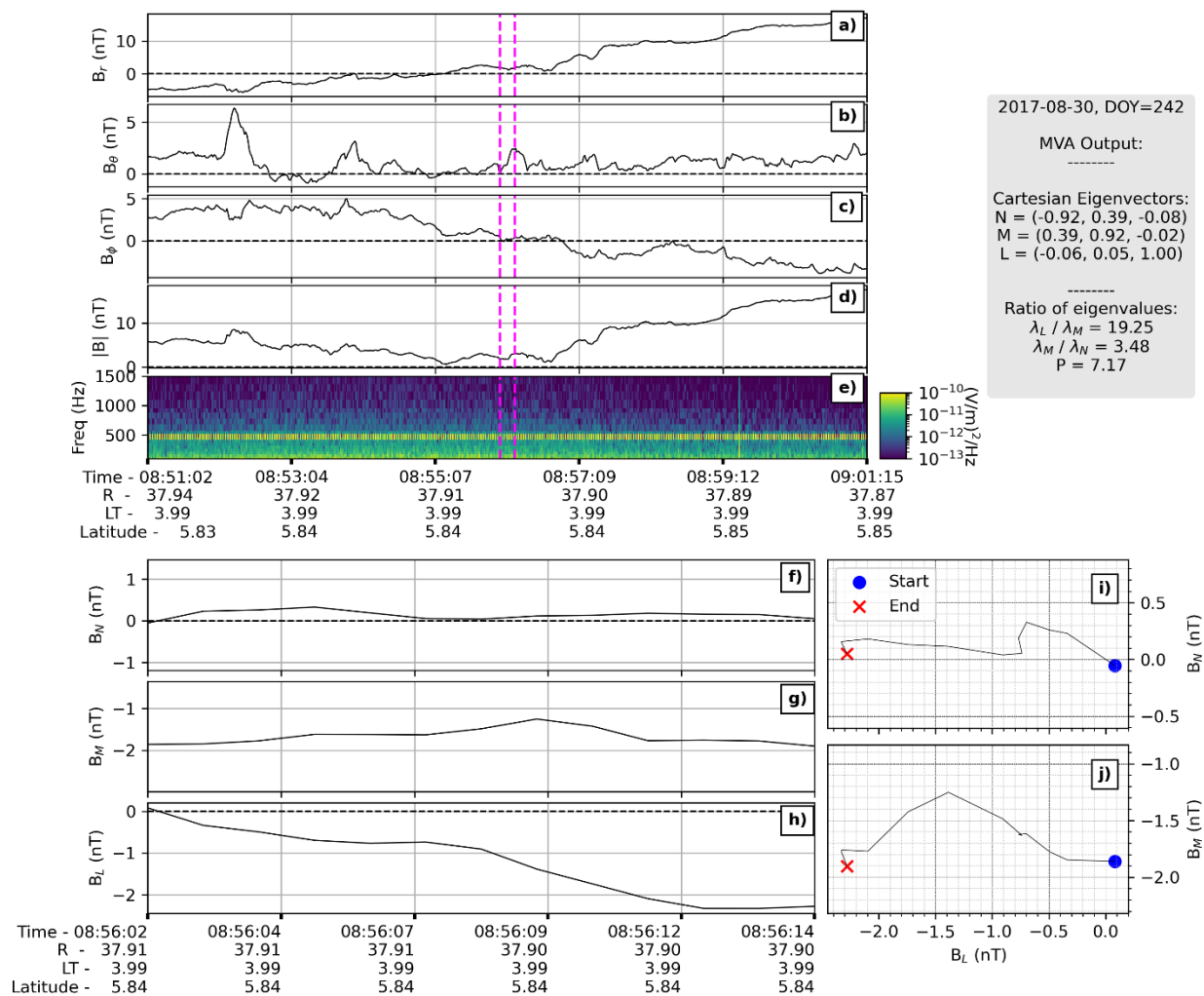


Figure S28

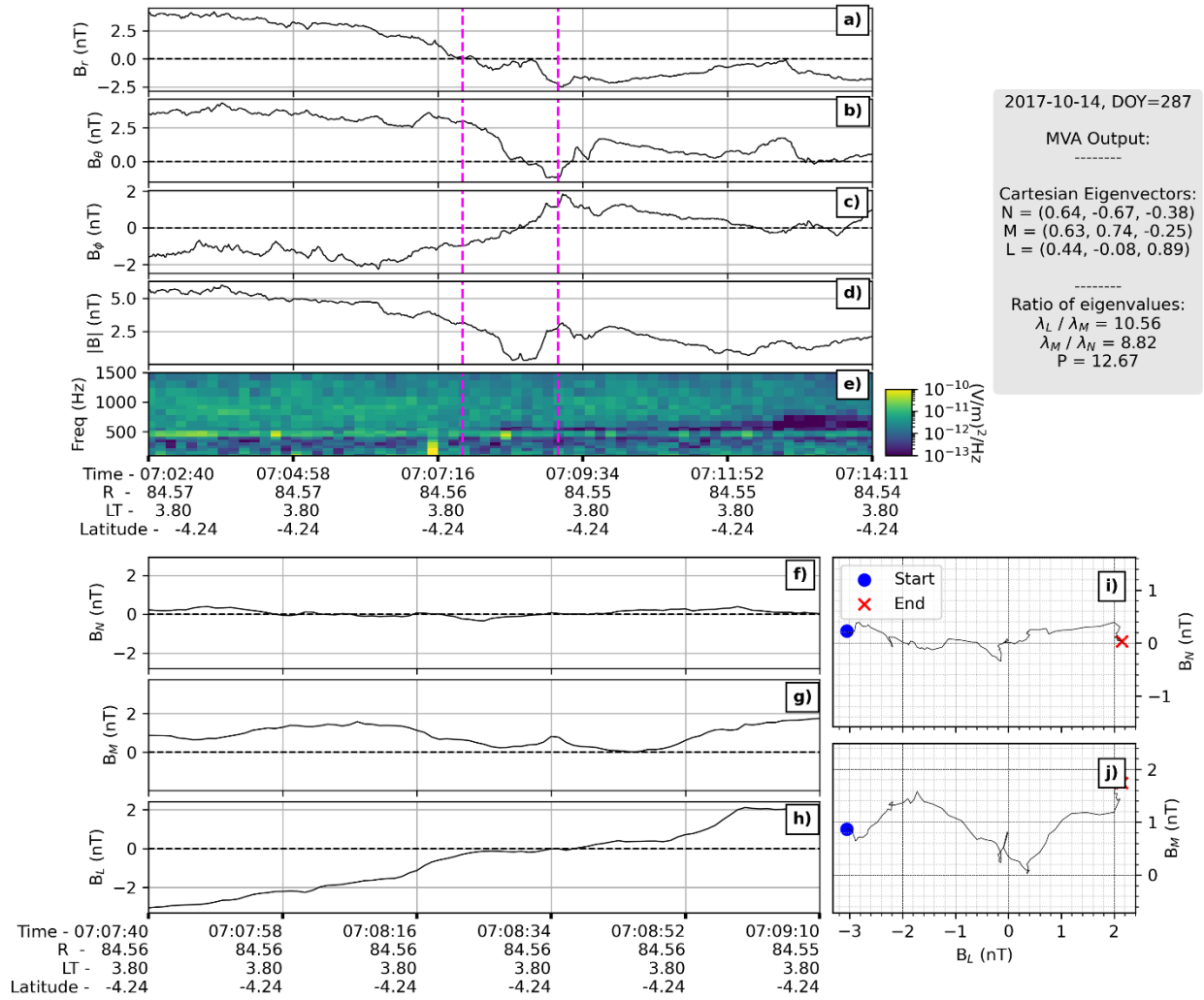


Figure S29

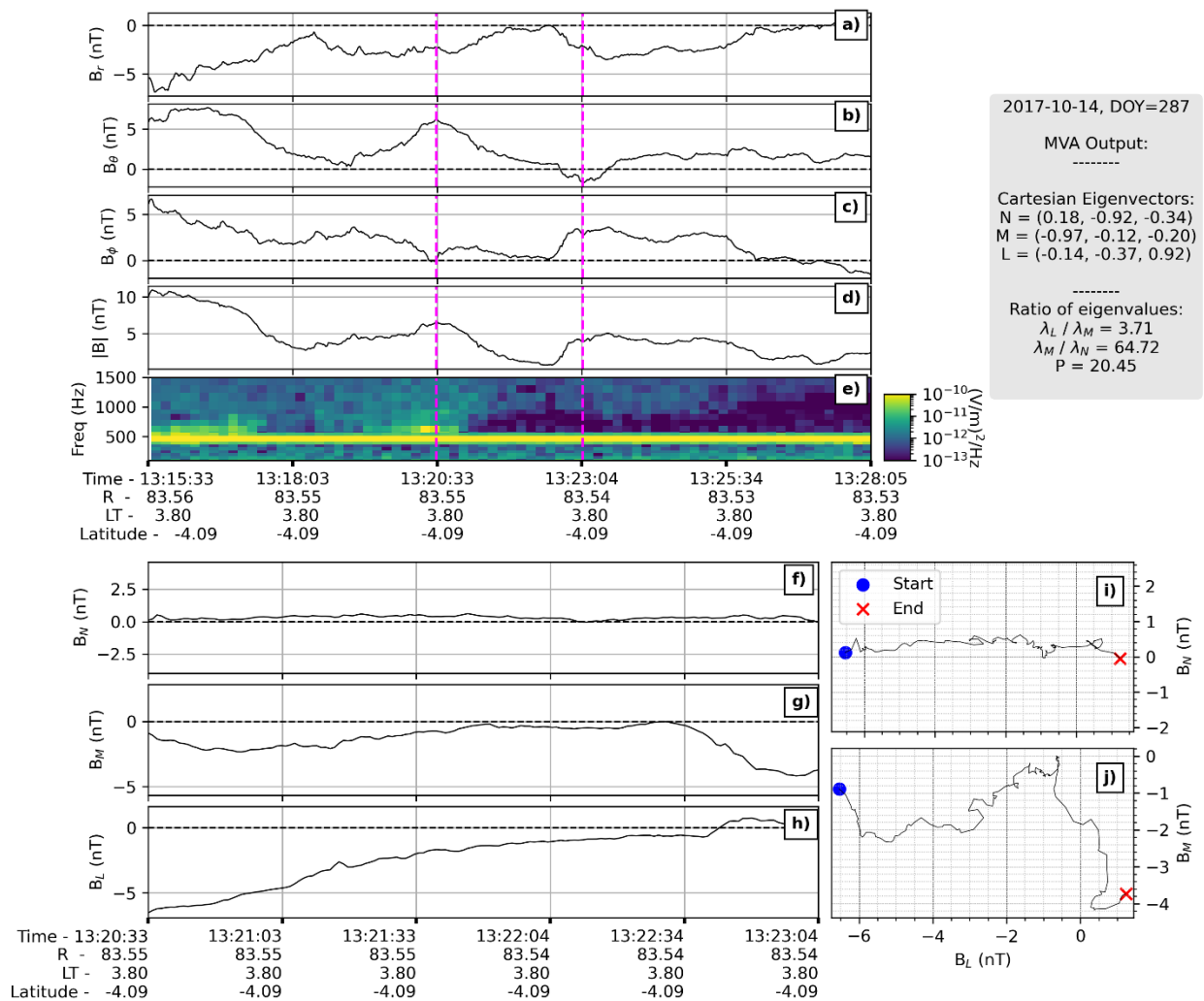


Figure S30

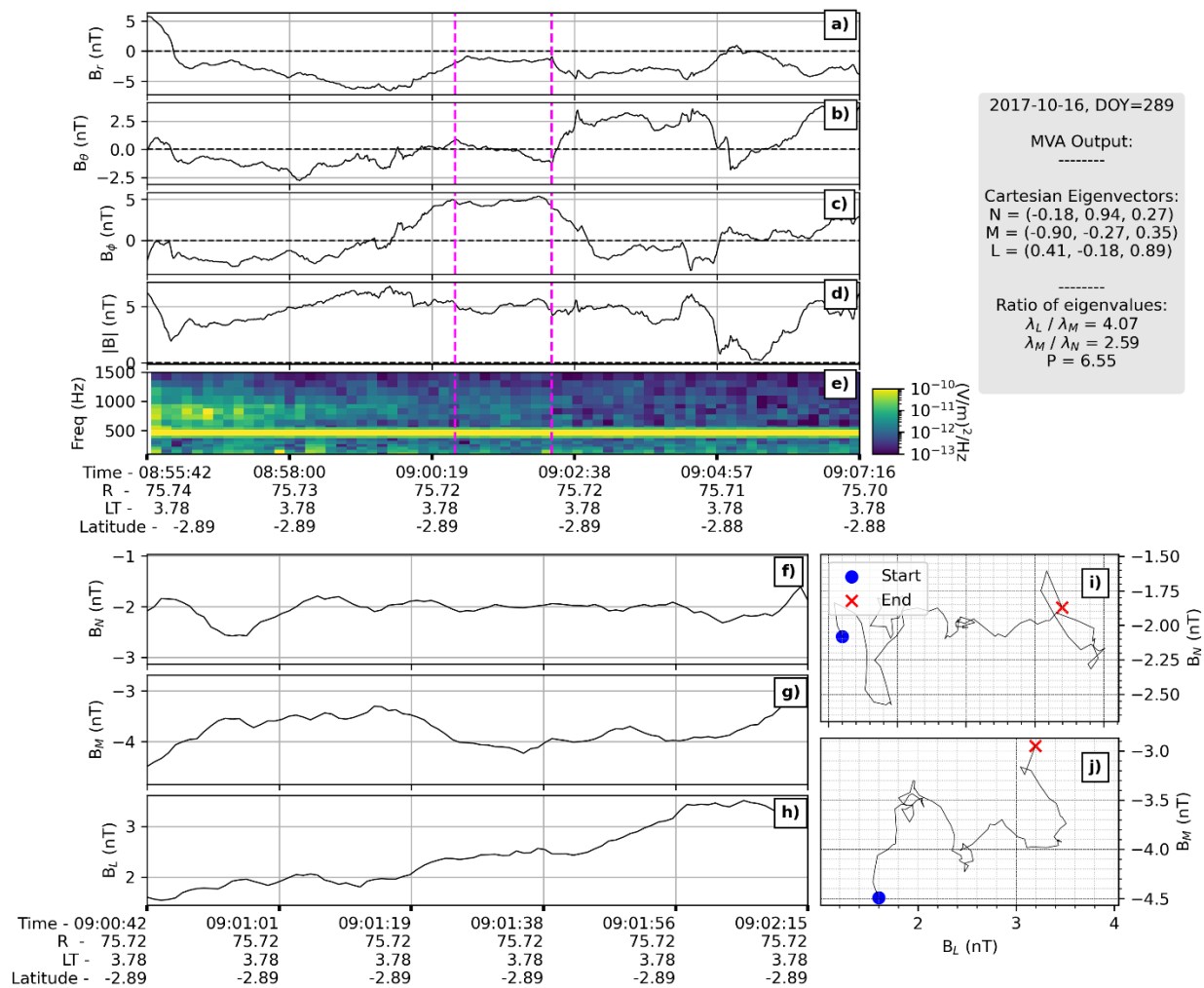


Figure S31

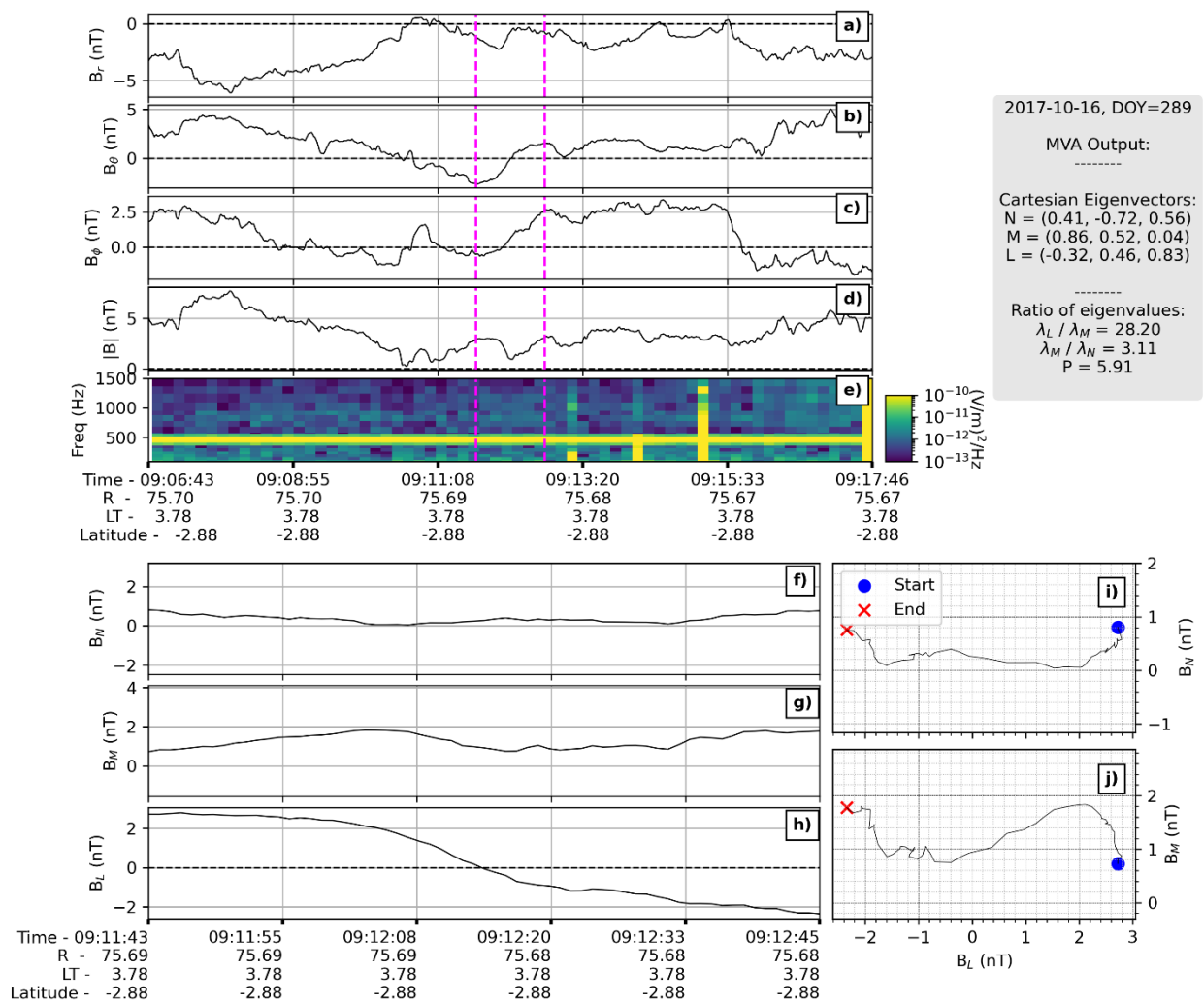


Figure S32

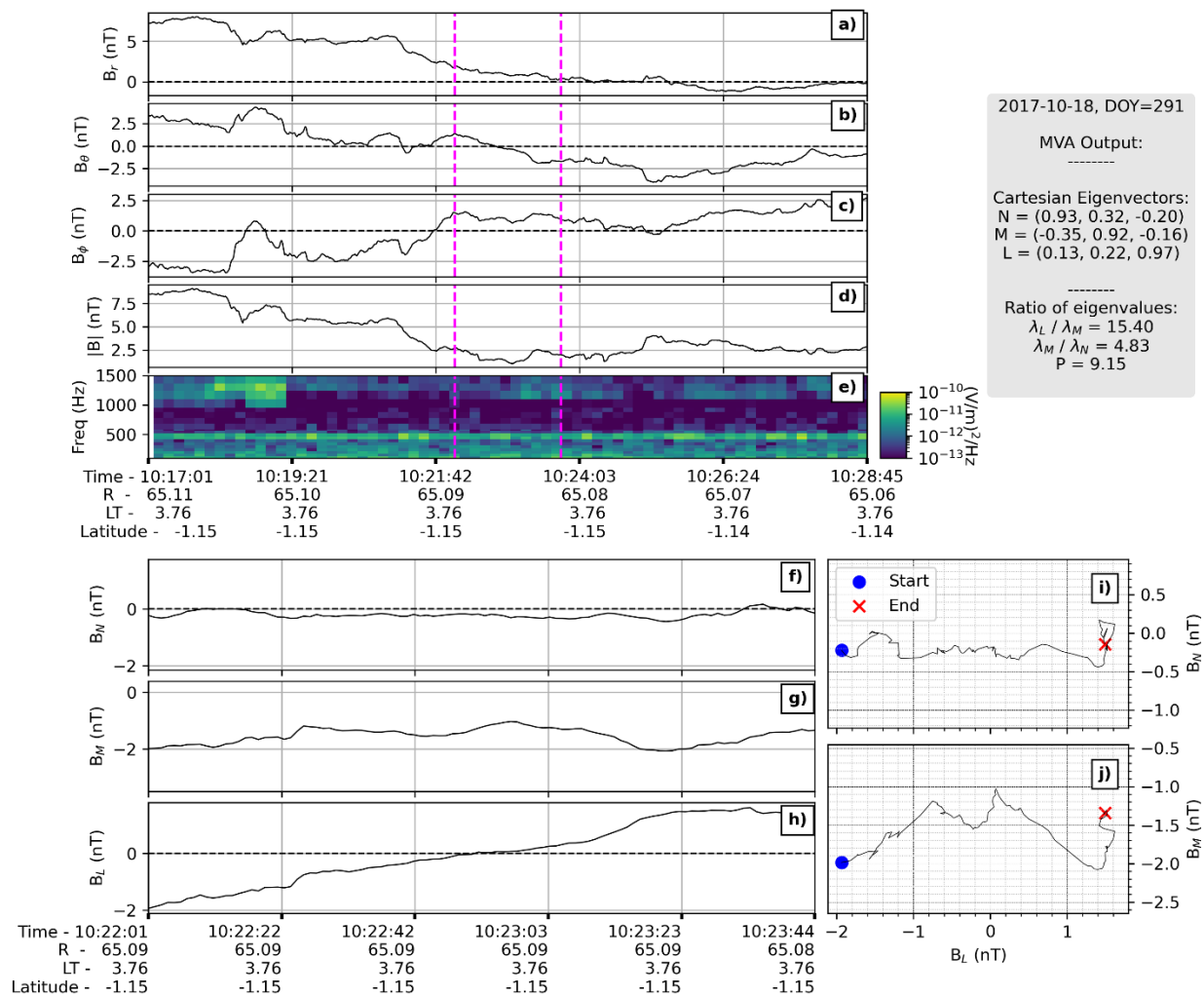


Figure S33

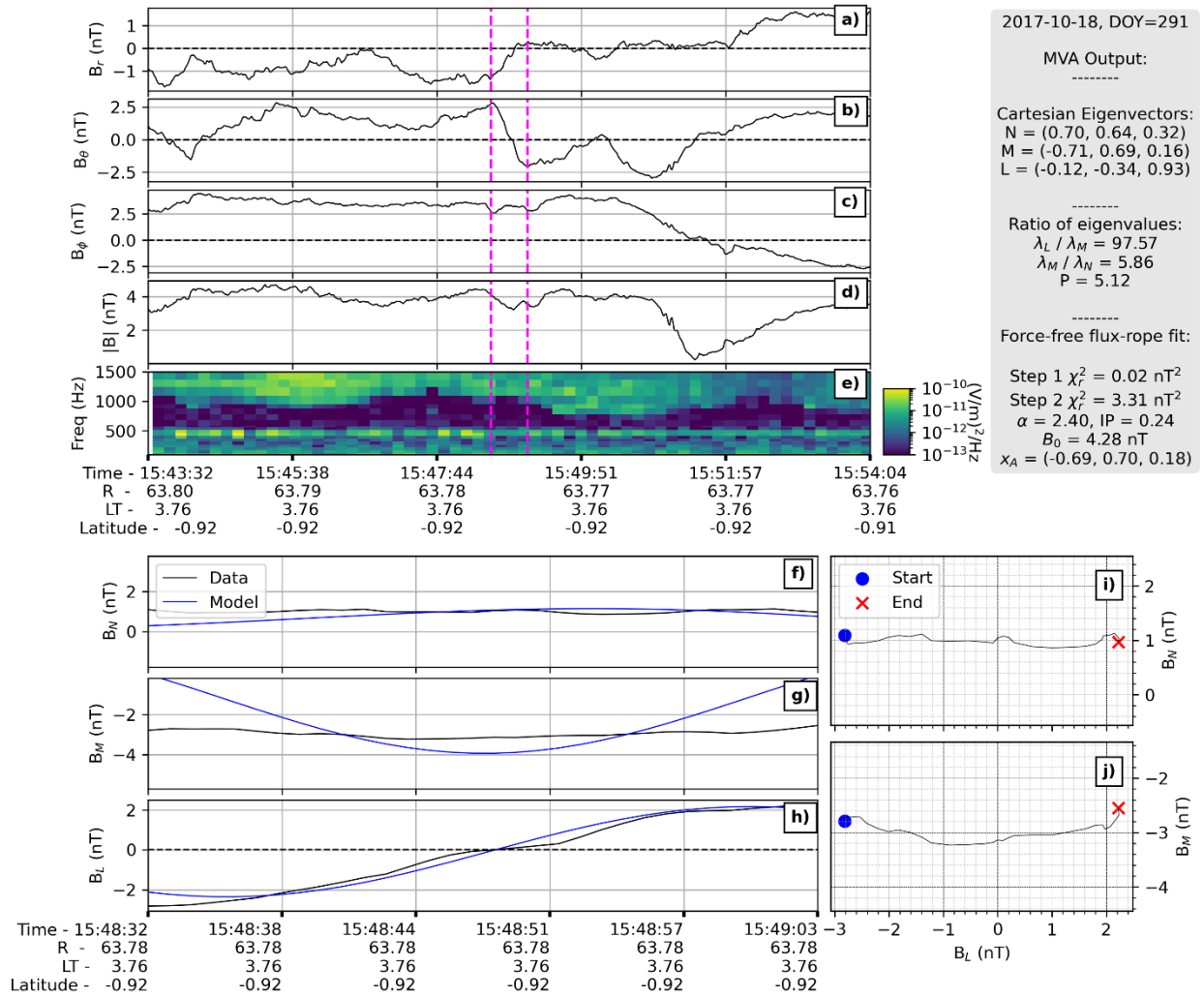


Figure S34

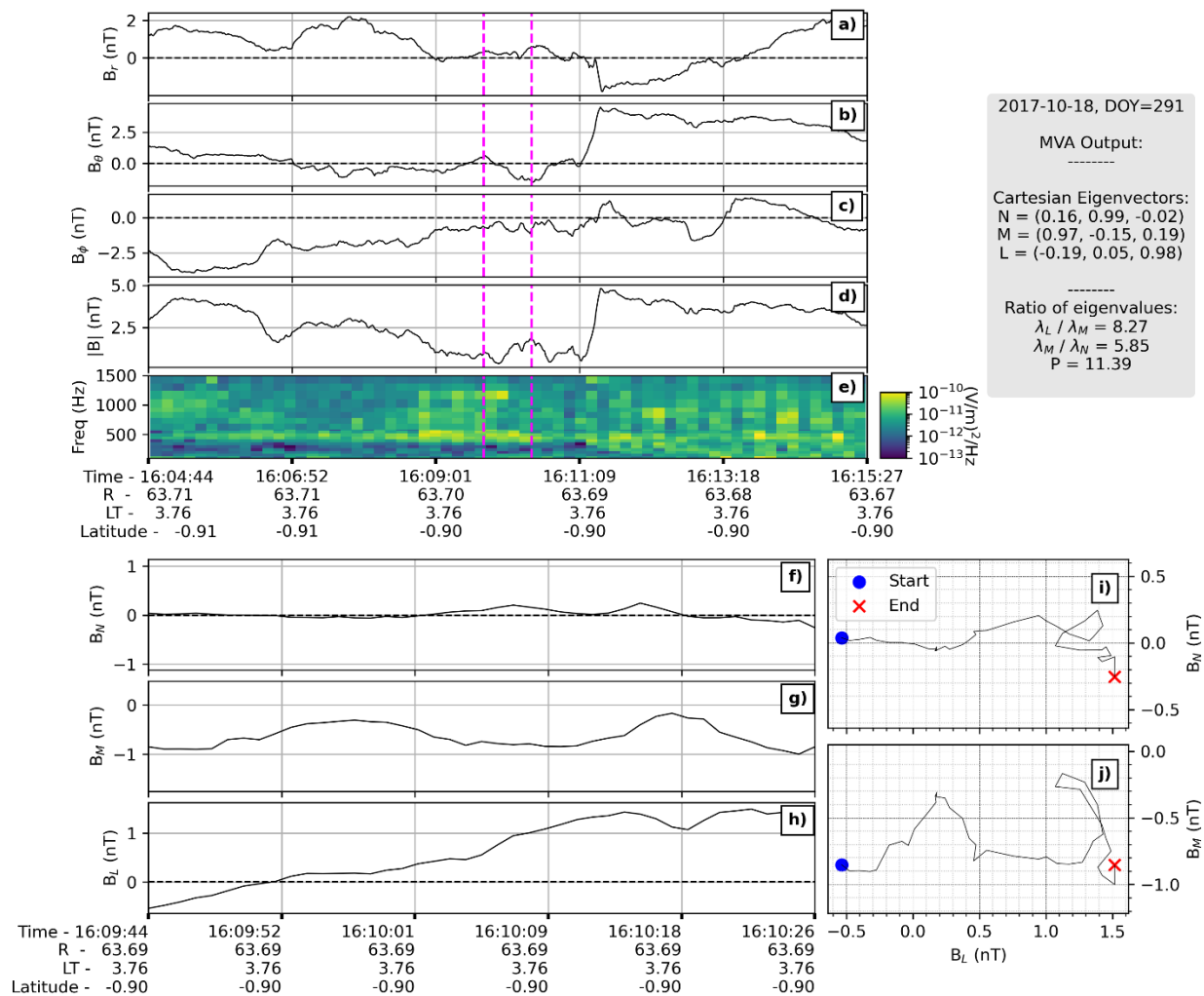


Figure S35

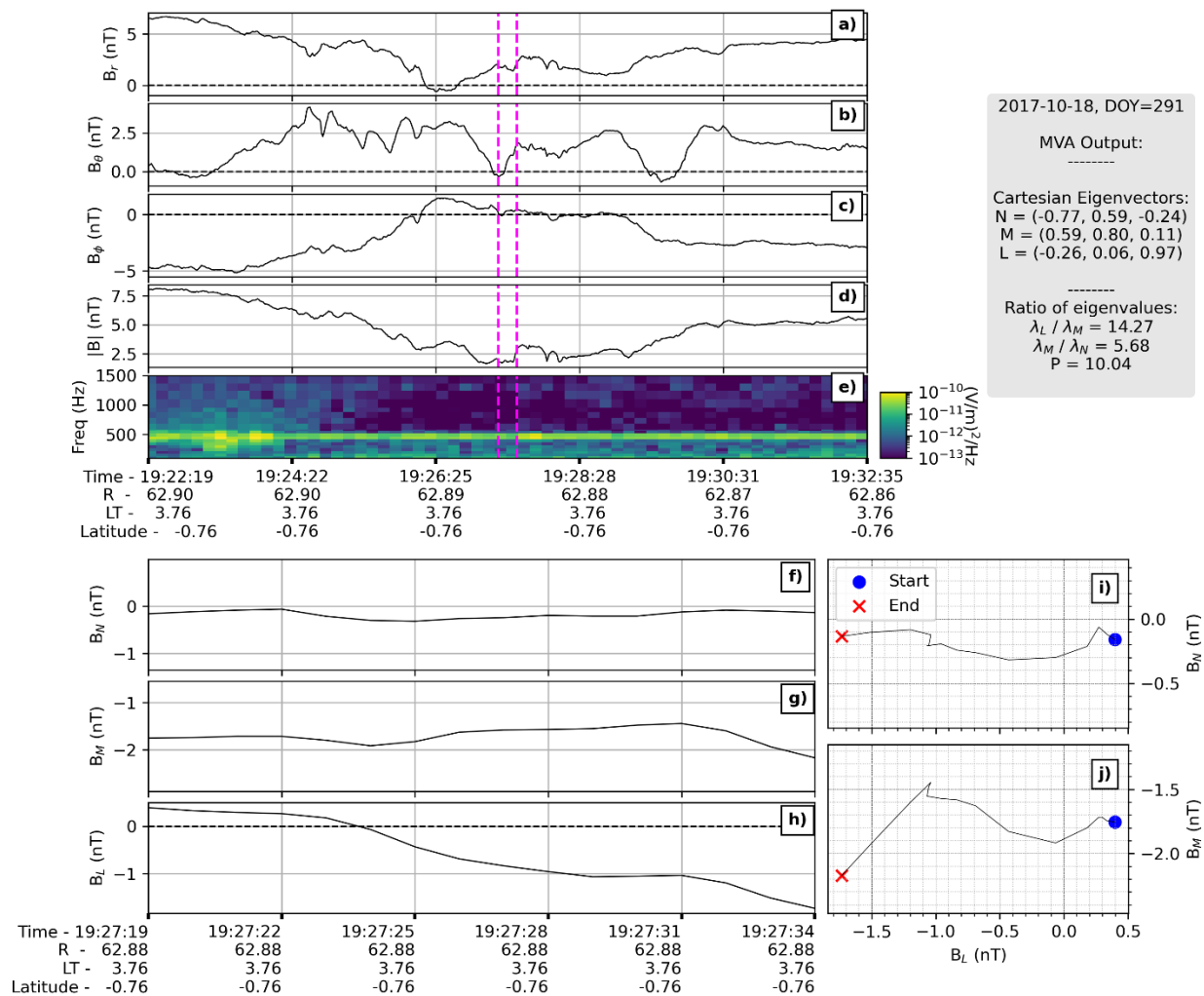


Figure S36

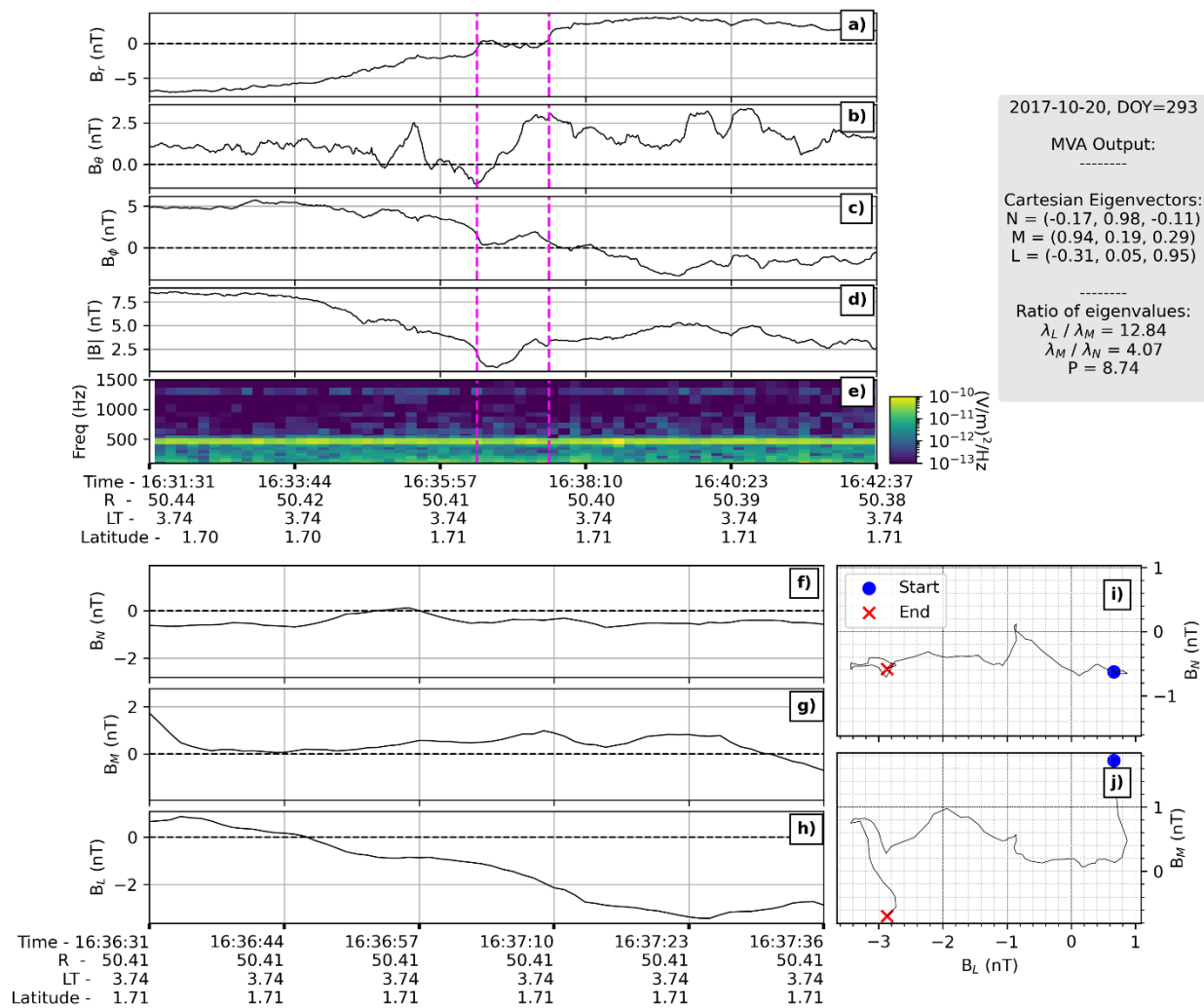


Figure S37

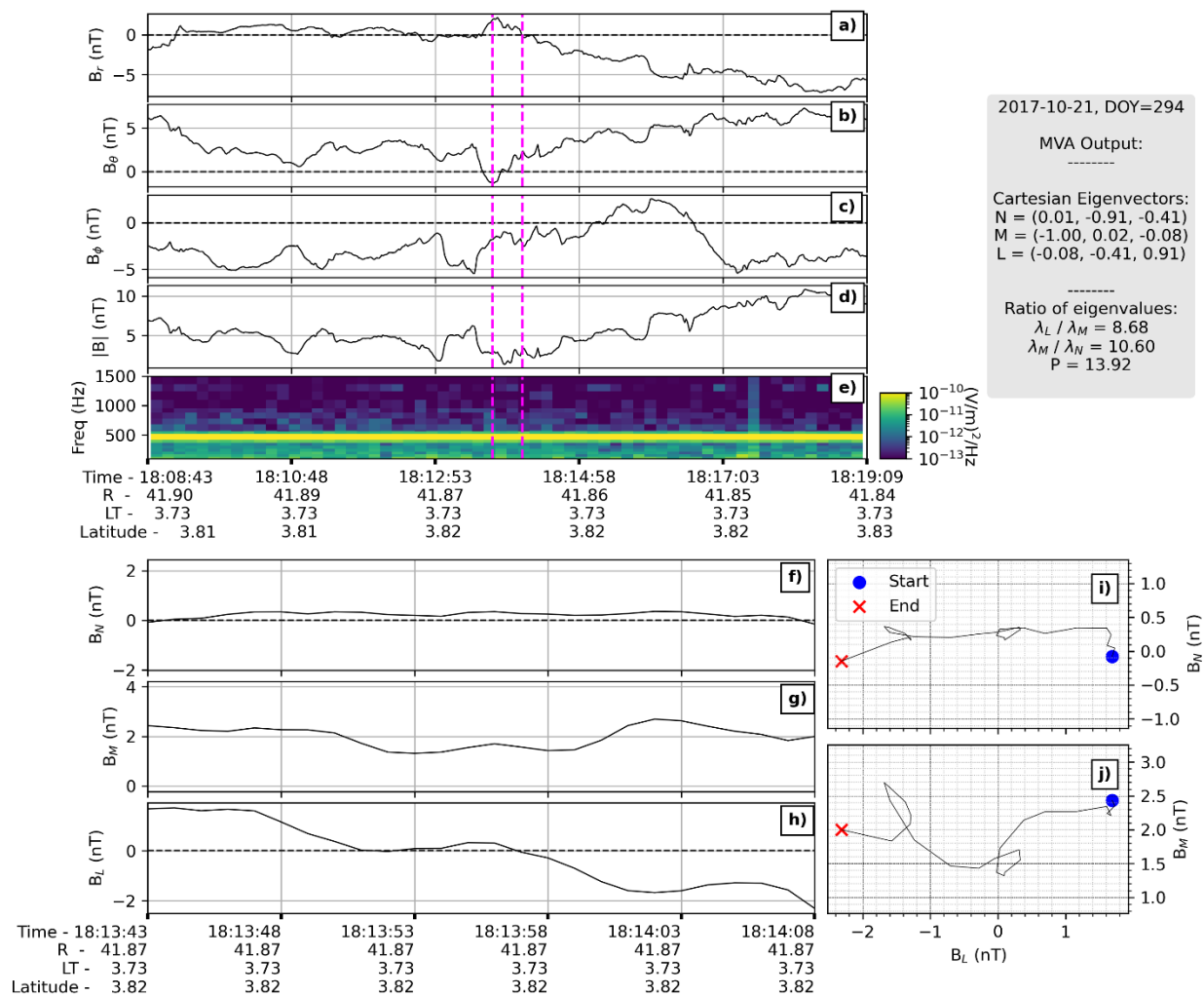


Figure S38

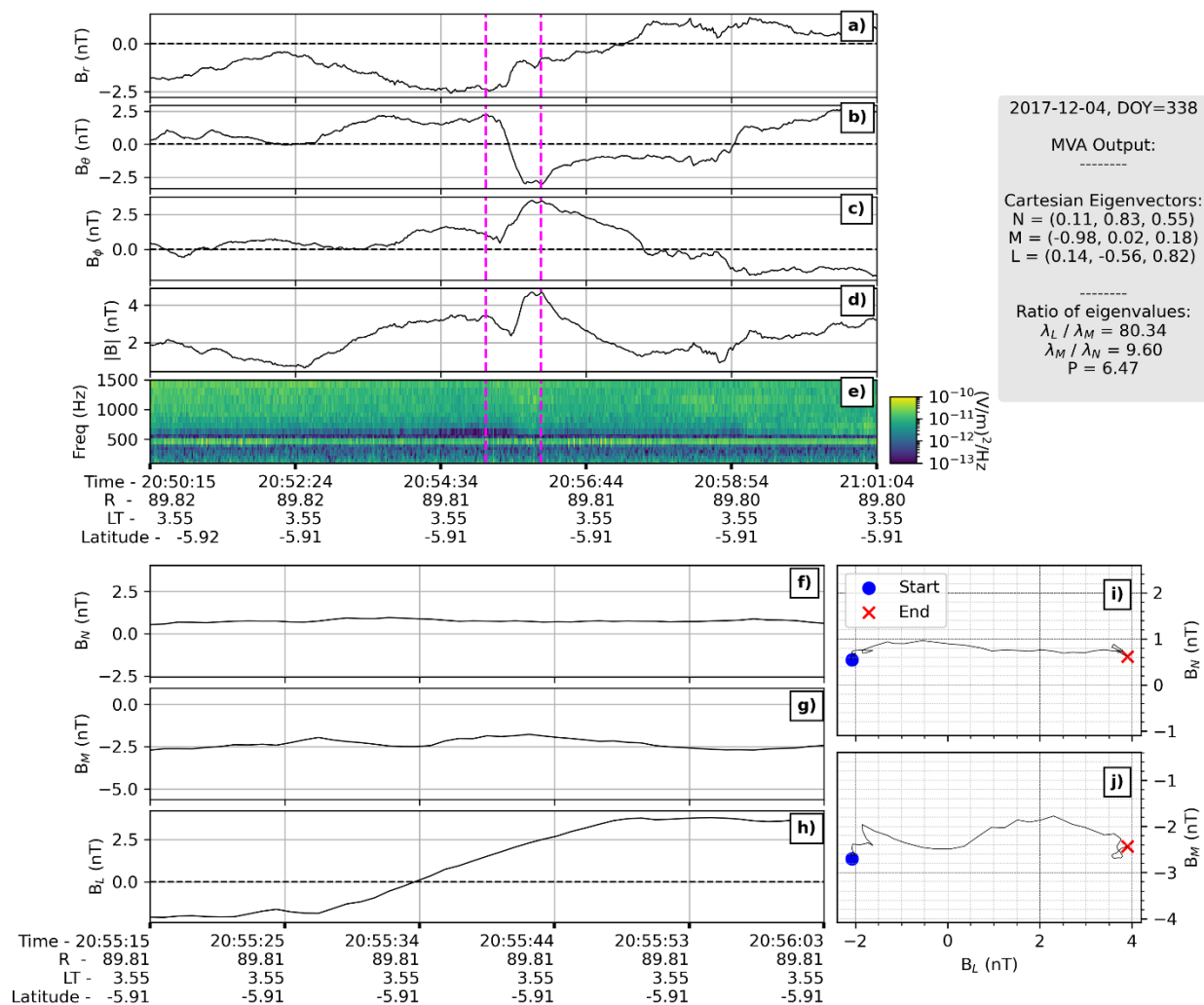


Figure S39

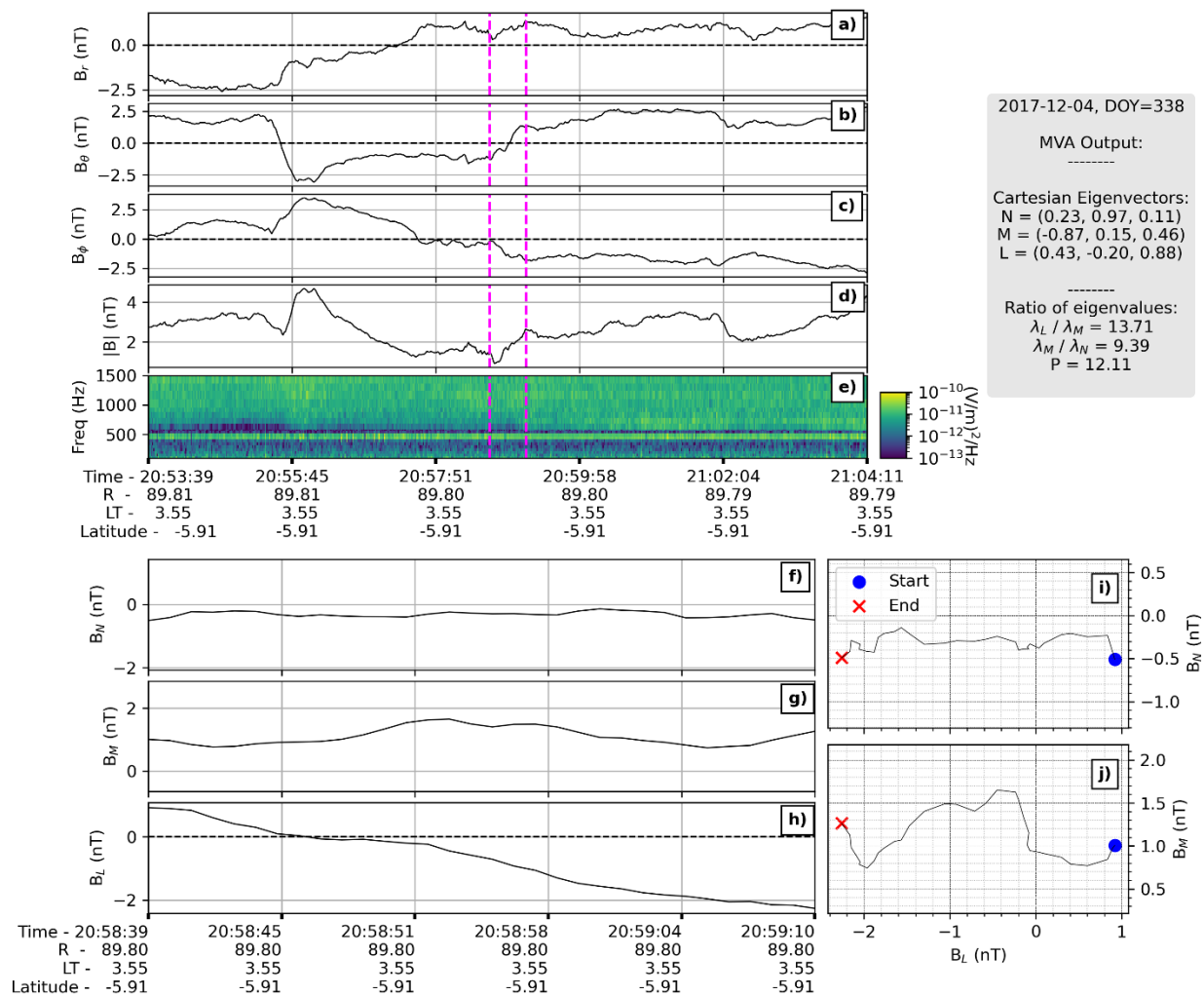


Figure S40

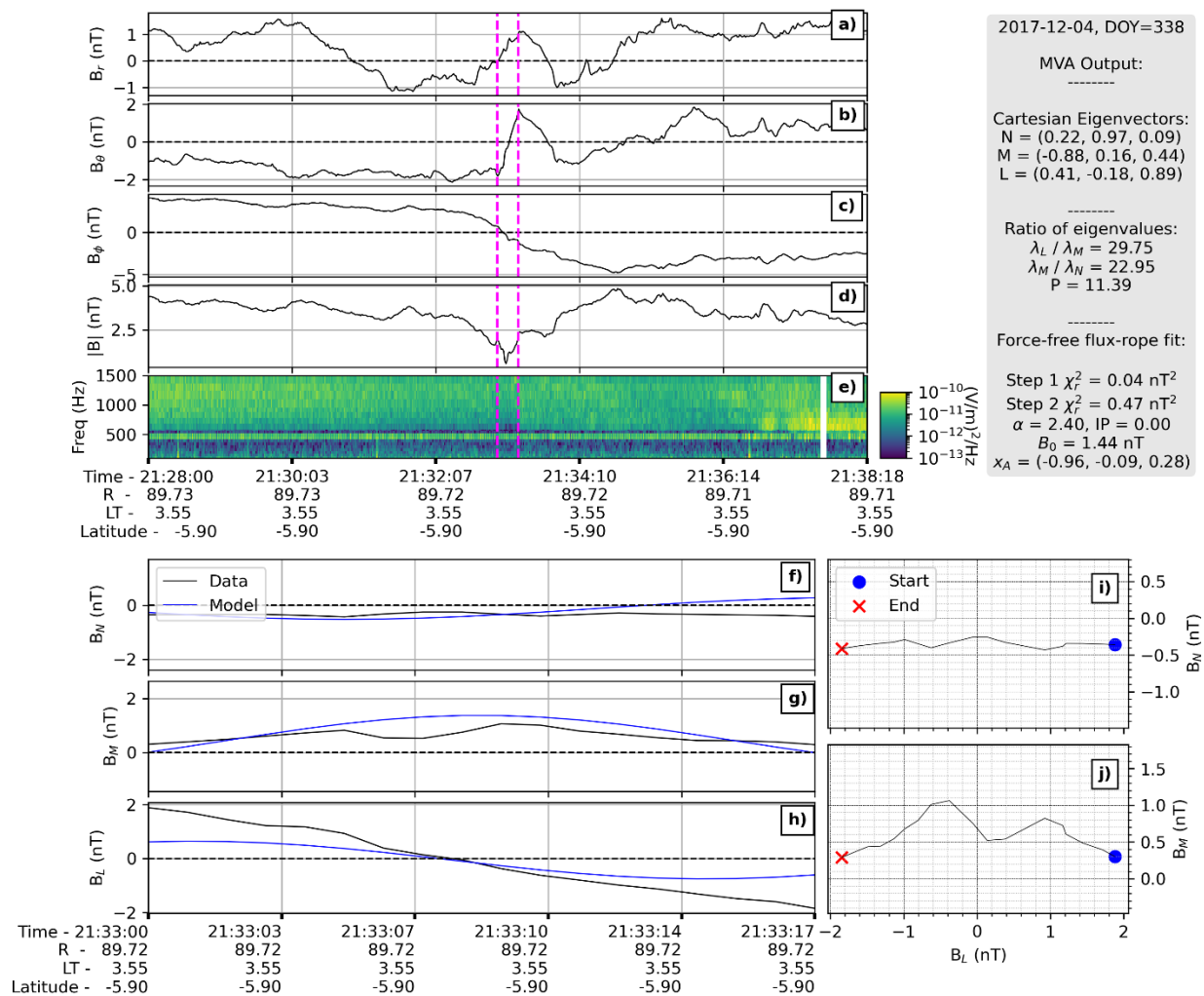


Figure S41

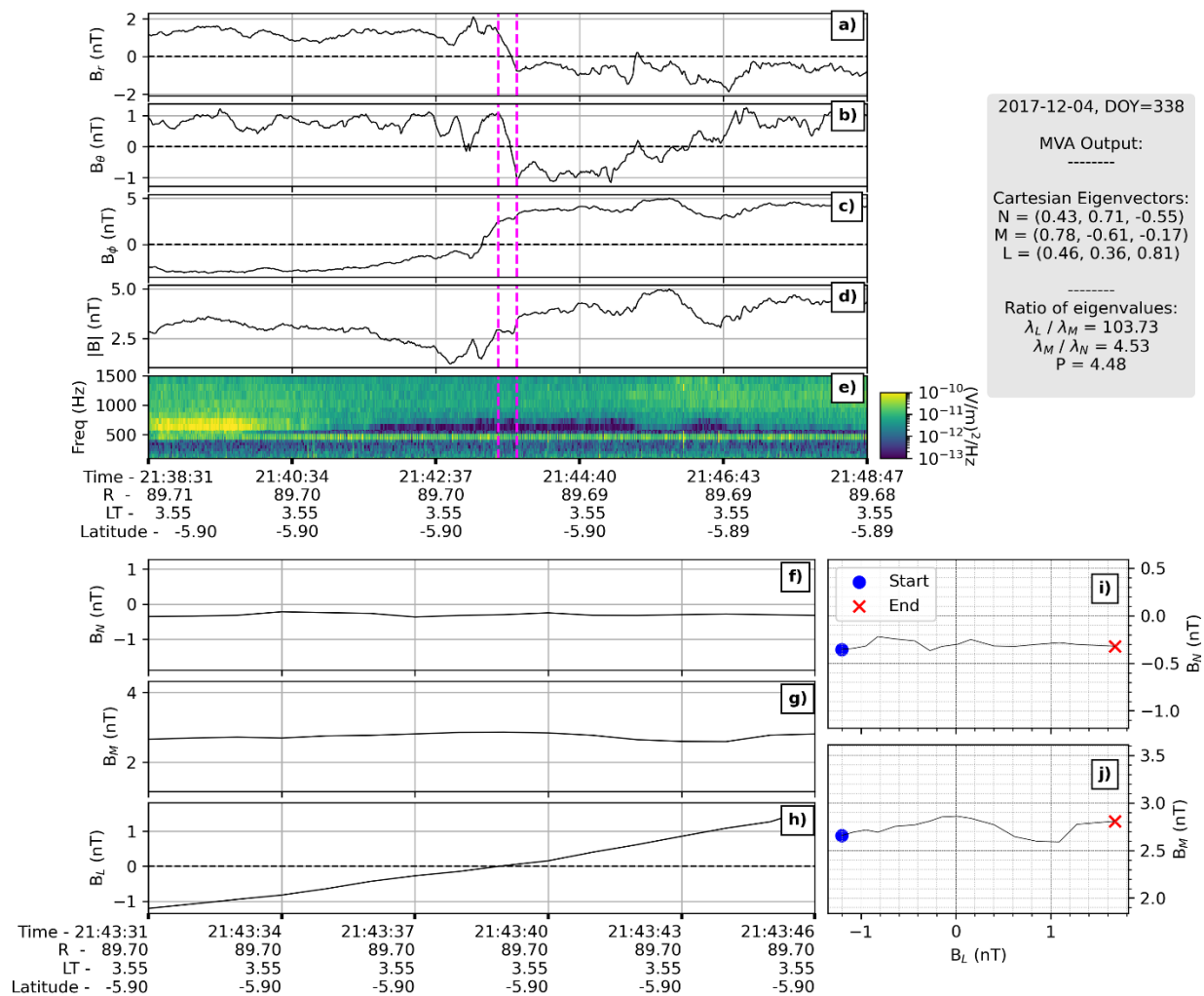


Figure S42

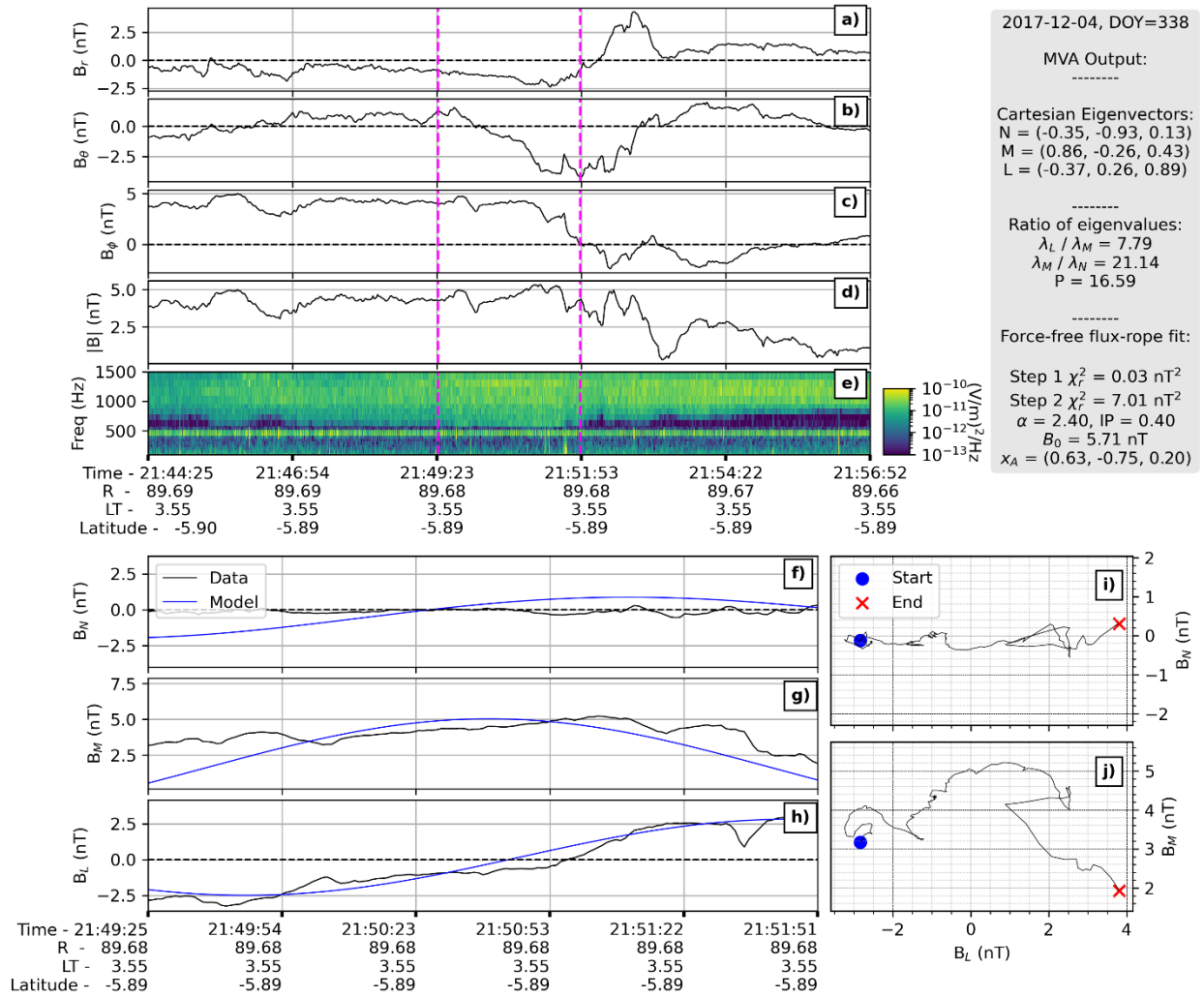


Figure S43

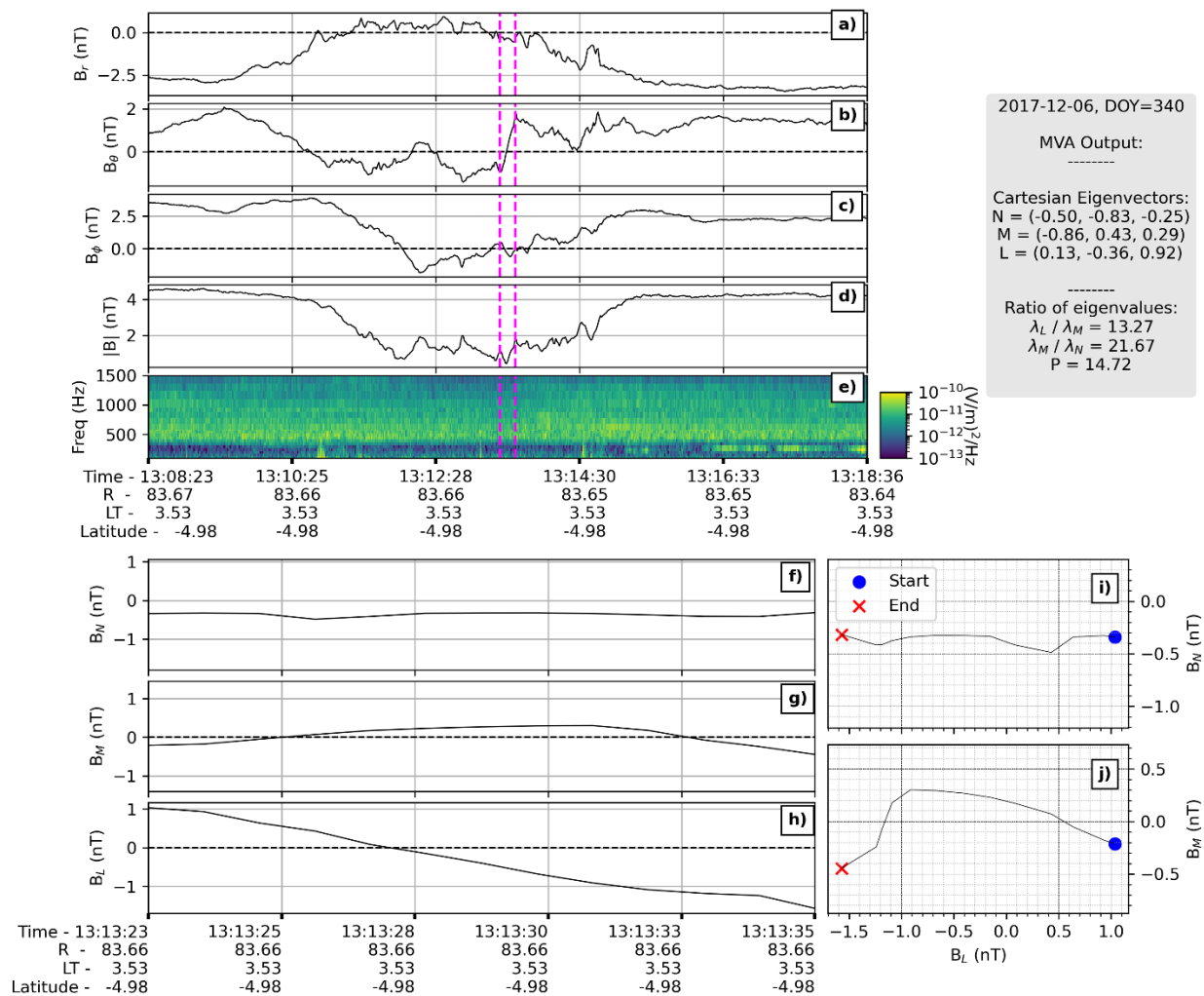


Figure S44

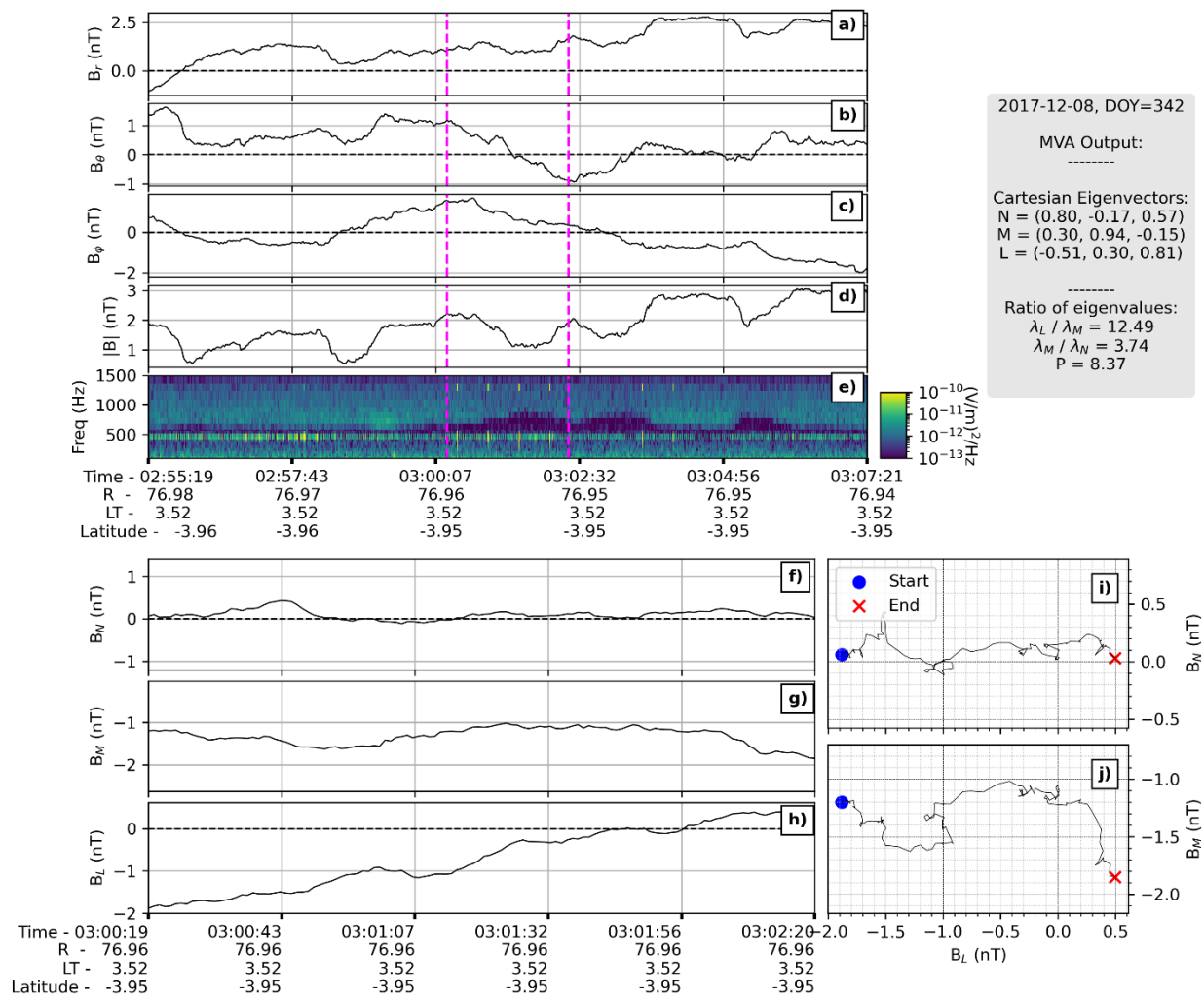


Figure S45

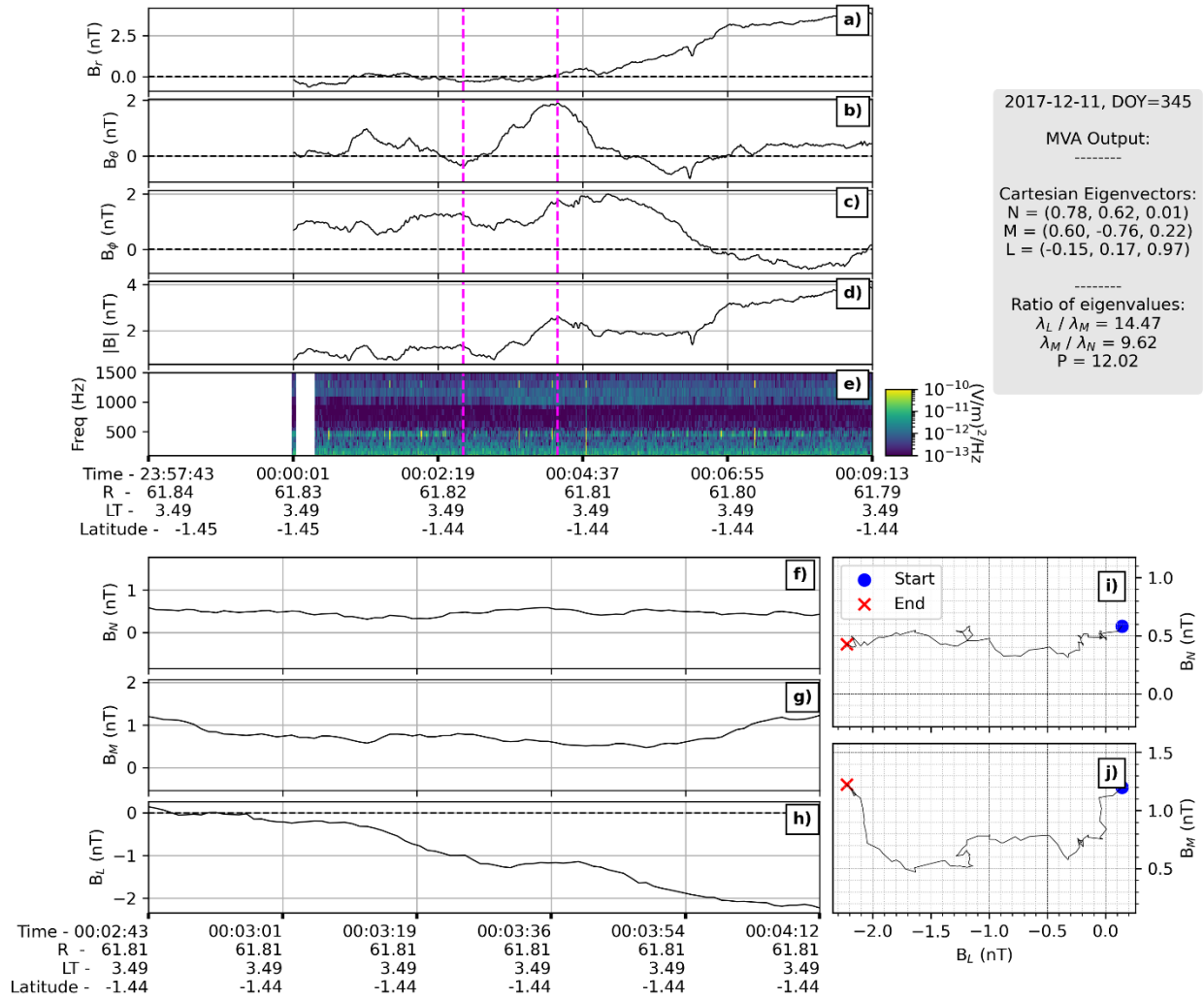


Figure S46

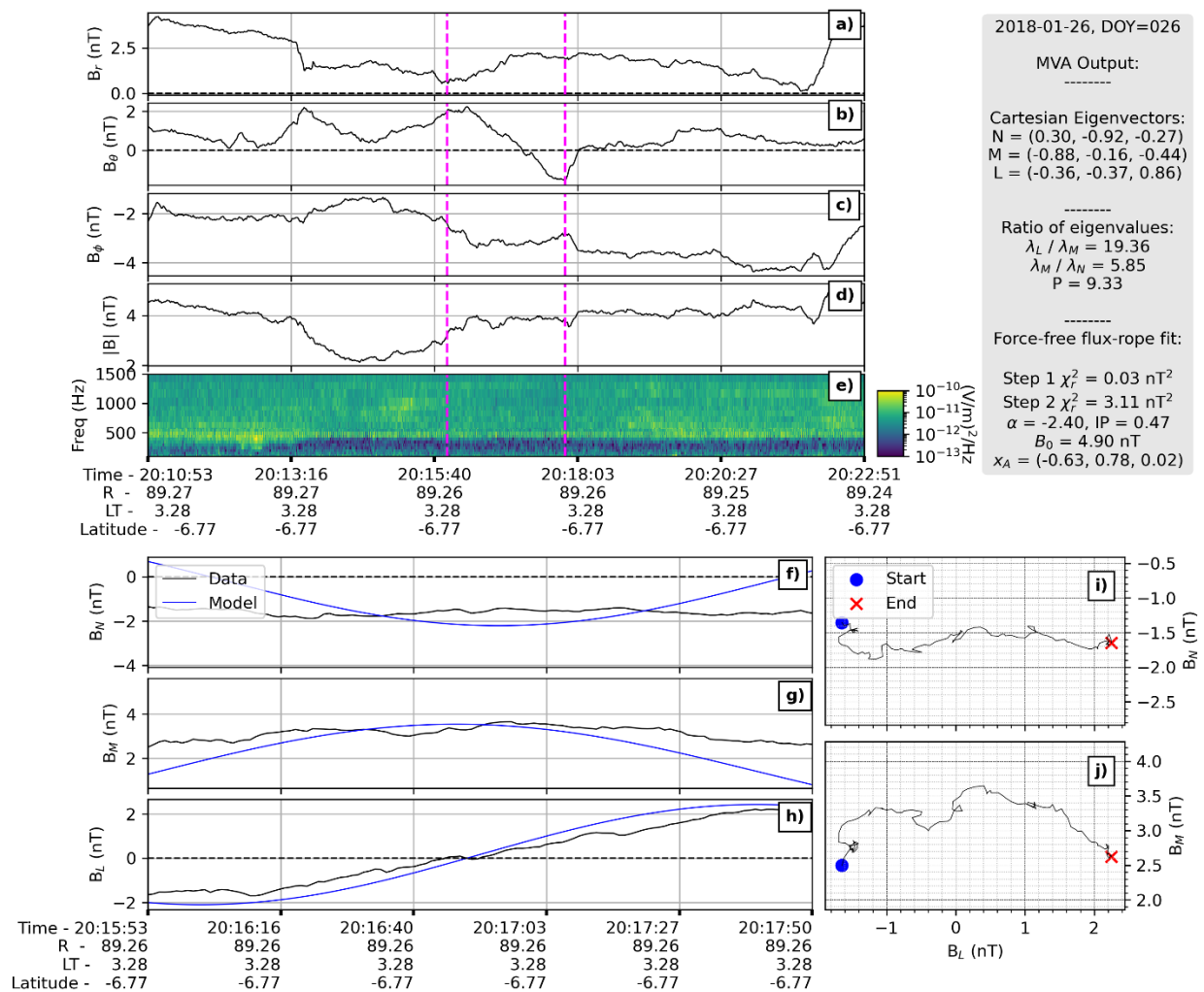


Figure S47

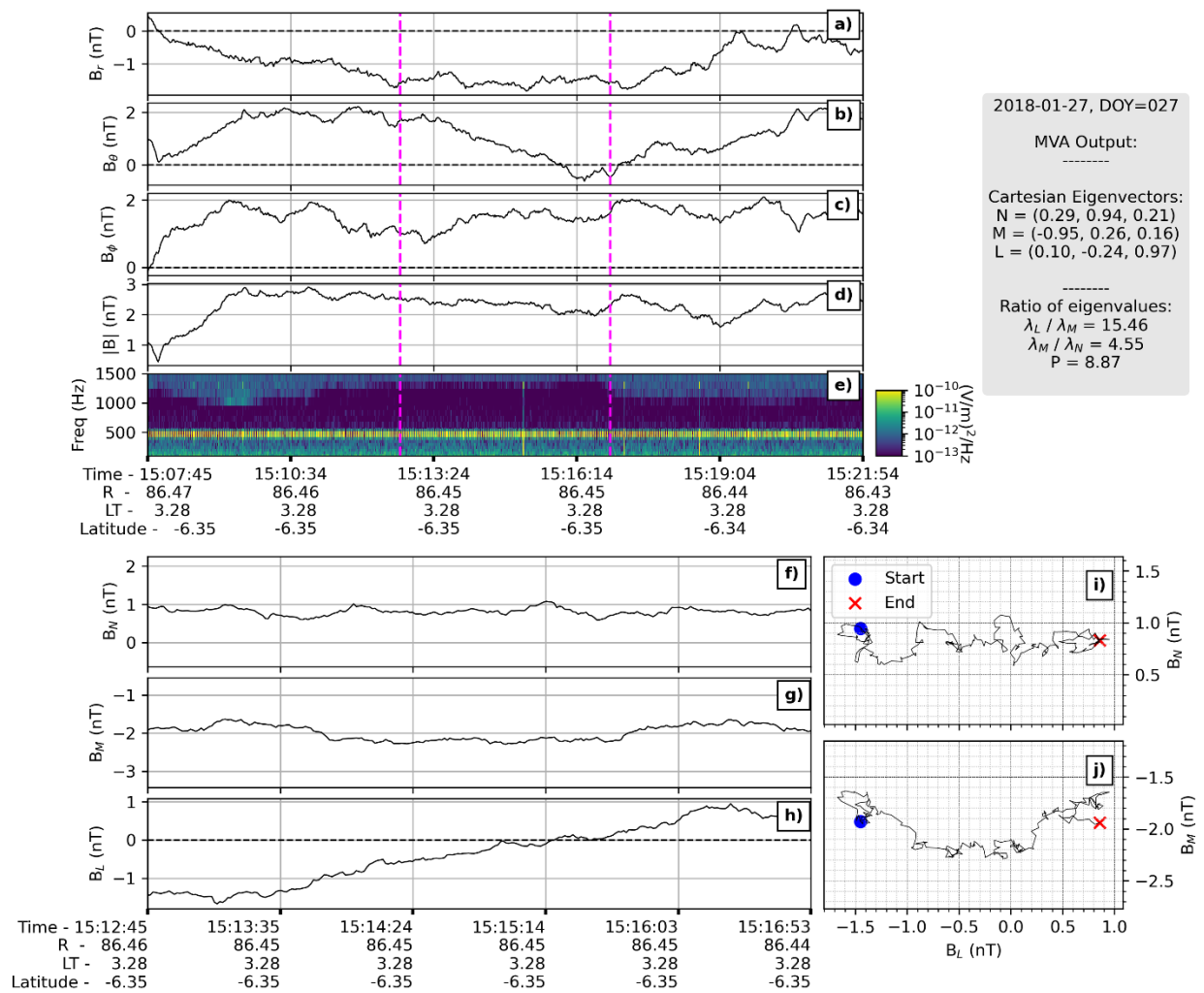


Figure S48

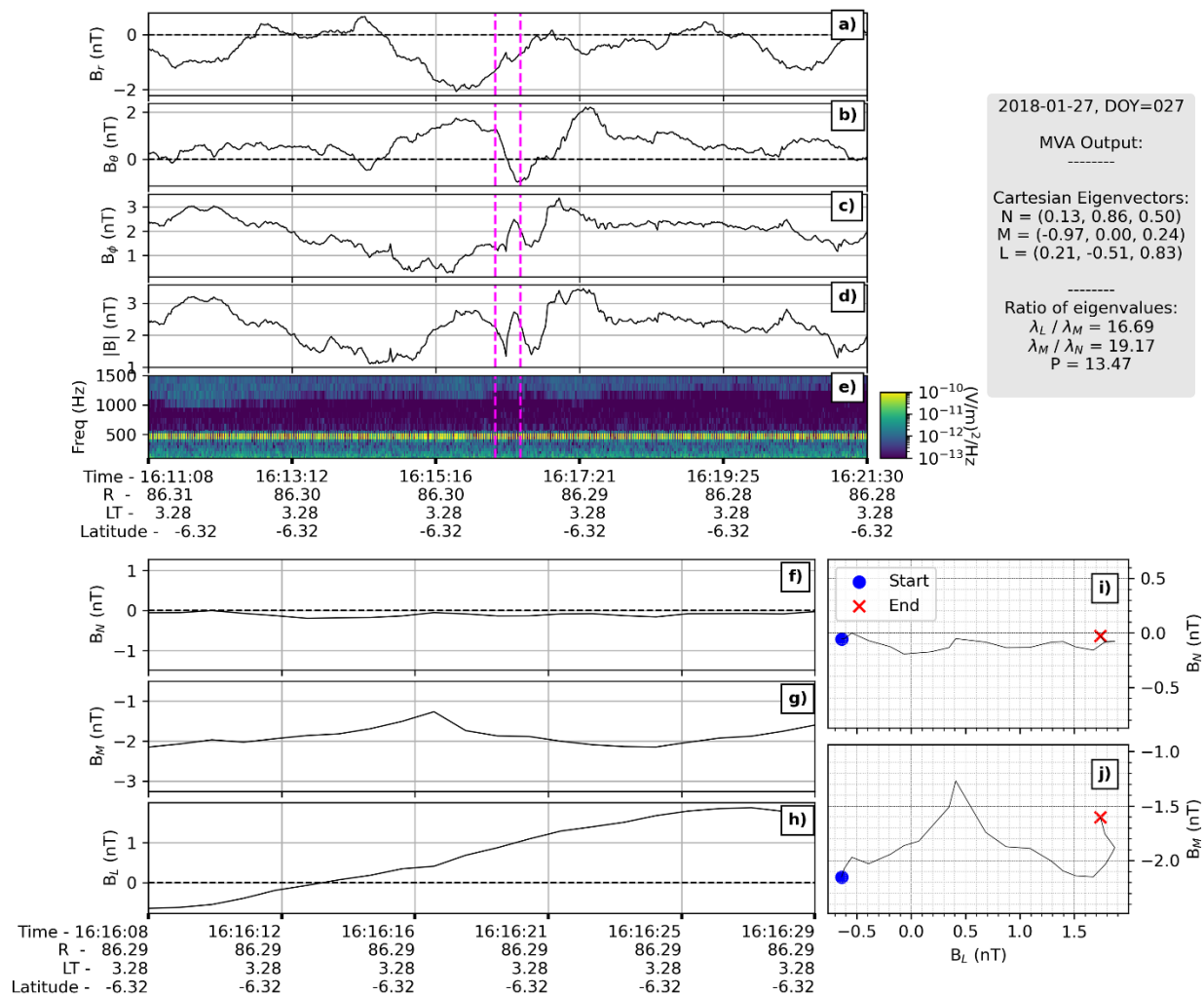


Figure S49

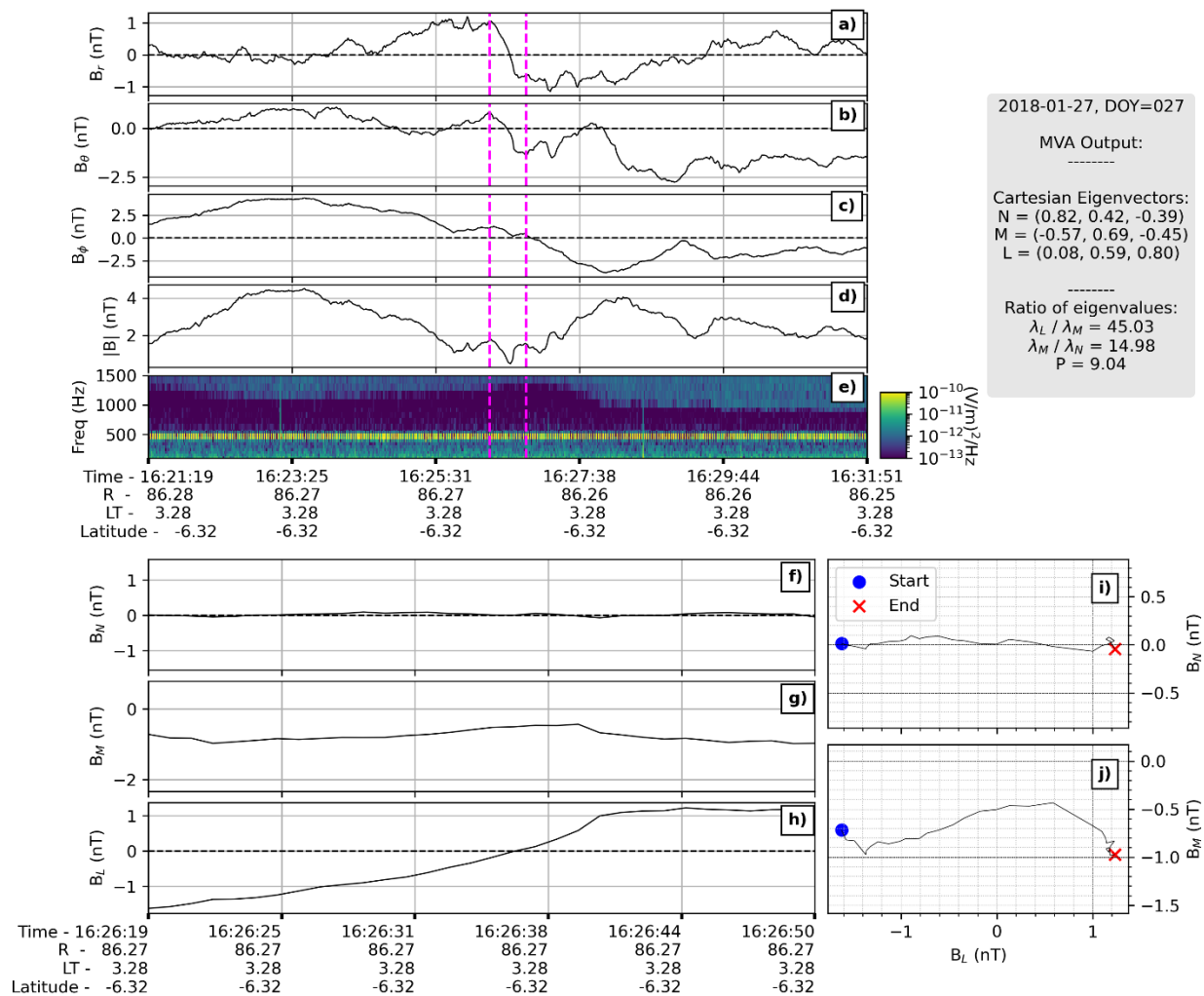


Figure S50

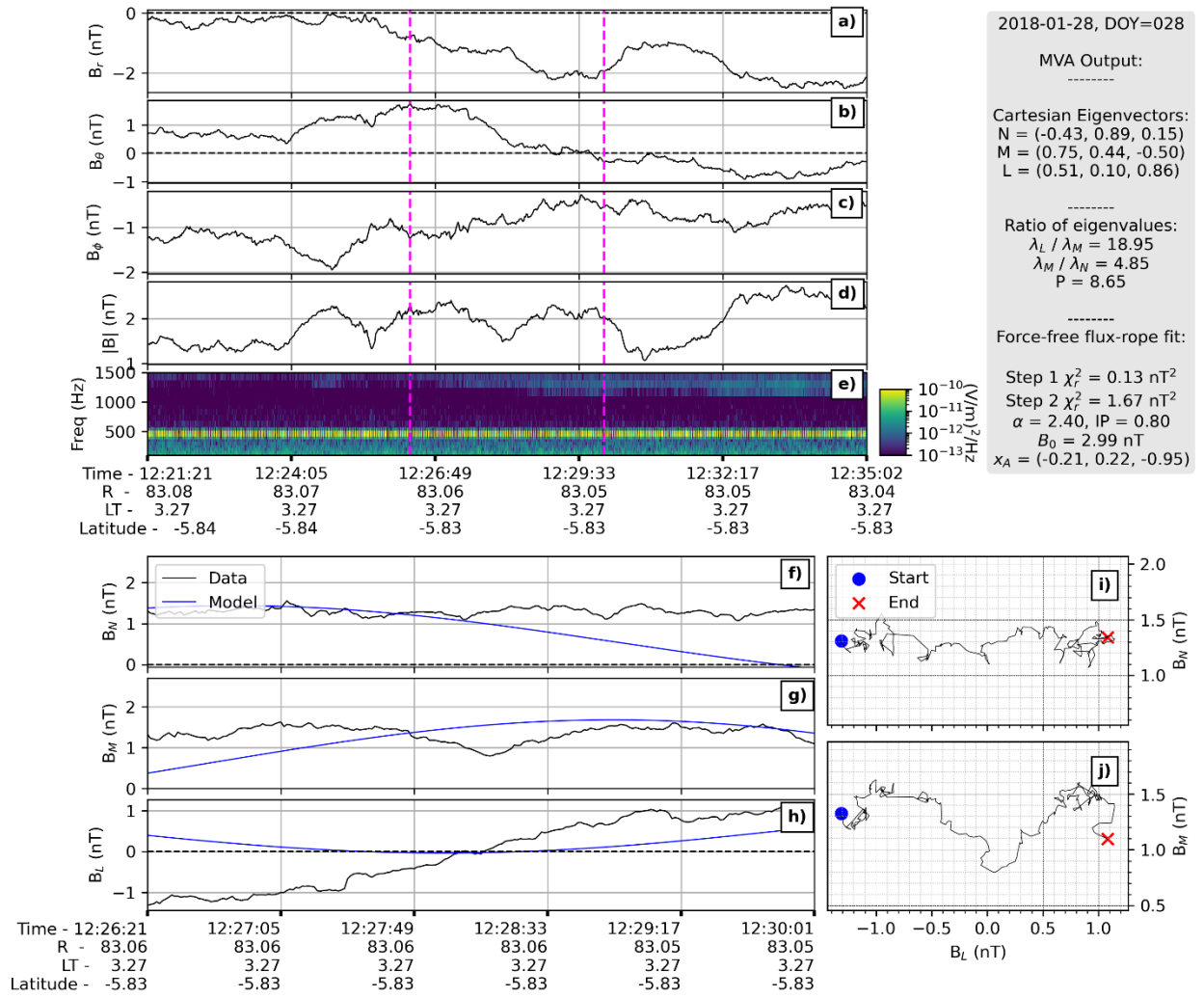


Figure S51

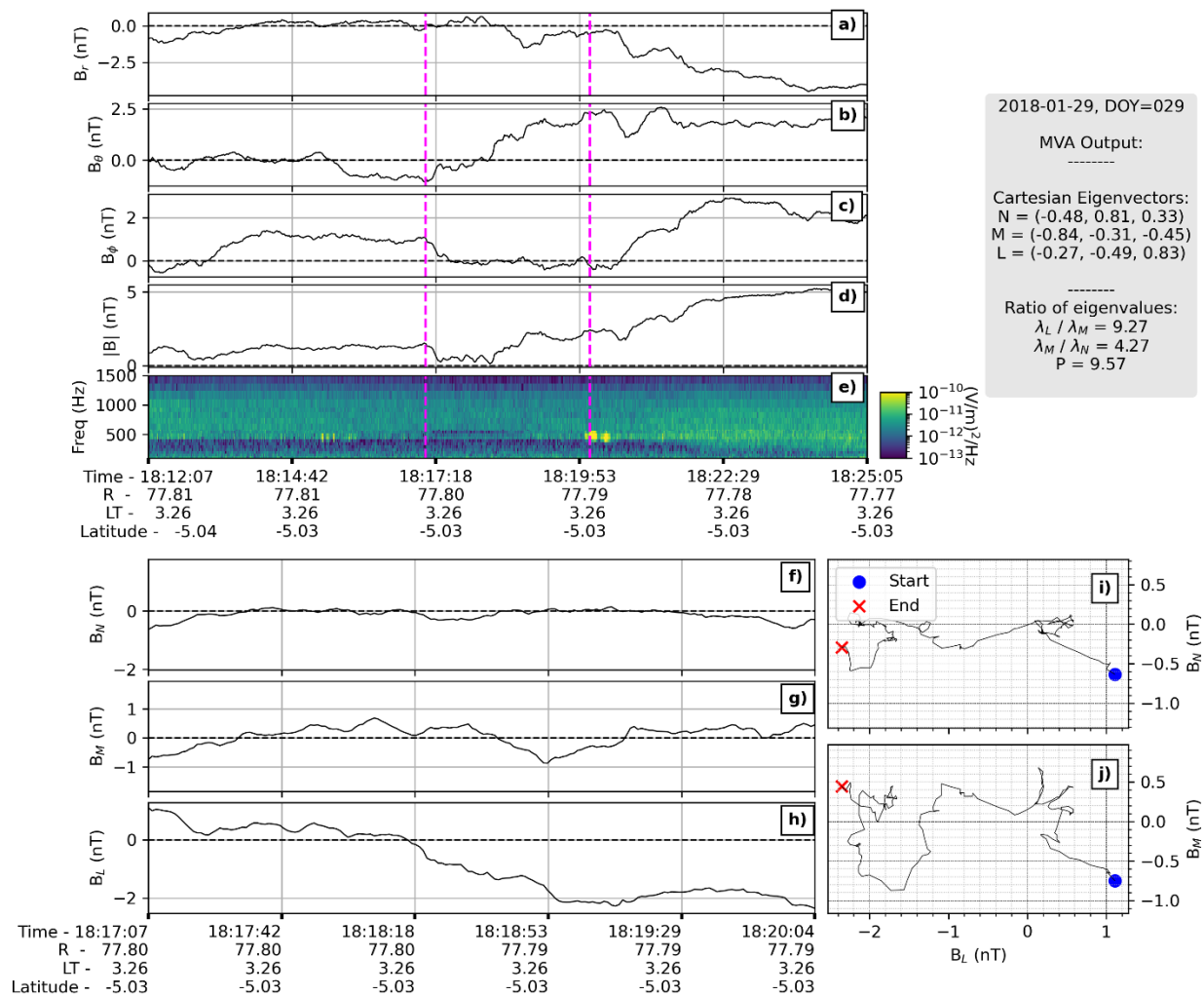


Figure S52

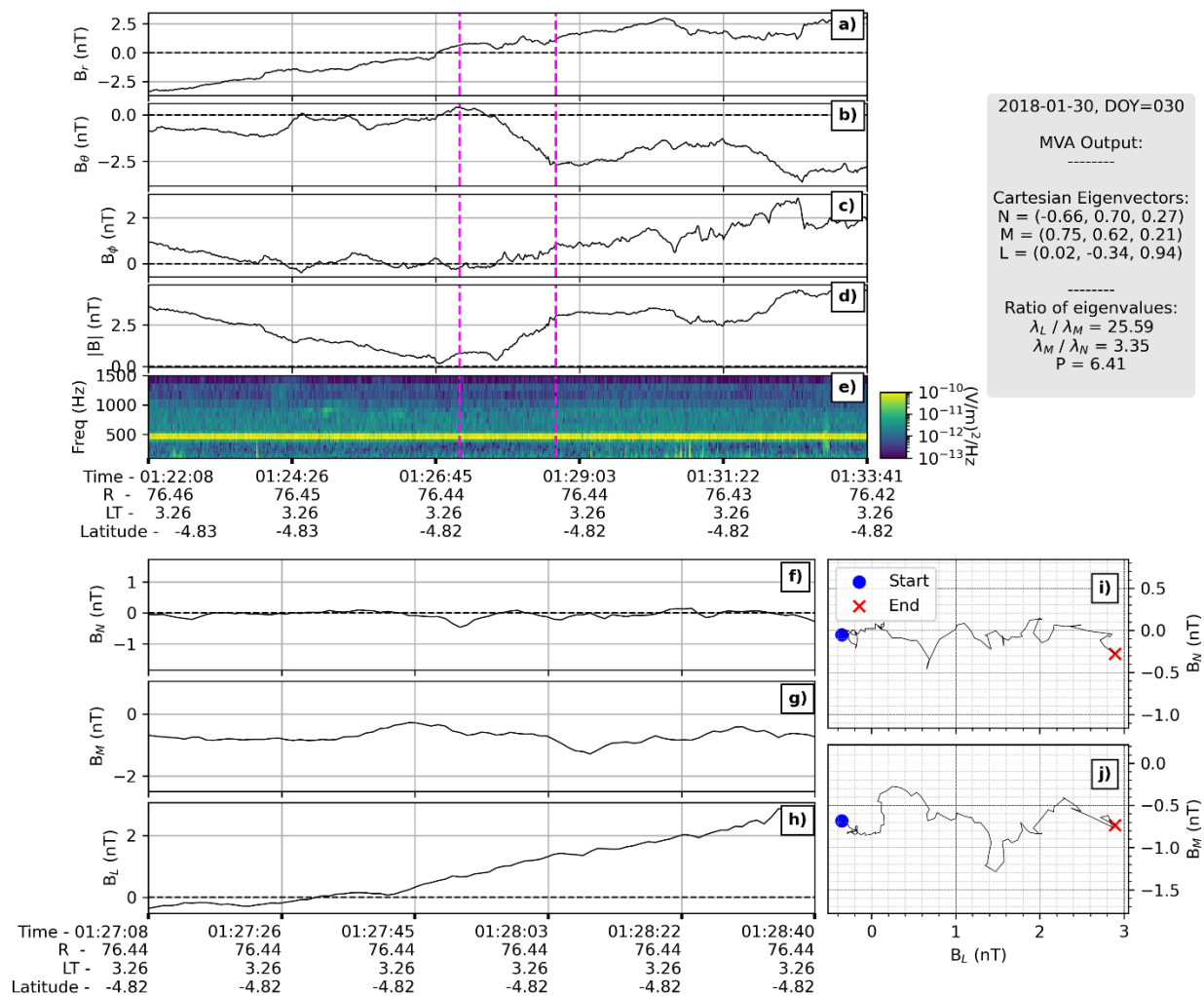


Figure S53

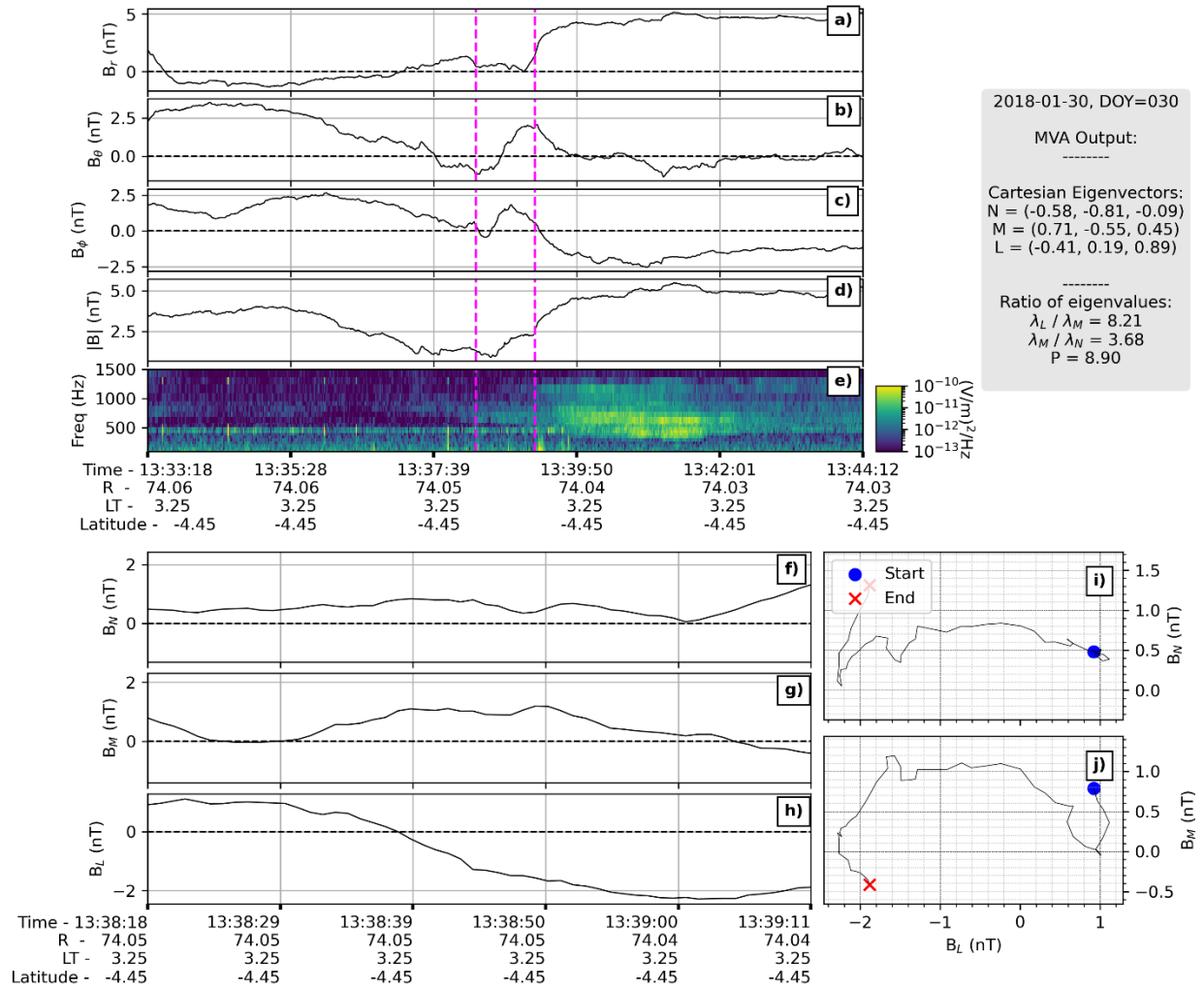


Figure S54

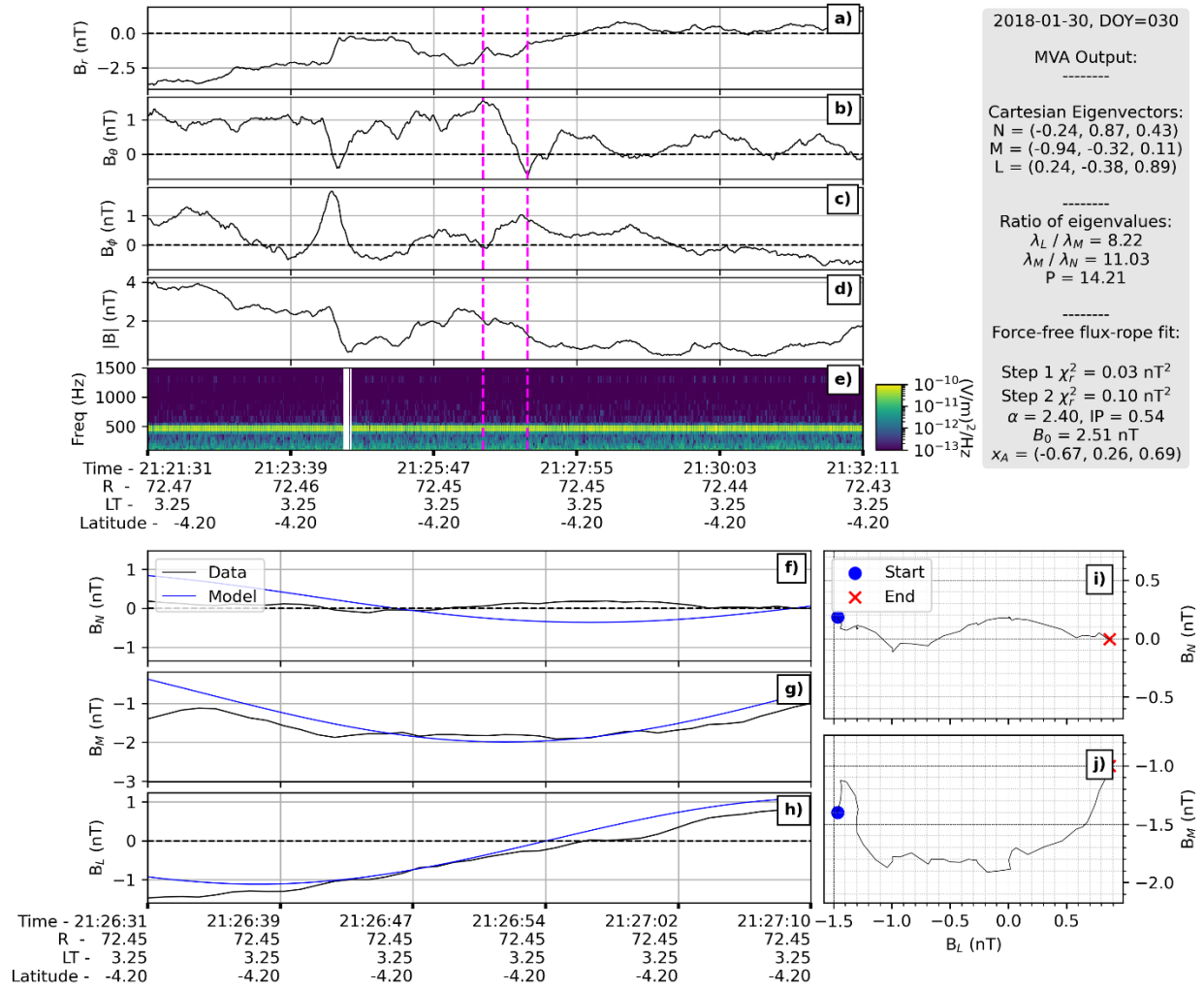


Figure S55

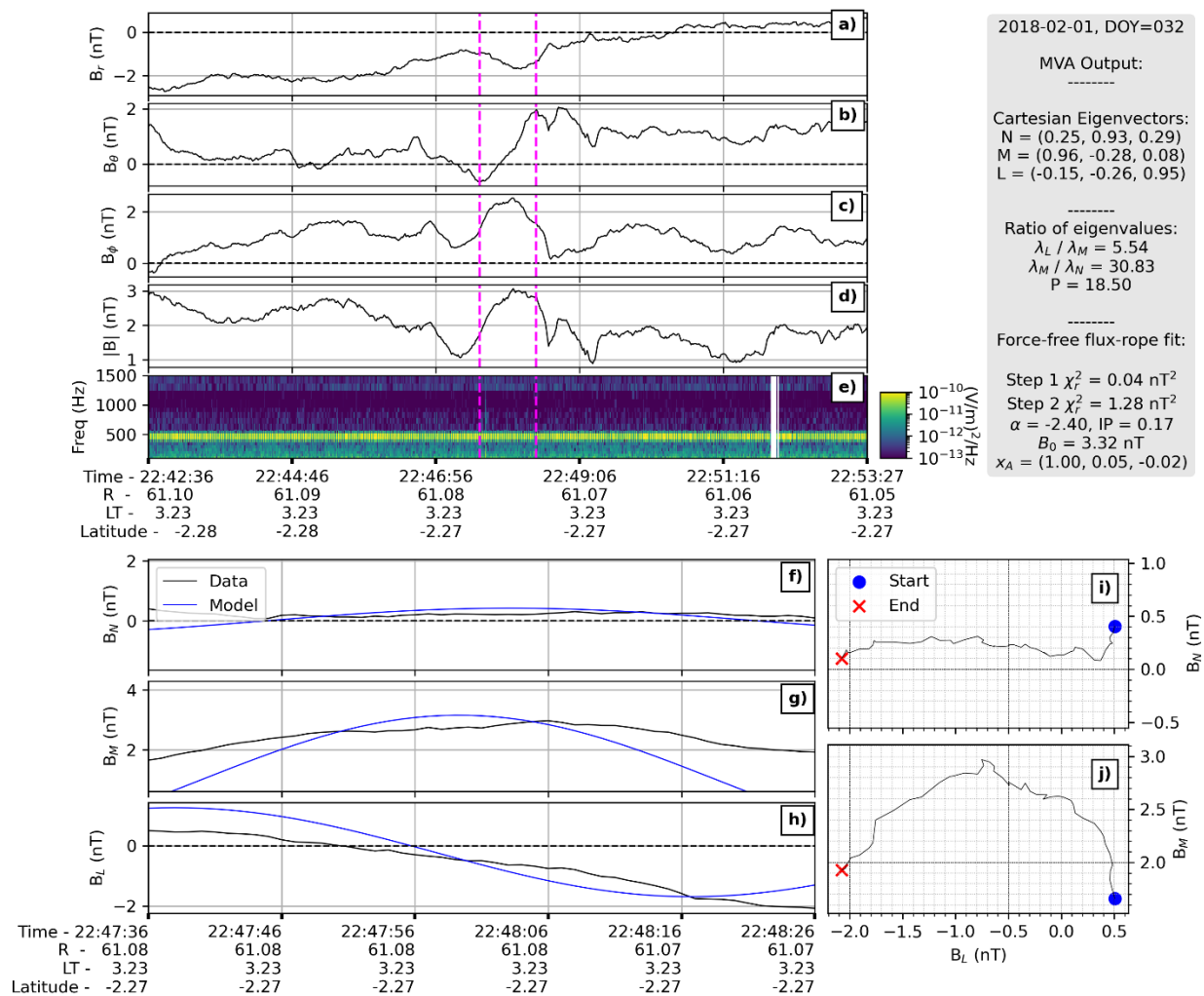


Figure S56

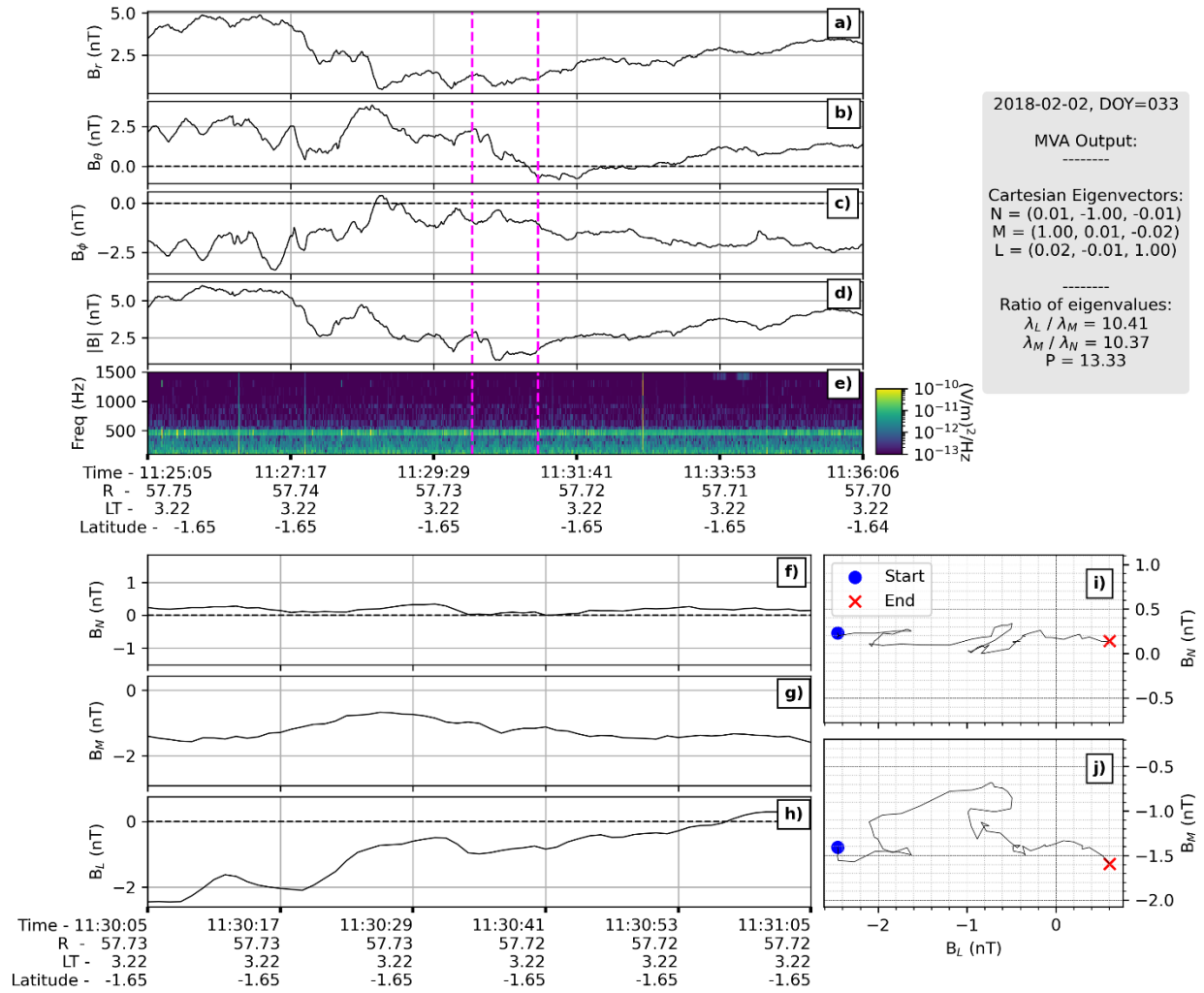


Figure S57

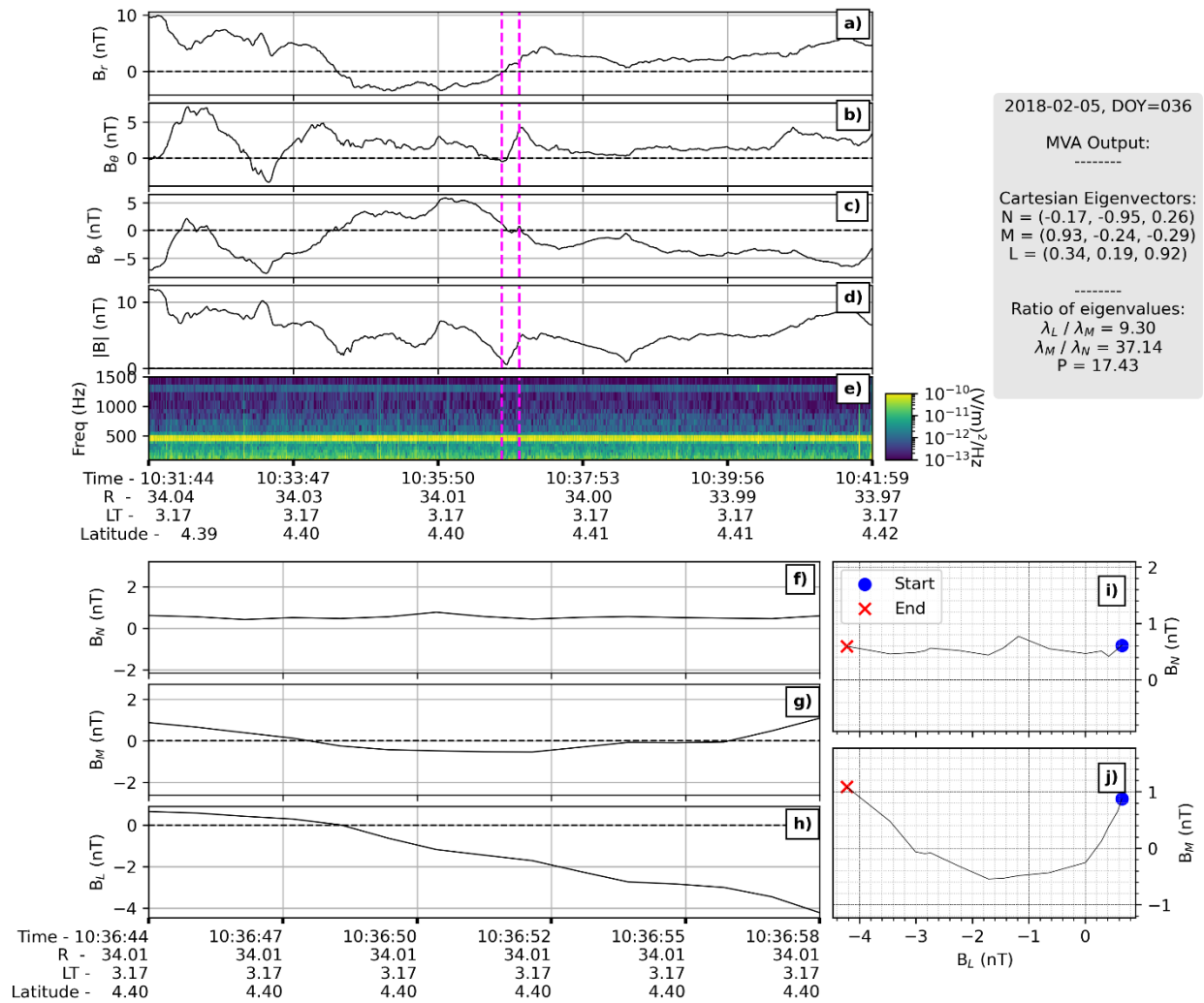


Figure S58

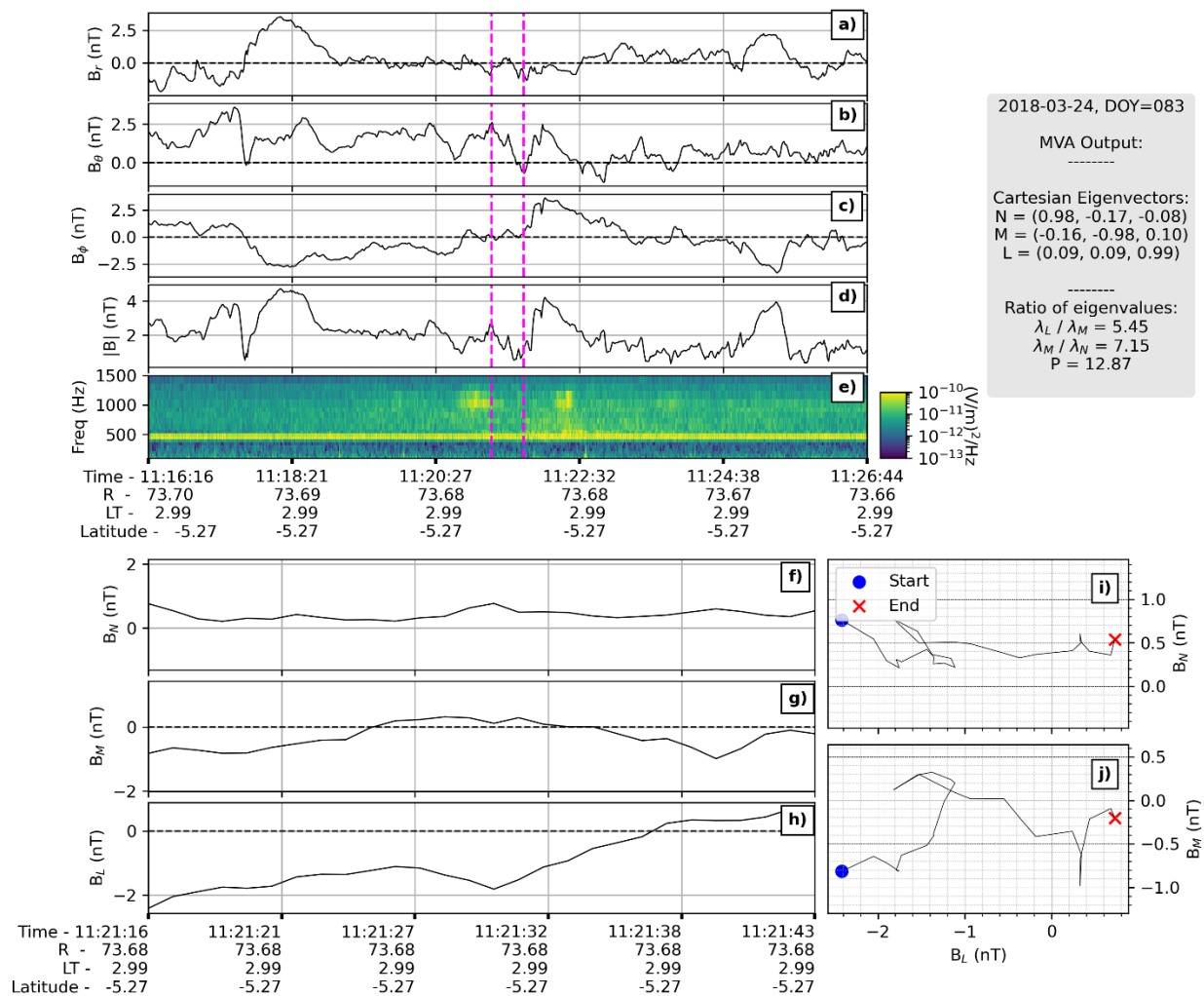


Figure S59

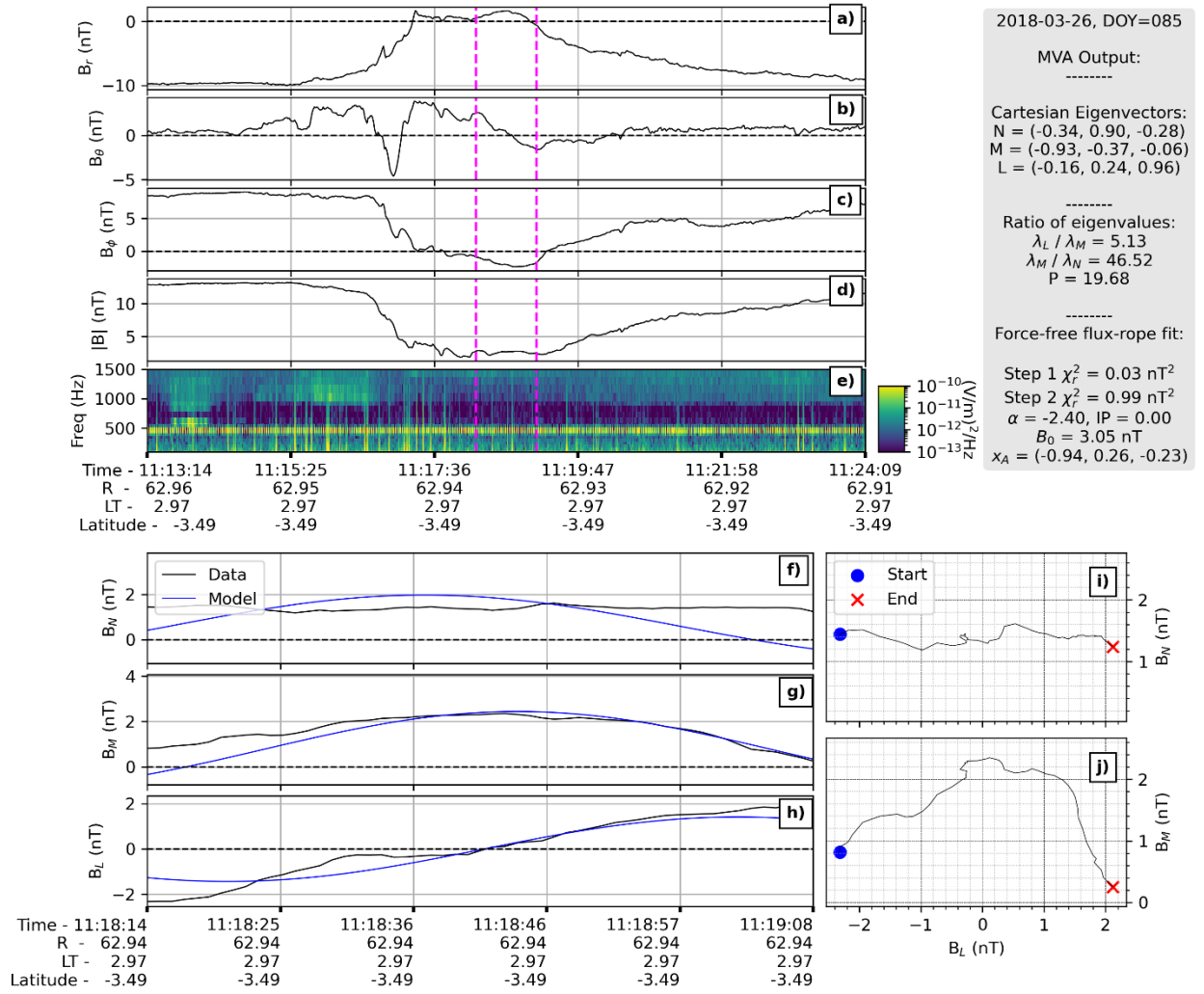


Figure S60

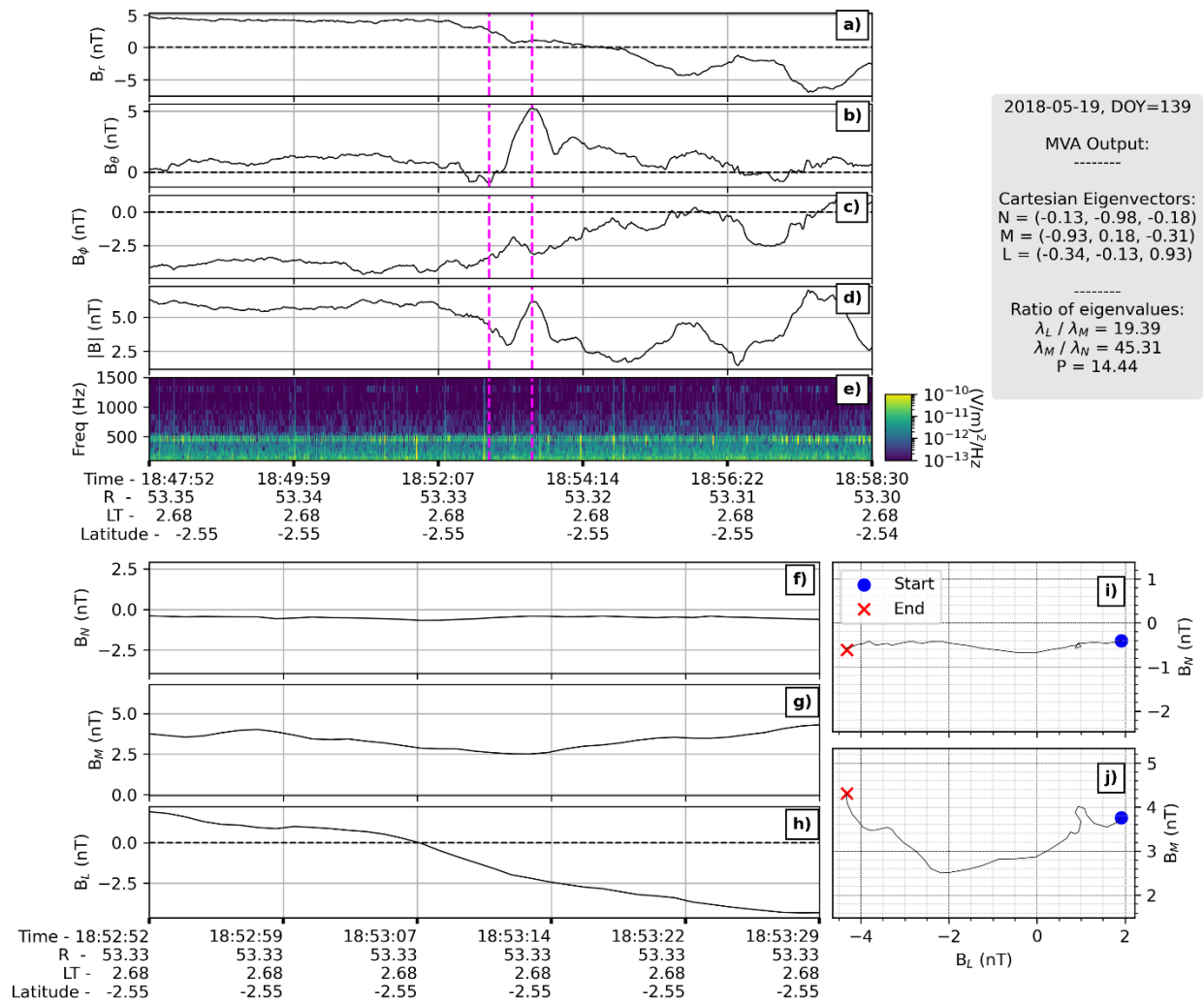


Figure S61

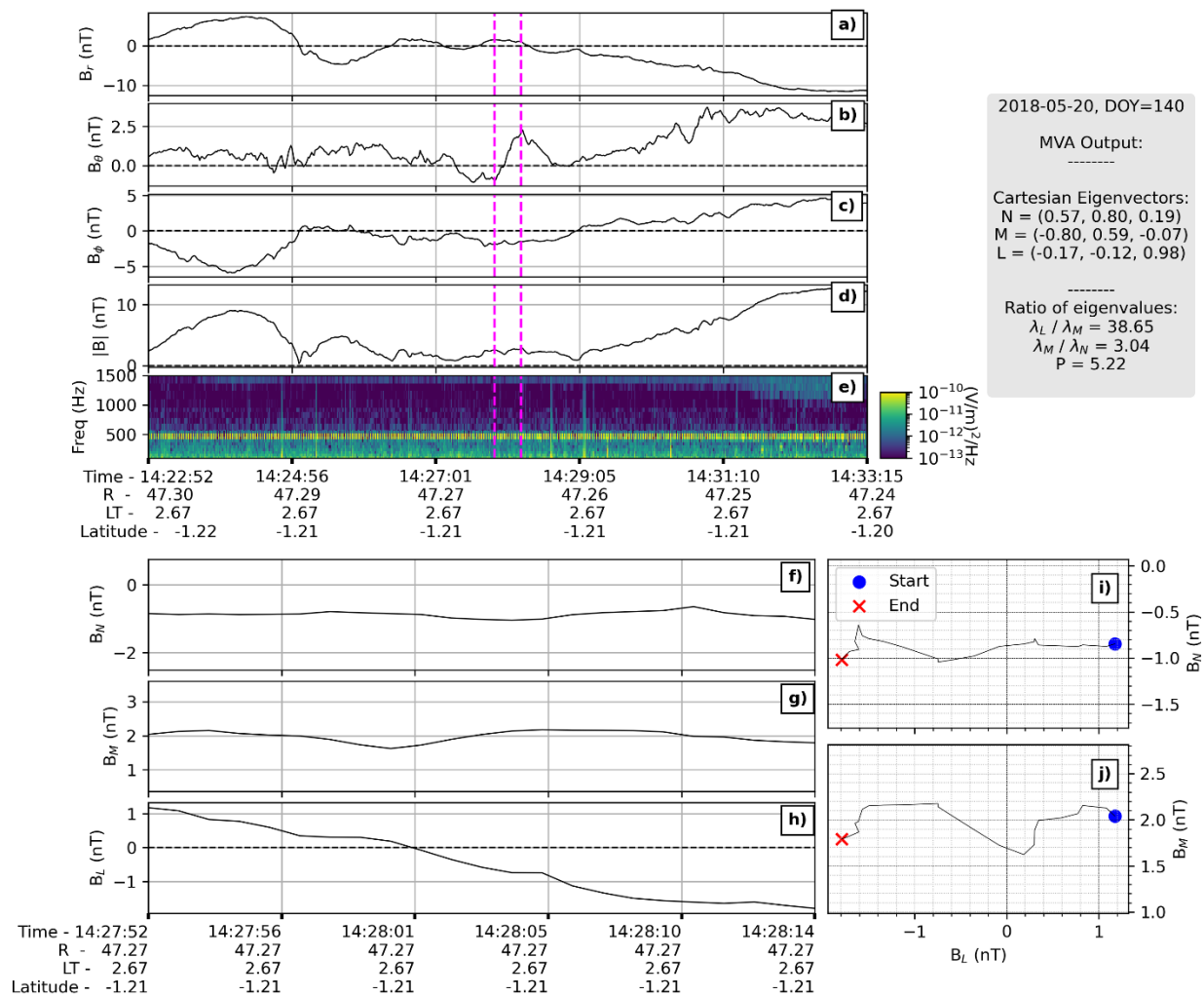


Figure S62

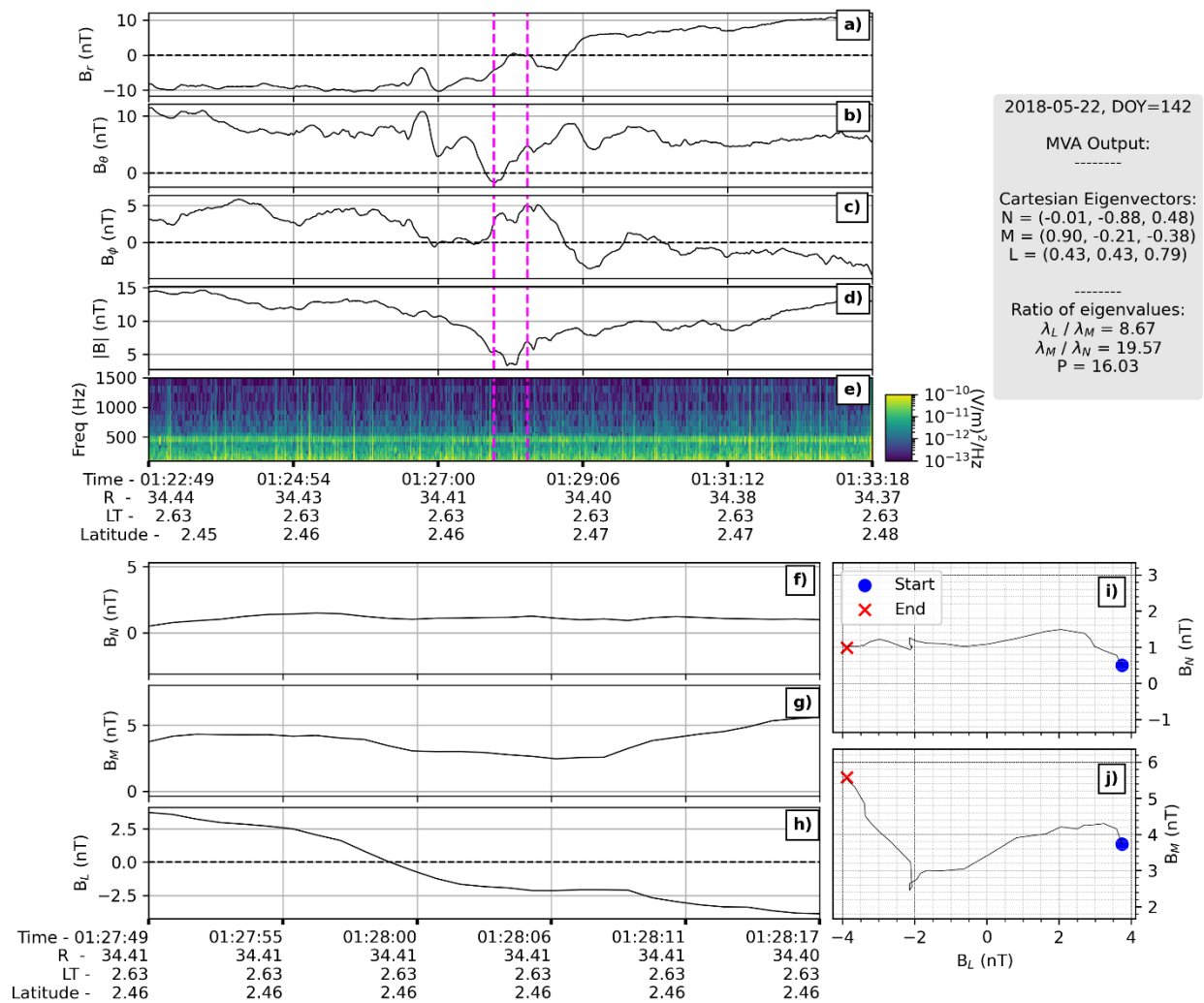


Figure S63

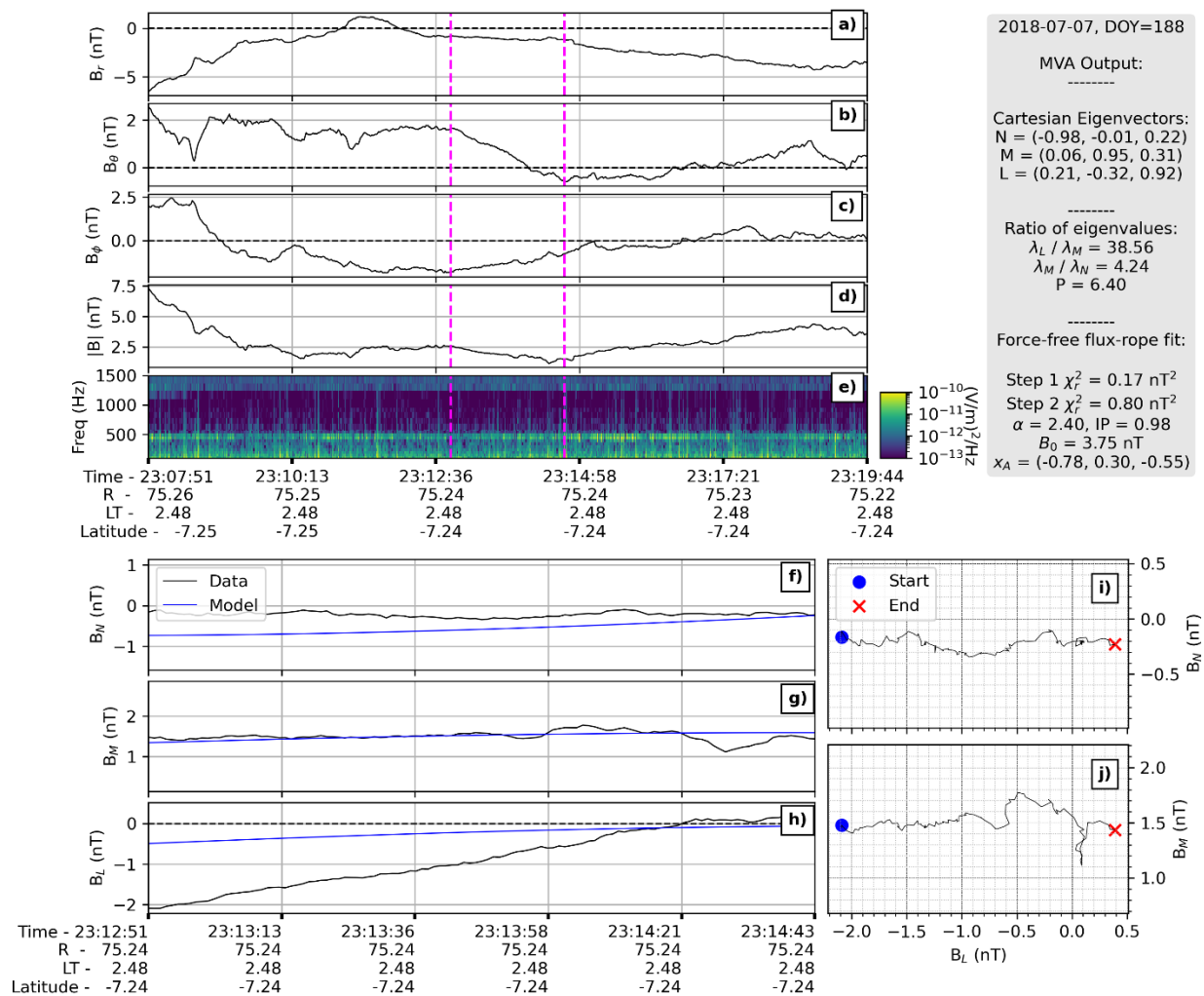


Figure S64

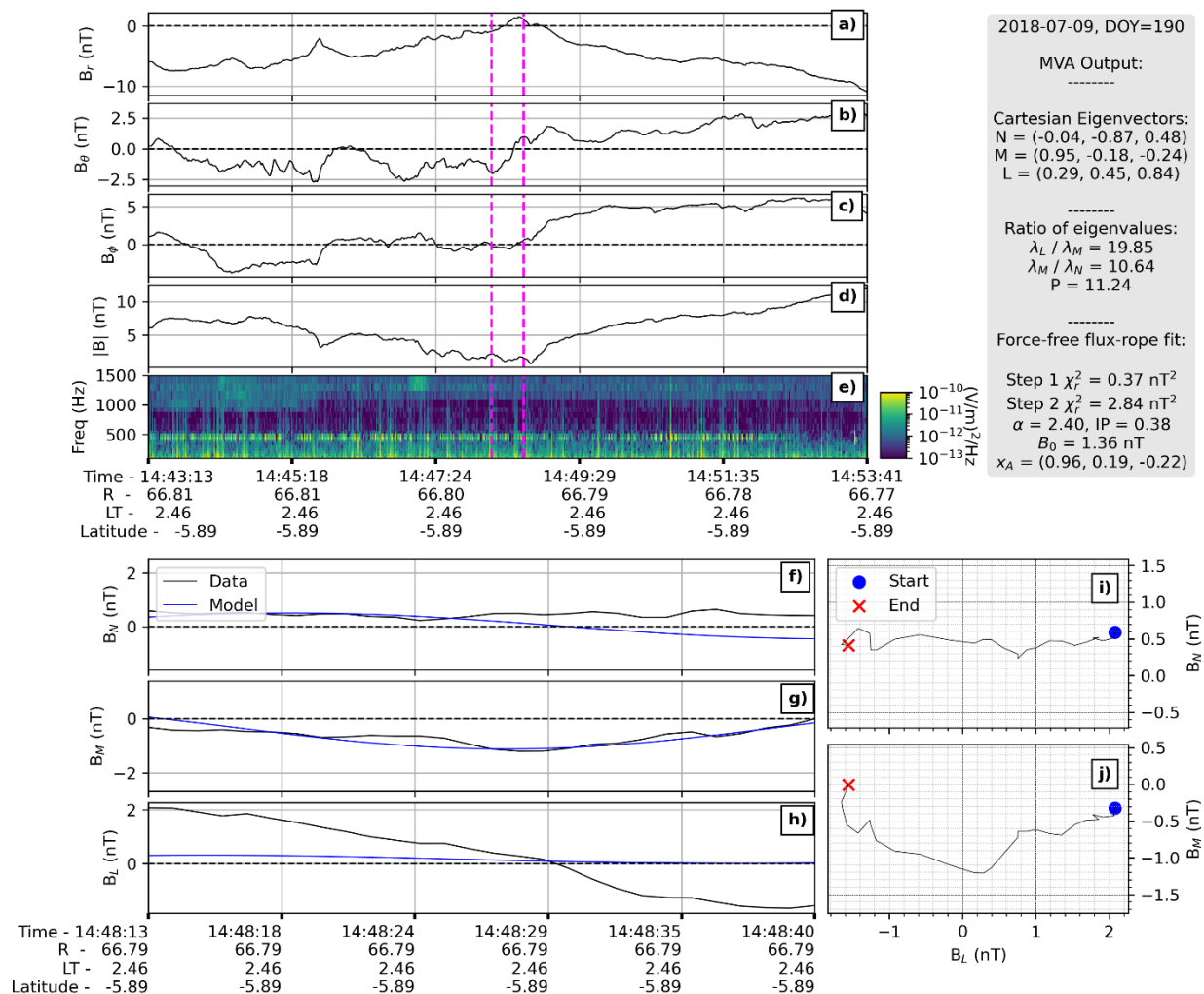


Figure S65

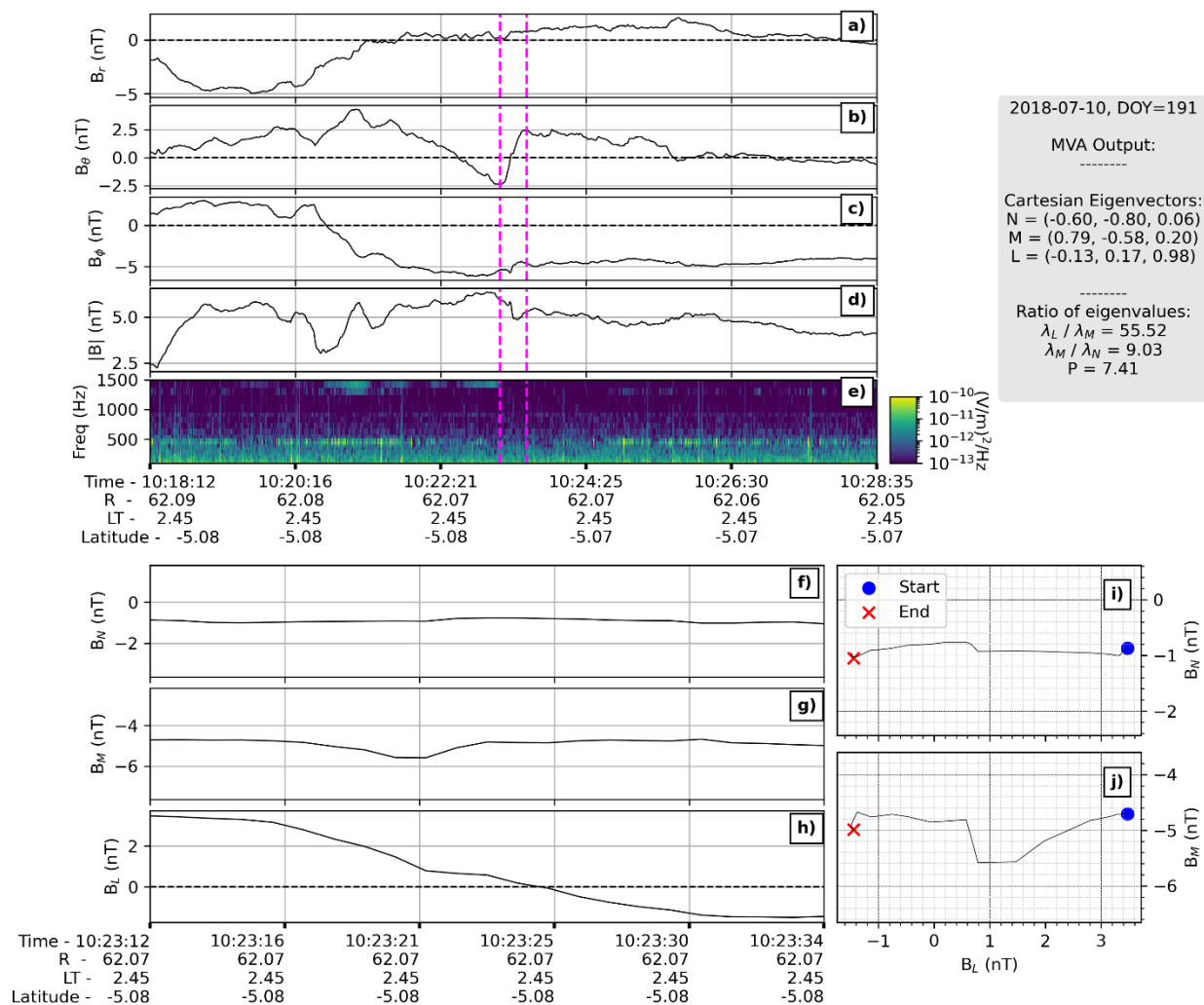


Figure S66

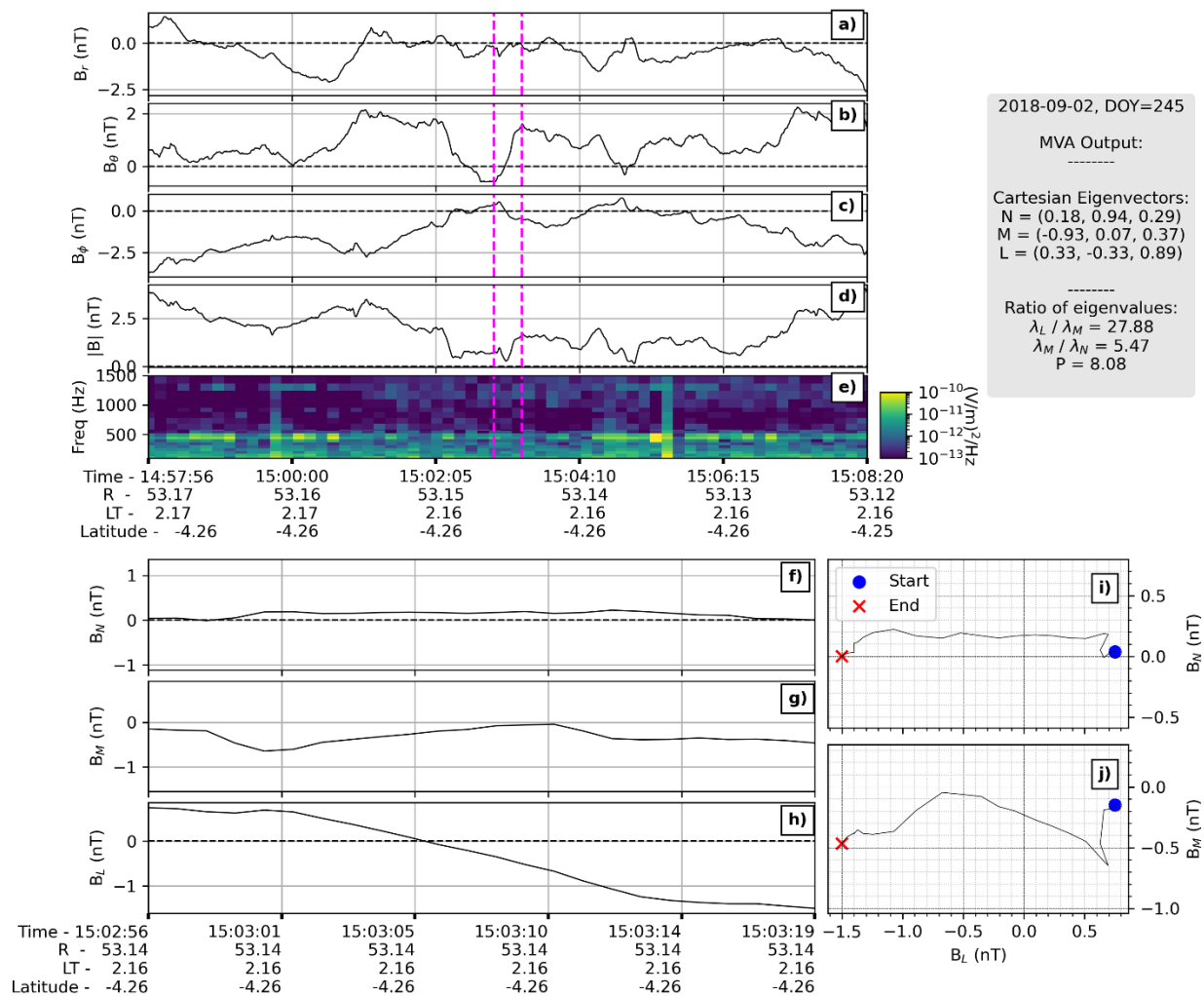


Figure S67

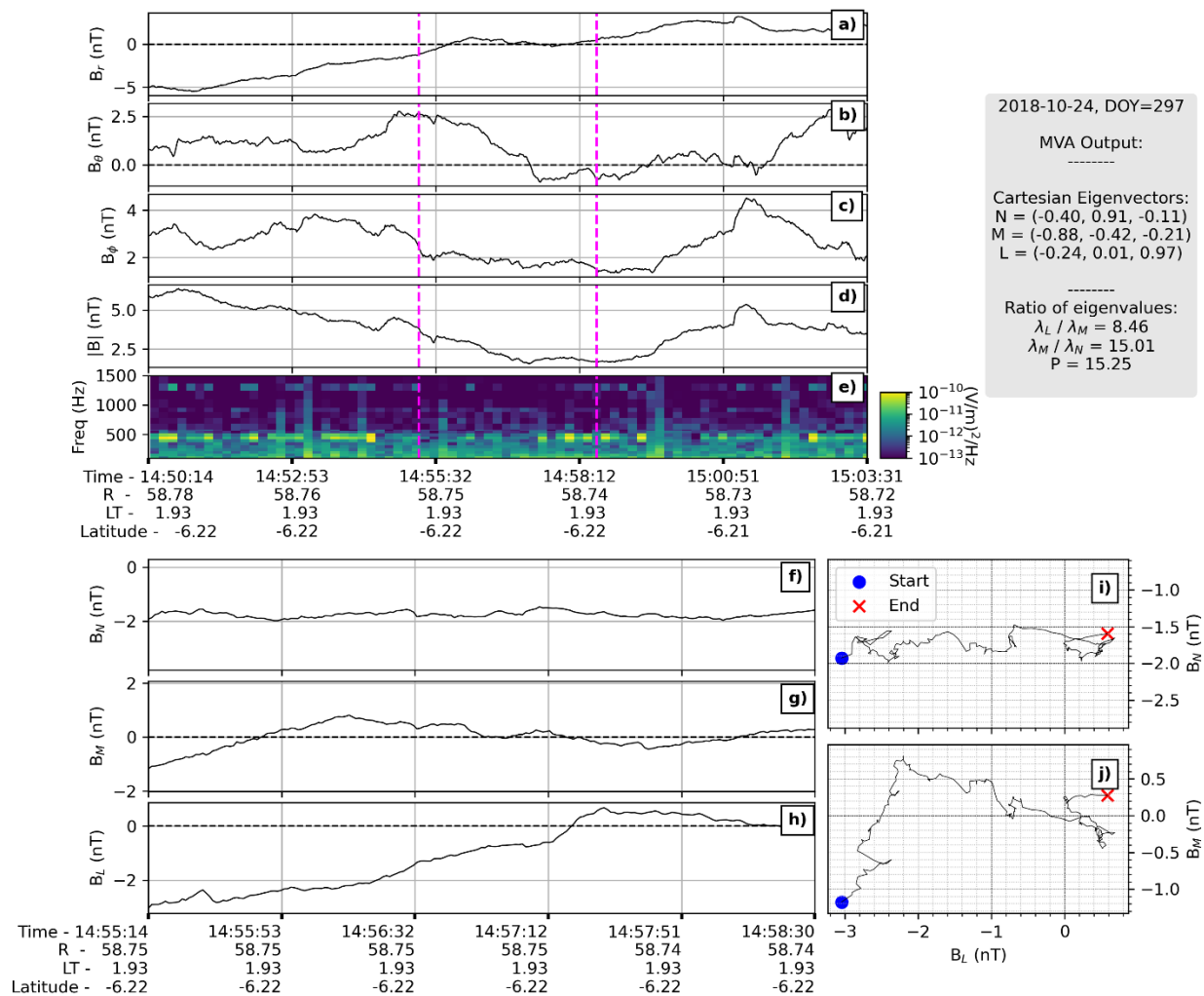


Figure S68

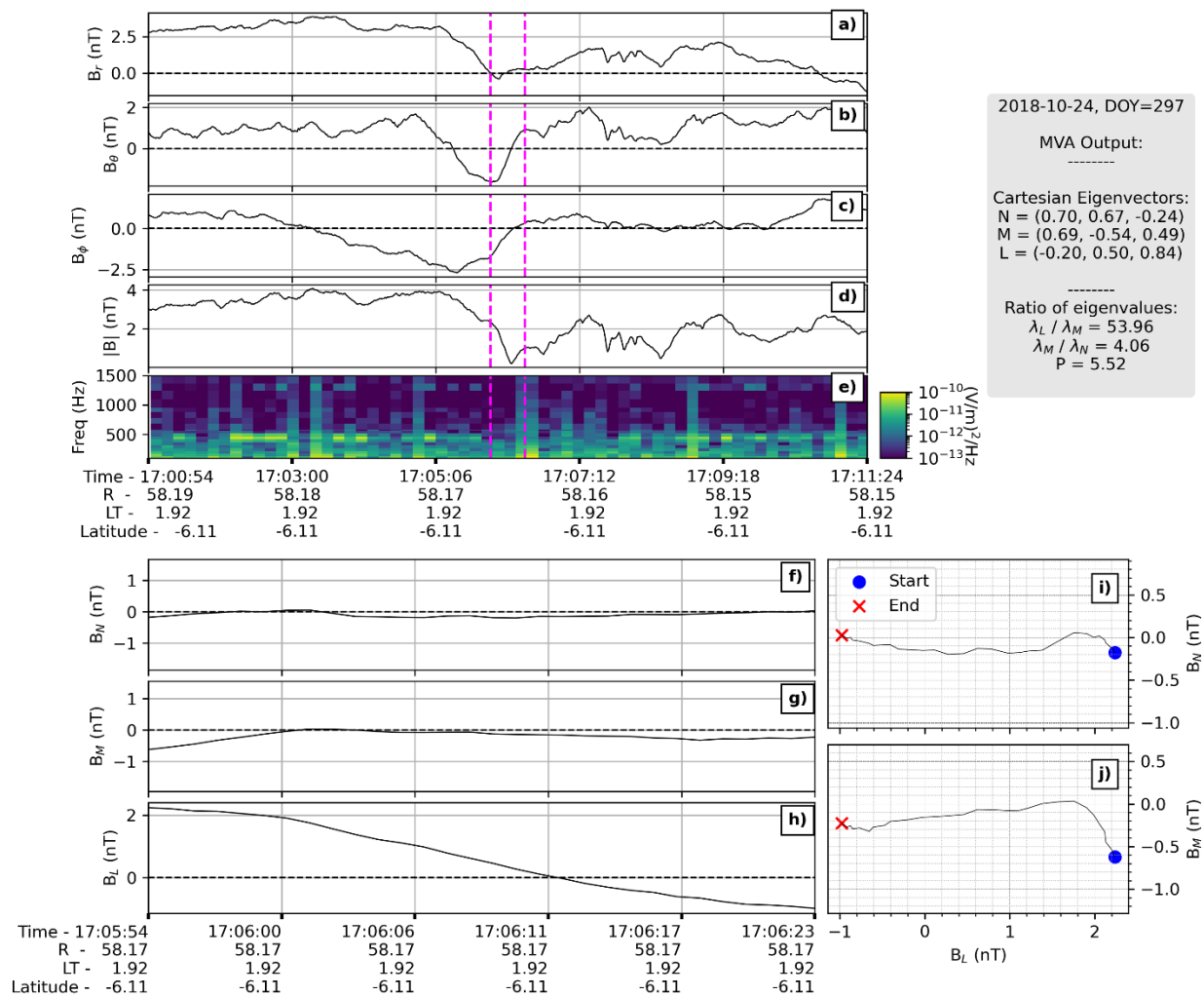


Figure S69

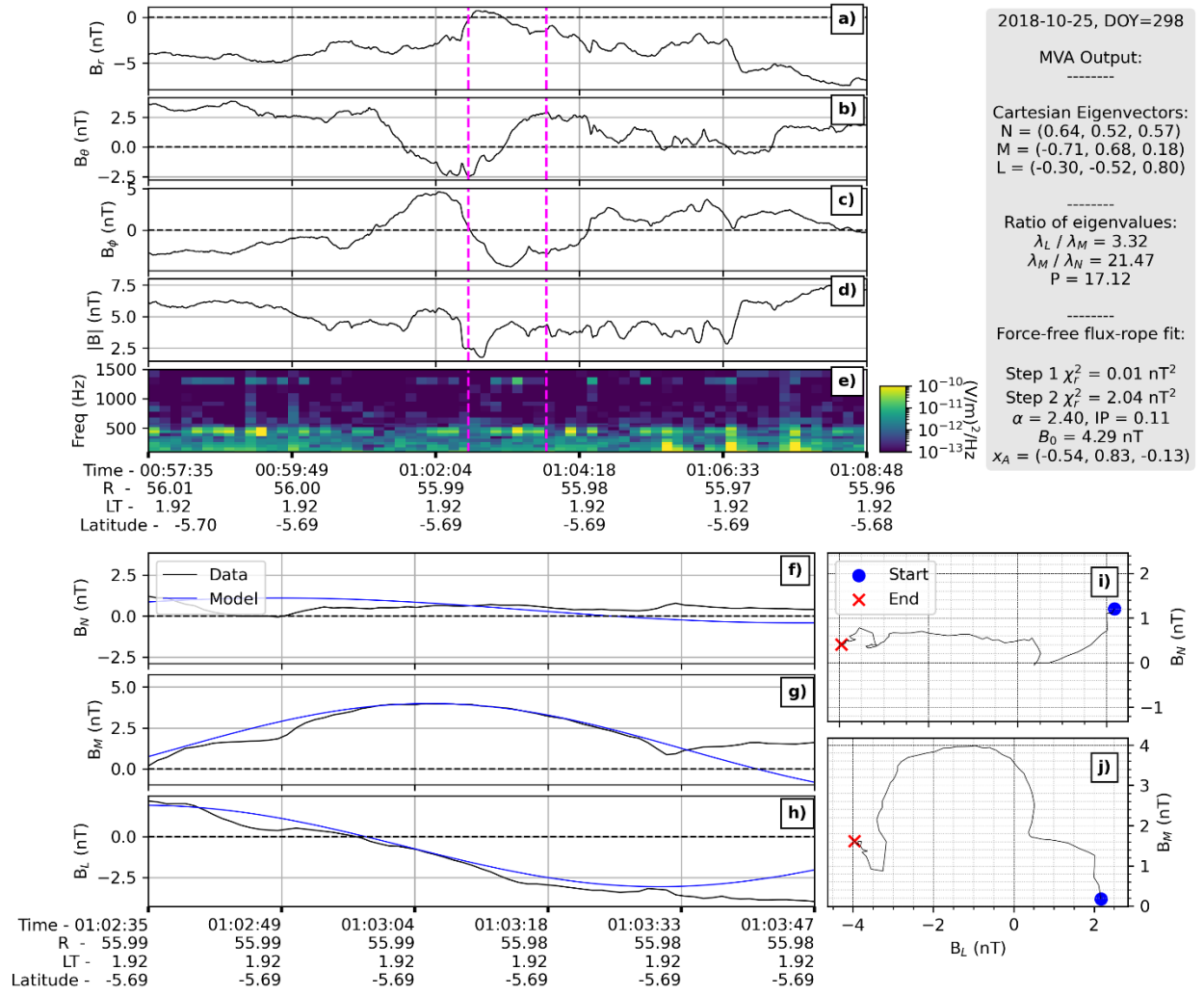


Figure S70

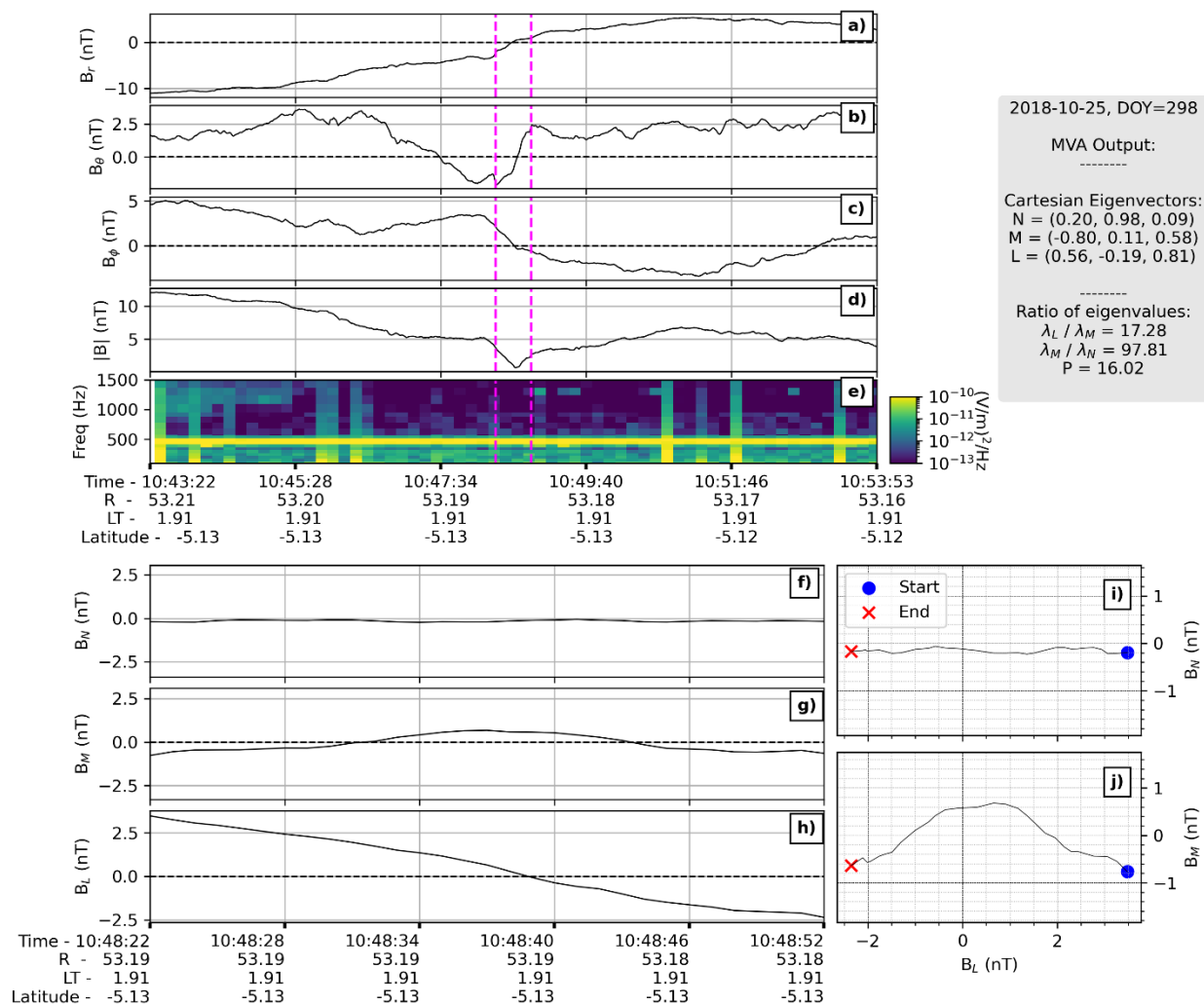


Figure S71

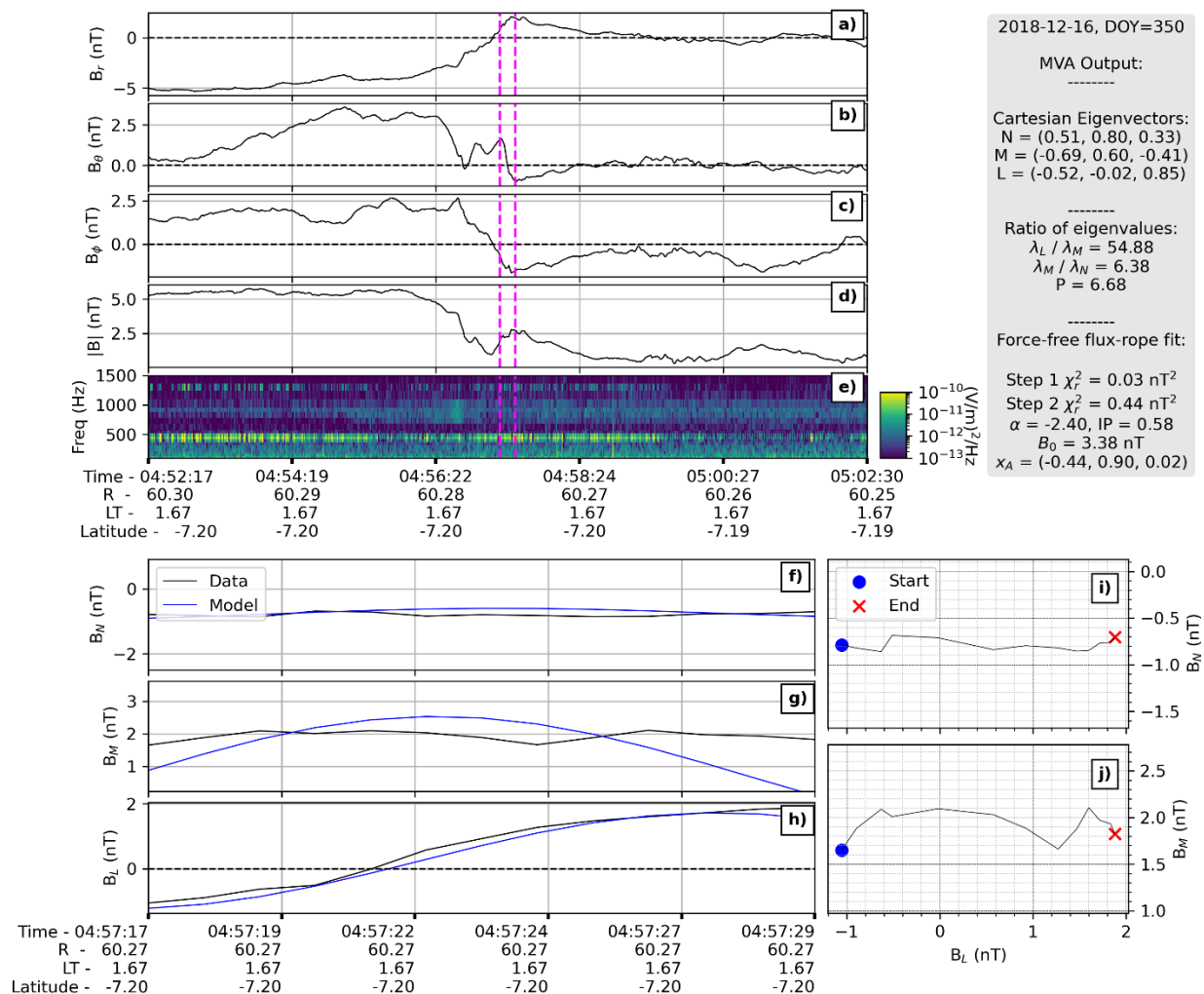


Figure S72

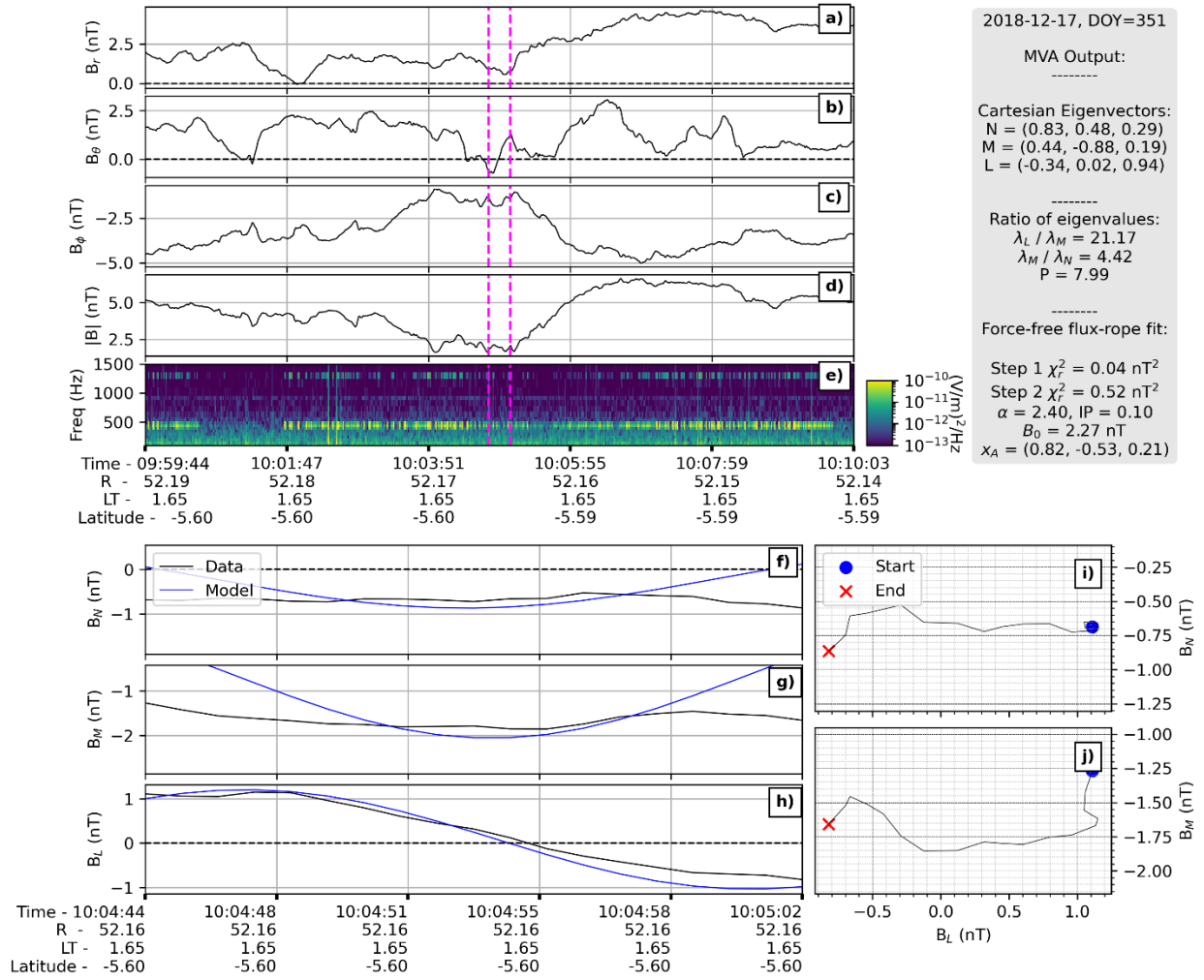


Figure S73

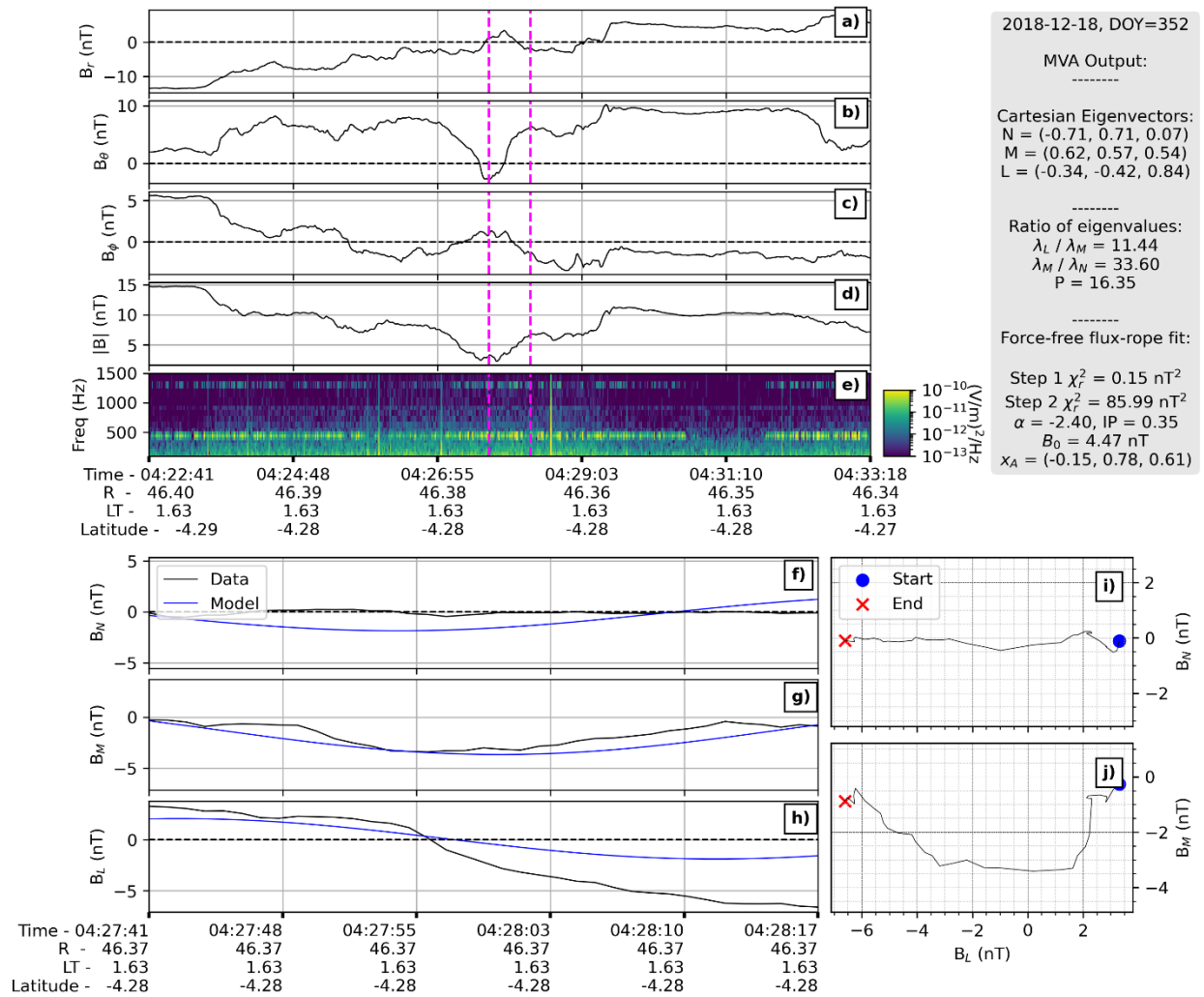


Figure S74

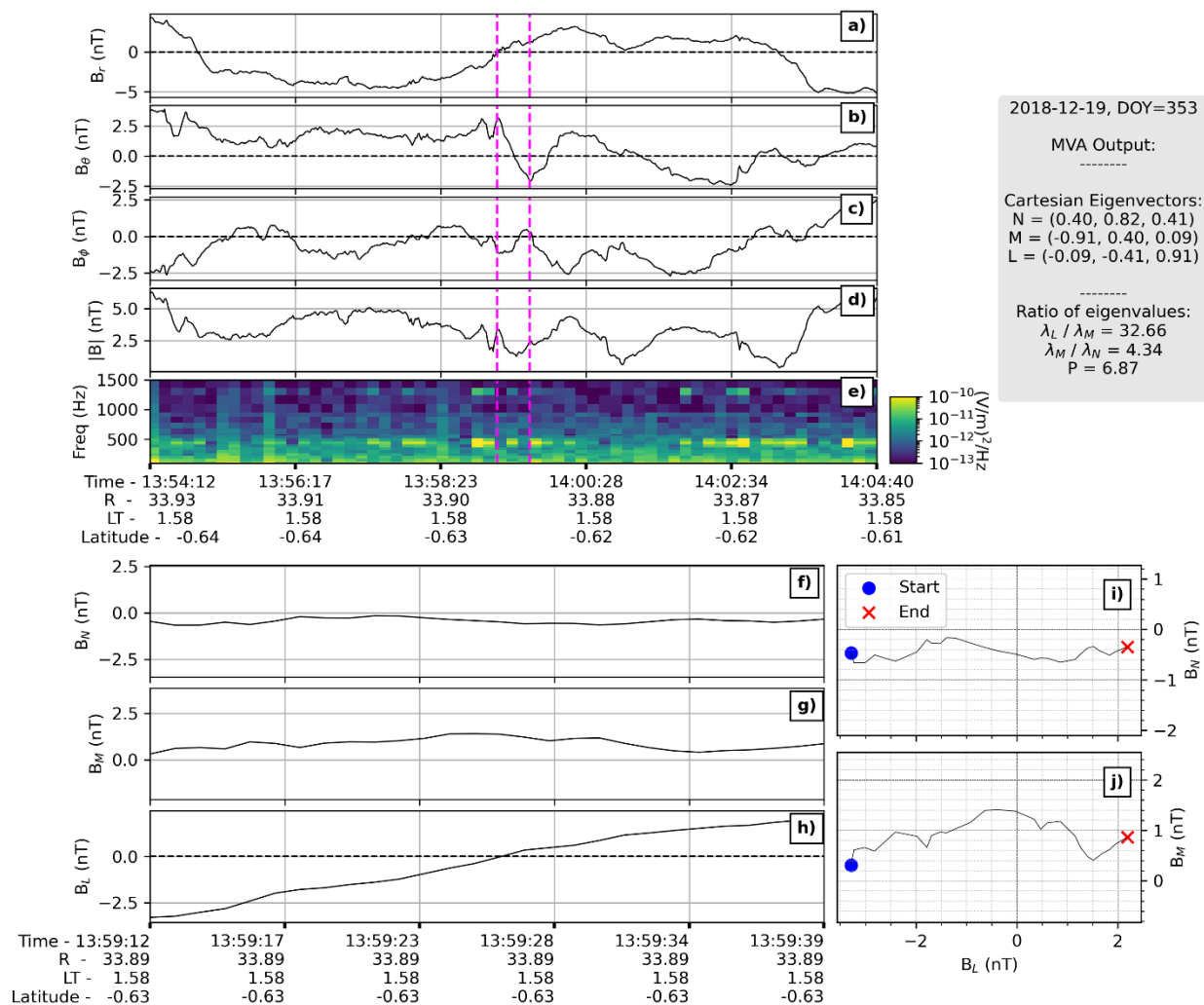
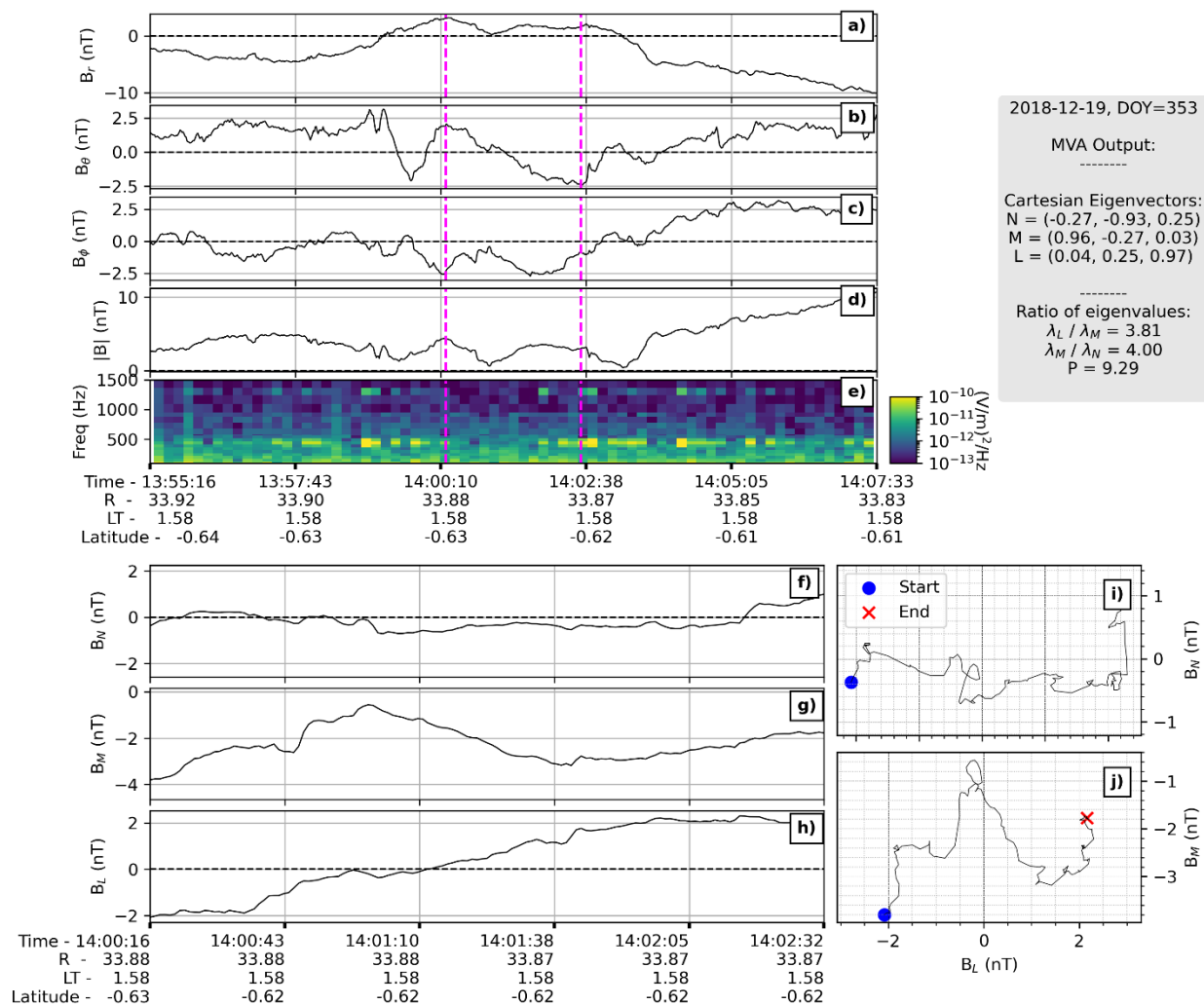


Figure S75



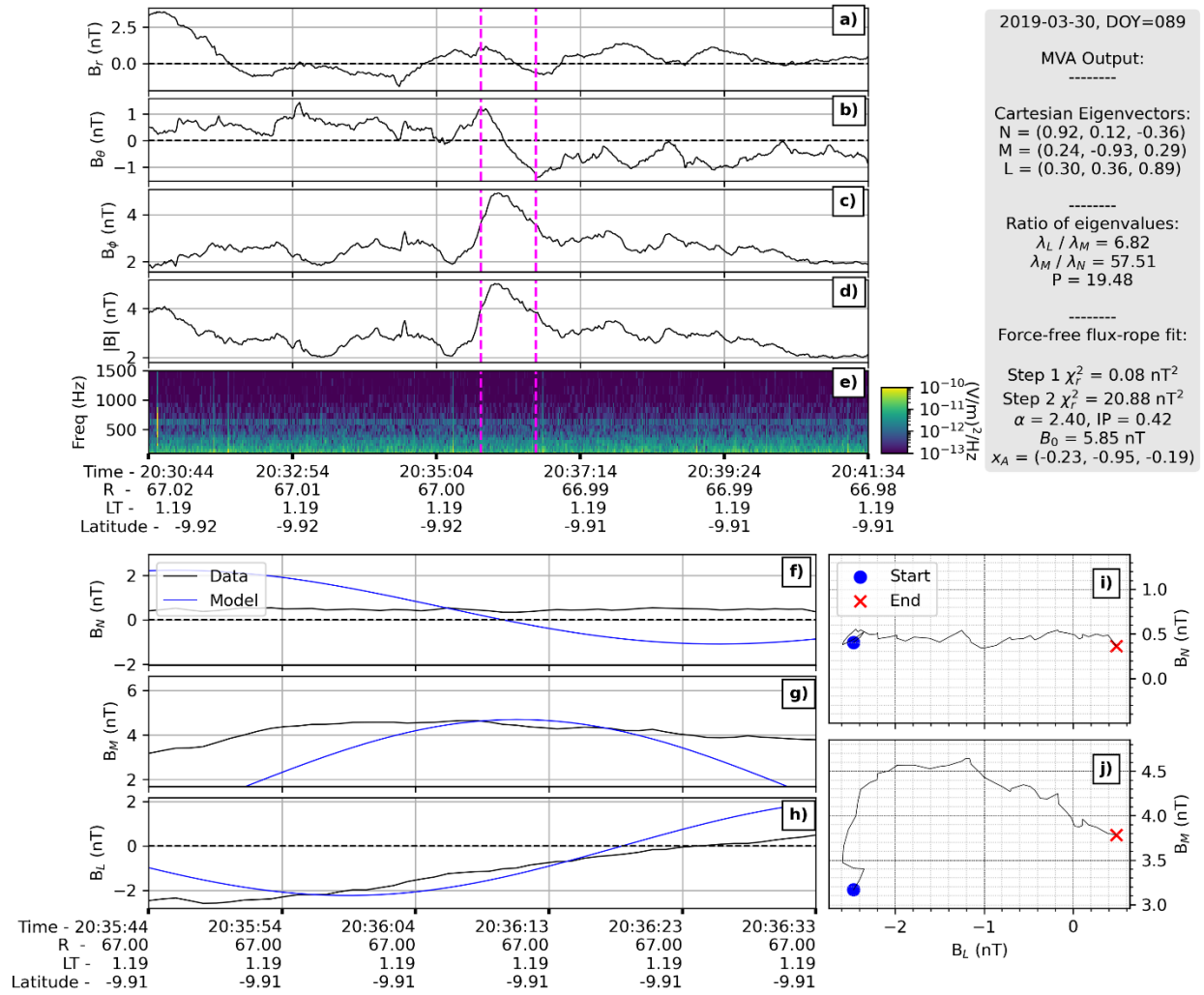


Figure S77

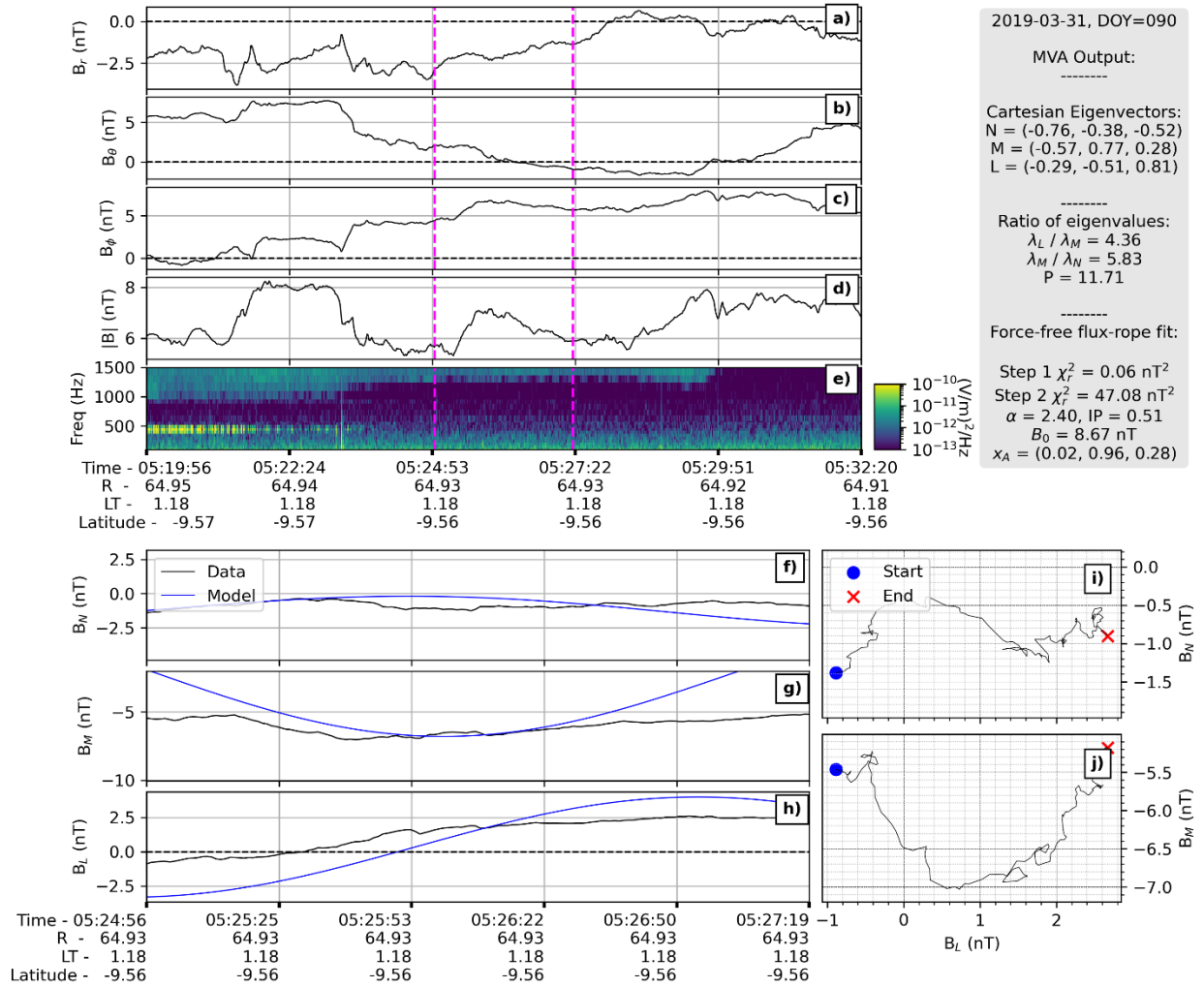


Figure S78

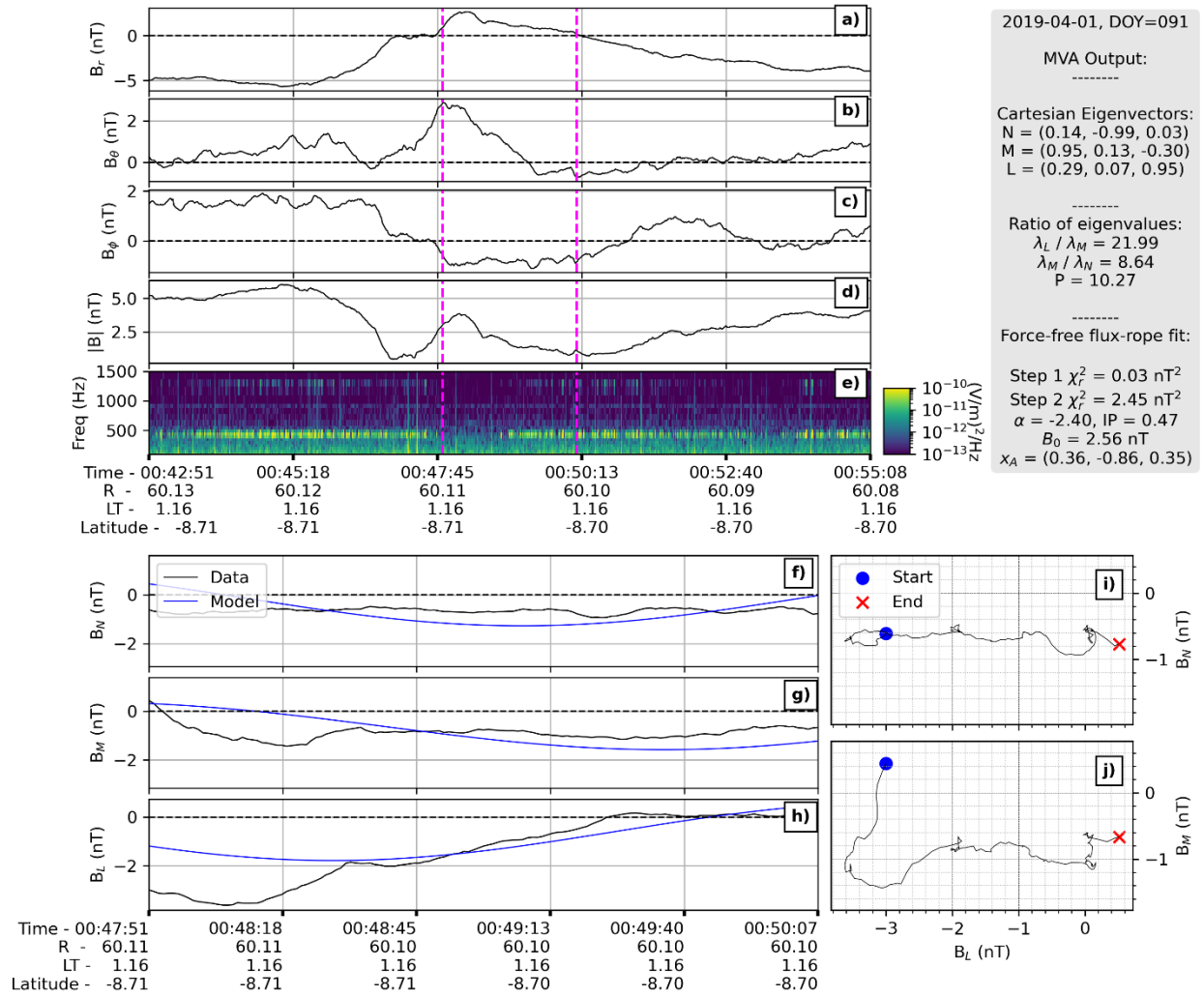


Figure S79

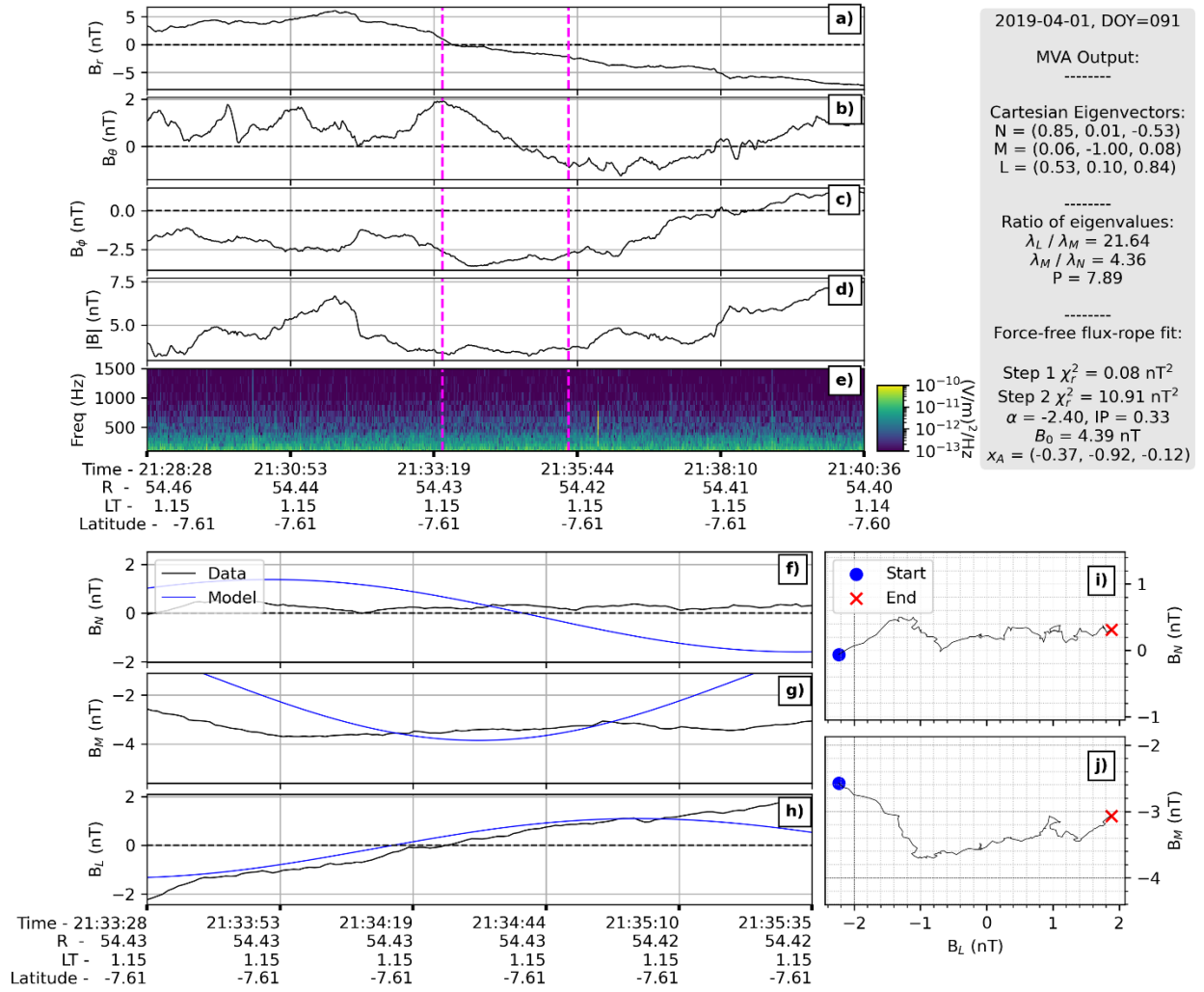


Figure S80

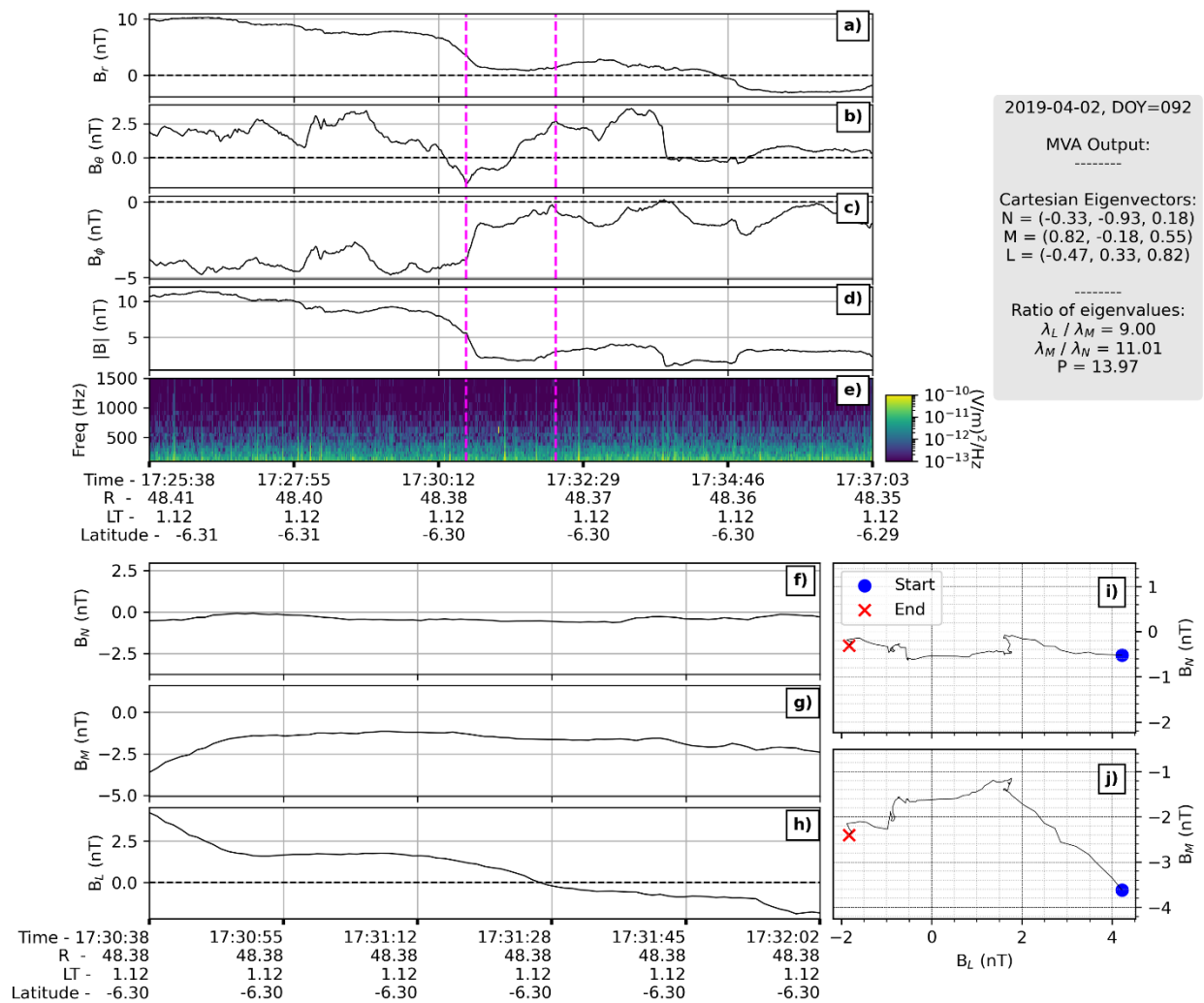


Figure S81

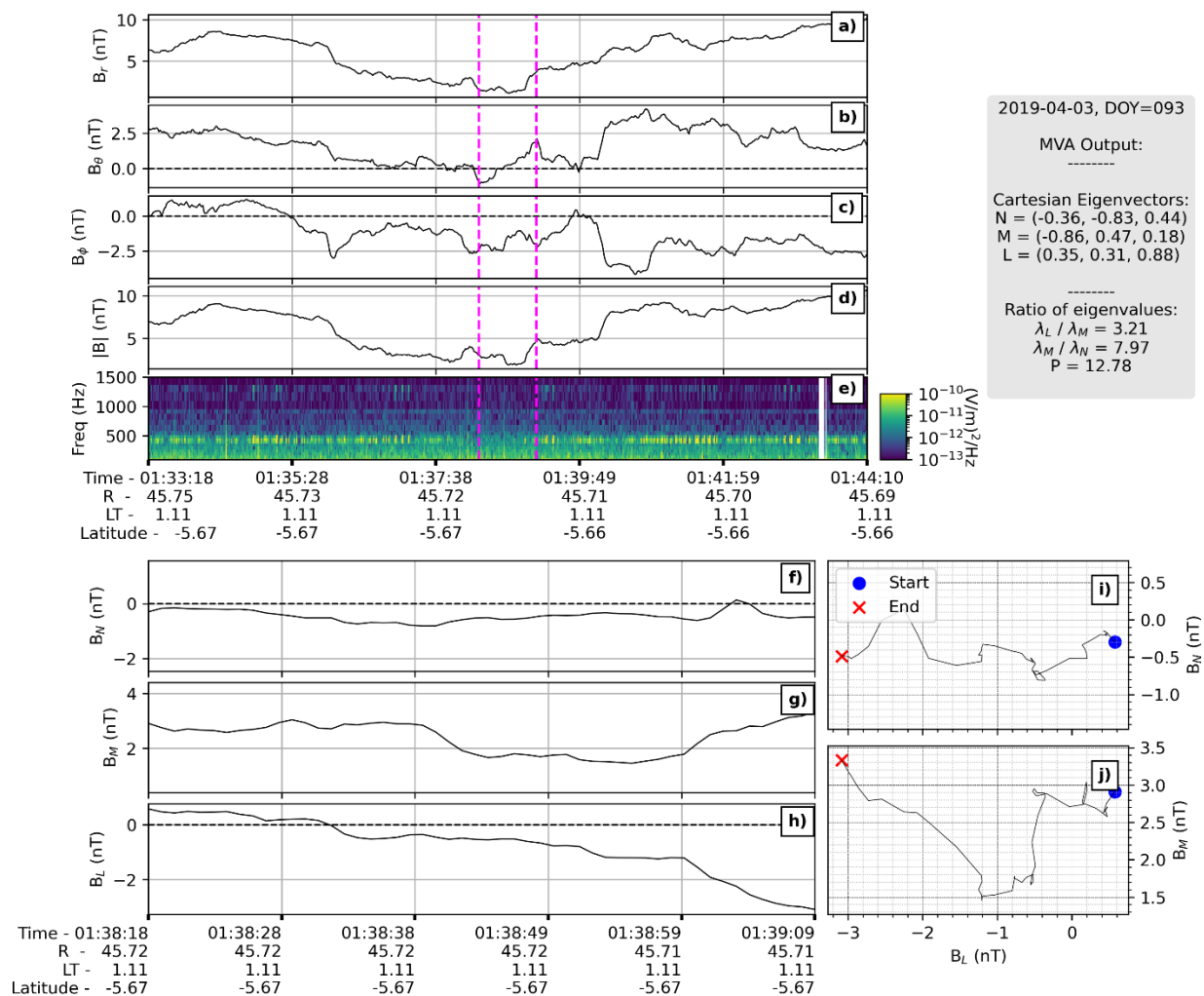


Figure S82

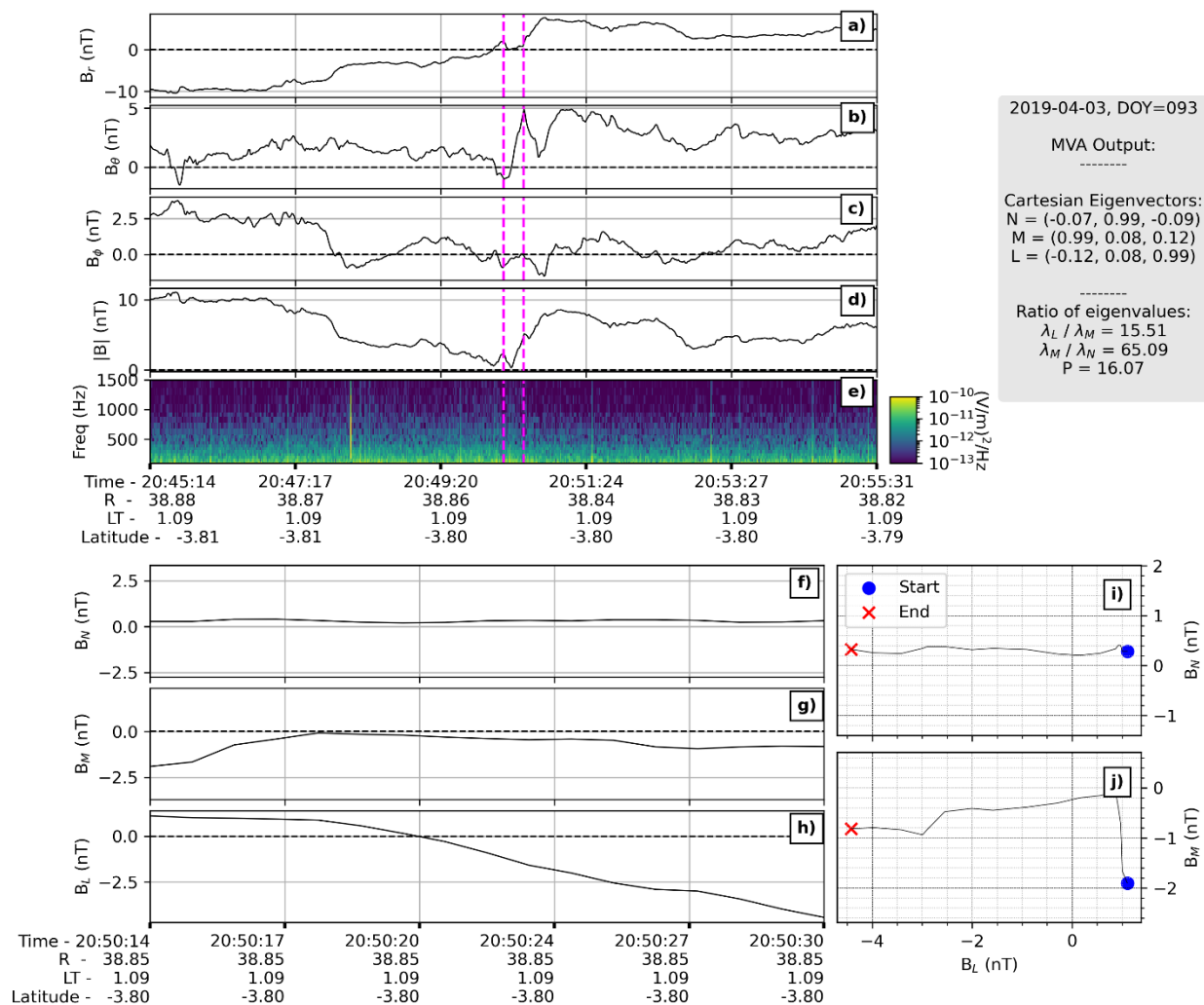


Figure S83

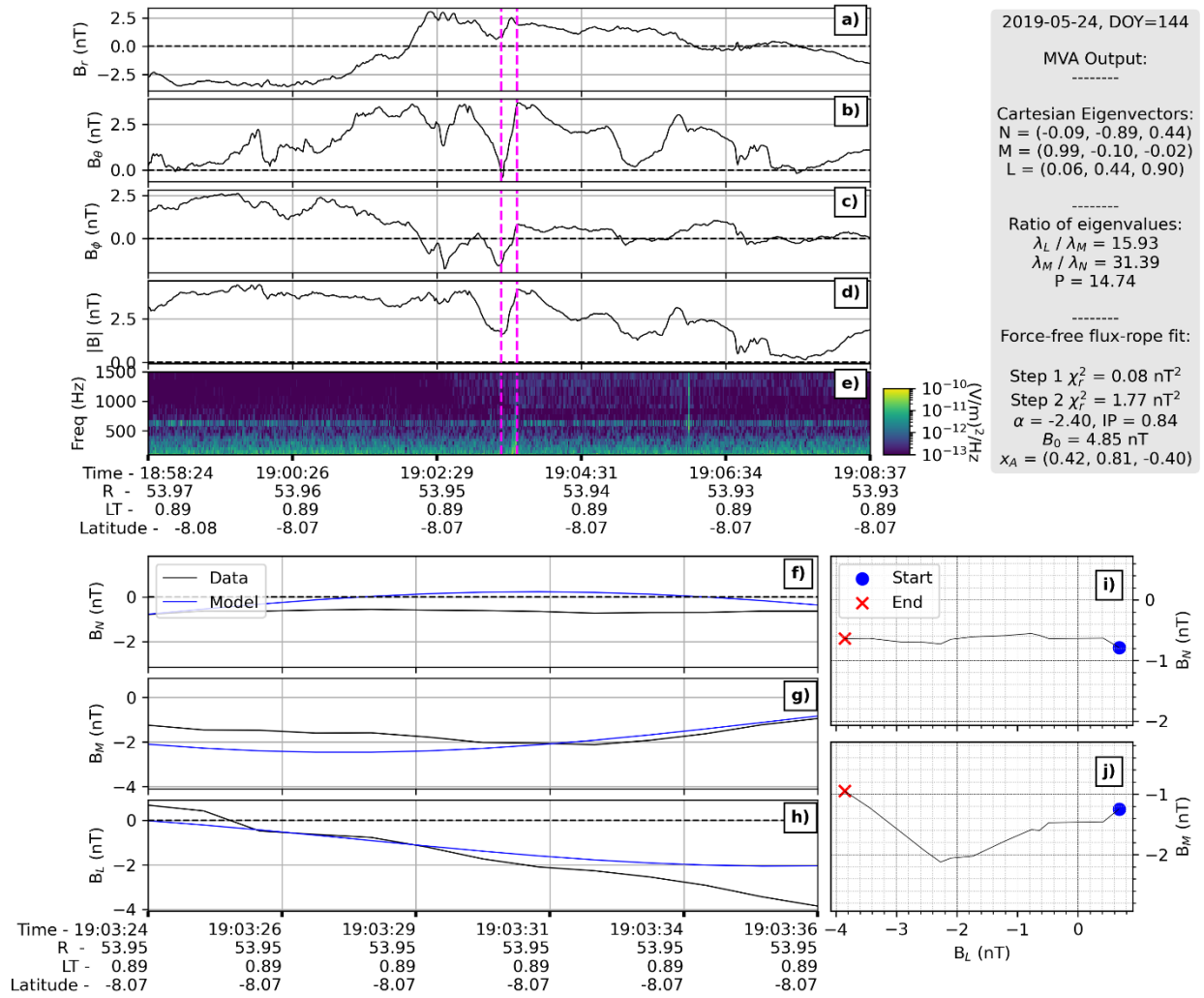


Figure S84

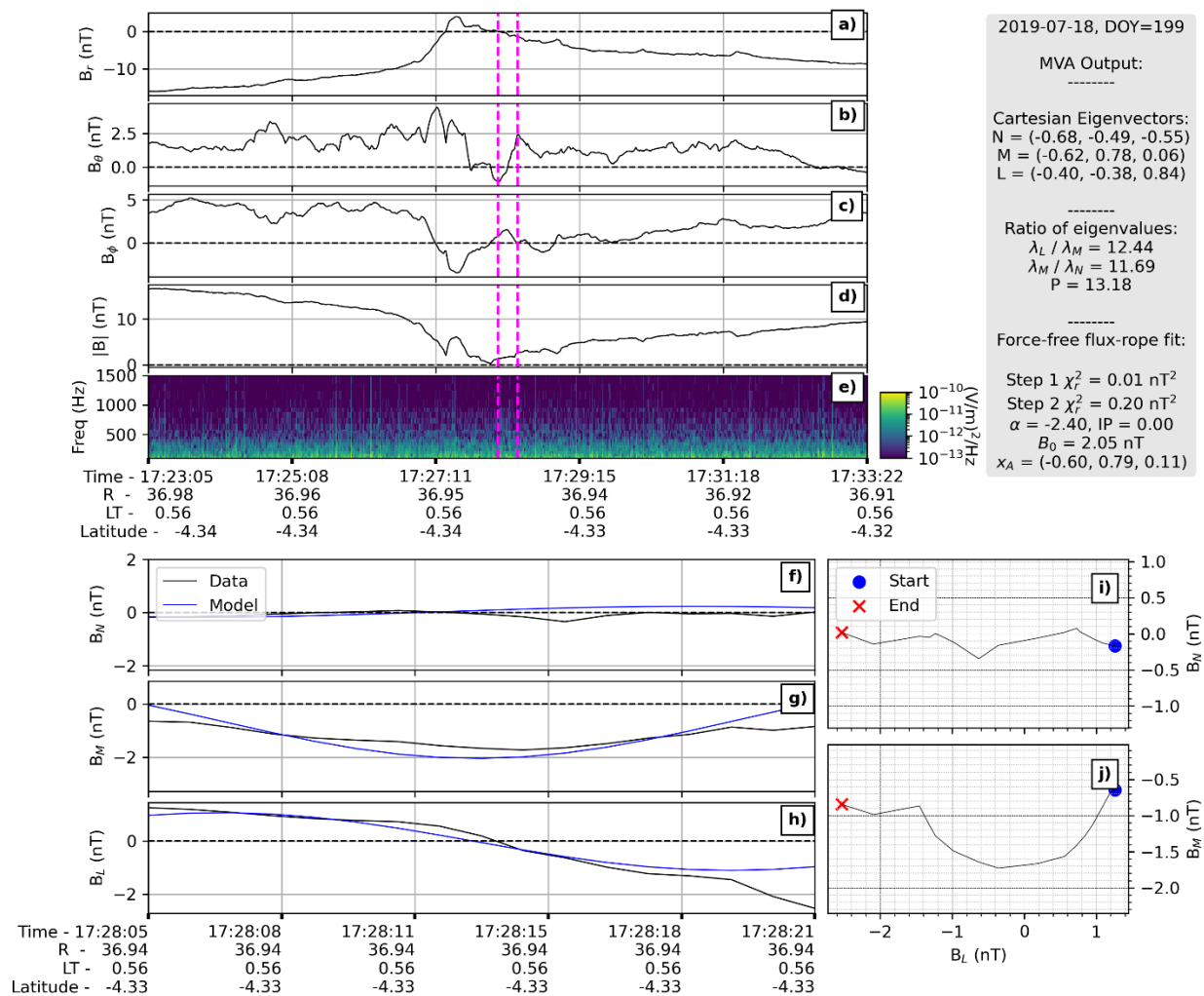


Figure S85

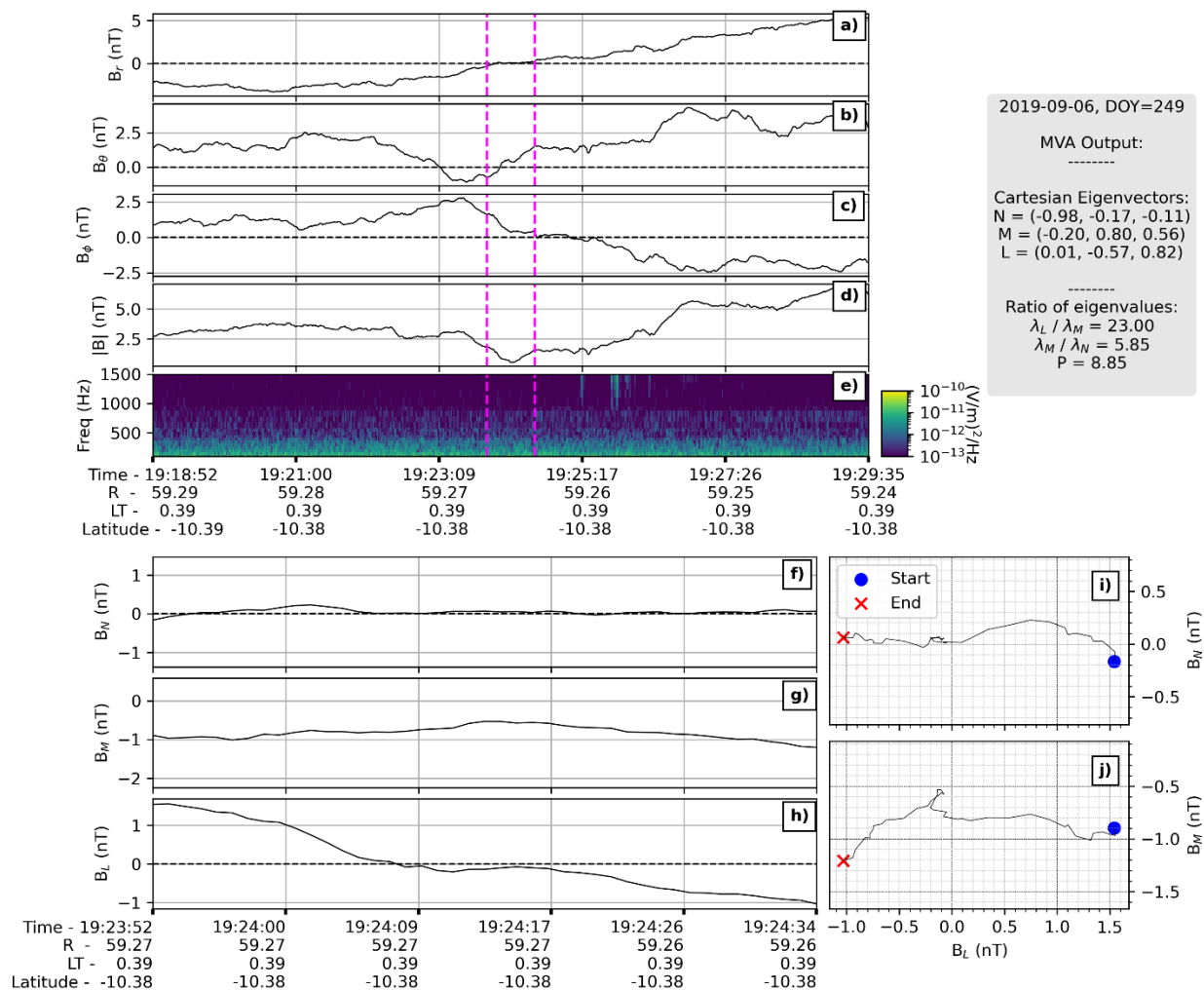


Figure S86

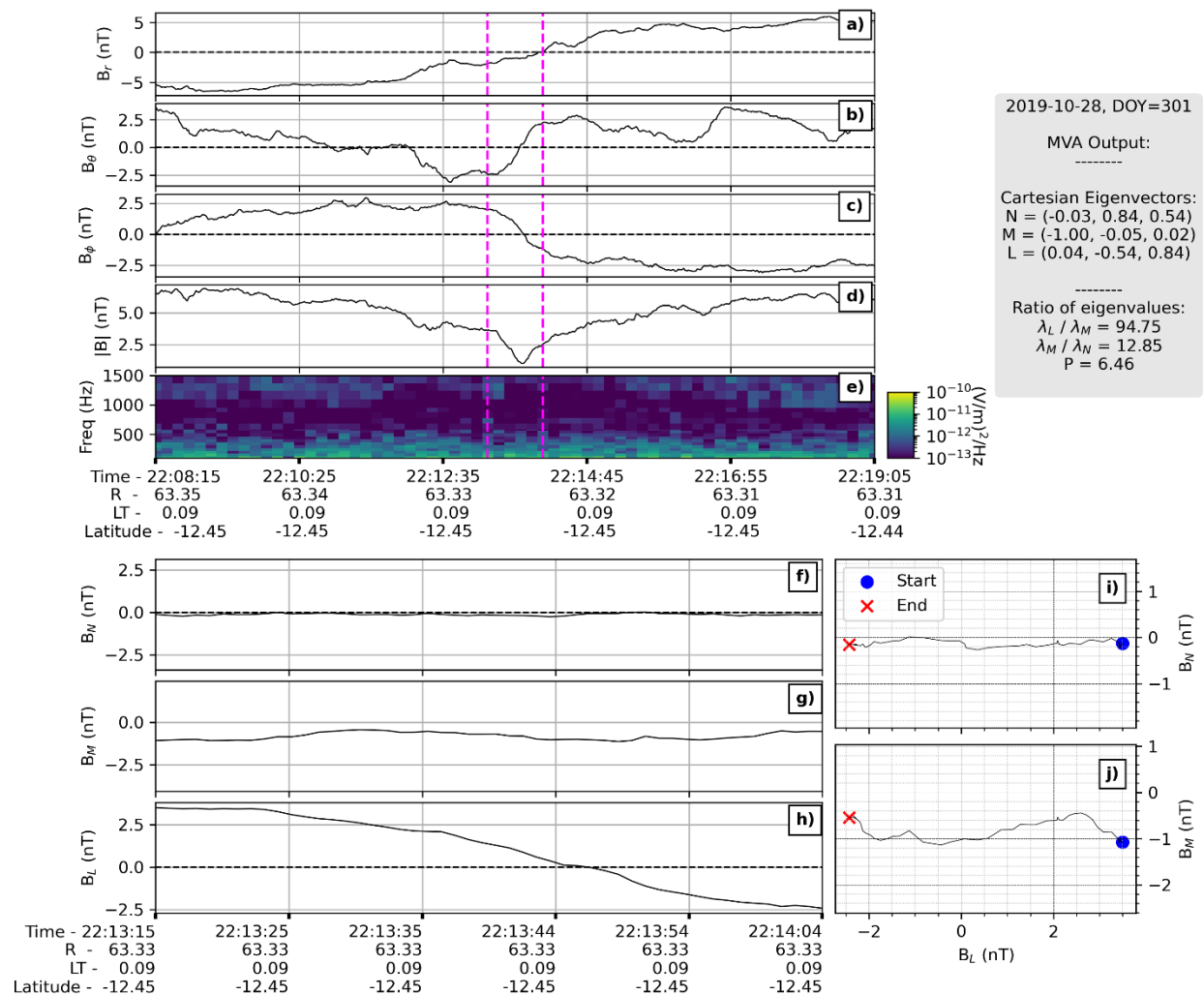
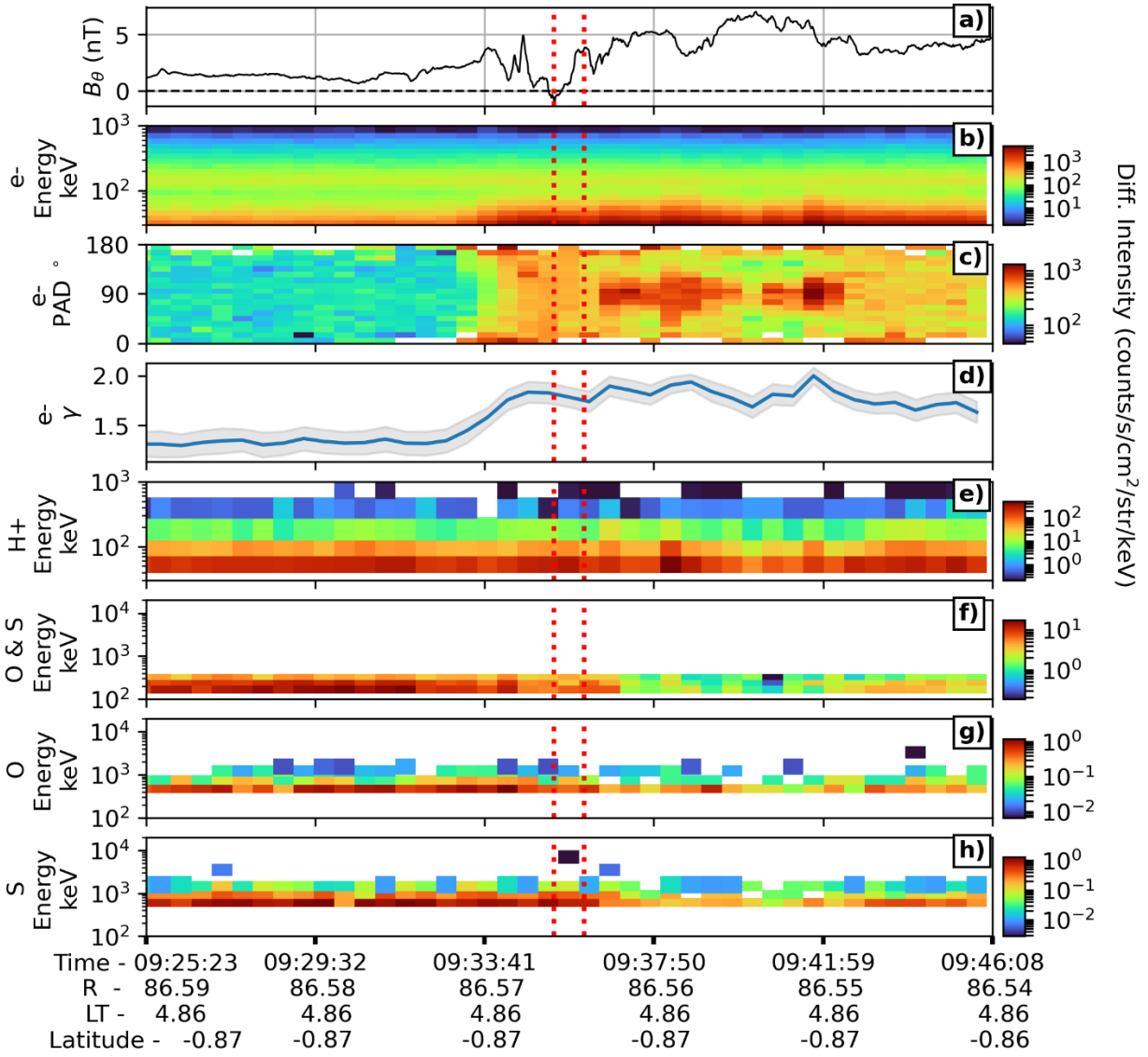
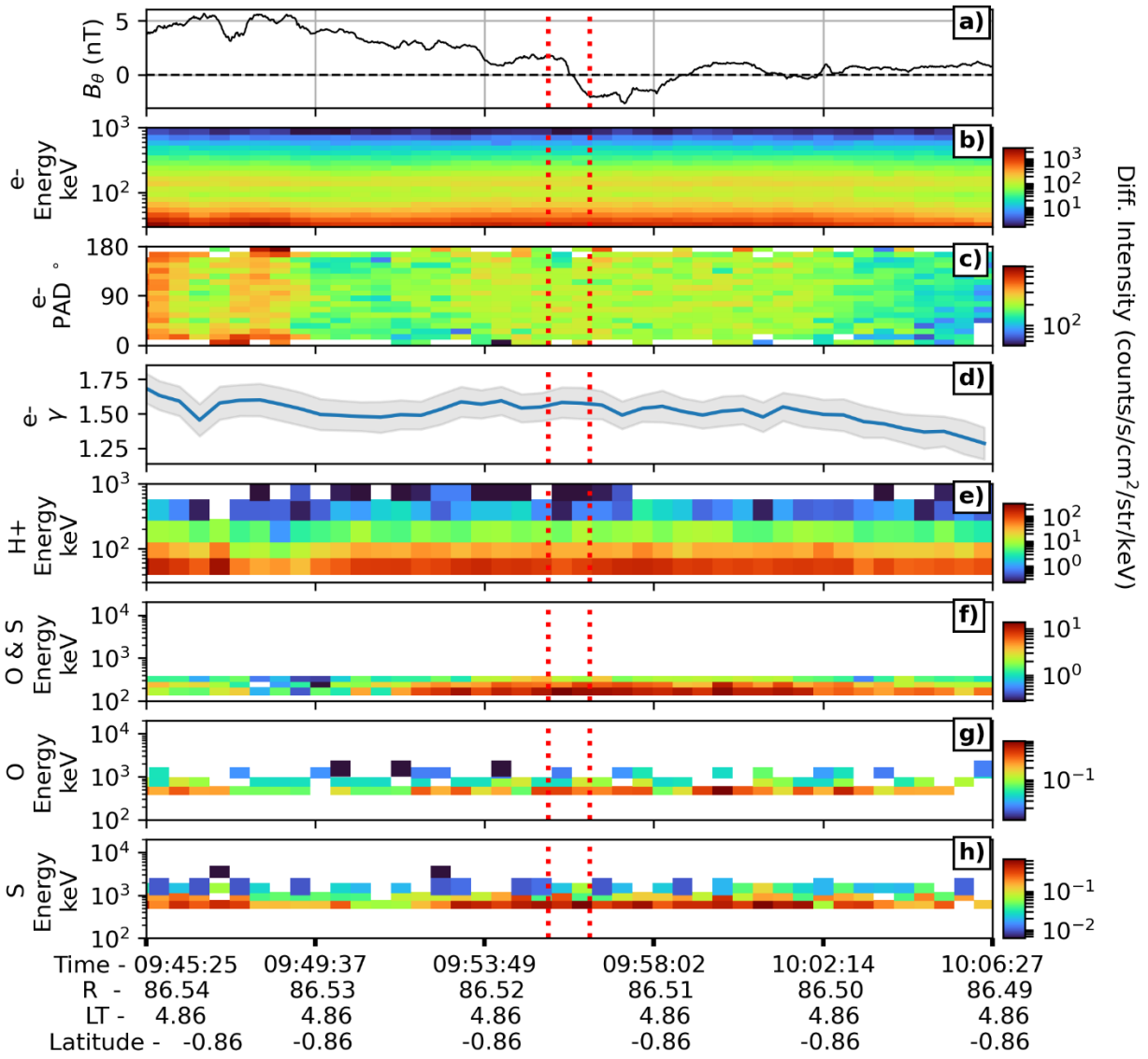


Figure S87



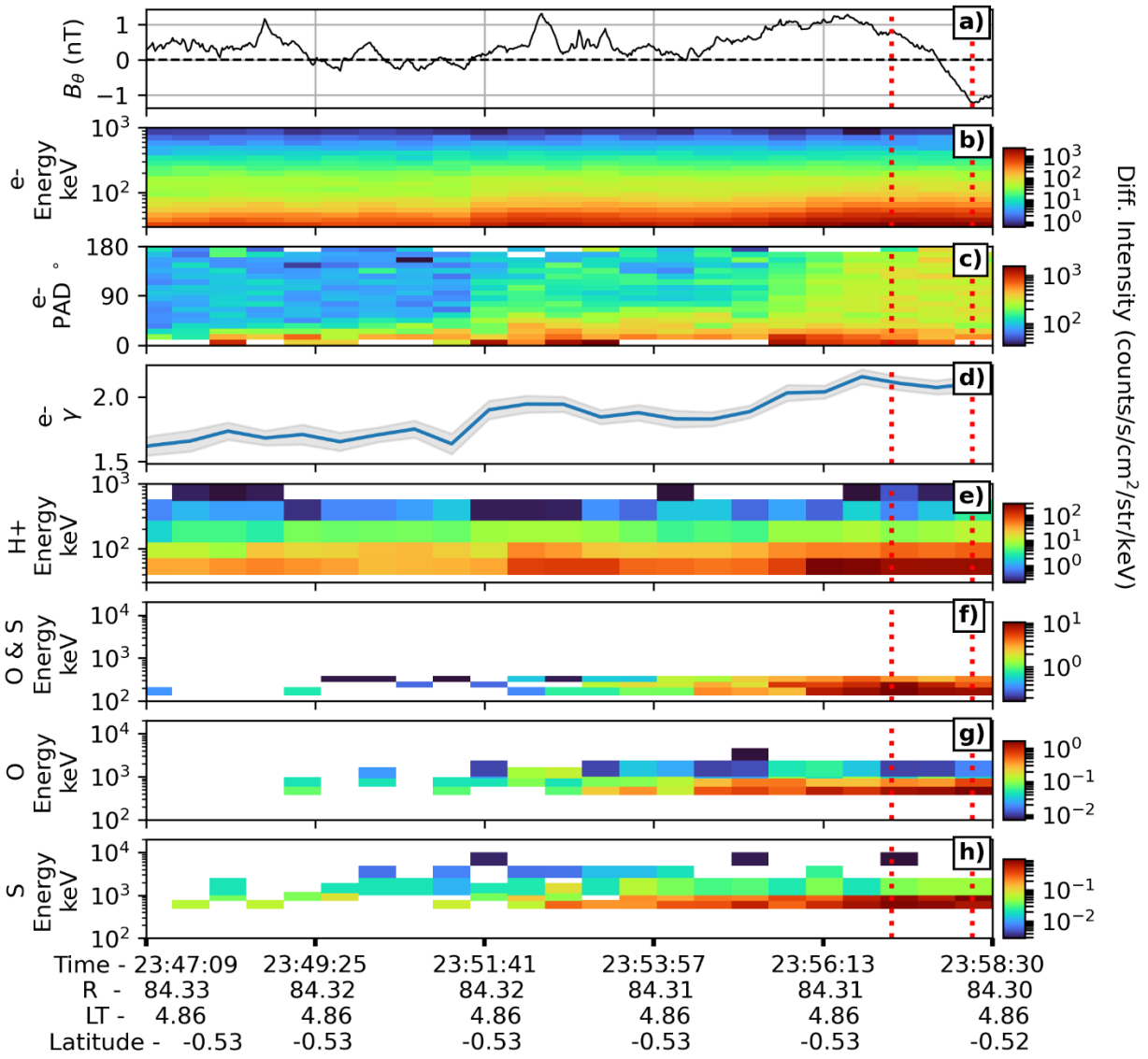
2017-03-16, DOY=075

Figure S88



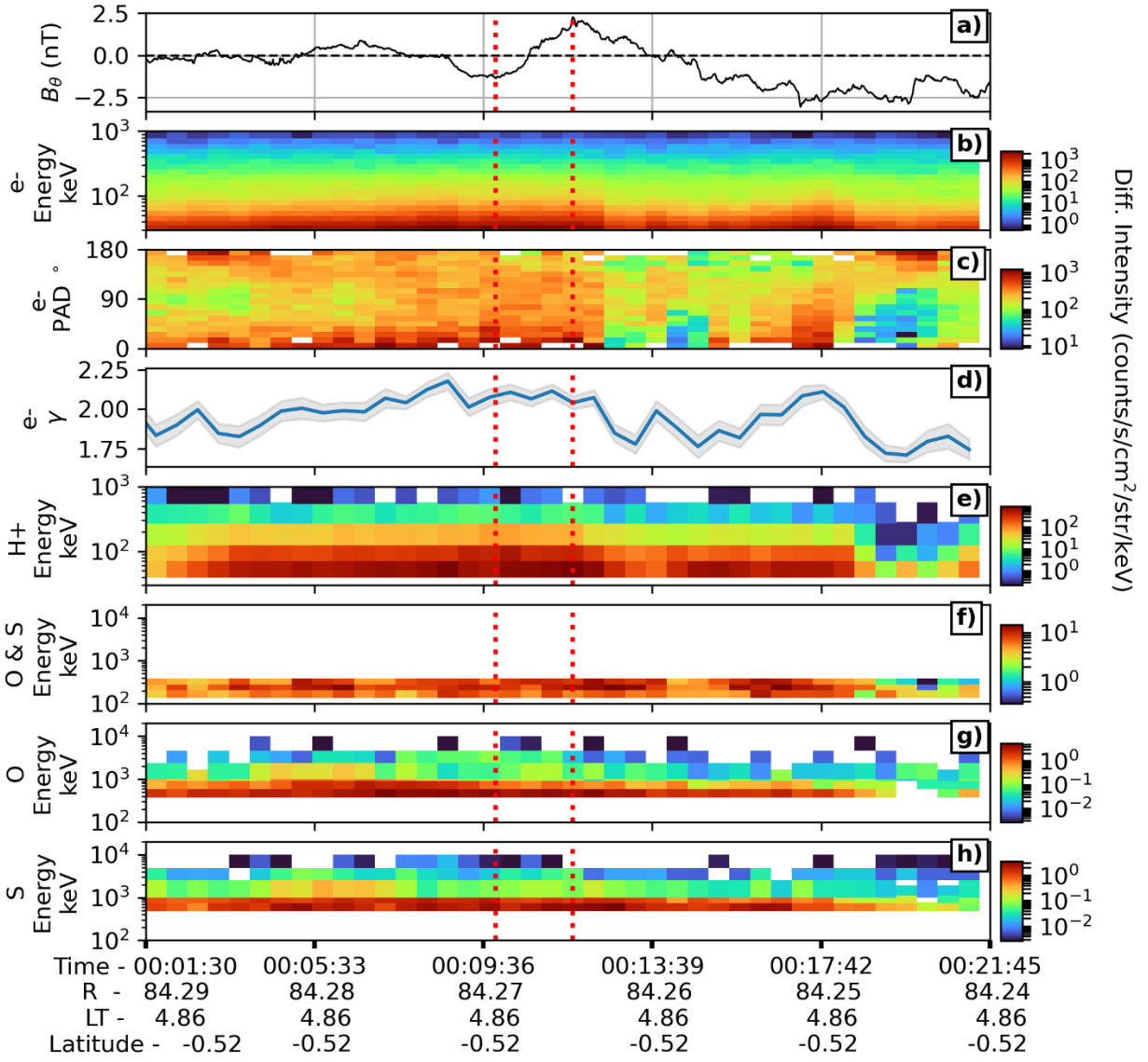
2017-03-16, DOY=075

Figure S89



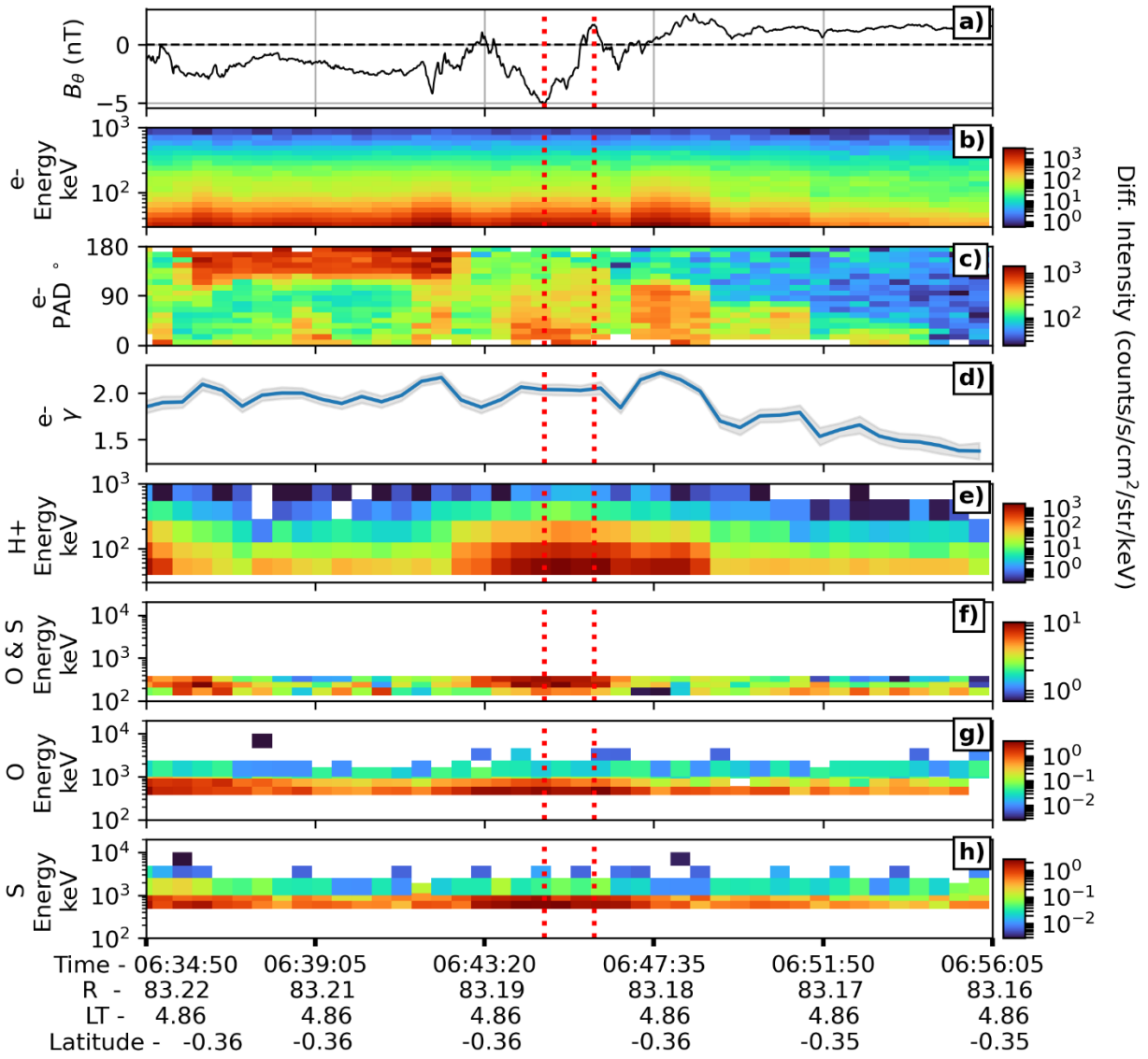
2017-03-16, DOY=075

Figure S90



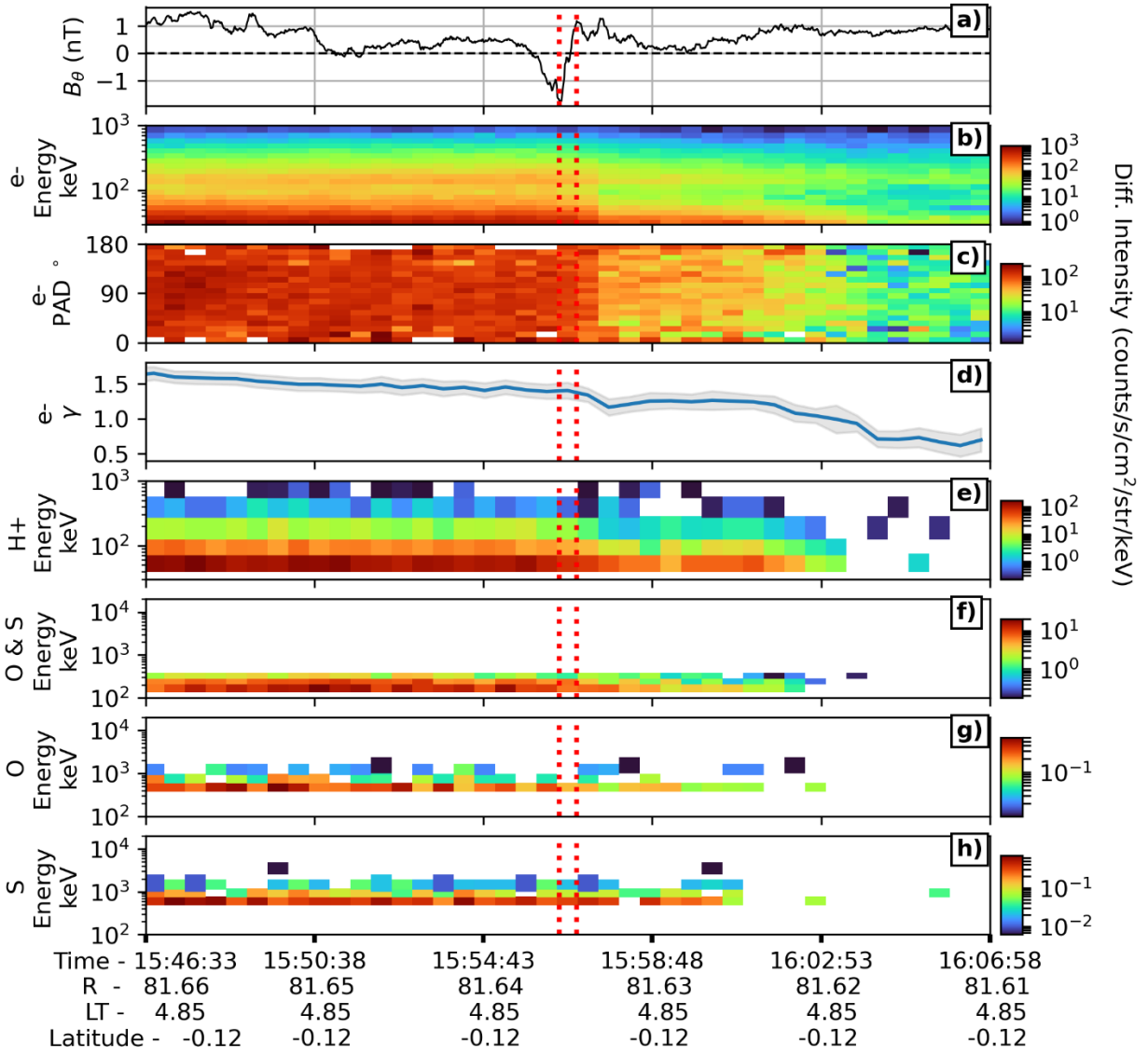
2017-03-17, DOY=076

Figure S91



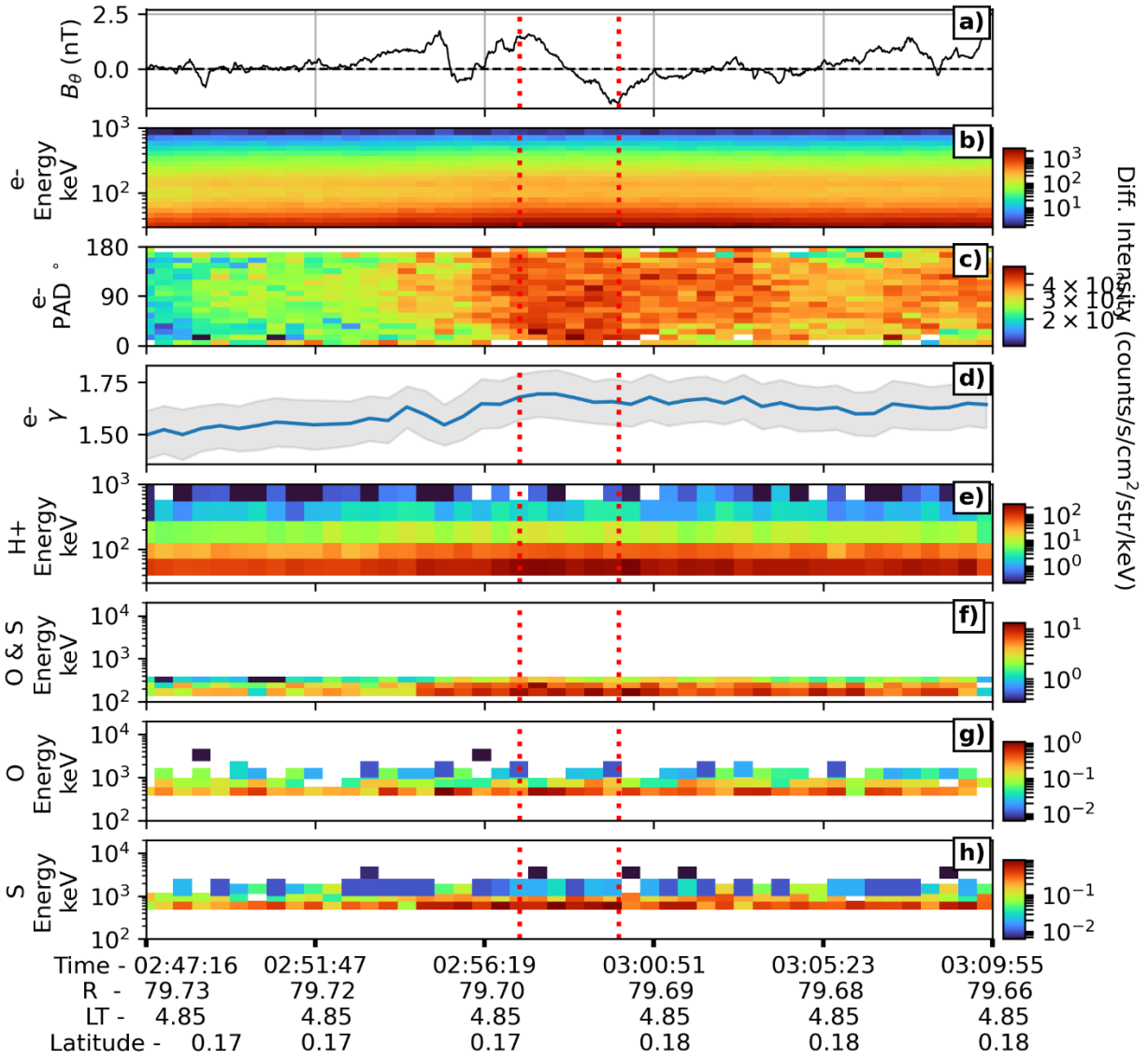
2017-03-17, DOY=076

Figure S92



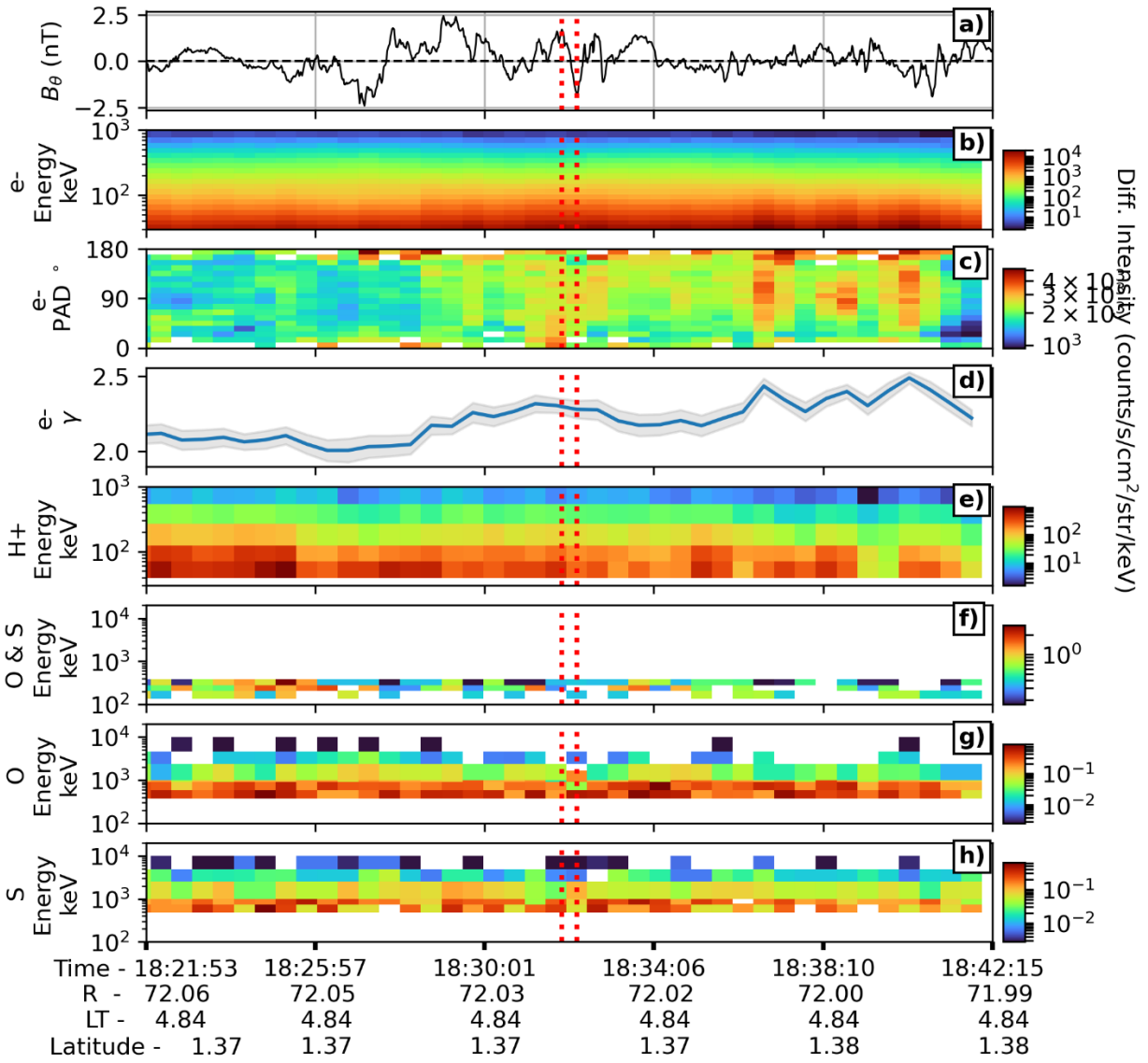
2017-03-17, DOY=076

Figure S93



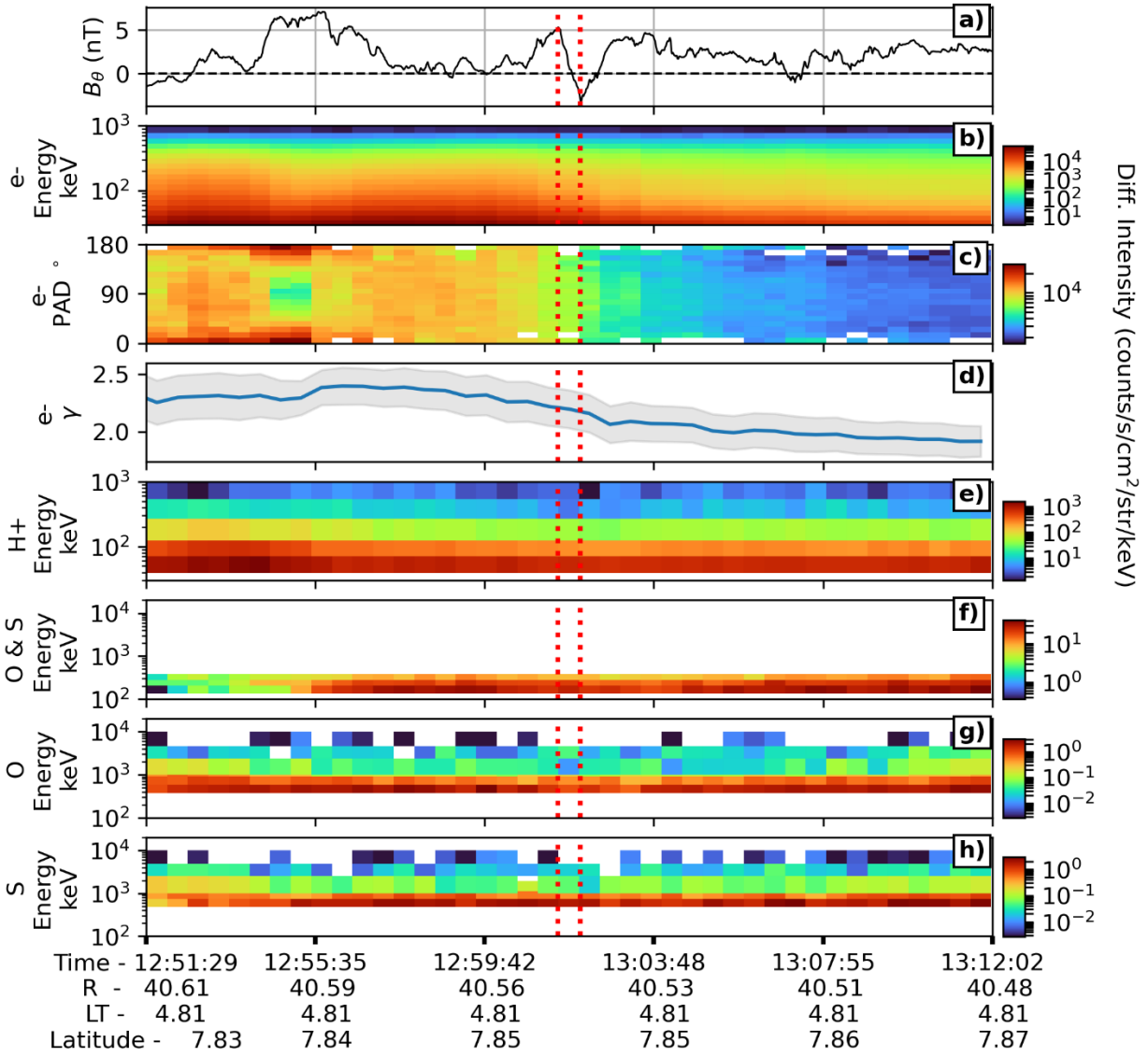
2017-03-18, DOY=077

Figure S94



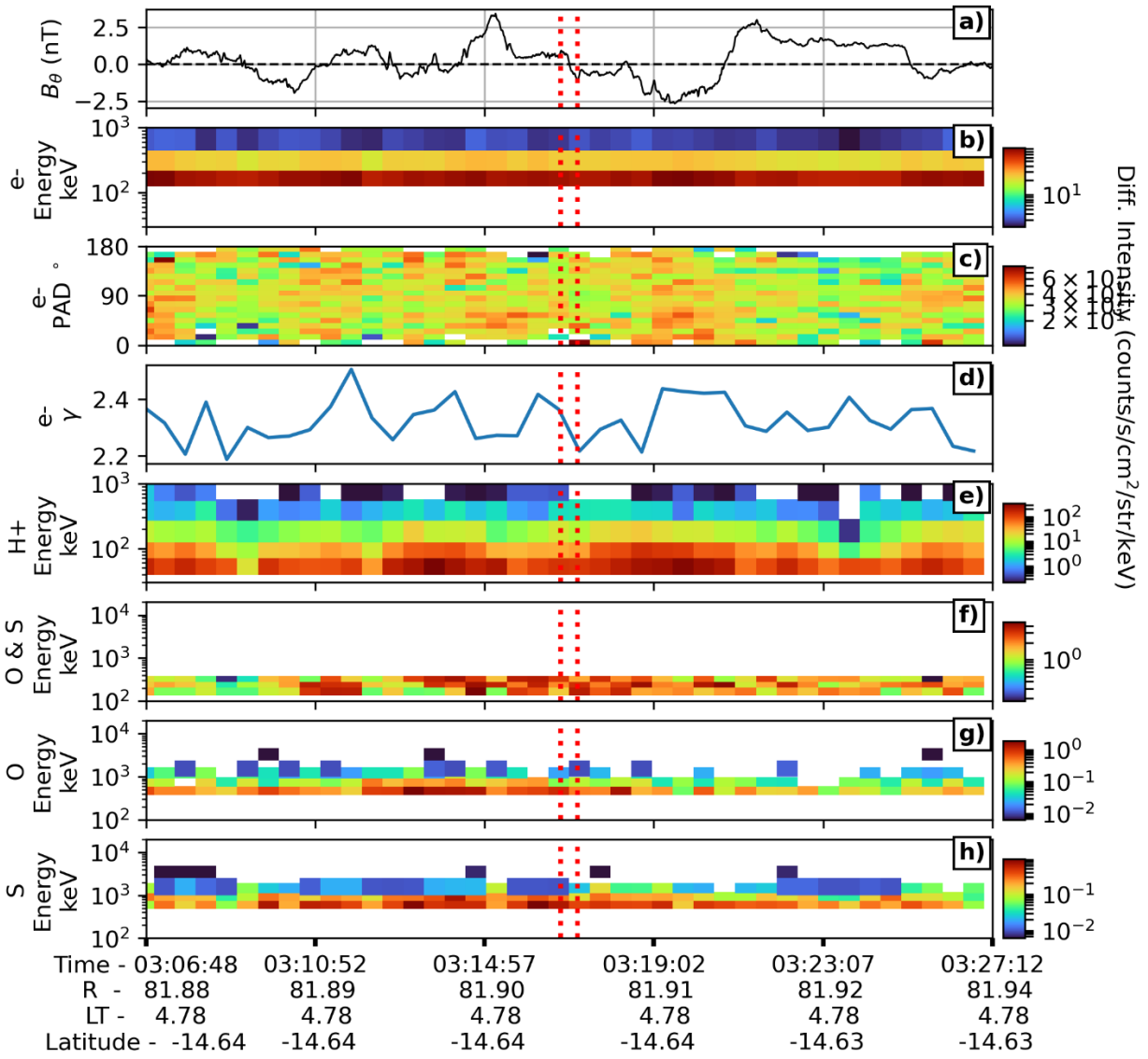
2017-03-19, DOY=078

Figure S95



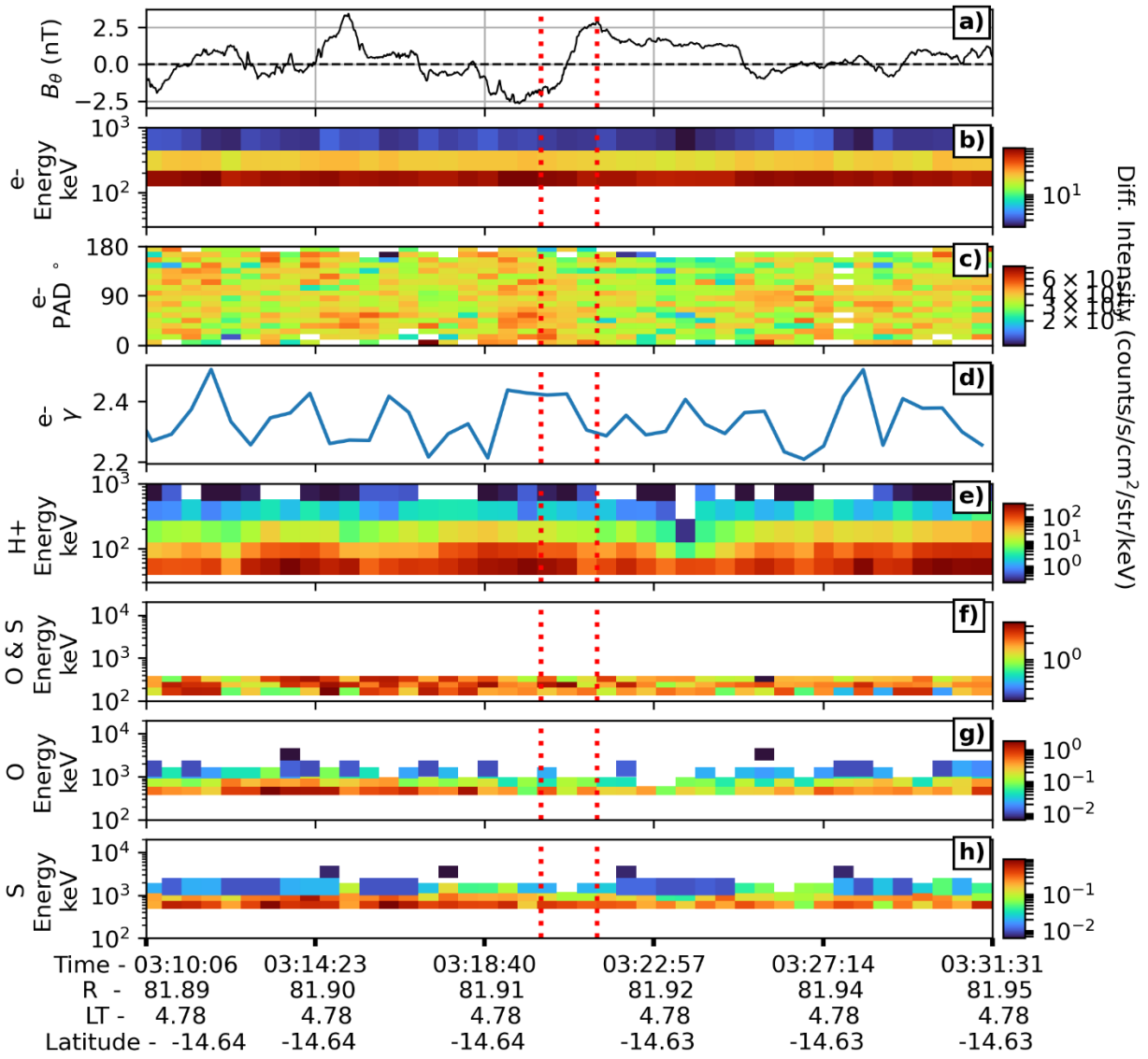
2017-03-24, DOY=083

Figure S96



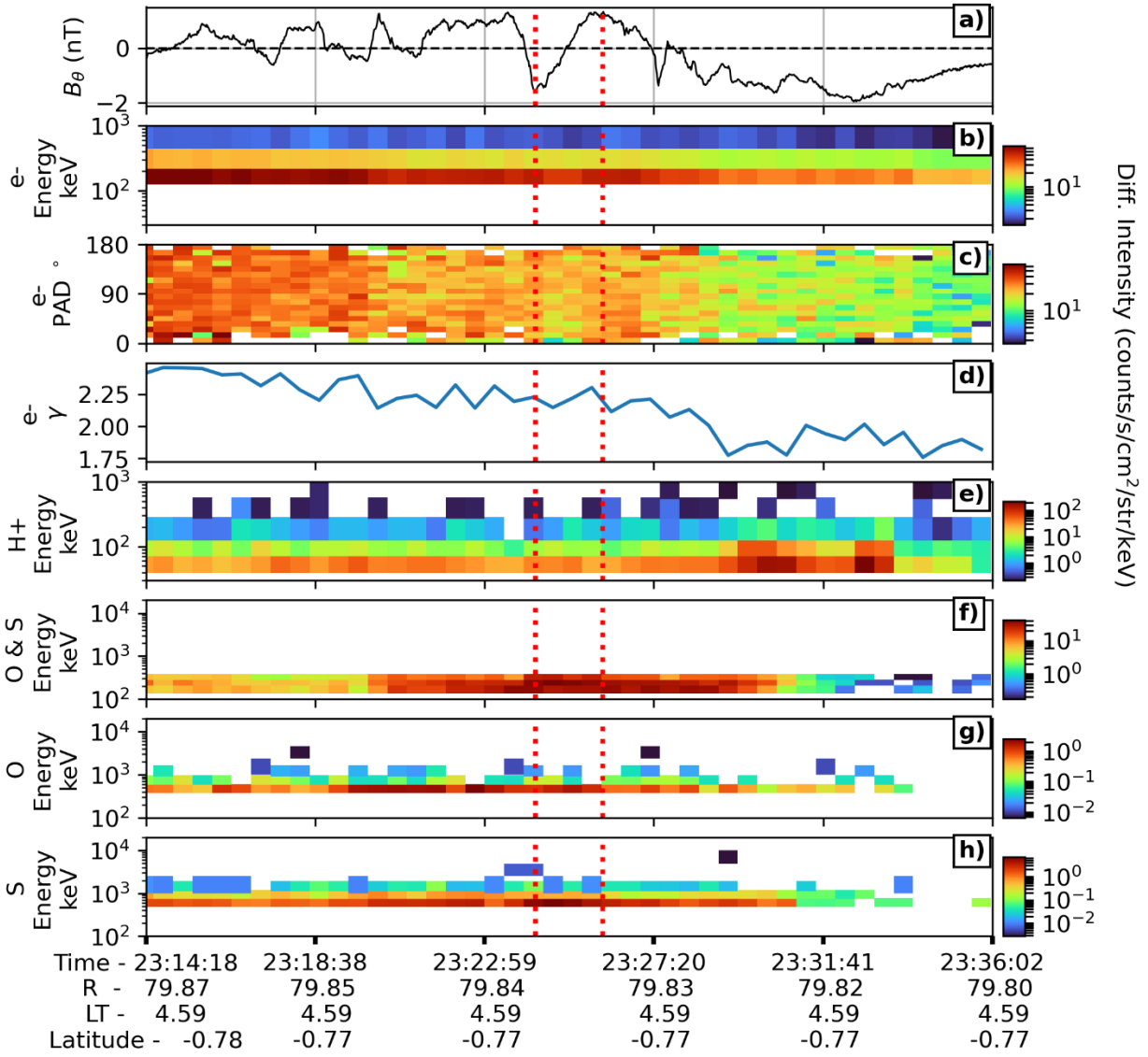
2017-04-06, DOY=096

Figure S97



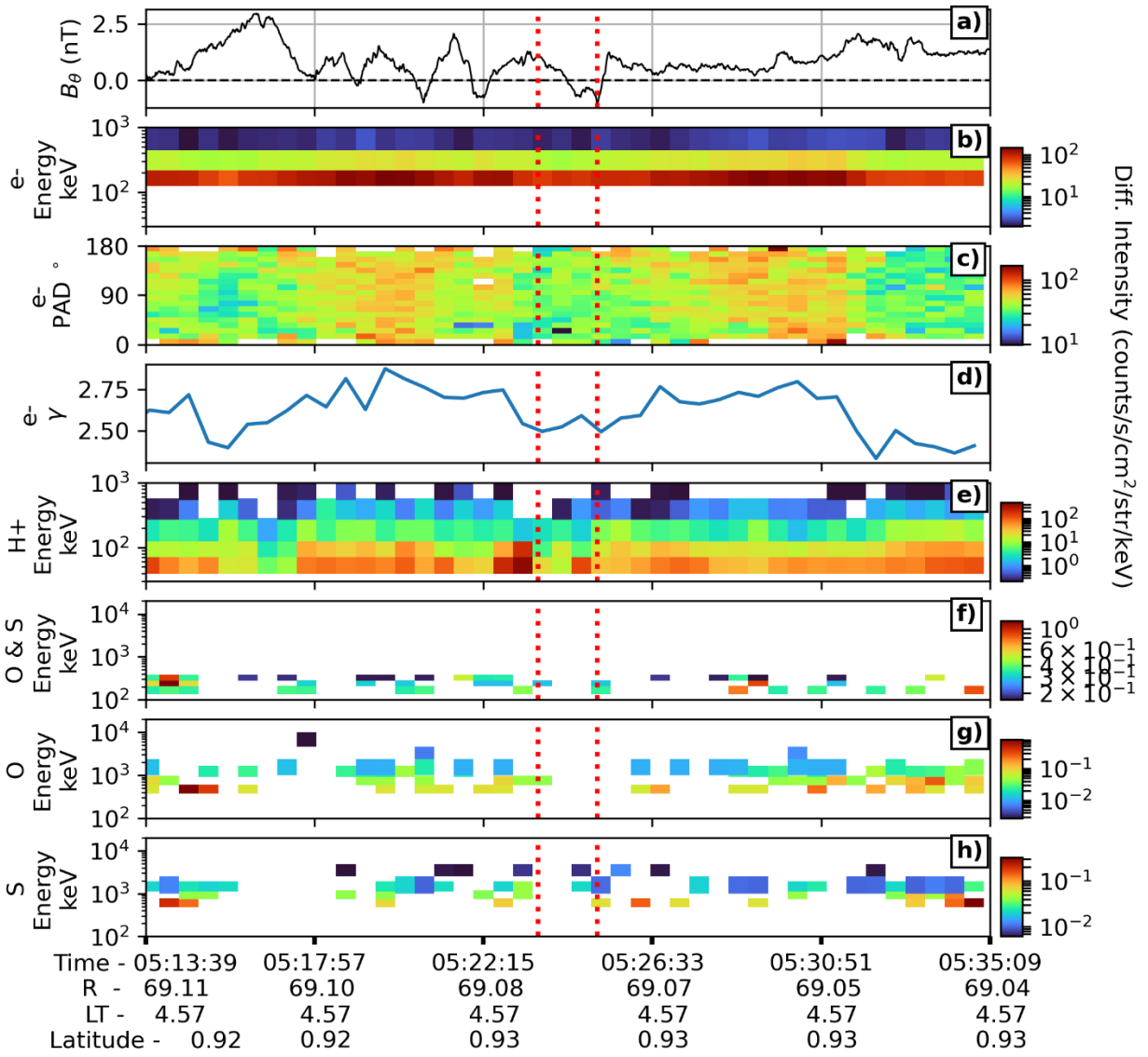
2017-04-06, DOY=096

Figure S98



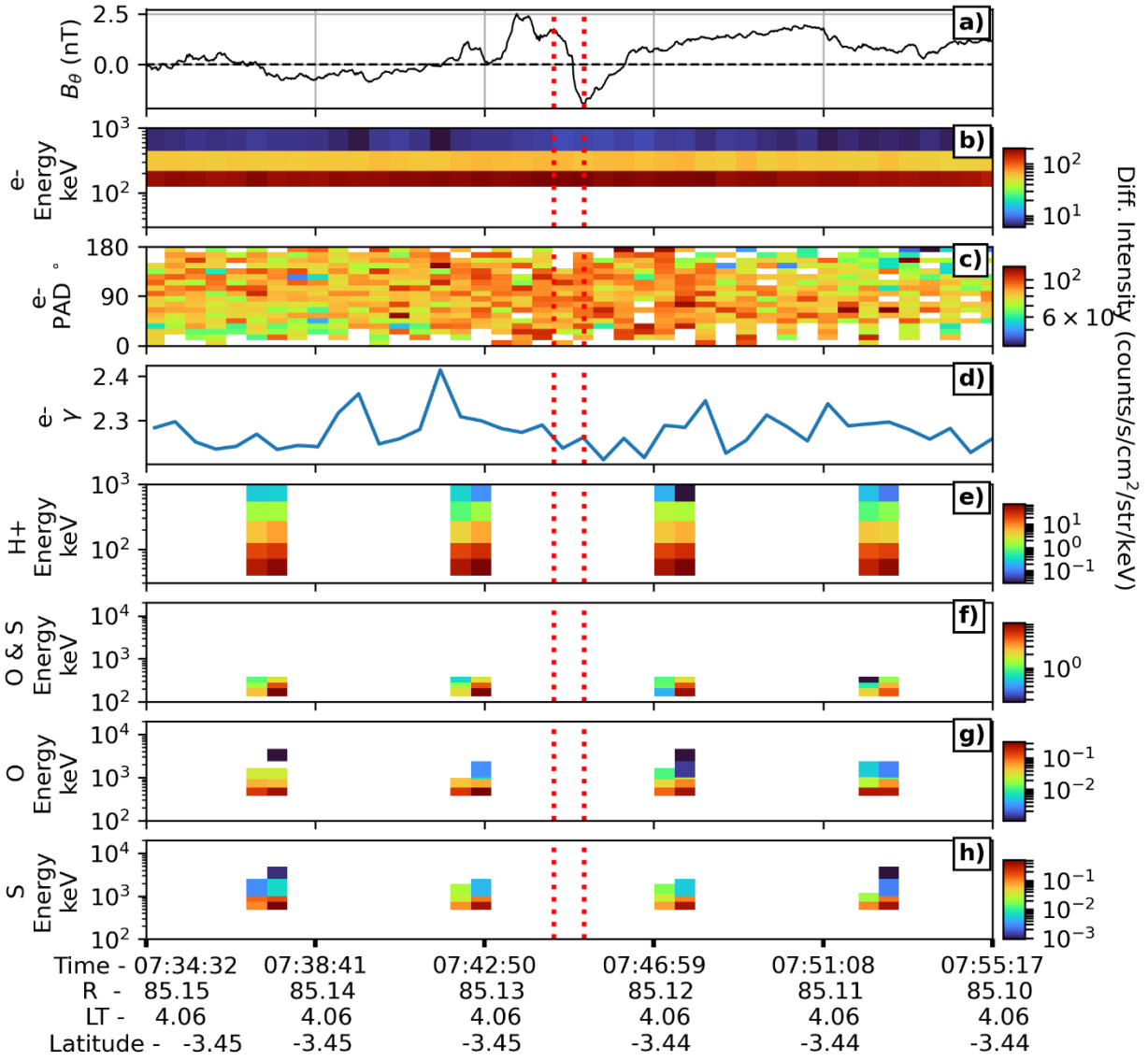
2017-05-09, DOY=129

Figure S99



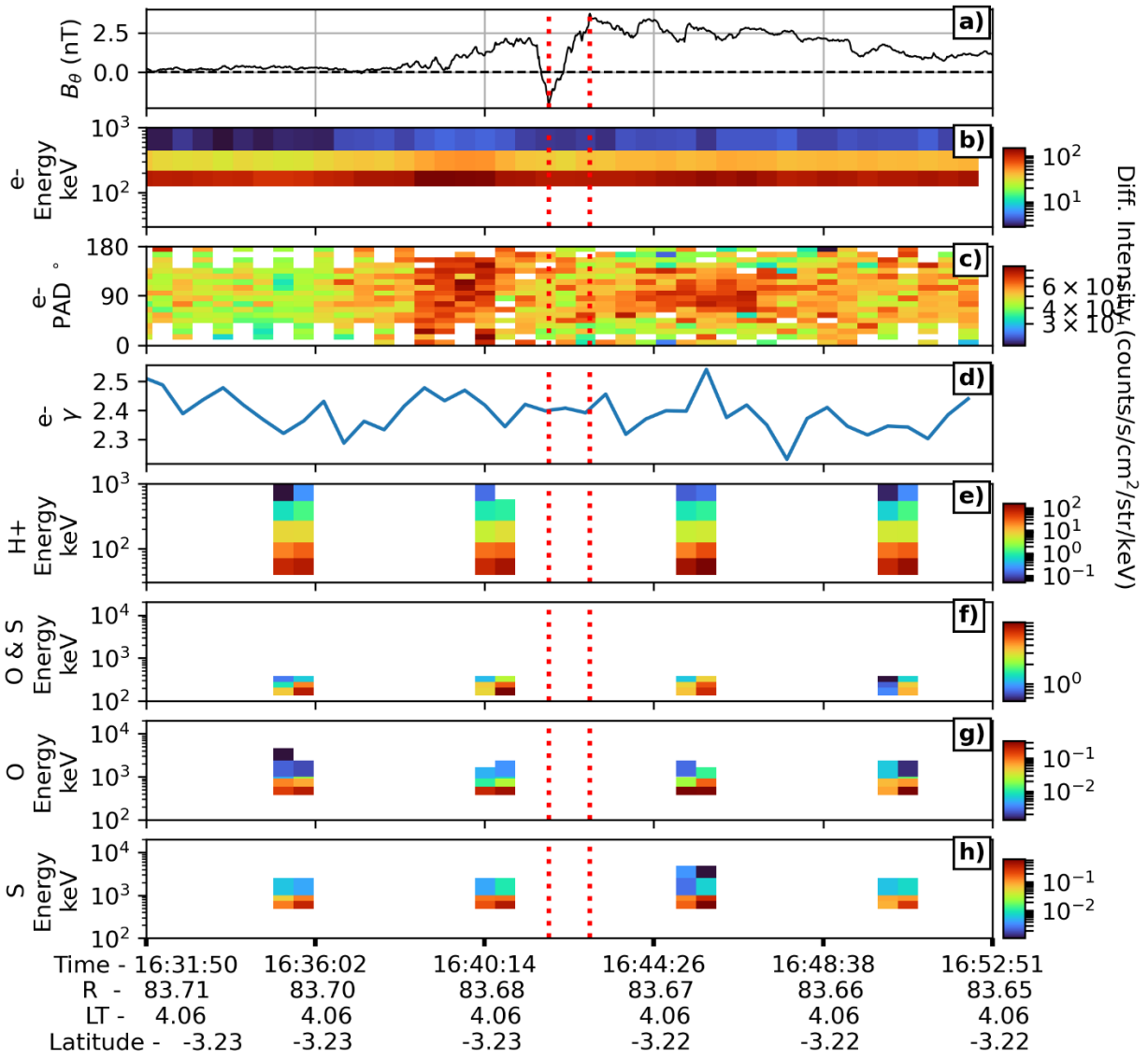
2017-05-12, DOY=132

Figure S100



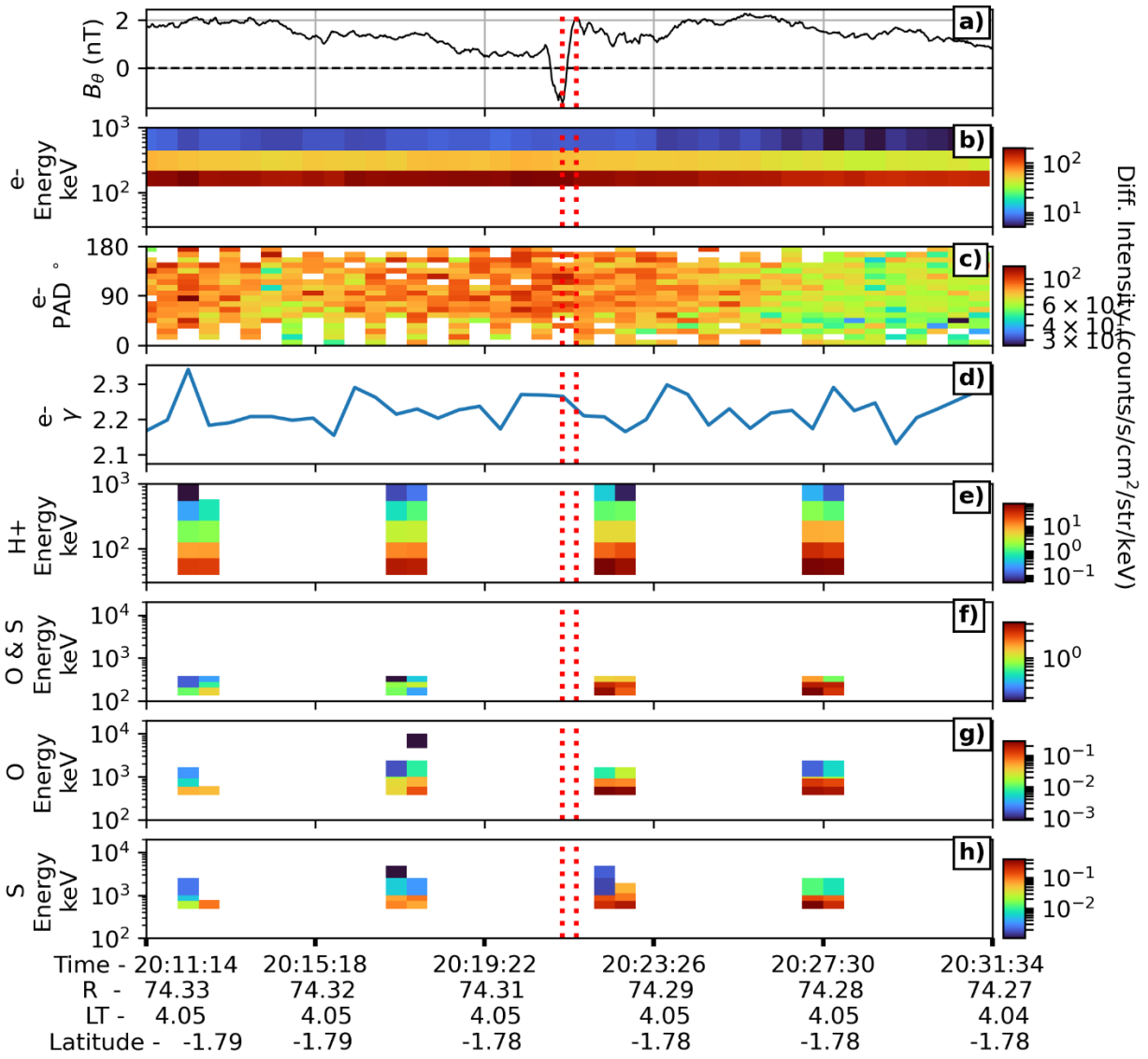
2017-08-22, DOY=234

Figure S101



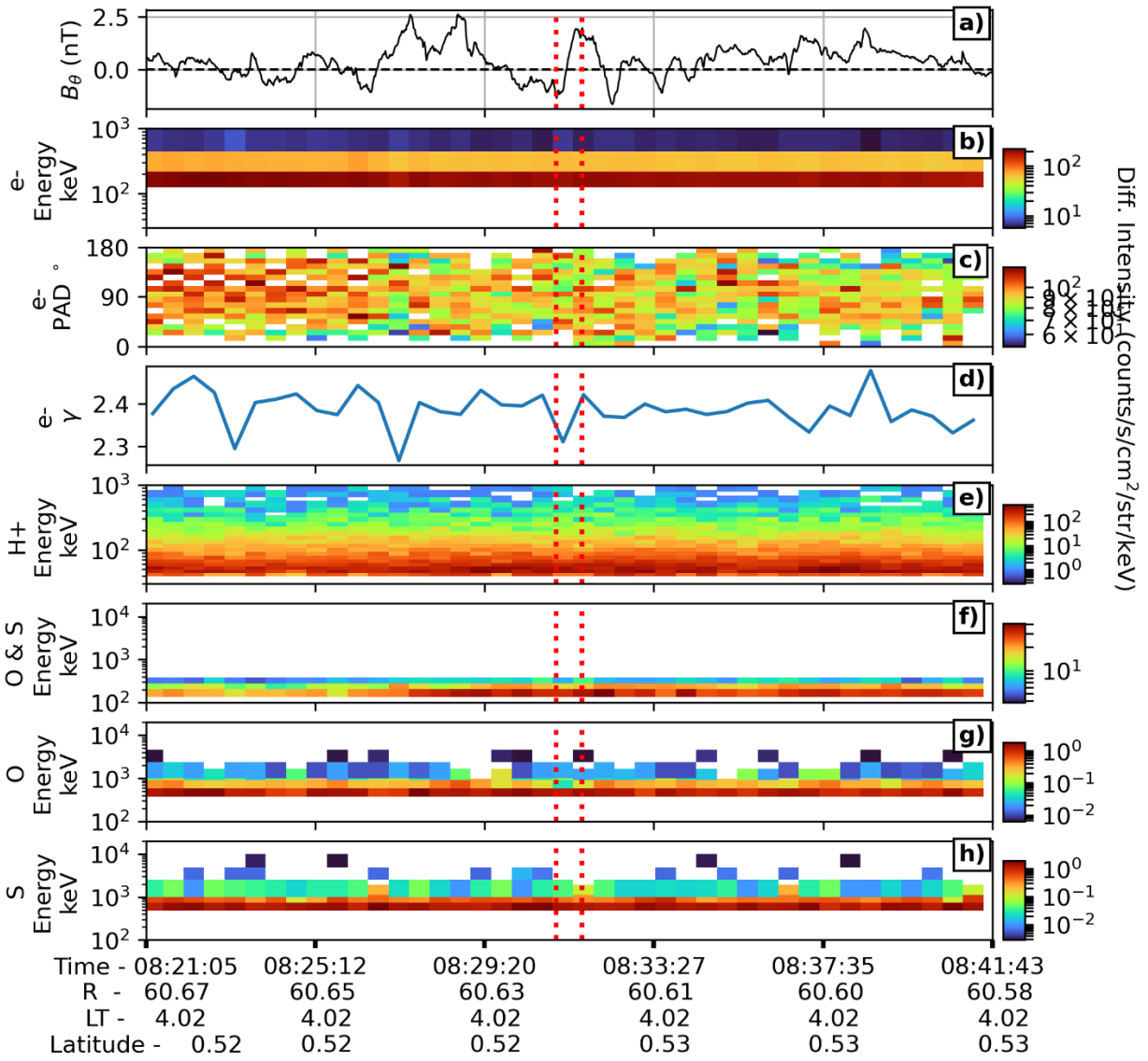
2017-08-22, DOY=234

Figure S102



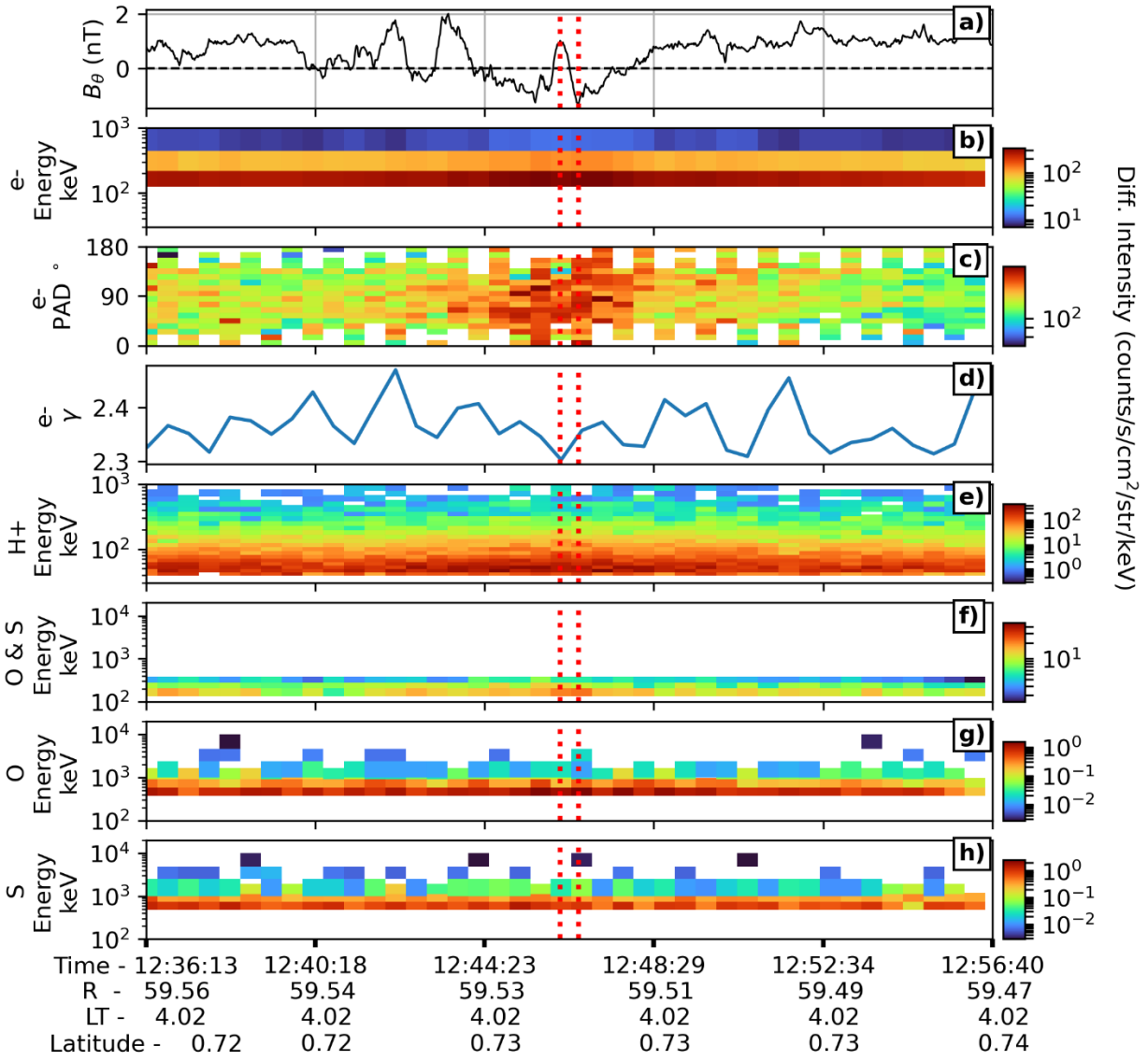
2017-08-24, DOY=236

Figure S103



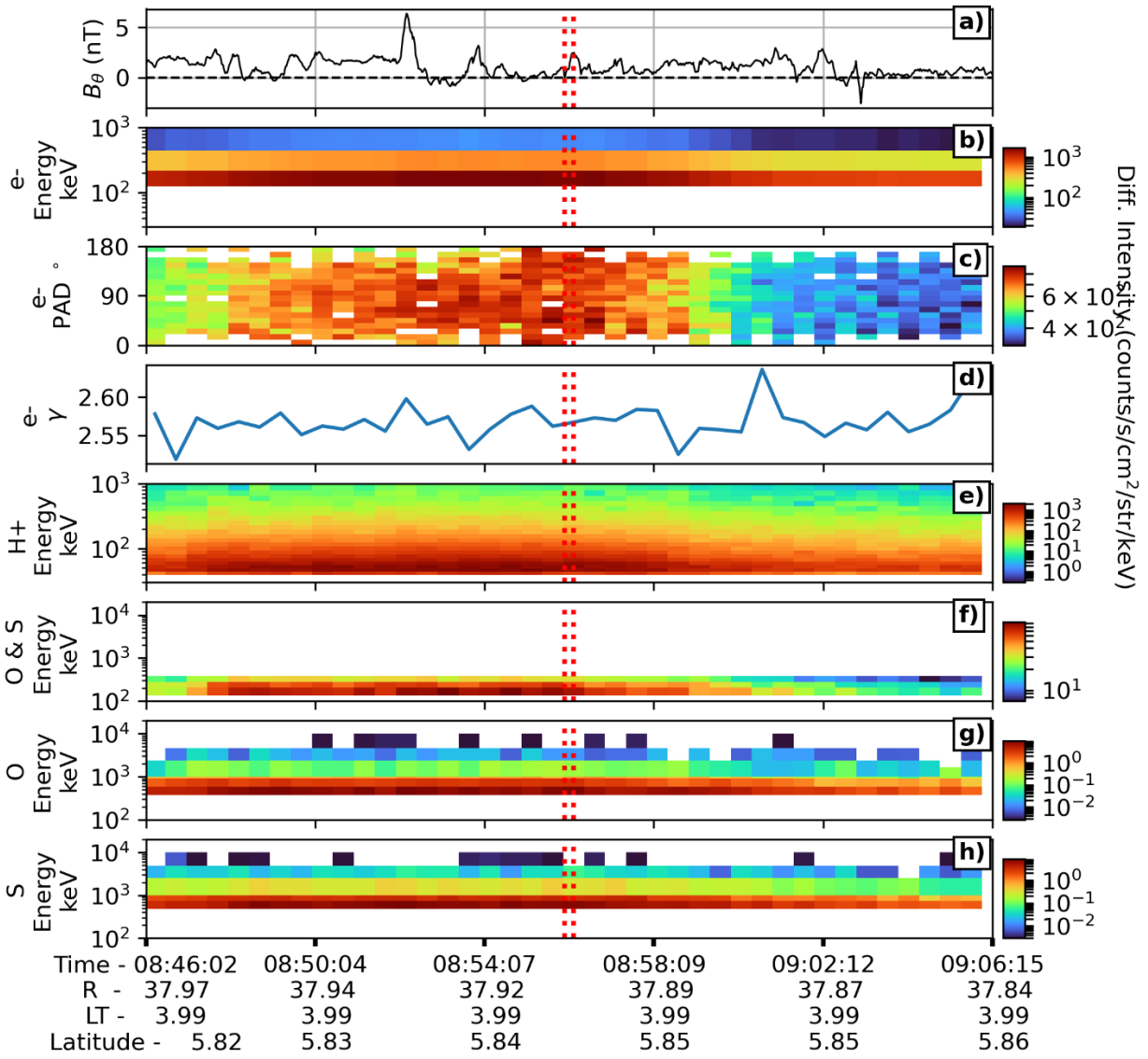
2017-08-27, DOY=239

Figure S104



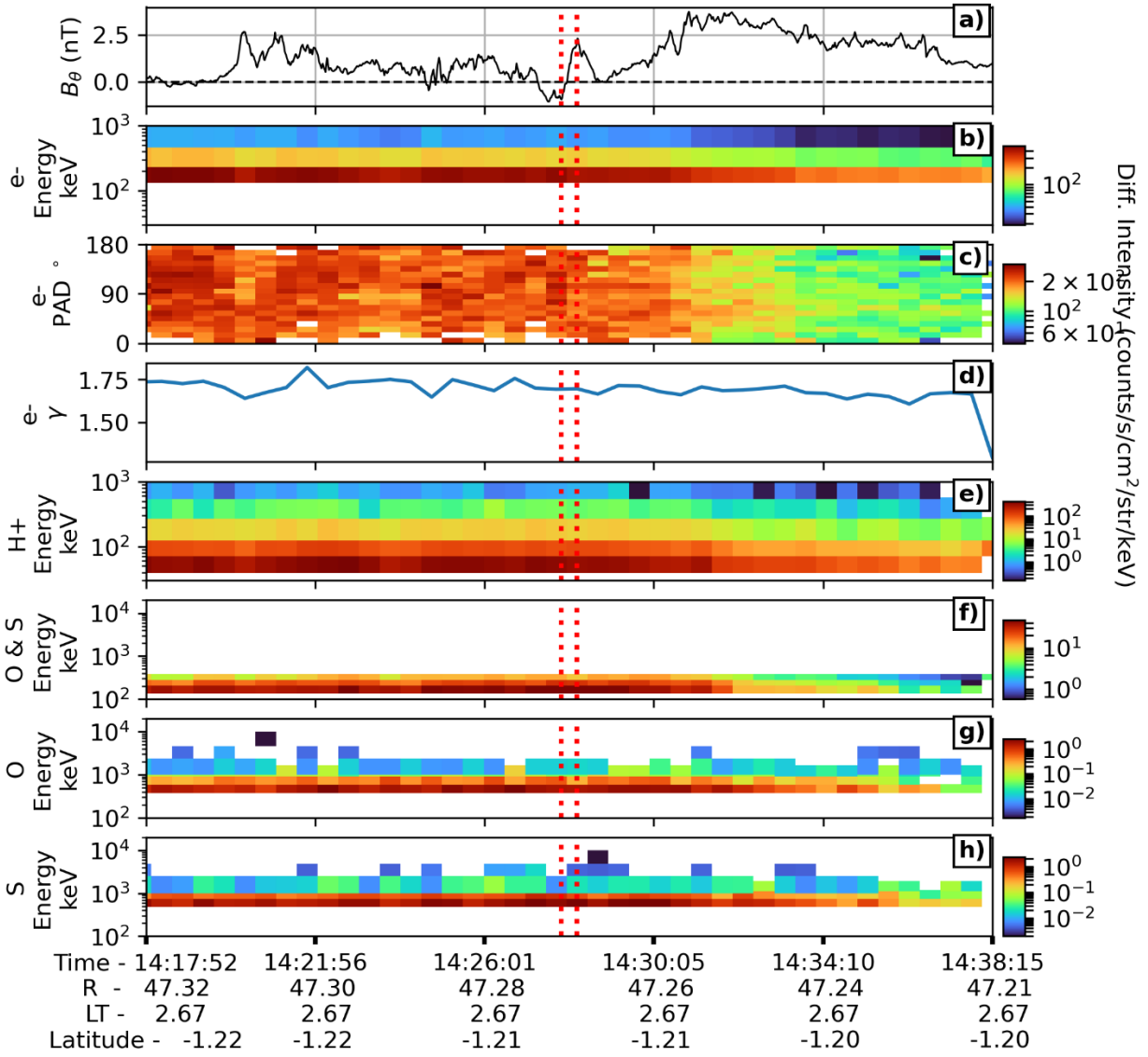
2017-08-27, DOY=239

Figure S105



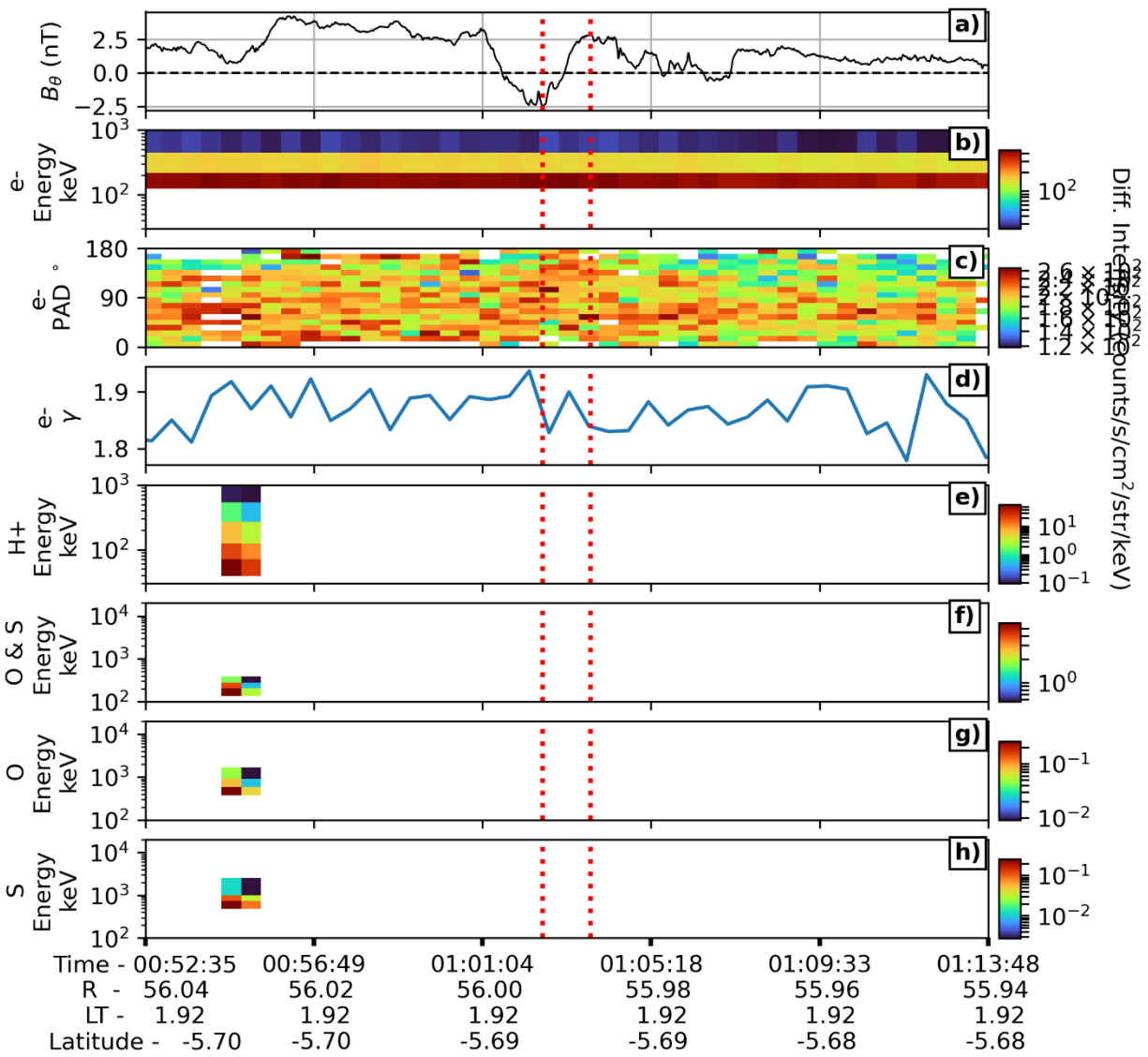
2017-08-30, DOY=242

Figure S106



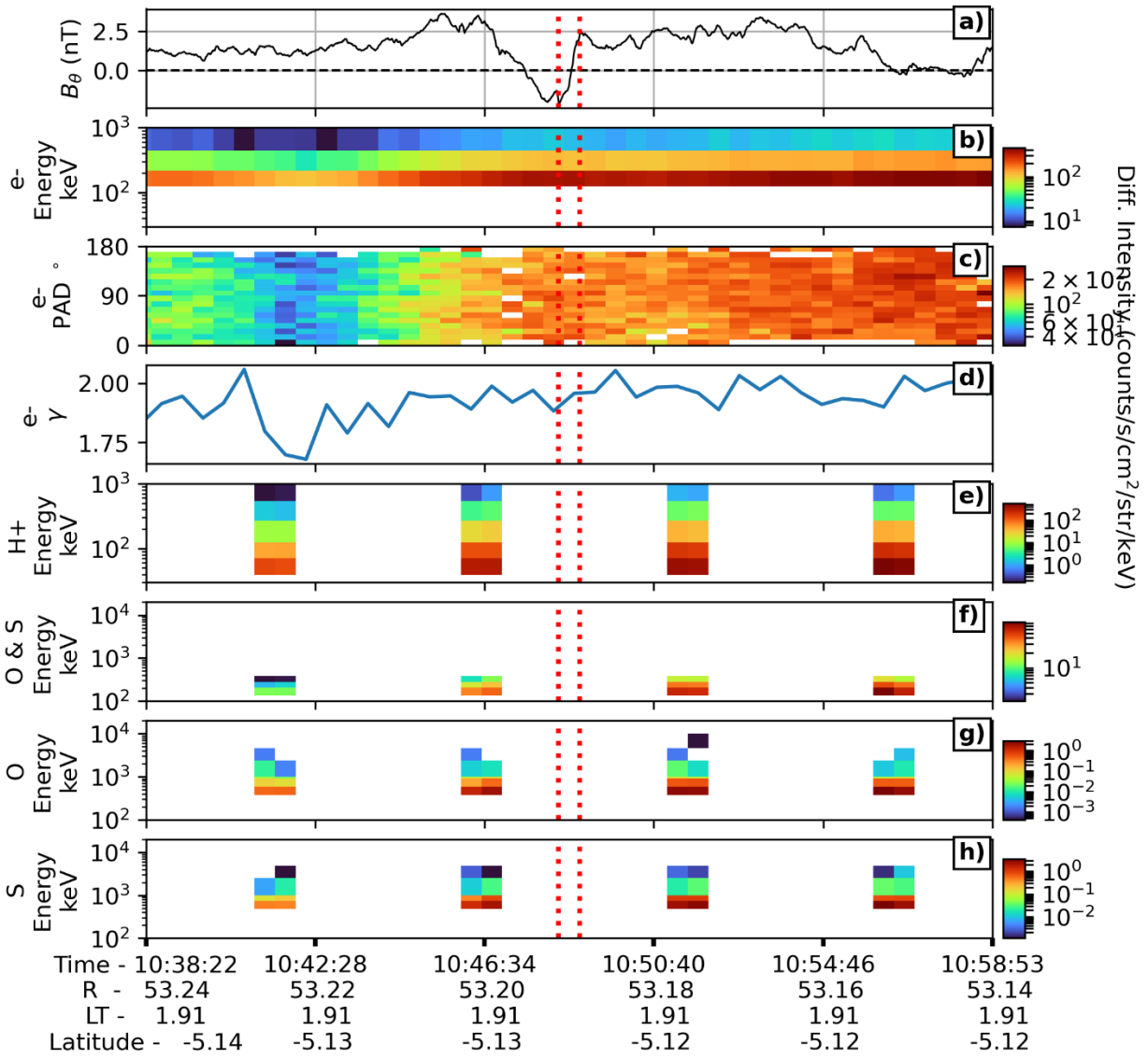
2018-05-20, DOY=140

Figure S107



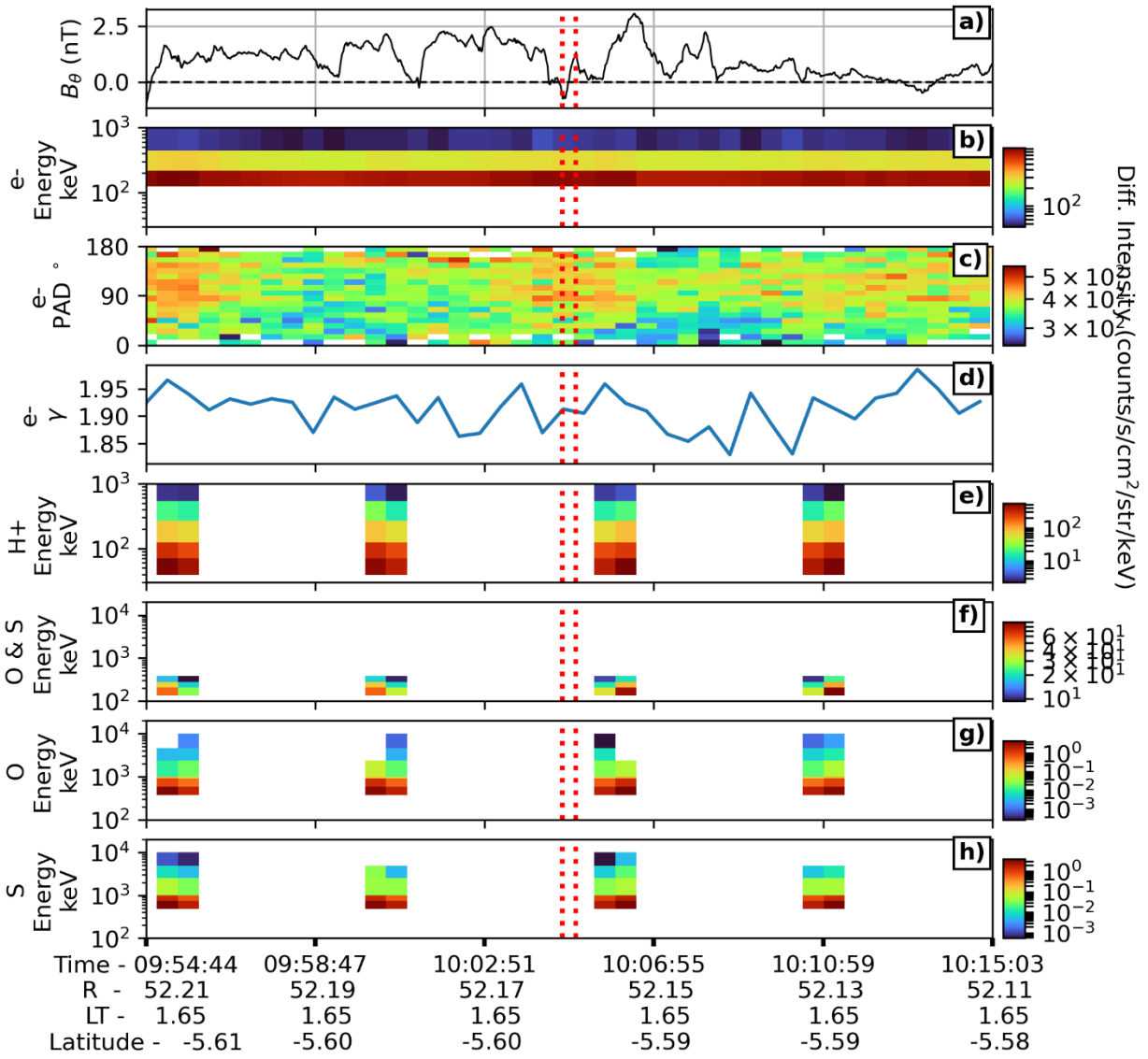
2018-10-25, DOY=298

Figure S108



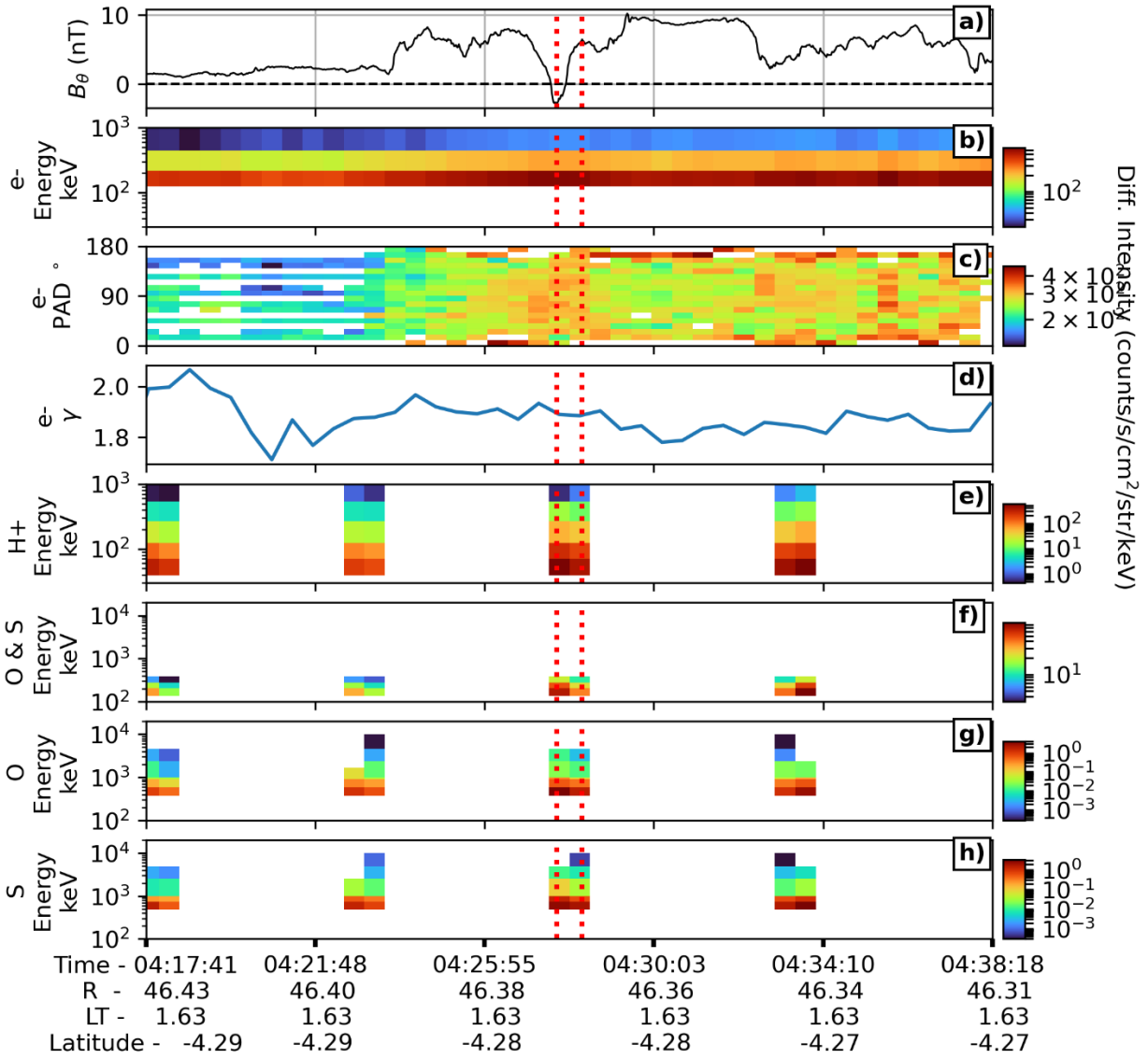
2018-10-25, DOY=298

Figure S109



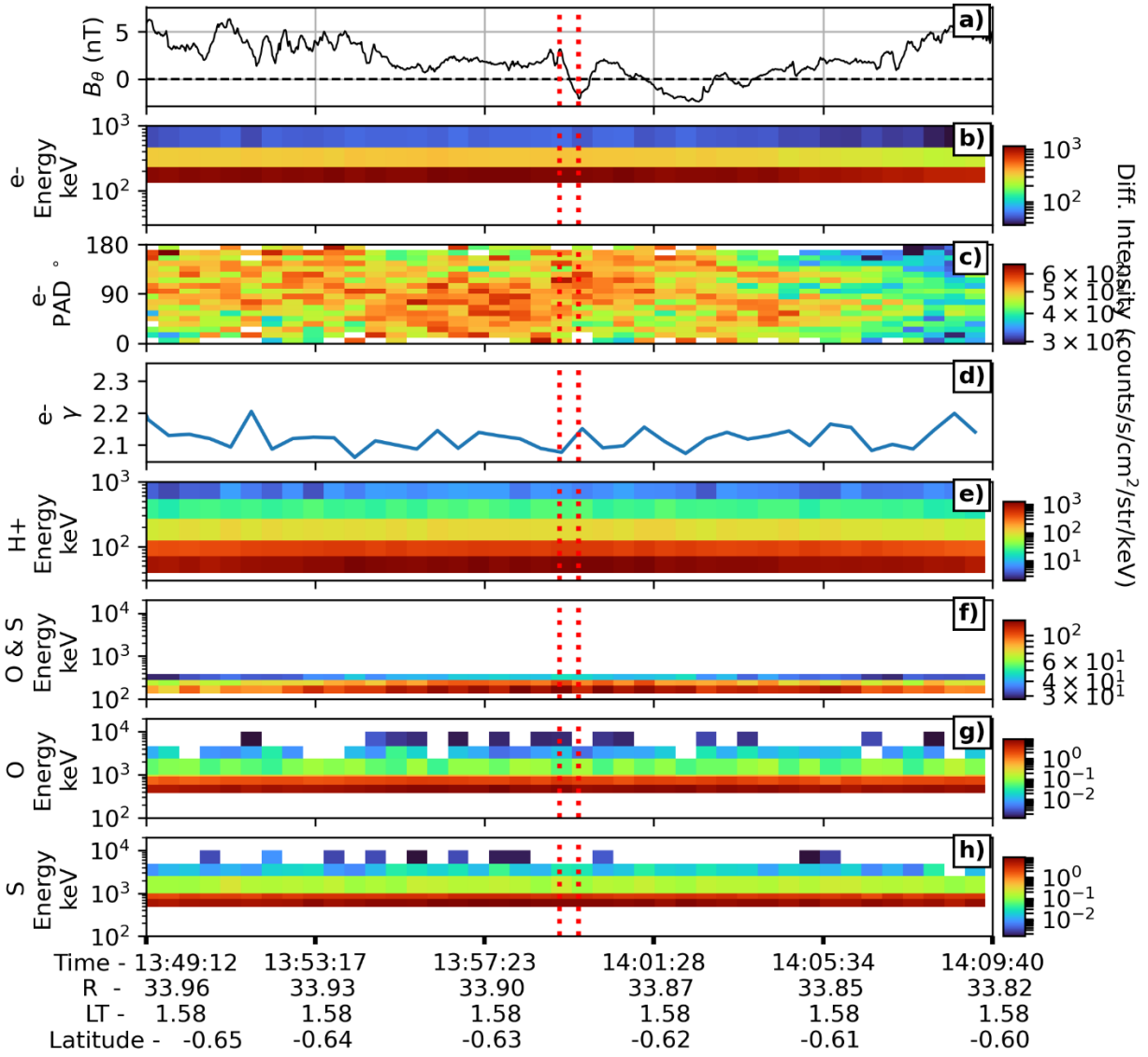
2018-12-17, DOY=351

Figure S110



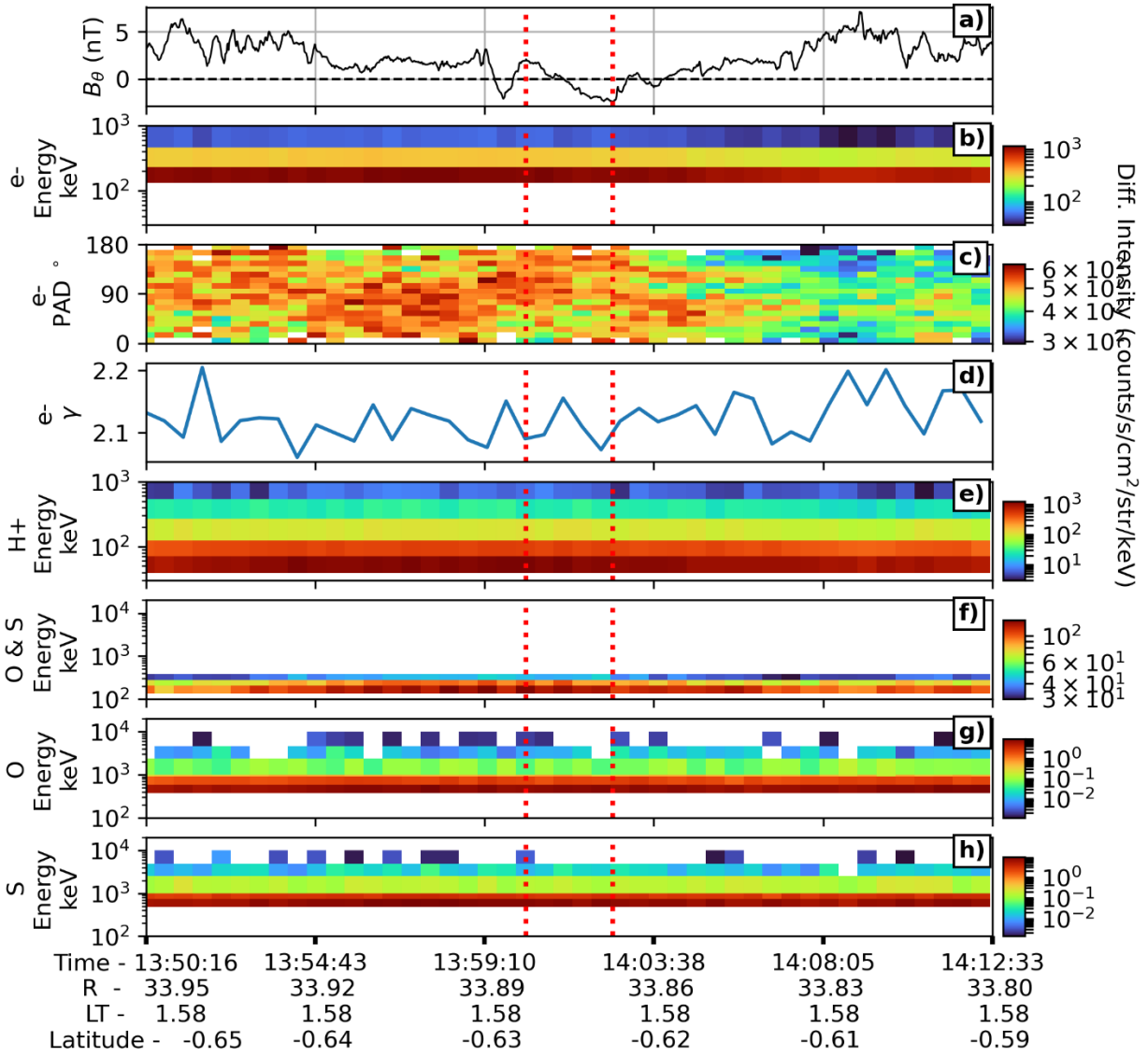
2018-12-18, DOY=352

Figure S111



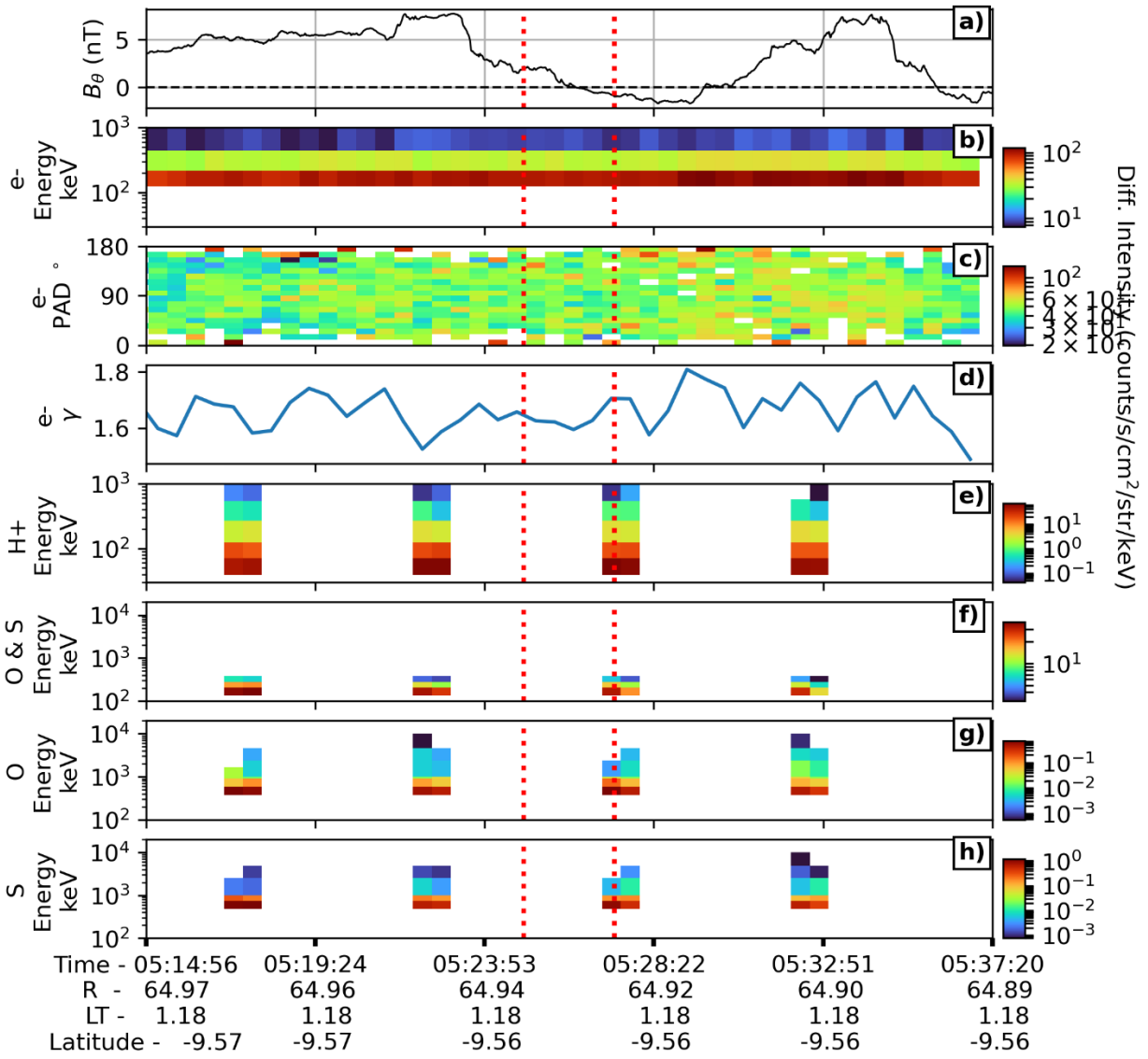
2018-12-19, DOY=353

Figure S112



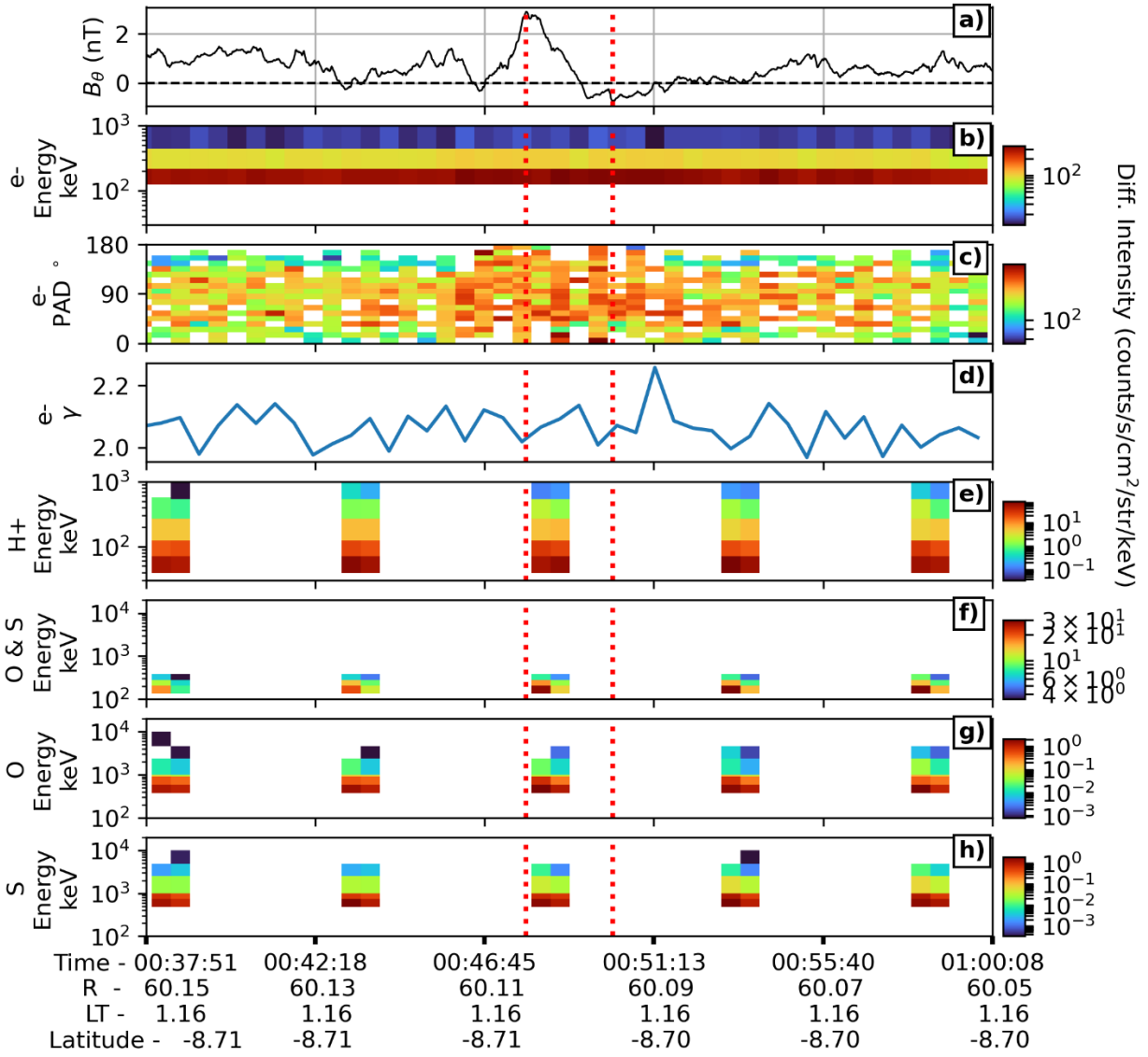
2018-12-19, DOY=353

Figure S113



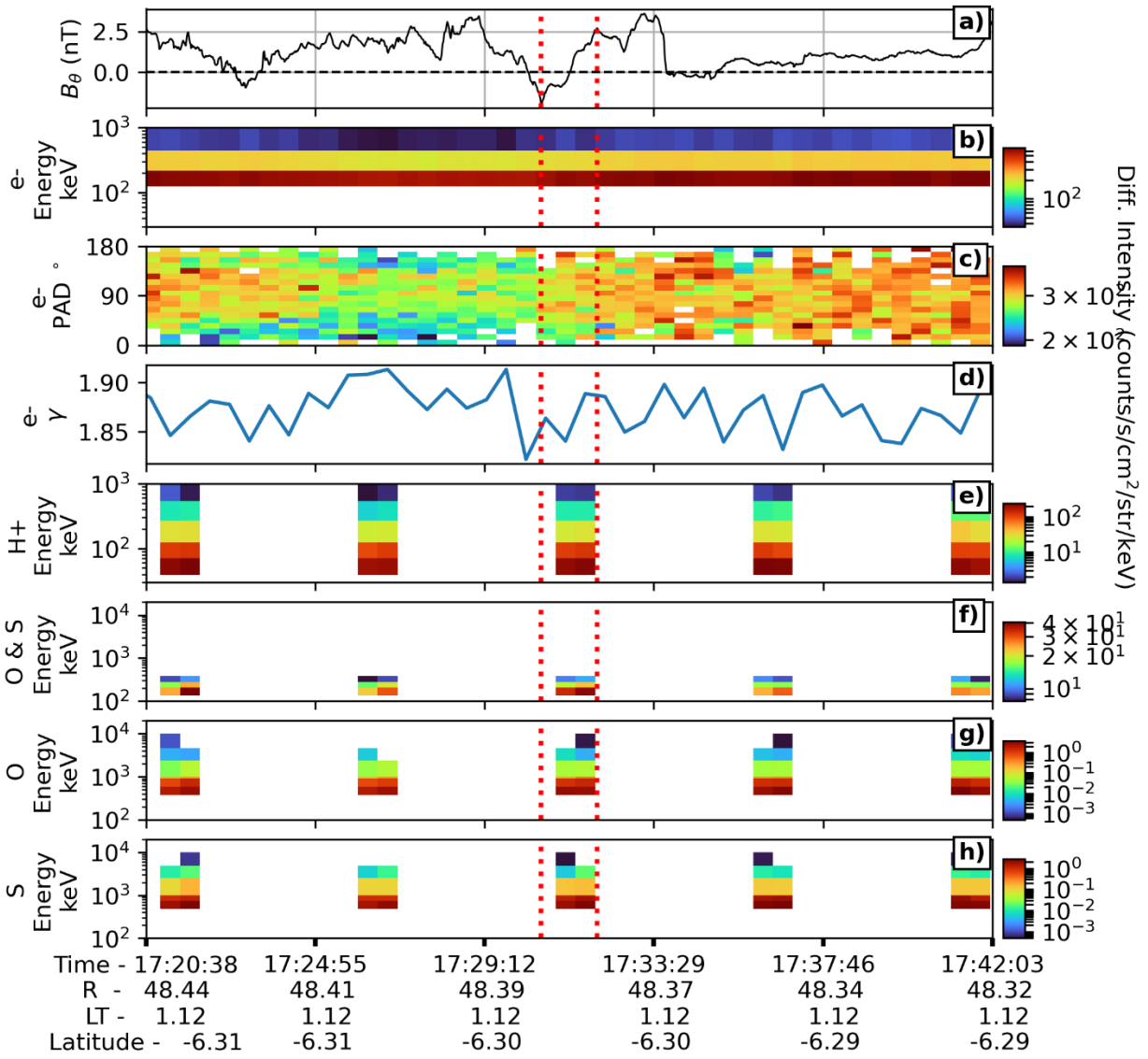
2019-03-31, DOY=090

Figure S114



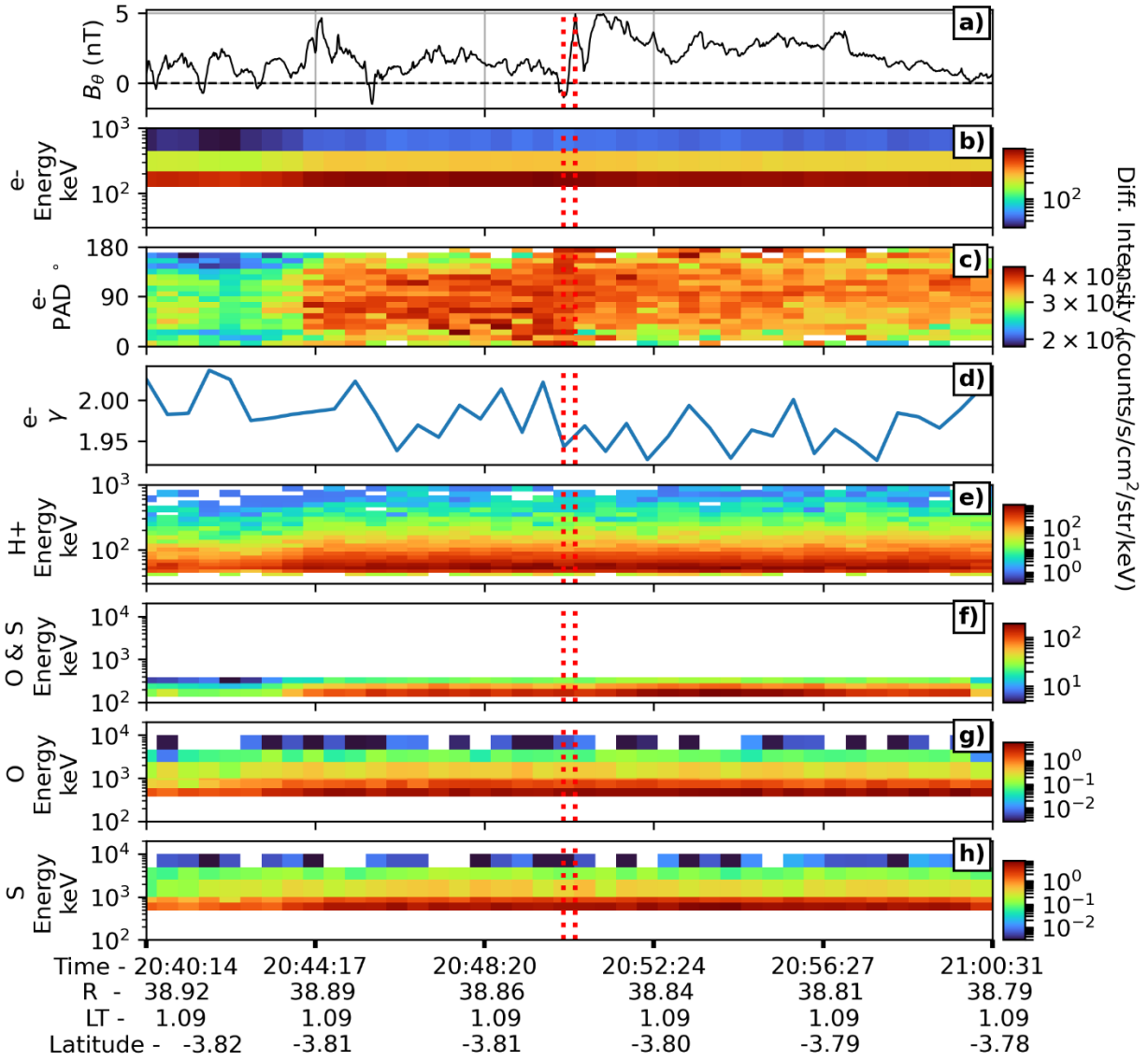
2019-04-01, DOY=091

Figure S115



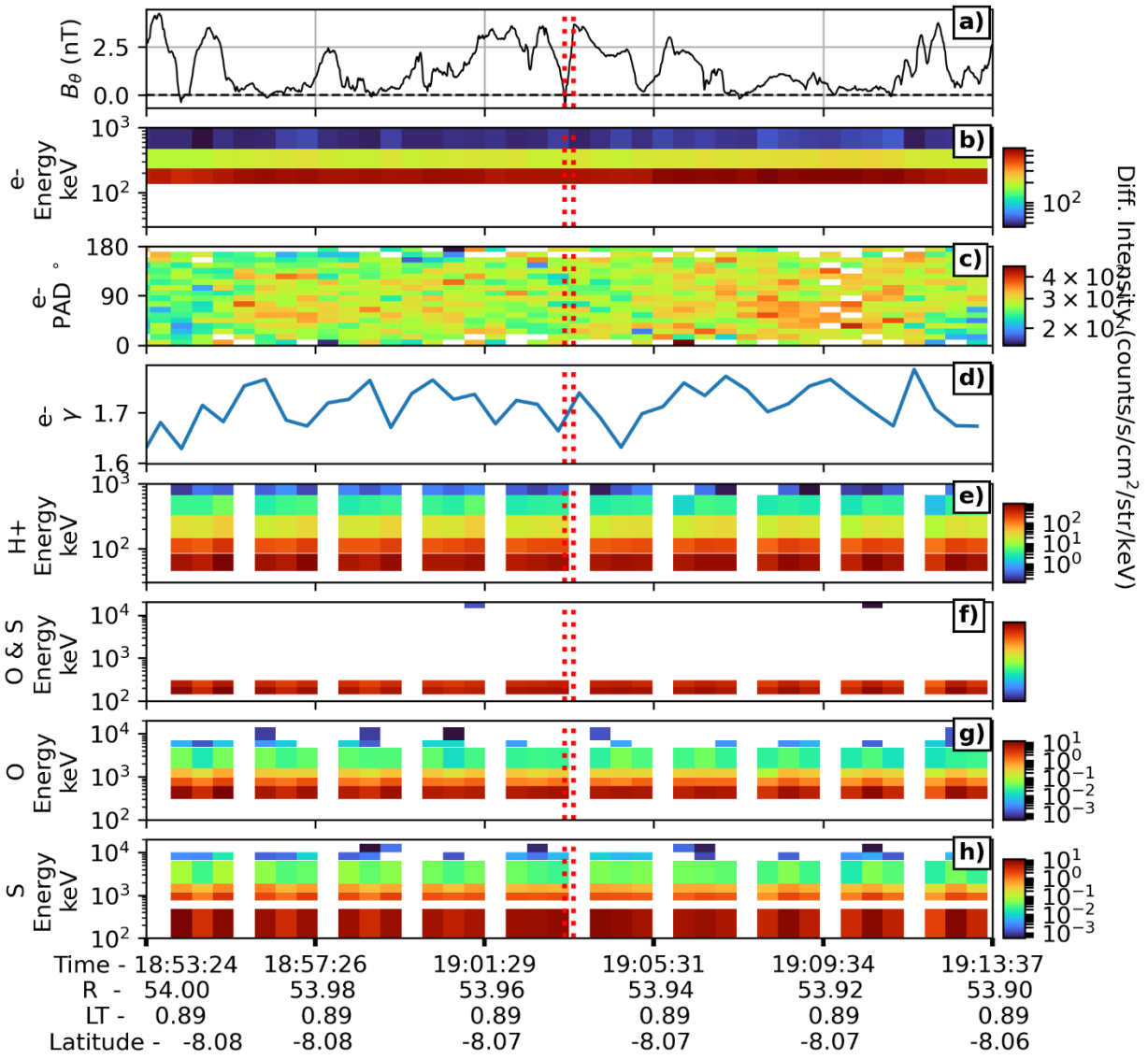
2019-04-02, DOY=092

Figure S116



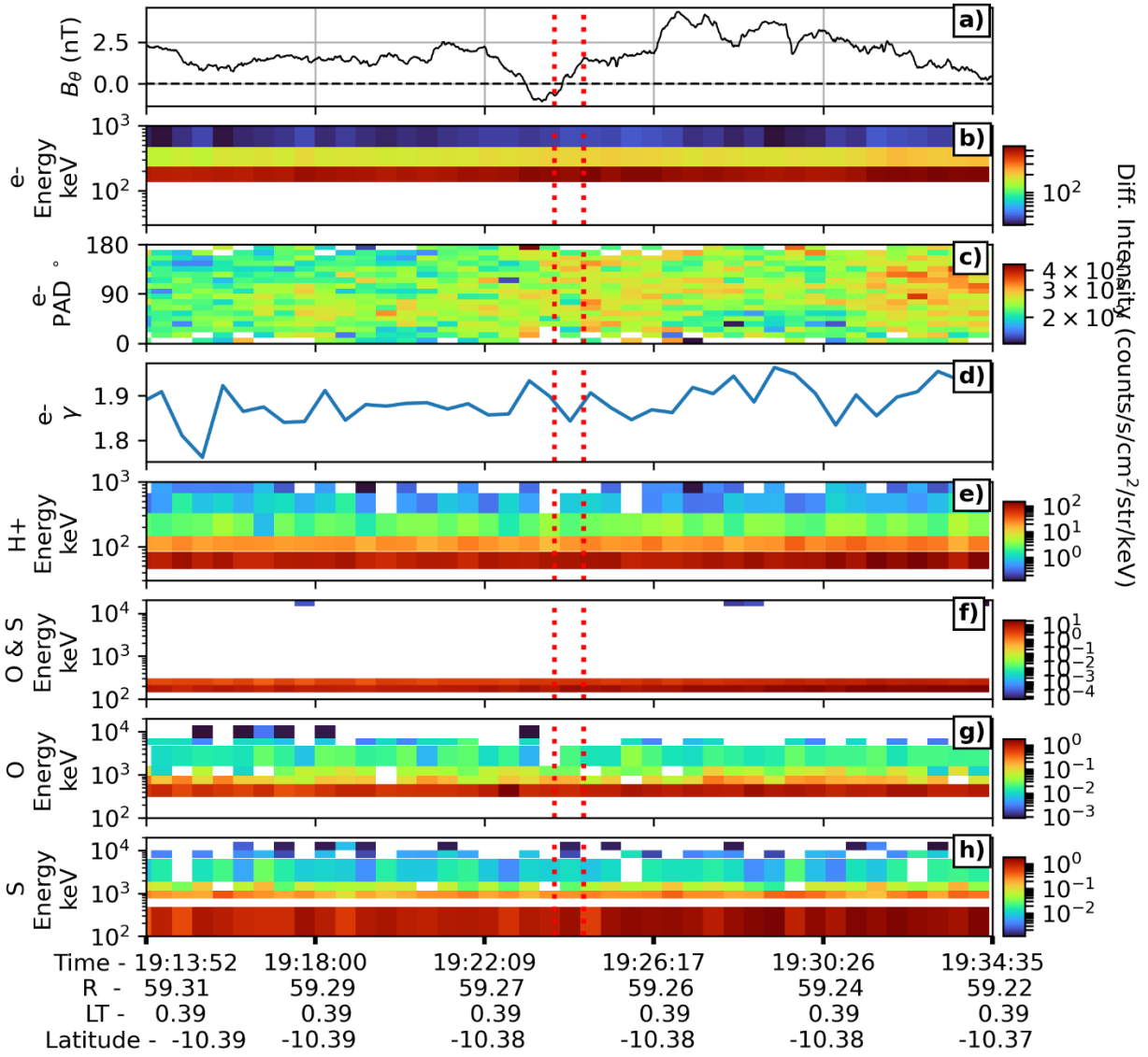
2019-04-03, DOY=093

Figure S117



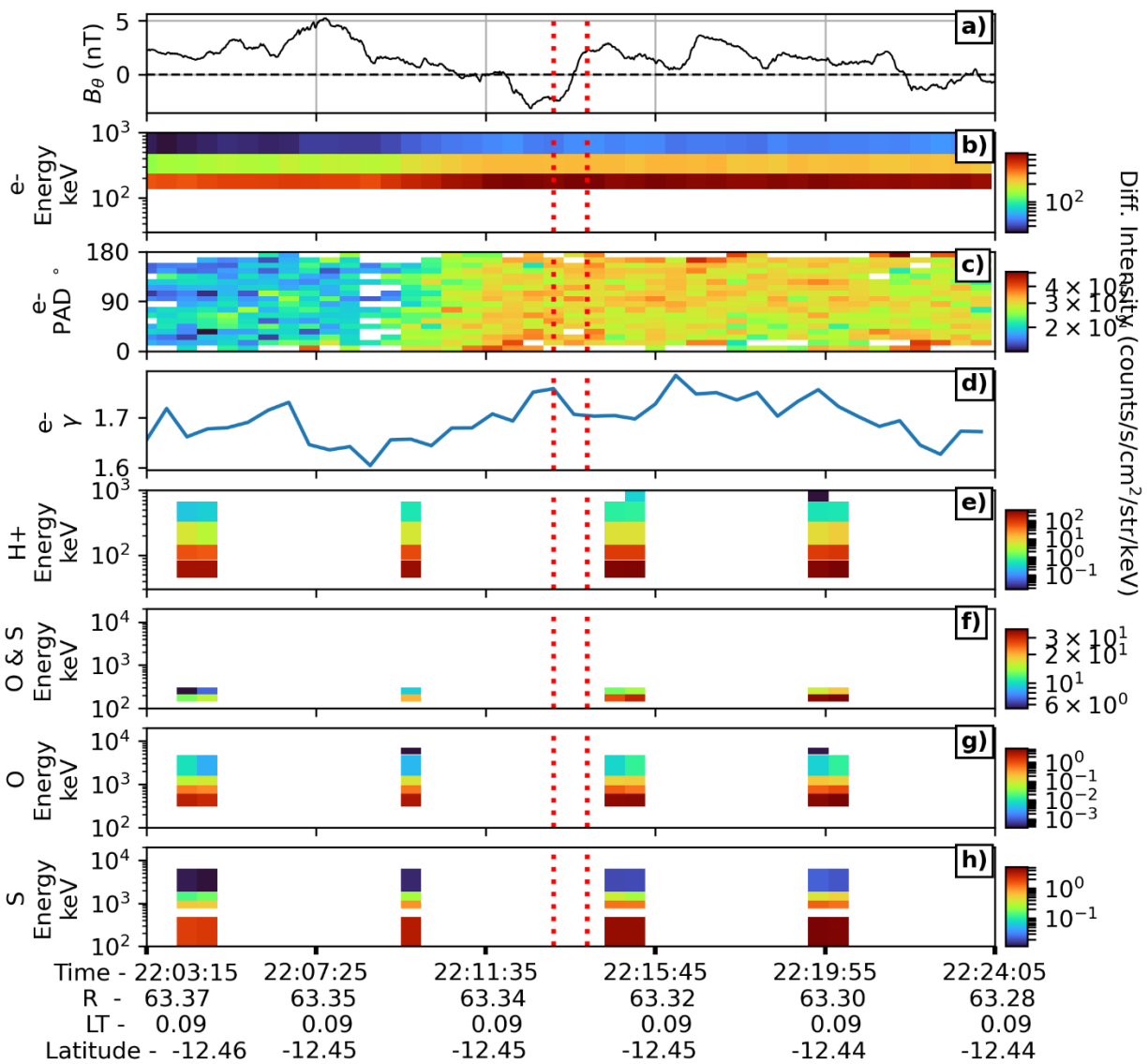
2019-05-24, DOY=144

Figure S118



2019-09-06, DOY=249

Figure S119



2019-10-28, DOY=301

Figure S120