

Figure 1

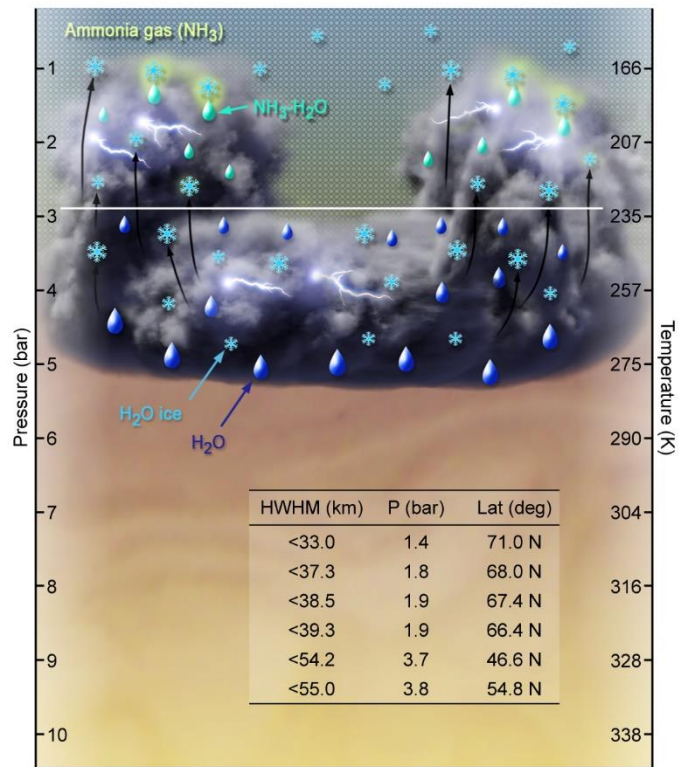
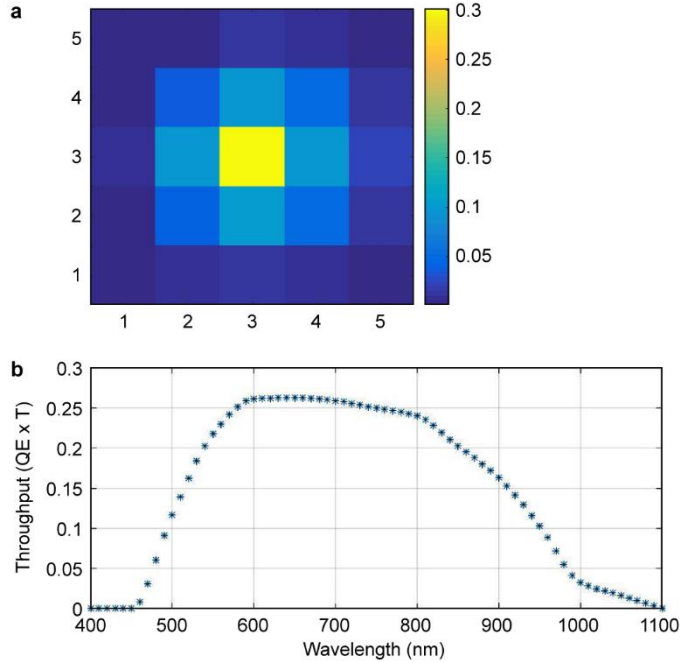


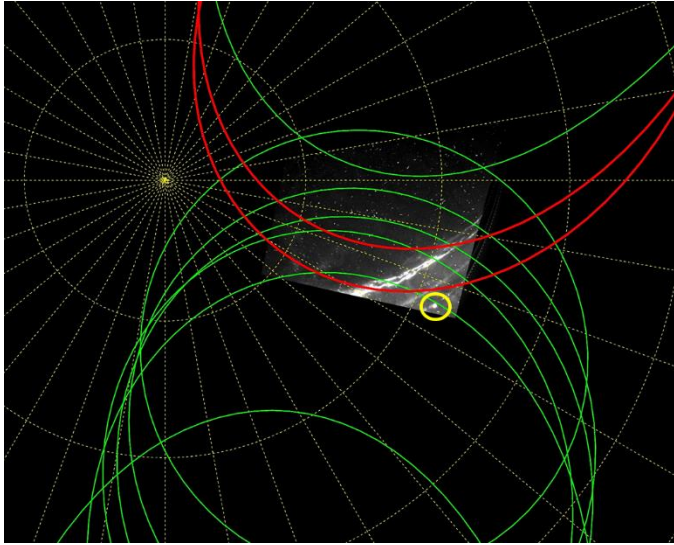
Figure 3



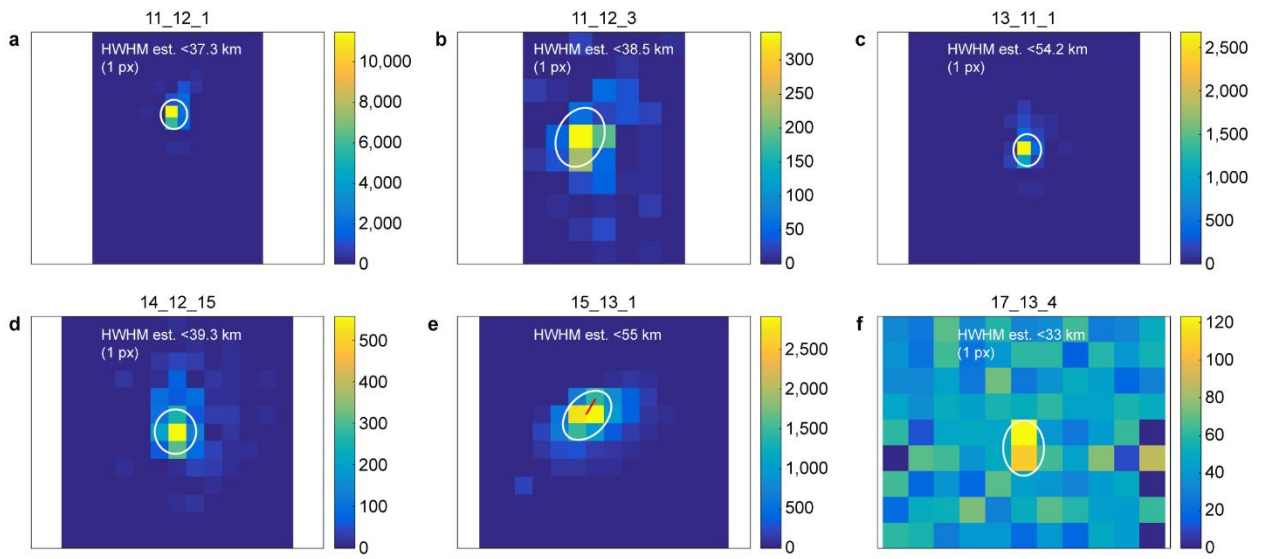
Extended Data Figure 1

Name	Exposure(s)/mode	Effective exposure (ms)	Range (10 ³ km)	Resolution (km)	Emission angle (deg)	Latitude	W longitude (SIII)	Maximum dimension (km)	HWHM (km)	Energy (10 ⁷ J)	Point source energy (10 ⁷ J)
11_12_1	1/TDI	186.3	66.3	37.1	28.4	68.0 N	41.0	74.5	<37.3	6.36	11.60
11_12_3	1/TDI	772.2	66.6	37.6	29.6	67.4 N	59.4	76.9	<38.5	0.29	0.51
13_11_1	1/TDI	137.7	95.9	53.9	40.2	46.4 N	199.7	108.5	<54.2	3.26	5.09
13_11_2	1/TDI	1000	93.4	51.8	34.7	55.8 N	227.7	164.2		3.21	5.51
13_12_0	1/TDI	1000	59.8	33.3	28.4	68.4 N	235.2	100.3		7.04	12.90
14_12_15	1/NoTDI	1000	69	39	19.9	66.4 N	256.6	85.3 - 117.8	<39.3	0.54	1.03
14_12_15*	1/NoTDI	1000	70.6	39.9	26.2	65.4 N	287.2	87.6 - 124.4		0.60	1.08
14_12_17	1/NoTDI	1000	74	41.5	35.7	57.6 N	267.8	194.8 - 208.9		1.76	2.93
14_12_17*	1/NoTDI	1000	79	44.3	46.1	53.6 N	291.8	214.6 - 243		2.34	3.34
15_13_1	0.75/TDI	750	72.3	40.6	48.8	54.8 N	219.9	151.1	<55	5.51	7.43
16_19_9	1/TDI	99.9	206.9	116	44.9	50.8 S	168.8	246.9		0.88	1.28
17_13_4_SOP1	1/NoTDI	1000	53.3	30	18.2	71.0 N	33.7	30.6 - 61.2	<33	0.04	0.09
17_13_4_SOP1*	1/NoTDI	1000	56.3	31.7	30.8	65.0 N	41.9	34.9 - 69.8		0.05	0.10
17_13_8_SOP2	1/NoTDI	1000	53.3							0.01	0.03
17_13_8_SOP2*	1/NoTDI	1000	56.3							0.02	0.03
17_13_7_SOP3a	1/NoTDI	1000	53.3							0.03	0.05
17_13_7_SOP3a*	1/NoTDI	1000	56.3							0.03	0.06
17_13_7_SOP3b	1/NoTDI	1000	53.3							0.01	0.03
17_13_7_SOP3b*	1/NoTDI	1000	56.3							0.02	0.03
17_13_7_SOP3c	1/NoTDI	1000	53.3							0.01	0.02
17_13_7_SOP3c*	1/NoTDI	1000	56.3							0.01	0.02
17_13_6_SOP4	1/NoTDI	1000	53.2							0.02	0.04
17_13_6_SOP4*	1/NoTDI	1000	56.3							0.02	0.04
17_13_5_NBR	1/NoTDI	1000	52.2	29.6	10.1	75.2 N	24.2			0.04	0.07
17_13_5_NBR*	1/NoTDI	1000	55.2	31.3	27.0	66.9 N	40.5			0.04	0.08

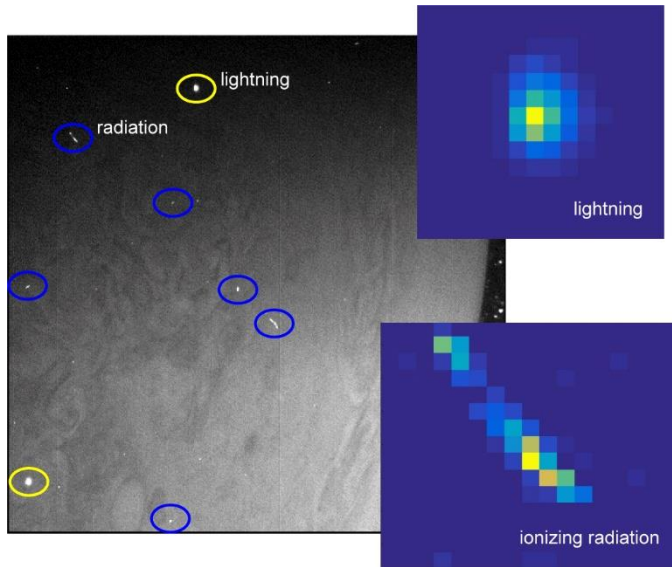
Extended Data Table 1



Extended Data Figure 2



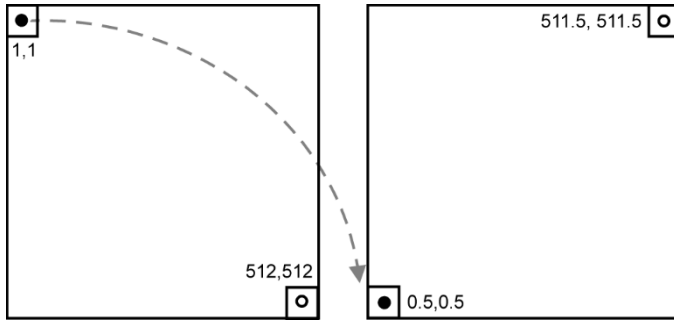
Extended Data Figure 3



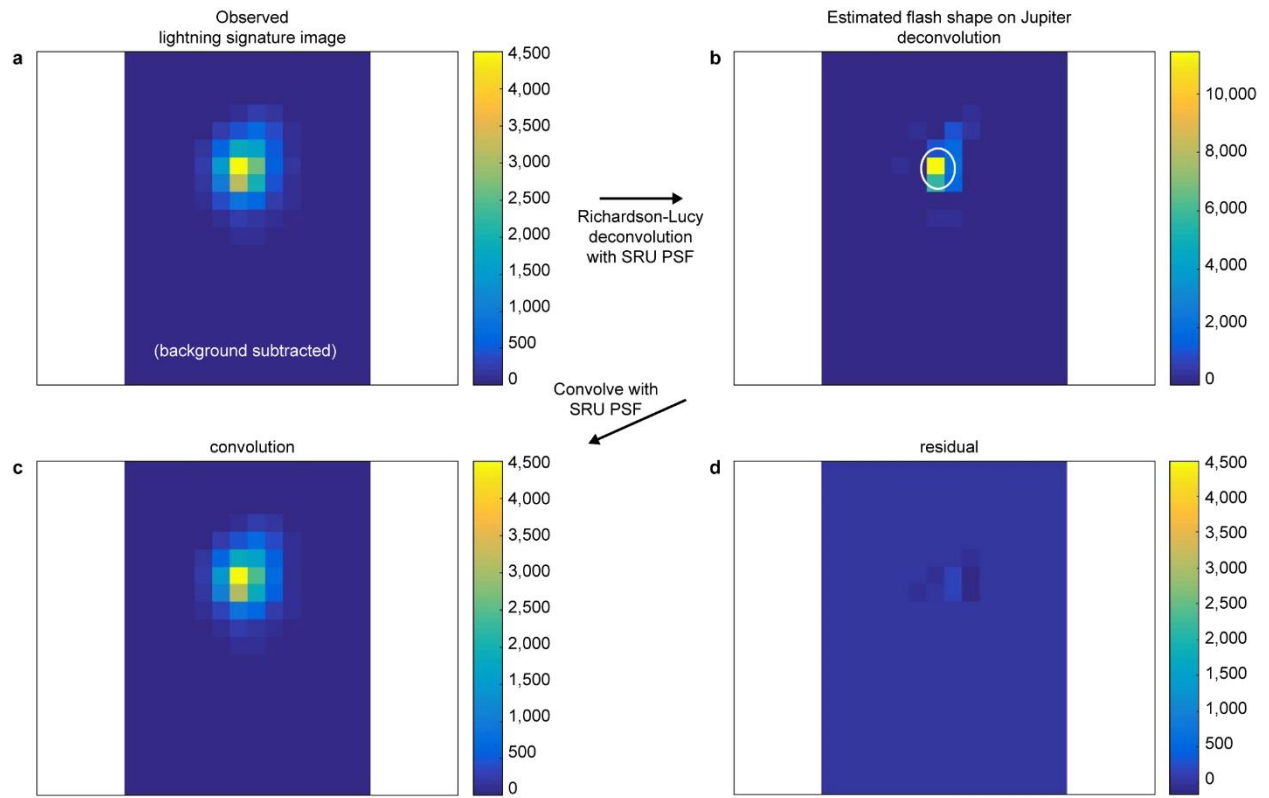
Extended Data Figure 4

Name	Exposure start (UTC)	Centroid row	Centroid column	cos4 factor	Vignetting factor
11_12_1	2018-038T13:05:51.234	73.19	440.38	0.958	~.9
11_12_3	2018-038T13:05:51.234	289.26	404.58	0.985	1
13_11_1	2018-144T04:40:05.866	54.91	194.34	0.972	~.95
13_11_2	2018-144T04:40:05.866	458.97	22.43	0.939	~.75
13_12_0	2018-144T04:57:50.263	466.83	457.49	0.946	~.85
14_12_15	2018-197T04:28:46.759	327.62	126.33	0.986	1
14_12_15*		327.62	126.33	0.986	1
14_12_17	2018-197T04:28:46.759	459.2	367.7	0.966	~.95
14_12_17*		459.2	367.7	0.966	~.95
15_13_1	2018-250T00:27:33.876	468.21	300.86	0.9696	1
16_19_9	2018-302T23:09:14.798	38.07	173.06	0.966	1
17_13_4_SOP1	2018-355T16:20:25.320	423.58	191.06		~.95
17_13_4_SOP1*		423.58	191.06		~.95
17_13_8_SOP2		391.85	191.18		~.95
17_13_8_SOP2*		391.85	191.18		~.95
17_13_7_SOP3a		373.92	191.82		~.95
17_13_7_SOP3a*		373.92	191.82		~.95
17_13_7_SOP3b		368.7	191.71		~.95
17_13_7_SOP3b*		368.7	191.71		~.95
17_13_7_SOP3c		364.72	191.47		~.95
17_13_7_SOP3c*		364.72	191.47		~.95
17_13_6_SOP4		292.56	191.44		1
17_13_6_SOP4*		292.56	191.44		1
17_13_5_NBR		230.1	182.61		~.95
17_13_5_NBR*		230.1	182.61		~.95

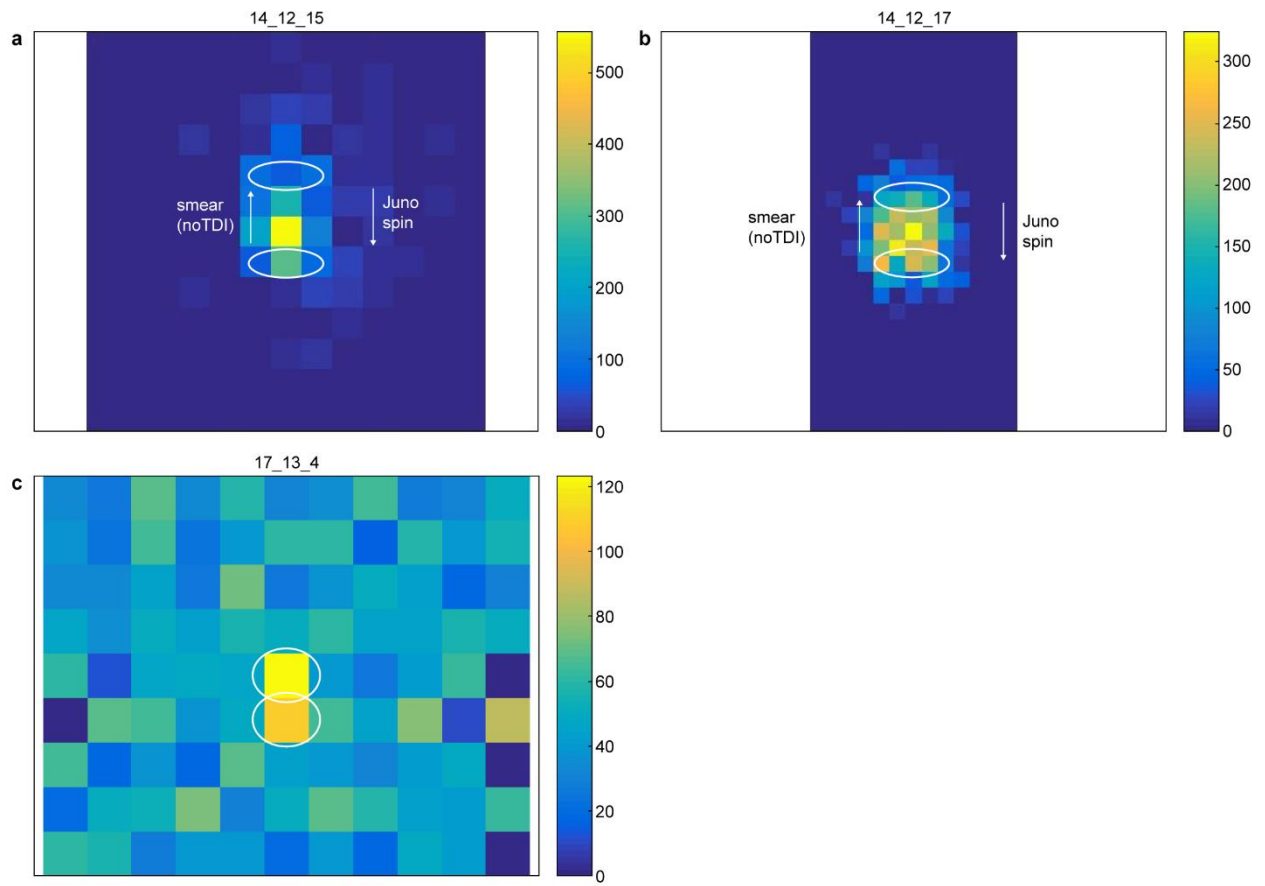
Extended Data Table 2



Extended Data Figure 5



Extended Data Figure 6



Extended Data Figure 7