

JUPOS RECORDS OF FAR NORTHERN CURRENTS: SUMMARIES FOR ALL APPARITIONS 1999-2016

DL2 (deg/30d)

[N3 jet](#)

Rarely observed, but occasional very fast tracks for dark spots have been recorded, as follows.

These are visible on the chart for lats.41-44°N, and comparison of charts at 1-deg intervals shows they are at 42-43°N.

See figure with excerpts from charts.

<u>Month</u>	<u>DL2</u>	<u>Lat.</u>	<u>Month</u>	<u>DL2</u>	<u>Month</u>	<u>DL2</u>	<u>Lat.</u>	<u>Month</u>	<u>DL2</u>
2006 March	-63	43,4	2010 July	-37	2011 Nov.	-48,9	42,1	2012 Aug-Sep.	-62
2006 May	-40	42,2	2010 Sep.	-51	2011 Nov.	-35,5	41,8	2014 April	-78
					2011 Dec.	-40,5	41,7	2016 March	-49

[N3TC](#)

Main N3TC:

Faster:

		DL2						Lat.		DL2						Lat.	
		<u>Spot type</u>	<u>mean</u>	<u>SD</u>	<u>min</u>	<u>max</u>	<u>N</u>	<u>mean</u>	<u>range/SD</u>		<u>Spot type</u>	<u>mean</u>	<u>SD</u>	<u>min</u>	<u>max</u>	<u>N</u>	<u>range</u>
1999/2000	(final report in JBAA)	D.ss. & w.ss.	-18,3		-13	-21,5	5		(43-45)			-36				1	
2000/01	(final report in JBAA)	Small d.ss. (in one sector)	-19,0		-16	-23	5		(45-46)								
2001/02	(final report in JBAA)	W. ovals	-22,5		-15	-31	5	45,1	(44-46) inc:	W.s.	-31					1	
2002/03	(unpubl. analysis by HJM)	W.ss.	-18,4	4,8	-11	-26	12		nd								
2003/04	(unpubl. analysis by HJM)	(Some d.ss. had similar drifts & lats. but two were slower, DL2 ~ -9)															
		W.ss.	-19,6		-16	-25	5		(42-45)	D.s.	-31					(42-45)	
		D.ss.	-17,1		-14	-21	7		(45-48)	D.s./W.s.	-38/-32	(v. short tracks)		2	(45-48)		
		(& 2 similar w.ss.) -- So this apparition, w.ss. are lo-lat., d.ss. are hi-lat!															
2005	(final report online)	W.ss.	-19,6	5,2			6	44,4	0,8								
		D.ss.	-14,8	4,9			4	45,0	0,8								
2006	(final report online)	W.ss.	-17,0	3,9			3	45,7	0,2								
		D.ss.	-16,8	3,5			7	45,2	0,3								
2007	(final report online)	W.ss.& d.ss.	-15,6	1,9			7	45,2	0,4								
		Above, at most longitudes. Below, in 'disturbance sector' (June-Aug.).															
		W.ss.& d.ss.	-19,3	9,5	-13	-33	10	45,6	0,6 inc:	D.s.	(-70)	(brief, rough estimate; on N4 jet)			1	~47	
										W.ss.& d.ss.	-30		-28	-33		4	
2008	(unpubl., JHR)	W.ss.& d.ss.	-20,0	2,8	-16	-23	7		nd		W.s.	-30,4				1	(45-48)
2009	(unpubl., JHR)	W.ss.& d.ss.	-21,0	3,0	-17,7	-24,5	7		nd								

2010/11	(unpubl., JHR)	W.ss.& d.ss. (omitting fast set at right)	-17,3	3,1	-13	-24	10		nd	W.ss.& d.ss.	-28,9	5,5	-24	-40,4	8	nd
										Widespread accel. but interspersed with normal-speed w.ss. (2010 Aug-Nov.)						
2011/12	(final report online)	D.ss. (‘Core group’ with typical N3TC speed, about half of all spots)	-15,4	2,3	-10	-20	13	45,4	0,3 (45-46)	W.s.	-30,6				1	46,3
										(AWO translocated from N4 domain!)						
2012/13	(unpubl., JHR)	W.ss.& d.ss.	-23,4	3,7	-19,7	-29,7	11		(45-48)							
2013/14	(unpubl., JHR)	W.ss.& d.ss. (omitting fast pair at right)	-20,5	3,7	-14,4	-25	9		(45-48)	D.ss.	-38, -42				2	(45-48)
2014/15	(final report online)	W.ss. D.ss. (Note: retrograde peak in ZWP shifted ~0.5 deg to S?)	-20,6 -16,4	4,0 3,9			7 10	45,2 44,7	0,25 0,6							
2015/16	(final report online)	W.ss.& d.ss. (omitting fast pair)	-18,7	4,5			26	45,1	0,32							
						&	3	43,9	0,15							

N4 jet

Rarely observed, but occasional fast tracks have been recorded, as follows.

<u>Apparition</u>		<u>DL2</u>	<u>Lat.</u>
2005	(W.s. for 12 days)	-20	48,2
2007	(D.s., brief, approx.)	(-70)	(47)
2011/12		-27	(AWO transiting from N4 to N3 domain -- see report)

N4TC

Main N4TC:

Faster (high lat.):

(inc. approaches to N5 jet)

		DL2						Lat.		DL2						Lat.	
		Spot type	mean	SD	min	max	N	mean	range/SD	Spot type	mean	SD	min	max	N	(when fastest)	
1999/2000	(final report in JBAA)	W.ss.	4,7		0	9	8		(49-53)								
(A regular stable array of w.ss., tracked for 3-7 months with only small fluctuations. They are in 'cyclonic' latitudes Two shifted from 53°N to 51.4/50.9°N.)																	
2000/01	(final report in JBAA)	W.ss.	3,0		2	4	3		(50-51)	W.oval	-12, -47, -2, -23		-2	-47	1	54,4	
(Bright spots in 'cyclonic' latitudes; persisted from last appar'n.) (AWO with v. variable speed & lat. ~ ZWP, also in Cassini movie; approaching N5 jet.)																	
2001/02	(final report in JBAA)	W.ss.& d.ss.	1,5		-3	6	6	51,1									
		W.s.	1				1	50,0		D.s.	5, -20		5	-20	1	53,4	
		W.s.	11				1	52,2		(only briefly fast, paralleling N5-AWO at 57°N.)							
2002/03	(unpubl. analysis by HJM)	W.ss.	4,0		-2	9	5		(48-52)	W.ss.& d.ss.			-23	-36	4	(nd)	
(Also short-lived d.ss., similar speed, on charts 48-52-56°N. W.ss. at 52-56°N are oscillating.) (v.. short & imprecise tracks, near N5 jet)																	
2003/04	(unpubl. analysis by HJM)	W.ss. & d.ss	6,5		5	9	6		(48-52)								
		W.ss.			+4, +12 (var.)		2		(52-55)								
2005	(final report online)	D.ss.	1,5	3,5			2	49,4	0,28	W.s.	-19				1	54,8	
		W.ss.	6,1	5,1			8	52,0	0,7	(for 16 days)							
2006	(final report online)	W.ss. & d.ss.	4,3	3,4			17 w.&4 d.	51,3	0,8								
2007	(final report online)	W.oval A	6,6				1	52,3		W.oval A	+6,6; -30; +3,5				1	54,3	
			3,5				1	53,8									
		(W.oval, tracked since 2006; v. stable until sudden accel. & move to N)															
		D.s.	-1				1	49,8		W.s. & d.s.	-19				2	54,4	
		W.ss. & d.ss.	6,0				11		50,6 to 52,9								
(Disturbed sector, June-Aug., simul.w accel. of spots in N3TC)																	
2008	(unpubl., JHR)	W.ss. inc.WO-A	6,3	1,4	3,7	7,6	6		(50-54)								
2009	(unpubl., JHR)	W.ss.	6,6	1,6			3		(50-54)								
(Excluding probable long-lived WO-A, w accel. to fast speed for a week or two then decel. to -2.3.)																	
2010/11	(unpubl., JHR)	W.ss.& d.ss.	5,0	0,5			5		(50-54)	W.s.	-23				1	(nd)	
(These are speeds for best-tracked spots, for consistency with earlier years. Also see full analysis by GA.) (fast segment of track)																	

2011/12	(final report online)	D.ss	4,6	5,2	18	50,8	1,1							
		W.ss.	5,1	5,4	8(12)	52,0	1,2							
		(Means of all spots at 49-54 N, inc. 2 AWOs: WS-1, most conspic., & WS-2, w then translocated to N3 domain!)												
		WS-1	8,1		1	51,8								
		WS-2	8,0		1	51,4								
2012/13	(this report, GA)	W.ss. & d.ss.	5,7	3,3	5(7)	51,7	1,2	W.s.(w2)	(var.)	2,1	-12,4	1	54,0	
							50,1 to 54,1	W.s.(w3)	(var.)	5,2	-26,5	1	54,1	
		The numerous slow-moving (N4TC) w.ss. & d.ss., common in the years previous, are largely absent!							W.s.(w4)	(var.)	4,8	-31	1	54,4
		Of the 4 best-tracked WOs, only one (w1) is consistently in the N4TC; another (w3) is so until 2013 Jan. when it accelerates to fast speed.							W.s.(w6)	-56	(N5 jet)		1	54,7
		Others (w2, w4) have fast speeds, with fluctuations, for most of the apparition, up to -12.4 and -31.												
2013/14	(this report, GA)	W.ss.	3,1	1,0	4(5)	52,1	1,0	AWO (w1)	-22,2	(var.)			1	53,9
		(Mean of slow tracks, i.e. DL2 positive)					50.7 to 53.0	AWO (w2)	-22,6	(var.)	-33,2	1	(54)	
								&		-43,8	1	54,6		
		(Fast track segments for these two AWOs)												
		As in 2012/13, the most prominent spots (w1, w2) were mostly fast-moving, with fluctuations; both were high-latitude AWOs. Fast track segments ranged from -22.2 (53.9°N) to -43.8 (54.6°N).												
There were several slow-moving w.ss., of which w3 & w3A (which merged) were the most prominent. There were only a few short tracks for dark spots.														
2014/15	(final report online)	W.ss. & d.ss.	5,4	3,6	6	50,6	0,7	AWO-a	-30,8		-30,8	1	53,9	
							AWO-b	-22,3		-40,0	1	nd		
							AWO-c	-14,4		-41,4	1	nd		
2015/16	(final report online)	W.ss. & d.ss.	6,4	2,0	11	51,8	1,0	W.ss.	-26,2	1,1		2(11)	54,1	
		(Mean of all slow tracks)					(Mean of fast tracks for 2 AWOs)							

N5TC

Positive DL2 (Main N5TC):

Negative DL2:

(inc. N6 jet or domain)

		DL2					Lat.		DL2					Lat.					
		<u>Spot type</u>	<u>mean</u>	<u>SD</u>	<u>min</u>	<u>max</u>	<u>N</u>	<u>mean</u>	<u>range/SD</u>	<u>Spot type</u>	<u>mean</u>	<u>SD</u>	<u>min</u>	<u>max</u>	<u>N</u>	<u>range</u>			
		(blue, lo-lat.; red, hi-lat.; magenta, N6 jet or domain)																	
1999/2000	(final report in JBAA)	none																	
2000/01	(final report in JBAA)	W. ovals	9; 10; 12						3	59,0; 60,8; 60,1									
2001/02	(final report in JBAA)	W. ovals	8; 10						2	60,1; 59,5	W.oval	-25						1	57,2
2002/03	(unpubl. analysis by HJM)	W.ss.	7; 12						2	(58-61)									

2003/04	(unpubl. analysis by HJM)	W.s.	10		1	(58-61)	D.s.	-5		1	(55-58)
2005	(final report online)	none									
2006	(final report online)	none					W.ss.	-5; -20		2	58,5; 56,9
2007	(final report online)	none									
2008	(unpubl., JHR)	(short imprecise track only)									
2009	(unpubl., JHR)	(very short tracks only)									
2010/11	(this report, GA)	W.ss.	14,5	3,9	4(8)	60,6	0,6	W.s.	-10,5 (part of a variable fast track)	1	62,5
								W.s.	-47,6	1	64,5
2011/12	(final report online)	W.ss.& d.ss.	13,5	7,3	11	60,4	0,8	W.s.(w1)	-43;...;-48 (parts of a variable fast track)	1	63,0;...;63,4
								W.s.	--46,6; 91,4	1	66,5; 67,3
2012/13	(this report, GA)	W.ss.	15,8	3,0	3	60,2	0,8	W.s.(w1)	+5;...;-45 (parts of an oscillating track)	1	61,6;...;63,3
								W.s.(w2-w3)	+13;...;-57 (parts of a variable fast track)	1 or 2	60,5;...;63,5
								W.s.(w5)	-56	1	65,4
2013/14	(this report, GA)	W.s.	11,6		1	60,5					
2014/15	(final report online)							W.s.	-24,8	1	62,6
2015/16	(final report online)	W.ss.	6,4; 7,2; 10,2		3	61,3; 61,2; 59,3		W.s.	-12,7	1	62,5