[Final version, 2015 March 16: Parts I & II]

JUPITER IN 2005 AND 2006

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using results from the JUPOS team (Hans-Joerg Mettig, Gianluigi Adamoli, Michel Jacquesson, Marco Vedovato, Grischa Hahn)

FIGURE LEGENDS & MINIATURES

South is up in all figures unless otherwise stated (Fig.2).

Fig. 1: Occultation of Jupiter by the Moon (South polar region), 2004 Dec.7: image sequence by Don Parker, taken with 254-mm Mewlon telescope. South is up. Brightness was adjusted separately for Jupiter and the Moon.

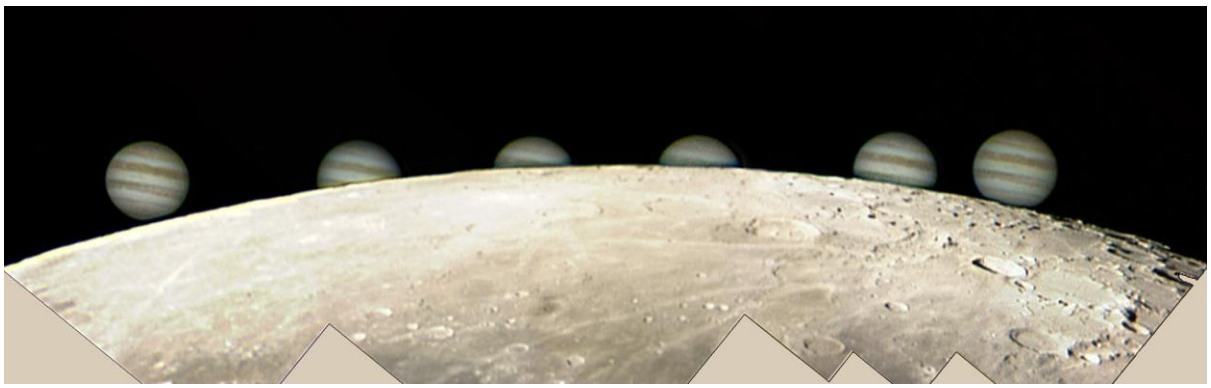


Fig. 2: Occultation of Jupiter by the Moon (North polar region), 2005 Feb.27: image sequence by Maurice Valimberti. North is up (unlike other figures). Brightness was adjusted separately for Jupiter and the Moon.

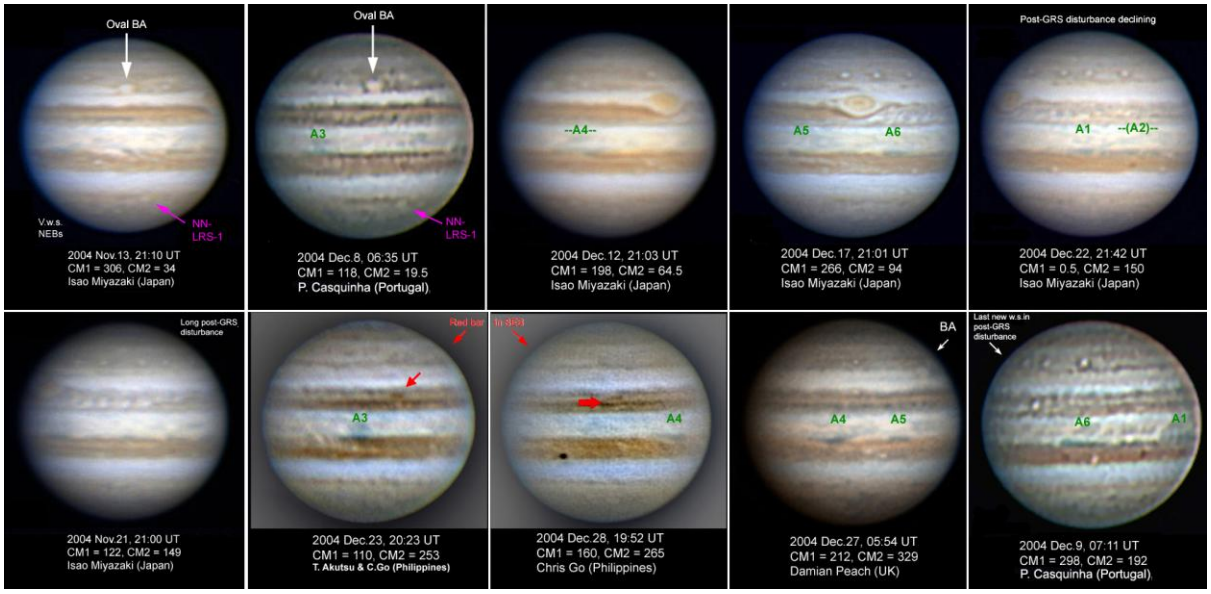


Fig. 3: Images all around the planet in 2004 Nov-Dec., at the start of the 2004/05 apparition. Some major features are indicated, including dark formations A1-A6 on NEBs.

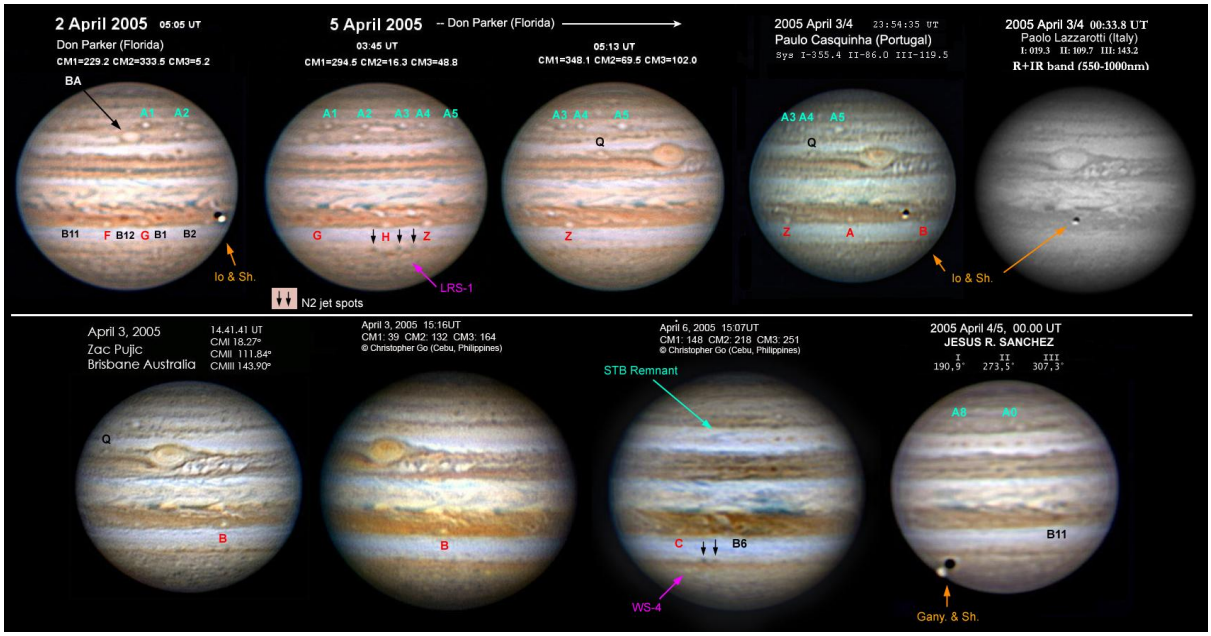


Fig.4: Images around the planet on 2005 April 3-5. (Compare with Peach's map a few weeks later in Fig.5.) Major features are labelled on some images, including the AWOs in the S2 domain, oval Q in the S. Tropical domain, and barges and AWOs in the N.Tropical domain. As opposition was on April 3, these images include two transits of Io in front of its shadow, and one transit of Ganymede adjacent to its shadow.

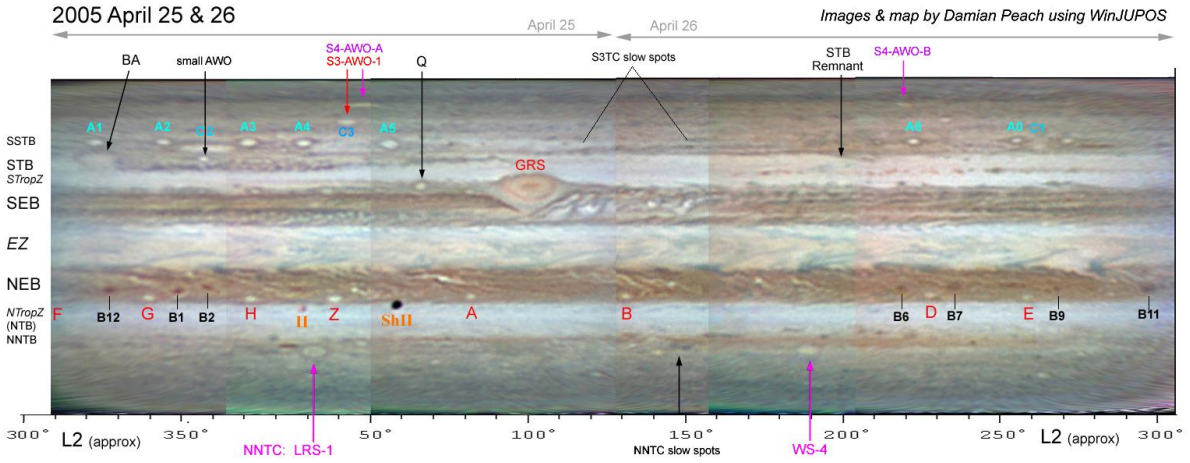


Fig.5: Map of the planet prepared by Damian Peach from his own images in 2005 April, with labels added for the major features.

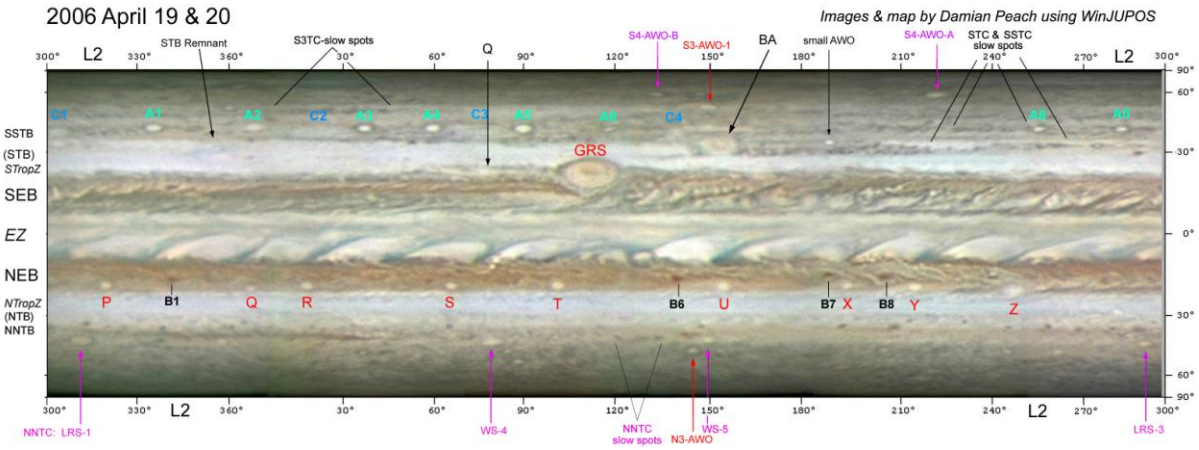


Fig.6: Map of the planet prepared by Damian Peach from his own images in 2006 April, with labels added for the major features.

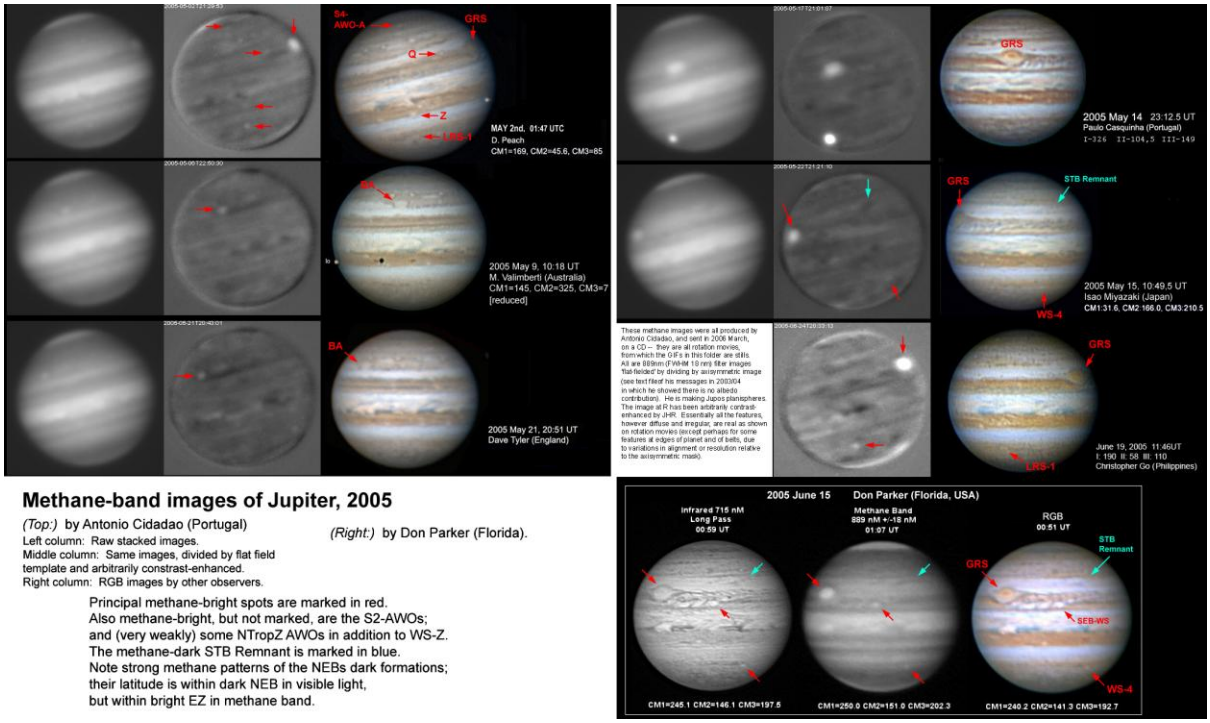


Fig.7: Images of Jupiter in the 889-nm methane band, 2005. (See figure for caption.)

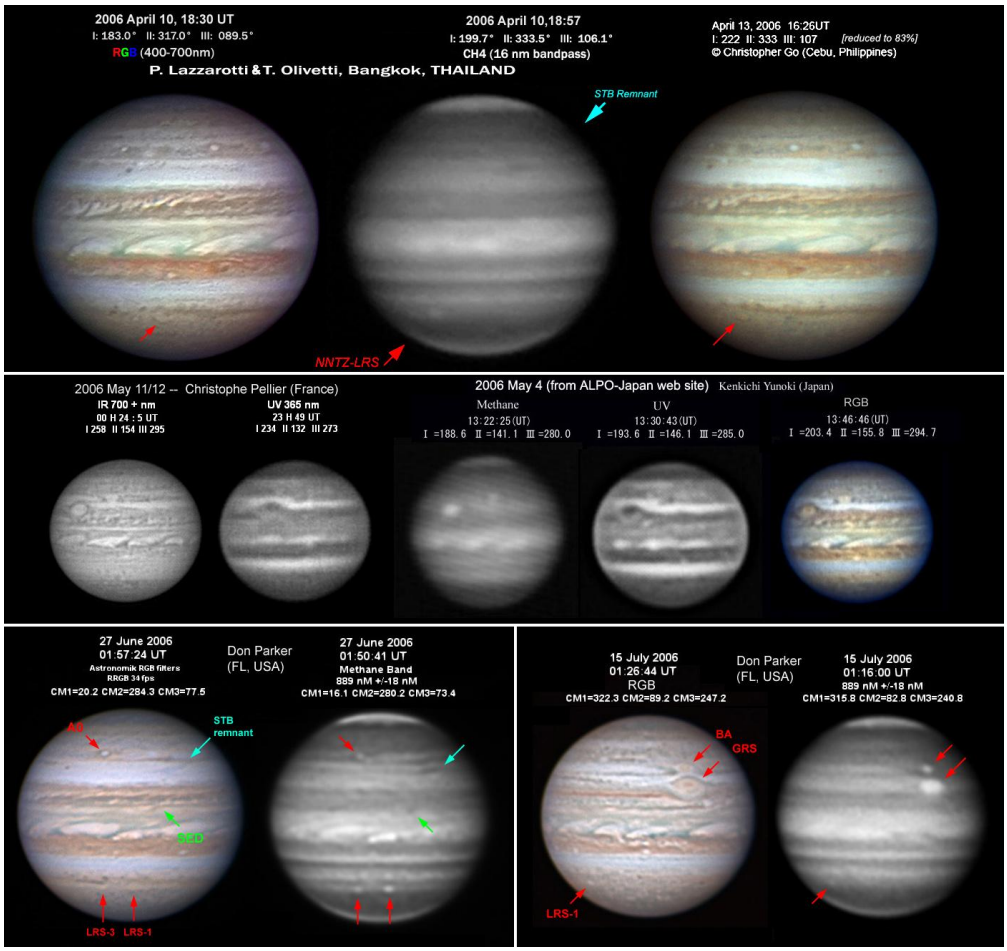


Fig.8: Multispectral image sets in 2006 by several observers, including ultraviolet, methane band, and near-infrared continuum, with visible colour (RGB) images for comparison.

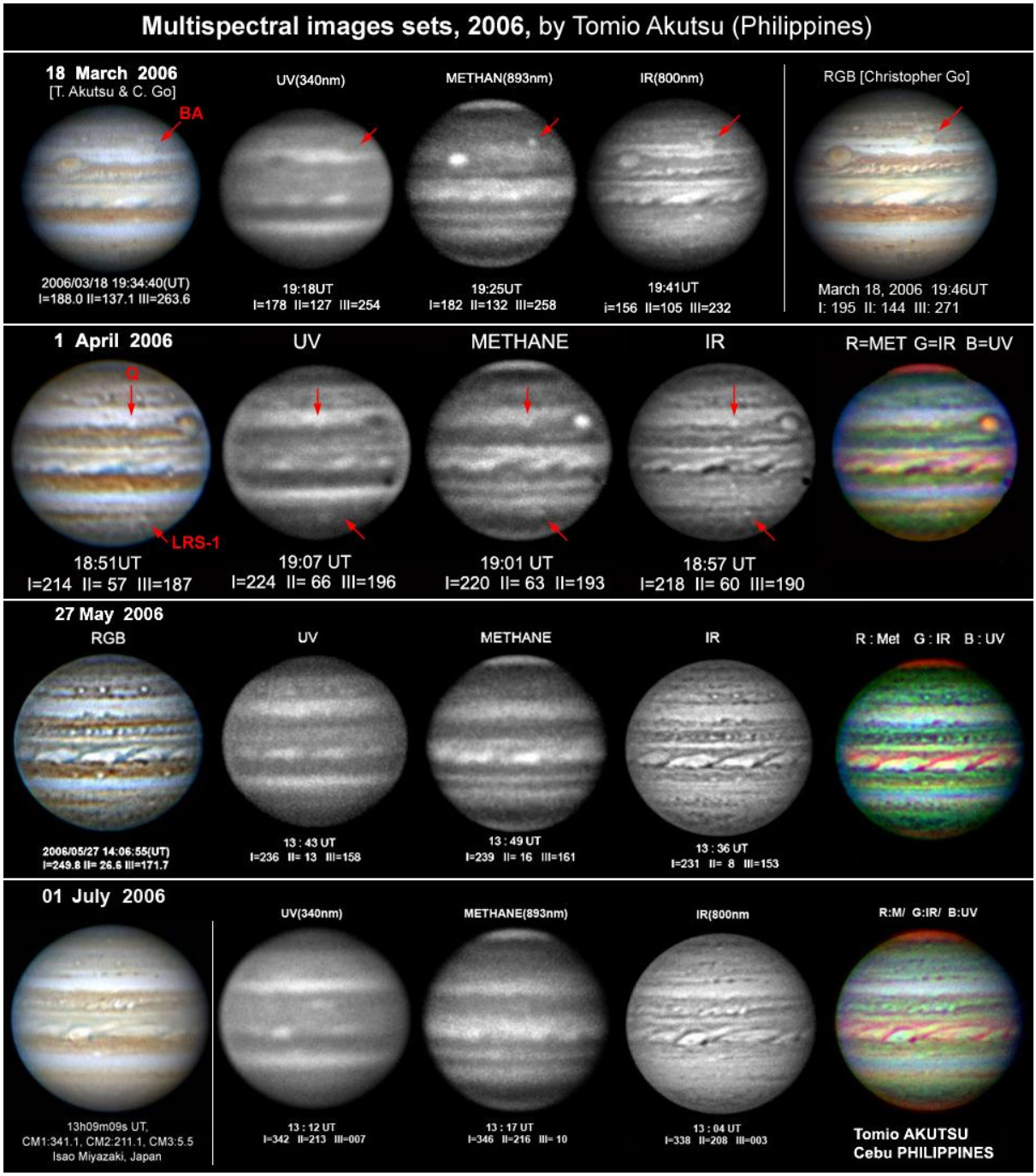


Fig.9: Multispectral image sets in 2006 by Tomio Akutsu, including ultraviolet, methane band, and near-infrared continuum, with visible colour (RGB) images for comparison.

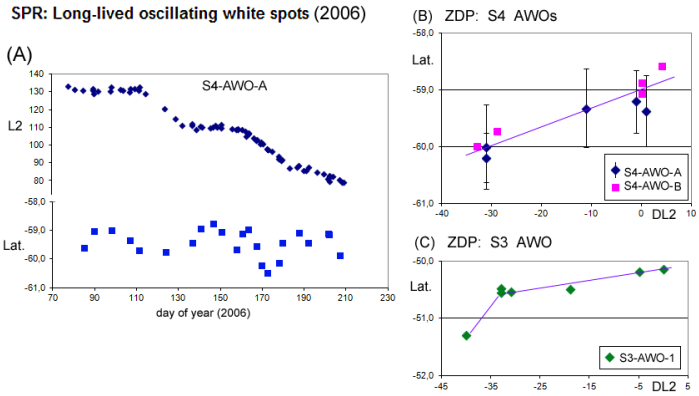


Fig.10. Charts of long-lived AWOs in south polar region, 2006. (A) S4-AWO-A, showing regular, synchronous oscillations in longitude and latitude vs time. (B,C) ZDPs for both S4 AWOs and for S3-AWO-1, showing both fast and slow phases of their oscillations. These ZDPs are for 2006 only; in our long-term report [Ref.6] we showed ZDPs for all years.

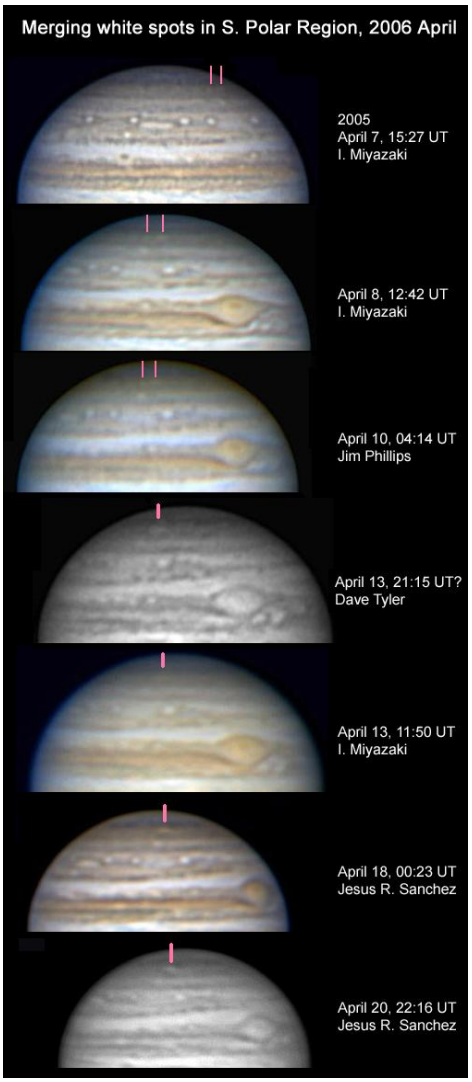


Fig.11. Images showing the approach and merger of two white spots in the S4 domain. After an alert by H-J. Mettig, the two were tracked up to April 10, and were apparently merging in the near-simultaneous images by Tyler and Lazzarotti on April 13, but no details of the merger were visible. Also note the S.Trop.Band emerging p. the GRS, with Oval Q due N of the merging S4 spots.

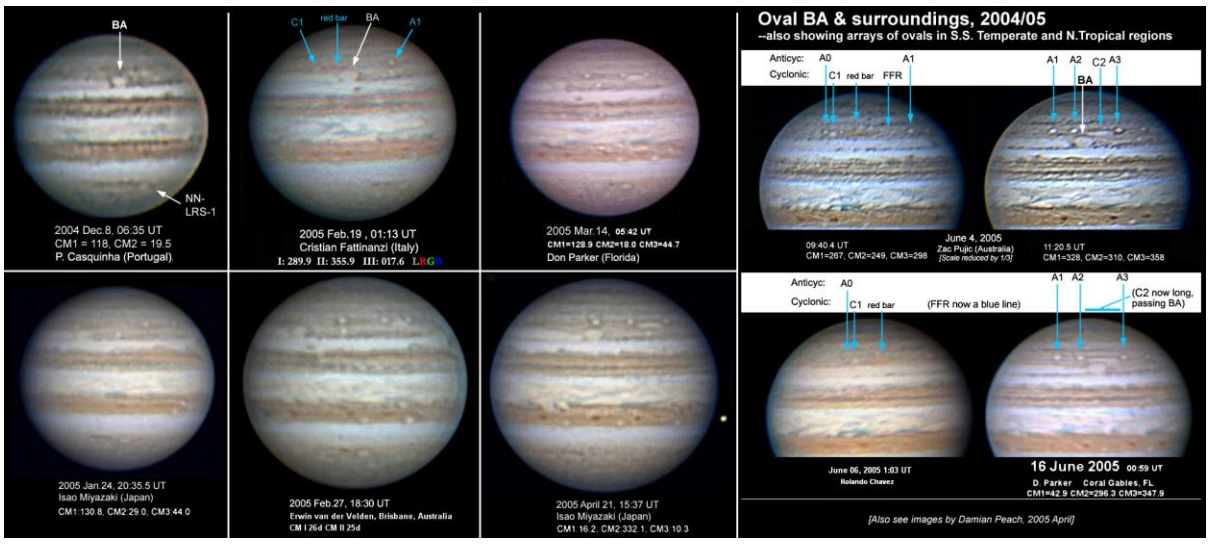


Fig.12. Images including Oval BA and surroundings, 2004/05.

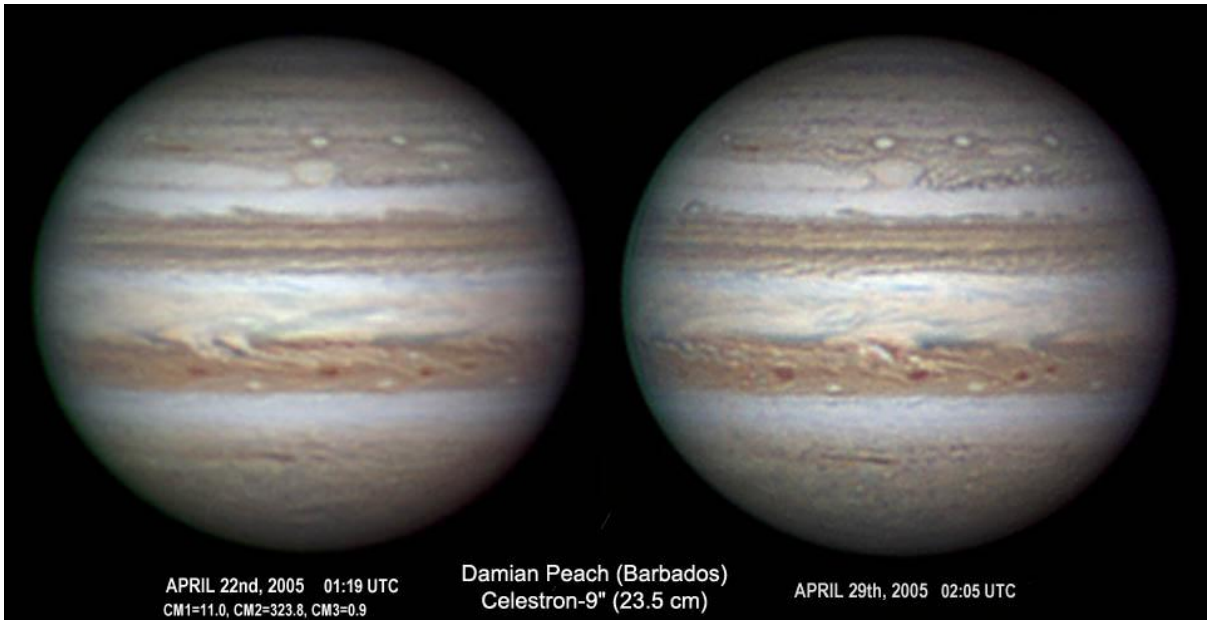


Fig.13. Images including Oval BA and surroundings, 2005 April, at high resolution by Peach.

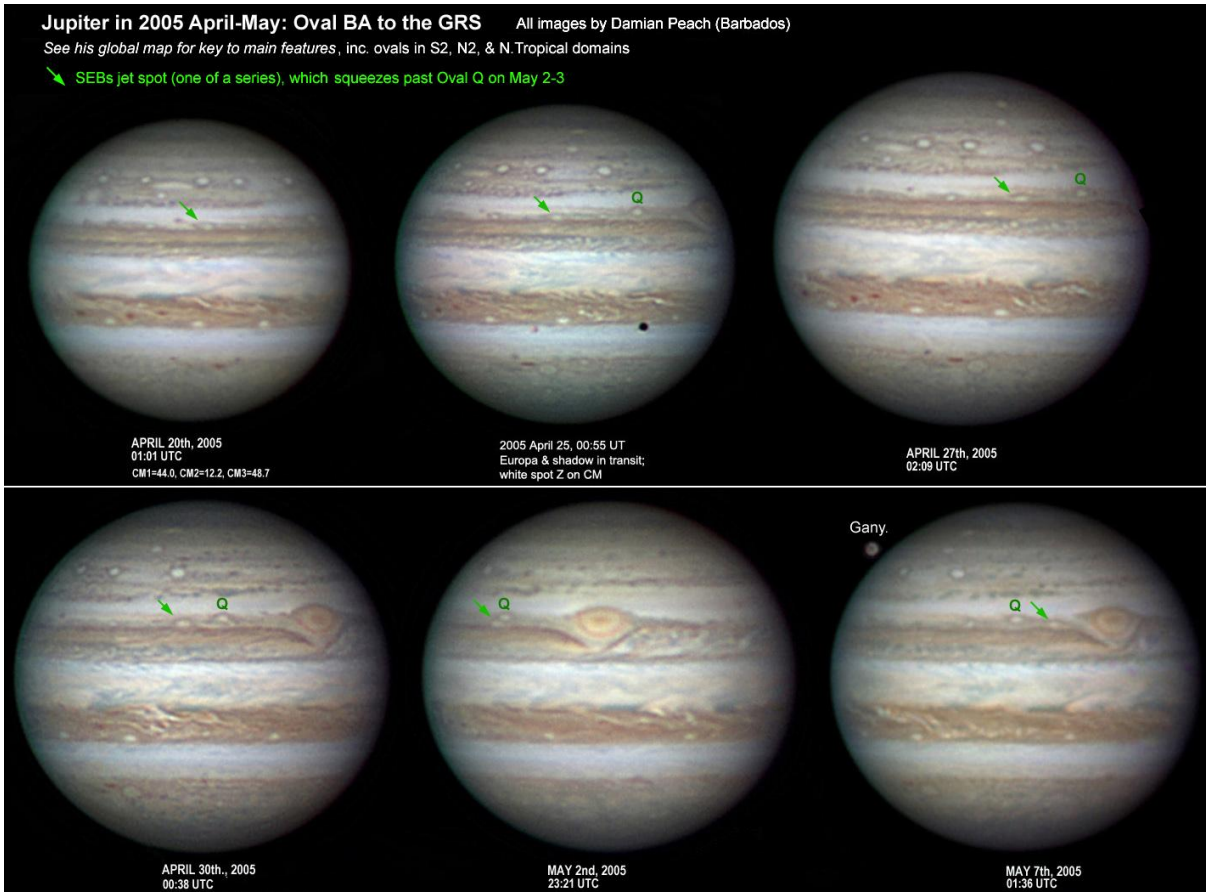


Fig.14. Images of longitudes from Oval BA to the GRS, 2005 April-May, at high resolution by Peach. Oval Q and white spot Z are also well shown.

STropZ, 2006: Dark spots recirculating

S2-AWOs and STropZ dark spots are labelled.
The STB Remnant is alongside spots a & b.

[Some of these images were used in our 2006 interim report no,11 (Fig.16) showing breakup of SSTB cyc.WO's.]

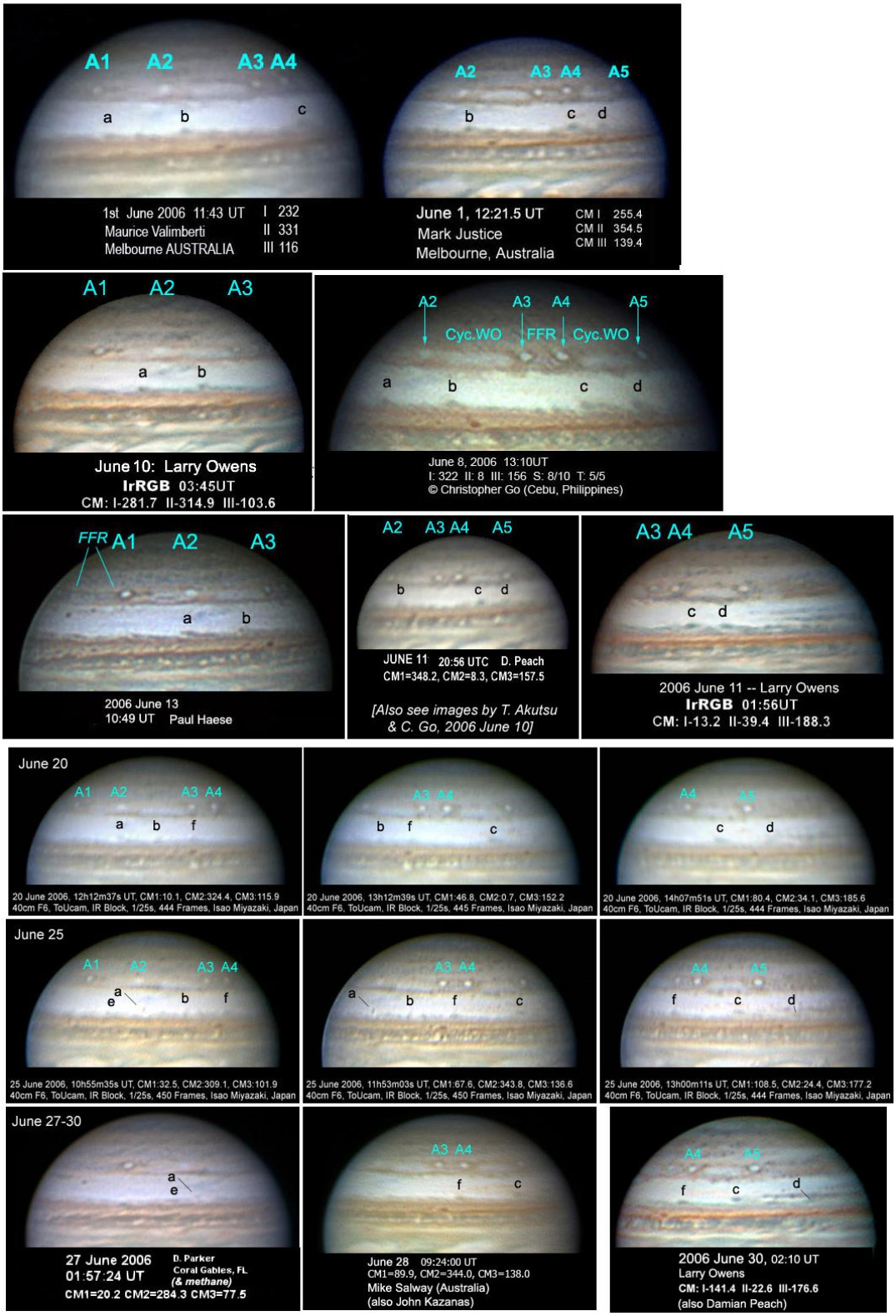


Fig.15. Images of the S. hemisphere in 2006 June, showing the ovals in the S2 domain, and dark spots *a-f* in the STropZ, some of which recirculate. The STB Remnant is alongside spots *a* and *b*.

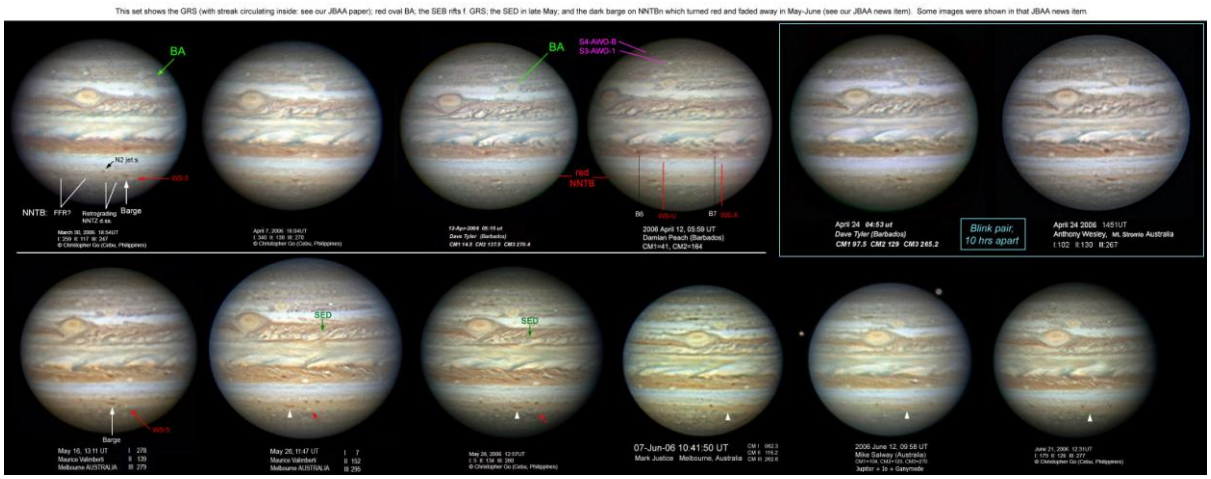


Fig.16. Images including the GRS and oval BA in 2006 April-June. See image for caption. *[Some images were shown in Ref.4]*.

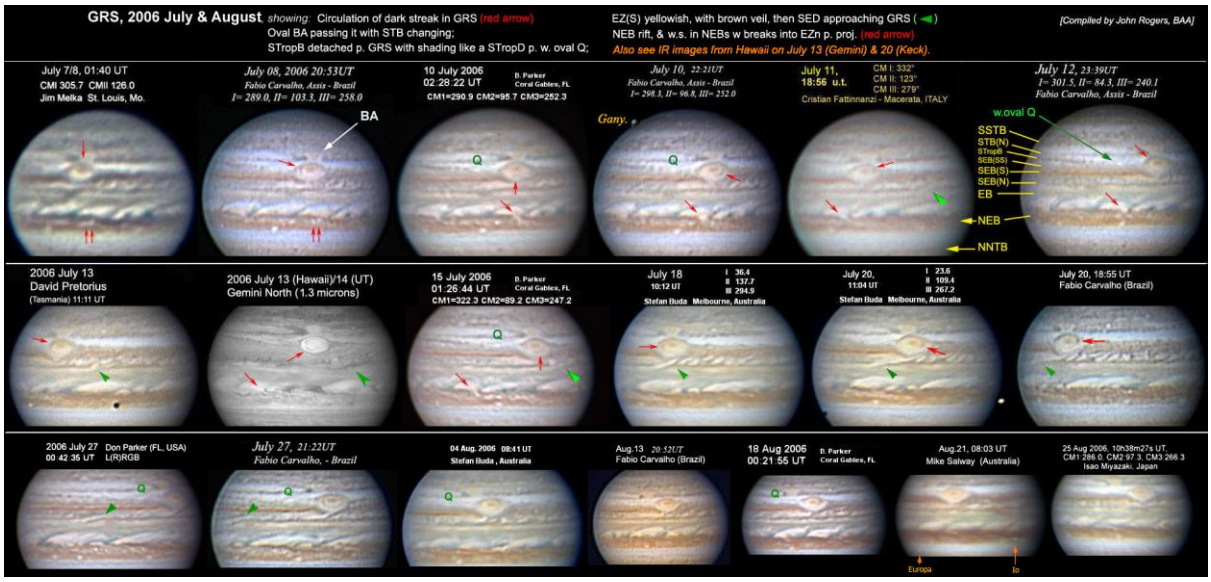


Fig.17. Images including the GRS with oval BA passing it in 2006 July-August. *[Previously posted in Ref.5 no.9.]* This shows: Internal circulation of GRS [Ref.8]; SED passing GRS; & bright spot(s) in the southern NEB (red arrows) breaking through into the EZ(N) at the p. edge of dark projection **k** on July 10. See caption on image for further details.

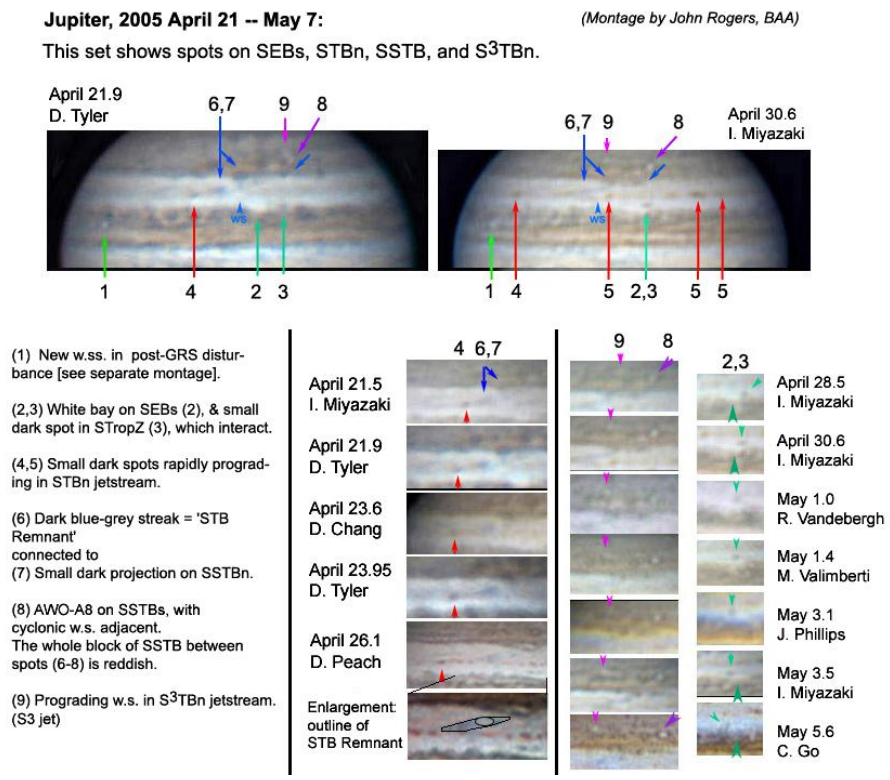


Fig.18. Images in 2005 April-May showing the STB Remnant and spots moving in the S3 jet, SSTB, S1 jet (STBn jetstream), and STropZ.

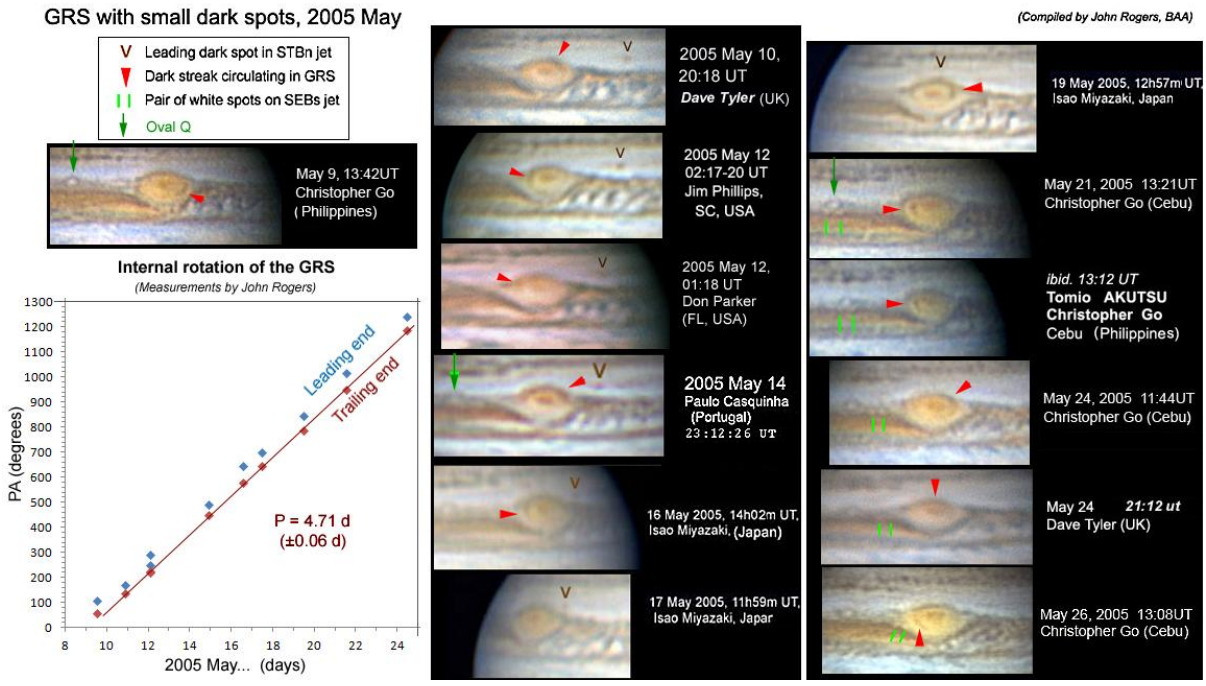


Fig.19. The GRS in 2005 May, with spots moving rapidly around and inside it.
Inset: Chart of position angle vs time for the dark grey streak in the GRS (red arrowhead on the images), measured by JHR on images stretched to circularise the GRS, as in [Ref.8]. The trailing end had a period of 4.7 days; the leading end was less well defined but was consistent with the same period.

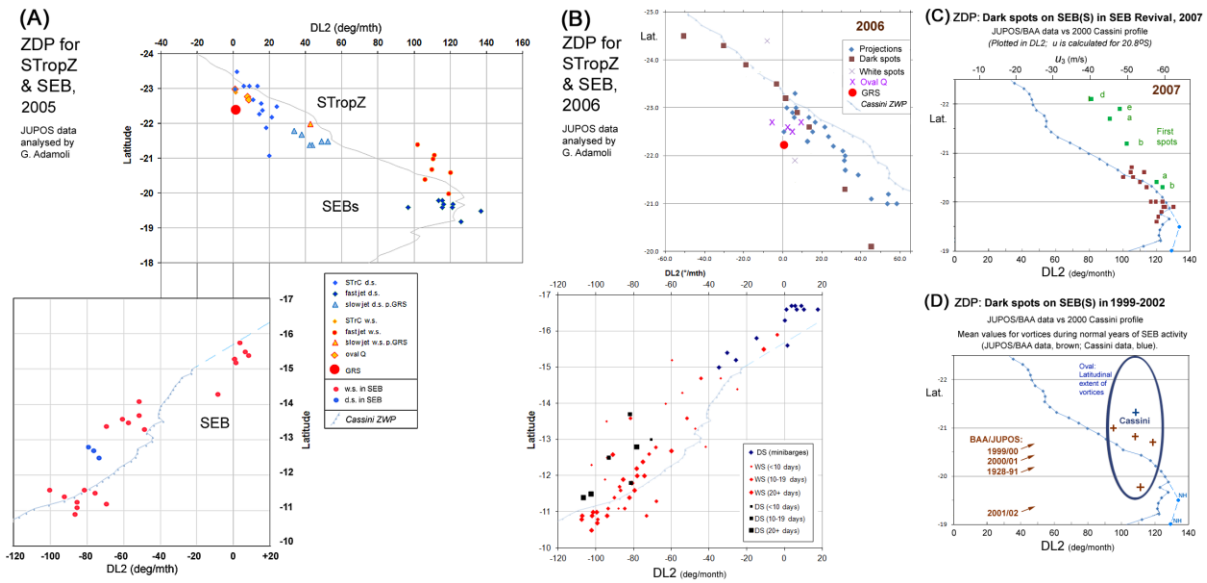


Fig.20. **(A,B)** ZDPs for STropZ and SEB: (A) 2005, (B) 2006.
(C,D) ZDPs for STropZ and SEBs jet in other years for comparison: (C) 2007, (D) averages for apparitions 1999-2002 and for historic BAA data, plus the typical position of SEBs jet vortices in Cassini data. *[Charts (C,D) were previously posted in Ref.23. The line is the ZWP from Cassini [Ref.33], for comparison.]*

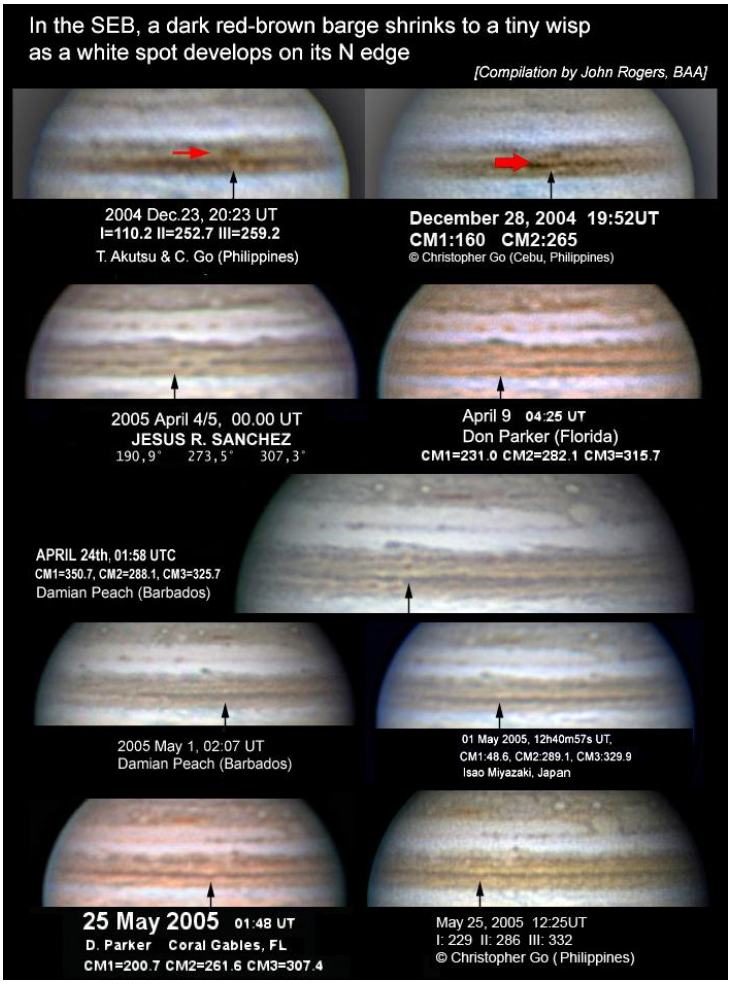


Fig.21. Images in 2004/05 showing how a dark red-brown barge in SEB shrinks as a white spot develops on its N edge. Three white spots at this latitude were probably appendages to inconspicuous cyclonic circulations at the 'barge' latitude (as also a much larger one in 2011-2014).

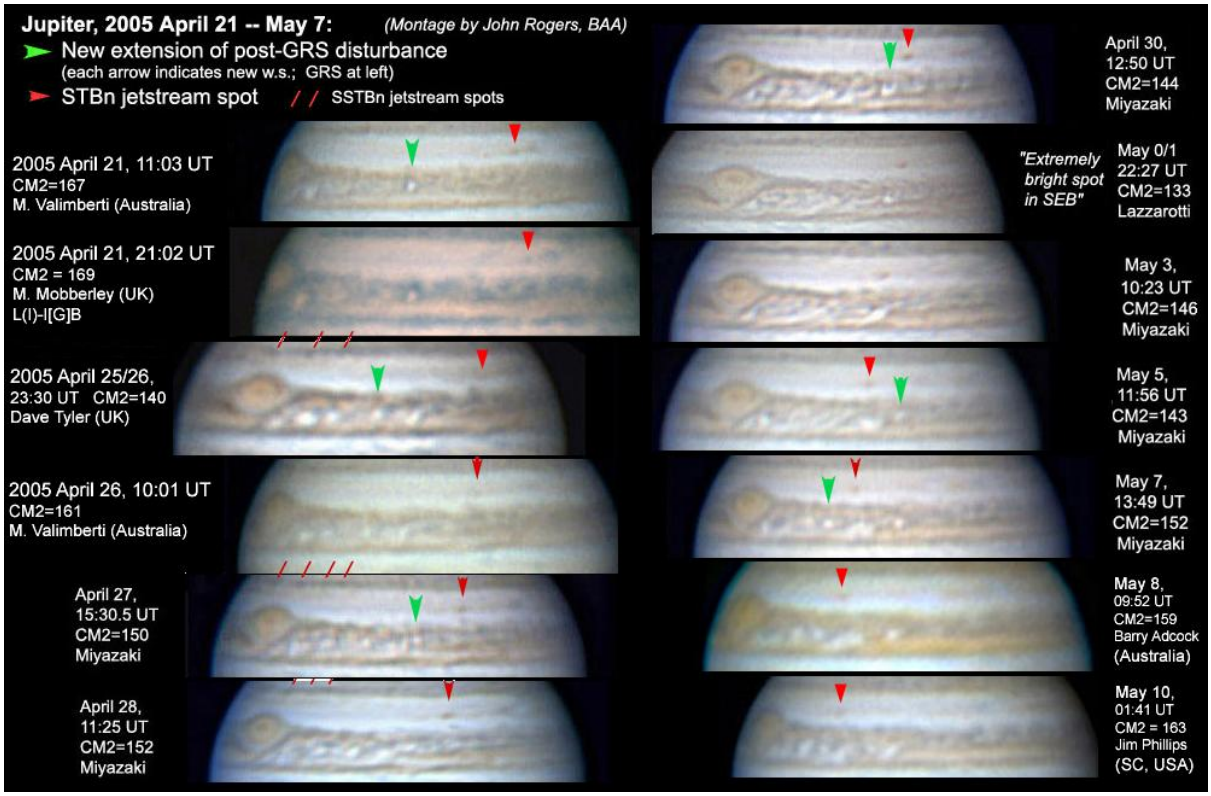


Fig.22. Images in 2005 April-May, showing a new extension of the post-GRS disturbance in the SEB, which started on April 21.

Chart J1

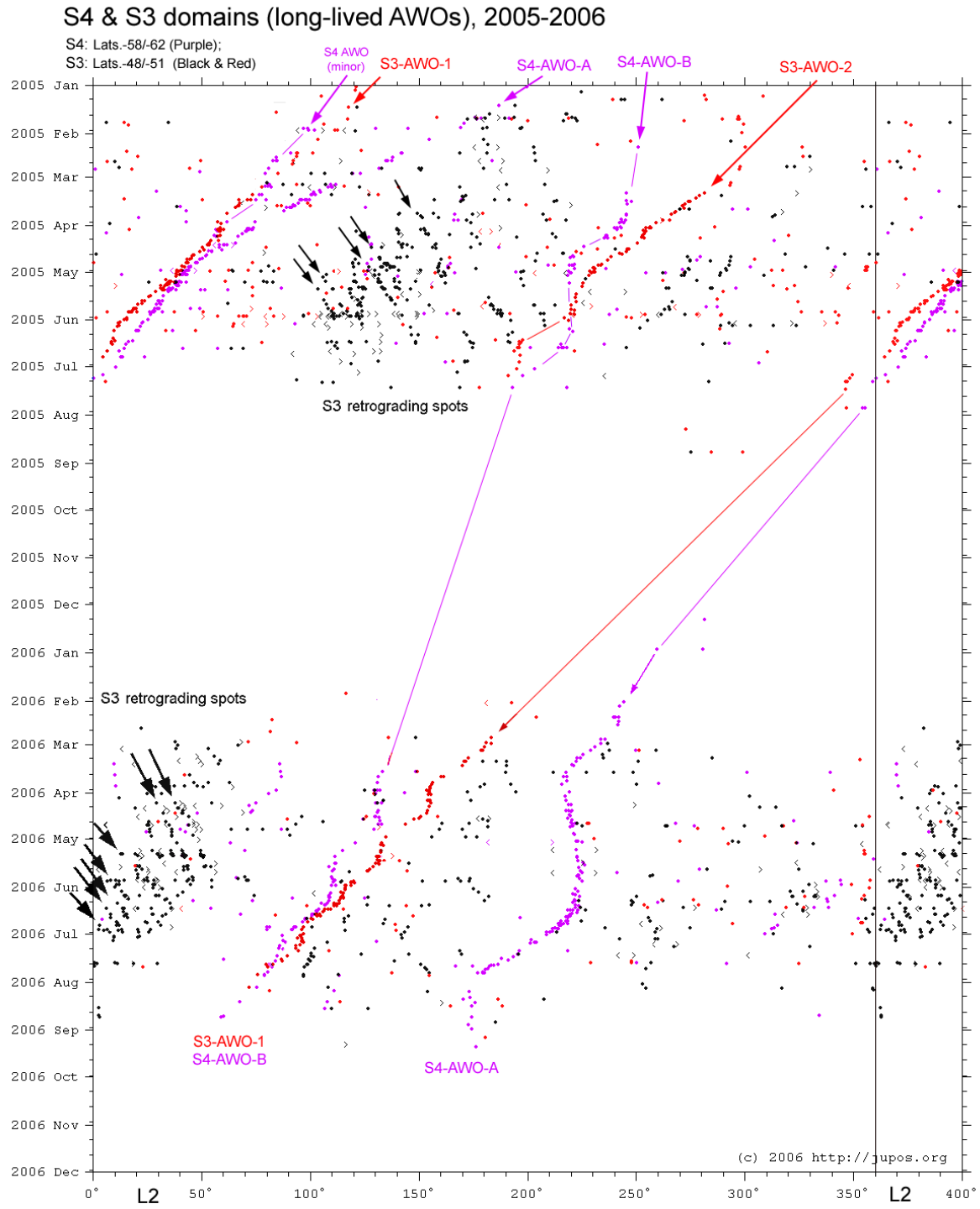

S4 & S3 domains (long-lived AWOs), 2005-2006
S4: Lats.-58/-62 (Purple);
S3: Lats.-48/-51 (Black & Red)
S4 AWO (minor)
S3-AWO-1
S4-AWO-A
S4-AWO-B
S3-AWO-2
S3 retrograding spots
S3 retrograding spots
S3-AWO-1
S4-AWO-B
S4-AWO-A
(c) 2006 http://jupos.org
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
0° L2 50° 100° 150° 200° 250° 300° 350° L2 400°

Chart J2

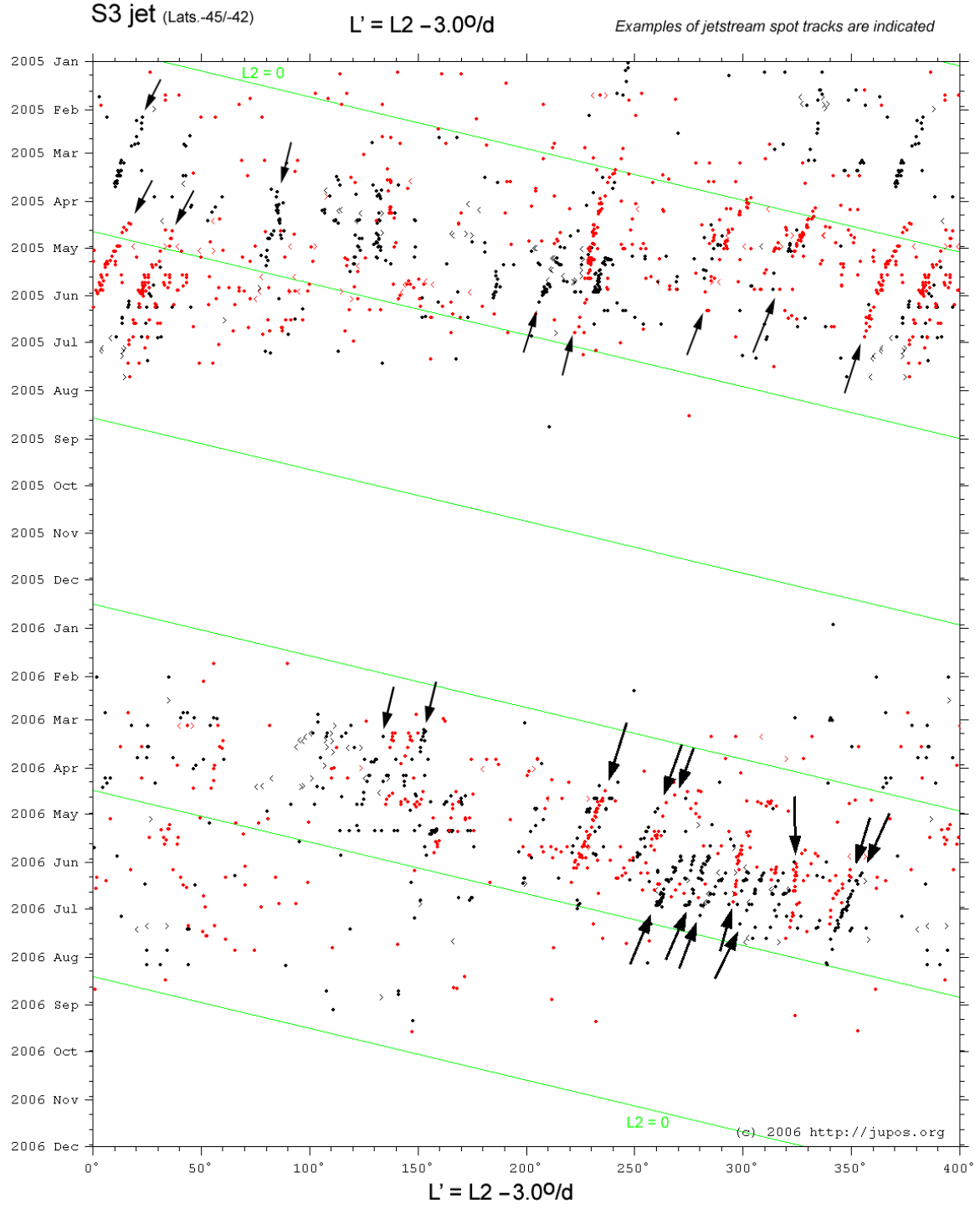

S3 jet (Lats.-45/-42)
L' = L2 −3.0º/d
Examples of jetstream spot tracks are indicated
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
L2 = 0
L2 = 0
(c) 2006 http://jupos.org
0°
50°
100°
150°
200°
250°
300°
350°
400°
L' = L2 −3.0º/d

Chart J3

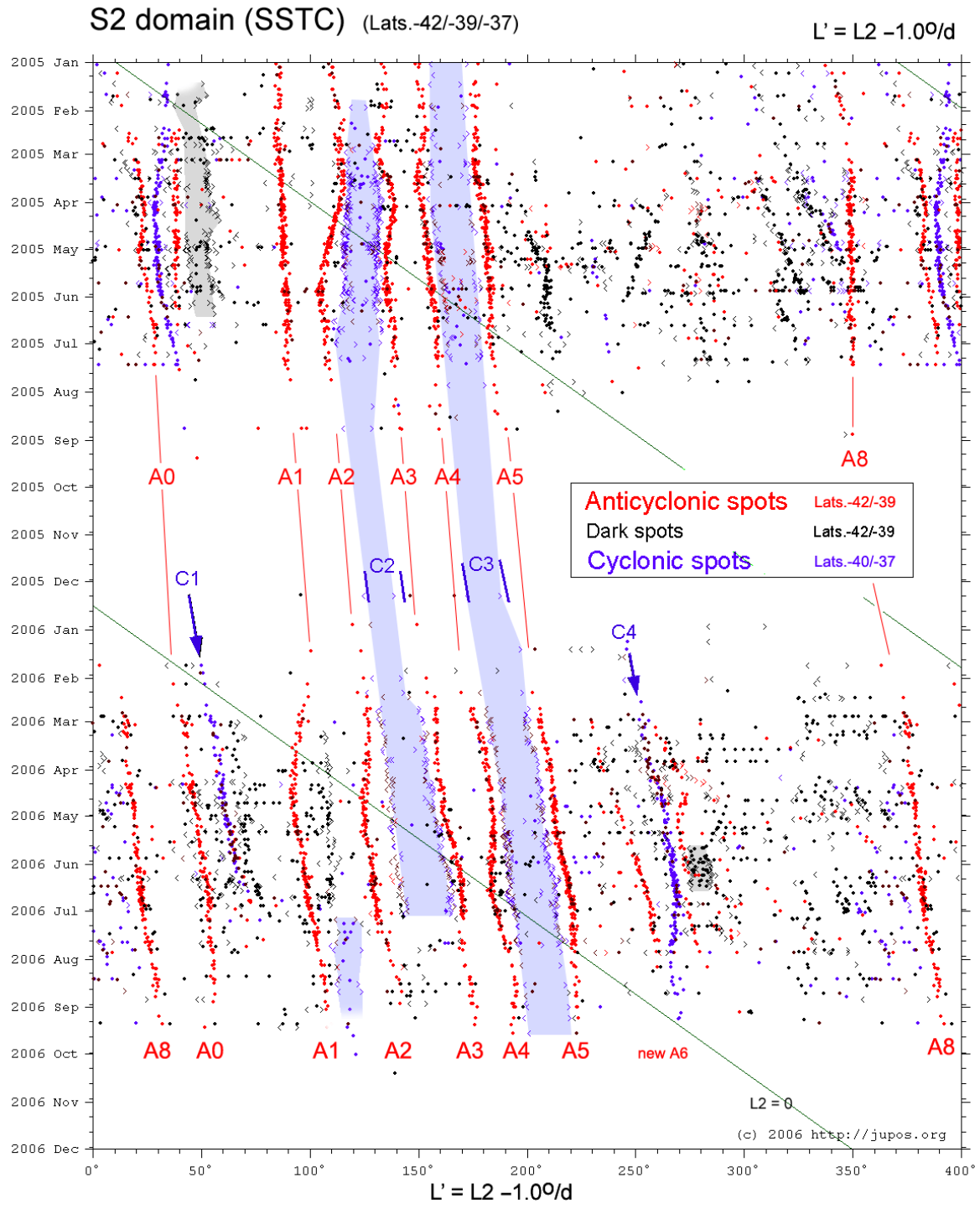

S2 domain (SSTC) (Lats.-42/-39/-37)
L' = L2 –1.0°/d
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
A0
A1
A2
A3
A4
A5
A8
C1
C2
C3
C4
Anticyclonic spots Lats.-42/-39
Dark spots Lats.-42/-39
Cyclonic spots Lats.-40/-37
A8
A0
A1
A2
A3
A4
A5
new A6
A8
L2 = 0
(c) 2006 http://jupos.org
0°
50°
100°
150°
200°
250°
300°
350°
400°
L' = L2 –1.0°/d

Chart J4

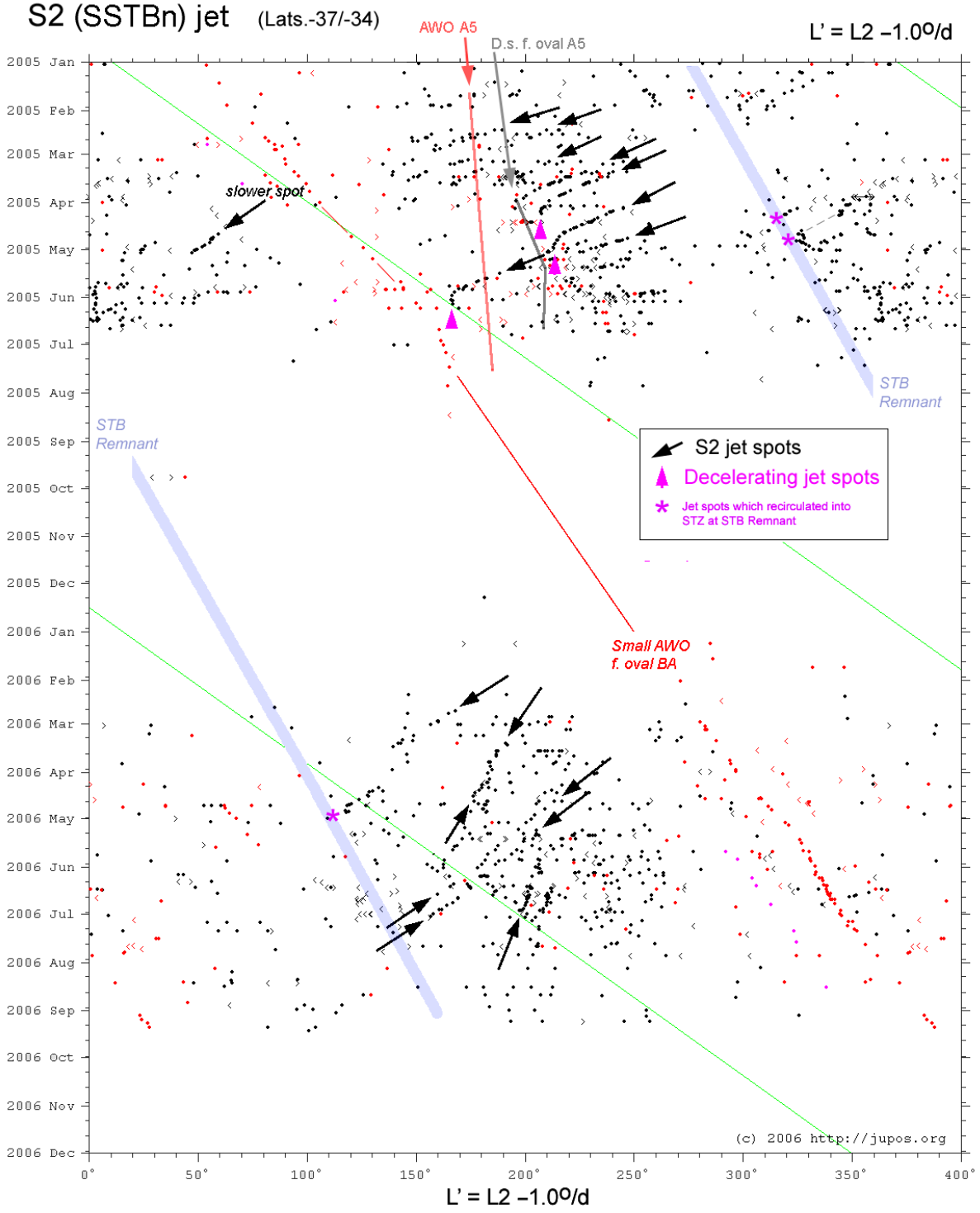

S2 (SSTBn) jet (Lats.-37/-34)
AWO A5
D.s. f. oval A5
L' = L2 –1.0º/d
slower spot
STB Remnant
STB Remnant
S2 jet spots
Decelerating jet spots
Jet spots which recirculated into STZ at STB Remnant
Small AWO f. oval BA
(c) 2006 http://jupos.org
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
0° 50° 100° 150° 200° 250° 300° 350° 400°
L' = L2 –1.0º/d

Chart J5

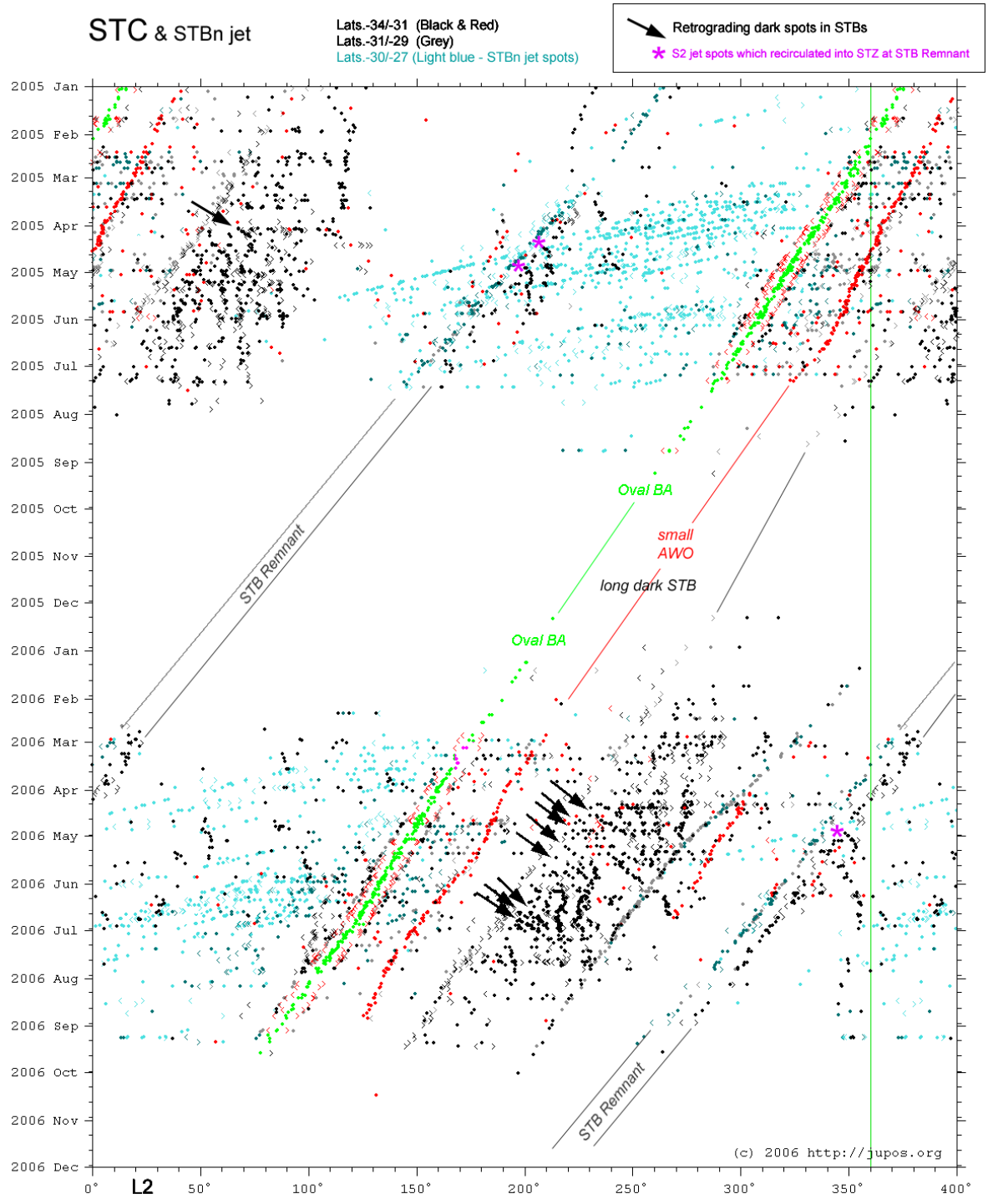

STC & STBn jet
Lats.-34/-31 (Black & Red)
Lats.-31/-29 (Grey)
Lats.-30/-27 (Light blue - STBn jet spots)
Retrograding dark spots in STBs
S2 jet spots which recirculated into STZ at STB Remnant
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
0° L2 50° 100° 150° 200° 250° 300° 350° 400°
STB Remnant
Oval BA
small AWO
long dark STB
Oval BA
STB Remnant
(c) 2006 http://jupos.org

Chart J6

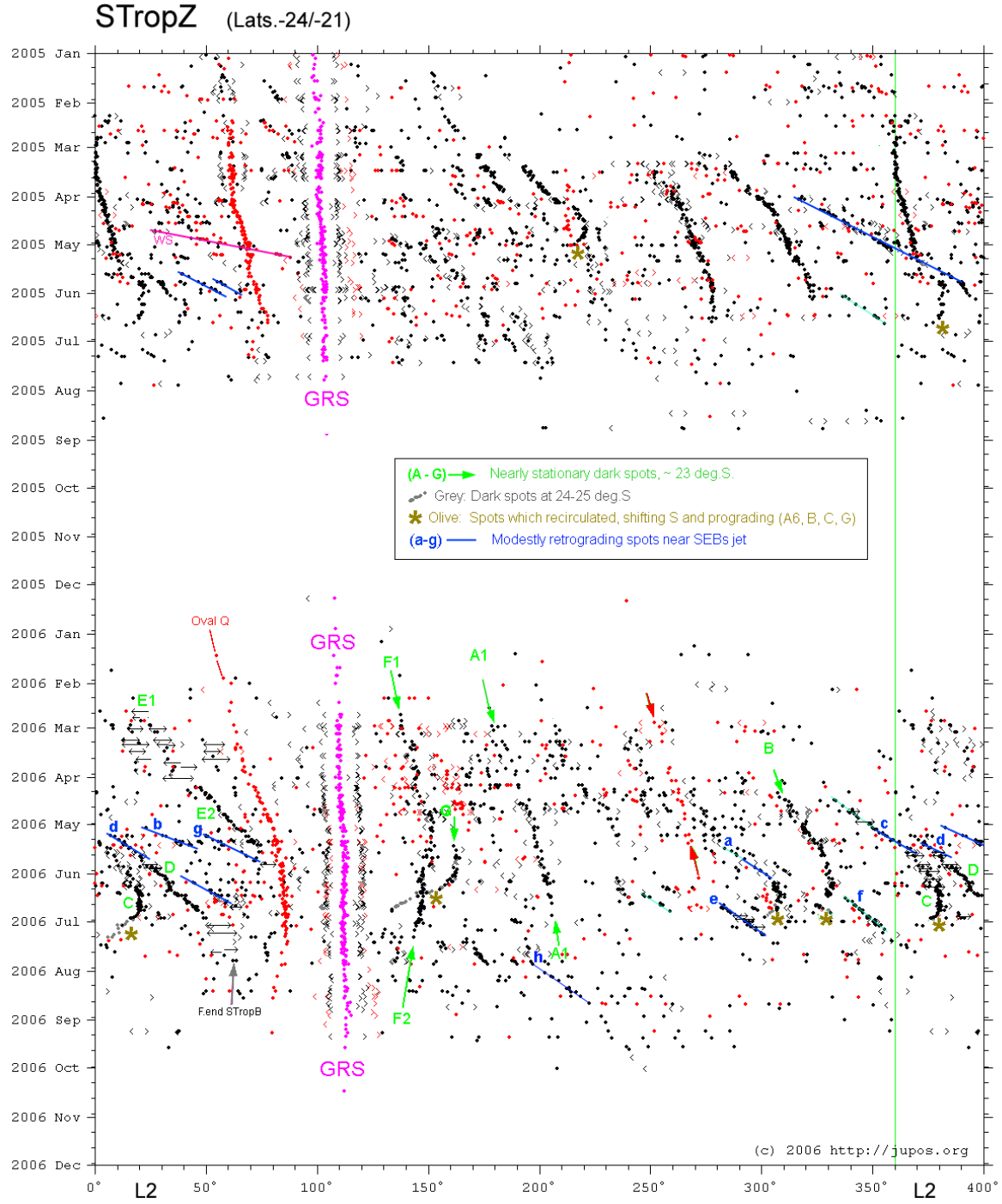
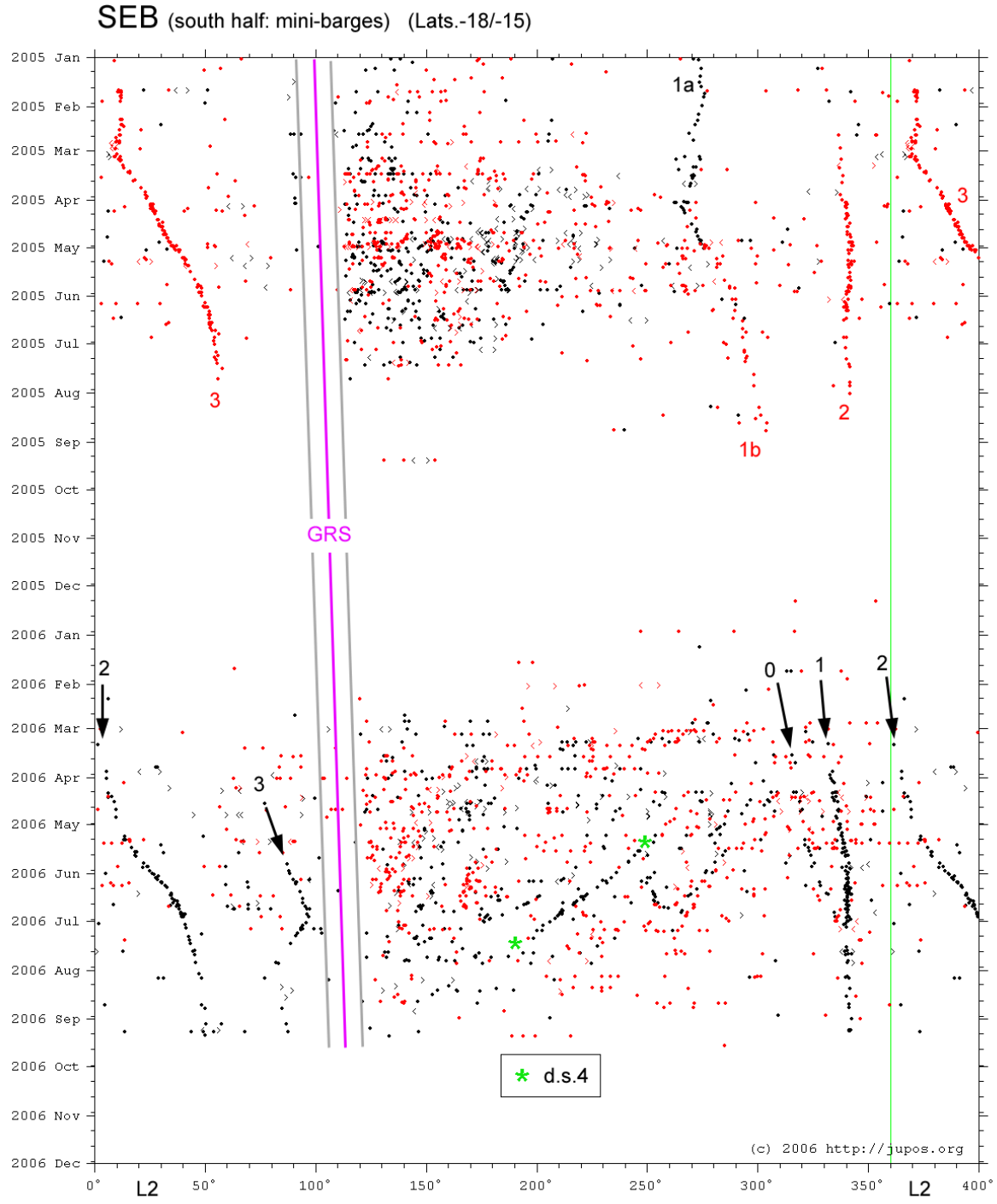

STropZ (Lats.-24/-21)
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
WS
GRS
(A - G) Nearly stationary dark spots, ~ 23 deg.S.
Grey: Dark spots at 24-25 deg.S
Olive: Spots which recirculated, shifting S and prograding (A6, B, C, G)
(a-g) Modestly retrograding spots near SEBs jet
Oval Q
GRS
F1
A1
E1
E2
B
G
d
b
g
D
C
a
c
d
D
e
f
C
h
A1
F.end STropB
F2
GRS
(c) 2006 http://jupos.org
0°
L2
50°
100°
150°
200°
250°
300°
350°
L2
400°

Chart J7


SEB (south half: mini-barges) (Lats.-18/-15)
2005 Jan
2005 Feb
2005 Mar
2005 Apr
2005 May
2005 Jun
2005 Jul
2005 Aug
2005 Sep
2005 Oct
2005 Nov
2005 Dec
2006 Jan
2006 Feb
2006 Mar
2006 Apr
2006 May
2006 Jun
2006 Jul
2006 Aug
2006 Sep
2006 Oct
2006 Nov
2006 Dec
0° L2 50° 100° 150° 200° 250° 300° 350° L2 400°
GRS
1a
1b
2
3
0
1
d.s.4
(c) 2006 http://jupos.org

Observers, 2005 & 2006 (Images)

Table 1

This version includes observers who contributed direct to JUPOS.

Red = 2005 only; Blue: 2006 only; Black = both apparitions

Name		*Location*	*Country*	*Telescope*	*Camera*
					(Lu = Lumenera)
Adcock, Barry		Melbourne	Australia	360 mm Schiefspiegler	ToUcam
Adelaar, Jan		Arnhem (etc.)	Netherlands	235 mm SC (C9.25) (etc.)	ToUcam
Akutsu, Tomio			Japan	320 mm Newt.	ATK-1HS or ToUcam
Akutsu, Tomio	(with C. Go)	Cebu	Philippines	C8 or C11	ToUcam II
Arditti, David		Edgware, Mdx	UK	254 mm Dall-Kirkham-Cass.	ATK-1HSII; ToUcam (mono or colour Pro II)
Bosman, Richard		Entschede	Netherlands	280 mm DSC (C11)	ToUcam Pro
Buda, Stefan		Melbourne	Australia	400 mm Dall-Kirkham	ToUcam 740
Carvalho, Fabio		Assis	Brazil	254 mm Newt.	ToUcam (Pro II or 840k)
Casquinha, Paulo		38.567 N 8.933 W	Portugal	250 mm Newt.	ToUcam Pro
Chang, Daniel		Hong Kong	China	C8	ToUcam II
Chavez, Rolando			GA, USA	315 mm Newt. & 254 mm Mak-Cass.	ToUcam
Cidadao, Antonio			Portugal	[SEE TEXT]	
Colville, Brian		Cambray, Ontario	Canada	250 mm Newt or 300 mm SC	ATK-1HS; Lu075M (& multispec. filters)
Coombs, Arthur		Melbourne	Australia	200 mm Newt. & 250 mm Newt.	ToUcam
Dickinson, Bill*		Glen Allen	VA, USA	C8 (SCT)	SPC900NC or ToUcam 840
Edwards, Peter		W. Sussex	UK	C8	ToUcam (modified)
Einaga, Hideo**		Kasai, Hyogo	Japan	250 mm Newt.	ToUcam Pro
Fattinnanzi, Cristian**		Macerata	Italy	250 mm Newt.	Philips Vesta Pro
Fisher, Jim		Austin	TX, USA	235 mm SC & 200 mm Newt.	ToUcam II
Foulkes, Mike		Hitchin	UK	203 mm SC	ATiK
Go, Christopher		Cebu	Philippines	C11	DMK 21BF04 camera
Grafton, Ed*		Houston	TX, USA	C14	ST402 CCD
Grassmann, Guilherme**		Americana	Brazil	254 mm SC	ToUcam Pro
Haese, Paul		Blackwood, S.	Australia	235 mm SC (C9.25)	
Heffner, Robert		Aichi	Japan	280 mm SC (C11)	ToUcam Pro
Hill, Rik*		Tucson	AZ, USA	C14	ToUcam
Ikemura, Toshihiko		Nagoya	Japan	310 mm Newt.	ATK-2C; Lu075C
Jacquesson, Michel		Sevigny-Waleppe	France	C8	ToUcam Pro II
Jefferson, James		Ruislip, Mdx	UK	Meade 125 mm	ToUcam Pro 2 & ATiK 2C
Justice, Mark		Melbourne	Australia	254 mm Dall-Kirkham	ToUcam 840
Kazanas, John		Melbourne	Australia	317 mm Newt.	SPC 900 webcam
Kingsley, Bruce		Barbados		C11 = 280 mm SC	ToUcam
Lau, Canon		Hong Kong	China	355 mm SCT (C14)	Toucam pro 740
Lawrence, Peter		Selsey	UK	254 mm	ToUcam Pro
Lazzarotti, Paolo		Massa	Italy	315 mm Dall-Kirkham ("Gladio 315")	Lu-Infinity 2-1M
Lazzarotti, Paolo		Massa & Mt. Giogo	Italy	252 mm Planewton	Lu075M
Lazzarotti, Paolo		Bangkok	Thailand	315 mm Dall-Kirkham	Lu075M or Inf.2-1M
& Olivetti, Tiziano				("Gladio 315")	
Lewis, Martin		Herts.	UK	222 mm Newt.	ToUcam
Lomeli, Ed*		Sacramento	CA, USA	235 mm SC	DMK 21BF04 firewire
Melillo, Frank J.		Holtsville	NY, USA	Meade 10" = 254 mm	ToUcam Pro II
Melka, Jim*		St Louis	MO, USA	30 cm Newt.	ToUcam
Miyazaki, Isao		Okinawa	Japan	400 mm Newt.	ToUcam
Mobberley, Martin		Cockfield, Suffolk	UK	245 mm Newt.	ATiK-1HS; Lu075
Moore, David M.		Phoenix	Arizona, USA	362 mm Cass.(new)	ATK1HS
Olivetti, Tiziano		Bangkok	Thailand	275 mm Newt.	Lu075M or
				or 180 mm Mak.-Cass	Astromeccanica KC381 & K-SS8H2P
Owens, Larry		Alpharetta	Georgia, USA	C14	Lu075M
Parker, Donald C.		Coral Gables	FL, USA	406 mm Newt.	ATiK-2C; Lu075M
Peach, Damian	&	Loudwater, Bucks.	UK	C9.25 = 235 mm SC	LU075M
Peach, Damian	&	Barbados	Barbados	C9.25; C14	Lu075M
Peach, Damian		(37N, 8W.)	Portugal	C9.25 = 235 mm SC	LU075M
Pellier, Christophe		Versailles	France	Mewlon 210	ATiK-1HS; Lu075M
Phillips, Jim		Charleston	SC, USA	TMB 8" or 10"	ATiK 2C
Pretorius, David*		Launceston, Tasmania	Australia	254 mm Newt.	ToUcam Pro II 840k
Pujic, Zac		Brisbane	Australia	310 mm Newt.	ToUcam Pro II
Salway, Mike		NSW	Australia	254 mm Newt.	ToUcam
Sampson, Ed [per G. Boots]		W. Sussex	UK	203 mm SC (Meade LX90)	Meade LPI
Sanchez, Jesus R.		Pozoblanco	Spain	180 mm Mak.-Cass.	ToUcam Pro
	&	Cordoba	Spain	280 mm SC	ToUcam Pro
Sharp, Ian		St. Augustine	FL, USA	C11	Toucam & ATiK-1HS
Sherrod, Clay		Arkansas Sky Obs.	AR, USA	410 mm SC	
Tasselli, Andrea		Lincoln	UK	250 mm Newt.	Lu075M
Tatum, Randy		Richmond	VA, USA	254 mm Newt.	ToUcam Pro
Turner, Brett**		Perth	Australia	254 mm Newt.	ToUcam Pro
Tyler, Dave	&	High Wycombe, Bucks.	UK	C11; C14	ATiK; Lu075M
Tyler, Dave	&	Barbados	Barbados	C14	Lu075M
Valimberti, Maurice		Melbourne	Australia	C14	ToUcam Pro
Vandebergh, Ralf		??	Netherlands	250 mm Newt.	ATK-1HS
Van der Welden, Erwin+		Brisbane	Australia	235 mm SC (C9.25)	Vesta Pro
Wesley, Anthony		Canberra	Australia	254 mm Newt.; 333 mm Newt.	Dragonfly Express mono firewire
	&	Rockhampton, QLD	Australia	254 mm Newt	
Yunoki, Kenkichi**		Sakai, Osaka	Japan	200 mm Newt.	ToUcam Pro, ATK-1HSII

* via ALPO (USA).

** via ALPO-Japan web site & direct to JUPOS. (A few images by Fukui and Takimoto were also noted.)

+Erwin van der Velden tragically died on 2005 Sep.27.

Methane-band images were taken by Akutsu, Cidadao (2005), Colville, and Parker.

Table 1 (cont.)

Additional imagers who contributed directly to the JUPOS team:

from Italy:			*from other countries:*
Adamoli, G.	Di Nasso, R.	Placenti, C.	Coelho, Paulo
Amadori, V.	Di Stazio, A.	Pompeo, G.	Di Scala, George
Baldoni, P.	Favero, G.	Ravagnin, A.	Di Sciullo, Maurizio
Bardelli, L.	Ferri, F.	Ruocco, N.	Hatton, Jason
Bartolini, G.	Galianni, P.	Saltamonti, S.	Koet, Jan
Barucco, D.	Gasparri, D.	Sbarufatti, G.	Maxson, Paul
Beltrame, P.	Lombardo, M.	Sellini, M.	Ng, Eric
Bernasconi, A.	Mancini, R.	Silva, M.	Rattei, Thomas
Bertoglio, A.	Manganotti, L.	Sivo, D.	Rhodes, Jason
Botallo, D.	Mariani, E.	Sordini, E.	Storey, Paul
Camaiti, P.	Marino, A.	Testa, L.	Yan, Chi Keung
Carbognani, A.	Melandri, I.	Tonon, A.	
Cardin, M.	Medugno, A.	Uri, G.	
Cellini, C.	Mingo, M.	Valentini, G.	
Cocco, A.	Morelli, P.	Vedovato, M.	
Comolli, L.	Moroni, P.	Zannelli, C.	
Corrao, F.	Negri, A.	Zanotti, F.	
Cosenza, R.	Padulosi, F.	Zompatori, D.	
Daniele, E.	Palmieri, S.		

Visual observations are not included in this report but the following observers are acknowledged:

Visual observers who contributed CM transits directly to the JUPOS team:

Adamoli, Gianluigi	Italy	**Visual observers in UK:**	
Chiarini, Massimo	Italy		
Cicognani, Massimo	Italy	Heath, Alan	
Colombo, Emilio	Italy	McKim, Richard	
Gaherty, Geoff	Canada	Parish, Peter	
Giuntoli, Massimo	Italy		
Horikawa, Kuniaki	Japan		
Mosch, Joerg	Germany		
Siliprandi, Paolo	Italy		
Vollmann, Wolfgang	Austria		

Table 2

Latitudes of belts & edges, 2006

(Zenographic; measurements by JHR)

I. Sector p. GRS

	Mean	SD
SPRn	**-53.1**	0.52
S2-AWOs	**-40.9**	0.19
SSTBn	**-34.6**	0.21
STropB	**-24.5**	0.25
SEB(SS)	**-21.2**	0.13
SEB(S)s	**-19.9**	0.16
SEBn [irreg.]	**-7.8**	0.02
EBs	**-4.0**	0.38
NEBs [irreg.]	**8.9**	0.60
NEBn	**20.2**	0.49
NEBn-AWOs	**18.5**	0.26
NTropB	**23.2**	0.42
NPRs/N2-jet-ss.	**34.4**	0.23

Measured 4 images:
April 14 & 19 (Peach),
May 8 (Turner), & May 27 (Olivetti).

II. Sector f. GRS & BA

	Mean	SD
SPRn	**-53.3**	0.47
STB(S)s	**-34.8**	0.43
STBs (main)	**-31.7**	0.48
STBn	**-28.9**	0.25
SEBs (exc.dk.strks.)	**-20.8**	0.50
SEBn (exc. SED)	**-7.7**	0.89
NEBs [irreg.]		
NEBn	**20.6**	0.13
NEBn-AWOs	**19.0**	0.15
NTropB	**23.6**	0.30
NPRs/N2-jet-ss.	**34.6**	0.18
NPRs	**42.6**	0.33

Measured 4 images:
March 21 (Buda), April 12 (Peach),
May 26 (Valimberti), & May 28 (Go).

2005 longitudes & drifts - S. hemisphere

Table 3

Current	Description	Spot name	Lat.	L2(0)	DL2 (deg/30d)	Dates / N	Notes
(S4TC?)	AWO	oval A	-60.1 --> -59.5	69	-45 --> -17	Jan-Jun	*Merged with small w.s. p. it*
	AWO	oval B	-59.1 --> -58,6	240	-20 --> -3	Mar-May	*Oscillating*
S3TC	AWO	AWO-1	-50.6	61	-25	Dec-Jul	*Long lived oval - oscillating*
	AWO	AWO-2	-50.5	255	-34	Mar-Jun	*Oscillating*
	Slow d.ss.	**mean**	**-49.2 (±0.52)**		**+11.0 (±9.2)**	(N=6)	
S3 jet	(w. spots)	**mean**	**-43.6 (±0.16)**		**-98.9 (±1.9)**	(N=8)	
	(d. spots)	**mean**	**-43.0 (±0.17)**		**-94.0 (±4.9)**	(N=6)	
SSTC	AWO	A0	-40.7	281	range -26/-33	Jan-Jul	
	AWO	A0b	-40.7	295	-30	Feb-Jun	
	AWO	A1	-40.6	344	-29	Nov-Jul	
	AWO	A2	-40.7	10	range -28/-35	Nov-Jul	
	AWO	A3	-40.7	37	range -22/-35	Nov-Aug	
	AWO	A4	-40.8	49	range -27/-34	Dec-Aug	
	AWO	A5	-40.6	77	-28	Nov-Aug	
	AWO	A8	-40.5	246	-24 --> -30	Dec-Jul	
	AWOs	**mean**	**-40.7 (±0.11)**		**-29.3 (±1.4)**	(N=8)	
	Slow d.ss.	**mean**	**-40.6 (± 0.36)**		**-21.6 (±2.2)**	(N=3)	
	Cyclonic: Red bar & 3 WOs	**mean**	**-38.4 (±0.15)**		**-29.0 (±0.0)**	(N=4)	
S2 jet	Dark spots	**mean**	**-35.4 (±0.61)**		**-80.4 (±14.8)**	(N=7)	*Omitting later deceler'ns*
STB(S)	D.ss. f. segment A:						
	(group 1)	**mean**	**-32.3 (±0.21)**		**+27.6 (±2.3)**	(N=3)	
	(group 2)	**mean**	**-33.2 (± 0.16)**		**+3.4 (±3.2)**	(N=5)	
STC	AWO	**oval BA**	-32.7	335	-12.7	Oct-Mar	
			-32.8	335	-14.4	Mar-Sep	
	Small AWO		-33.5	6	-11	Nov-Jun	*F. BA; accel. to DL2 -23 in Jul*
	D.s. at p. end of STB Remnant		-29.6	210	-14 --> -19	Dec-Jul	
S1 jet	**STB(N) d.ss.**	**mean**	**-28.3 (±0.22)**		**-90.1 (±5.5)**	(N=15)	
	P.end S.Trop.Band		-24.1	56	-44.0	Mar-Apr	
	P.end darker STropB		-24.1	78	-45.5	Apr 3-27	
STropC	Oval	**GRS**	**-22.4**	**101**	**0.7**	**Nov-Jul**	
	Oval	oval Q	-22.8	62	+1 to +8	Feb - Jun	
	White spot	W1	-22.9	213	1.0	Mar - May	*Also recorded as a 'bay' (mean lat. -21.3)*
	(d.spots/projs)	**mean**	**-22.6 (±0.63)**		**+12.9 (±7.2)**	(N=8)	
SEBs jet	(slow d.ss/projs p.GRS)		**-21.6 (±0.16)**		**+42.7 (±6.8)**	(N=6)	
	(fast d.spots)	**mean**	**-19.6 (±0.18)**		**+117.7 (±10.8)**	(N=9)	*Lats. for 'spot' records only; 'proj' ~1 deg higher*
	(fast w.spots)	**mean**	**-20.7 (±0.47)**		**+111.0 (±6.6)**	(N=7)	*Most of these were p. GRS*
SEB (centre)	d. spot	1a	range -16/-17	267	-2.5	Nov-Apr	*Minibarge', Oscillating, DL2 range -10/+15*
	w. spot	1b	-15.4	272	+13 --> +5	Apr-Aug	*Developed on N edge of d.s.1a*
	w. spot	2	-15.3	340	+1	Feb-Aug	
	w. spot	3	range -15.5/-16	25	range -5/+13	Nov-Jul	*Variable motion*
	White spots	**mean**	**-15.5 (±0.24)**		**+4.7 (±4.0)**	(N=3)	
SEB (f.GRS)	White spots	**mean**	**-13.6 (±0.28)**		**-56.0 (±7.8)**	(N=6)	
SEB(N)	White spots	**mean**	**-11.3 (±0.25)**		**-84.2 (±9.6)**	(N=8)	
	Dark spots	**mean**	**-12.7 (±0.15)**		**-76.2 (±2.8)**	(N=3)	

Notes:

These tables list large or long-lived or interesting spots, and means for recognised groups of spots and currents.
Some minor features are not included, but all are plotted on the global ZDP chart.
D.s(s), dark spot(s); W.s(s)., white spot(s).
L2(O) = L2 on opposition (2005 April 3).
Where values for several individual spots are boxed, their average is given below.
Means are quoted (+/-SD), and (N) is the number of spots averaged; sometimes the number of track segments was larger.

2006 longitudes and drifts — S. hemisphere

Table 4

Current	Description	Spot no.	Lat.	L2(0) (May 4)	DL2 (deg/30d)	Dates	Notes
S4TC	AWO	AWO-A	-58.6 to -60.0	223	+4 to -33	Feb-Aug	Oscillating, P = 4.3 mth
	AWO	AWO-B	-59.2 to -60.2	119	+1 to -31	Mar-Jul	Oscillating, P = 1.7 mth
S3TC	AWO	WS	-50.2 to -51.3	133	0 to -40	Mar-Jul	Oscillating, P = 1.0 mth; D.s. 13 deg.f.
	slow d.ss.	**mean**	**-49.0**	**0-50**	**+10 to +15**	**(N=6)**	Slow-moving chain
	d. spot	d.s.1	-46.1	64 (July 1)	-25	May - Aug	Decelerating
	d. spot	d.s.2	-46.5 to -46.0	98 (July 1)	-14 to -23	May-Jul	On N. edge of AWO; eventually accelerating
S3 jet	dark spots	**mean**	**-43.0**		**-97**	(N≥8)	Range DL2 -96 to -99
	white spots	**mean**	**-43.5**		**-97**	(N≥6)	Range DL2 -93 to -99
SSTC	AWO	A0	-40.6	269	-28	Feb-Aug	
	w. Cycl. area	C1	-39.0	283	-25	Jan-Jun	
	AWO	A1	-40.6	315	-33 to -26	Jan-Sep	
	AWO	A2	-40.4	346	-31 to -24	Feb-Aug	
	p. end w. Cycl. area	C2	-39.1	359	-27	Dec-Jul	
	f. end w. Cycl. area		-38.7	20	-26	Dec-Jul	
	AWO	A3	-40.6	24	-27	Feb-Sep	
	AWO	A4	-40.5	46	-22 to -32	Feb-Sep	
	p. end w. Cycl. area	C3	-39.2	50	-28	Feb-Jul	
	f. end w. Cycl. area		-38.7	69	-27	Dec-Jul	
	AWO	A5	-40.5	74	-27	Feb-Sep	
	AWO	A6	-40.5	105	-23 to -27	Feb-Aug	Newly formed
	w. Cycl. area	C4	-39.0 to (-37.9)	125	-22 to -32	Dec-Sep	
	AWO?		-40.4 to -40.9	131	-19 to -27	Mar-Aug	Minor oval; oscillating
	p. end w. area		(-40.1)	135	-14	Mar-Apr	Near to C4 and lesser anticycl. oval;
	f. end w. area		(-40.1)	162	-6	Mar-Apr	closest feature to retrogr. jet
	AWO	A8	-40.6	240	-27	Feb-Sep	
	AWOs	**mean**	**[-40.5]**		**-27.3 (±3.4)**	**(N=9)**	**Assumed lat. -40.5**
	Cyclonic WOs	**mean**	**-39.0 (±0.2)**		**-26.7 (±3.0)**	**(N=4)**	
	slow d.ss.	**mean**	**-40.6 (±0.2)**		**-20.7 (±3.0)**	**(N=7)**	Most tracks poorly defined
S2 jet	**SSTBn d.ss.**	**mean**	**-35.2 (±0.1)**		**-64.8 (±2.3)**	**(N=3)**	
STC	Red anticyc.oval	BA	-32.8	143	-13.3 to -15.7	Dec-Sep	
	Small AWO		-33.7	181	-9 to -18	Feb-Sep	Oscillating, P = 4 mth
	f. end d. sect. STB		-31.0	213	-15	Dec-Sep	
	d. spot		-30.2 to -30.9	275	-24 to -15	Jan-Sep	
	w. oval		-33.6	290	-13	Apr-Jun	
	p. end of STB Remnant		(-29.7)	330	-18	Mar-Aug	
	f. end of STB Remnant		(-32.7)	350	-17	Mar-Aug	
		mean	**(-30 to -34)**		**-15.9 (±3.9)**	**(N=7)**	
	Slow sector (STB tail):						
	D.ss.(retrograding)		**-32.2 (±0.4)**		**+30.2 (±7.2)**	(N = 12)	[Average includes short-duration tracks].
					(Range: +41 to +17)		
	D.ss.(approx.stat.)		**-32.8 (±0.3)**		**+6.5 (±0.9)**	(N=6)	Some of these spots also had short faster track
					(Range: +8 to +6)		segments of ~-3 to -15 deg/mth.
S1 jet	**D.ss.**	**mean**	**-28.4**		**-87**	**(N=8)**	
(STBn)			(Range: -27,5 to -28,9)		(Range:-75 to -103)		
	P. end S.Trop.Band:		-24.1	52	-26	Mar-Apr	*Other temp. p. ends in intervening months with*
			-25.4	(164)	-67	Jul 2-27	*intermediate drifts & lats. are not listed here.*
GRS	Oval		-22.2	111	+0.6	Dec-Oct	Oscillation (P = 90 d)
STropC	d. proj	F1	-23.3	152	6.2	Feb 20 - Apr 29	
	d. spot	F2	-23.5	152	-3.1	May 2 - Jul 10	
	d. spot	G	-22,5 to -24,5	162	0 to -51	May-Jun	Accel. from ~0 to -51; passed spot F in June
	d. spot	A1	-23.0	197	7	Feb-Jun	
	d. spot	B	-22.9	330	8	Apr-Jun	Progressively acceler. from ~ +15 to -16
	d. spot	E2	-22.6	66	21	Apr-May	
	AWO	**Q**	**-22.6**	**80**	**+9 to -6**	**Jan-Aug**	
	f. end STropB		-24.4	68 (Jun 26)	-8	Jun-Jul	
SEBs jet	dark projs. or spots	**Group 1**	**-21.1 (±0.10)**		**+52.7 (±5.4)**	(n=4)	
		(b,g,h,i)			(Range: +45 to +58)		
	dark projs. or spots	**Group 2**	**-22.1 (±0.24)**		**+29.2 (±3.7)**	(n=6)	
		including:			(Range: +23 to +32)		
	d. proj.	a	-21.7	272	32	May-Jun	Then recirc. in STropZ, up to lat. -23.9, DL2 -19
	d. proj.	c	-22.0	353	32	May-Jun	Then recirc. in STropZ, up to lat. -24.3, DL2 -30
	d. proj.	d	-22.4	7	23	May-Jun	
	d. proj.	h	-22.1	190 (Jul 1)	31	Jul-Aug	Then decel. in STropZ, still lat. -22.3, DL2 +9.5
mid-SEB	d. spot	0	-16.7	319	9	May-Jun	
	mini-barge	1	-16.5	338	1	Mar-Sep	
	mini-barge	2a,b,c	-16.6	11	+5 to +17	Mar-Aug	
		2d	-15.6		1	Aug 22 - Sep 11	
	mini-barge	3a	-16.6	79.5	10.2	May 26 - Jun 23	
		3b	-15.8	(124)	-14.9	Jun 26 - Aug 5	
	mini-barges	**mean**	**-16.3 (±0.47)**		**+4.1 (±10.0)**	**(N=4)**	
mid-SEB	d. spot	4	-15.4	257	-24 to -33	May-Aug	Fast spot p. f.end mid-SEB outbreak
SEB(N)	**w. spots**	**mean**	**-11.8**		**-83**	**(N=31)**	
			Range: -10.7 to -13.6		Range:-52 to -108		
	d. spots	**mean**	**-12.3**		**-91**	**(N=6)**	
			Range:-11.4 to -13.7		Range: -79 to -107		

Notes:

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Some minor features are not included, but all are plotted on the global ZDP chart.
D.s(s), dark spot(s); W.s(s)., white spot(s).
L2(O) = L2 on opposition (2006 May 4), unless other date is stated.
Means are quoted (+/-SD), and (N) is the number of spots averaged; sometimes the number of track segments was larger.
Where values for several individual spots are boxed, their average is given below.