

**Version 1.6: Draft Event list from the inspection of the PSP plasma and magnetic field data until 30 September 2021. Compiled by IC and VB, 22/03/2022. References to relevant studies will be updated soon. Abbreviation explanations are provided at the end.**

Year	Month	Day	PSP $r_d$ (au)	SW event	Comp Obs	Comments
2018	10	30, 31	SE1, 0.26	TS, SW, ICME	WSA	RE
	11	2		ME		
		3	6P1	SWB	WE	
		8		SWB, P		
		10		HSS		
		11, 12	E1S, 0.23	SWB, ICME	ESA	Ref. Nieves-Chinchilla_2020_ApJS_246_63
		14-20		HSS		
		15		ME		
		19, 22		MQ		
		21	0.45	ICME		
		23		CS		
		24,25,26	0.52	ICME		
		26-28		HSS		
	12	3,4	0.64	ICME	EE	
		7		CS		
		15		SW		
		19		BI		
2019	02	20		BI	WSA	
		27		BI		
	03	4		BI		
		5		BI		
		10		BI		
		12		P		
		13		BI		
		15	0.55	ICME		E. Kilpua et al.
		16-17		HSS?		
		17		MH, CS		
		18		CS		
		19	0.49	ICME?		
		20		MH		
		25	0.37	ICME?		
		27		CS		
		28	30SE1	CS	EE	RSA
	04	1		SW		
		3	4P2	ST		
		6		BD		
		8		P	WSA	RE
		9		DE		
		10	SE2S,	ICME		

			0.24			
		11	0.26	ICME		
		16		CS		
		17		HSS		
		18		ME		
	05	13	0.77	ICME		
		19	0.82	ICME		
		23		CS, SW	EE	
		27		CS?		
	06	1		RC		
		16		ME		
		21		CS		
2019	06	22		SW		
	07	11		BI		
		16	0.85	ICME		
		17	0.84	ICME		
		25	0.78	ICME	WSA	
	08	9		BI		
		11		HSS		
		17	0.46	CS, ICME		
		19		CS		
		24		BI		
		25		CS, SWB	WE	
		26	27SE3,1 P3	ST		
	09	7	E3S	SWB		
		8		SWB		
		10	0.31	ICME		
		11, 12	0.33	ICME		
		14		CS	EE	RSA
		19		CS		
		20-23		HSS		
		27		CS		
		29		CS		
	10	7		ME		
		12		HSS		
		12		CS		
		13, 14	0.80	ICME		
		16		CS		
		17		BI, SH?		
		22	0.87	ICME		
		23,24	0.88	ICME		
		26	0.89	ICME		
		27,28		CS		
		30		CS		
	11	4		BI	EE	PSP meets SA
		11		P		

		12		CS		
		13	0.94	ICME		
		15		CS		
		16	0.94	ICME		
		18		BI		
		20		CS		
		23	0.93	ICME		
		26	0.93	SWB, ICME		
		27	0.92	ICME,CS		
	12	1	0.91	ICME		
		3		CS		
		5		CS		
		6		CS		
		9	0.87	ICME		
		11		MQ		
2019	12	13		CS		
		16	0.83	ICME		
		18	0.81	ICME		
		19	0.80	ICME,SIR		
		26		BS		
		28	0.71	ICME	EE	
2020	01	16	0.43	ICMEs		
		19	0.36	CS,ICME		
		20	0.34	ICME		
		21	23SE4	BI	EE	RSA
		25		BS		
		26		SWB		
		27	29P4, 0.16	BI,ICME?	WSA	RE
		30		CS		
		31		CS		
	02	1	4E4S	CS	WE	
		7		TS		
		8		CS		
		9	0.37	ICME,CS		
		11		BI		
		12		TS		
		15		SWB		
		16	0.51	ICME		
		17,18		TS		
		20,21	0.58	ICMEs		
		23		CS		
		24		CS?		
		25		CS?,ICME		
		26		CS		
		27		CS		
		29	0.65	CS,ICME		

	03	9,10,11		SWB		
		13		ICME		
		16		CS		
		19		CS		
		23,24	0.81	ICME,CS		
		26,27	0.86	ICME		
		31		CS		
	04	1		CS		
		5		P		
		16	0.85	ICME		
		21	0.83	ICMEs		
		26		SWB		
	05	10		SWB,TS		
		11	0.66	ICMEs, CS		
		13		SWB		
		17		SWB		
2020	05	19		CS		
		21	0.51	SWB,CS,ICMEs		
		22	0.49	SWB,ICME		
		24	0.45	ICME,P		
		25		P		
		31		BI		
	06	1	SE5	SWB,P		
		2		SWB		
		3	0.21	ICME?		
		4		SWB	ESA	
		5		FS		
		7	P5	SWB		
		8		CS	EE	RSA
		9	0.15	SH,ICME		
		13	E5S, 0.25	ICME		
		15	0.30	ICMEs	WSA	RE
		16		CS		
		18		CS		
		19		CS		
		20	0.41	ICME,CS		
		23	0.47	ICME		
		24		CS		
		25	0.51	ICME		E. Kilpua
		26		CS		
	07	1		SWB		
		6-7		HSS		
		9,10		CS		
		22	0.79	ICME		
		26		CS		
		29,30		CS		

	08	2		CS		
		3		SWB		
		4		CS		
		12	0.80	ICME		
		13	0.80	ICME,CS,ST		
		18	0.77	ICMEs		
		20		SWB		
		25	0.72	ICME?,CS		
		26		CS,SWB		
		27		ST		
		28,29	0.69	ICME,CS		
		29		HSS		
		31		BS		
	09	1		ST,CS		
		1-2		HSS		
		2		BI		
		3,4		SWB,TS		
		5		SWB,BI,CS		
		6		CS,BD		
2020	09	7,8		SW		
		9		BD,SW		
		10		CS		
		12	0.48	ICME,SH		
		13		CS		
		14		SWB		
		15		CS,SWB	WSA	
		16	0.40	ICME,SH?		
		17		BI		
		18	0.35	ICME,BI,CS?		
		19		CS,SWB		
		20	21SE6	CS		
		22		CS		
		23		SW,TS		
		24		BI		
		25,26	27P6, 0.15	CS,ICMEs?	WE	
		28		SW,TS	ESA	
		30		CS?		
	10	1		SWB		
		2	E6S	BD		
		6		CS		
		7	0.36	CS,ICMEs,P		
		14-21		HSS		
		27	0.69	ICME		
		28	0.70	ICME	EE	
		31		HSS		
		31		CS		

	11	2,3		BI		
		5		BI		
		6		TS		
		15		BI		
		18	0.81	ICMEs?		
		20		SWB		
		21		SWB,CS		
		23	0.82	ICME		
		25	0.82	ICME		
		27	0.81	ICME		
		28	0.81	ICME		
		29,30	0.81	ICME		
	12	1	0.80	ICME		
		2		BI		
		7		CS		
		8	0.77	BI,ICME?		
		9	0.77	BI,ICME?		
		12	0.75	BI,ICME?		
		12-14		HSS		
		13		SWB		
		14		CS,SWB		
2021	01	2		SWB,CS		
		4		SWB		
		6,7		SWB	EE	
		10,11	12SE7	SWB		
		12		HSS		
		13	0.22	TS,ICME?		
		14		CS		RSA
		15		FS,SW		
		17	P7	CS	ESA	RE
		18		BD		
		19		CS?		
		20		CS?	WE	
		21		SWB		
		23,24	E7S, 0.24	ICME,CS		
		26	0.33	ICME		
		27		CS?		
		28,29	0.38	ICMEs?,SWB?, TS	ESA	
		30-2		HSS		
	02	4,5		SWB		
		6-7		HSS		
		7,8		RC,ST		
		9		CS		
		10		SWB, HSS		
		11	0.62	ICME		

		12	0.64	ICME		
		15-16		HSS		
		17		CS		
		20		BS,SWB		
		24		SWB,BI		
	03	2,3		SWB		
		8	0.78	ICME		
		15,16		SWB?,BI		
		20		SWB		
		21		CS		
		28		CS		
		29	0.70	ICME		
		30	0.69	ICMEs?		
		31		SWB		
	04	1		SWBs, CS		
		2		SWBs		
		7,8,9,10, 11,12		CS		
		15,16		SWBs?, CS?		
		18		SW, TS		
		19		CS, SWBs		
		22		SWB		
		23		CS		
		24-28	SE8	BI, ICME?, SW	WSA	
		29		CS		
		30	0.08	ICME?		RSA
	05	1		SW		RE
		9	0.37	ICME?, CS?		
		12,13		CS	WE	
		14	0.48	ICME?		
		15		SWBs		
		16		CS		
		27		SWB		
		28,29	0.68, P8	ICME		
		30	0.70	ICME	WSA	
	06	1,2,3,4	4E8S	CS		
		7,8	0.75	ICMEs		
		9	0.76	ICME, CS		
		10,11	0.76	BI, CS, ICME?		
		12	0.77	ICME?		
		14		CS?		
		15-17		CS		
		18		SIR, CS		
		19		HSS		
		20-22		CS		
		23		SWB		

		24		ST		
		25		CS?		
		29		TS		
		30/01	0.76	ICME		
	07	03	0.75	ICME?	WSA, WE	
	07	05/06	0.73	ICME?		
		11	0.69	ICME		
		14	0.66	CS		
		25/26	0.50	CS		
		28	0.44	SFR		
		30	0.40	ICME		
	08	01	0.35	SFR		
		02	0.32	BS, ICME		
		03/04	0.29SE9	ICMEs		
		07,08,09	0.16P9	SW		
		10	0.08	CS		
		11	0.10	ICME?	EE, ESA	
		14	0.21E9S	ICME?		
		15				
		17	0.31	CS		
		19	0.36	SWB		
		20/21/22	0.38	CS		RSA
		25	0.49	SFR		
		27	0.53	ICME?		
		28/29/30	0.54	ICMEs		
		/31				
	09	01	0.60	SFR		
		02	0.62	SFR		
		03	0.63	SFR		
		04	0.64	ICME?		
		06	0.66	CS		
		09/10	0.69	CS		
		12/13	0.72	ICME		
		14/15/16	0.73	ICMEs		
		/17				
		18	0.75	ICME		
		19	0.76	ICME?		
		20	0.76	SFR		
		21/22	0.77	CS?, ICME		
		23	0.77	CS		
		24/25	0.78	ICME?, CS		
		26/27	0.78	ICME		
		28/29/30	0.78	ICME, CS		




### **Abbreviations**

BD = B decrease  
 BI = B increase  
 BS = B spike  
 CS = current sheet crossing  
 DE = density enhancement  
 ExS= Encounter x stop  
 EE= eastlimb wrt earth  
 ESA= eastlimb wrt STEREO A  
 FS = fine structures  
 HSS = High Speed Stream  
 ME = magnetic enhancement  
 MH = magnetic hole  
 MQ = magnetic quiet interval  
 P = periodicities  
 yPx= day of month for perihelion x  
 RC = radial directional change  
 RE= radial alignment with earth  
 SFR=Small Flux Rope  
 SH = shock  
 SIR = stream interaction region  
 SW = slow solar wind  
 SWB = switchback  
 Sex= start encounter x  
 ST = stream transition  
 TS = turbulent stream  
 WE= westlimb wrt earth  
 WSA= westlimb wrt STEREO A

**From the PSP solar wind investigation the following features have been listed:**

- ICMEs
- High speed streams
- Switchback events
- Current sheet crossings where the IMF direction reverses
- Turbulent solar wind streams with strong plasma and magnetic field fluctuations
- Short time plasma density enhancements
- Periodicities in plasma and field parameters on time scales of a few hours
- Plasma fine structures in individual solar wind streams
- Very slow solar (~200 km/s) wind
- Signatures of interplanetary shock waves
- Transition between individual streams

- Short time enhancements of the magnetic field on time scales of a few hours
- Spikes of the magnetic field lasting about an hour
- Periods when the radial direction of the IMF reverses
- Stream interaction regions
- Time intervals of a few hours of relative quiet magnetic field conditions
- Magnetic holes when the field intensity vanishes

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