

Instrument	Level	Data Name	Description	Comments
ASI	L1	asf_????	All-sky imager full resolution images of (???? = 4-letter code of ground station)	
		ast_????	All-sky imager thumbnail images of 32x32 (???? = 4-letter code of ground station)	
ASK	L1	ask_????	All-sky imager keogram images of 256 pixels (???? = 4-letter code of ground station)	
ESA	L2 or L0*	For ESA: ? = f or r or b	f=full, r=reduced, b=burst	*For ESA L0 and SST L1, a separate call to THM_PART_MOMENTS is required for moments.
		pei?_data_quality	ion data quality flag (0: good data; nonzero: data may not be suitable)	
		pei?_density	ion density	
		pei?_t3	diagonalized ion temperature	
		pei?_en_eflux	ion energy flux spectrogram	
		pei?_velocity_???	ion velocity (???=DSL or GSE or GSM)	
		pei?_ptens	ion pressure tensor (DSL)	
		peif_mftens	ion momentum flux tensor (DSL)	
		pei?_magt3	ion temperatures in B frame	
		pei?_avgtemp	trace of diagonalized temperature tensor	
		pei?_vthermal	ion thermal velocity	
		pei?_symm	direction of pressure tensor symmetry (DSL)	
		pei?_symm_ang	angle between symmetry direction and B	
		pei?_mode	ion instrument mode	
		pei?_sc_pot	spacecraft potential	
		pei?_flux	ion particle flux vector	
		pei?_magf	magnetic field vector in DSL	
		pee?_data_quality	electron data quality flag (0: good data; nonzero: data may not be suitable)	
		pee?_density	electron density	
		pee?_t3	diagonalized electron temperature	
		pee?_en_eflux	electron energy flux spectrogram	
		pee?_velocity_???	electron velocity (???=DSL or GSE or GSM)	
		pee?_ptens	electron pressure tensor (DSL)	
		pee?_mftens	electron momentum flux tensor (DSL)	
		pee?_magt3	electron temperatures in B frame	
		pee?_avgtemp	trace of diagonalized temperature tensor	
		pee?_vthermal	electron thermal velocity	
pee?_symm	direction of pressure tensor symmetry (DSL)			
pee?_symm_ang	angle between symmetry direction and B			
pee?_sc_pot	spacecraft potential			
pee?_flux	electron particle flux vector			
pee?_magf	magnetic field vector in DSL			
pee?_mode	electron instrument mode			
iesa_solarwind_flag	ion solar wind mode flag (0: not in solar wind mode; 1: in solar wind mode)			
eesa_solarwind_flag	electron solar wind mode flag (0: not in solar wind mode; 1: in solar wind mode)			
L0 only	pei?_en_counts	ion count vs. energy		
L0 only	pee?_en_counts	electron count vs. energy		

SST	L1*	For SST: ? = f or r or b psi?_# pse?_#	f=full, r=reduced, b=burst # = same quantities as for ESA # = same quantities as for ESA	*For ESA L0 and SST L1, a separate call to THM_PART_MOMENTS is required for moments.	
	L2	SST: full only psif_en_eflux psef_en_eflux	ion energy spectrogram electron energy spectrogram		
MOM (on-board moments)	L1 and L2	peim_density peim_flux peim_mftens peim_eflux	ESA ion density ESA ion flux ESA ion momentum flux tensor ESA ion energy flux		
	(L1 only)	peim_velocity peim_ptot peim_ptens	ESA ion velocity ESA ion pressure ESA ion pressure tensor	changed from _press	
	L2 only	peim_velocity_??? peim_velocity_mag peim_ptens_mag peim_t3_mag peim_mag peim_data_quality	ESA ion velocity in ???=dsl, gse, gsm ESA ion field-aligned velocity ESA ion field-aligned pressure tensor ESA ion field-aligned temperature B field (DSL) interpolated to peim time array ion moment data quality (0: good data; nonzero: data may not be suitable)	Needs FGS data to load Needs FGS data to load Needs FGS data to load Needs FGS data to load	
	L1 and L2	pxxm_pot peem_#	Spacecraft potential # = ESA electron quantities (same as above for ESA ions)+A1		
		iesa_solarwind_flag	ESA ion solar wind flag mode (0: not in solar wind mode; 1: in solar wind mode)		
		eesa_solarwind_flag	ESA electron solar wind flag mode (0: not in solar wind mode; 1: in solar wind mode)		
	L1 only	psim_# psem_# ptim_# ptem_#	# = SST ion quantities (same as for ESA ions) # = SST electron quantities (same as for ESA # = ESA+SST ion quantities (same as for ESA # = ESA+SST electron quantities (same as for ESA ions)		
		pxxm_qf pxxm_shft	calibration parameter for SC potential calibration parameter for SC potential		
	EFI	L1 and L2	eff	E field, fast survey/full orbit, 3D	
		L1 only?	efp	E field, particle burst, 3D	
L1 only?		efw	E field, wave burst, 3D		
		eff_dot0	E field, fast survey/full orbit, 3D, using E dot B=0 (DSL coordinates)		
L1 only?		efp_dot0	E field, particle burst, 3D, using E dot B=0		
L1 only?		efw_dot0	E field, particle burst, 3D, using E dot B=0		
L1 only?		eff_0	E field, fast survey/full orbit, 3D, using Ez=0		
L1 only?		efp_0	E field, particle burst, 3D, using Ez=0		
L1 only?		efw_0	E field, particle burst, 3D, using Ez=0		
L1 only?		efs	On-board spin-fit electric field		
L1 only?		efs_0	On-board spin-fit electric field using Ez=0		
		efs_dot0	On-board spin-fit electric field using E dot B=0 (DSL coordinates)		
L1 only?		vaf	Voltage, processor A, fast survey/full orbit		
L1 only?		vap	Voltage, processor A, particle burst		
L1 only?		vaw	Voltage, processor A, wave burst		
L1 only?		vbf	Voltage, processor B, fast survey/full orbit		
L1 only?	vbp	Voltage, processor B, particle burst			

	L1 only?	vbw	Voltage, processor B, wave burst
	L1 only?	ef?_hed	16-byte packet header for analogous data type; ?=f or p or w
	L1 only?	ef?_raw	raw data for analogous data type; ?=f or p or w
	L1 only?	va?_hed	16-byte packet header for analogous data type; ?=f or p or w
	L1 only?	va?_raw	raw data for analogous data type; ?=f or p or w
		efs_q_mag	Data quality parameter (=NaN)
		efs_q pha	Data quality parameter (=NaN)
		eff_q_mag	Data quality parameter (equal to the spin-fit E34 electric field magnitude divided by the spin-fit E12 electric field magnitude. Good values
		eff_q pha	Data quality parameter (equal to the cosine of the angle between the spin-fit E34 electric field and the spin-fit E12 electric field. Good values
		eff_e12_efs	Ground spin-fit (using E12), spin plane electric field vector in DSL coordinates
		eff_e34_efs	Ground spin-fit (using E34), spin plane electric field vector in DSL coordinates
FBK	L1 only	fb1	Filter Bank 1 (E and/or B)
		fb2	Filter Bank 2 (E and/or B)
		fbh	Filter Bank high frequency (100-300kHz)
	L1 and L2	fb_hff	High-frequency filter peak and average values
		fb_eac12	Spectrogram E field AC component, sensors 1&2 (spin plane)
		fb_eac34	Spectrogram E field AC component, sensors 3&4 (spin plane)
		fb_eac56	Spectrogram E field AC component, sensors
		fb_edc12	Spectrogram E field DC component, sensors 1&2 (spin plane)
		fb_edc34	Spectrogram E field DC component, sensors 3&4 (spin plane)
		fb_edc56	Spectrogram E field DC component, sensors
		fb_scm?	Spectrogram SCM? (search coil) ; ?=1,2,3
		fb_v?	Spectrogram floating potential of sensor
FFT (on-board)	L1 and L2	ffp_16	FFT power spectrum in particle burst x 16
		ffp_16_dbpara	FFT power spectrum for dB (parallel)
		ffp_16_dbperp	FFT power spectrum for dB (perpendicular)
		ffp_16_eac12	FFT power spectrum for AC component E12
		ffp_16_eac34	FFT power spectrum for AC component E34
		ffp_16_eac56	FFT power spectrum for AC component E56
		ffp_16_edc12	FFT power spectrum for DC component E12
		ffp_16_edc34	FFT power spectrum for DC component E34
		ffp_16_edc56	FFT power spectrum for DC component E56
		ffp_16_epar	FFT power spectrum for E (parallel)
		ffp_16_eperp	FFT power spectrum for E (perpendicular)
		ffp_16_scm?	FFT power spectrum for SCM? ; ?=1,2,3 (axes)
		ffp_16_v?	FFT power spectrum for V? ; ?=1,2,3,4,5,6
		ffp_32_#	# = same quantities in particle burst x 32
		ffp_64_#	# = same quantities in particle burst x 64
		ffw_16_#	# = same quantities in wave burst x 16
		ffw_32_#	# = same quantities in wave burst x 32
		ffw_64_#	# = same quantities in wave burst x 64

FGM	L1 and L2	fgl	B field, low telemetry (low data rate)		
		fgh	B field, high telemetry (high data rate)		
		fge	engineering data (decimated from FGH)		
	L2 only	fgs_dsl	B field, spin-resolution magnetic field B in DSL		
		fgs_btotal	spin-resolution magnetic field magnitude		
		fgl_btotal	low time resolution magnetic field magnitude		
		fgh_btotal	high time resolution magnetic field magnitude		
fge_btotal	engineering mode magnetic field magnitude				
FIT (on-board)	L2 only	efs	On-board spin-fit electric field (EFI) data		
		efs_0	On-board spin-fit electric field (EFI) using $E_z=0$		
		efs_dot0	On-board spin-fit electric field (EFI) using $E \cdot \text{dot}$		
		efs_sigma	Variance of onboard spin-plane electric field		
		fgs	On-board spin-fit FGM data		
		fgs_sigma	Variance of onboard spin-plane magnetic field		
	L1?	fit_bfit	FGM spinfit calibrated data: A,B,C,sig,avg		
fit_efit		EFI spinfit calibrated data: A,B,C,sig,avg			
GMAG	L2	mag_????	Ground magnetometer data in HDZ* (???? = 4-letter code of ground station)	*Coordinate system for gmags may vary depending on site and installation error/drift. It is best to verify with comparison to expected field.	
		mag_???	(??? = 3-letter code of ground station)		
SCM	L1	For SCM: ? = f or p or w		f=fast survey, p=particle burst, w=wave burst	
		scf	waveform fast survey (DSL)		
		scp	waveform particle burst (DSL)		
		scw	waveform wave burst (DSL)		
		sc?_misalign	misalignment of Z axis from spin axis		
		sc?_dc	X-Y (spin plane) values of the DC field in DSL		
		sc?_iano	time discontinuities of data		
		sc?_cal	calibrated data (unit depends on selected step)		
		L2	scf_???	waveform fast survey (DSL, GSE, GSM)	
			scp_???	waveform particle burst (DSL, GSE, GSM)	
			scw_???	waveform wave burst (DSL, GSE, GSM)	
			scf_btotal	fast survey magnetic field magnitude	
			scp_btotal	particle burst magnetic field magnitude	
	scw_btotal	wave burst magnetic field magnitude			

STATE	L1	state_pos	GEI position, xyz
		state_vel	GEI velocity, xyz
		state_man	Maneuver flag
		state_roi	Regions of interest
		state_spinras	spin axis right ascension, deg
		state_spindec	spin axis declination, deg
		state_spinalpha	Geom to spin axis, Euler alpha, deg
		state_spinbeta	Geom to spin axis, Euler beta, deg
		state_spinper	spin period, sec
		state_spinphase	spin phase, deg
		state_{pos,vel}_gsm	GSM position and velocity
		state_{pos,vel}_gse	GSE position and velocity
		state_spindec_correction	V03 correction to spin axis declination
		state_spinras_correction	V03 correction to spin axis right ascension