To: Voyager Internal

From: G. S. Gordon Jr.

Subject: PLTSP & PLTSUR library VGR

Date: April 17, 1996

PLTSP makes a calcomp plot of the currents or distribution fuctions from Voyager data. The format is oriented to observing a small number of specta. PLTSUR is more suitable for examining a large number of spectra. PLTSP puts each spectra in its own box while PLTSUR plots one spectra just above the last one of that mode in time order.

USAGE

PLTSP/PLTSUR has two major loops. They first read the input cards one set at a time. They then searche the input data set, (e.g. SUMMARY tape, EDR tape, SPECTRAL tape etc.) for the requested time period and plots that period as requested. Then they go back and read the next set of input cards. Note that at present they can not back up the input data set. Both use similar input decks.

INPUT FT01F001 PLTSP

CARD 1 format(2I5,I4,2I3),3F5.3,4x,i1,20L1,1x,4l1,I5)

variable	pos	type	description
IST(4)	1	I4	Year, Day, Hour, Minute of start of plot spectra
ISP(4)	16	I4	Year, Day, Hour, Minute of stop of plot spectra
DT	31	R4	Minimum time between spectra of one mode (Mins).
XLG	36	R4	Width of each plot in inches (if blank, default is used).
YLG	41	R4	Heigth of each plot in inches (if blank default is used)
NDEC	50	I4	Number of decades to be plotted.
LENG	51	L4	Controls stacking of plots. If true four the proton cups are stacked one over another. If false the four proton cups are arranged in a box
LLEV	52	L4	If true plot versus energy cell number. If false plot versus velocity.
LSAV	53	L4	If true, electron spectra are saved to be plotted under next proton spectra. If false, the average of the A, B, and C cups is plotted in fifth box.
LCON	54	L4	If true 'M' modes are plotted as returned from NXTMOD. If false only telemetered data is plotted.
LSTA	55	L4	If true Status word is printed on each frame.
LDC	56	L4	If true plot digital counts. (Note that LLIN should also be true)
LLIN	57	L4	Plot on linear scale. Else plot on log scale.
LDIST	58	L4	Plot distribution function. Else plot currents.
LSPA	59	L4	SELECT subroutine is used.
LFIT	60	L4	Fit to the proton spectra are plotted
LTHE	61	L4	Points not used in fit are marked.
LLMAX	62	L4	Data scaled individually in each sub-panel
LMAXSP	63	L4	Data scaled according to each mode. If false data is scaled according to Max possible current in cup.
LLOGV	64	L4	Data is plotted versus log of velocity.
LOVER	65	L4	Plot each mode in its color to allow overlaying All four cups are overlayed in one long box. (Stan Olbert's format)
LDIV	66	L4	Unit division tic marks are plotted on log scale.
LPEAK	67	L4	Plot the peak as determined by KNTCUR in an alternate color.
LWIDTH	68	L4	Plot the moment thermal width in alternate color
LSPARE(2)	69	L4	Spares.
LM(4)	71	L4	If LM(i) is true mode 'i' is not plotted. (GSFC numbering convention, 1-L, 2-M, 3-E1, 4-E2)
NSAV	76	I5	number of spectra to be averaged together before plotting.
KT			NOT IN INPUT LIST If any 4 bits of the lower 20 bits of KT match the lower 4 bits of the status word the spectra is rejected.

As many CARDs can be used as needed.

INPUT FT01F001 PLTSUR

CARD 1 format(2I5,I4,2I3),3F5.3,4x,i1,20L1,1x,4l1,I5)

variable	pos	type	description
IST(4)	1	I4	Year, Day, Hour, Minute of start of plot spectra
ISP(4)	16	I4	Year, Day, Hour, Minute of stop of plot spectra
YDEL	31	R4	Minimum time between spectra of one mode (Mins). If negative take every -YDEL spectra
YSCALE	36	R4	Inches per a decade of current
YTIME	41	R4	If negative |YTIME| is vertical distance between spectra If positive YTIME is distance of one minute of data

rest of card is same as for PLTSP

CARD 2-5 format(1X,A2,7X,2E10.3)

variable	pos	type	discription
MODE	2	A2	Mode of data L, M, E1, E2, 'TL" for time axis
XST	11	R4	Start position on paper for this mode in inches
XSP	21	R4	Stop position on paper for this mode in inches

as many sets of card 1-5 may be used as wanted

INPUT FT02F001 PLTSP & PLTSUR

FT02 contain the normal PLSBEG input

OUTPUT FT06F001

FT06 the normal PLSBEG & VGRANL control input may be printed