Singly-charged Helium (4He+) Phase Space densities from SWICS 1

Counts (Ck) and space phase densities in the spacecraft frame of reference (FWk) are listed in 46 columns for 23 w-intervals as specified in the columns.

The averaging time interval of each row *k* is approximately 12 minutes.

The particle (4He+) speed, or normalized speed of the particle in km/s, VHe+ = Solar- wind speed multiplied by w.

“0.000” and positive numbers are valid data, “-1” indicates missing data and should be ignored.

Two adjacent columns are used for each w-interval, the 1st lists counts and the 2nd the phase space density computed using the equation:

Phase space density [sec3/km6] = FW = Counts/eff \* 1/(epq)^2 \* 378.4\*(M/Q)^2

where

eff *is the efficiency of SWICS at each step–interval,*epq *is the energy per charge at the center of the step interval,*

M/Q *is the mass/charge of the measured particle and in the case for the 4He+ it is 4.
The constant 378.4 is the instrument factor.*

Column 1: year
Column 2: the fractional day of year at the beginning of the energy-stepping cycle.

Column 3-48: the counts and the phase space density in each w–interval, with w≤ w <wi+1*.*

Column 49: the solar wind alpha particle (4He++) bulk speed in km/s.

Column 50: the solar wind alpha particle thermal speed in km/s.

Col Col

#1 Yr

#2 DOY.frac

#3 Counts w:2.04-13.00 #4 FW w:2.04-13.00

#5 Counts w:0.92-0.98 #6 FW w:0.92-0.98

#7 Counts w:0.98-1.06 #8 FW w:0.98-1.06

#9 Counts w:1.06-1.13 #10 FW w:1.06-1.13

#11 Counts w:1.13-1.22 #12 FW w:1.13-1.22

#13 Counts w:1.22-1.31 #14 FW w:1.22-1.31

#15 Counts w:1.31-1.40 #16 FW w:1.31-1.40

#17 Counts w:1.40-1.51 #18 FW w:1.40-1.51

#19 Counts w:1.51-1.62 #20 FW w:1.51-1.62

#21 Counts w:1.62-1.74 #22 FW w:1.62-1.74

#23 Counts w:1.74-1.87 #24 FW w:1.74-1.87

#25 Counts w:1.87-2.00 #26 FW w:1.87-2.00

#27 Counts w:2.00-2.15 #28 FW w:2.00-2.15

#29 Counts w:2.15-2.31 #30 FW w:2.15-2.31

#31 Counts w:2.31-2.48 #32 FW w:2.31-2.48

#33 Counts w:2.48-2.71 #34 FW w:2.48-2.71

#35 Counts w:2.71-3.07 #36 FW w:2.71-3.07

#37 Counts w:3.07-3.54 #38 FW w:3.07-3.54

#39 Counts w:3.54-4.16 #40 FW w:3.54-4.16

#41 Counts w:4.16-4.97 #42 FW w:4.16-4.97

#43 Counts w:4.97-5.94 #44 FW w:4.97-5.94

#45 Counts w:5.94-7.23 #46 FW w:5.94-7.23

#47 Counts w:7.23-9.11 #48 FW w:7.23-9.11

#49 vHe, solar wind alpha particle bulk speed (km/s)

#50 vth, solar wind alpha particle thermal speed (km/s)