

hdf format of the DMSP SSIES-3 data version supplied by the University of Texas at Dallas to NASA and Madrigal

all these data values are given at a one-second cadence

date	<i>year and day of year as a single number (e.g. 2012095)</i>
time	<i>universal time of the day in seconds</i>
mlat	<i>magnetic latitude at 110 km of spacecraft in degrees</i>
mlt	<i>magnetic local time at 110 km of spacecraft in degrees</i>
glat	<i>geographic latitude of spacecraft physical location in degrees</i>
glon	<i>geographic east longitude of spacecraft physical location in degrees</i>
sza	<i>solar zenith angle (angle of the two lines from center of sun to center of Earth and center of Earth to location of spacecraft) in degrees</i>
alt	<i>altitude of spacecraft from surface of Earth in km</i>
vx	<i>ram ion flow (median filtered and smoothed) in m/s (positive in the direction of the spacecraft's velocity vector)</i>
vxqual	<i>quality flag for Vx</i>
vxrms	<i>root mean square of the analysis fit to the RPA (retarding potential analyzer) curve (the measured current vs the retarding voltage data measured by the RPA)</i>
rpaqual	<i>quality flag overall for the RPA</i>
rpainfo	<i>unused placeholder, ignore</i>
vy	<i>cross-track horizontal ion flow in m/s from the IDM (ion drift meter) (positive is in the sunward direction at right angles to the spacecraft's velocity vector, in other words, to the left horizontally when facing in the direction of the spacecraft's velocity vector)</i>
vyqual	<i>quality flag for Vy</i>
vyrms	<i>standard deviation of the six Vy samples per second in normal IDM mode (in the slow IDM mode there is a single sample per second so this is fill data of -999999.)</i>
vz	<i>cross-track vertical ion flow in m/s from the IDM (positive is away from the center of the Earth at right angles to the spacecraft's velocity vector)</i>
vzqual	<i>quality flag for Vz</i>
vzrms	<i>standard deviation of the six Vz samples per second in normal IDM mode (in the slow IDM mode there is a single sample per second so this is fill data of -999999.)</i>
nmbpt	<i>a flag to indicate in which mode the IDM was in: 6.06 for normal mode where there are six samples per second for each component or 0.002 for slow mode where there only a single measure of one component or the other per second</i>
idmqual	<i>quality flag for the IDM</i>
scvel	<i>average spacecraft velocity used in the calculations in m/s</i>
temp	<i>ion temperature (Ti) from the RPA in K</i>
tempqual	<i>quality flag for the ion temperature (Ti) from the RPA</i>
pot	<i>sensor plane potential determined from RPA fit (shown on plot as "spacecraft potential") in volts (difference between sensor plane potential and plasma ground)</i>
dens	<i>ion density from the RPA fit in ions/cc</i>

densqual	<i>quality flag for the density from RPA fit</i>
frach	<i>fractional amount of H+ calculated from the RPA (nominally 0.0 to 1.0; disregard negative values and values greater than 1.05)</i>
frachqual	<i>quality flag for the fractional hydrogen ions</i>
frache	<i>fractional amount of He+ calculated from the RPA (nominally 0.0 to 1.0; disregard negative values and values greater than 1.05)</i>
frachequal	<i>quality flag for the fractional helium ions</i>
fraco	<i>fractional amount of O+ calculated from the RPA (nominally 0.0 to 1.0; disregard negative values and values greater than 1.05)</i>
fracoqual	<i>quality flag for the fractional oxygen ions</i>
bx	<i>north component of IGRF model of the Earth's magnetic at the spacecraft's location (positive is north)</i>
by	<i>east component of IGRF model of the Earth's magnetic at the spacecraft's location (positive is east)</i>
bz	<i>vertical component of IGRF model of the Earth's magnetic at the spacecraft's location (positive is downward)</i>
ductdens	<i>ion density measured by the SM (scintillation meter) in ions/cc</i>
dmdens	<i>ion density measured by IDM in ions/cc (not reliable in the presence of H+)</i>
te	<i>electron temperature (Te) measured by the Langmuir probe in K</i>
rpaground	<i>difference between spacecraft potential ground and plasma ground in volts</i>
dmhrough	<i>roughness parameter of IDM Vy (delta Vy / averaged Vy) over one second in IDM normal mode</i>
dmvrough	<i>roughness parameter of IDM Vz (delta Vz / averaged Vz) over one second in IDM normal mode</i>
ductdensrough	<i>roughness parameter of SM density (delta Ni/ averaged Ni) over one second</i>
corvelx	<i>corotation correction of x-component, m/s (by mathematical formulation of the variation of latitude and the variation of the eastward corotation flow, this ends up being a constant of around 80 m/s)</i>
corvely	<i>corotation correction of y-component, m/s (flow is eastward so correction is negative on the northbound, duskside leg and positive on the southbound, dawnside leg)</i>
corvelz	<i>corotation correction of z-component, m/s (by definition this is zero)</i>
Vxraw	<i>original unfiltered Vx flow from RPA analysis in m/s</i>
dens0V	<i>ion density computed from the current measured at zero retarding voltage by the RPA in ions/cc</i>
ebm	<i>RPA electron background measurement (current) in amps (the RPA current measured when the RPA potential set to +25 V; not verified; use with caution)</i>