SABER L2A netCDF file contents

This document describes the contents of the SABER L2A files. The table that follows lists each variable contained in the netCDF file along with its type, dimensions, units, long name, and missing value. The variables that are dimensioned use the variables: Altitude = 400, Event = UNLIMITED, and Vector =3. The Event dimension will depend on the number of events in the netCDF file. Vector is used only for a lunar vector variable.

The variables that have the _top in the name are for the top half of the altitude range (extending to about 285km). The same variable without the _top extension are for the bottom half of the altitude range (roughly 15km to 155km).

Note that there are several versions of Level2A data, the column to the far right indicates for which versions (starting with 1.06) a particular variable is included.

Level 2A netcdf variables

Variable(dimensions)/type*	units	Long name	Miss. value	Version**
event(event)/s		Event Number for Current File		06 07 20
date(event)/i	yyyyddd	Date [yyyyddd]	-999	06 07 20
mode(event)/s		0=Down 1=Up	-999	06 07 20
tpDN(event)/s		0=Day 1=Night 2=Twilight	-999	06 07 20
tpAD(event)/s		0=Ascending 1=Descending	-999	06 07 20
moonSepAngle(event)/f	degrees	Angle between moon and LOS	-999	06 07 20
tpaltmoonSepAngle(event)/f	km	Tpaltitude used for moonSepAngle	-999	06 07 20
solAP(event)/f		Solar Ap Index	-999	06 07 20
solKP(event)/f		Solar Kp Index	-999	06 07 20
solf10p7Daily(event)/f	10^{-22} W/m2/Hz	F10.7 Flux (Daily	-999	06 07 20
***solF10p781dAvg(event)/f	10^{-22} W/m2/Hz	F10.7 Flux (81 day Average)	-999	06 07 20
solSpotNo(event)/s		Zurich Sunspot Number	-999	06 07 20
scSolarZen(event)/f	degrees	Sc Solar-Zenith Angle	-999	06 07 20
earth_sun(event)/f	km	Earth-Sun Distance	-999	06 07 20
L1_altoff(event)/f	km	Altitude Offset from Level1	-999	-- -- 20
Iaurora(event)/s		Aurora Flag (1=TRUE, 0=FALSE)	-999	06 07 20
time(event,altitude)/i	msec	Msec Since Midnight	-999	06 07 20
sclatitude(event, altitude)/f	degrees	Spacecraft Latitude	-999	06 07 20
sclongitude(event, altitude)/f	degrees	Spacecraft Longitude	-999	06 07 20
scaltitude(event, altitude)/f	km	Spacecraft Altitude	-999	06 07 20
tpaltitude(event, altitude)/f	km	Tangent-Point Altitude	-999	06 07 20
tplatitude(event, altitude)/f	degrees	Tangent-Point Latitude	-999	06 07 20
tplongitude(event, altitude)/f	degrees	Tangent-Point Longitude	-999	06 07 20
tpSolarZen(event, altitude)/f	degrees	Tangent-Point Solar-Zenith Angle	-999	06 07 20
tpSolarLT(event, altitude)/f	msec	Tangent-Point Local-Solar Time	-999	06 07 20
elevation(event, altitude)/d	milliradians	Elevation Angle	-999	06 07 20

time_top/i	msec	Msec Since Midnight	-999	06 07 20
sclatitude_top(event, altitude)/f	degrees	Spacecraft Latitude	-999	06 07 20
sclongitude_top(event, altitude)/f	degrees	Spacecraft Longitude	-999	06 07 20
scaltitude_top(event, altitude)/f	km	Spacecraft Altitude	-999	06 07 20
tpaltitude_top(event, altitude)/f	km	Tangent-Point Altitude	-999	06 07 20
tplatitude_top(event, altitude)/f	degrees	Tangent-Point Latitude	-999	06 07 20
tplongitude_top(event, altitude)/f	degrees	Tangent-Point Longitude	-999	06 07 20
tpSolarZen_top(event, altitude)/f	degrees	Tangent-Point Solar-Zenith Angle"	-999	06 07 20
tpSolarLT_top(event, altitude)/f	msec	Tangent-Point Local-Solar Time	-999	06 07 20
elevation_top(event, altitude)/d	milliradians	Elevation Angle	-999	06 07 20
tpgpaltitude(event, altitude)/f	km	Tangent-Point Geopotential Altitude	-999	-- 07 20
pressure(event, altitude)/f	mbar	Pressure	-999	06 07 20
Pressure_error(event, altitude)/f	mbar	Pressure Error	-999	06 07 --
ktemp(event, altitude)/f	K	Kinetic Temperature (merge)	-999	06 07 20
ktemp_error(event, altitude)/f	K	Kinetic Temperature Error	-999	06 07 --
density(event, altitude)/f	$1/cm^3$	Atmospheric Density	-999	06 07 20
density_error(event, altitude)/f	$1/cm^3$	Atmospheric Density Error	-999	06 07 --
O3_96(event, altitude)/f	Mixing ratio	O3 Mixing Ratio 9.6um	-999	06 07 20
O3_96_error(event, altitude)/f		O3 9.6um channel Error	-999	06 07 --
O3_127(event, altitude)/f	Mixing ratio	O3 Mixing Ratio 1.27um Channel	-999	06 07 20
O3_127_error(event, altitude)/f		O3 1.27um channel Error	-999	06 07 --
H2O(event, altitude)/f	Mixing ratio	H2O Mixing Ratio	-999	06 07 20
H2O_error(event, altitude)/f		H2O Error	-999	06 07 --
CO2(event, altitude)/f	Mixing ratio	CO2 Mixing Ratio	-999	06 07 20
CO2_error(event, altitude)/f		CO2 Error	-999	06 07 --
O2_1sigma(event, altitude)/f	Mixing ratio	O2(1sigma) Mixing Ratio	-999	06 07 20
O(event, altitude)/f	Mixing ratio	O Mixing Ratio	-999	06 07 20
H(event, altitude)/f	Mixing ratio	H Mixing Ratio	-999	06 07 20
O2_1delta_ver(event, altitude)/f	$ergs/cm^3/sec$	O2(1delta)VER	-999	06 07 20
O2_1delta_ver_error(event, altitude)/f	$ergs/cm^3/sec$	O2(1delta)VER Error	-999	06 07 --
OH_16_ver(event, altitude)/f	$ergs/cm^3/sec$	OH VER for 1.6 um Channel	-999	06 07 20
OH_16_ver_error(event, altitude)/f	$ergs/cm^3/sec$	OH VER Error	-999	06 07 --
OH_20_ver(event, altitude)/f	$ergs/cm^3/sec$	OH VER for 2.0 um Channel	-999	06 07 20
OH_20_ver_error(event, altitude)/f	$ergs/cm^3/sec$	OH VER Error	-999	06 07 --
NO_ver(event, altitude)/f	$ergs/cm^3/sec$	NO VER	-999	06 07 20
NO_ver_top(event, altitude)/f	$ergs/cm^3/sec$	NO VER	-999	06 07 20
NO_ver_error(event, altitude)/f	$ergs/cm^3/sec$	NO VER Error	-999	06 07 --
NO_ver_top_error(event, altitude)/f	$ergs/cm^3/sec$	NO VER Error	-999	06 07 --

O2_1delta_ver_unfilt(event, altitude)/f	ergs/cm^3/sec	O2(1delta)VER	-999	06 07 20
O2_1delta_ver_unfilt_error(event, altitude)/f	ergs/cm^3/sec	O2(1delta)VER Error	-999	06 07 --
OH_16_ver_unfilt(event, altitude)/f	ergs/cm^3/sec	OH VER for 1.6 um Channel	-999	06 07 20
OH_16_ver_unfilt_error(event, altitude)/f	ergs/cm^3/sec	OH VER Error	-999	06 07 --
OH_20_ver_unfilt(event, altitude)/f	ergs/cm^3/sec	OH VER for 2.0 um Channel	-999	06 07 20
OH_20_ver_unfilt_error(event, altitude)/f	ergs/cm^3/sec	OH VER Error	-999	06 07 --
NO_ver_unfilt(event, altitude)/f	ergs/cm^3/sec	NO VER	-999	06 07 20
NO_ver_top_unfilt(event, altitude)/f	ergs/cm^3/sec	NO VER	-999	06 07 20
NO_ver_unfilt_error(event, altitude)/f	ergs/cm^3/sec	NO VER Error	-999	06 07 --
NO_ver_top_unfilt_error(event, altitude)/f	ergs/cm^3/sec	NO VER Error	-999	06 07 --

* f=float, d=double, s=short, i=int, c=char.

** 06=1.06, 07=1.07, 20=2.0, RED means data unfilled for that version.

*** The 81 day average F10.7 flux is not available because the 81 day average is centered about the current day; while we could run on older data and have a value, processing of the newer data would have to be delayed until +40 days after the date of the data to permit the average value to be calculated. The daily flux value (limited to the range 71 - 212) is substituted for the average in the processing code.