

SABER L2B netCDF file contents

This document describes the contents of the SABER L2B 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 Level2B data, the column to the far right indicates for which versions (starting with 1.06) a particular variable is included.

Level 2B 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	yyyymmdd	Date [yyyymmdd]	-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/m ² /Hz	F10.7 Flux (Daily Average)	-999	06 07 20
***solF10p781dAvg(event) / f	10^{-22} W/m ² /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
scalitude(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

NO_cool(event, altitude)/f	K/day	cooling rate for NO	-999	06 07 --
CO2_cool_626_01101_00001(event, altitude)/f	K/day	cooling rate for CO2_626_01101_00001	-999	06 07 20
CO2_cool_626_02201_01101(event, altitude)/f	K/day	cooling rate for CO2_626_02201_01101	-999	06 07 20
CO2_cool_626_03301_02201(event, altitude)/f	K/day	cooling rate for CO2_626_03301_02201	-999	06 07 20
CO2_cool_626_00011_00001(event, altitude)/f	K/day	cooling rate for CO2_626_00011_00001	-999	06 07 20
CO2_cool_626_01111_01101(event, altitude)/f	K/day	cooling rate for CO2_626_01111_01101	-999	06 07 20
CO2_cool_626_10012_00001(event, altitude)/f	K/day	cooling rate for CO2_626_10012_00001	-999	06 07 20
CO2_cool_626_10011_00001(event, altitude)/f	K/day	cooling rate for CO2_626_10011_00001	-999	06 07 20
CO2_cool_626_10012_10002(event, altitude)/f	K/day	cooling rate for CO2_626_10012_10002	-999	06 07 20
CO2_cool_626_02211_02201(event, altitude)/f	K/day	cooling rate for CO2_626_02211_02201	-999	06 07 20
CO2_cool_626_10011_10001(event, altitude)/f	K/day	cooling rate for CO2_626_10011_10001	-999	06 07 20
CO2_cool_626_11112_01101(event, altitude)/f	K/day	cooling rate for CO2_626_11112_01101	-999	06 07 20
CO2_cool_626_11111_01101(event, altitude)/f	K/day	cooling rate for CO2_626_11111_01101	-999	06 07 20
CO2_cool_626_11112_11102(event, altitude)/f	K/day	cooling rate for CO2_626_11112_11102	-999	06 07 20
CO2_cool_626_03311_03301(event, altitude)/f	K/day	cooling rate for CO2_626_03311_03301	-999	06 07 20
CO2_cool_626_11111_11101(event, altitude)/f	K/day	cooling rate for CO2_626_11111_11101	-999	06 07 20
CO2_cool_626_20013_00001(event, altitude)/f	K/day	cooling rate for CO2_626_20013_00001	-999	06 07 20
CO2_cool_626_20012_00001(event, altitude)/f	K/day	cooling rate for CO2_626_20012_00001	-999	06 07 20
CO2_cool_626_20011_00001(event, altitude)/f	K/day	cooling rate for CO2_626_20011_00001	-999	06 07 20
CO2_cool_636_01101_00001(event, altitude)/f	K/day	cooling rate for CO2_636_01101_00001	-999	06 07 20
CO2_cool_636_02201_01101(event, altitude)/f	K/day	cooling rate for CO2_636_02201_01101	-999	06 07 20
CO2_cool_636_00011_00001(event, altitude)/f	K/day	cooling rate for CO2_636_00011_00001	-999	06 07 20
CO2_cool_628_01101_00001(event, altitude)/f	K/day	cooling rate for CO2_628_01101_00001	-999	06 07 20
CO2_cool_628_02201_01101(event, altitude)/f	K/day	cooling rate for CO2_628_02201_01101	-999	06 07 20
CO2_cool_628_00011_00001(event, altitude)/f	K/day	cooling rate for CO2_628_00011_00001	-999	06 07 20
CO2_cool_627_01101_00001(event, altitude)/f	K/day	cooling rate for CO2_627_01101_00001"	-999	06 07 20
CO2_cool_627_02201_01101(event, altitude)/f	K/day	cooling rate for CO2_627_02201_01101	-999	06 07 20
CO2_cool_627_00011_00001(event, altitude)/f	K/day	cooling rate for CO2_627_00011_00001	-999	06 07 20
H2O_cool_161_010_000(event, altitude)/f	K/day	cooling rate for H2O_161_010_000	-999	06 07 20
H2O_cool_161_020_000(event, altitude)/f	K/day	cooling rate for H2O_161_020_000	-999	06 07 20
H2O_cool_161_020_010(event, altitude)/f	K/day	cooling rate for H2O_161_020_010	-999	06 07 20
H2O_cool_161_100_000(event, altitude)/f	K/day	cooling rate for H2O_161_100_000	-999	06 07 20
H2O_cool_161_100_010(event, altitude)/f	K/day	cooling rate for H2O_161_100_010	-999	06 07 20
H2O_cool_161_001_000(event, altitude)/f	K/day	"cooling rate for H2O_161_001_00	-999	06 07 20
H2O_cool_161_001_010(event, altitude)/f	K/day	cooling rate for H2O_161_001_010	-999	06 07 20

H2O_cool_161_011_000(event, altitude)/f	K/day	cooling rate for H2O 161 011 000	-999	06 07 20
H2O_cool_farir(event, altitude)/f	K/day	cooling rate for H2O in the far-ir	-999	06 07 --
O3_cool_666_001_000(event, altitude)/f	K/day	cooling rate for O3 666 001 000	-999	06 07 20
O3_cool_666_010_000(event, altitude)/f	K/day	cooling rate for O3 666 010 000	-999	06 07 --
O3_cool_666_100_000(event, altitude)/f	K/day	cooling rate for O3 666 100 000	-999	06 07 --
O3_cool_666_011_001(event, altitude)/f	K/day	cooling rate for O3 666 011 001	-999	06 07 --
CO2_solar_heat_626_00011_0001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 00011 00001	-999	06 07 --
CO2_solar_heat_626_01111_01101(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 01111 01101	-999	06 07 --
CO2_solar_heat_626_10012_0001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 10012 00001	-999	06 07 --
CO2_solar_heat_626_10011_0001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 10011 00001	-999	06 07 --
CO2_solar_heat_626_10012_10002(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 10012 10002	-999	06 07 --
CO2_solar_heat_626_02211_02201(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 02211 02201	-999	06 07 --
CO2_solar_heat_626_10011_10001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 10011 10001	-999	06 07 --
CO2_solar_heat_626_11112_01101(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 11112 01101	-999	06 07 --
CO2_solar_heat_626_11111_01101(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 11111 01101	-999	06 07 --
CO2_solar_heat_626_11112_11102(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 11112 11102	-999	06 07 --
CO2_solar_heat_626_03311_03301(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 03311 03301	-999	06 07 --
CO2_solar_heat_626_11111_11101(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 11111 11101	-999	06 07 --
CO2_solar_heat_626_20013_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 20013 00001	-999	06 07 --
CO2_solar_heat_626_20012_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 20012 00001	-999	06 07 --
CO2_solar_heat_626_20011_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 626 20011 00001	-999	06 07 --
CO2_solar_heat_636_00011_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 636 00011 00001	-999	06 07 --
CO2_solar_heat_628_00011_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 628 00011 00001	-999	06 07 --
CO2_solar_heat_627_00011_00001(event, altitude)/f	K/day	solar energy deposition rate for CO2 627 00011 00001	-999	06 07 --
H2O_solar_heat_161_010_000(event, altitude)/f	K/day	solar energy deposition rate for H2O 161 010 000	-999	06 07 --
H2O_solar_heat_161_020_000(event, altitude)/f	K/day	solar energy deposition rate for H2O 161 020 000	-999	06 07 --

H2O_solar_heat_161_020_010(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_020_010	-999	06 07 --
H2O_solar_heat_161_100_000(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_100_000	-999	06 07 --
H2O_solar_heat_161_100_010(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_100_010	-999	06 07 --
H2O_solar_heat_161_001_000(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_001_000"	-999	06 07 --
H2O_solar_heat_161_001_010(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_001_010	-999	06 07 --
H2O_solar_heat_161_011_000(event, altitude)/f	K/day	solar_energy deposition rate for H2O_161_011_000	-999	06 07 --
SJ_hartley(event, altitude)/f	/s	Photodissociation rate for O3_hartley	-999	-- -- 20
O3_solar_heat_hartley(event, altitude)/f	K/day	solar heating rate for O3_hartley	-999	06 07 20
O3_solar_heat_huggins(event, altitude)/f	K/day	solar heating rate for O3_huggins	-999	06 07 20
O3_solar_heat_chappuis(event, altitude)/f	K/day	solar heating rate for O3_chappuis	-999	06 07 20
O2_solar_heat_ly_alpha(event, altitude)/f	K/day	solar heating rate for O2_ly_alpha	-999	06 07 20
O2_solar_heat_herzberg(event, altitude)/f	K/day	solar heating rate for O2_herzberg	-999	06 07 20
O2_solar_heat_schumann_runge_cont(event, altitude)/f	K/day	solar heating rate for O2_schumann_runge_cont	-999	06 07 20
O2_solar_heat_schumann_runge_band(event, altitude)/f	K/day	solar heating rate for O2_schumann_runge_band	-999	06 07 20
O2_solar_heat_atmospheric_bands(event, altitude)/f	K/day	solar energy deposition rate O2_atmospheric_bands	-999	06 07 20
chem_heat_H_O2_M(event, altitude)/f	K/day	chemical heating rate for H+O2+M	-999	06 07 20
chem_heat_H_O3(event, altitude)/f	K/day	chemical heating rate for H+O3	-999	06 07 20
chem_heat_O_O3(event, altitude)/f	K/day	chemical heating rate for O+O3	-999	06 07 20
chem_heat_O_OH(event, altitude)/f	K/day	chemical heating rate for O+OH	-999	06 07 20
chem_heat_O_HO2(event, altitude)/f	K/day	chemical heating rate for O+HO2	-999	06 07 20
chem_heat_O_O_M(event, altitude)/f	K/day	chemical heating rate for O+O+M	-999	06 07 20
chem_heat_O_O2_M(event, altitude)/f	K/day	chemical heating rate for O+O2+M	-999	06 07 20

* 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.