O3Brewer

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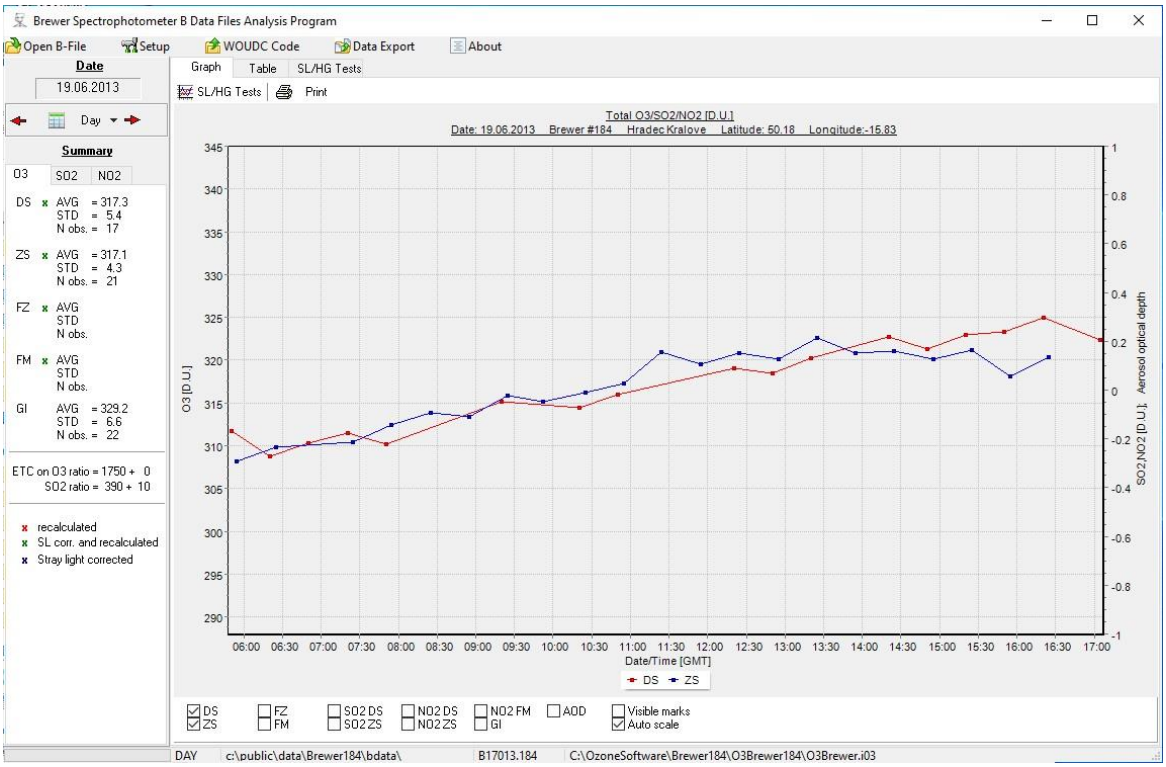
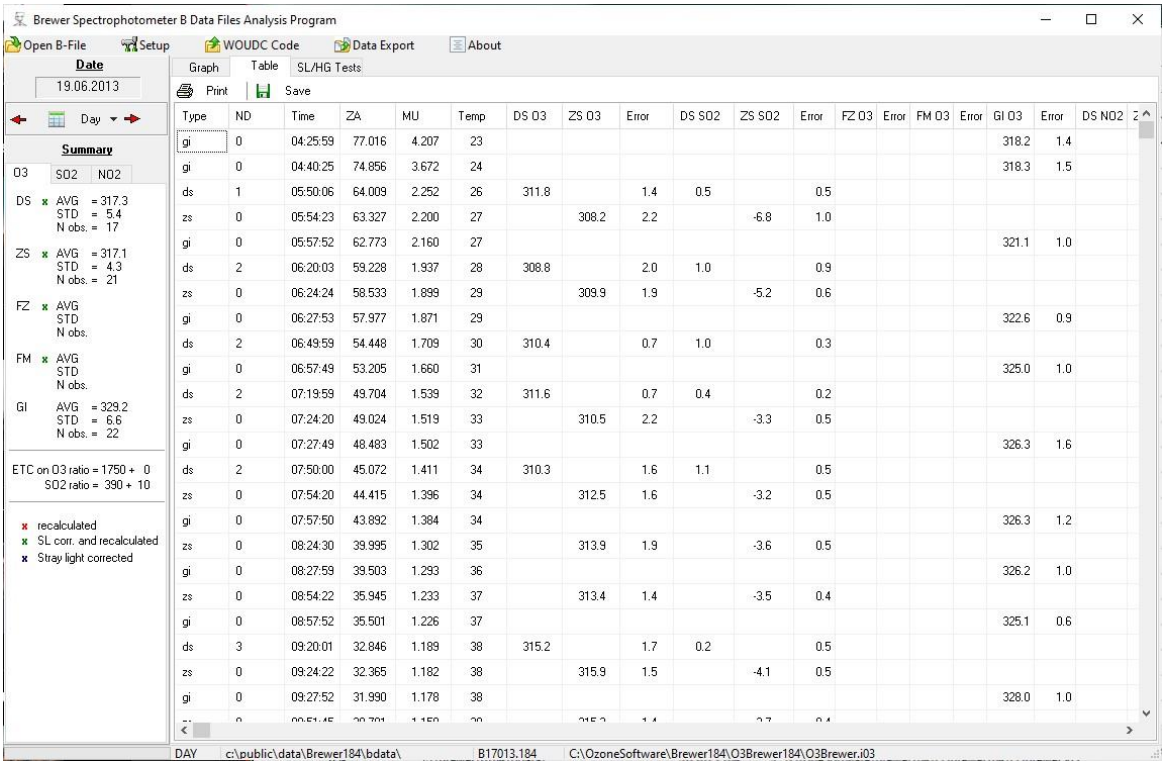
1. Introduction

O3Brewer is the Brewer B-files analysis program. The program is used to process Brewer B-files . The output can be graph and file in ASCII code of O3, SO2, NO2 , AOD or HG, SL tests for one day, month, year or selected period of time.





2. Hardware requirements

- IBM PC compatible, 64 bit application
- MS Windows 7…11

3. O3Brewer directory and file structure

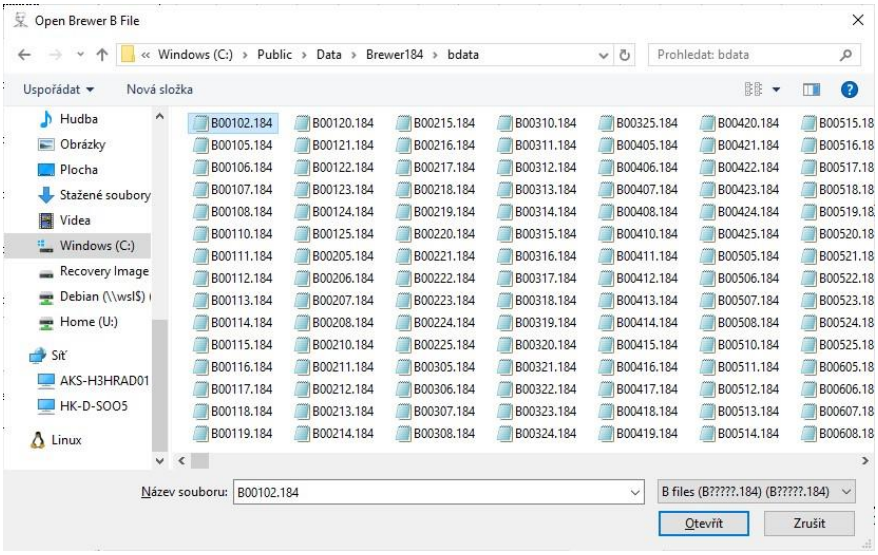
In the same directory must be these files:

- O3Brewer.exe - main program
- O3Brewer.i01,O3Brewer.i02,...O3Brewer.i99 - files of constant, each for a different time period
- GI_const.txt – constant file for GI ozone calculation

4. Description of menu system

- **Open File**

  The command opens Brewer data file and processes it based on initialization file. The default directory is set in Setup menu - Path to data files (B-files).



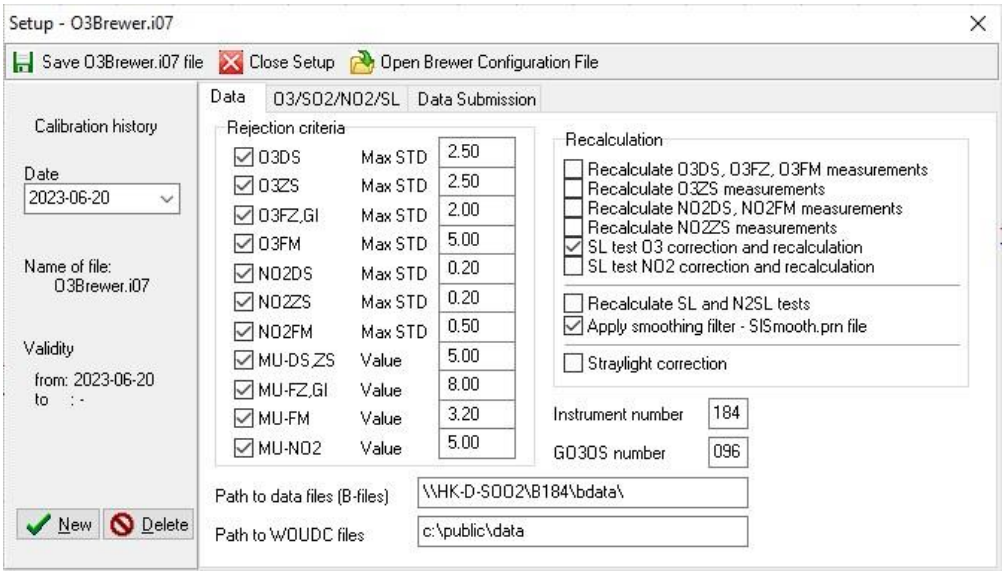
If you want to change date to open another file, it is faster to click on some of these buttons:

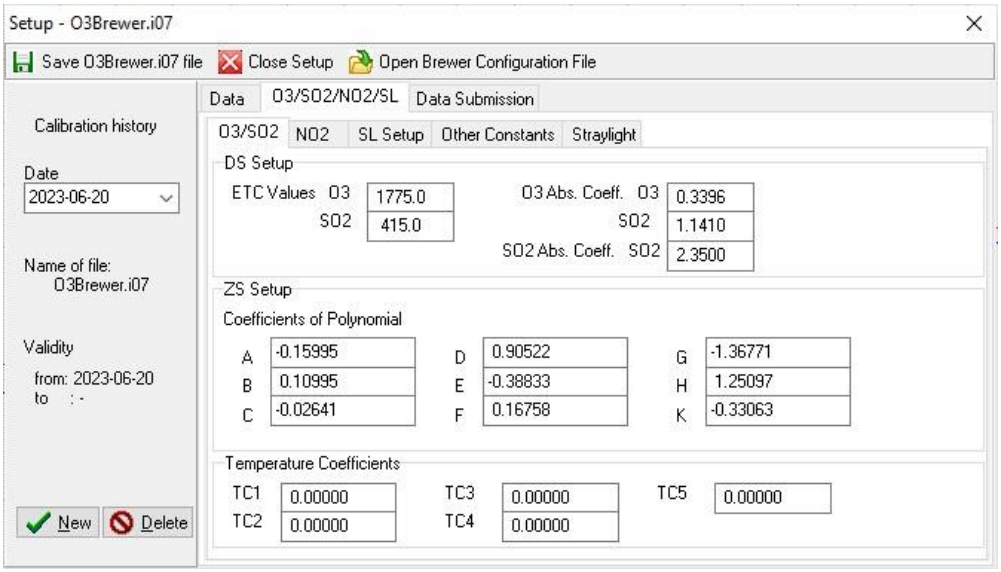
or

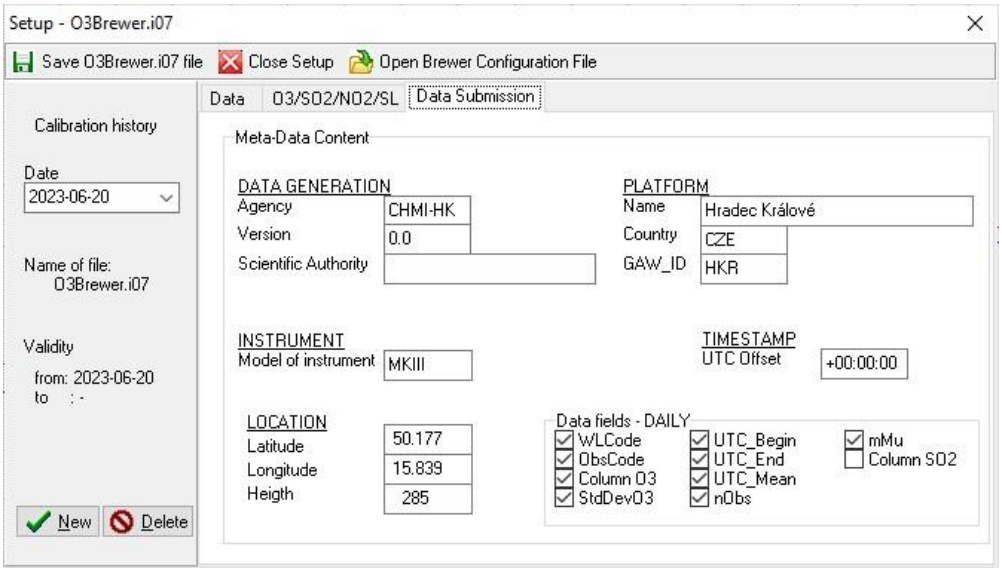

or press '+' , '-'.
To see the data from one month or year press "Day" button and select Month or Year.

- **Setup**

The command involves to change all parameters for the calculation of O3,SO2 and NO2.

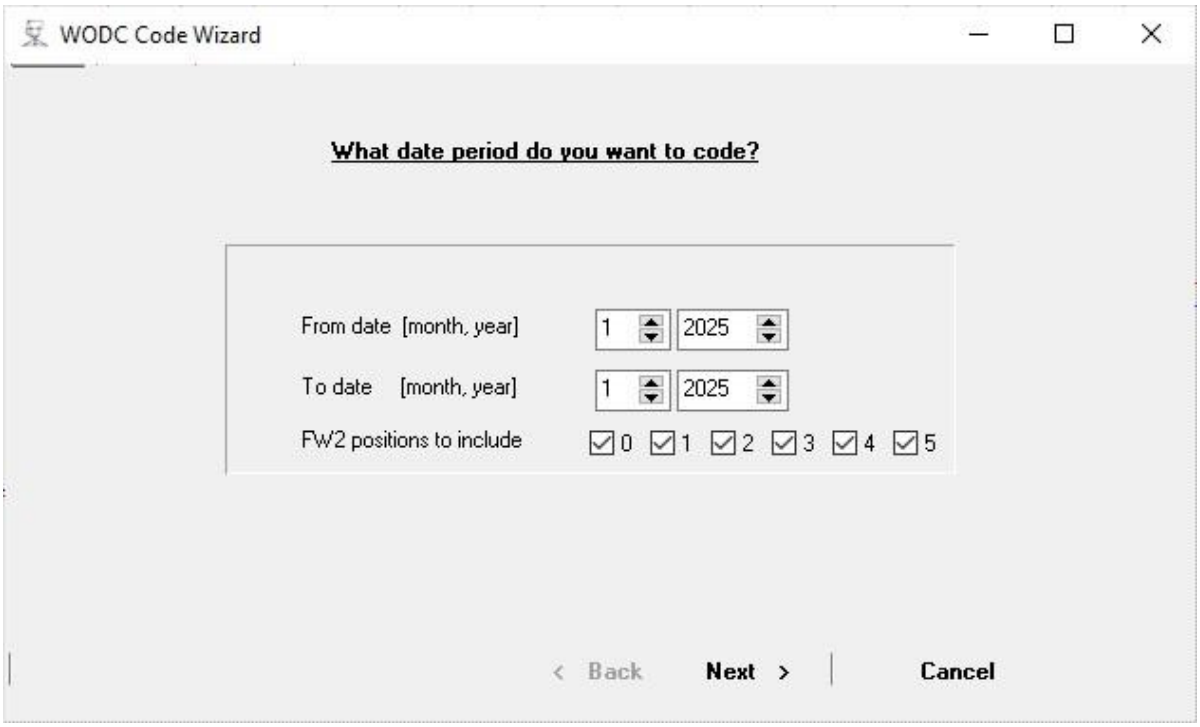


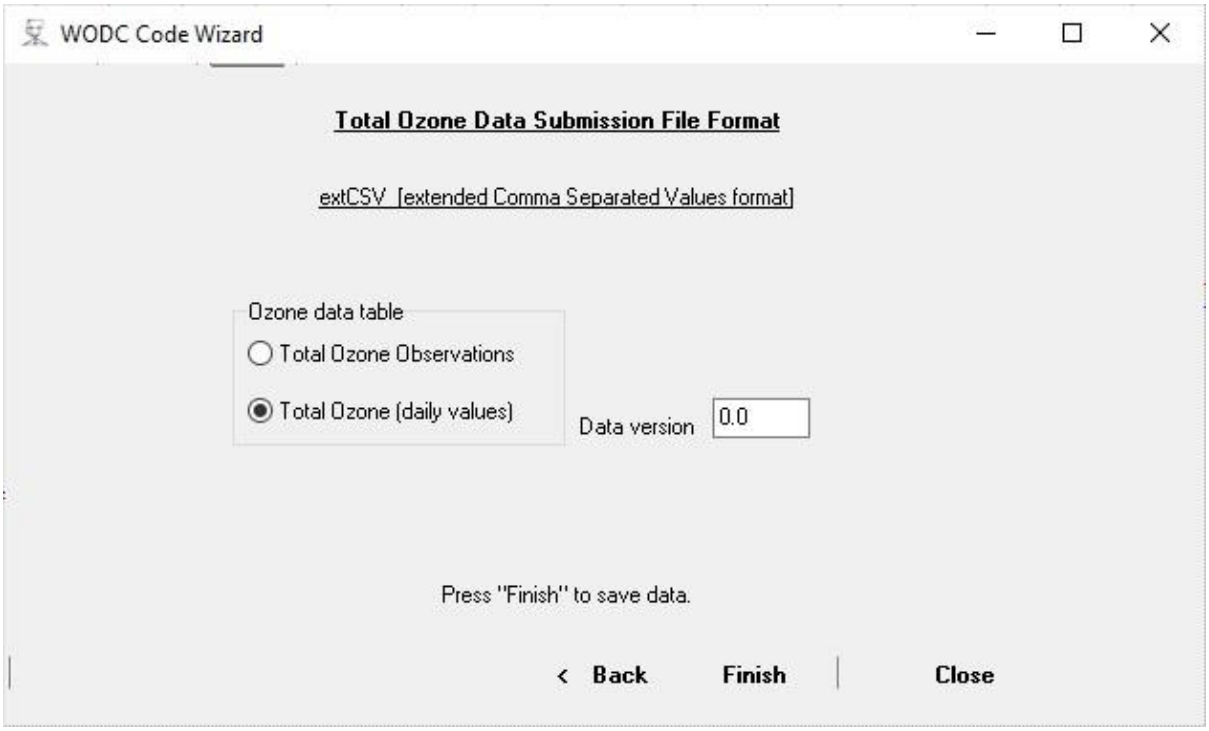




- **WODC Code**

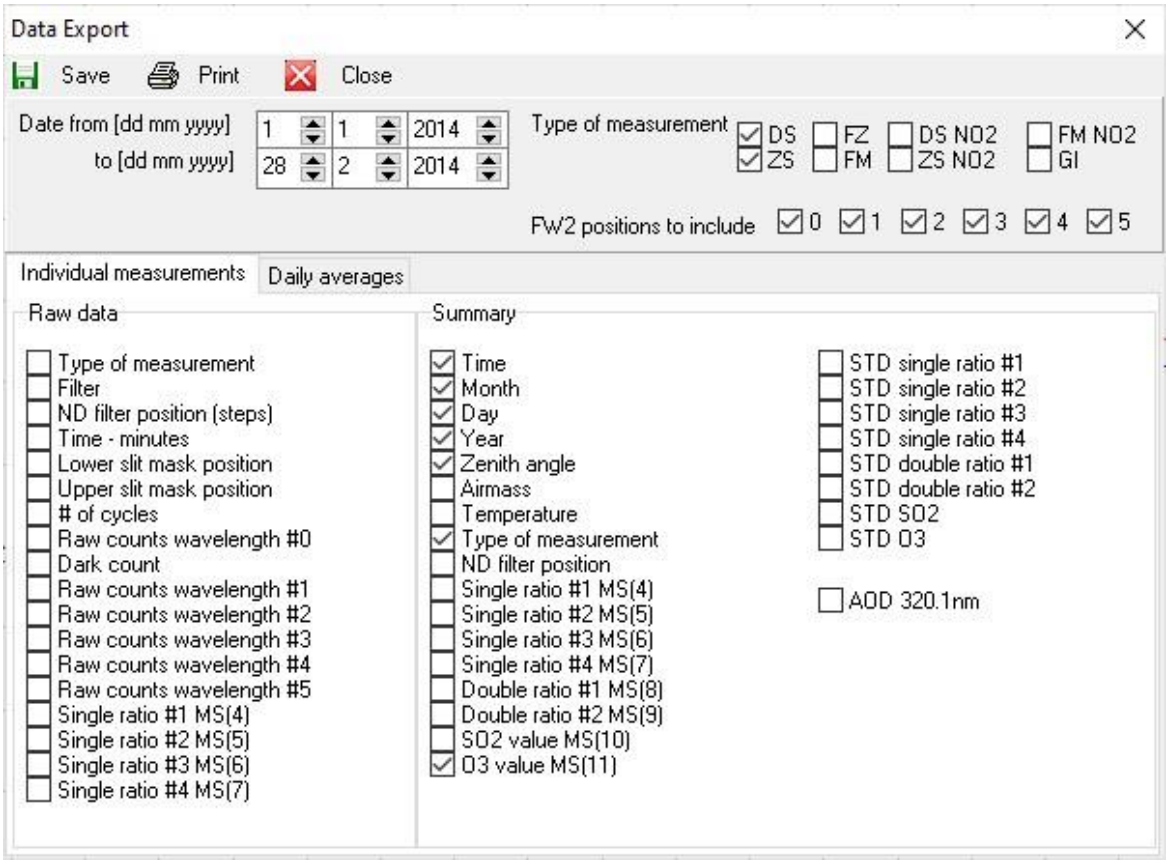
Menu is used to code O3 data in extCSV data format.

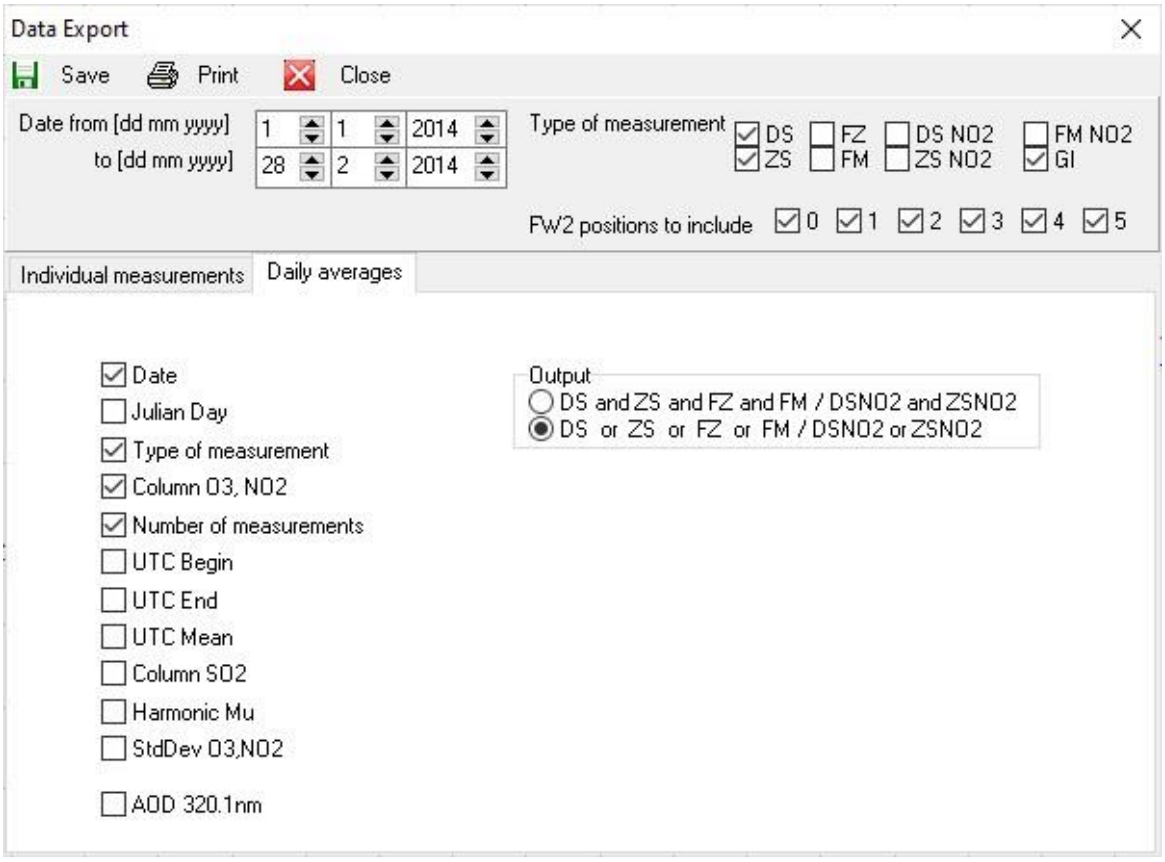




- **Data Export**

Output of processed data in ASCII code with respect to initialization file setting.





SL test O3 correction

Method of calculation
SL corrections are applied only on "Data export" and "WODC coding". Each B-file must have at least one SL measurement. The program starts to read the B-files 10 days before the selected date period to read SL test results first and to create "SLsmooth.prn" file, and stop 10 days after the selected date period. After the "SLsmooth.prn" file is created the program reads this file together with B-files again for export or data coding. It means that if you want to apply this corrections to data for WODC, you should do it after the tenth day in the next month.

Example - Direct Sun ozone calculation

DS_O3 = (R6-XB1+(XR6-ra6))/XA1/Mu;
where

R6	double ratio
XB1	ETC on O3 ratio (from O3Brewer Setup)
XR6	Value of SL R6 from the last intercomparison (from O3Brewer setup)
ra6	Smoothing SL R6 ratio for the day (from SLsmooth.prn file)
XA1	O3 on O3 ratio ((from O3Brewer Setup)
Mu	airmass

Smoothing filter
weights = Fx = 1/(sigma*Sqrt(2*PI))*EXP(-(Sqr(DT)/(2*Sqr(sigma))))
sigma = 5
DT = [10..0..10]