MFC4QDOAS_Converter guide

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DOASIS (DOAS Intelligent System) is a well-known program created by the atmospheric research group at IUP Heidelberg, Germany, and widely used in the DOAS community. It supports different kinds of spectrometers and other devices dedicated to (MAX)DOAS measurements. It performs data acquisition as well as spectral analysis. Generated spectra are saved in individual files (one spectrum per file) in a format called MFC. Two options are possible : binary or ASCII (also called STD). The main feature of this format is that files names usually start with a letter followed by a sequence of digits and that the files are distributed in numbered directories with a maximum number of files that depends on the configuration.

QDOAS, the DOAS analysis S/W developed at BIRA supports both formats generated by DOASIS but BIRA-IASB has created another binary format (called MFC BIRA-IASB) where all spectra (including offset and dark currents) are stored in daily files. It is more practical especially for the automatic reference selection. Also, dark current and offset correction is performed with the average of the dark current and offset spectra of the day saved in the same file as observations.

The present module, MFC4QDOAS converter crosses the MFC original directory (and subfolders) given in argument and create daily files in the new MFC BIRA format for further QDOAS use.

Without argument, the program gives the syntax to use :

Syntax

SYNTAX	**MFC4QDOAS_Converter <config file> <input file or path> <output path>**
INPUT	the name of the config file (see below) the name of the MFC file or the path with MFC files to convert the output path (year subfolders will be created)
PURPOSE	This program converts the files previously saved in MFC format generated by DOASIS or MS-DOAS programs (STD or binary) in a more convenient binary format developed at BIRA-IASB in order to make the processing by QDOAS faster and easier for sequential analysis.
CONFIG FILE	The config file should set the following keywords :

detector size=...	size of the detector
MFC format (bin/std) =	original MFC format (binary or ASCII)
date format=...	format of the date, for example : mmddyyyy
spectrum=...	string identifying spectra measurements
offset=...	string identifying offset measurements
dark=...	string identifying dark current measurements
output prefix=...	prefix of output file name (date in YYYYMMDD format will follow)
output extension=...	output file
longitude (positive eastwards)=…	longitude of the observation site.

Example of call

```
MFC4QDOAS_Convert MFC4QDOAS_Converter.inp ./Example/U ./Example/MFC-BIRA
```

Example of configuration file

detector size=2048
mfc format=bin
spectrum=
offset=ofs
dark=dc
output prefix=U
output extension=bin
longitude (positive eastwards)=145.

For MAXDOAS measurements in binary format, viewing elevation and azimuth angles should be saved as a unique string in the name of spectra : elevation, azimuth.

As measurements times should be reported in UT, the longitude is used to calculate local time and dispatch spectra in daily files (based on the local time).