Ocean2csv Guide

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1 Introduction

Spectral data acquired with an Ocean FLAME-T-UV-VIS-ES spectrometer can be saved with the OceanView 2.0.8 program in ASCII (with header data) format. The *ocean2csv.py* will parse the spectral data to CSV files with one header line. The parsed data files can be analyzed and plotted with *ocean-analyze.py*.

2 System Requirements

Operating System: ALL

Python 3 with NumPy and Pandas.

3 Program Usage

The ocean2csv accepts three arguments: -f, -ts and -tn. A filename start pass filter can be defined with the first argument. It will be also asked if the program is started without the -f argument. Normalized transmission spectra are parsed with the argument -ts, and non-normalized transmission spectra (counts instead of transmission percent) with the argument -tn.

4 Use Cases

The usage of this program is demonstrated in the following subsections.

4.1 Parsing Normal Spectra Files

Spectra from different LED lights were captured and saved in ASCII format with header data. These files were copied to a parsing directory and the *ocean2csv.py* was executed:

```
$ ocean2csv.py -f 2
Ocean spectrometer spectra to CSV files
File format: ASCII (with header data)

Current directory:
/home/pi/python/20211102-ocean

Data parser started:
00-20211021_FLMT044961__0__16.csv
01-20211021_FLMT044961__1__17.csv
02-20211021_FLMT044961__2__18.csv
…
34-20211021_FLMT044961__34__50.csv
```

A subdirectory named data is created, and it includes the parsed data files:

```
$ ls -1
00-20211021_FLMT044961__0__16.csv
01-20211021_FLMT044961__1__17.csv
02-20211021_FLMT044961__2__18.csv
…
34-20211021_FLMT044961__34__50.csv
```

A consequent numbering is added as suffix for the parsed files.

The difference of non-parsed and parsed files is shown in the following listings (first spectrum):

```
Data from 20211021_FLMT044961__0__16.txt Node

Date: Thu Oct 21 13:31:14 EEST 2021
User: user
Spectrometer: FLMT04496
Trigger mode: 0
Integration Time (sec): 1.000000E-1
Scans to average: 1
Electric dark correction enabled: true
Nonlinearity correction enabled: false
Boxcar width: 0
XAxis mode: Wavelengths
Number of Pixels in Spectrum: 3648
>>>>>Begin Spectral Data<<<<<
179.018 -326.5
179.241 -326.5
179.464 -326.5
…
887.243 92.59
```

Listing 1. Non-parsed ASCII file with header data.

```
Wavelength (nm),Intensity (counts)
179.018,-326.5
179.241,-326.5
179.464,-326.5
…
887.243,92.59
```

Listing 2. Parsed CSV file.

4.2 Parsing Transmission Spectra Files

Transmission spectra were acquired with *OceanView*, and the data was saved in ASCII format. Normalized spectra files stem started with the string “20211021_Transmission” and non-normalized with the string “20211021_FLMT044961”. Non-normalized spectra can be converted to normalized by dividing the intensity with the maximum intensity and multiply it with 100 %. This is shown in the following example:

```
$ ocean2csv.py -f 20211021_F

Ocean spectrometer spectra to CSV files
File format: ASCII (with header data)

Current directory:
/home/pi/python/20211102-ocean

First spectrum
--------------

Most common value: 62124.57
Count:      3381
Occurrence: 92.68 %

Is the spectrum type non-normalized transmission? (Y/N, Default y: <Enter>):
Default selected: transmission mode enabled

Data parser started:
00-20211021_FLMT044961__0__156.csv
01-20211021_FLMT044961__1__157.csv
02-20211021_FLMT044961__2__158.csv

...

59-20211021_FLMT044961__59__215.csv
```