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# UVBoost: a hybrid radiative transfer and machine learning model for estimating ultraviolet radiation    #
# Developed by Prof. Marcelo de Paula Corrêa (mpcorrea@unifei.edu.br)                                       #
# Natural Resources Institute - Federal University of Itajubá - Brazil                                     #
# Version 0.5.3                                                                                             #
# June/2022                                                                                                #
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```

USER'S MANUAL

1.0 SOFTWARE OVERVIEW

- UVBoost is a hybrid radiative transfer and machine learning model for estimating ultraviolet radiation irradiances and doses.
- UVBoost is specially designed to educational and scientific purposes
- UVBoost runs in Python environment

1.1. RUNNING UVBOOST

a) In the command prompt of your operation system, type: "python UVBoost.py" (without the quotes)

Note: If you don't have python installed on your computer, install it from https://www.python.org

b) You will see the following information:

Welcome to UVBoost

UVBoost is warming up! Stay cool.... It's only a few seconds.

What do you want to calculate?:
1) Ultraviolet Index (Erythemal irradiances);
2) Vitamin D weighted irradiances
My option:

c) Set your option: 1) for UV Index calculations OR 2) Vitamin D weighted irradiances calculations.
If you enter a number other than 1 or 2, UVBoost will calculate the UV Index.

Note: In this step, you will see the training time of the ML regression model.

d) UVBoost has trained to find the best adjust for your calculations. Now, you should choose the input format data:

Select input data format:
1) datasheet (csv);
2) data on screen
My option:

e) Choosing 1, your input data must be a datasheet (csv format) with the following columns: Column 1 - Solar Zenith Angles (in degrees); Column 2 - Total Ozone Content (in Dobson Units); and, Column 3 - Aerosol Optical Depth (Dimensionless).
Otherwise, you have to manually input the data according to the information on the screen.

f) If you chose option 1, UVBoost will generate an output file with your results. Otherwise, UVI or the Vitamin D weighted irradiance will be showed on the screen.

g) If you want another calculation, just click any key. Or, 0 to exit.

1.2 CONTACT

If you have any questions, you can contact mpcorrea@unifei.edu.br