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Interactive comment on “Typical distribution of the solar erythemal UV radiation over Slovakia” by A. Pribullová and M. Chmelík

Anonymous Referee #3

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General comments

The paper represents an application research study on the UV climatology that can be attributed to the scope of ACP. The recently published scientific outputs (mainly models by Madronich 1999, Koepke et al. 2006, Mayer & Kylling 2005) are extensively used for calculation of erythemal UV irradiation (EUV). The models were applied effectively in the limited mid-latitude area with diverse terrain using local proxies (orography, snow cover, total ozone statistics and measurements of total and erythemal UV radiation.) and advanced interpolation technologies (kriging method). Comments of the achieved results are presented and utilization of the outputs (EUV maps) are given in details. These are the main scientific contributions of the authors to the topic solved. The number and relevance of references are appropriate. The abstract gives a short and

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complete summary of the paper. Though the authors explain methodology of creation and utilization of the EUV maps in the territory of Slovakia properly some parts of the manuscript need adjustment or correction to make the paper clearer. This concerns some missing pieces of information, correct terminology and adjustments of figures – see the next paragraphs. The manuscript also needs a professional review for language.

Specific comments

- The paper deals with mapping of "erythemal UV radiation". To avoid misinterpretations, the term "UV radiation"(not weighted by the CIE action spectrum) should be used only if its general meaning is meant. The Abstract and chapters 1, 2 need a review for the use of this proper terminology.
- The "UV-biometers" is the correct nomenclature for the instruments mentioned in the paper (see e.g. section 2.1)
- Exactly, the maps of erythemal UV "irradiation" not just "radiation" are created
- To avoid very frequent use of the term "erythemal UV radiation" application of the well known and short abbreviation EUV is recommended in the paper
- Why the EUV measurements taken with the Brewer spectrophotometer at Poprad-Ganovce have not been used in the study?
- Were the regression parameters of the equation (1) used as published in Koepke et al 2006, or were these parameters validated for the Slovak territory before their application?
- Another step should be added in the section 2.4. that describes how the cmfG values were calculated for individual grid points before their application in the relation (1) – see the step 6.
- When the differences between calculated and measured values of EUV are discussed

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in the section 3.3 then precision of the UV-biometers and overall accuracy of EUV observations taken at the Slovak stations should be also commented.

Technical corrections

- The acronyms cmfUV or cmfG should replace the cmf wherever is used (see e.g. Abstract and the section 2.2)
- Full names of stations, bigger size of "diamond" and "square" marks and higher fonts for description of the axes in Fig. 4 are recommended for better distinctness
- Meaning of the grey columns in Fig 4 is missing the description of Fig.4.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 5919, 2008.

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