

RADIATIVELY IMPORTANT PARAMETERS BEST ESTIMATE (RIPBE) VALUE-ADDED PRODUCT (VAP)

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ABSTRACT

Currently, to calculate radiative heating rate profiles for the Broadband Heating Rate Profile (BBHRP) product, radiatively important parameters (water vapor, ozone, surface albedo, aerosol properties, and cloud properties) from multiple VAPs and datastreams are combined into input text files that are then used to run the RRTM radiative transfer codes. These input parameters have different temporal and spatial scales and are difficult to extract from the text files to be used for other purposes such as running other radiative transfer codes, analyzing results, or error tracking. The purpose of the Radiatively Important Parameters Best Estimate (RIPBE) VAP is to improve this process by creating a clearly identified set of inputs for BBHRP (and other radiation codes) on a uniform vertical and temporal grid. This process will decouple the input/output portion of the BBHRP from the core physics (the RRTM radiative transfer model) and will add error tracking and version information to the input data set. Critical parameters (which must exist for the radiation code to be run) will be designated; for other parameters, climatological or fixed values will be used when the preferred values are missing. This should increase the number of cases for which radiative transfer calculations can be run. In all cases, flags will clearly identify the source for each parameter. RIPBE will serve multiple functions: (1) it will provide a clearly identifiable set of inputs for BBHRP, (2) it will facilitate the use of BBHRP as a retrieval and radiation code development testbed by providing a vehicle for easily extracting and swapping input parameters needed to conduct radiative transfer calculations, and (3) it will be a complement to the Climate Modeling Best Estimate (CMBE) VAP and will provide a significantly expanded set of parameters for model evaluation in a showcase data set form. At the ASR meeting, we will present examples and evaluation of the initial RIPBE dataset at SGP.

This poster will be displayed at ASR Science Team Meeting.

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