L2 Retrieval Efforts within the U.S. Greenhouse Gas Center

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The recently established U.S. Greenhouse Gas Center (US GHG Center) is a multi-agency effort to provide a curated set of observation- and model-based data relating to greenhouse gases. The US GHG Center aims to provide easy access for scientists and other stakeholders, as well as provide an open data exploration platform to investigate the datasets and perform analyses on them. While a big focus is the dissemination of datasets from L2 through L4, one of the main motivations of the US GHG Center is the enabling of interagency and international collaborations.

In addition, we are also developing a new set of greenhouse gas L2 retrieval algorithm tools. Most currently utilized L2 greenhouse gas algorithms have a high entry bar for scientists of all career stages, not just in terms of the complexity of the theoretical background, but also due to the complexity of the specific implementation that can involve various programming languages.
Our new algorithm tools are built using a single-language design and can be easily integrated into a flexible, notebook-based workflow without sacrificing performance. We place a strong emphasis on thorough documentation – not only do we extensively document the program code, but we also provide the theoretical background and several examples to help new users get started. We envision these algorithm tools to be learning and teaching utilities as well as building blocks for a highly performing science algorithm all in one.

In this IWGGMS 2024 contribution, we present the current state of development and our vision towards public release and beyond. We will demonstrate the potential of the new toolset that can span a wide range of applications – from testing new ideas, through validation exercises and finally as part of a fully operational system.

Presentation file
Somkuti-Peter.pdf
Meeting homepage
IWGGMS-20 Workshop
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