National Aeronautics and Space Administration

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README Document for

GES DISC Multi-year Monthly Mean Product From AIRS Monthly Retrieval Data AIRX3STM_V006

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Revision History

Revision Date	Changes	Author
12/19/2016	Initial version	Feng Ding
1/9/2017	Revision with comments from team members	Feng Ding
1/25/2017	Revision with comments from Bruce Vollmer	Feng Ding

Table of Contents

Introduction

This README file applies to a multi-year monthly mean product derived from Version 6 monthly standard product (AIRX3STM) of the Atmospheric Infrared Sounder (AIRS) since 2002 to 2016. The product is created by the NASA Goddard Earth Sciences Data and Information Services Center (GES DISC), which is different from other AIRS products by NASA JPL AIRS Science Team. It is primarily for serving users through Giovanni. More extensive documentation on AIRS is available from the GES DISC. Documents specific to Version 6 monthly standard product are on the [Version 6 Documentation](#).

With the AIRS data record now exceeding 14 years, the AIRS data products are getting more and more usages in the climate study community. While the AIRS Science Team is working on creation of an AIRS climatology product, some users of AIRS products are interested in using a data product to serve as a proxy for a climatology until a fully vetted climatology product is produced by the AIRS Science Team. The "User-Defined Climatology" service in Giovanni, a web-based visualization and exploration application developed by the NASA GES DISC, can provide users such a multi-year monthly mean product and map. With the "User-Defined Climatology" available, users will often analyze the anomaly map, which is the difference between measurements in a given month and the corresponding "climatology", in this case the monthly mean value. To display the anomaly map in Giovanni, a monthly "climatology" product must be pre-computed and deployed in Giovanni. Therefore, this multi-year monthly mean product (i.e., "Giovanni Climatology") is generated at GES DISC for better serving the users of climate study community through Giovanni.

"Product Generation" Section of this README describes the method to generate this product. "Data Organization" Section describes the organization of the data files, the file naming convention, the file format and structure, and the file contents. "Tool and Service" Section describes how to use Giovanni plot this product and the anomaly map. The last section gives a "Disclaimer" and the contact information.

Product Generation

The generation process of this product is not a part of AIRS Product Generation Executives (PGEs), but a stand-alone post-processing procedure. It computes the multi-year arithmetic mean of some variables in the Version 6 AIRS level 3 monthly standard produce with short name AIRX3STM. Here it is a 14-year period: from September 2002 to August 2016. For each month, the input data are 14 values of a parameter from AIRX3STM product in each year during this period. The average is computed at each 1 degree by 1 degree grid. Those years with missing values are excluded from the averaging. If values of all years are missing, the result will be missing value. The computed mean values at each 1 degree by 1 degree are output in the product file which has similar structure as the input AIRX3STM product.

Data Organization

Granularity

This product has the same granularity as the AIRS Level 3 monthly standard product. Users can find details in the [AIRS readme document](#).

Filenaming Convention

This product files are named in accordance to the following convention:

AIRGX3STMM.006_*byyymm-eyyymm***.nc**

Where:

- o   byyy = 4 digit beginning year number [2002 -].

- o   mm = 2 digit month number [01-12]

- o   eyyy = 4 digit ending year number [2002 -].

Similar to the AIRS Level 3 monthly standard product whose file name begins with AIRX3STM, this product file name starts with AIRGX3STMM. The added letter "G" indicates this product is primarily used in Giovanni and created by GES DISC. The extra letter "M" represents "Multi-year Mean".

Examples of the product file name:

AIRGX3STMM.006_200209-201509.nc

AIRGX3STMM.006_200212-201512.nc

AIRGX3STMM.006_200301-201601.nc

AIRGX3STMM.006_200308-201608.nc

File Format and Structure

The product files are stored in the NetCDF format. More details about the NetCDF format can be found from UCAR unidata website: http://www.unidata.ucar.edu/software/netcdf/

Data Contents

In addition to time, dimension and geolocation, the retrieval parameters in this product include SurfAirTemp and SurfSkinTemp. They inherit the same structure from the parameters with the same name in the AIRS Level 3 monthly standard product, which are described in the Level 3 Product User Guide.

Tools and Services

The parameters in this product are deployed in Giovanni. Users can view these parameters using many services on Giovanni, such as Time-Averaged Map, Time-Series Plot, and Comparison Scatterplot. The anomaly, which is a virtual product derived from this multi-year monthly mean product, is also available on Giovanni. Users can select a month and year range and plot the anomaly for the selected period.

Disclaimer

This product is created by GES DISC, which is different from other AIRS products by NASA JPL AIRS Science Team. It is primarily for serving users through Giovanni. The data are for exploratory purposes only and downloading the original product on Giovanni is discouraged.

For further assistance, please use this contact information:

Email: gsfc-help-disc@lists.nasa.gov

Voice: 301-614-5224

Fax: 301-614-5268

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      Code 610.2

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