**CIPS RAA Level 2C Data**
Last updated February 2023

CIPS Rayleigh Albedo Anomaly (RAA) files are provided for levels 2A, 2B, 2C, and 3A. The current retrieval version is v1.10r06. This document describes the level 2C data product, which is based directly on the level 2B data product. In addition to this document, users should also read the CIPS instrument overview, data overview, and RAA level 2A and level 2B documents.

Briefly, CIPS RAA Level 2A data files contain CIPS RAA data in a scene-by-scene format, where a CIPS scene contains simultaneous images from the four CIPS cameras, with a footprint of approximately 2000 km by 900 km. In the Level 2B files all scenes from an orbit are merged together by averaging overlapping pixels from different scenes. Data products for levels 2A and 2B include both numerical (NetCDF) and graphical (png) files.

The level 2C data product consists of daily, global maps of RAA and of RAA variance, produced by over-plotting level 2B RAA and RAA variance data for all orbits each day. The maps are provided as png files. Since every level 2B pixel is plotted, and no manipulation of the level 2B data is applied, the level 2C data product is not provided as numerical data files. Rather, the level 2C maps are available only to provide a global context for the level 2B data each day. For organizational convenience, maps are produced for each day, but are blank if data is missing.

Below are examples of the level 2C data product for 1 January, 1 April, 1 July, and 1 October of 2022.
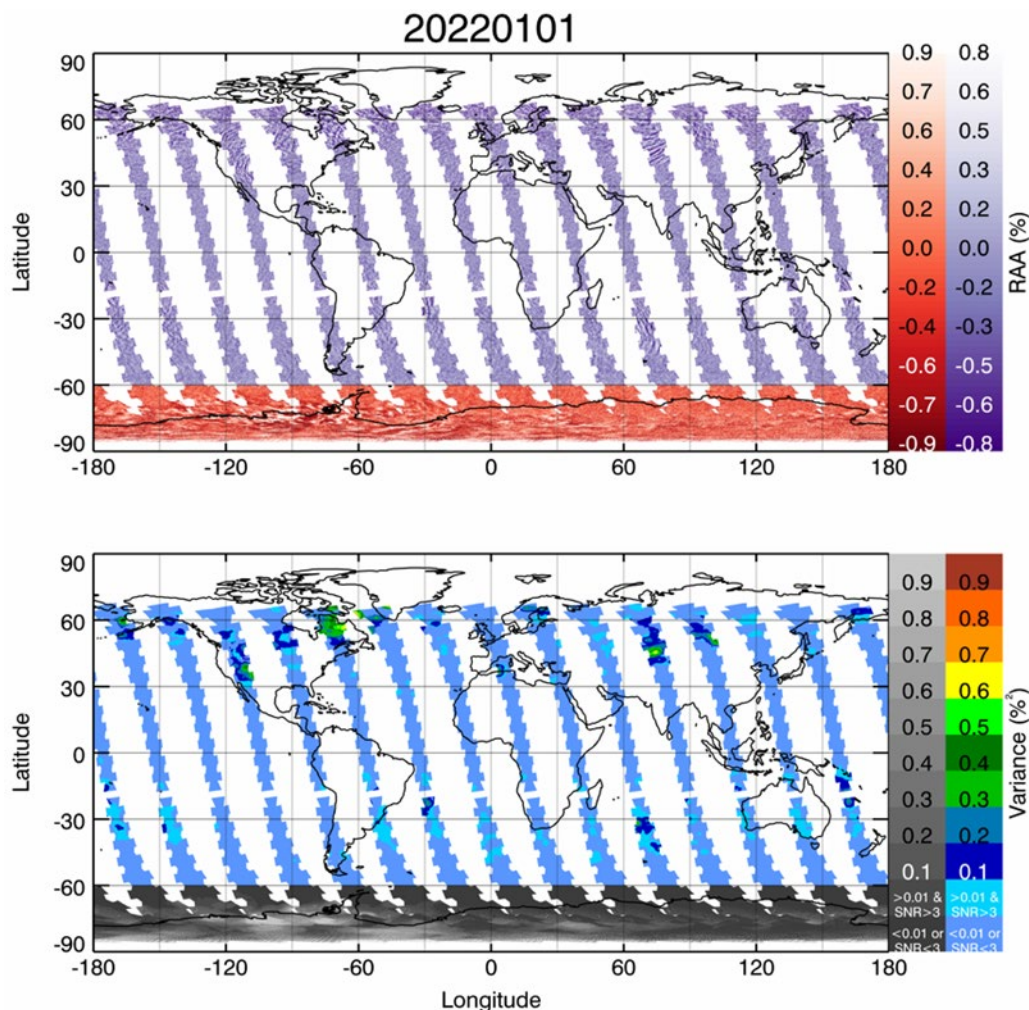
Figure 1. Level 2C RAA (top) and RAA variance (bottom) maps from 1 January 2022. The purple (red/orange) color table is used for the RAA outside (inside) the nominal PMC region. The rainbow (gray) color table is used for the RAA variance outside (inside) the PMC region. For these maps the PMC region is defined to extend from 60° to the pole during PMC seasons, which range from ~15 May through August in the north and ~15 November to late February in the south. Signals inside the PMC region are most often due to PMCs near 83 km, not gravity waves near 53 km. Text at the bottom lists the orbit numbers and equatorial longitudes of the orbits included in the maps. On this date a satellite yaw occurred each orbit near 20°S; the data gap at this latitude is due to the fact that images are not acquired during a satellite yaw.
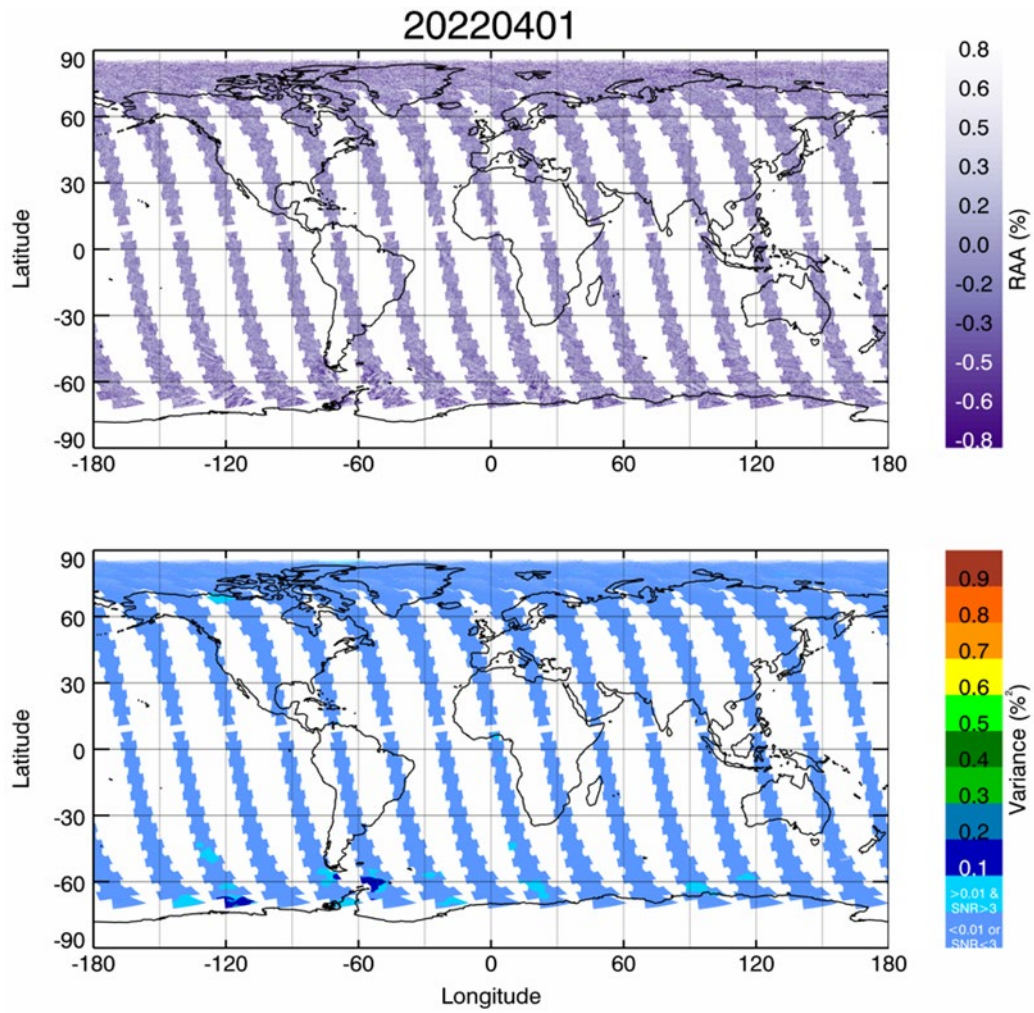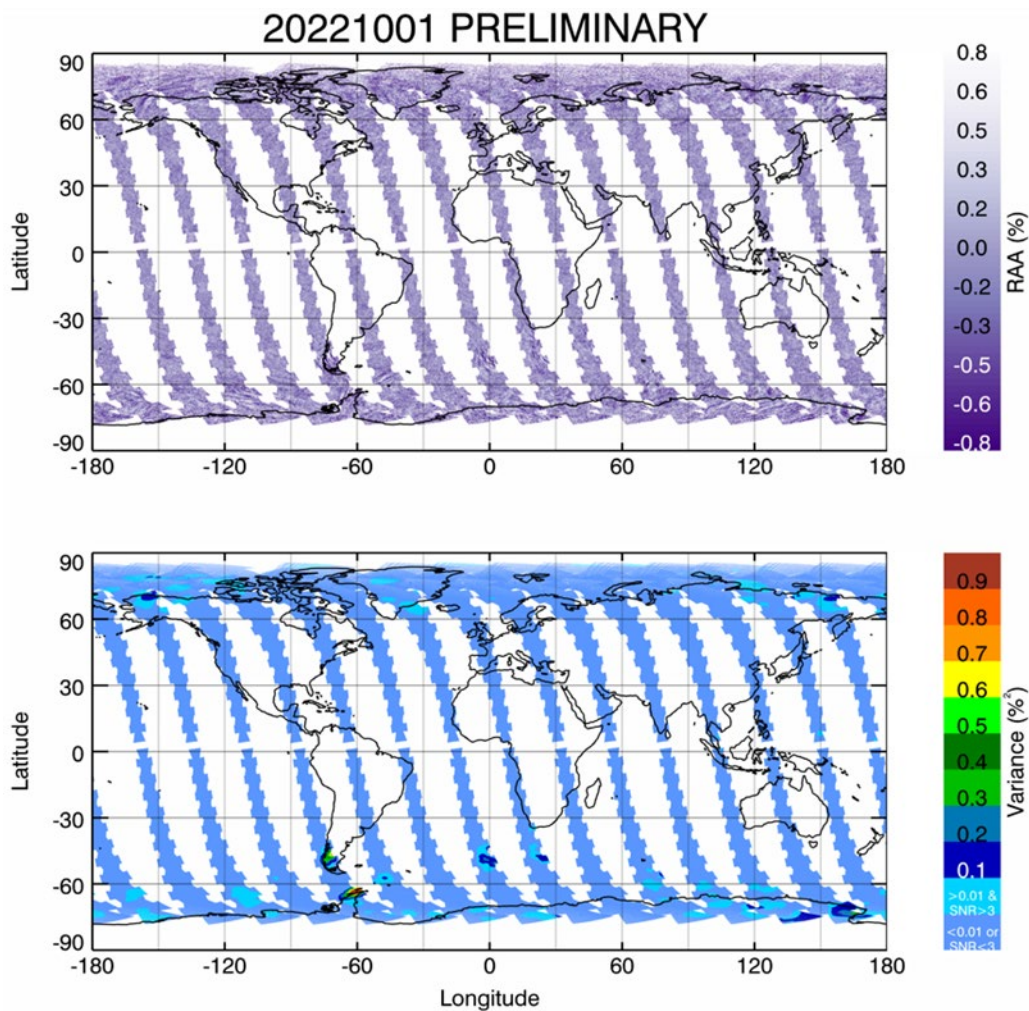
v01.10_r06 orbits [equatorial longitude]:
81945 [171.7], 81946 [145.3], 81947 [123.3], 81948 [94.4], 81949 [72.4], 81950 [50.4], 81951 [28.5], 81952 [-0.4], 81953 [-24.8], 81954 [-42.4], 81955 [-71.3], 81956 [-95.7], 81957 [-115.7], 81958 [-140.1], 81959 [-164.6]

Figure 2. Same as Figure 1, but for 1 April 2022. There is no red/orange or gray color scale since this is outside the PMC seasons. A satellite yaw occurred near 10°N on every orbit for this date, which explains the data gap at this latitude.
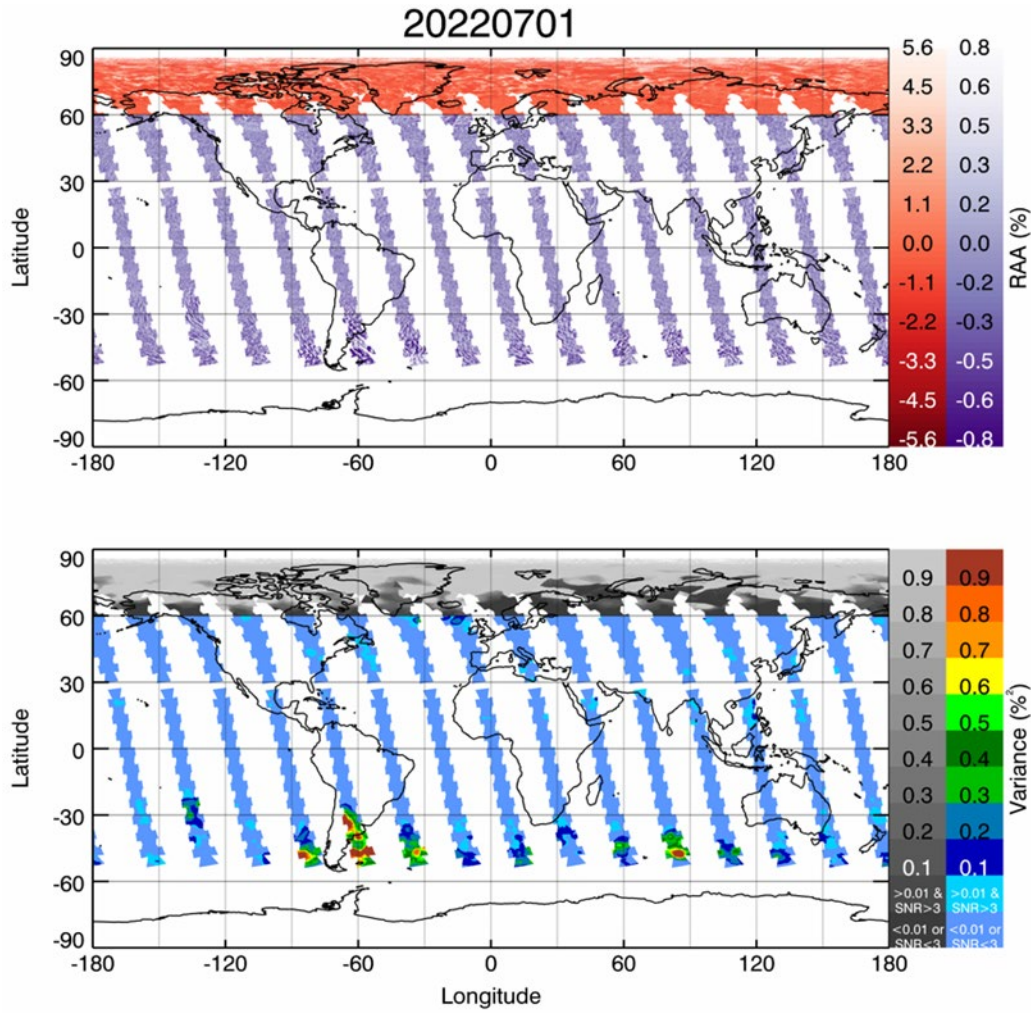
Figure 3. Same as Figure 1, but for 1 July 2022, in the middle of the northern PMC season. A satellite yaw occurred near 30°N on every orbit for this date, which explains the data gap at this latitude.

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v01.10_r06 orbits [equatorial longitude]:
84721 [173.0], 84722 [152.4], 84723 [127.4], 84724 [102.4], 84725 [79.8], 84726 [54.8], 84727 [34.3],
84728 [9.3], 84729 [-13.3], 84730 [-38.3], 84731 [-63.3], 84732 [-83.9], 84733 [-108.9], 84734 [-135.8],
84735 [-156.4]

Figure 4. Same as Figure 1, but for 1 October 2022. There is no red/orange or gray color scale since this is outside the PMC seasons. A satellite yaw occurred near 5°N on every orbit for this date, which explains the data gap at this latitude. The plot is marked "Preliminary" because the post-season processing had not been conducted at the time this document was written (see the level 2B documentation).