CARMA Home

Community Aerosol and Radiation Model for Atmospheres (CARMA)

CARMA is a general-purpose sectional microphysics code that has been used to study a wide variety of aerosols in planetary atmospheres. It originated from a one-dimensional stratospheric aerosol code developed by Turco et al. (1979) and Toon et al. (1979) that included both gas-phase sulfur chemistry and aerosol microphysics. The model was improved and extended to three dimensions as described by Toon et al. (1988). CARMA has been applied to almost every cloud and aerosol on Earth, as well as those on Venus, Mars, Titan, and exoplanets (Please see the References section for a link to published papers).

Extensive updates of the numerics continue to be made. A wide community of users, including our groups at the University of Colorado, NCAR, and NASA Goddard, works with this code and continues to improve it. Standard versions of the model listed below are maintained at NCAR and distributed to the community.

CARMA Overview

CARMA can be used as a "Standalone" box (or column) model. The standalone version can be downloaded via Github: https://github.com/ESCOMP/CARMA/

CARMA has been also coupled to different atmospheric models, including those that are part of the Community Climate Earth System Model (CESM). This "CARMA base" code is also available via Github https://github.com/ESCOMP/CARMA_base and points to the CARMA standalone code.

CARMA Standalone

- Standalone CARMA
- Microphysical processes, flowchart

Atmospheric Models

- CESM1/CARMA
- CESM2/CARMA

How-to Guides

- How to run standalone CARMA regression test in Casper
- How to set up CESM/CARMA runs
- How to update CARMA using the Github Repositories

Papers

- CESM/CARMA development Papers
- CESM/CARMA application Papers
- Other CARMA development and papers

Attachments

File	Modified

No files shared here yet.

Recently Updated

Other CARMA development and papers
May 28, 2024 • updated by Yunqian Zhu • view change

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CESM/CARMA application paper
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CESM/CARMA Development Papers

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Publications
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CESM2/CARMA
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CESM1/CARMA
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Microphysical processes, flowchart and models
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Standalone CARMA
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How to update CARMA using the Github Repositories
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