



Venus Global Reference Atmospheric Model (GRAM) Upgrades

- Venus Global Reference Atmospheric Model (Venus-GRAM) is one of the most widely used engineering-oriented atmospheric models
- Venus-GRAM has been rearchitected into the GRAM Suite, a C++ framework containing a common GRAM library of data models and utilities
- Additional Improvements:
 - Upgraded the GRAM ephemeris to the NASA Navigation and Ancillary Information Facility (NAIF) Spacecraft Planet Instrument C-matrix Events (SPICE) toolkit
 - Improved the speed of sound calculations within the GRAMs
- Rearchitected Venus-GRAM has been released in GRAM Suite Version 1.3
- Venus-GRAM atmosphere model upgrades will be included in the next phase of GRAM tasks
- Working with VERITAS and DAVINCI+ teams to determine potential mission support by the GRAM team and utilization of collected atmospheric data in Venus-GRAM
- Available through NASA Software Catalog <https://software.nasa.gov/>

Project Manager

Alicia Dwyer Cianciolo
Alicia.M.DwyerCianciolo@nasa.gov

Code Architect

James Hoffman
james.hoffman-1@nasa.gov
Analytical Mechanics Associates

NASA Langley Research Center

Implementation Experts

Richard Powell
richard.w.powell@nasa.gov
Analytical Mechanics Associates

John Aguirre
john.t.aguirre@nasa.gov
Analytical Mechanics Associates

Atmosphere Modeling Lead

Hilary Justh
hilary.l.justh@nasa.gov

Systems Integration Tester

Anne Diekmann
anne.m.diekmann@nasa.gov
Jacobs Space Exploration Group

NASA Marshall Space Flight Center