PDS ATMOSPHERES NODE NEWSLETTER

Volume 3 Number 2 Autumn 2022

Welcome to the Autumn 2022 issue of the NASA Planetary Data System (PDS) Planetary Atmospheres Node (ATM) Archiving Newsletter. These newsletters are intended to serve as your definitive source for all archiving news related to planetary atmospheres, and to keep you informed of PDS ATM activities. We want to strike the right balance between providing open and transparent communications to our user community without overdoing it. *If there are topics that you would like to see addressed in future newsletters, please let us know!* As always, for data access, usability, and proposal assistance, please visit our website: https://pds-atmospheres.nmsu.edu/.

LATEST NEWS FROM THE PDS

To learn more about how the PDS is responding to community feedback such as the 2020 PDS survey and the findings of the Planetary Data Ecosystem Internal Review Board, see the PDS community announcements page.

The PDS will have an exhibitor booth at the 2022 DPS meeting in London, Ontario. Please drop by if you have PDS-related questions!

ATMOSPHERIC MODELING ANNEX

ATM has begun work on a new initiative to provide a PDS-equivalent archive/repository for atmospheric modeling output through the Atmospheric Modeling Annex (AMA), which will be developed as a cloud-based repository for planetary atmospheric modeling outputs and simulation results. Because of the short lifespan of many models and non-supported file formats typically used in modeling, many model output files are not appropriate for full PDS archiving. However, we recognize that atmospheric modeling is a vital tool for analysis and processing of mission observational data, and we wish to serve our user community by providing a repository for atmospheric modeling outputs, to which we can assign Digital Object Identifiers. To that end, we would like to welcome Dr. Pramod Adhikari, a new postdoctoral research associate with expertise in Earth atmospheric modeling codes, who recently joined our team. Dr. Adhikari will be helping us design and build the AMA to work efficiently for our planetary atmospheric modeling communities. As our development efforts get underway, we will likely be reaching out to our modeling colleagues in the near future to further this discussion.

POLICY UPDATES/REMINDERS

Reminder Note for new data providers/proposers: Requests for letters of support should be submitted to the appropriate nodes no later than a week before the submission deadline as required by PDS policy. (Effective October 2019). See the adopted policy text for more information: Letter of Support Policy Document. For programs that have no posted deadline, be cognizant of your timing and please allow ample time (no less than a week) for us to discuss and write your letter of support.

RESOURCES FOR DATA PROVIDERS

The PDS maintains a set of web pages designed to provide a comprehensive set of resources for R & A proposers who are considering archiving their data in the PDS: https://pds.nasa.gov/home/proposers/. These pages cover the how and why of archiving in the PDS, from requesting letters of support for proposals to the entire archiving process. Proposers are encouraged to consult these pages as a first stop for seeking information about data archiving; ATM personnel are also available and eager to answer your archiving questions!
Contact us at pds-atm@nmsu.edu.

NEW MISSION RELEASES

ATM is involved in archiving data from six active missions and in preparation for several new missions (including DAVINCI, VERITAS, Europa Clipper, and others). This involves working closely with the instrument teams and mission archiving teams to ensure that the data are delivered, validated, and released to the public on a predetermined schedule available from: Release Schedule. Here, we provide a status report of recent data releases from these missions at ATM:

MARS

InSight 1st through 14th data release will be available (09/30/2022) and certified including atmospheric data from the Temperature and Wind Sensors (TWINS) and Pressure Sensors (PS). InSight Data

Entry, Descent, and Landing (EDL) data are also now available. InSight EDL

Mars Atmospheres and Volatile Evolution (MAVEN) 1st through 30th is available for Accelerometer (ACC), Neutral Gas and Ion Mass Spectrometer (NGIMS), and Imaging Ultraviolet Spectrograph (IUVS). MAVEN Data

Mars Reconnaissance Orbiter (MRO) 1st through 62nd data release is available including data from the Mars Climate Sounder (MCS). MRO-MCS Data

Mars Science Laboratory (MSL) Curiosity 1st through 30th data release is available for the Rover Environmental Monitoring Station (REMS). MSL-REMS Data

Mars 2020 Rover (M2020) Perseverance 1st – 4th data release is available for Mars OXygen In-situ resource utilization Experiment (MOXIE) & Mars Environmental Dynamics Analyzer (MEDA). Mars 2020 Data

JUPITER

Juno PDS3/PDS4 data will be available (09/16/2022) for
Microwave Radiometer (MWR) including the recalibrated 2.0 cruise data, through perijove 40
Ultraviolet Imager/Spectrograph (UVS), through perijove 40
Jovian Infrared Auroral Mapper (JIRAM), through perijove 40
Gravity Science Experiment (GRAV), through perijove 40 data.
Juno Data

NEW DERIVED DATA RELEASES (by program)

In addition to archiving mission data, ATM is also involved in hosting and archiving derived data, which are typically provided by individual data providers through R&A/ROSES programs. These data are a valuable complement to the ATM mission data because they represent the results of investigations involving the analysis of mission data or the acquisition of field, laboratory, or ground-based data that support NASA's planetary missions. Below is a listing of derived data (by program) that have recently completed the archiving process and are now available online at ATM (since last issue – for past issues see: PAST NEWSLETTERS).

MARS DATA ANALYSIS PROGRAM (MDAP)

Mars Global Surveyor Radio Occultation Nocturnal Mixed Layer Properties. Derived data from the MGS Radio Occultation data that investigate the behavior nocturnal mixed layers on Mars, which form when radiative cooling in a water-ice cloud causes convective instability.

Hinson, D.P., (2022). Mars Global Surveyor Radio Occultation Nocturnal Mixed Layer Properties, PDS Atmospheres (ATM) Node, https://doi.org/10.17189/3jkg-2z75.

Mars Global Surveyor Thermal Emission Spectrometer Atmospheric Recalibration Bundle. Derived data has been added to the MGS TES reprocessed bundle, specifically adding atmospheric opacity and surface emissivity data.

Pankine, A., (2022), Mars Global Surveyor Thermal Emission Spectrometer Atmospheric Recalibration Bundle, PDS Atmospheres (ATM) Node, https://doi.org/10.17189/xhqz-zw13.

PLANETARY DATA ARCHIVING, RESTORATION & TOOLS (PDART)
PLANETARY DATA ARCHIVING & RESTORATION (PDAR)

Laboratory Study of Hydrocarbon IR Spectra. This laboratory atmospheric chemistry data set has added no-broadened spectra for four new species of hydrocarbons including n-butane, n-pentane, cyclopentane, and cyclohexane for Jupiter, Saturn, and Titan upper atmospheres.

Bernath, P. (2021), Laboratory Study of Hydrocarbon IR Spectra, NASA PDS Atmospheres (ATM) Node, https://doi.org/10.17189/1518949.

Pioneer Venus Orbiter Radio Occultation Profiles. This data set contains Pioneer Venus Orbiter radio occultation derived data products of frequency data, ionospheric electron density profiles, and neutral atmospheric temperature profiles.

Withers, P., (2022), Pioneer Venus Orbiter Radio Occultation Profiles, PDS Atmospheres (ATM) Node, https://doi.org/10.17189/tm55-bj87.

PDS4 TOOL DEVELOPMENT NEWS

The Atmospheres Node is in the progress of developing a PDS4 tool for helping users plan and design labels for simple bundles of data that they wish to archive in the PDS. The Educational Labeling System at Atmospheres (ELSA) is well on its way to being a functional guide for putting archive bundles together. ELSA aims to allow easy access to tailoring PDS4-compliant label templates for your needs. ELSA will allow persistent editing through a free account and step-by-step tutoring for building your bundles. Stay tuned to this section for future updates.

Two of our undergraduate research assistants (Tommy Pagán and Tyler Arnold) graduated in May 2022 and we hired two new undergraduates (Saíd Ajo-Montaño and Deric Shaffer) who started in June of 2022. We also welcomed back Zena Stevenson, one of our former student research assistants, who is working with us on ELSA development and database support. Since their onboarding, we have made several changes to the ELSA code. Namely we switched from Series 2 Python to Series 3 and implemented many improvements to the user interface as well as resolving many lingering permissions issues with the base code. The team is now working on collection and product template creation in the polishing of data and document products. The goal for ELSA is to provide bundle support for collections of documents, and tabular data (binary, delimited, and fixed-width tables).

We plan to open ELSA to external beta-testing soon, hopefully in the Winter 2022 timeframe. For more information or to volunteer as a beta-tester for the online tool, contact: elsa@atmos.nmsu.edu.

ATM Advisory Group

In January 2022 the Atmospheres Node had its annual meeting with its Advisory Group, which is designed to provide input and feedback to us on issues of importance to our user base. The AG membership was designed to reflect our current user community, and we anticipate that the members will serve as a sounding board for new ideas about ways we can better serve the planetary atmospheres community, as well as a conduit for ideas and feedback from our user community. Please join us in thanking the current AG members for their service:

Natasha Batalha (NASA/ARC)
Don Banfield (Cornell)
Ashley Davies (JPL)
Melinda Kahre (NASA/ARC)
Ralph Lorenz (JHU/APL)
Kevin McGouldrick (CU/LASP)
Conor Nixon (NASA/GSFC)
Paul Withers (Boston University)
Mike Wong (UC Berkeley)

Contact Us

We want to hear from you! We value your feedback and are committed to improving the archiving process as well as the usability and discoverability of data at ATM. If you have a derived data set that fits our archiving mission, please contact us to start a dialog. Also please contact us at: pds-atm@nmsu.edu if you have any questions or concerns. There is also a feedback widget on our web site that you can use if you are having trouble finding something on our web site.