NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

BRIDGING SCIENCE AND JOURNALISM AT HAQAST MADISON

In May 2026, the NASA Health and Air Quality Applied Sciences Team (HAQAST), led by Tracey Holloway (Univ. of Wisconsin–Madison), held the HAQAST Madison semi-annual meeting with the 14 HAQAST Principal Investigators, along with a myriad of researchers and stakeholders. The meeting, hosted by the Univ. of Wisconsin in collaboration with the Outrider Foundation Science Media Forum, engaged partners on uses of Earth science information for environmental health and air quality applications and connected leading journalists with NASA capabilities. This event highlighted new applied satellite research for improved forecasts of wildfires and exceptional events; health impacts of prescribed fires; monitoring of urban air pollution; and adaptations related to heat and other extreme events. Eight new HAQAST Tiger Teams were announced – the most ever! Overall, this HAQAST meeting engaged more than 260 people (including 125 in-person). For more information, please view the recordings.

J. Haynes and T. Holloway present talks (Top Left/Middle), audience members engage in sessions (Top Right), and panelists share research findings during the Outrider Foundation Science Media Forum (Bottom Left/Right) at HAQAST Madison. Credits: H. Chapman, HAQAST, and Outrider Foundation

HEALTH AND AIR QUALITY APPLICATIONS
EARTH ACTION PROGRAM

JOHN HAYNES
PROGRAM MANAGER
HEADQUARTERS

HELENA CHAPMAN
ASSOCIATE
HEADQUARTERS/BAH

LAURA JUDD
ASSOCIATE
LANGLEY RESEARCH CENTER

Created by Helena Chapman, MD, PhD; please direct correspondence to helena.chapman@nasa.gov

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

NATIONAL PUBLIC HEALTH WEEK 2026 AND NATIONAL MOSQUITO CONTROL AWARENESS WEEK 2026

The NASA HAQ and NASA Earth Social Media **(Sofie Bates, NASA GSFC; Jocelyn Argueta, JPL)** teams prepared social media communication to recognize two international health days in April and June 2026.

National Public Health Week (NPHW), which is supported by the American Public Health Association, endorsed the *Ready. Set. Action!* theme. The teams highlighted two HAQ projects: 1) how integrating space-based observations can improve air quality forecasting capabilities (NASA Earth Facebook post / X post) (Kenneth Davis, Pennsylvania State Univ.); and 2) how satellite data (IMERG, GRACE, VIIRS, GEOS-S2S) can enhance longer-lead forecasts of dengue risk in Puerto Rico (NASA Earth Facebook post / X post) (Paul Block, Univ. of Wisconsin–Madison).

American Mosquito Control Association's National Mosquito Awareness Week 2026 promoted the *Yesterday's Threat, Today's Solutions* theme. The teams presented the HAQ project that aims to enhance longer-lead forecasts of dengue risk in Puerto Rico (NASA Earth Facebook post / X post) (Paul Block, Univ. of Wisconsin–Madison).

Social media post on NASA Earth X on March 25, 2026

Social media post on NASA Earth Facebook on June 22, 2026

STUDENT AIRBORNE RESEARCH PROGRAM 2026

The Student Airborne Research Program (SARP), an eight-week annual summer internship, helps rising-senior undergraduate students gain hands-on experience by engaging in field research and data analysis, with access to multiple NASA flying science laboratories. **Laura Judd (NASA LaRC)**, a SARP 2012 graduate, was one of over a dozen NASA scientists conducting measurements during science flights in June. During the 10-day flight window, four NASA-related aircraft conducted 36 flights, totaling over 130 flight hours, measuring satellite proxy/validation parameters related to the TEMPO, PACE, NISAR, EMIT, and other missions. These flights also collaborated with NOAA's 2026 Texas Air Quality Study. The SARP program connects the next generation of researchers with scientists, engineers, and leaders working to advance NASA's mission to understand Earth's systems.

NASA Administrator Jared Isaacman, Deputy Administrator Matt Anderson, and Dr. Nicky Fox, NASA SMD Associate Administrator, visited SARP students and leadership during the deployment in Houston, TX. Fox said this engagement, "underscored NASA's commitment to fostering future STEM leaders." Credit: NASA

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

NASA HAQ TEAM SHARES EARTH SCIENCE APPLICATIONS AT ATS 2026

In May 2026, at the American Thoracic Society (ATS) International Conference, the NASA HAQ team coordinated a scientific session, *Using NASA Satellite Data to Guide Novel Air Quality Applications, in* Orlando, FL. Moderated by **Helena Chapman (NASA HQ/BAH),** over 40 audience members learned about the NASA HAQ program, airborne field campaigns, the TEMPO mission, and the NASA GEOS Model from **John Haynes (NASA HQ)**, **Laura Judd (NASA LaRC)**, **Aaron Naeger (NASA MSFC)**, and **Carl Malings (NASA GSFC/Morgan State Univ.)**. Also, the HAQ team supported the poster entitled, *Incorporating NASA Earth Science Data into Respiratory Health Education*, in the *Pollution Puzzle: Connecting Exposure, Education, and Action* thematic poster session.

HAQ team (Left) and HAQ panelists (Middle/Right) at ATS 2026. Credit: NASA

AIR QUALITY DECISION SUPPORT AT AWMA 2026

In June 2026, at the Air & Waste Management Association (AWMA) Annual Conference & Exhibition 2026, the NASA HAQ Team coordinated the scientific session, *Integrating Satellite Data into Air Quality Decision Making*, in Austin, TX. Moderated by **Laura Judd (NASA LaRC)** and **Helena Chapman (NASA HQ/BAH)**, **John Haynes (NASA HQ), Aaron Naeger (NASA MSFC), Jenny Bratburd (Univ. of Wisconsin–Madison),** and **Jennifer Kaiser (Georgia Tech)** described the NASA HAQ and HAQAST programs, TEMPO mission, and unique air quality modeling capabilities to 35 attendees. In a complementary session, **H. Chapman** presented the talk entitled, *Using NASA Data Visualizations to Enhance Environmental Health Communication*, to 25 attendees. In the *Critical Review of Data Fusion in Air Pollution Exposure Assessment* session, **Yang Liu (Emory Univ.)** shared the overarching review, and **Nathan Pavlovic (Spheros Environmental)** served as one of three invited discussants.

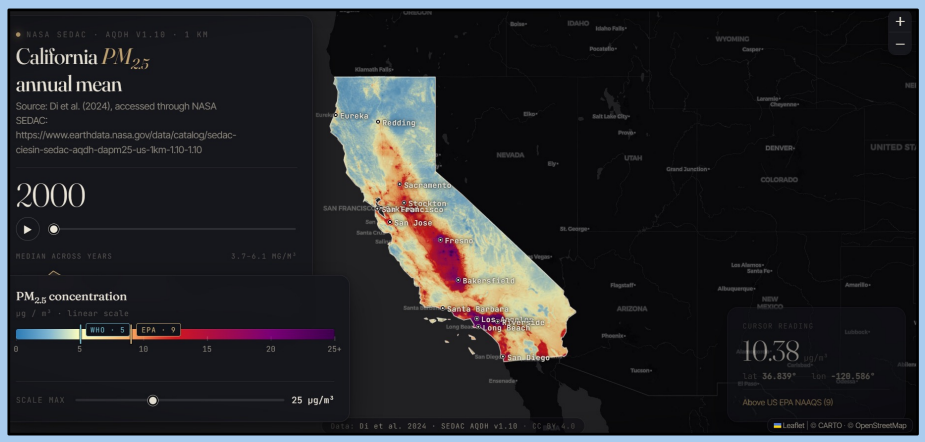
HAQ session panelists at AWMA 2026. Credit: NASA

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

MAIA MISSION UPDATES

The NASA Jet Propulsion Laboratory (JPL)'s Multi-Angle Imager for Aerosols (MAIA) mission co-Investigator **Sina Hasheminassab (Jet Propulsion Laboratory)** created an internal dashboard using NASA SEDAC data to help users visualize satellite- and model-derived $PM_{2.5}$ estimates over California. The dashboard was motivated by conversations the MAIA team had with a member of the Community Steering Committee (CSC) for the San Diego County Air Pollution Control District (SDAPCD). The dashboard's purpose is to understand how MAIA can help their local Community Air Monitoring Plan and the Community Emissions Reduction Strategy.



Using NASA SEDAC data (from Di et al.), users can observe annual $PM_{2.5}$ data in California (2000–2016). By hovering over the pixel, users can view the corresponding $PM_{2.5}$ value (Bottom Right) and can adjust the scale for spatial gradients in the region of interest (Bottom Left). Credit: JPL

TEMPO MISSION & EARLY ADOPTER PROGRAM ACTIVITIES

- In June 2026, the **TEMPO Data, Applications, Research, and Technology (DART) Meeting** in Iowa City, IA, featured sessions focused on mission updates, TEMPO data product and algorithm status, validation results and initiatives, and TEMPO science and application projects. The TEMPO applications session showcased talks on the NASA HAQ program (**J. Haynes, NASA HQ**), TEMPO Early Adopters program (**A. Naeger, NASA MSFC**), and HAQAST initiatives (**T. Holloway and J. Bratburd, Univ. of Wisconsin–Madison**). Over 114 in-person and 100 online participants attended the event.

Additional TEMPO highlights this quarter:

- **WESTAR Data Applications Meeting (April 2026): A. Naeger (NASA MSFC)** highlighted the latest TEMPO product updates and use case demonstrations relevant to air quality management. An estimated 40 participants from regional, state, and local air agencies attended the event.
- TEMPO special operations (operations log) were performed from April through June, consisting of 5 to 10-minute scans for the Artemis II launch, prescribed burns in the Southeast U.S., an aircraft campaign in the Western U.S., and the FIFA World Cup games in California.

Attendees to the 2026 TEMPO DART Meeting. Credit: NASA

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

GEO HEALTH COMMUNITY OF PRACTICE SUPPORTS ENGAGEMENT

The Group on Earth Observations (GEO) Health Community of Practice (CoP) – led by **John Haynes (NASA HQ)** and **Didier Davignon (ECCC)** – continues to coordinate community teleconferences to leverage expertise across sectors and geographies and share Earth observation data and tools to support health decision-making.

From April to June 2026, the CoP contributed to three events and published one blog article.

- **CoP/AOGEO Special Edition Telecon (April 2026)**: The first annual CoP/AOGEO event showcased nine Earth science applications addressing emerging health challenges across the Asia-Oceania region. With 45 attendees, nine flash talks highlighted novel environmental health approaches (extreme weather, biodiversity), agricultural and food security monitoring (vegetation pests), and infectious disease risk forecasting (avian influenza, dengue, malaria). Panelists represented institutions in China, Sweden, Thailand, and the United States.
- **Second Annual Space Weather R2O2R Meeting (April 2026)**: **Helena Chapman (NASA HQ/BAH)** presented the *Insights on End-User Engagement from the GEO Health CoP* talk in the *Lessons in R2O2R and User Engagement* session.
- **GEO Symposium 2026 (May 2026)**: The AOGEO leadership, **Alice Lau (NOAA)**, and other GEO colleagues contributed to the *Cross-Cutting Partnerships and Data Interoperability: Investing in One Health for a Sustainable and Healthy Future* session, as part of the community event sessions (Recording).
- **GEO blog article**: Earth science applications highlighting health challenges in the Asia-Oceania region (June 2026)

Over this term, the leads of the CoP Work Groups – Heat, Air Quality, Infectious Diseases, Food Safety and Security, Health Care Infrastructure, and Animal Health – have continued to coordinate regular telecons with CoP members, offering valuable opportunities for scientific exchange and networking opportunities.

NASA HAQ INVESTIGATOR AND TEAM UPDATES

- **Tracey Holloway (Univ. of Wisconsin–Madison), Carl Malings (NASA GSFC & Morgan State Univ.),** and **Helena Chapman (NASA HQ/BAH)**: They presented scientific talks in the *From Space to Place: Advancing Environmental Health with Remote Earth Observations* session at the Health Effects Institute annual meeting in April 2026.
- **Chris Uejio (Florida State Univ.):** His HAQAST Tiger Team was highlighted in the *Florida State University News* in June 2026.

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

HAQ COMMUNITY ENGAGEMENT

HEALTH & AIR QUALITY

The NASA HAQ team (**John Haynes, NASA HQ; Laura Judd, NASA LaRC**; **Helena Chapman, NASA HQ/BAH**) presented webinars and engagements that introduced the HAQ program and key examples of using Earth observations for public health applications to graduate students and faculty.

- ❑ **The Pennsylvania State Univ.: J. Haynes** and **H. Chapman** shared insight on career paths in federal science and how agencies align missions to support scientific innovation with the Science Policy Society visit to the USDA (10 students) in April 2026.
- ❑ **Univ. of West Florida (Virtual): L. Judd** and **H. Chapman** presented an overview of the HAQ program and selected HAQ projects for the Univ. of West Florida's School of Public Health (12 students) in April 2026.
- ❑ **Univ. Peruana Cayetano Heredia (Virtual for Peru): H. Chapman** gave an invited lecture (in Spanish) to the Univ. Peruana Cayetano Heredia's School of Public Health (26 students) in June 2026.

LOOKING AHEAD

ARSET Trainings:

Harnessing NISAR: Next-Generation Radar Observations for Earth Applications
July 2-16, 2026

Estimating Surface $PM_{2.5}$ Using Satellite Data and Other Information Sources
July 8-22, 2026

Meetings:

MAIA Science Team Meeting & Early Adopters Workshop
July 13-17, 2026
Pasadena, CA

Earth Action Plenary
September 15-17, 2026

HAQ Annual Program Review
September 23-24, 2026
St. Augustine, FL

RECENT COMMUNICATIONS

NASA

- ❑ Artemis II Looking Back at Earth, Hello, World, Thinking of You, Earth & Earthset
- ❑ NASA-developed AI Could Help Track Harmful Algae

NASA Science

- ❑ NASA-Funded Study Shows Wildfire Smoke's Hidden Ozone Toll (Emily DeMarco)
- ❑ NASA Science Supports Golden Eagles on the Move, New NASA Views of Earth, From (S)PACE & NASA Night-light Imagery Tracks US Energy Transition, Global Volatility (Sally Younger)

NASA Earth Observatory

- ❑ A Shift in What's Shaping U.S. Landscapes (Madeleine Gregory)
- ❑ Picturing Earth in a New Light (Sally Younger)
- ❑ Air Pollution's Daily Pulse Over the Northeast and Drought Parches Florida (Adam Voiland)

NASA Earthdata

- ❑ Which Data Tool Is Right for You? & Artificial Intelligence in Earth Science Data Systems
- ❑ Kicking off Development of New Earth Observation Solutions (Emily Adams)
- ❑ NASA Enhances Global Flood Products: Smarter Detection of Flooding, and the Release of a 23-Year Archive (Daniel Slayback)

NASA Worldview Images

- ❑ Wildland Fires in Georgia & Stagnant Skies in Southeast Asia

NASA Health and Air Quality
remote sensing for public health

Volume 47
April – June 2026

PUBLICATIONS

Understanding Heat-driven Health Risks: Spatiotemporal Dynamics and Regional Vulnerability in New Mexico. *Health & Place*. (M. Choi…**S. Magzamen**, **J.R. Pierce**, **A.G. Russell**, O. Sablan, **C.K. Uejio**)

Preparedness for the Emerging Risk of Yellow Fever in the Americas. *Pan American Journal of Public Health*. (**H.J. Chapman**, B.A. Veras-Estévez, E.G. Chicaiza-Mora, C. Zúniga Valeriano, R.M. Durón)

Evaluation of a Novel Climate-driven SIR Model for Cholera Prediction. *Geohealth*. (B. Magers, K.D. Brumfield, **R.R. Colwell**, **A.S. Jutla**)

Developing Scenario-Based Strategies for Health, Climate, and Environmental Preparedness: The One Health, One Earth Approach. *Geohealth*. (A.M. Abadi…**J.R. Bratburd**, C.W. Tessum, **A. Jutla**, **R.R. Colwell**, et al.)

Predictive Intelligence for Future Vibriosis Risk in the Eastern United States Employing Bayesian Spatial Modeling. *Applied and Environmental Microbiology*. (B.M. Magers…**R.R Colwell**, **A.S. Jutla**)

Black Carbon Aerosol Size in Wild-, Prescribed-, and Agricultural-Fire Smoke. *Geophysical Research Letters*. (J.P. Schwarz, A.E. Perring, J.M. Katich, B. Mediavilla, **A.J. Soja**, E. Gargulinski, et al.)

Short-term Effects of Heat and Air Pollutants on Ten Acute Health Events: Evidence from a Multi-Exposure Case-crossover Analysis in Wisconsin. *International Journal of Environmental Health Research*. (M. Choi…**C.K. Uejio**)

Improve OMI Observations on Ground-Level NO_2 using Multiple Observations, Simulations, and Machine Learning. *IEEE Transactions on Geoscience and Remote Sensing*. (X. Jiang, G. Huang, Z. Gao, **A. Naeger**, R. Wade)

Machine Learning Bias Correction of HRRR-Smoke Surface $PM_{2.5}$ Forecasts during the Alaska Wildfire Season. *ACS ES&T Air*. (Z. Dong, **J. Mao**, A. Sayeed, **P. Gupta**, et al.)

Fires Reverse Progress toward Ozone Air Quality Standards in the United States. *Science*. (W. Deng, **J. Wang**, et al.)

Assessing Near-Source Health and Equity Impacts of Liquefied Natural Gas Terminals. *GeoHealth*. (X. Wu, **T. Holloway**, et al.)

Investigating Wildfire Smoke-related Emergency Department Visits and Syndromic Surveillance in New Mexico 2019–2022. *Air Quality, Atmosphere & Health.* (O. Sablan…**C.K. Uejio**, M. VanSickle, E.V. Fischer, **J.R. Pierce**, **S. Magzamen**)

Global Model Estimates of Atmospheric Al, Ca, Fe, Si, and Ti From Dust and Non-Dust Aerosols Informed by EMIT Surface Mineralogy and Evaluated Against Observations. *Global Biogeochemical Cycles*. (N.M. Mahowald…**R.V. Martin**)

PAST

ARSET Training:

Introduction to Thermal Remote Sensing & Applications in Urban Heat Island Mapping
May 26-June 2, 2026

Meetings:

HAQAST Madison
May 13-14, 2026
Madison, WI

American Thoracic Society International Conference
May 15-20, 2026
Orlando, FL

TEMPO DART Team Meeting
June 15-18, 2026
Iowa City, IA

Air & Waste Management Association's Annual Conference & Exposition
June 21-24, 2026
Austin, TX