



Update on Ongoing Conversations with End-Users

Bryan Duncan & Lok Lamsal, *NASA Goddard Space Flight Center*
Kevin Cromar, *New York University*

Presentations at Stakeholder Meetings since HAQAST2

- **American Thoracic Society:** Annual Meeting in NASA's session: Satellites And Their Use In Studying Health And Air Quality: Highlights From The NASA Health And Air Quality Applied Sciences Team (*Washington, DC; May 24th*)
- **Army Public Health Center:** Environmental Impacts on Health Readiness Working Group meeting (*Arlington, VA; June 20th*)
- **World Bank/EPA:** Filling the Gaps Workshop (*Washington, DC; July 25-26th*)
- **International Society of Exposure Science:** Annual Meeting in the session: Integrating Diverse Environmental Exposure Datasets to Study Human Health – from Satellite Sensing and Ground Monitoring to Personal Exposure (*RTP, NC; October 17th*)
- **Group on Earth Observations (GEO):** Air Quality Side Event (*Washington, DC; October 23rd*)

American Thoracic Society Workshop (*May 20th*)

- Kevin Cromar and Duncan organized and co-chaired the **ATS Air Pollution Monitoring for Health Research and Patient Care** workshop.
 - **Coordinated Effort:** ATS, EPA, NIEHS, and NASA
 - **Focus:** Critical issues in the development, integration, and use of air pollution monitoring data collected via multiple technology approaches (satellite → personal monitors).
 - **Participants:** ~30 international partners, including HAQAST members: John Haynes, Yang Liu, Ted Russell, Kevin Cromar, Bryan Duncan
 - **Workshop Report:** In preparation.

Interactions with Stakeholders since HAQAST2

- **Art Zuco (EPA):** Lok Lamsal provided updated OMI NO₂ data to [EPA Air Trends Report](#)
- **Amy Jenness (DoD Army Public Health Center Environmental Health Sciences and Engineering (EHSE) Division):** On October 10th, Amy visited GSFC to assess whether NASA model output and datasets may be useful for their applications, including assessing the impact of air pollution on Army personnel stationed overseas.
- **TCEQ:** Lok Lamsal and Duncan contributed to the [Science Synthesis Report: Atmospheric Impacts of Oil and Gas Development in Texas](#), led by David Parrish (NOAA).

Satellite Continental and Oceanic Atmospheric Pollution Experiment (SCOAPE)

Holli Enszt, Walter Johnson (DoI BOEM)

- *March 7th* : Fielded questions from NAS Committee on Offshore Science and Assessment (COSA) for BOEM on the potential Interagency Agreement (IAA) between NASA and BOEM to create a report on the feasibility of space-based observations of air pollution over coastal waters (BOEM's jurisdiction), particularly the Gulf of Mexico (GOM).
- *September*: IAA awarded to Duncan (PI) and Anne Thompson (Co-I). Debra Kollonige is the Project Manager.



Deliverable #1: Report on the current state of satellite air quality data products over the GOM including oil slicks (MODIS), lights at night (VIIRS), flare detection (VIIRS), NO₂ (OMI), SO₂ (OMI), aerosols (MODIS, MISR), and formaldehyde (OMI, OMPS). We will work with retrieval experts to see if the retrievals over open water can be improved. *Assess all US coastal waters.*

Deliverable #2: A mini-campaign in the GOM in summer 2018 when onshore flow predominates. BOEM wants a demonstration of how satellite data correspond to surface data.

UNICEF-NYU-NASA Collaboration: *Health Air Quality Index (HAQI) Forecasts*

HAQI

Satellite

Modeling

Alerts

Low-Cost
Sensors

Capacity
Building

Multi-Satellite HAQI
(2004-present; PM_{2.5}
and NO₂, model O₃)
*Lok Lamsal & Bryan
Duncan*
(NASA HAQAST)

HAQI Retrospective
(1980-present)
*Lok Lamsal & Bryan
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Historical
Context for
Forecasts

HAQI Forecasts
(5-10 day)

*Christoph Keller, Emma
Knowland, Steven Pawson*
(NASA GMAO)

**Develop App
& Website**
Toby Wicks
(UNICEF)

AQ Alerts
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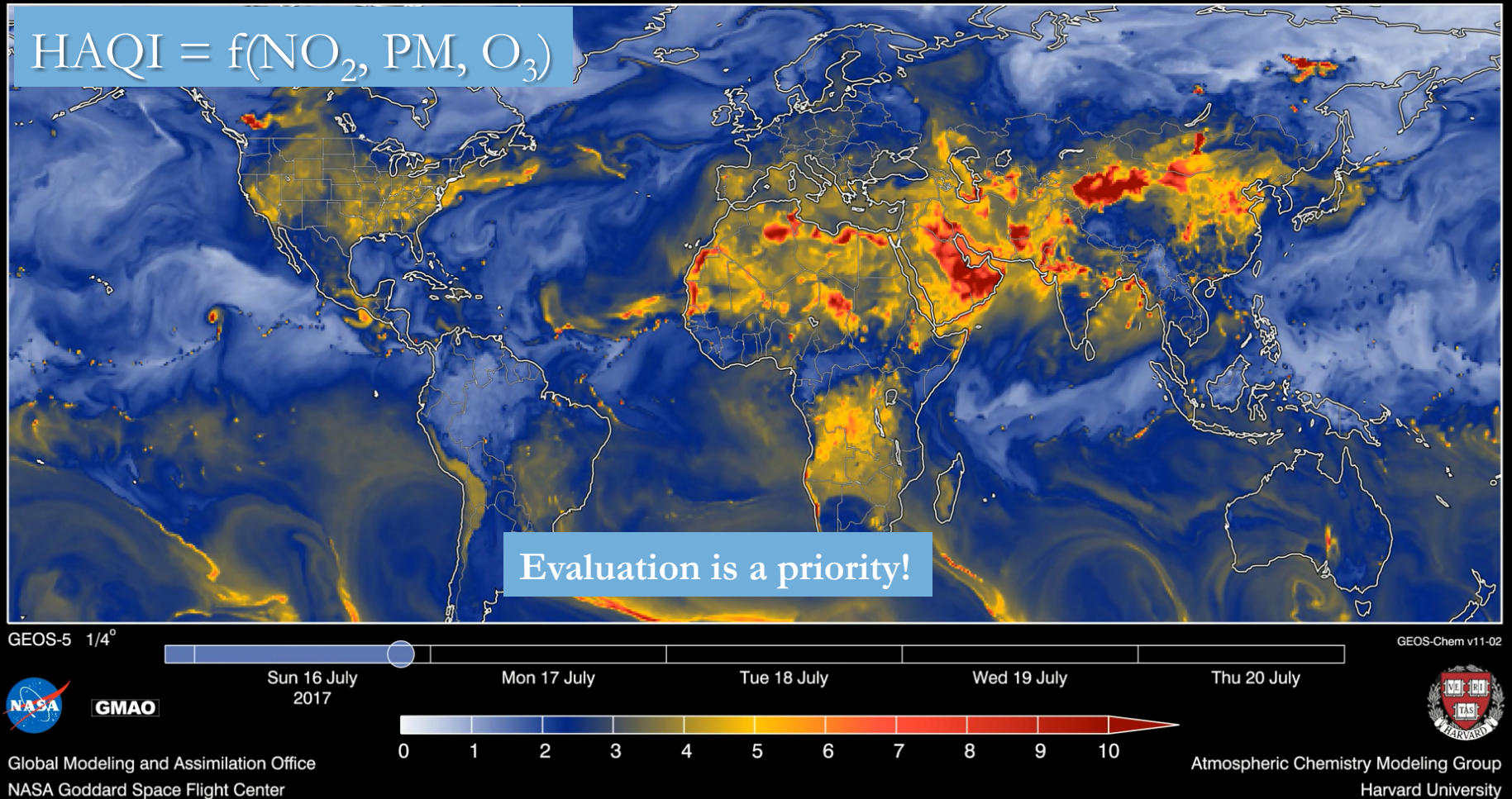
**Health Air
Quality Index
(HAQI)**
Formulation:
Specific child
respiratory
diseases (e.g.,
asthma)
Kevin Cromar
(NYU)

Kevin Cromar (talk)

Considerations in creating a global, health-based air
quality index: Urban extents and spatial resolution

Health Air Quality Index (HAQI) Forecasts

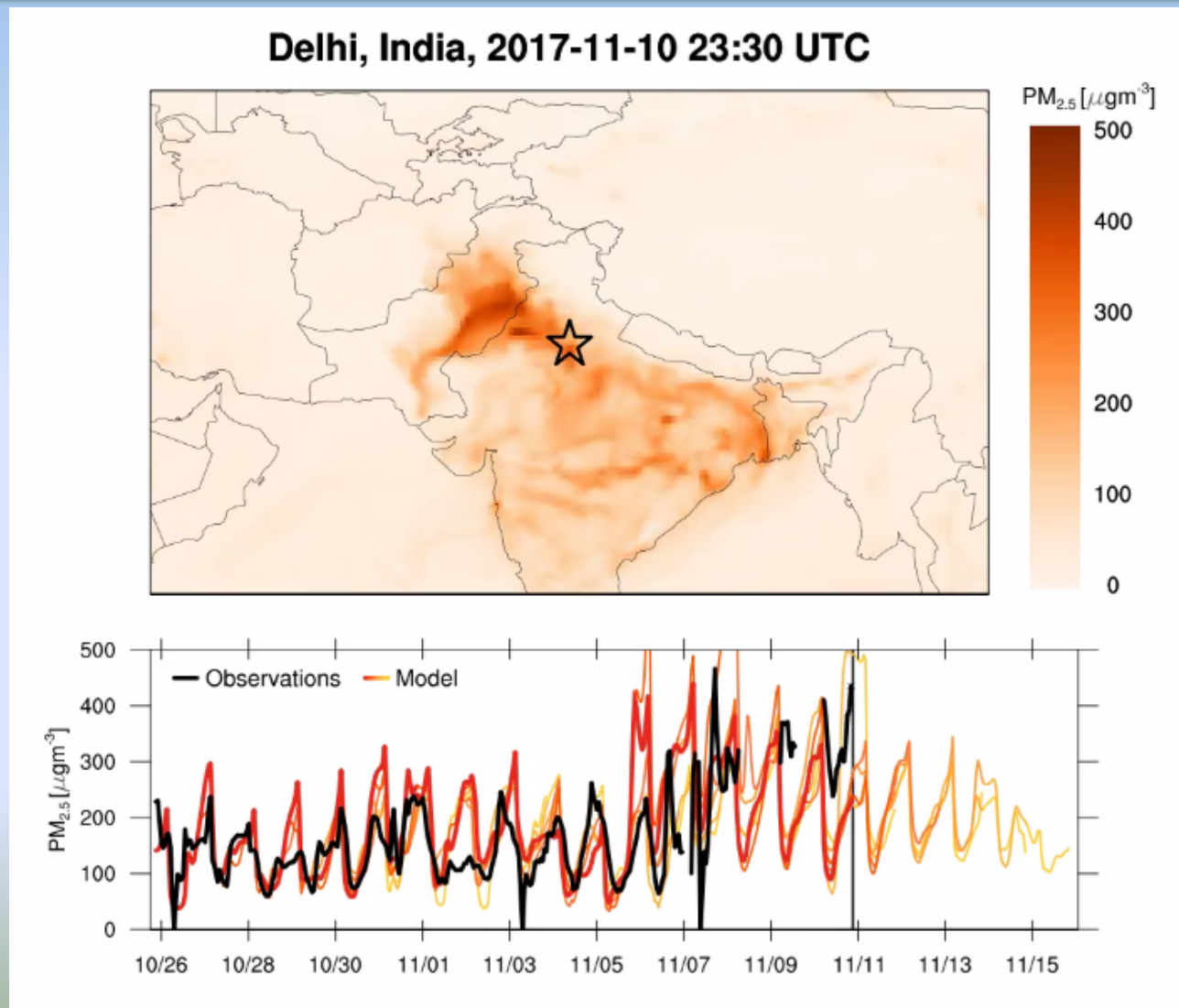
Beta Version!



1-3 = good 3-6 = moderate 6-9 = unhealthy 10 = very unhealthy

NASA GEOS-5 Air Quality Forecast – Active Fires

Seasonal fires are a major source of pollution for many world cities.



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Model output processing is a current issue!

Submitted a proposal to NASA ROSES A.39 Health & AQ to develop user-friendly interfaces, such as an application programming interface (API).

Talks/Posters that CAN'T BE MISSED!

- **Kevin Cromar (talk)**
Considerations in creating a global, health-based air quality index: Urban extents and spatial resolution
- **Melanie Follette-Cook, NASA GSFC (talk)**
Applied Remote Sensing Training (ARSET) Program Overview
- **Melanie Follette-Cook (poster)**
Capacity Building for the Access and Application of NASA Earth Science Data
- **Debra Kollonige (poster)**
OMI NO₂ in the Central US Great Plains: How Should We Interpret NO₂ Trends?