

GEO Health Community of Practice (CoP)

Telecon: Focus on Air Quality Topics

January 26, 2021

In Attendance: 53 participants

John Haynes (NASA), Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), Sue Estes (U. of Alabama in Huntsville), Laura Judd (NASA Langley), Bryan Duncan (NASA Goddard), John Balbus (NIEHS), Cynthia Hall (NASA Earth Science Data Systems), Dorian Janney (NASA Goddard/GPM mission), Helen Amos (NASA Goddard/SSAI), Emma Knowland (USRA/GESTAR, NASA GMAO), Christoph Keller (NASA GMAO/USRA), Kim Locke (NASA Goddard/ESSIC), Ana Prados (UMBC), Assaf Anyamba (NASA Goddard), Pawan Gupta (USRA/NASA Marshall), Leo Goldsmith (USGCRP), Bob Chen (CIESIN at Columbia U.; NASA SEDAC), Cascade Tuholske (Earth Institute/CIESIN at Columbia U.), Susana Adamo (CIESIN-The Earth Institute, Columbia University), Mike Gremillion (Global Water Security Center, U. of Alabama), Allan Auclair (USDA APHIS Policy and Program Development, retired), Natasha Sadoff (Battelle), Jane Lin (U. of Illinois at Chicago), James Kubicki (U. of Texas at El Paso), Kenneth Pickering (U. of Maryland), Josh Colston (U. of Virginia), Mona Nasser (U. of Plymouth/UK), Thilanka Munasinghe (Rensselaer Polytechnic Institute), Alex He (Rensselaer Polytechnic Institute), Juan Castillo (PAHO), Andreas Skouloudis (iSteep.org), Anna Stewart Ibarra (Inter-American Institute for Global Change Research), Susanna Ehlers (Inter-American Institute for Global Change Research), Adrian Guzmán (Mexican Space Agency), Melissa MacDonald (Environment and Climate Change Canada), Celine Audette (Environment and Climate Change Canada), Gracia Pineda (UNITEC, Honduras), Sandra Gómez (UNITEC, Honduras), Edward Sánchez (UNITEC, Honduras), Reyna Durón (UNITEC, Honduras), Javier Salgado (UNITEC, Honduras), Dina Ventura (UNITEC, Honduras), Manuel Sierra (UNITEC, Honduras), Beatriz Cardenas (World Resources Institute, Mexico), Mercy Borbor-Cordova (Escuela Superior Politecnica del Litoral, Ecuador), Julieth Angulo Cobos (Universidad Nacional de Colombia, Colombia), Michael Greenberg, Nathan Pavlovic, Shivam, Binita KCy, Epleuss, Cara.

Summary Notes:

**Prepared by Helena Chapman (NASA HQ/BAH)*

John Haynes (NASA HQ) and Juli Trtanj (NOAA) opened the telecon by welcoming all participants. They invited CoP members to provide brief updates on upcoming conferences and related activities.

John Haynes (NASA HQ) shared that the NASA Health and Air Quality Applications program organized an oral session with nine panelists ([Integrating NASA Satellite Data to Strengthen Environmental Health Applications: Approaches to Informing Health Decision-Making and Enhancing Public Engagement](#)) and supported a poster presentation ([Using NASA Satellite Data to Expand Environmental Health Networks: Emphasis on the One Health Concept](#)) at the American Meteorological Society (AMS) Annual Conference 2021. He said that Juli Trtanj (NOAA) and other CoP members organized sessions and presentations at AMS2021. Second, he stated that the next team of the NASA Health and Air Quality Applied Science Team (HAQAST) has been selected. He said that Tracey Holloway (U. of Wisconsin-Madison), who

served as the lead for HAQAST 2016-2020, was selected as the lead for this next team. He mentioned that the HAQAST Kick-off Meetings will be virtual and scheduled to begin in mid-February 2021. Next, he reminded CoP members that the next [ARSET](#) training ([Hyperspectral Data for Land and Coastal Systems](#)) will be held on Tuesday, January 19, January 26, and February 2, 2021 from 11AM-12:30PM EST/GMT-5 or 4-5:30PM EST/GMT-5. Finally, he mentioned that the [American Mosquito Control Association's Annual Meeting](#) will be held from March 2-5, 2021.

Juli Trtanj (NOAA) thanked those CoP members who submitted comments to the COVID-19 Task Team report. She reminded CoP members that their contributions are significant, as observed during the development of the [WMO Virtual Symposium on Climatological, Meteorological and Environmental Factors in the COVID-19 Pandemic](#) (August 2020) and [Outcomes Statement](#). Second, she mentioned that the first grants of the Belmont Forum for Environment and Health were funded, and they will advance scoping for the next [Climate, Environment and Health \(CEH2\) Awards](#). Finally, she mentioned that the [Global Heat Health Information Network](#) will be planning additional master classes focused on urban heat and health. Since she leads the WMO Integrated Health Services Study Group, which focuses on developing the framework and mechanisms for integrating climate serves for health, she encouraged CoP members to think about intersections between GEO and WMO on health-related activities to highlight the intersection of those two international organizations.

John Haynes (NASA HQ) mentioned that the U.S. leadership has transitioned to the Biden-Harris administration, with actions to rejoin the [Paris Climate Agreement](#) and the [World Health Organization](#). He mentioned that there were two notable policy changes that may impact USGEO: 1) Eric Lander was nominated to lead the U.S. Office of Science and Technology Policy; and 2) The White House prepared the statement on the [National Security Directive on United States Global Leadership to Strengthen the International COVID-19 Response and to Advance Global Health Security and Biological Preparedness](#).

Helena Chapman (NASA HQ/BAH) thanked CoP members for sharing their activities and resources on the listserv and encouraged CoP members to join one of the [Small Work Groups](#). She also shared the NASA Health and Air Quality Applications [quarterly newsletter](#).

John Balbus (NIEHS) reminded CoP members about the [Prince Mahidol Award Conference \(PMAC\) 2021](#) with sessions on building climate-resistant health systems. He mentioned that CoP members may be interested in the PL3 session ([Investing in the Future: Ensuring the World Will Never Be Vulnerable to Another 'COVID-19' Threat](#)) on February 1, 2021, and PL4 session ([Protecting and Improving Human and Planetary Health - A Syndemic View](#)) on February 2, 2021. **Adrian Guzman (Mexican Space Agency)** mentioned that there is no registration fee for PMAC2021.

John Balbus (NIEHS) said that the National Academies of Sciences, Engineering, and Medicine (NASEM) will be offering two upcoming workshops: [The Interplay between Environmental Exposures and Mental Health Outcomes - A Workshop](#) (February 2-3, 2021) and [Leveraging Advances in Remote Geospatial Technologies to Inform Precision Environmental Health Decisions - A Workshop](#) (April 14-15, 2021). Next, he mentioned that NIEHS will host a session

on data ontologies and semantics for environmental health research at the [Research Data Alliance Virtual Plenary 17](#) (April 20-22, 2021) as well as sponsor a geospatial data integration for environmental health research workshop (May 2021).

Bob Chen (CIESIN/Columbia U.; NASA SEDAC) shared an air quality session to be held at the Federation of Earth Science Information Partners (ESIP) [Winter Meeting 2021](#) on January 26, 2021 from 4:00-5:30PM EST/GMT-5.

Helena Chapman (NASA HQ/BAH) introduced **Bryan Duncan (NASA Goddard)**, an [atmospheric scientist](#) in the Atmospheric Chemistry and Dynamics Laboratory at NASA Goddard Space Flight Center.

Bryan Duncan (NASA Goddard) provided an overview on [CityAQ Initiative](#), a pilot project and collaboration between NASA Goddard and World Resources Institute that provides optimized air quality forecasts to city health and air quality managers. He stressed that integrating NASA resources can provide valuable insight into the standard operating procedures of air quality agencies in low- and middle-income countries. He highlighted the pilot cities (e.g. Kigali, Rwanda; Guadalajara, Mexico; Bogota, Colombia, Rio de Janeiro, Brazil; Quito, Ecuador) and presented data from NASA GEOS Composition Forecast. **Christoph Keller (NASA GMAO/USRA)** mentioned that surface observations (if available) can provide valuable information. He encouraged CoP members who are working on these topics to contact their team.

Reyna Durón (UNITEC, Honduras) mentioned that as their team has contributed to the [COVID-19 and Dengue Observatory](#) (Honduras), they also developed a survey for self-reported respiratory symptoms for Hondurans. By mid-year, they observed a peak of reported atypical respiratory symptoms, which matched the timing of the Saharan dust cloud in Honduras. She inquired how they could examine air quality data in Honduras during 2020. **Christoph Keller (NASA GMAO/USRA)** said that the air quality simulations described in the presentation are open access, which offer different ways to view and pull the data directly. He said that this task is easiest for those with programming skills, but CoP members can review the examples and reach out to their team with any specific questions. **Emma Knowland (USRA/GESTAR, NASA GMAO)** shared the [NASA GEOS-CF forecasts](#) webpage.

Thilanka Munasinghe (Rensselaer Polytechnic Institute) asked if there were academic opportunities available for undergraduate or graduate students to use these data sources. **Bryan Duncan (NASA Goddard)** confirmed that CityAQ is open to everyone, and that he would be happy to share contacts.

Alex He (Rensselaer Polytechnic Institute) asked if a source of uncertainty in fire-related air quality related to the potential misrepresentation of smoke plume/injection height may allocate fire emissions at wrong altitudes, and thus affect the accuracy of forecasts. He asked if there have been recent improvements in reducing this source of uncertainty and if they are implemented in the CityAQ model. **Christoph Keller (NASA GMAO/USRA)** said that this work is still ongoing, and they hope to improve these sources of uncertainty in the future.

Ana Prados (UMBC) shared the ARSET Trainings on Health and Air Quality [webpage](#) for CoP members who would like to learn more about how to use NASA satellite data for air quality and health. **Helena Chapman (NASA HQ/BAH)** shared a NASA web feature, [NASA Helps Puerto Rico Prepare for Saharan Dust Impacts](#).

Reyna Durón (UNITEC, Honduras) inquired about the global changes in air quality due to the COVID-19 lockdowns. **Christoph Keller (NASA GMAO/USRA)** stated that the lockdowns have reduced air pollution across the world, and he shared a NASA web feature, [NASA Model Reveals How Much COVID-related Pollution Levels Deviated from the Norm](#). **Pawan Gupta (USRA/NASA Marshall)** also mentioned that SERVIR (last presentation slide) is an example of NASA research for modeling the cost in operational sensors and adopted as official air quality forecasts. He stated that these are significant achievements in terms of making research data operational into decision- and policy-making activities.

Bryan Duncan (NASA Goddard) shared some COVID-related satellite data images on the [Air Quality Observations from Space webpage](#). **Juli Trtanj (NOAA)** highlighted the [Investigating COVID-19's Impacts on Air Quality](#) from the NOAA Air Resources Laboratory. **Beatriz Cardenas (World Resources Institute, Mexico)** shared a webinar on the Saharan dust forecast on the TheCityFixLearn's [AQ Tech Talk: Forecast and Impacts of Saharan Dust webpage](#). **Cynthia Hall (NASA Earth Science Data Systems)** showed the [A Clearer View of the Haze – Using NASA GES DISC Data Tools to Examine the June 2020 Sahara Dust Eve](#) webinar. **John Haynes (NASA HQ)** highlighted the article, [Air Pollution Linked to Irreversible Sight Loss: Study](#).

Helena Chapman (NASA HQ/BAH) welcomed the research team of Universidad Tecnológica Centroamericana (UNITEC, Honduras). Reyna Durón, Sandra Gómez, Javier Salgado, Manual Sierra, Dina Ventura, and Edward Sánchez introduced themselves and their departments. **John Haynes (NASA HQ)** and **Juli Trtanj (NOAA)** welcomed the UNITEC team and mentioned that they may be interested to join Small Work Groups. They also said that they plan to have a follow-up telecon to connect CoP members who are working in the Americas region.

Juli Trtanj (NOAA) opened the dialogue for [Small Work Group](#) leads to provide brief updates on their activities. She mentioned that they currently seek potential lead or co-leads for the Air Quality Small Work Group.

Dorian Janney (NASA Goddard) mentioned that the Food Safety and Security Small Work Group discussed objectives and goals with CoP members from NOAA, NASA, NASA Harvest, and NASA Applied Sciences at their January 11th meeting. She said that they plan to coordinate bimonthly meetings and maintain virtual email communications. They learned of efforts – such as the Nature Conservatory working with Foodscape – as well as dashboards and case studies.

Andreas Skouloudis (iSteep.org) mentioned that the Health Care Infrastructure Small Work Group discussed data sources with CoP members (USA/Europe) at their January 6th meeting and plan to meet again in February. **Juli Trtanj (NOAA)** suggested that their team members join the wider discussion about CoP members working in the Americas region, in efforts to connect projects. She said that one important topic is water and health in the Americas region, which

Andreas Skouloudis (iSteep.org) had highlighted in his past Pecora presentation. **Andreas Skouloudis (iSteep.org)** agreed that exploring the impact of flooding with satellite images could be a next step.

Juli Trtanj (NOAA) mentioned that the next CoP telecon will focus on infectious diseases. She reminded CoP members that successful collaborations and projects – like the COVID-19 Task Team and the WMO Virtual Symposium – have served to jumpstart the next CoP workstream. Moving forward, she highlighted that CoP members can contribute substantially to leveraging expertise for decision-making and other GEO activities. One example could be working for a global mapping capacity for selected infectious diseases.

Juli Trtanj (NOAA) mentioned that Heat Small Work Group will discuss the upcoming GHHIN activities, including master classes on urban heat island and heat mapping and vulnerability. **Melissa MacDonald (Environment and Climate Change Canada)** said that she serves as heat lead and works to develop the heat program and enhance heat analyses. She said that their team has received approval to expand their work to northern Canada, where they can explore how to best contribute to health and research initiatives on extreme temperatures (heat/cold). She stated that although they work across Canada, their current focus is the northern region (e.g. Nunavut and High Arctic locations of Yukon and the Northwest Territories).

Juli Trtanj (NOAA) and **Juli Trtanj (NOAA)** thanked CoP members for their continued contributions to the field and engagement in the group discussion. They agreed that this telecon had provided an opportunity to share information, connect researchers, and leverage resources that can amplify current activities using Earth observations for public health applications.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** closed the telecon and mentioned that the next telecon would be scheduled for Tuesday, February 16th at 8:30AM EST (GMT-5).

Adjourned: 10:05 AM EST (GMT-5)