**GEO Health Community of Practice (CoP)**

**Telecon: Vector-borne Diseases in the Americas**

February 16, 2021

**In Attendance:** 55 participants

John Haynes (NASA), Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), John Balbus (NIEHS), Tricia Castranio (NIEHS), Steven Rekant (USDA), Janet Whaley (NOAA Fisheries), Herman Tolentino (CDC Division of Global HIV/TB), Jim Tobias (CDC Division of Global HIV/TB), Neranga Liyanaarachchige (CDC Health Informatics Team, Division of Global HIV/TB), Maya Mishra (NASA HQ), Stephanie Schollaert Uz (NASA Goddard), Dorian Janney (NASA Goddard/GPM mission), Ana Prados (UMBC), Assaf Anyamba (NASA Goddard), Sushel Unninayar (NASA/GSFC & GESTAR/MSU), Helen Amos (SSAI & NASA Goddard), Leo Goldsmith (USGCRP), Bob Chen (CIESIN at Columbia U.; NASA SEDAC), Mike Gremillion (Global Water Security Center, U. of Alabama), Allan Auclair (USDA APHIS Policy and Program Development, retired), Josh Colston (U. of Virginia), Ben Zaitchik (Johns Hopkins U.), William Pan (Duke U.), Antar Jutla (U. of Florida), Moiz Usmani (U. of Florida), Thilanka Munasinghe (Rensselaer Polytechnic Institute), Jessie Ann Owens (Rensselaer Polytechnic Institute), Karan Bhanot (Rensselaer Polytechnic Institute), Russanne Low (Institute for Global Environmental Strategies), Juan Castillo (PAHO), Adrian Guzmán (Mexican Space Agency), Melissa MacDonald (Environment Climate Change Canada), Celine Audette (Environment and Climate Change Canada), Rachel Lowe (London School of Hygiene & Tropical Medicine), Gracia Pineda (UNITEC, Honduras), Joon Nak Choi (HKUST/Zectr, Hong Kong), Javier Salgado (UNITEC, Honduras), Sandra Gómez (UNITEC, Honduras), Edward Sánchez (UNITEC, Honduras), Reyna Durón (UNITEC, Honduras), Mercy Borbor-Cordova (Escuela Superior Politecnica del Litoral, Ecuador), Luis Chaves (Costa Rica Ministry of Health), Shivam Gupta (Bonn Alliance for Sustainability Research, Germany), Nathan Pavlovic, Osuolale Olayinka (Elizade University, Nigeria), Andre Santiago, Axel Berky, Giuliana Bonilla, Justin Lana, Luis, Maria Soledad López, Matthew, Sarah, Suchith Anand.

**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)** mentioned that the GEO Knowledge Hub webinar, which will be held on Wednesday, February 24, 2021 (1:00-2:30PM CET), will provide an overview of GEO Knowledge Hub, its importance for research, policy and decision making, and added value for users. He stated that it will feature the GEO Human Planet Initiative and Sen2Agri (via GEOGLAM) from the GEO Work Programme as well as the Brazilian Data Cube. Next, he shared that the NASA HAQAST Launch21 Public Meeting will be held on Wednesday, March 3, 2021 from 12:00-3:00PM EST (GMT-5). At this event, he said that the 14 principal investigators of the 2021-2025 HAQAST Team will present their upcoming work and connect with attendees. Team members will also describe the upcoming Tiger Teams, which are short-term projects where principal investigators focus their expertise in close collaboration on an air quality and
public health issue that stakeholders identify. Third, he said that he and Juli Trtanj (NOAA) presented the topic, *NASA and NOAA Earth Observations for Health and Air Quality Applications*, on the CDC’s Zoonoses and One Health Updates for February 2021. Next, he shared that the NASA Health and Air Quality Applications program will be supporting a virtual panel at the American Mosquito Control Association's Annual Meeting, which will be held from March 2-5, 2021. Finally, he mentioned that the NASA solicitation for the Research Opportunities in Space and Earth Science (ROSES) 2021 related to Health and Air Quality was just released and will be due on June 18, 2021. He stated that although these proposals are open to employees by US national institutions, international collaborations are encouraged if international participants contribute their own funds for the proposal.

**Juli Trtanj (NOAA)** shared a post-doctoral opportunity for US or international trainees, which will be funded through a visiting science program. She said that the trainee would be working with the Environmental Modelling and Predictions of the NOAA Earth System Research Laboratories, located in Boulder, Colorado. She mentioned that this trainee would have mentorship from the CDC’s Division of Vector-borne Diseases. Next, she mentioned that there has been a strong focus on indicators for climate change, especially with the USGCRP related to arctic sea ice and sea temperatures. She shared one specific interest with *Vibrios spp* (reportable disease) and strategies to identify how to use Earth observations to more closely examine associations among the physical context, biological exposures, and health outcomes.

**John Balbus (NIEHS)** said that NIEHS is working through the NIH Data Scholars program to support a senior Data Scientist to work on integrating geospatial datasets with our Data Science Office. He said that the use case is related to environmental exposures associated with population exposures resulting from natural disasters and industrial sites (superfund and current sites). **William Pan (Duke U.)** asked if this NIH opportunity is a contract position. **John Balbus (NIEHS)** mentioned that this fellowship will most likely be a time-limited federal appointment.

**John Balbus (NIEHS)** mentioned that NIEHS is organizing a satellite session, Implementation Science to Support Public Health Interventions for Climate Change, at the upcoming Consortium of Universities for Global Health Annual Meeting 2021. This virtual session is free and will be held on March 9, 2021 at 11AM EST (GMT-5).

**Juli Trtanj (NOAA)** mentioned that the Global Heat Health Information Network will host the Masterclass: Understanding, Modeling, and Mitigating Urban Heat Islands from February 17 to March 2, 2021. She said that this three-part Masterclass will incorporate a rapid review of urban heat islands and provide insights into appropriate interventions to manage these risks. Next, she thanked those CoP members who submitted comments to the COVID-19 Task Team report. She mentioned that the WMO COVID-19 Task Team leads will be releasing updated information soon. **Ben Zaitchik (Johns Hopkins U.)** said that they hope to have the updated information in March 2021.
Thilanka Munasinghe (Rensselaer Polytechnic Institute) requested assistance from the GEO Health CoP membership on identifying research questions and data sets on Earth observations. He said that his 40 undergraduate and graduate students at the Rensselaer Polytechnic Institute seek data sets to perform data analytics and requested that CoP members contact him (munast@rpi.edu) with any information. John Haynes (NASA HQ) reminded CoP members to review Thilanka’s presentation from the GEO Health CoP annual meeting. Sushel Unninayar (NASA/GSFC & GESTAR/MSU) suggested two questions: 1) Which Earth observations or remote sensing environmental factors are associated with SARS-CoV-2 infection rates, mortality rates, and propagation? 2) Are any environmental factors associated with COVID-19 vaccination effectiveness?

Helena Chapman (NASA HQ/BAH) thanked CoP members for sharing their activities and resources on the listserv. She shared the American Thoracic Society’s Research Core Training Webinar Series on How To Give a Great Oral Presentation, which will be held on Wednesday, February 17, 2021 from 12:00-1:00PM EST (GMT-5).

Helena Chapman (NASA HQ/BAH) introduced the research team of the Central American Technological University (Universidad Tecnológica Centroamericana, UNITEC) – Reyna Duron, Gracia Pineda, Javier Salgado – and Joon Nak Choi (HKUST/Zectr, Hong Kong). They presented the COVID-19 and Dengue Observatory, which offers epidemiologic and geospatial data to help coordinate the prevention and mitigation strategies to enhance infectious disease and disaster management in Honduras.

Juli Trtanj (NOAA) asked how UNITEC assembled their team, whether their future activities plan to use these data on a seasonal basis, and how this information can strengthen decision-making activities. Reyna Durón (UNITEC, Honduras) mentioned that it is a matter of priorities for prompt decision-making in Honduras and appreciated the collaborations among research teams. Javier Salgado (UNITEC, Honduras) mentioned that they plan to perform model adjustments and focus research projects on making local impacts on national challenges. He said that they would like to strengthen communication and relationships with decision-making authorities in the country, so that they can become familiar and use these data to improve health decision-making activities.

Sushel Unninayar (NASA/GSFC & GESTAR/MSU) asked to what degree that they have engaged with or influenced government policy actions. Reyna Durón (UNITEC, Honduras) mentioned that they publish biweekly newsletters with public health recommendations (clinical studies with treatment and prevention information about COVID-19) for the Honduras Secretary of Health and other decision-makers.

Helena Chapman (NASA HQ/BAH) then introduced William Pan (Duke U.) who leads a research team on developing malaria risk maps in the Amazon region. His presentation highlighted the successful development of a malaria early warning system that can produce 12-week forecasts of outbreaks (with over 90% sensitivity). He also described robust government and academic partnerships in Peru, Ecuador, and Brazil as well as a new partnership with the InterAmerican Institute for Global Change Research (IAI) to transfer technology.
Dorian Janney (NASA Goddard/GPM mission) shared a NASA video, *Predicting Malaria Outbreaks With NASA Satellites*, made by the Global Precipitation Measurement team. Reyna Durón (UNITEC, Honduras) asked if his team faced any challenges with presenting findings to national decision-makers and commented that it has been challenging in Honduras. She said that they have not been able to track dengue effectively since access to good data is difficult. Dorian Janney (NASA Goddard/GPM mission) wondered if government buy-in could be enhanced through connections with the GLOBE Program, US embassies, and schools. John Haynes (NASA HQ) asked about the IAI partnership, including the potential for expanding the malaria forecasting system to other areas of South or Central America. William Pan (Duke U.) agreed with Reyna Durón (UNITEC, Honduras) that there is a strong culture across Latin American countries to use data dashboards for decision-making activities. He said that from a technology perspective, since malaria surveillance and data streams are similar in Latin America, his team has submitted a research proposal to the European Commission to expand their project across malaria-endemic countries of the region. If awarded this European Commission funding, he believed that they may be able to expand the early warning system to Brazil, Ecuador, Peru, and Guyana. He said that since the IAI has expertise in conducting land cover and land use analysis and building capacity training programs, he is confident that they can assist with the technology transfer.

Juli Trtanj (NOAA) mentioned that vector-borne diseases are a health priority for the Americas Region, and she hoped that the GEO Health CoP can identify observational gaps and solutions to best capture this information.

William Pan (Duke U.) mentioned that one strategy would be to connect science policy fellows (like the American Association for the Advancement of Science, AAAS) with government agencies to enhance current practices and highlight the One Health culture change. He mentioned that NASA has expanded their One Health networks over the past couple years by supporting AAAS science policy fellows. John Haynes (NASA HQ) agreed that these environmental challenges require interdisciplinary and multidisciplinary angles and people (like Helena Chapman, NASA HQ/BAH). Helena Chapman (NASA HQ/BAH) shared the NASA web feature, *NASA Contributes to National Mosquito Control Awareness Week 2020*.

John Balbus (NIEHS) said that he visualizes satellite data as a kick-off discussion for research funding and implementation science. He believes that the multiple executive orders will take leadership to enhance global health security and develop early warning systems for vector-borne diseases.

Rachel Lowe (London School of Hygiene & Tropical Medicine) stated that she also works with IAI and would like to connect with the UNITEC team and William Pan (Duke U.) to share experiences working on dengue and malaria early warning systems in Latin America and the Caribbean.
Neranga Liyanaarachchige (CDC Health Informatics Team, Division of Global HIV/TB) applauded both research teams and said that continents and regions have different influential players, such as malaria and dengue in South Asia, where the World Health Organization plays a significant leadership role. She mentioned that there may be more specific approaches to guide global level advocacy.

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 will be scheduled for Tuesday, March 2nd at 8:30AM EST (GMT-5). This next telecon will include three presentations on air quality topics and a report from the Infectious Diseases Small Work Group.

Adjourned: 10:00 AM EST (GMT-5)