

GEO Health Community of Practice (CoP)
Telecon: Focus on COVID-19 Transmission
August 11, 2020

In Attendance: 18 participants

John Haynes (NASA HQ), Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), Sue Estes (U. of Alabama in Huntsville), John Balbus (NIEHS), David Green (NASA HQ), Cynthia Hall (NASA Earth Science Data Systems), Stephanie Schollaert Uz (NASA Goddard), Allan Auclair (USDA), Jonathan O'Brien (NASA ARSET), Assaf Anyamba (USRA/NASA Goddard), Sushel Unninayar (NASA Goddard/GESTAR/MSU), Ray Kiess (USAF, 14th Weather Squadron), Bob Chen (CIESIN/Columbia U.; NASA SEDAC), Rowena Christiansen (U. of Melbourne Medical School, Australia), Ben Zaitchik (Johns Hopkins U.), Shannon Vattikuti (Mississippi State U.), Mario Lanfri (CONAE Emergencies and Early Warning Unit).

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 GEO members to provide brief updates on upcoming conferences and related activities.

John Haynes (NASA HQ) shared that Dr. Michael Freilich, long-serving director of the NASA Earth Science Division (2006-2019), passed away last week after a battle with pancreatic cancer. He mentioned that this is a tremendous loss for the Earth science community. Notably, the Sentinel-6A/Jason CS satellite was renamed to [Sentinel-6 Michael Freilich satellite](#), serving as ocean satellite to launch in November 2020, to continue the 28-year data set of sea level changes measured from space. He had previously served as professor of oceanography at Oregon State University and was principal investigator on another NASA international collaborative satellite. He mentioned that they extend condolences to the Freilich family.

Juli Trtanj (NOAA) mentioned that the Heat Urban Island Campaign was occurring across 13 US cities, modified for COVID-19 requirements. She mentioned that CoP members who are interested in using this information to identify and map vulnerable populations and places can become involved.

John Haynes (NASA HQ) shared that NASA hosted the [NASA Earth Applied Sciences Week](#) from August 3-6, 2020 (each day from 12-3PM EDT/GMT-4). He mentioned that this virtual event had an agenda of plenary sessions and thematic break-out rooms. Next, he mentioned that the [International Society for Environmental Epidemiology \(SEE\) Virtual Meeting 2020](#) would be held virtually from August 24-27, 2020. At this event, he shared that he will give a presentation as part of the CDC panel symposium, and **Helena Chapman (NASA HQ/BAH)** will give an e-poster presentation. Then, he stated that [AmeriGEO Week 2020](#) would be held virtually from September 7-8, 2020, where CoP members could complete the [registration form](#). He said that the event website would be launched later this week. Finally, he mentioned that he and **Helena**

Chapman (NASA HQ/BAH) had invited presentations for the [International Space University](#) on July 23rd (Theme: *Utilizing Big Data and Space for the Monitoring, Mitigation of COVID-19 and Prevention of Future Pandemics*) and 24th (Theme: *How Space can Help Monitor COVID-19 and other Pandemics*). He mentioned that the International Space University (HQ in Strasbourg, France) offers summer sessions that bring global scientists and engineers to design projects around themes and challenge questions. This year, the challenge was focused on the COVID-19 pandemic and future pandemics (Theme: *How Space can Help in the Monitoring, Mitigation as well as the Prevention and Preparedness of Pandemics*). He also said that they were invited to a small-group discussion with International Space University's students on August 10th.

Helena Chapman (NASA HQ/BAH) thanked CoP members for their abstract submissions to the [American Geophysical Union Fall Meeting 2020](#). She reminded CoP members about the upcoming deadline (August 24th) for abstract submissions to the [American Meteorological Society Annual Meeting 2021](#). Next, she shared the *NASA Health and Air Quality Newsletter* for [April-June 2020](#), which described the updates from the GEO Health CoP activities for the quarter. Finally, she mentioned that she was invited to present the topic, *Bridging Earth and Health Science Communities during the COVID-19 Response: Focus on the One Health Approach*, for the APHA Public Health Education and Health Promotion's *Health Educators Leading a Way to a Post COVID-19 World* webinar. As such, she encouraged CoP members to share their speaking engagements that continue to bridge Earth and health science communities.

David Green (NASA HQ) provided the link for the Interagency COVID-19 Meeting, which would follow the GEO Health CoP telecon, at 11AM EDT (GMT-4). He mentioned that Ilan Calvin (Institute for Risk & Disaster Reduction/Institute for Global Health, U. College of London), professor in disasters and health, would provide a presentation to jumpstart the group dialogue.

Ben Zaitchik (Johns Hopkins U.) provided an overview of the symposium findings of the [Climatological, Meteorological, and Environmental Factors in the COVID-19 Pandemic: An International Virtual Symposium on Drivers, Predictability, and Actionable Information](#), which was held from August 4-6, 2020. Over the three-day conference, he confirmed that there were 400 unique participants each day from over 80 countries. With keynote speakers, panels, and over 70 i-posters, diverse topics were addressed, such as immediate and future meteorological drivers and variability, air quality as a risk factor, potential zoonotic spillover related to COVID-19 transmission and human-animal links. He stated that i-posters are available on the [event website](#), and archived videos are on the [American Geophysical Union's Facebook webpage](#). He mentioned that the World Meteorological Organization and the Symposium's Scientific Committee are finalizing a two-page outcome statement this week.

To reference to key findings, he stated that significant research applications are exploring meteorological drivers (e.g. temperature, wind, humidity, UV radiation) which can provide primary knowledge about existing sensitivities. However, he stated that it is still too early to determine actionable predictive models. Second, he mentioned that since evidence has shown that poor air quality can impact disease outcomes of individuals, health collaborations using Earth observation data continue to evaluate risk of COVID-19 transmission. Third, he said that human-environment interactions – including animal movement and wildlife interface – offer

important scientific questions, including economic costs relate to COVID-19 versus wildlife protection. More broadly, he emphasized the need for engagement between researchers and decision-makers across action needs early in the research process. He suggested that it will be key to effectively communicate information – noting uncertainty when present – to end-users about the different applications of climatological data.

In reference to current uncertainties with current data, he emphasized a few key points from the wider discussion. First, he mentioned that there is an inconsistent use of study designs and methods across the rapidly evolving literature. For example, he stated that many studies have not considered key non-environmental drivers (e.g. lockdown restrictions) in these methods. Second, he stated that COVID-19 case data and other health data are disseminated in an inconsistent manner, with variable quality over jurisdictions. Hence, how researchers examine and align health, environmental, and response data will be critical. Third, he said that there is a strong emphasis on the clear communication of strengths and limitations of methods, especially since empirical and statistical methods may have different parameters (e.g. predictive vs explanatory) and covariates. Finally, with limited data on COVID-19 transmission to date – including the influence of heterogeneous policies across geographic regions – he stated that data quality will continue to challenge researchers, especially as they aim to reach actionable predictions related to seasonality factors.

In reference to next steps, he mentioned that challenges will be managed over time, especially as data quality improves, COVID-19 transmission becomes more stable (or possibly endemic), and climatologic sensitivities become more dominant. More specifically, he said that the role of environmental and meteorological information can inform future vaccine strategies. He stated that it is important to note that meteorological data do not operate in a vacuum but rather together with other risks (e.g. natural disasters like hurricanes and heat waves) that are directly relevant to the health risk of COVID-19 transmission. For this reason, he stated that Earth observation data have an important role in COVID-19 response efforts.

Finally, he provided three key recommendations from the wider dialogue. First, he noted that researchers who are using Earth observation data in the epidemiologic context should state clear hypotheses and study designs and methods, accounting for population data, policies and community interventions, and other epidemiologic factors. Second, he mentioned that research collaborations are key to develop reliable early warning and risk forecasts, where environmental factors are part of a broader context of the human-environment-climate nexus. Third, regarding the culture of science, he stated that pre-print and rapid reviews are part of the rapid response to the COVID-19 pandemic. The challenge lies in the communication of these findings, where the pre-print findings can be publicized on mainstream media within 12 hours, which can potentially damage public discourse. He said that researchers should work together with the community, taking responsibility for the dissemination of these findings. In effect, he said that this emphasizes the need for transdisciplinary science, starting from formulation to funding to implementation, in efforts to promptly and effectively address the pandemic.

David Green (NASA HQ) applauded the described summary and asked about the word “practice” in the GEO Health CoP. He said that it appears that they have identified some effective practices – such as engaging early in the research cycle and moving to transdisciplinary approaches from conceptual design to execution – but wondered if the CoP could act to capture these practices and lessons learned for COVID-19 transmission and communicate these findings with global networks. **Ben Zaitchik (John Hopkins U.)** stated that many communities have recognized the need for successful research calls (e.g. NASA’s Early Adopters), especially where these ideas can add power to perspectives shared in the COVID-19 context. He mentioned that we can work across our networks to narrow the uncertainty.

Juli Trtanj (NOAA) asked about how this idea can be mobilized within the CoP. **David Green (NASA HQ)** suggested that a one-page succinct statement of identified practices could serve as the voice of the community. He said that this resource could be shared at various conferences and meetings, and these practices could be beneficial for other communities.

John Balbus (NIEHS) asked about the appropriate voice (e.g. CoP, Interagency) for this statement. **David Green (NASA HQ)** mentioned that the voice could be from the GEO Health CoP. For example, he mentioned that this GEO Health CoP statement could help inform the Committee on Earth Observation Satellites (CEOS) community. He stated that his suggestion was what could provide a general perspective to date, which could be modified moving into the future.

Juli Trtanj (NOAA) agreed that a statement from the GEO Health CoP would be a powerful perspective. She asked **Ben Zaitchik (Johns Hopkins U.)** if he has heard any discussion about a second symposium on One Health, since this August symposium did not address One Health on purpose. **Ben Zaitchik (Johns Hopkins U.)** mentioned that this topic – especially broader zoonotic implications – did arise in the planning process as a potential future topic.

Sushel Unninayar (NASA Goddard/GESTAR/MSU) mentioned that the fact that meeting participants were not always in agreement was one important outcome. He asked about any primary research recommendations made at the meeting to address present COVID-19 propagation and mortality. **David Green (NASA HQ)** asked about key findings related to health-relevant variables and timely data sharing beyond the World Meteorological Organization that could be used for other communities (e.g. CEOS Technical Working Group meeting). **Ben Zaitchik (Johns Hopkins U.)** mentioned that there is general disagreement because some research studies were not meaningful since they did not control for specific factors. He stated that we do not yet know which drivers are most important or statistically more predictive. Since COVID-19 has not been around for one full year, he said that we must recognize that some claims are not grounded in methodology or consider generic variables, statistical techniques or underlying mechanisms.

Bob Chen (CIESIN/Columbia U.; NASA SEDAC) asked about potential next steps by the American Geophysical Union or World Meteorological Organization to respond to novel findings (e.g. pre-prints, rapid turn-around studies), possibly clarifying the degree to which results may be very tentative vs. highly robust. He also said that guidelines sound helpful to strengthen the communication of pre-print findings to mainstream media. For example, he

mentioned that if experts have guidelines (e.g. reporters identify an “independent” expert for comment), then this may promote consistency in scientific communication. **Ben Zaitchik (Johns Hopkins U.)** agreed that the current lack of consensus is challenged by data limitations. He mentioned that researchers must be good science communicators and work collaboratively through these present challenges. He suggested that a symposium or other organization could develop standards that authors could utilize when reading articles. For example, he said that clarification about response variables (e.g. recognizing potential error with some response variables due to selections from dissimilar environments) and differences between modeling for inference or prediction – could be communicated broadly with institutional backing. He admitted that although this may not stop reporters from rapid news stories, scientific communication can continue to improve with a consensus on methods.

Ben Zaitchik (Johns Hopkins U.) thanked NOAA and CoP members for their support of this event. He mentioned that he would share the outcomes statement as soon as it is released.

Shannon Vattikuti (Mississippi State U.) commented that this was an excellent summation of the three-day event and lessons learned from the symposium. **Juli Trtanj (NOAA)** reminded CoP members that this symposium was the result of leadership by CoP members and other international teams within a short eight-week period. **John Haynes (NASA HQ)** thanked NOAA for providing funding for this event and highlighted the key leadership by CoP members to coordinate the planning.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** requested agency updates from CoP members.

John Balbus (NIEHS) shared his support for the leadership to coordinate this outstanding symposium. He mentioned that he would be interested in learning more about the impact of the indoor environment on COVID-19 transmission, which was not a focus of this symposium. He shared the upcoming workshop, [Airborne Transmission of SARS-CoV-2: A Virtual Workshop](#), which will be held August 26-28, 2020.

John Haynes (NASA HQ) mentioned that he would share more details about the upcoming GEO Virtual Symposium in November 2020, when more information was provided by the GEO Secretariat.

Assaf Anyamba (USRA/NASA Goddard) mentioned that he was invited to attend the Brookings Institution’s and the Rockefeller Foundation’s 17 Rooms Initiative on August 3, 2020. He stated that the purpose of this initiative was to develop ways to build better intelligence systems to report on outbreaks and assess current practices to develop the global epidemic prediction. He contributed to the Room 3 Initiative on “Transforming National and Global Epidemic Intelligence Systems” teleconference meeting. He mentioned that this meeting was informative where they aimed to examine gaps and identify next steps.

Rowena Christiansen (U. of Melbourne Medical School, Australia) shared that the Ad Astra Vita’s [Space Health Symposium](#) would be held from October 5-6, 2020. She invited CoP members to contact her (rchr@unimelb.edu.au) if they were interested to share their work at this virtual event.

Sushel Unninayar (NASA Goddard/GESTAR/MSU) asked if there were any specific recommendations for implementable project-type actions for agencies to undertake in a quick time frame. He also asked about the next steps after this symposium, wondering about the gap between short-term events (e.g. workshops) and long-term plans (e.g. three-year proposal cycles). **Juli Trtanj (NOAA)** mentioned that we should use the collective expertise to seek collaborative projects, leveraging global capacities for research applications. **Stephanie Schollaert Uz (NASA Goddard)** mentioned that the [NASA's Rapid Response and Novel Research in Earth Science](#) remains an option for one-year proposal submissions. **Juli Trtanj (NOAA)** asked how CoP members can continue to build on the rapid proposal solicitations, such as side conversations or future modeling studies. **Bob Chen (CIESIN/Columbia U.; NASA SEDAC)** mentioned that Research Data Alliance (RDA) and Committee on Data for Science and Technology (CODATA) have been working on open data sharing issues needed to accelerate research.

John Haynes (NASA HQ) reminded CoP members to provide brief testimonials (e.g. paragraph) via email (helena.chapman@nasa.gov) about how the GEO Health CoP helped them network, communicate, leverage resources, and advance their research, especially during the COVID-19 pandemic. He mentioned that we would like to showcase these success stories during this global challenge to the GEO Secretariat.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** thanked all 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 related to the COVID-19 response. They confirmed that they would continue with biweekly meetings.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** closed the telecon and mentioned that the next telecon would be scheduled for Tuesday, August 25th at 8:30AM EDT (GMT-4).

Adjourned: 9:50 AM EDT (GMT-4)