

GEO Health Community of Practice (CoP)
Telecon: Focus on COVID-19 Transmission
June 27, 2020

In Attendance: 27 participants

John Haynes (NASA HQ), Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), Sue Estes (U. of Alabama in Huntsville), Aubrey Miller (NIEHS), Ann Liu (NIEHS), Trisha Castranio (NIEHS), Krista Hoevemeyer (USGCRP), Abigail Seadler (NASA HQ), Shobhana Gupta (NASA HQ), Jonathan O'Brien (NASA ARSET), Sean McCartney (NASA Goddard), Pawan Gupta (USRA/NASA Marshall), Assaf Anyamba (USRA/NASA Goddard), Sushel Unninayar (NASA Goddard/GESTAR/MSU), Bryan Richards (USGS National Wildlife Health Center), Bob Chen (CIESIN/Columbia U.; NASA/SEDAC), Merrie Neely (GEO AquaWatch), Rowena Christiansen (U. of Melbourne Medical School, Australia), Diane DiEuliis (National Defense U.), Emma Flaherty (Risk Informed Early Action Partnership), Rachel Lowe (London School of Hygiene & Tropical Medicine), Didier Davignon (Meteorological Service of Canada), Melissa MacDonald (Environment and Climate Change, Canada), Serge Olivier Kotchi (Public Health Agency of Canada), Adrián Guzmán González (Mexican Space Agency), Naledzani Mudau (South African National Space Agency).

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 NASA will be hosting [NASA Earth Applied Sciences Week](#) from August 3-6, 2020 (each day from 12-3PM EDT/GMT-4). He mentioned that this virtual event is open to the public, with an agenda of plenary sessions and thematic break-out rooms. Next, he encouraged CoP members to prepare abstracts for upcoming sessions at the virtual [American Geophysical Society Fall Meeting 2020](#) (deadline: July 29, 2020). He shared some sessions coordinated by CoP members:

- [Shelter in Place: Mapping Population and Infrastructure in a Vulnerable World](#) (Co-Chairs: Bob Chen, Andrea Gaughan, Charles Huyck, Nancy Searby)
- [COVID-19: Earth Observations and Environmental Modeling Applications for Understanding, Quantifying and Predicting the Seasonality \(or not\) and Propagation of COVID-19](#) (Co-Chairs: Sushel Unninayar, Juli Trtanj, Jared Entin)
- [Remote Sensing Applications for Assessing the Impacts of COVID-19 on the UN Sustainable Development Goals and Helping with Mitigation Responses](#) (Co-Chairs: Sushel Unninayar, Arfyro Kavvada, Alyssa Whitcraft)
- [Using NASA Satellite Data to Advance Environmental Health Applications: Impact of Changing Global Ecosystems on Human Health](#) (Co-Chairs: Helena Chapman, Sue Estes, Laura Judd)

- [Advances in a Global Observing System for Air Quality](#) (Co-Chairs: Laura Judd, Pepijn Veefkind, Eloise Ann Marais, Hyeong-Ahn Kwon)
- [Applications of Earth Observations for Water-Energy-Food Nexus Sustainability](#) (Co-Chairs: Richard Lawford, Stephanie Schollaert Uz, Sushel Unninar, Pietro Elia Campana)

Juli Trtanj (NOAA) stated that the [2nd Global Forum on Heat and Health](#) (Theme: *Heat-healthy Cities and Workplaces*) will hold virtual dialogues with facilitated panel discussions and Q&A for audience engagement on July 28 ([Heat in the City](#)) and July 29 ([Heat in the Workplace](#)). Next, she mentioned that the [Climatological, Meteorological, and Environmental Factors in the COVID-19 Pandemic: An International Virtual Symposium on Drivers, Predictability, and Actionable Information](#) aims to leverage global expertise through keynote presentations, scientific panels, and group discussions. This event will be held from August 4-6, 2020, with a half-day schedule for three days. Finally, she shared that NOAA researchers have launched the NOAA COVID-19 Data Page ([Environmental Datasets for Infectious Disease Modeling](#)), as a resource designed for researchers and decision-makers. **Trisha Castranio (NIEHS)** shared this upcoming MIDAS webinar, [Working with NOAA Climate and Weather Data: Opportunities to Enhance Infectious Disease Modeling and Pandemic Preparedness](#), to be held on August 3, 2020 (12:30-1:30PM EDT/GMT-4).

John Haynes (NASA HQ) 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*).

Helena Chapman (NASA HQ/BAH) 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. She mentioned that we would like to showcase these success stories during this global challenge to the GEO Secretariat.

Abigail Seadler (NASA HQ) provided an overview and demo of the [NASA/ESA/JAXA COVID-19 Dashboard](#), with 19 economic, 11 agriculture, and 33 environmental indicators related to COVID-19 transmission (“one-stop-shop” for end-users). She shared the respective NASA web feature and video tutorial, [Partner Space Agencies Amass Global View of COVID-19 Impacts](#).

Pawan Gupta (USRA/NASA Marshall) asked if there were plans to include air quality variables (e.g. PM2.5, AOD) and if these data can be directly downloaded from the dashboard. **Abigail Seadler (NASA HQ)** stated that the platform uses GitHub, and that there are plans to include additional data through later releases of the dashboard.

John Haynes (NASA HQ) asked about how many visitors have viewed and interacted with the website to date. **Abigail Seadler (NASA HQ)** stated that since the press release in June 2020, the website has observed thousands of visits. She said that as they receive more data, they plan to launch more contained releases as a near real-time dashboard.

Pawan Gupta (USRA/NASA Marshall) asked if there are future plans to develop webinar tutorials for the wider community. **Abigail Seadler (NASA HQ)** mentioned that aside from the current tutorial on the website, there are no additional tutorials scheduled at this time.

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

Emma Flaherty (Risk Informed Early Action Partnership) stated that the Risk Informed Early Action Partnership (REAP) is a new organization, convened at the UN Climate Summit in September 2019. It incorporates a broad range of stakeholders (e.g. multilateral organizations, development agencies, academic institutions). She mentioned that “early action” – although defined differently by agencies – is an area of humanitarian work that has gained popularity over the last couple years. She shared the [UN Climate Action Summit: Resilience and Adaptation](#) document, which describes the four targets by 2025.

Aubrey Miller (NIEHS) mentioned that U.S. centers and grantees are working on COVID-19-related activities. He shared that larger initiatives have been focusing on expanding COVID-19 testing, especially among vulnerable populations, and understanding the socioeconomic and behavioral impacts on these populations. He stated that the first wave of awards should be released soon, and that other solicitations are available (e.g. R01, NIH supplemental awards, R21 with time-sensitive awards, NSF Rapid Awards).

Juli Trtanj (NOAA) asked if there are any anticipated solicitations that highlight the use of Earth observations and COVID-19 transmission. **Aubrey Miller (NIEHS)** mentioned that all researchers are working to generate data and find ways to make data more useful for wider audiences. He stated that some researchers want to use Earth observations and have partnered with other researchers who use these data. He highlighted that the GEO Health CoP serves as an outstanding resource to leverage expertise and share resources among a wider range of stakeholders. He encouraged CoP members to keep these connections as we are now dealing with new natural disasters in the context of the global pandemic.

Sushel Unninar (NASA Goddard/GESTAR/MSU) requested information about the type of activities that NIH plans to fund – whether basic research or applications – and whether they include modeling and early warning systems or predictions. He also asked about the global objectives that drive the funded projects. **Aubrey Miller (NIEHS)** stated that they are unsure about the upcoming solicitations until the extramural review process has been completed and publicly available. He also shared that the solicitation process – normal time frame of 8-12 months – has been expedited to facilitate the COVID-19 research applications (e.g. solicitation in March 2020, funding in April 2020). He recommended that CoP members review the [NIEHS Notice of Special Interest \(NOSI\): NIEHS Support for Understanding the Impact of Environmental Exposures on Coronavirus Disease 2019 \(COVID-19\)](#) for specific details.

Melissa MacDonald (Environment and Climate Change, Canada) mentioned that in collaboration with the National Weather Service, they plan to host a webinar on how extreme temperatures affect stakeholders in early August 2020. She stated that she would share the final date with CoP members when details are finalized.

Didier Davignon (Meteorological Service of Canada) mentioned that since their last presentation (analysis of air quality impacts due to lockdowns), they examined the effects of traffic emissions through Earth observation and modeling. He said that they have been asked to assess and measure the impacts on climate due to the lockdowns. Beyond COVID-19 activities, he said that the Canadian federal department has developed a space-based Earth observation initiative to align objectives with other nations working with Earth observations (e.g. wildfires). He mentioned that they aim to examine the needs of federal agencies this summer, and then prioritize funding opportunities until next year.

Juli Trtanj (NOAA) asked about the scope of the initiative related to the use of Earth observations for health. **Didier Davignon (Meteorological Service of Canada)** stated that the space-based Earth observation initiative broadly cover all objectives, including health. He stated that this discussion has facilitated the sharing of satellite data between federal departments. Over the next few years, he mentioned that they aim to establish ways where all departments could work under the same structure for Earth observation data. For example, health departments could have direct access to these data sources. He noted that the Public Health Agency of Canada has recently presented their own objectives related to COVID-19 transmission, including satellite data analyses and proposed partnerships.

Serge Olivier Kotchi (Public Health Agency of Canada) mentioned that they are working with federal programs in context of the COVID-19 response efforts. He stated that their objective is to explore data elements (e.g. mobility, social, environmental, weather) that can inform risk and vulnerable populations related to COVID-19 transmission. He said that they aim to develop a prototype monitoring system and dashboard, informed by vulnerable population indicators.

Didier Davignon (Meteorological Service of Canada) said that some researchers are focusing on weather forecasts to predicting the evolution of COVID-19 transmission (e.g. morbidity/mortality rates, hospitalizations) through mathematical methods in probabilistic content.

Juli Trtanj (NOAA) said that this activity sounds similar to CDC activities, where the focus is multi-model ensembles. She asked CoP members if they believe that we are understanding enough about the environmental or seasonality factors related to COVID-19 transmission. She mentioned that the [Climatological, Meteorological, and Environmental Factors in the COVID-19 Pandemic](#) symposium would offer a global discussion on these topics.

Rowena Christiansen (U. of Melbourne Medical School, Australia) mentioned that since Melbourne and Victoria communities have experienced recent increases of COVID-19 transmission, they hoped that data could be analyzed to support research hypotheses and observe the model fit.

Rachel Lowe (London School of Hygiene & Tropical Medicine) stated that it may be difficult to formulate the model with little data and information about how the virus responds to seasonality and human susceptibility. She wondered if spending more time indoors (e.g. air conditioning or central heating) could be an indicator. She emphasized that there are challenges to understand some drivers and how climate data can be helpful to better understand COVID-19 transmission. **Rowena Christiansen (U. of Melbourne Medical School, Australia)** said that their central hypothesis was to use Australia as a case study (e.g. small population, geographical isolation) and assess if the recent hypothesis on northern hemisphere data (*JAMA Network Open: [Temperature, Humidity, and Latitude Analysis to Estimate Potential Spread and Seasonality of COVID-19](#)*, by Sajadi et al, 2020) could be applied to the southern hemisphere. She stated that she will be presenting a poster on this topic at the upcoming symposium and would be happy to share more information (rchr@unimelb.edu.au).

Sushel Unninayar (NASA Goddard/GESTAR/MSU) asked if it were possible to tease out the environmental controls (e.g. seasonality from policy actions, social distancing, lockdowns).

John Haynes (NASA HQ) mentioned that the United States has experienced increased COVID-19 cases from the first wave across the southern states. He mentioned that there are many remaining questions – ranging from lack of immunity to seasonality factors – and wonders about the impacts of potential confounding factors (e.g. lack of adherence to social distancing guidelines, people congregating inside the home because of air conditioning during hot temperatures) on continued COVID-19 transmission across communities.

Naledzani Mudau (South African National Space Agency) shared that AfriGEO plans to host an online workshop on the use of Earth observations to support COVID-19 management in Africa in late August 2020. She said that they will share details as soon as they are finalized. She encouraged CoP members to contact her (nmudau@sansa.org.za) if they would like to present their research.

Adrián Guzmán González (Mexican Space Agency) mentioned that they are working with MIT Space Enable on a few related applications. They aim to integrate data sources and measure the impacts of COVID-19 transmission in Mexico as a country and Mexico City as a first case. He hoped to provide an update at the next CoP meeting.

Sushel Unninayar (NASA Goddard/GESTAR/MSU) mentioned that they supported a previous challenge on COVID-19 impacts related to the UN Sustainable Development Goals. He agreed that it would be a great opportunity to have a challenge related to seasonality, environmental drivers, and collateral impacts of COVID-19 transmission.

John Haynes (NASA HQ) shared that the [NASA's Rapid Response and Novel Research in Earth Science](#) continues to review submitted proposals. Since the previous NASA web feature ([NASA Funds Four Research Projects on COVID-19 Impacts](#)) described the first four funded-projects, he mentioned that there are now approximately 12-15 selected projects. He said that they plan to request a presentation by one research team who aims to examine NO₂ changes in air quality (due to lockdowns) and impact on human health.

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.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** closed the telecon and mentioned that the next telecon would be scheduled for Tuesday, August 11th at 8:30AM EDT (GMT-4).

Adjourned: 10:00 AM EDT (GMT-4)