GEO Health Community of Practice (CoP)
Community Telecon
February 6, 2024

<u>**In Attendance:**</u> 48 participants
John Haynes (NASA HQ), Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), Kim McMahon (NOAA NWS), Jessica Lee (NOAA NWS), Lauren Balotin (NOAA), Katia Kontar (NOAA), Kim Locke (NASA GSFC), Trisha Castranio (NIH/NIEHS), Aaron Naeger (NASA MSFC), Meryl Kruskopf (NASA SERVIR), Claire Quiner (RTI), Carl Malings (NASA GSFC & Morgan State Univ.), Susana Adamo (CIESIN, Columbia Univ.), Karly Harrod (Oak Ridge National Laboratory), Steve Moran (Google), Terry Idol (Skymantics), Antonio Correas (Skymantics), Ram Peruvemba (HSR.health), Ben Zaitchik (Johns Hopkins Univ.), Douglas Rao (NC Institute for Climate Studies), Tatiana Loboda (Univ. of Maryland, College Park), Awa Babington-Ashaye (Univ. of Geneva), Olayinka Osuolale (Elizade Univ.), Bienvenido Veras-Estévez (Universidad Católica del Cibao, Dominican Republic), Edgar Manrique (University of Glasgow), Vannak Ann (Institute of Technology of Cambodia), Stefano Ferretti (European Space Agency), Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD), Paschalis Tziastas (European Commission), Stacie Dunkle (World Health Organization), Carlos Barboza (Ministry of Public Health, Uruguay), Mercy Borbor (ESPOL, Ecuador), Basundhara Maji (Otto-Friedrich-Universität Bamberg. Germany), Mahesh Jampani (IWMI), Bernd Eggen (UK Health Security Agency), Erin Rees (Public Health Agency of Canada), Stephanie Brazeau (Public Health Agency of Canada), Ximena Porcasi (CONAE, Argentina), MEDES (France), Randa Bazzi (One Health Alliance Jordan), Caroline Perrin, George Ge, Nahabwe Haven, Priya Kadam, Sokeang, Martan, Martin.

<u>**Summary Notes:**</u>
Prepared by Helena Chapman (NASA HQ/BAH)

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** opened the telecon by welcoming all participants.

John Haynes (NASA HQ) stated that the NASA session (*Air Quality and Public Health Decisions with Earth Observations I - Federal Programs*) was held on January 29 (over 80 attendees), as part of the American Meteorological Society annual meeting. He commented that some CoP members will be attending the AGU Chapman Conference on Remote Sensing of the Water Cycle in Honolulu, Hawaii, from February 13-16, 2024. Then, he mentioned that the PACE satellite instrument was scheduled for launch on February 5, 2024, but due to weather conditions, the launch has been rescheduled for February 8, 2024. Finally, he shared the recent news that Sara Venturini has been appointed as Chief of Member Services at the GEO Secretariat, where she will be leading the newly established Member Services unit that will focus on engagement and serving GEO membership with a strong focus on the GEO's Post-2025 Strategy and Ministerial Declaration.

Juli Trtanj (NOAA) mentioned that the GEO Week will be planned for an alternative time, as to avoid conflicts with other major conferences (e.g. COP) in the Fall timeframe. Then, she commented that the Global Heat Resilience Service hosted a scoping meeting to discuss the survey and upcoming activities, and they plan to examine their goals in another meeting scheduled for late February 2024 in Geneva.

Helena Chapman (NASA HQ/BAH) reminded CoP members about the [NASA-ORNL-RPI Student Engagement Collaboration](), led by Thilanka Munasinghe (RPI) and Assaf Anyamba (ORNL), and shared that there have been [two new publications]() that were presented at the 2023 IEEE International Conference on Big Data. Then, she mentioned that many CoP members were able to connect at the AMS Environment on Environment and Health social hour on January 29, 2024. Finally, she commented that some CoP members will be participating in the American Mosquito Control Association annual meeting from March 4-7, 2024 in Dallas, TX.

Juli Trtanj (NOAA) and **Helena Chapman (NASA HQ/BAH)** reminded CoP members that the GEO Secretariat has recommended that the CoP prepare and submit a white paper by late February 2024, that stresses the need to incorporate One Health into the GEO Work Programme. They mentioned that they plan to reach out to the Work Groups for a brief contribution and encouraged interested CoP members to contact them.

Helena Chapman (NASA HQ/BAH) introduced three speakers – **Awa Babington-Ashaye (Space and Global Health Network & Univ. of Geneva) Stefano Ferretti (European Space Agency, ESA),** and **Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD)** – who shared highlights on their scientific events and projects with CoP members.

First, **Awa Babington-Ashaye (Space and Global Health Network & Univ. of Geneva)** described the Space and Global Health Network and the UN/WHO International Conference on Space and Global Health (November 1-3, 2023). She commented that 132 countries and 171 participants were involved in the conference proceedings, including six space agencies (ASI, Italy; CONAE, Argentina; ESA, European; GISTDA, Thailand, NASA, USA; SUPARKO, Pakistan), with 41 speakers and 31 statements of intent. She shared a few recommendations from this event ([A/AC.105/1306]()), including improving education and capacity building, conducting risk monitoring of key variables (e.g. temperature, humidity, PM, CO, CO_2), assessing spatial resolution, reducing gender gap, enhancing technical operability, and supporting collaboration and knowledge sharing between diverse stakeholders. She commented that there is significant interest in using geospatial data (including machine learning, artificial intelligence, and data modeling techniques) in disease forecasting to support decision makers in urban heat, air quality, and infectious disease (vector-borne and water- and soil-related diseases) applications. As part of the 2024 activities, they aim to raise awareness of the SGH Network mission and activities and engage with new stakeholders who share similar interests to promote space and health applications, including academic curricula and massive open online courses. She described some upcoming events, including the 61st session of COPUOS Scientific and Technical Subcommittee in Vienna (February 5-6, 2024), Geneva Digital Health Day (May 30, 2024), and [ESA/Geneva Digital Health Hub Hackathon]() (May 31-June 1, 2024).

Carl Malings (NASA GSFC/Morgan State Univ.) mentioned that he serves on the NASA Applied Remote Sensing Training (ARSET) program, noting that their team can share existing ARSET materials for the curriculum development. **Awa Babington-Ashaye (Univ. of Geneva)** expressed her interest in collaborating on curriculum development. **Tatiana Loboda (Univ. of Maryland, College Park)** asked about the outcome of the event discussion on February 5-6 and next steps. **Awa Babington-Ashaye (Univ. of Geneva)** said that they are finalizing the report to present to the Sub-committee on February 7, and that they will share this report to the SGH Network members and other interested parties (including CoP members).

Second, **Stefano Ferretti (European Space Agency, ESA)** described the [ESA EO4Health User Forum 2024](#) – with more than 300 in-person participants and 3000 connections with virtual participation – where organizers and panelists reviewed the latest advances in using EO technology for global health. He shared a historical overview of space and health activities, including the [UNOOSA's Space Supporting the Sustainable Development Goals](#), [ESA's International Charter Space and Major Disasters](#), rapid action on COVID-19 and Earth observations in 2020, and the intersection between Earth observations and One Health (e.g. quadripartite agreements between FAO, WHO, UNEP, WOAH). As part of the forum, co-creation workshops in vector-borne diseases, water-borne and non-communicable diseases, and artificial intelligence and digital platforms were conducted. Finally, he said that the next steps are to publish the report on this forum, and he shared upcoming events, such as the NEREUS European Symposium Toulouse (June 19-20, 2024), the NEREUS-ESA Space and Health Webinar, and the ESA EO4Health Resilience Mid-term Review (September 2024).

Finally, **Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD)** described the examination of environmental indices at various spatial resolutions and leptospirosis cases diagnosed at the hospital, to develop the [ClimHealth](#) (Climate and environmental monitoring for health surveillance)'s [Leptospirosis Yangon project](#), which offers actionable and real-time (5-day) updates of the suitable environment for leptospirosis transmission to epidemiologists and hospitals in Yangon. He also provided a brief historical timeline of similar projects using Earth observations for vector-borne disease applications in the European region, including the ESA Copernicus Project that included Sentinel-2A (launched in June 2015) and Sentinel-2B (launched in March 2017) with a lifetime of seven years (extendable to 12 years). Although there are still major development needs for the operational use of Earth observations for health surveillance, he mentioned the need to: 1) further investigate ecological and climate indicators and modelling of health signals (outbreaks, dynamics); 2) develop tools at different scales (Sen2Chain adapted to local scales); 3) develop pipelines to process satellite data and export to health information systems; and 4) collaborate to train and develop local technical capacities.

Tatiana Loboda (Univ. of Maryland, College Park) opened the telecon for an open discussion on space and health topics.

Tatiana Loboda (Univ. of Maryland, College Park) asked about any encountered fieldwork challenges related to transferring capabilities from the research group to in-country processing (e.g. using cloud services vs rebuilding HPC clusters). **Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD)** said that they work directly with countries that cannot download large quantities of images, but want to build capacity for time series calculations.

Carlos Barboza (Uruguay Ministry of Health) asked about the possibility to adapt these valuable data and models into an effective public policy, and whether it could work in relation to any level of science and policy. **Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD)** commented that although they have not yet reached the policy level, they have been working directly with communities for over five years, to co-design their applications with environmental data to support their local decision-making activities.

Tatiana Loboda (Univ. of Maryland, College Park) asked about the take-away messages from the ESA EO4Health User Forum. **Stefano Ferretti (European Space Agency, ESA)** noted that the upcoming publication of the formal report will highlight the innovative ideas for future collaborations that were discussed among participants from the health sector and Earth science industries. **Tatiana Loboda (Univ. of Maryland, College Park)** encouraged CoP members to contribute their expertise and support this hackathon.

Helena Chapman (NASA HQ/BAH) asked about how their activities align with the publication of global health guidelines, ranging from antimicrobial resistance to One Health. **Stefano Ferretti (European Space Agency, ESA)** said that they aim to build capacity on antimicrobial resistance in water (especially India), and that they are designing case studies with satellite data, in situ sampling, drones, and citizen science applications to support European industry and institutions in using geospatial data. He commented that many members from the task force and forum have contributed to the policy domain within the Quadripartite. **Awa Babington-Ashaye (Univ. of Geneva)** said that they plan to identify gaps to incorporate and build content around One Health for capacity building and training activities (including curricula) for the defined audience (e.g. undergraduate and graduate students, public health experts).

Tatiana Loboda (Univ. of Maryland, College Park) asked about recommendations and next steps from the COPUOS Scientific and Technical Subcommittee. **Awa Babington-Ashaye (Univ. of Geneva)** mentioned that they plan to develop a task force to identify target data sources and framework to optimize capacity building and training materials (curricula) for space and global health.

Juli Trtanj (NOAA) commented that AmeriGEO and IAI (Columbia Univ.) have curriculum development activities, and she wondered if the CoP should adopt a theme of youth engagement and curriculum development (e.g. where do we need satellite data or in situ data to validate). **Vincent Herbreteau (French National Research Institute for Sustainable Development, IRD)** said that the National Centre for Space Studies (CNES, France) has supported projects focusing on vector-borne diseases. He said that they are working with space agencies to better articulate the target data sources (direct measurements or satellite data as proxy). **John Haynes (NASA HQ)** mentioned that the *[National Public Health Strategy for the Prevention and Control of Vector-Borne Diseases in People](#)* was launched on February 6.

John Haynes (NASA HQ) and **Juli Trtanj (NOAA)** thanked CoP members for their continued contributions to the field and engagement in the group discussion. They agreed that these teleconferences provide 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) closed the teleconference and announced that the next community telecon will be scheduled in late February.

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