GEO Health Community of Practice (CoP)  
Community Telecon  
November 28, 2023

**In Attendance:** 48 participants  
Juli Trtanj (NOAA), Helena Chapman (NASA HQ/BAH), Kim McMahon (NOAA NWS), Katia Kontar (NOAA), Kim Locke (NASA GSFC), Trisha Castranio (NIH/NIEHS), Meryl Kruskopf (NASA SERVIR), Emma Knowland (NASA GSFC & Morgan State Univ.), Carl Malings (NASA GSFC & Morgan State Univ.), Helen Amos (NASA GSFC), Karly Harrod (Oak Ridge National Laboratory), Este Geraghty (Esri), Jared Shoultz (Esri), Steve Moran (Google), Mariana Mendoza (ImageCat Inc), Ron Eguchi (ImageCat Inc), Tim Trainor (International Cartographic Association), Antonio Correas (Skymantics), Ajay Gupta (HSR.health), Paul Churchyard (HSR.health), Sourav (HSR.health), Michael Temchine (HSR.health), Ram Peruvemba (HSR.health), Azar Abadi (Univ. of Alabama-Birmingham), Ben Zaitchik (Johns Hopkins Univ.), Enbal Shacham (St. Louis Univ.), Ana Prados (Univ. of Maryland Baltimore County), Jenny Bratburd (Univ. of Wisconsin-Madison), Emmanouil Platanakis (Univ. of Bath, UK), Nicolas Ray (Univ. of Geneva), Thais dos Santos (PAHO), Jorge Del Rio Vera (United Nations Office for Outer Affairs Affairs), Ian Coady (WorldPop, UoS), Andreas Skouloudis (iSteep.org), Ngongang Danube (Stockholm Environment Institute), Paschalis Tziastas (European Commission), Carlos Barboza (Ministry of Public Health, Uruguay), Jorge Cabrera, Basundhara Maji, Michael Woodman, Kristina Symes, Kevin Park, Nathan, Ruvani, Adelaide, Antony, Unknown1, Unknown2.

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

**Juli Trtanj** (NOAA) opened the telecon by welcoming all participants.

**Juli Trtanj** (NOAA) mentioned that two CoP members will be attending COP28 – Ben Zaitchik (Johns Hopkins Univ.) and Anna Stewart-Ibarra (IAI) – and that the “Health Day” will be recognized on December 3. Then, she requested that CoP members complete and share the Global Heat Impacts and Solutions Survey, launched by the GEO Secretariat, to assess heat impacts and solutions worldwide, which targets global policy makers and communities to help provide a rapid assessment of the gaps and opportunities for the emerging Global Heat Resilience Service. She said that the survey findings will be presented at the Esri exhibit booth at COP28. Finally, she expressed her enthusiasm to connect virtually with CoP members at the Annual Meeting on December 5 and in-person or virtually at the AGU2023 CoP Town Hall on December 14.

**Helena Chapman** (NASA HQ/BAH) reminded CoP members to share their One Health Day 2023 (recognized on November 3) activities on the One Health Commission’s global map website. She also highlighted the WMO’s 2023 State of Climate Services: Health, which was launched in November 2023.

**Ajay Gupta** (HSR.health) and **Andreas Skouloudis** (iSteep.org) invited CoP members to join the Health Care Infrastructure Work Group and contribute their expertise to an array of exciting global health topics. **Andreas Skouloudis** (iSteep.org) commented that their Work Group submitted a Horizon Europe proposal (currently under evaluation), and they expect to receive news in early 2024.
This proposal was based on examining the impact of extreme heat effects (heat waves) on selected medical conditions in the Southern Hemisphere.

**Marina Mendoza (ImageCat, Inc.)** presented the NASA-funded FireCapture project, which uses Earth observation data to improve machine learning models and predict wildland fire health impacts. She said that this information can be helpful for wildland firefighters and clinicians in emergency and clinical management.

**Antonio Correas (Skymantics)** described HERC²ULES, which aims to establish a monitoring and mitigation alert system for heat specifically tailored to vulnerable populations (e.g. maternal and child health). This system aims to model a data-driven methodology to forecast spread, severity, and vulnerability by creating a digital twin for testing and analysis of alternative realities.

**Emmanouil Platanakis (Univ. of Bath, UK)** shared described the Harnessing Earth Air Quality, Climate and Environmental Remote Sensing for Health (HEALERS), as a data-driven approach to forecast spread and severity of environmental pollution caused by climate change to specific locations and sectors of the population. He mentioned that satellite data can help communities prepare for and respond to air pollution events (e.g. wildfires, dust storms), and reduce associated financial losses. He commented on the data (demographics infrastructure, satellite observations, air/quality monitoring, meteorology/climate monitoring), product (decision support system, deployment/validation in five global domains), and impact (health impact assessment, economic optimization and cost-effectiveness, extreme event forecasting, regulatory intervention). Finally, he said that HEALERS can help identify areas where additional humanitarian facilities are needed or resources can be borrowed from neighboring areas, in efforts to identify vulnerable population groups.

**Paul Churchyard (HSR.health)** described the generative AI-enabled GeoMD Platform that combined geospatial analysis, artificial intelligence and machine learning data science, health risk analysis, satellite imagery analysis, among other data sources, to help identify impacts of access to care, climate change and environmental factors, built environment, and social/demographic characteristics. He provided a use case of generative GeoMD in a disaster response, which can help synthesize large quantities of data and provide relevant insights to speed disaster response efforts. He shared another example related to the need for cross-validation across disease outbreak data sources to ensure accurate estimates of disease severity, noting that current measures may underestimate (e.g. measles) or overestimated (e.g. rabies) burden in a given setting. Finally, he commented that they are examining factors related to natural disasters (wildfires, drought, heat), health infrastructure (medical supply needs, care deserts), and disease conditions (maternal/child health/opioid abuse).

**Ajay Gupta (HSR.health)** and **Andreas Skouloudis (iSteep.org)** opened the telecon for collective discussion.

**Meryl Kruskopf (NASA SERVIR)** asked Marina Mendoza (ImageCat, Inc.) said that her team has encountered challenges in identifying burned areas over land cover, partially due to the lack of ground-based data. She asked about the accuracy of HCaptcha data, especially related to accurate identification of burned areas and fires with satellite imagery. Marina Mendoza (ImageCat, Inc.) said that they examined three case studies – California, Colorado, and Athens (Greece) – and observed differences in accuracy within these different landscapes. They observed more burned areas in Greece (vs Colorado), but it was difficult to understand the overall context. She commented that this short project allowed them to conduct accuracy assessments, although they would like to further expand their analysis of the accuracy of landscape characterization (e.g. urban vs rural, soil variation) in the future.
Helen Amos (NASA GSFC) asked Antonio Correas (Skymantics) about the proposed data resolution, and if his team is interested in MERRA-2 data. Juli Trtanj (NOAA) asked about end-user engagement related to these decision support tools. Antonio Correas (Skymantics) said that they need sufficient resolution (granularity between neighborhood level and regional level) to infer the highest vulnerability risk and translate this information into actionable solutions from a multisectoral perspective. He commented that they would like to engage with partners and stakeholders to help identify end users and how they can use this information.

Marina Mendoza (ImageCat, Inc.) asked Emmanouil Platanakis (Univ. of Bath, UK) if the cost-benefit analysis is part of the decision support system, and whether they have defined a framework for estimating these anticipated costs and benefits. Emmanouil Platanakis (Univ. of Bath, UK) mentioned that the decision support system has multiple objectives, including cost-benefit analysis, and they incorporate certain assumptions into the decision support framework. With emerging threats over the next two decades, it is important to recognize vulnerable communities.

Marina Mendoza (ImageCat, Inc.) asked Paul Churchyard (HSR.health) if their team (or a third party) developed and trained the artificial intelligence model with the specific data that they provide. She also asked if they needed to tailor the platform for different end-users. Jared Shoultz (Esri) wondered if there was an option to format the GeoMD for in-depth analysis. Paul Churchyard (HSR.health) said that they are training their models using available base models from OpenAI and other portals that align with their use case. He confirmed that as they develop the platform, they plan to incorporate the prompt about the users’ preferred data export format for download and subsequent inclusion into their own systems for analysis (if users have the respective data license).

Nicholas Ray (Univ. of Geneva) commented that his research group focuses on modeling realistic accessibility to health services in LMICs. He asked Paul Churchyard (HSR.health) if the system could handle post-disaster access to care (e.g. how many people are beyond two hours of access to a functional health facility network, accounting for post-disaster damaged health infrastructure), wondering if the pipeline would allow for such prompts and analyses. Paul Churchyard (HSR.health) agreed that this analysis would work with GeoMD for disaster response and care deserts, as it falls within the scope of their work. He commented that it would be an interesting data challenge, but he was confident with the ability to incorporate different location-based data not readily accessible into the system.

Juli Trtanj (NOAA) and Helena Chapman (NASA HQ/BAH) 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.

Juli Trtanj (NOAA) closed the teleconference and mentioned that the Annual Meetings are scheduled for Tuesday, December 5 at 8:30AM EST (GMT-5) and Thursday, December 14 at 6:30PM PST (GMT-8).

Adjourned: 9:30AM EST (GMT-5)