Highlights of the One Earth One Health Workshop (Montréal, June 2017) and the Future Report

Presentation to
GEO HEALTH CoP
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GEO Week 2017
October 24th, Washington, DC
Collaboration CSA-PHAC

- **CSA**
  - Earth Observation (EO) support for government organizations, incl. Public Health Agency Canada (PHAC)
  - Canadian EO data and applications development program, with industry, academia and government departments

- **PHAC, National Microbiology Laboratory priorities**
  - Advance research, risk assessment, develop priority areas such as emerging infectious diseases (e.g. Lyme disease, viral encephalitis, Zika virus)
  - Use of EO and other space and geospatial technologies to address and communicate public health issues
Joint activities CSA-PHAC

- Project: “Risks assessment of microbial contamination of recreational waters using satellite imagery”
- Project: “RADARSAT for One Health”
- Project “Urban Determinants of Health”
- UN-COPUOS Expert Group on Space and Global Health
- Living Planet Symposium 2016 “Tele-epidemiology & Public Health”
One Earth One Health Workshop

Objectives

• Better understanding of EO links between environment, climate, society and public health

• Demonstrate applications derived from satellite EO data analysis

• Identify existing or potential EO data, indicators and methods in support of public health

• Bringing together leaders and experts in EO and public health to strengthen collaboration
International Expert Perspectives

Session 1: Context and Scientific Opportunities

- Tele-epidemiology: Which contribution for Earth observation satellite data? by Cécile Vignolles (CNES)
- Satellite Earth observation data in advancing health-related SDG 3 targets: A conceptual framework by Ramesh S. Krishnamurthy (WHO)
- Getting ahead of the curve: Using Earth observations to predict health risks by Juli Trtanj (NOAA)
- Earth observations for health and air quality by John Haynes (NASA)
International Expert Perspectives

Session 2: Challenges for Science and Development of Applications

- SDG interactions, focus on health and opportunities for ecosystem/land cover analysis using Earth observations by William Sonntag and Steven Ramage (GEO-Secretariat)
- Climate change and mosquito-borne diseases in the Americas: Toward dynamical modelling and prediction at local scale using Earth observation by Thibault Catry (ESPACE-DEV) and Serge Olivier Kotchi (PHAC)
- Integrating EO-based data into vulnerability assessments: Case study and reflection on urban health research by Marion Borderon (University of Vienna)
- Healthy societies and healthy ecosystems: An integrated monitoring approach for biodiversity and human health by Michael J. Gill (GEO-BON)
Scenario-based Discussion

Themes

1- Vulnerable human populations
2- Mosquito-borne diseases
3- Tick-borne diseases
4- Water-borne diseases
5- Air quality and chronic diseases
6- Pandemic

Experts distribution

- Remote sensing, GIS, Geography
- Health (Epidemiology, Medicine)
- Other (policy, modelers, …)

Participants from Government organizations, academia, industries and international organizations
Workshop Results

• Key issues
  – Requirements for new and archived EO data and products
  – Development of innovative platform for data sharing
  – Requirements for data interoperability
  – Spatio-temporal challenges of data acquisitions
  – Concurrent ground observations and *in situ* measurements
  – Calibration and validation datasets
  – Management and coordination of joint EO and PH activities

• Lots of commonalities and potential, but also lots of development needed and questions to solve

• Goal: community of practice willing and able to address public health issues with the help of EO technologies
Report: The Potential for Earth Observation to Contribute to Public Health Practices

How does, or can, the current capacities of EO assist public health activities, what are the challenges for operational use of EO in public health, and what opportunities are there to further develop EO for the future benefit of public health?

Objectives:
• Assess current research and identify and document 6 key themes
  ▪ Mosquitos-borne diseases,
  ▪ Tick-borne diseases,
  ▪ Air quality and chronic diseases,
  ▪ Water-borne diseases,
  ▪ Vulnerable human population,
  ▪ Pandemic and major outbreaks.
• Solicit and collate expert advice on theme-specific needs and requirements
• Present conclusions and opportunities as a guide for making decision on further EO and public health related applications development activities.
Method to collect and select the information for the report

• Review of previous EO and Public Health work
  – Literature
  – Analysis of the finding

• Collection of information from EO and PH CoP
  – One Earth One Health Workshop
  – Specific questions
  – Analysis of the information collected

• Report development
  – Opportunity for the CoP to review the report
  – Analysis of the review
  – Collection of opportunities

• Final draft of the report
Next Steps

• Opportunity for PHAC and CSA to contribute to a community of practice, networking, exploring collaboration, and potential partnerships

• The 1st draft of the report will be distributed during the winter in order to obtain feedback from the community (nat/int) on potential areas of opportunities.
Collaborators

Canadian Space Agency: **Guy Aubé**, Marie-Josée Bourassa
Ærde Environmental Research: **Dirk Werle**
Public Health Agency of Canada: Nick Ogden, **Antoinette Ludwig**, Marie-Josée Champagne, Serge-Olivier Kotchi, Yann Pelcat, Julie Legaré, Philippe Berthiaume, Catherine Bouchard, Patricia Turgeon, Erin Rees
CNES, UN-COPUOS Space & Global Health expert team: Cécile Vignolles
CEOS Working Group on Capacity Building & Data Democracy: Hilcea Ferreira
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VetAgro Sup: Dominique Bicout
WHO: Ramesh Krishnamurthy
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NASA: John Haynes
GEO-Secretariat: Steven Ramage, Bill Sontag
GEO-BON: Mike Gill
University of Vienna: Marion Borderon
Université de Montreal: Francois Cavayas, Marion Ripoche, Ludivine Tayeb
UQAM: Yves Baudouin
Arctus: Thomas Jagler

... to be complet with the list of participants organizations
Thanks!

Blue Marble

Ebola Virus

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