




# OPEN DATA & OPEN KNOWLEDGE Workshop

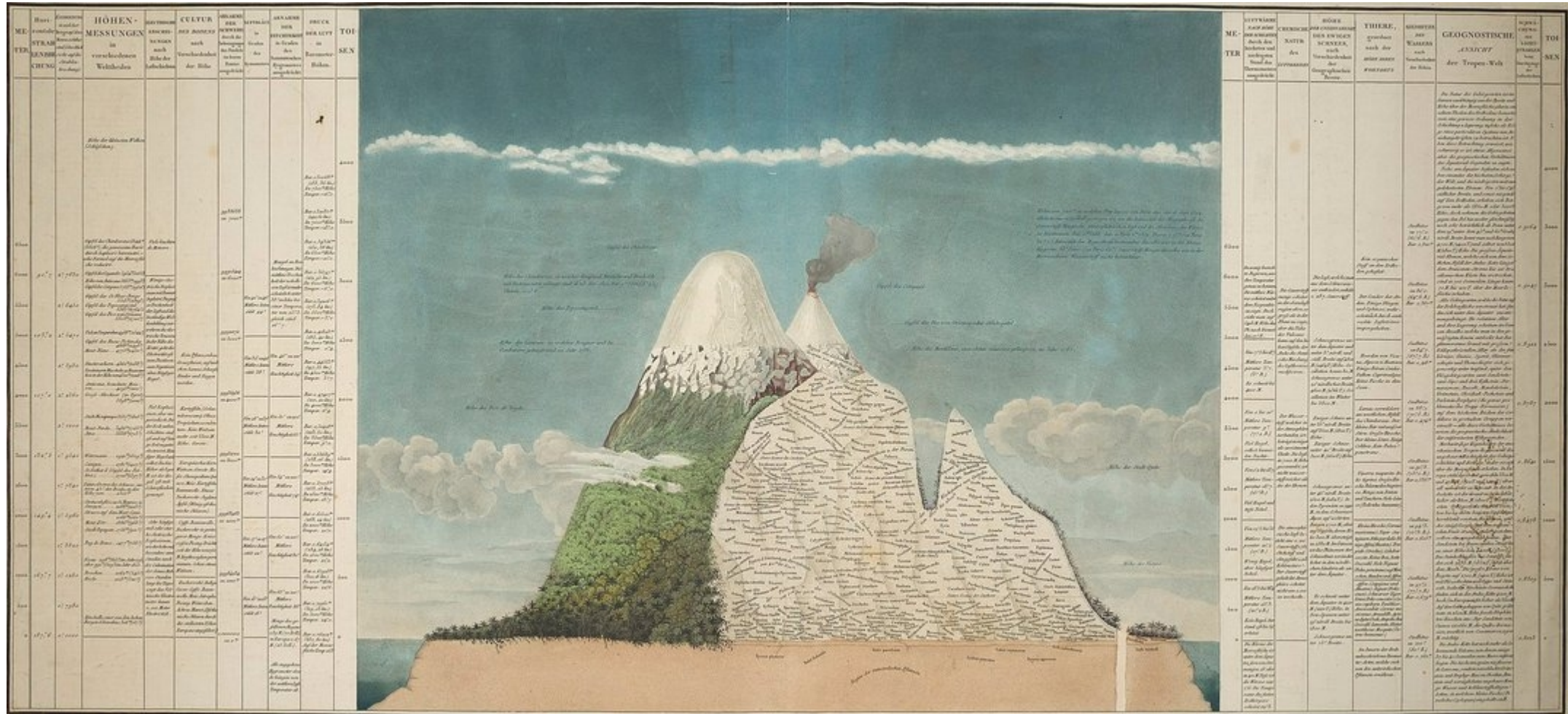
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# Never Enough: the never ending need for actionable data in the Mountains

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# The long journey of Mountain ECVs



Alexander von Humboldt – NaturGemalde 1807

# The long journey of Mountain ECVs



One Earth

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## Toward a definition of Essential Mountain Climate Variables

James M. Thornton • Elisa Palazzi • Nicolas C. Pepin • ... Martin Steinbacher • Marc  
Carolina Adler • Show all authors

Open Access • Published: June 02, 2021 • DOI: <https://doi.org/10.1016/j.oneear.2021.05.005>

Check for updates



07/06/2023

Agree upon underlying philosophy

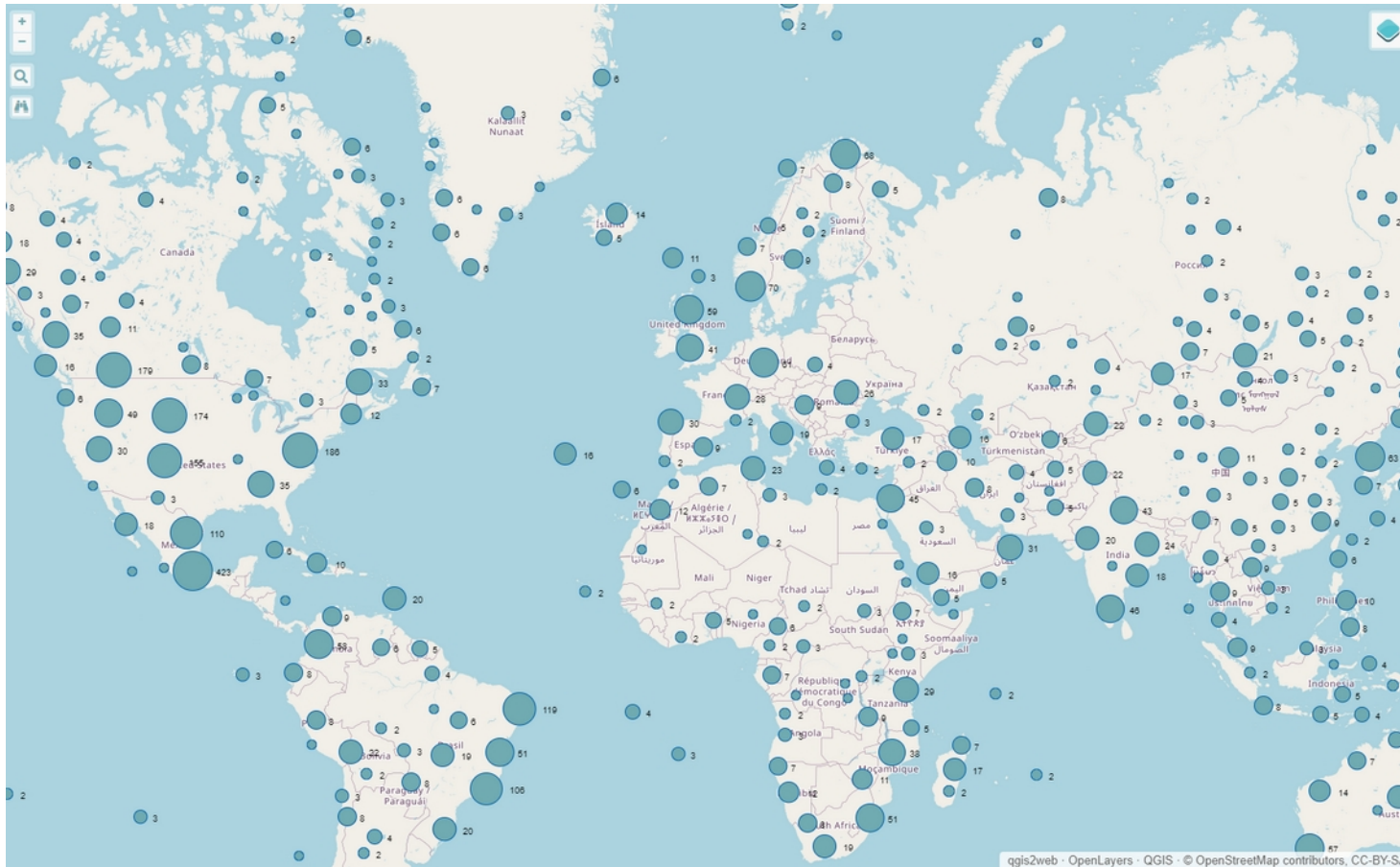
Conduct a broader survey of stakeholder views to establish a definitive set of EMCVs

Define associated observation requirements

Assess the extent to which EMCV requirements can currently be met using existing data sources

Work collaboratively to “fill the gaps”

# The long journey of Mountain ECVs



<https://www.geomountains.org/resources/resources-surveys/inventory-of-in-situ-observational-infrastructure>

- ❑ Aims to provide a comprehensive, multi-disciplinary overview of who is measuring what, where, when, how
- ❑ Web-mapping application and table available for download
- ❑ v2 Contains > 51,000 stations, networks, experimental basins, etc.
- ❑ Work still needed to complete metadata for many sites and ensure access / sharing to actual underlying data (e.g. time series)
- ❑ Could eventually provide the basis for a comprehensive gap analysis

## What we understood so far ...

- **Mountains matter:** 12/30% of the land surface, 0.9/1.2 billion people (90% in developing and transitional countries), climate change and biodiversity hot spots, key ecosystem, essential water, energy, food, and other resources goods and services, directly linked to downstream regions through natural pathways and human infrastructures, water towers for the world's major rivers (Shahgedanova et al. 2022)
- **we don't manage what we don't measure:** we need to track and report ongoing changes, better understand processes, and support global assessments (e.g. IPCC reports) and evidence based local policy cycle
- **system complexity:** highly diverse socio-ecological environmental systems
- ***in situ* data collection** is often a question driven process or project based endeavor
- **challenging** conditions (installation, maintenance of *in situ* infrastructures, data transmission, ...) / spatial and temporal scales / representativeness, ...
- **earth observation** is cool but not enough, at least in the mountains → we need to **integrate** in situ data, eo data and models
- heterogenous “**data ecosystem**”: lack of data consistency/standardization, inter-comparability and inter-operability
- weak “**data culture**”: different disciplines, metadata, open policies, data sharing, data access, ...
- good examples of thematic data sharing **successful initiatives**

# What we still need ...

- Build **interdisciplinary consensus**, around the Mountains ECVs framework, on what to measure and why (priorities) and how to measure
- identify existing **datasets ready to use**
- highlight thematic and spatial **gaps** → pave the way for **further work** by the community
- **Technicalities**: open and accessible geo-database, data-hubs, metadata, web interfaces, standardization and interoperability, minimum requirements, ...
- facilitate **data-access**, improve interdisciplinary **collaboration** around existing sites
- build a **community** of researchers and practitioners under the umbrella of Group on Earth Observations (GEO) Mountains
- Essential Climate / Biodiversity / Social variables → **Essential Mountain Variables**

## Where we can learn something ...

# The European Research Infrastructures



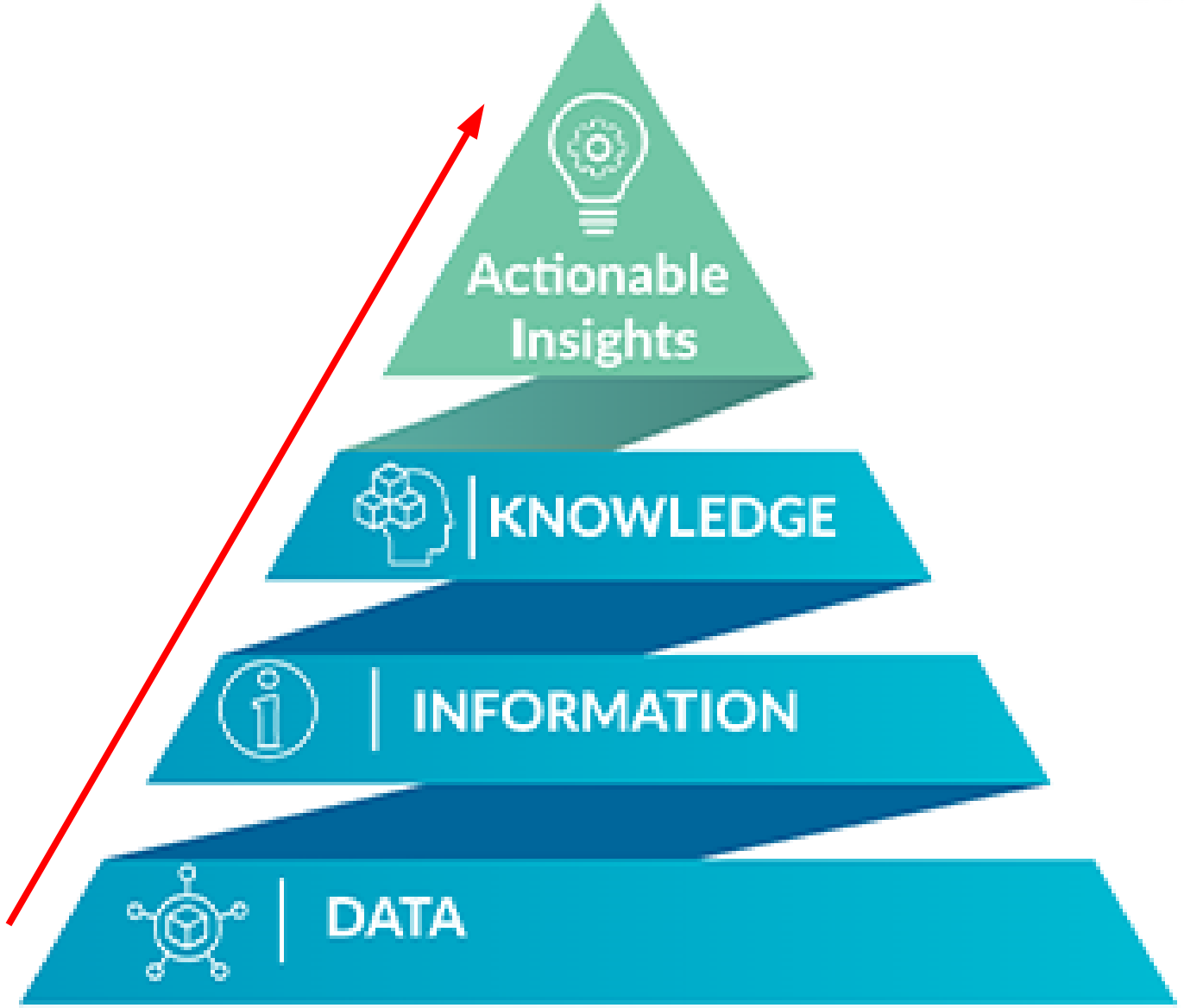
- ICOS is a stable, long term and **sustained** research infrastructure that can ensure timely, high quality and open access data to the scientific communities
- **Standardized** data collection: protocols, instructions, metadata, ...
- Thematic centers: **centralized data quality check and processing**
- **Assistance** and **training**
- **data products release** targeted to the needs of specific communities / eo validation activities
- **data distributed** with permanent identifier (PID) and under the Creative Common license, timely and also NRT





# What we better remember ...

We need to climb the information pyramid and work on the data value chain



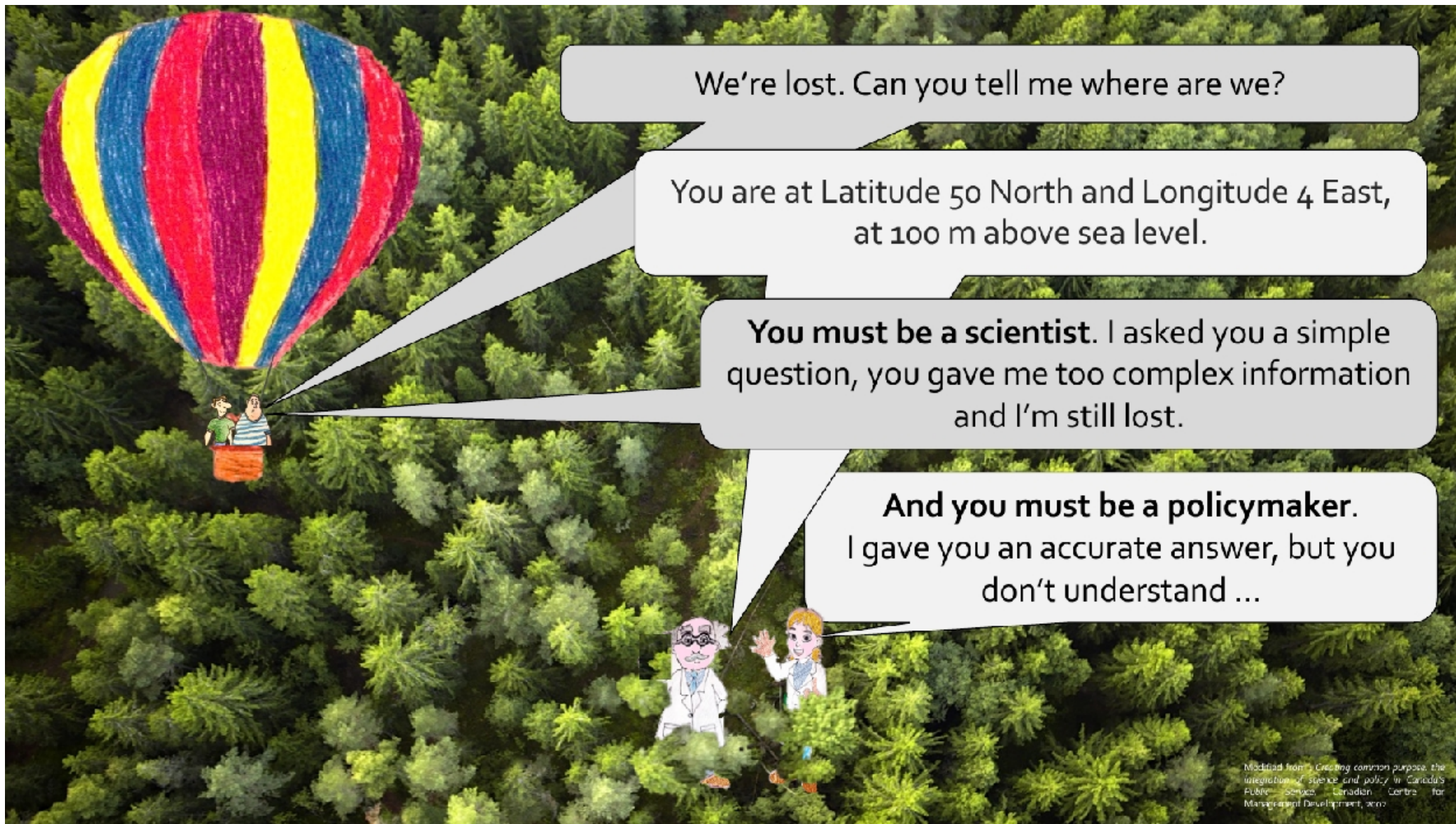
# What we better remember ...

## Overburdening decision makers with data



## How can we pursue our never ending quest for actionable data in the Mountains? .. my two cents ...

- get engaged in the **dialogue** between *in situ* and earth observation communities
- day by day advocacy of the **data sharing mindset**
- **resources**: we will fail if we count only on in-kind or voluntary contributions
- embrace **epistemic trespassing**
- find a **balance**: we'd love to have huge amount of standardized and accessible data but we need to provide answers today (mountain ECVs for evidence based policy cycle)
- hands on the the **science-policy interface ecosystem** (time, commitment, language, values, ...)



# CONTACT DETAILS



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