GEO WEEK & MINISTERIAL SUMMIT 2023

Flash Talk

#TheEarthTalks
Adding Citizen Science data for addressing the triple planetary crisis to GEOSS

In-situ data integration made possible with the new OGC Standard STAplus

6-11-2023 11:00 Room Freesia
509 citizen science projects in the environmental and ecological Domain (2018)


https://www.researchgate.net/figure/List-of-top-citizen-science-data-providers-to-date-single-data-providers-such-as_fig3_309633297
Barriers and Needs

Data collection is limited in geographical coverage. Citizen Science Projects are known but data access is often limited.

For tackling global problems, there is a need to aggregate Citizen Science data into collections of comprehensive datasets.
GBIF network aim to provide standardized and open access to biodiversity data from around the globe.

In terms of citizen science, the primary data type is occurrence records, which are standardized in the Darwin Core standard, and shared through instances of the GBIF Internet Publishing Toolkit. Licenses have been standardized to a subset of open Creative Commons licenses, making the data shared far more usable for the community.

Data can be queried and the extraction receives a DOI that can be cited.
CitiObs and AirQuality

Using calibrated **low cost sensors**

**Interoperability** through Sensor Things API

Common data **quality validation** tools

Eliminating barriers through standardized **data services** in a research infrastructure

**Knowledge** augmentation and visualization

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**Social dimensions**

- Inclusive stakeholder engagement
- Participation dynamics & relational models
- NEB & co-creation of local actions for sustainability

**Technical dimensions**

- Use of low cost sensors and wearables
- Data access and interoperability tools
- Data quality and validation tools
- Data services in EU research infrastructure
- Data knowledge augmentation and visualization tools
Based on observations

What: describes the variables and the units of measures linking to standardized concepts
Where: provides the position of the sensor and the observation
When: time of the observation and the processing and storage
How: defines licenses and campaigns
Who: acknowledge the citizens participating
Sensor Things API plus. A standard for Citizen Science

STAplus: [https://docs.ogc.org/is/22-022r1/22-022r1.html](https://docs.ogc.org/is/22-022r1/22-022r1.html)

**What**: describes the variables and the units of measures linking to standardized concepts

**Where**: provides the position of the sensor and the observation

**When**: time of the observation and the processing and storage

**How (to reuse)**: defines licenses and campaigns

**Who**: acknowledge the citizens participating
Integration of Air Quality data

Smart sensors sending data via STAplus MQTT

Standard deployment of repositories using STAplus enabled services

Standard adaptation to STAplus

Automatic integration of data

Integrated modules for quality flagging and statistical aggregation
WP23_25: GEO Citizen Science

Objective: Demonstrate the value of citizen science data, facilitate the creation of a linked ecosystem of open citizen science data and increase the use of citizen science in GEO by supporting global coordination and collaboration.

Tasks:
- Showcasing the use and value of Citizen Science
- Improving discovery of and access to Citizen Science data
- Advancing and implementing relevant standards
- Outreach, networking and recommendations

Citizen Science should be integrated in the data working group and recognized as a contributor of in-situ data.
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6-10 NOVEMBER
CAPE TOWN, SOUTH AFRICA