Contribution ID: **72** Type: **POSTER&PITCH**

Presenting a prototype platform for mapping epidemiological cohort metadata with environmental and earth observation metadata: the MetaMap³ project

Monday 4 November 2024 14:00 (1 hour)

Introduction: The environment plays an important role for human health and efficient linkage of epidemiological cohorts with environmental data is crucial to quantify human exposures. However, there are no harmonized standards for automatic mapping of metadata of our three domains Health (HMGU), Earth & Environment (UFZ), and Aeronautics, Space & Transport (DLR).

Objective: We aimed to ease the search for appropriate exposure data for subsequent epidemiological analyses by generating and enriching interoperable and machine-readable metadata for exemplar cohort and exposure data and by mapping these metadata so that they can be jointly queried and searched.

Methods: Our use case for cohort metadata consisted of the two German prospective, population-based birth cohorts GINIplus and LISAplus which were conducted in four study regions across Germany and included up to seven examination rounds since 1995. As use cases for environmental data, we considered land cover classification available for a single time point (06/2015-09/2017 mean) and daily soil moisture index data for the entire study period. Since both factors influence air temperature, they are of specific interest when investigating the effects of temperature extremes on human health. We reviewed several standards, strategies and tools and developed an approach to align the heterogenous metadata to a common structure and format.

Results: We identified spatial and temporal coverage as the main mapping criteria. For the environmental metadata and the epidemiological metadata that have a spatial component (study centers, recruitment districts) we converged to the international standard for geographic information ISO 19115 and to the eXtensible Markup Language (XML). Based on our conceptual work, we identified the catalog application GeoNetwork as the best tool for our application. After setting up a test instance on a local server for our use cases metadata, the catalog can now be accessed at https://envepi.helmholtz-munich.de/geonetwork/.

Discussion: We are continuously populating the mapping platform with further metadata. Also, we are currently testing the full functionality of the tool, especially the filtering and search options of the application to enable the intended mapping.

This work was funded by the Helmholtz Association's Initiative and Networking Fund (INF): ZT-I-PF-3-018

Please specify "other"

In addition, please add 3 to 5 keywords.

health, environment, earth observation, metadata mapping, metadata catalog

Please specify "other"

For whom will your contribution be of most interest?

Researchers

Please assign yourself (presenting author) to one of the following groups.

Researchers

Primary authors: WOLF, Kathrin (Helmholtz Zentrum München GmbH - German Research Center for Environmental Health, Institute of Epidemiology, Neuherberg, Germany); DALLAVALLE, Marco (Helmholtz Zentrum München GmbH - German Research Center for Environmental Health, Institute of Epidemiology, Neuherberg, Germany); GEY, Ronny (Helmholtz Centre for Environmental Research –UFZ, Research Data Management (RDM), Smart models and Monitoring, Leipzig); STAAB, Jeroen (German Aerospace Center (DLR), German Remote Sensing Data Center, Geo-Risks and Civil Security, Oberpfaffenhofen, Weßling, Germany and Geography Department, Humboldt-University Berlin, Berlin, Germany); STANDL, Marie (Helmholtz Zentrum München GmbH - German Research Center for Environmental Health, Institute of Epidemiology, Neuherberg, Germany); BUMBERGER, Jan (Helmholtz Centre for Environmental Research –UFZ, Research Data Management (RDM), Smart models and Monitoring, Leipzig); TAUBENBÖCK, Hannes (German Aerospace Center (DLR), German Remote Sensing Data Center, Geo-Risks and Civil Security, Oberpfaffenhofen, Weßling, Germany and Institute for Geography and Geology, Julius-Maximilians-Universität Würzburg, Würzburg, Germany)

Presenter: WOLF, Kathrin (Helmholtz Zentrum München GmbH - German Research Center for Environmental Health, Institute of Epidemiology, Neuherberg, Germany)

Session Classification: Poster Session A

Track Classification: Connecting research data: 5. Technical solutions for findable and machine-readable metadata