EGU22-11838
https://doi.org/10.5194/egusphere-egu22-11838
EGU General Assembly 2022

ClimateLynx. Generating global climatic linkages

Clemens Rendl, Ramiro Marco Figuera, and Stefano Natali
(rendl@sistema.at)

Negative effects of climate change lead to diverse and extensive impacts. While some regions are more vulnerable than others to uncertain outlooks, reliable tools to assess climate risks, drive decisions and turn threats into opportunities are increasingly needed. Geospatial environmental data are globally available, covering populated as well as remote areas. The pool of data reaches back decades in time and grows day by day. Satellite data play a crucial role in improving the multi-dimensional description of the Earth system. This invaluable resource, when merged with socio-economic information and other open and free datasets, enables us to better understand dynamics of a globally changing climate and thus rapid and sound decision making.

ClimateLynx is a knowledge management system for climate related data and information. A knowledge base, also called “second brain”, is a tool that supports creating relationships between data and information to help think better. In our proposed service, the knowledge we want to gather, explore and exploit is data relevant for climate change induced decision making. Our vision is to create a constantly growing and evolving climate change knowledge graph supporting decision and policy makers to contribute to the sustainable development and helping us to move closer to achieving current and future climate pledges, and eventually a more sustainable future for all. ClimateLynx includes climate data and data from interdisciplinary domains alike, such as socio-economy (WB[1], ADB[2]) or health (WHO[3]). The scope is to fuse these data and thus generate location and time relevant insight. This way, a holistic approach to strengthen resilience is fostered. When the data pools are fused and put into context, it is possible to generate connections and correlations between indicators of different domains. The combination and linkage of inter-domain specific indicators could help to better understand interdisciplinary climate change induced global dynamics and tail effects. Moreover, non-obvious linkages between indicators or domains could be highlighted or even uncovered. With the help of such a tool, it could be possible to detect negative emerging climate trends based on the time series analysis of indicators earlier and react adequately.

ClimateLynx focuses on urban regions and is devoted to decision makers, urban planners and data experts. Urban planners can take advantage of ClimateLynx through comparing initiatives and developments with other cities of e.g., similar size, climatic conditions, or GDP. This enables for efficient planning and can support ideas and initiatives to create more liveable and climate resilient cities. Likewise, data experts might be interested to explore the various data sets and create new connections through linking indicators from natural and social science disciplines and thus discovering location relevant specificities.

ClimateLynx is built on top of the data access and processing capabilities of the ADAM[4] platform, to quickly access and process large volumes of data. Through ADAM, ClimateLynx is fed with climate indicators calculated from data from historic, currently operating, and future satellite missions. Global climate indicators are computed periodically, city-aggregated information is extracted off-line to offer optimal user experience.

[1]https://data.worldbank.org/
[2]https://www.adb.org/what-we-do/data/main
[3]https://www.who.int/data/collections
[4]https://adamplatform.eu/