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LIBERATING KNOWLEDGE FROM CLIMATE-RELATED REPORTS – UN DATATHON 2023

Supporters:

Joint Lab:

HOCHSCHULE HANNOVER
UNIVERSITY OF APPLIED SCIENCES AND ARTS

TIB

nationale Forschungsdaten Infrastruktur
for CULTURE

UN Datathon

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ABOUT #SEMANTICCLIMATE

- We make software to make climate knowledge accessible to all -- both machine and humans

- Create reusable Citizen Science outreach content packages and event formats:
    - Hackathons
    - Intern programmes
    - Code and data science learning packages
    - Climate Reader collation tools for city climate plans, climate vulnerability assessment, and other settings
    - Train-the-trainer formats (AKA Carpentries)

Team and mentors at SDG space Geneva

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UN DATATHON 2023 THEME & SDGS

1. Food systems
2. Energy access and affordability
3. Digital connectivity
4. **Education**
5. Jobs and social protection
6. **Climate change, biodiversity loss and pollution**

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PROBLEM STATEMENT, METHODOLOGY, & DATA

- **Problem statement:** Support a user of UN Data who is exploring a questions on ‘Climate Vulnerability Indexes’ with Big Data analysis of the global scientific literature, with geolocation.

- **Methodologies:** Iterative software development using hackathons and rapid prototyping, creating replicable frameworks, open notebook science

- **UN Data used:** Carbon Disclosure Project (CDP), 2022 Cities Climate Hazards - https://data.cdp.net/Climate-Hazards/2022-Cities-Climate-Hazards/rdq4-d52n

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#SEMANTICCLIMATE PRODUCTS / USE CASES

1. CLIMATE VULNERABILITY ASSESSMENT TRACKER FOR IPCC REPORTS
2. SEMANTIC GLOSSARY FOR UN IPCC READERS
3. PDF READER FOR UN DIPLOMATS

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USE CASE #1: CLIMATE VULNERABILITY ASSESSMENT TRACKER FOR IPCC REPORTS

HELP UN DATA USERS ANALYZE DATA, ACCESS OPEN SCIENTIFIC LITERATURE, AND CREATE REPLICABLE WORKFLOWS USING DASHBOARDS AND OPEN SCIENCE PRINCIPLES

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#CODE PYGETPAPERS TOOL

Scenario 1 - WITHOUT PYGETPAPERS TOOL: Climate Scientist wants to create a Climate Change Vulnerability Index for specific region within their country

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1000s of related and unrelated data and a methodology from ChatGPT with no scientific proof

Uses Google search, ChatGPT and Scientific Lit browsers

UN Data on Climate Vulnerabilities

Manually analyses both the data sets

Creates a Climate Change Vulnerability Index

The whole process is time-intensive, resource-intensive, is non-replicable and might not be contextual

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Scenario 2 - WITH PYGETPAPERS TOOL: Climate Scientist wants to create a Climate Change Vulnerability Index for specific region within their country

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Uses pygetpapers-docanalysis

Climate vulnerability related articles

Analysis on region, author, specific vulnerabilities

UN Data on Climate Vulnerabilities

Creates Vulnerability Assessment Framework

Contextual, replicable and easy

Papers can be:

- ***Geo located***
- ***Retrieved and downloaded automatically***

An interactive dashboard can be produced

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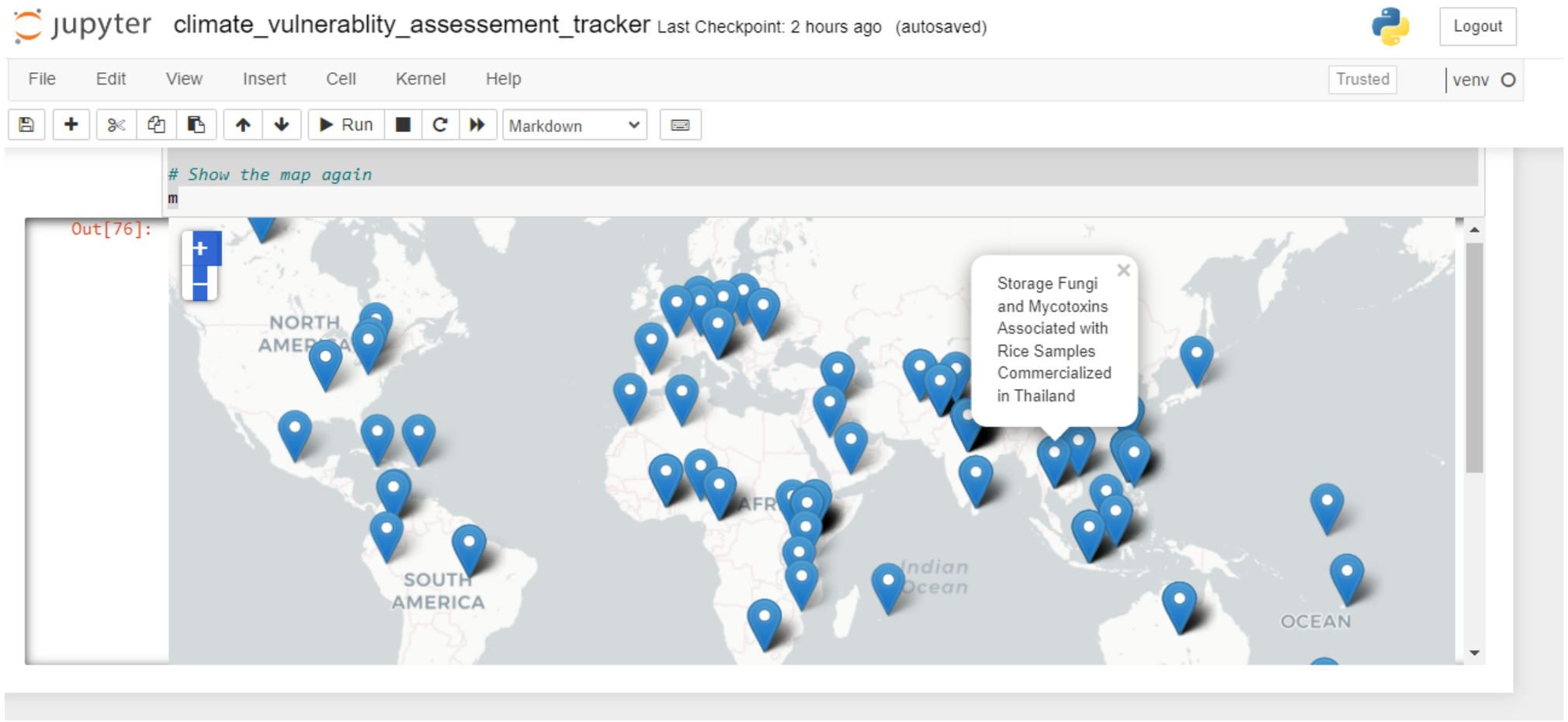
DEMO



Code link

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USE CASE #2: SEMANTIC GLOSSARY FOR UN IPCC READERS

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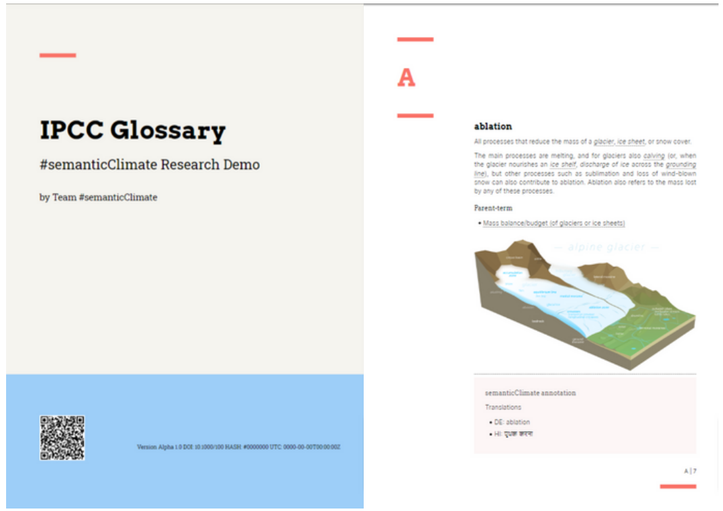
#CODE IPCC GLOSSARY

CONVERTING THE IPCC GLOSSARY

Input

Convert from to:

Output



- **Problem statement:** To make the glossary useful for finding sections in the reports and in the data. In addition adding a layer of crowdsourced multiligual entries

- **What we do**
  - Screen scraping and crowdsourcing
  - CSS Typesetting
  - Multilingual

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A PROTOTYPE GLOSSARY

- **Problem statement: To make the glossary useful for finding sections in the reports and in the data. In addition adding a layer of crowdsourced multiligual entries**

- **What we do**
  - Screen scraping and crowdsourcing
  - CSS Typesetting
  - Multilingual
- **Linking and enrichment (annotation)**
  - Crowdsourcing: from Wikipedia and and Wikidata
  - Link related resources - IPCC Reports, Data, Working Groups, etc: Annotate Wikibase

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THE DREAM WORKFLOW!

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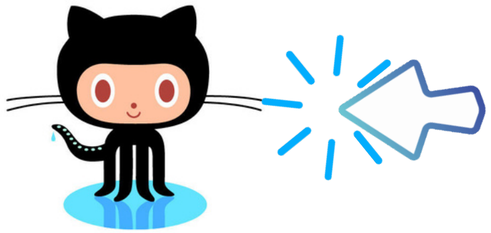
Source

TDM [py4ami]

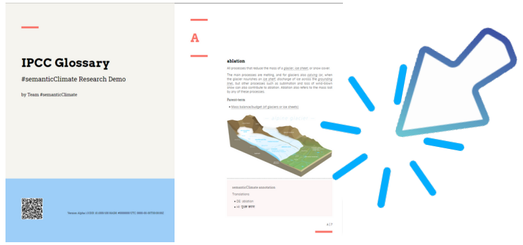
Data model

WIKIBASE

Terminology Services



GitHub/Lab (output storage)



Outputs (HTML/XML)
CSS Typesetting [Vivliostyle]: Paged web, scrolling web, mobile, PDF, PoD, eBook, etc.

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USE CASE #3: PDF READER FOR UN DIPLOMATS

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#CODE PDF READER

MACHINE-READABLE DOCUMENTS?

~2000 UNFCCC documents over 30 years, 50 statements/doc => over 1 statements

Decision 2/CMA.3

Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement

The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement,

Recalling the Paris Agreement,

Also recalling the tenth preambular paragraph of the Paris Agreement, in which Parties take into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities,

Further recalling the eleventh preambular paragraph of the Paris Agreement, acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity,

Recalling Article 2 of the Paris Agreement and decision 1/CP.21,

Also recalling Article 4, paragraph 2, of the Paris Agreement,

Further recalling Article 6 of the Paris Agreement and decisions 1/CP.21, paragraph 36, 8/CMA.1 and 9/CMA.2,

Cross-references between documents

SOURCE, RELATION, TARGET DOCUMENTS!

SOURCE

RELATION

TARGET DOCUMENTS

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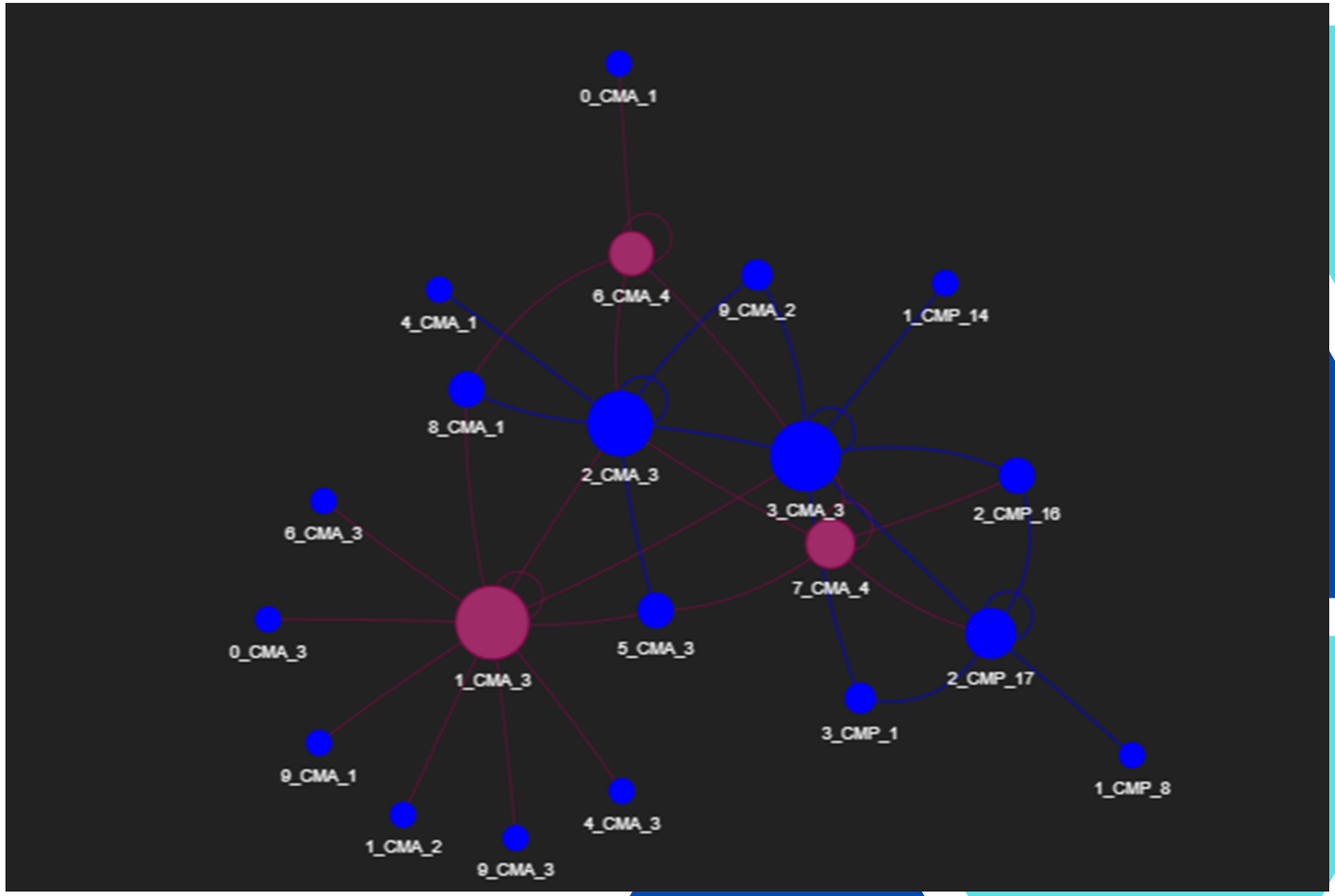
CONVERT PDF TO HTML AUTOMATICALLY

Problem statement: To automatically validate authoring and make statments in documents discoverable

- **search for SOURCE, RELATION, TARGETS**
- **Automatic, 1 sec/document**
- **Gives network graph**



SOURCE **TARGET**

temp

7_CMA_4	refers	7_CMA_4
7_CMA_4	refers	3_CMA_3
7_CMA_4	refers	2_CMA_3
7_CMA_4	refers	3_CMA_3
7_CMA_4	refers	3_CMA_3
7_CMA_4	refers	2_CMA_3
7_CMA_4	refers	2_CMA_3
7_CMA_4	refers	3_CMA_3

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THANK YOU!

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