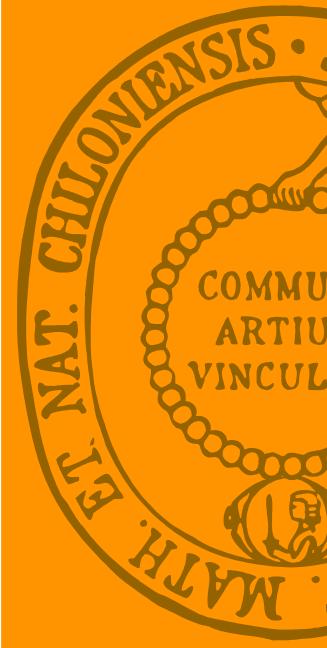


# GeoNode2.0 als Geoportallösung für das EU-Projekt CLIMB: Ein Erfahrungsbericht

Michael Blaschek\*, Daniel Gerken, Rainer Duttmann

\*blaschek@geographie.uni-kiel.de

*Lehrstuhl für Physische Geographie – Landschaftsökologie und  
Geoinformation, Geographisches Institut,  
Christian-Albrechts-Universität, Ludewig-Meyn-Str. 14, 24118 Kiel*



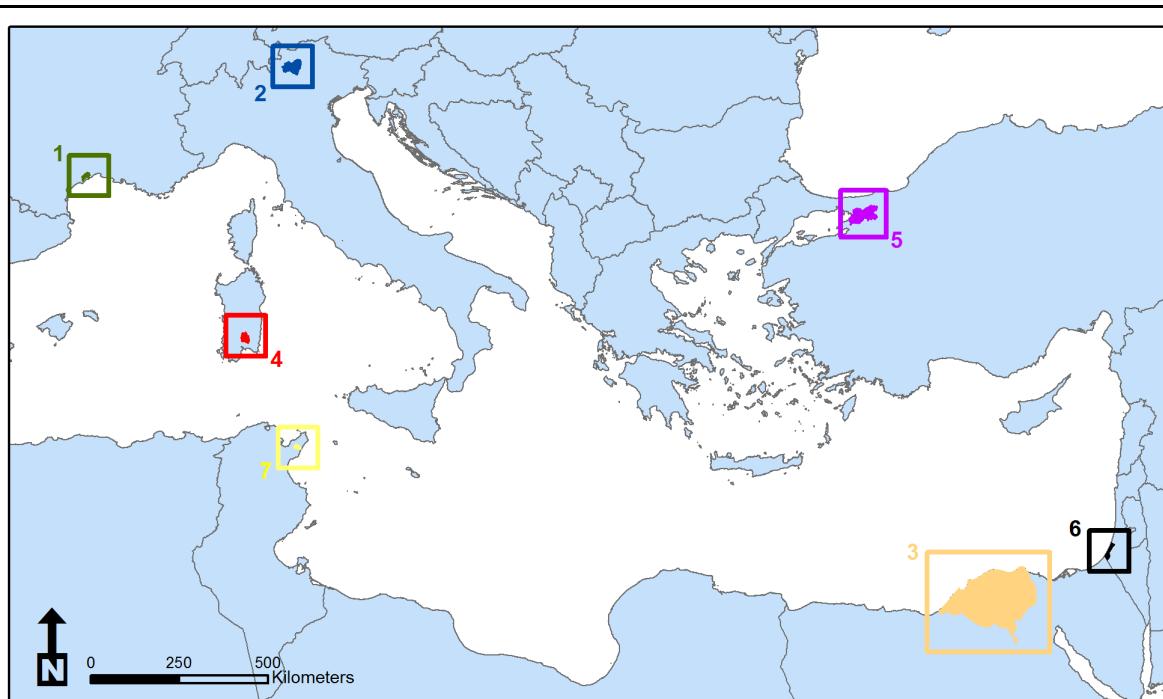
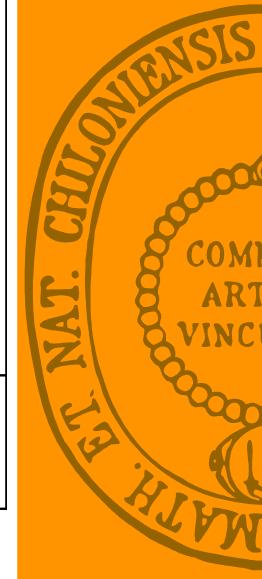
## Einleitung und Ziele

- Geoportale fungieren als Kernelement in Geodateninfrastrukturen und ermöglichen den web-basierten Zugriff auf Geodaten und -dienste
- CLIMB-FP7: Climate Induced Changes on the Hydrology of Mediterranean Basins, [www.climb-fp7.eu](http://www.climb-fp7.eu)
- Web-Plattform für den projektinternen Austausch von Geodaten und zur Verbreitung ausgewählter Projektergebnisse
- Nutzung erweiterbarer Open-Source Software



# Das CLIMB-Projekt

- Internationales Großforschungsprojekt mit 20 Partnern aus 9 Ländern
- CLIMB untersucht die Auswirkungen des Klimawandels auf die Hydrologie und das Management von Wasserressourcen im mediterranen Raum



## Location of CLIMB test sites

- Mediterranean region -

## CLIMB study sites

	Thau - Coastal Lagoon
	Noce
	Nile Delta
	Rio Mannu di San Sperate
	Izmit Bay - Kocaeli
	Gaza Aquifer
	Chiba - Cap Bon

## Reference:

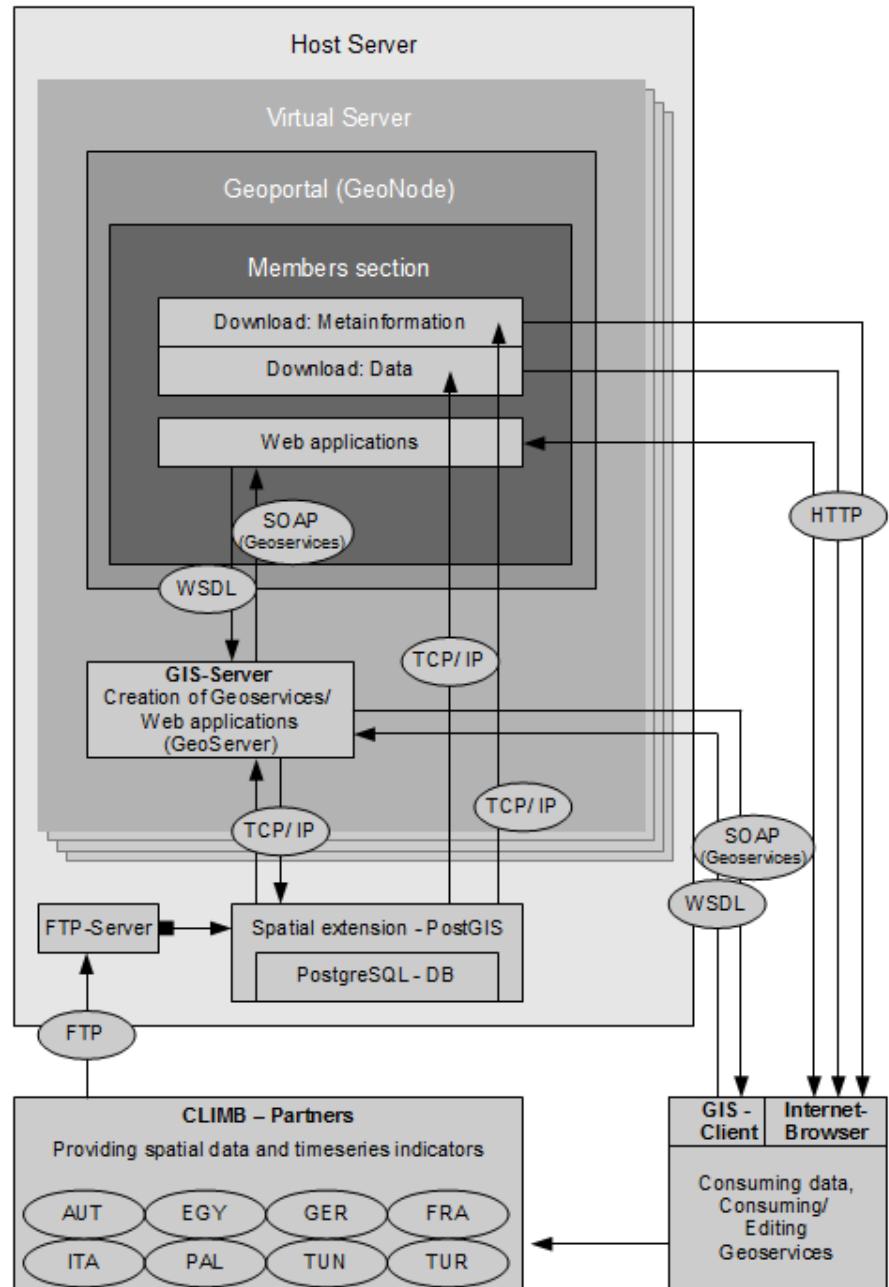
Hijmans et al. 2012 - GADM database of Global Administrative Areas, version 2.0, [www.gadm.org](http://www.gadm.org)

# Das CLIMB-Projekt - Geodatenmanagement

## Architektur der CLIMB-GDI:

Quellenhinweis: Nolde, M., Duttmann, R.  
Blaschek, M. & Klein, U. (2010):  
Geodateninfrastrukturen und ihre  
Anwendungen in der Praxis.

In: Praxis der Informationsverarbeitung  
und Kommunikation, 13, S. 245-252



## Das CLIMB-Projekt - Herausforderungen

- Große Anzahl an Datenproduzenten und -zulieferern
- Variierende nationale Standards hinsichtlich der Haltung von Geodaten
- Verschiedene Fachgebiete (Klima, Boden, Hydrologie) mit unterschiedlichen Datenformaten und -typen
- Unterschiedliche Datenanforderungen in Bezug auf die verwendeten hydrologischen Modelle
- Geringe Bereitschaft zum Ausfüllen/Erheben von Metadaten



## Was ist GeoNode2.0?

- 'GeoNode is a web-based application and platform for developing geospatial information systems (GIS) and for deploying spatial data infrastructures (SDI).' (<http://geonode.org>, besucht am 17.03.14)
- Ermöglicht den Projektpartnern eine individuelle Verwaltung der (von ihnen) in das Portal eingestellten Daten
- Erweiterbar → Einbinden projektspezifischer Funktionalitäten möglich
- Bietet ein für EinsteigerInnen geeignetes 'GDI-Gesamtpaket'



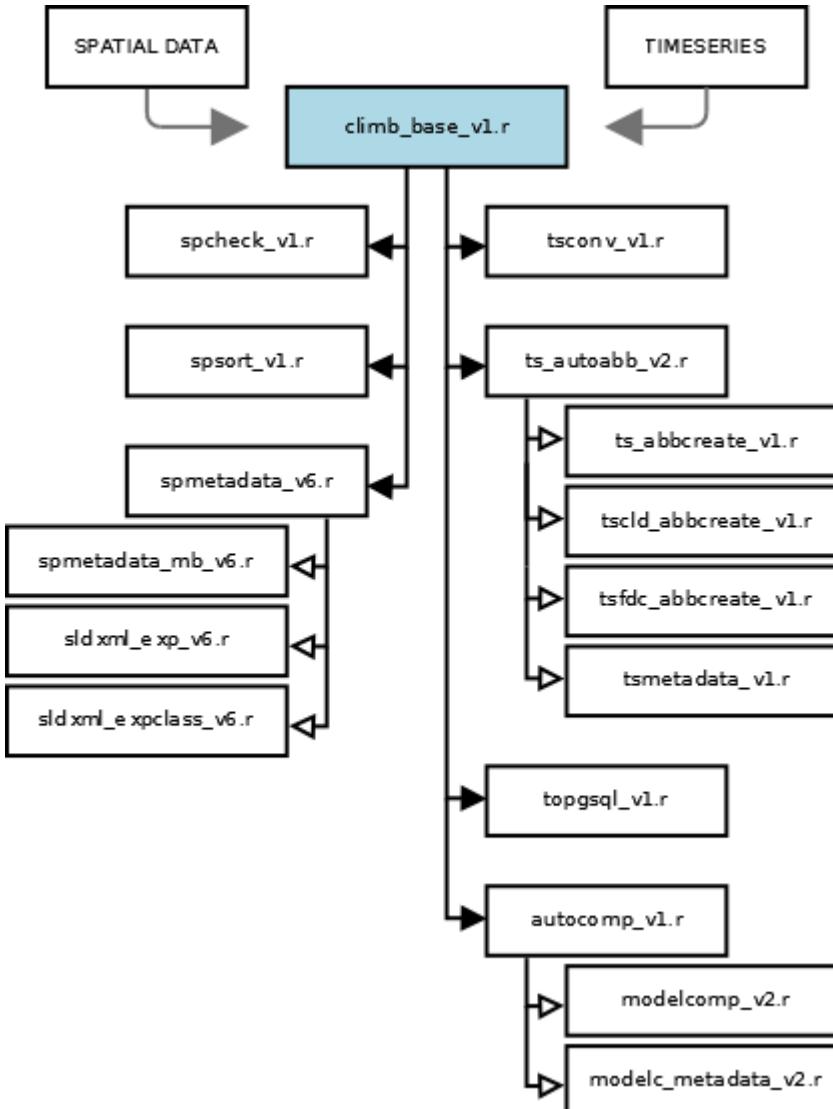
## GeoNode2.0 - Softwarekomponenten

- GeoServer → Kartenserver
  - pycsw → Metadatenkatalog
  - GeoExplorer → GeoExt-basierter WebGIS-Client
  - Python (Django) und JavaScript → Webanwendungen
  - PostgreSQL und PostGIS → Datenbank-Backend
- dazu:
- R → Datenaufbereitung



## R - Datenaufbereitung

- Dateinamen überprüfen
- Dateien konvertieren
- Daten transferieren
- Graphiken erstellen
- Metadaten generieren
- Darstellungsstile produzieren



# Das CLIMBPortal - Impressionen

The screenshot shows the homepage of the CLIMB WebGIS. At the top, there's a header with the URL "lg1-climbsrv.geographie.uni-kiel.de". Below the URL is the CLIMB logo, which features a blue and yellow circular design with the word "CLIMB" in the center. To the right of the logo is the text "Climate Induced Changes on the Hydrology of Mediterranean Basins". On the far right of the header are icons for "Search...", "Sign in", and a question mark. Below the header is a blue navigation bar with links for "HOME", "LAYERS", "MAPS", "DOCUMENTS", "PEOPLE", "SEARCH", and "TIMESERIES". To the right of the navigation bar are three small logos: "LG", the European Union flag, and "7".

## WELCOME

to the WebGIS-Server of the EU-FP7-project CLIMB - Climate Induced Changes on the Hydrology of Mediterranean Basins. This platform is meant for publishing (hydrological) modelling results produced by several project partners during the four-year timeframe of CLIMB.

For more information on the project, click [here](#) or visit [our main website](#).

Need help [Getting Started?](#)

[Explore Layers](#)

[Explore Maps](#)

## LATEST LAYERS

Total: 3



### CLAY content in %

Layer from mblaschek, 50 minutes ago

4 views



Average rating (0 votes)

[Create a map](#)



CLAY content, Rio di Costara  
Map from mblaschek, 36 minutes ago

5 views



Average rating (0 votes)

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[View](#)

Climate Induced Changes on the Hydrology of Mediterranean Basins

Search...   Sign in | ?

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Most Recent | Less Recent | A - Z | Z - A | Most Popular | Relevance | View by: Grid | List

Your selections Clear all

**CATEGORIES**

- All Categories
- Rio Mannu di San Sperate 788
- Rio di Costara 4
- Maso Maiano 0
- Thau 0
- Chiba 0
- Gaza 0
- Kocaeli 0
- Noce 2
- Nile 0

**DATE**

**KEYWORDS**

- HadCM3 RCA 196
- Water balance 56

Total: 48

◇ RMT\_CSM\_BTH\_M12\_WAS\_HRC\_BDM\_250\_LMU  
Layer from mblaschek, 3 days, 2 hours ago  
This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and re...  
  
4 views   Average rating (0 votes) Create a map

◇ RMT\_CSM\_BTH\_M12\_WAS\_ERM\_BDM\_250\_LMU  
Layer from mblaschek, 3 days, 2 hours ago  
This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and re...  
  
1 view   Average rating (0 votes) Create a map

◇ RMT\_CSM\_BTH\_M12\_WAS\_ERE\_BDM\_250\_LMU  
Layer from mblaschek, 3 days, 2 hours ago  
This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and re...  
  
0 views   Average rating (0 votes) Create a map

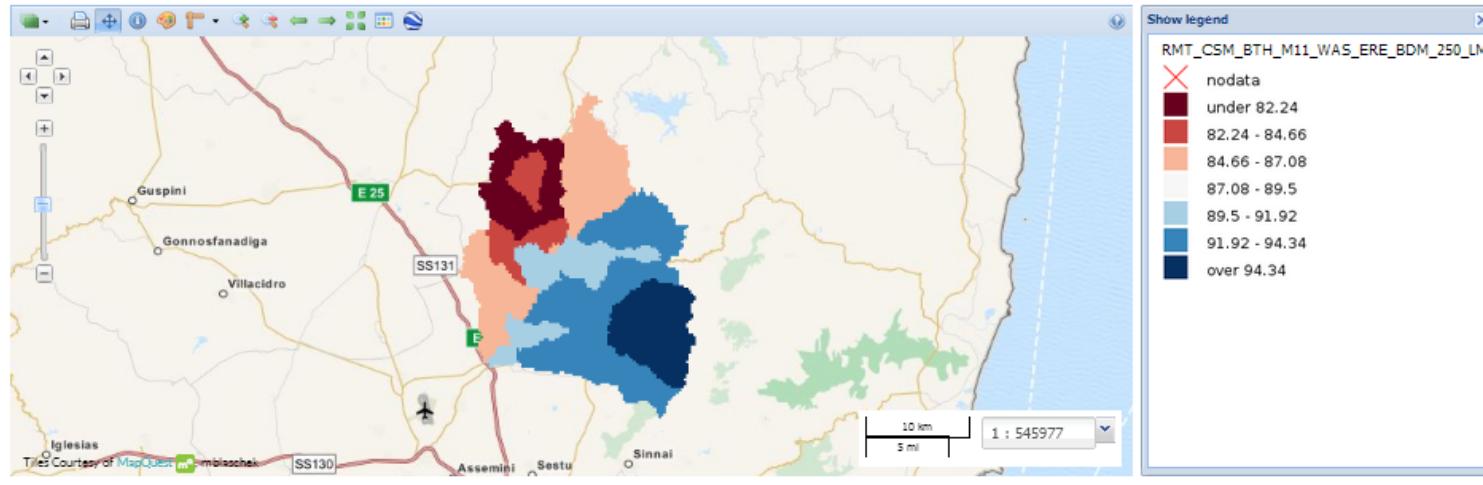
◇ RMT\_CSM\_BTH\_M12\_WAS\_ERC\_BDM\_250\_LMU  
Layer from mblaschek, 3 days, 2 hours ago  
This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and re...  
  
0 views   Average rating (0 votes) Create a map

◇ RMT\_CSM\_BTH\_M11\_WAS\_HRC\_BDM\_250\_LMU  
Layer from mblaschek, 3 days, 2 hours ago  
This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and re...  
  
0 views   Average rating (0 votes) Create a map





## RMT\_CSM\_BTH\_M1...

[Download Metadata](#)

Show legend	
RMT_CSM_BTH_M11_WAS_ERE_BDM_250_LMU	
	nodata
	under 82.24
	82.24 - 84.66
	84.66 - 87.08
	87.08 - 89.5
	89.5 - 91.92
	91.92 - 94.34
	over 94.34

[Info](#) [Attributes](#) [Share](#) [Ratings](#) [Comments](#)

Title: RMT\_CSM\_BTH\_M11\_WAS\_ERE\_BDM\_250\_LMU

## Abstract:

This layer displays the relative change in volumetric soil moisture within the Rio Mannu di San Sperate test site for the future (2041-2070) and reference (1971-2000) period. It represents month November. The involved hydrological model was WaSiM, the considered climate model was ECHAM-5 REMO, applied in the form: bias corrected and downscaled using multifractal cascades method (1km). The cell size of the target grid is 250m. The presented layer covers the total study site Rio Mannu di San Sperate, Sardinia. Its visualization is based on subcatchment level.

Publication Date: Nov. 13, 2013, 10:28 a.m.

Type: Raster Data

Keywords: WaSiM Relative change in volumetric soil moisture ECHAM-5 REMO

Category: Rio Mannu di San Sperate

Owner: mblaschek

Point of Contact: mblaschek

## Show/Hide

Restrictions: Restrictions and legal prerequisites for using the data set after access is granted.

## Purpose:

This layer represents output created within the EU-FP7 project CLIMB - Climate Induced Changes on the Hydrology of Mediterranean Basins (Ludwig et al. 2010, [www.climb-fp7.eu](http://www.climb-fp7.eu)).

Language: English

## Supplemental Information:

The relative change in volumetric soil moisture has been calculated from monthly mean volumetric soil moisture in %: Future period/Reference period \* 100.

## MAPS USING THIS LAYER

This layer is not currently used in any maps.

## CREATE A MAP USING THIS LAYER

Click the button below to generate a new map based on this layer.

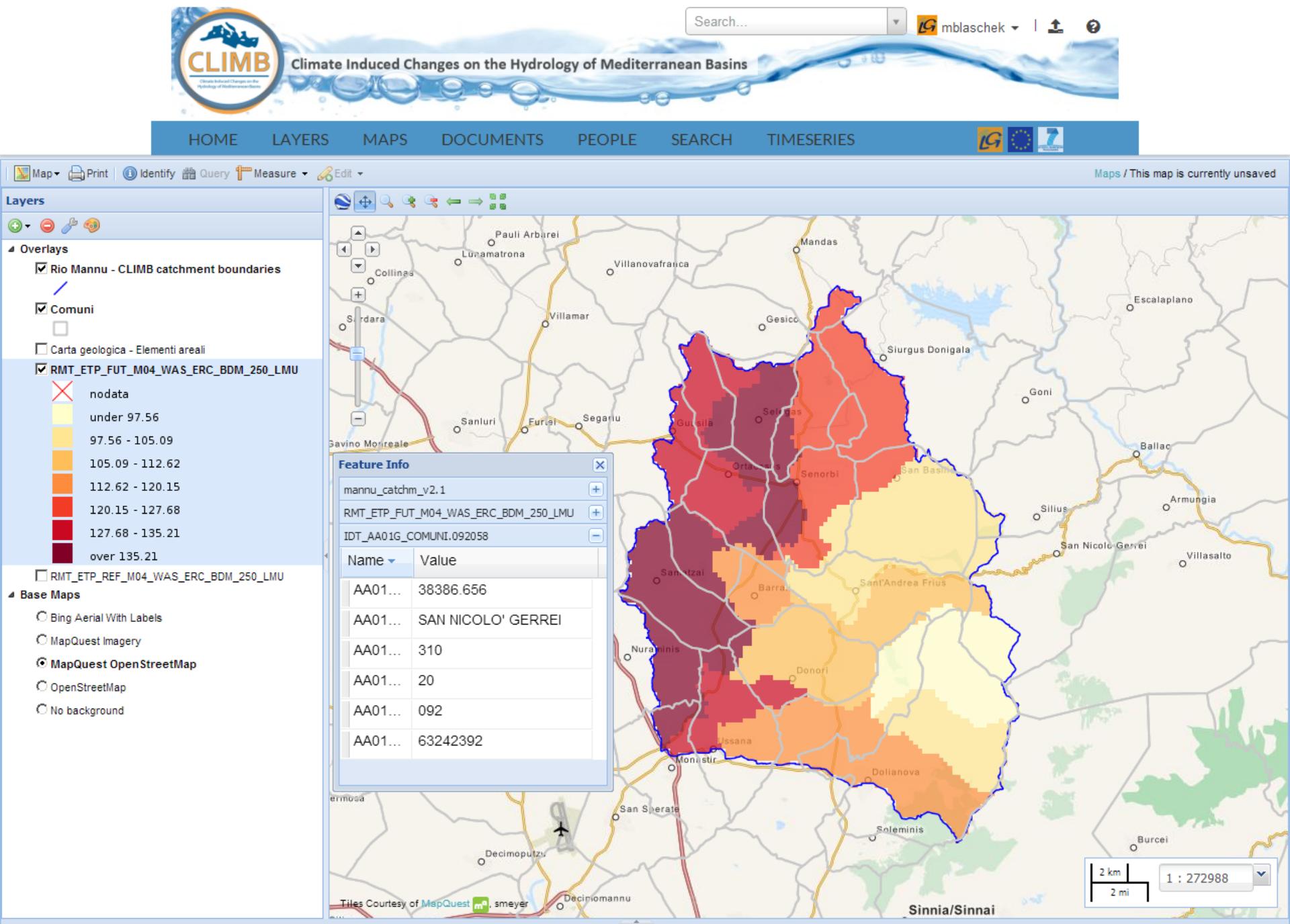
[Create a Map](#)

## STYLES

The following styles are associated with this layer. Choose a style to view it in the preview map.

- RMT\_CSM\_WAS\_LMU
- (default style)
- RMT\_CSM\_BTH\_M11\_WAS\_ERE\_BDM\_250\_LMU
- CSM\_CLIMB





CLIMB Climate Induced Changes on the Hydrology of Mediterranean Basins

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EXPLORE MAPS

Download test\_map  
Here you can download all the layers of this map that are hosted on this GeoNode.

- RMT\_ETP\_REF\_M04\_WAS\_ERC\_BDM\_250\_LMU
- RMT\_ETP\_FUT\_M04\_WAS\_ERC\_BDM\_250\_LMU

Finally, the map contains these layers which will not be downloaded because they are not available directly from this GeoNode:

- http://webgis.regione.sardegna.it/geoserver/ows?service=WMS&request=GetCapabilities?layers=dbu:GEOLOGIAAREALI
- http://webgis.regione.sardegna.it/geoserver/ows?service=WMS&request=GetCapabilities?layers=ras:IDT\_AA01G\_COMUNI
- http://ukzfg-s11.gis.uni-kiel.de/geoserver/sardbase/ows?version=1.1.1?layers=mannu\_catchm\_v2

[Start downloading this map](#)

**CLIMB Partners:**

LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN DLR CERTE CYTE UNIVERSITY OF TRENTO - Italy JÜLICH FORSCHUNGZENTRUM UNIVERSITÉ FRANÇAISE BOULOGNE SUR MER CRS4 Agris TETIS UNIVERSITÀ POLITECNICA DI TORINO

Powered by [GeoNode version 2.0c5](#) | [For Developers](#) | [About CLIMB](#)

Language English





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## EXPLORE PEOPLE

Most Recent | Less Recent | A-Z | Z-A | Most Popular | Relevance |

View by Grid List

Total: 20

Swen Meyer  
Ludwig-Maximilians-University Munich, Department of Geography  
743 Layers | 0 Maps | 0 Documents [My Activities](#)

Sihem Benabdallah  
CERTE - Center for Water Research and Technologies  
0 Layers | 0 Maps | 2 Documents [My Activities](#)

Samir Afifi  
Islamic University of Gaza  
0 Layers | 0 Maps | 2 Documents [My Activities](#)

Ralf Ludwig  
Ludwig-Maximilians-University Munich, Department of Geography  
0 Layers | 0 Maps | 0 Documents [My Activities](#)

Rainer Duttmann  
Christian-Albrechts-University Kiel, Physical Geography - Landscape Ecology and Geoinformation Science  
0 Layers | 0 Maps | 0 Documents [My Activities](#)

Monica Piras  
University of Cagliari, Department of Territorial Engineering  
0 Layers | 0 Maps | 1 Documents [My Activities](#)

Michael Blaschek  
Christian-Albrechts-University Kiel, Physical Geography - Landscape Ecology and Geoinformation Science  
54 Layers | 1 Maps | 1 Documents [My Activities](#)



# Das CLIMBPortal - Erweiterung

Climate Induced Changes on the Hydrology of Mediterranean Basins

Search... mblaschek |

HOME LAYERS MAPS DOCUMENTS PEOPLE SEARCH TIMESERIES

**HYDROLOGY** TOURISM AGRICULTURE

## TIME SERIES - HYDROLOGY

Choose the details for the time series you want to view or download:

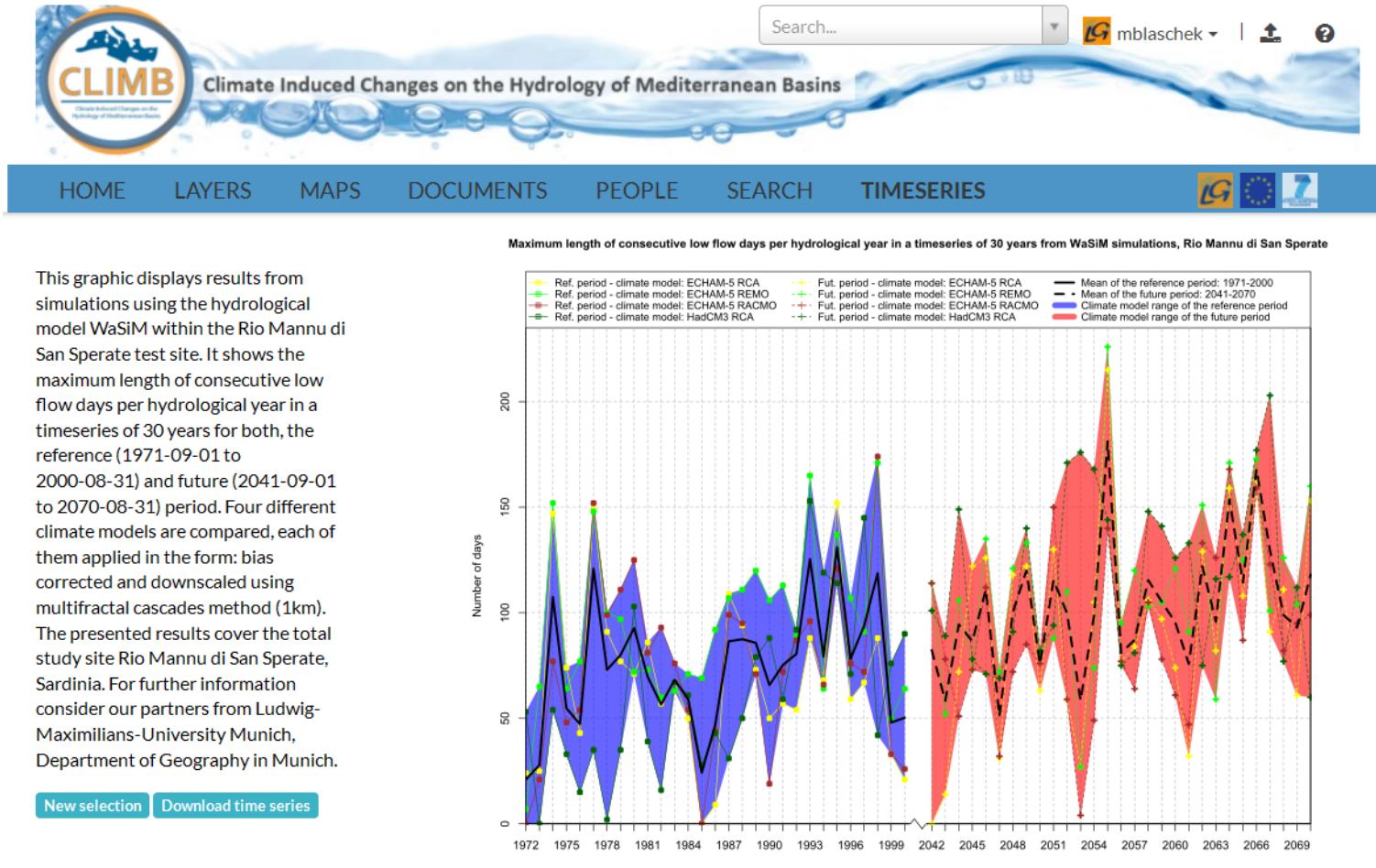
Study site	Rio Mannu
Hydrological model	WaSiM
Time horizon	Both
Hydrological indicator	CLD (consecutive low flow) --- Make a selection --- PRC (precipitation) ETP (potential evapotranspiration) ETR (real evapotranspiration) RUN (runoff) SWC (soil water content) DIS (discharge) FDC (flow duration curve) CLD (consecutive low flow) LF7 (lowest flow in a 7-day period) MDF (maximum daily flow) LFD (low flow days)

**Submit selection**

**CLIMB Partners:**

- 
-

# Das CLIMBPortal - Erweiterung



This graphic displays results from simulations using the hydrological model WaSiM within the Rio Mannu di San Sperate test site. It shows the maximum length of consecutive low flow days per hydrological year in a timeseries of 30 years for both, the reference (1971-09-01 to 2000-08-31) and future (2041-09-01 to 2070-08-31) period. Four different climate models are compared, each of them applied in the form: bias corrected and downscaled using multifractal cascades method (1km). The presented results cover the total study site Rio Mannu di San Sperate, Sardinia. For further information consider our partners from Ludwig-Maximilians-University Munich, Department of Geography in Munich.

[New selection](#) [Download time series](#)

## CLIMB Partners:



## Das CLIMBPortal - Erweiterung

```
/usr/local/lib/python2.7/dist-packages/timeseries
├── admin.py
├── forms.py
├── __init__.py
├── modelOutput.py
├── models.py
└── static
    └── timeseries
        └── js
            ├── choices_agri.js
            ├── choices.js
            └── choices_tourism.js
├── templates
    ├── base_timeseries.html
    └── timeseries
        ├── ts_result_agri.html
        ├── ts_result.html
        ├── ts_result_tourism.html
        ├── ts_select_agri.html
        ├── ts_select.html
        └── ts_select_tourism.html
└── Utils
    ├── put_describing_text_into_db.py
    └── styleloader.py
views.py
```



## Umgang mit großen Datenmengen

### psycopg2:

- Python-Modul zur Kommunikation mit PostgreSQL-Datenbanken
- Übertragen von Textbeschreibungen zu den Zeitreihenabbildungen in die GeoNode-Datenbank

### gsconfig:

- Python-Bibliothek zum Steuern einer GeoServer-Instanz
- GeoServer RESTConfig API
- Automatisiertes Zuordnen der Darstellungsstile zu den betroffenen WMS-Layern



## Zahlen zum CLIMBPortal

- 3076 WMS-Layer aus 7 Testgebieten von 13 verschiedenen hydrologischen Modellläufen
- Jeder Layer mit 3 unterschiedlichen Darstellungsstilen (sld) und einem eigenem Metadatensatz (xml)
- 1576 Datenbanktabellen zu 13 Zeitreihenindikatoren
- 197 (hydrologische) Zeitreihendarstellungen (svg)
- 70 Modellvergleichs-Abbildungen aus 4 Testgebieten
- 23 registrierte Nutzerprofile



## Zusammenfassung - CLIMB

### Das CLIMBPortal als Lösung für:

- heterogene Daten- und Dateiformate
- fehlende ISO-konforme Metadaten
- uneinheitliche Präsentation von Modellergebnissen

### Das CLIMBPortal bietet:

- Karten und Abbildungen aussagekräftiger Indikatoren
  - Datenzugang für registrierte Benutzer
- Open-Source Lösung für eine langfristige Erreichbarkeit projektbezogener Modell-Ergebnisse



## Zusammenfassung - GeoNode2.0

### Pro:

- Leichte Installation, Konfiguration und Administration
- Ausführlich dokumentiertes 'GDI-Gesamtpaket'
- Sehr gute Erweiterungsmöglichkeiten

### Kontra:

- Keine volle INSPIRE-Konformität
- Sehr lange Upload-Zeiten bei großer Layer-Anzahl

→ Insgesamt war GeoNode2.0 eine gute Wahl für die Umsetzung der zentralen Austauschplattform in CLIMB



## Ende

Vielen Dank für ihr Interesse!

[lgi-climbrsv.geographie.uni-kiel.de](http://lgi-climbrsv.geographie.uni-kiel.de)

[www.climb-fp7.eu](http://www.climb-fp7.eu)

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 244151.



Wir danken Dr. M. Nolde, W. Hamer und V. Borovkov für ihre Unterstützung bei der Umsetzung des Geoportals.

