Rook

A Web Processing Service for the Copernicus Climate Data Store

OGC Member Meeting, 25 March 2021

Rook is a Bird

... but that is another story

Rook

Remote Operations On Klimadaten

(The K is not a typo)

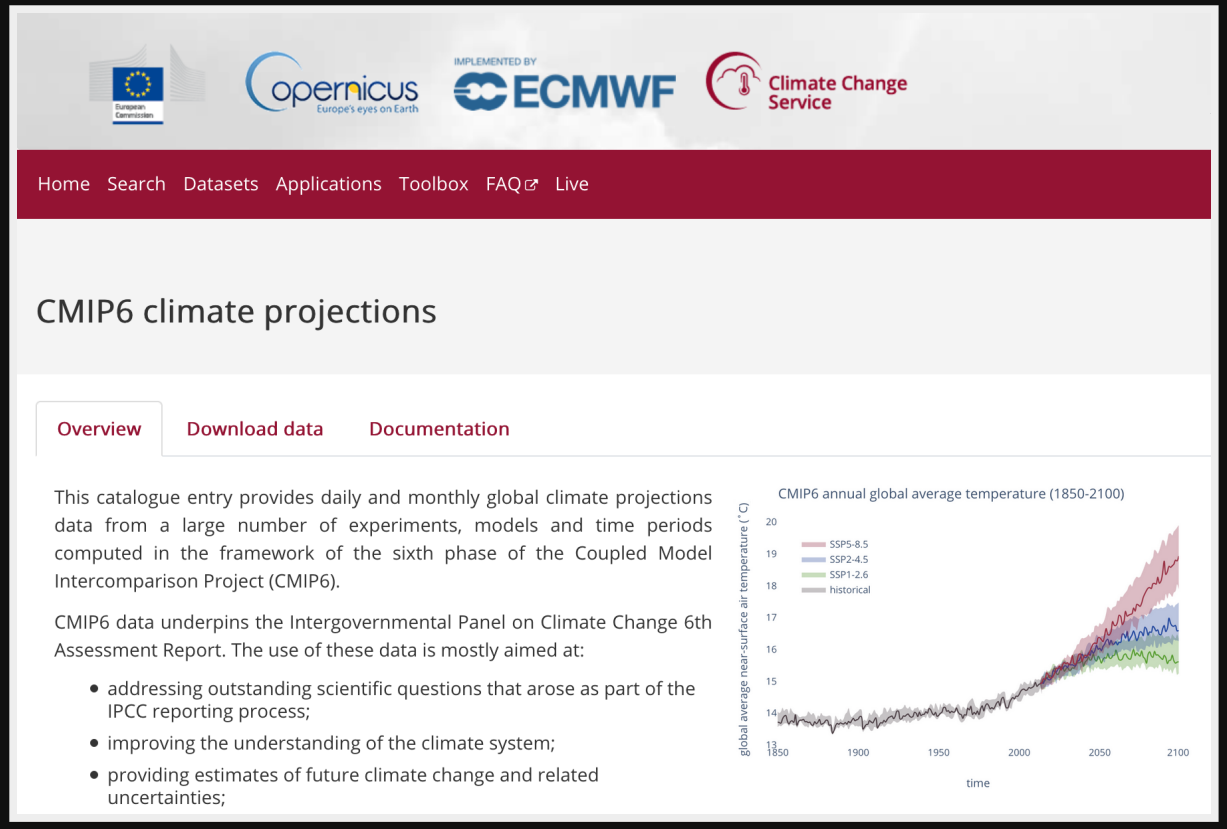
https://rook-wps.readthedocs.io/en/latest/

What?

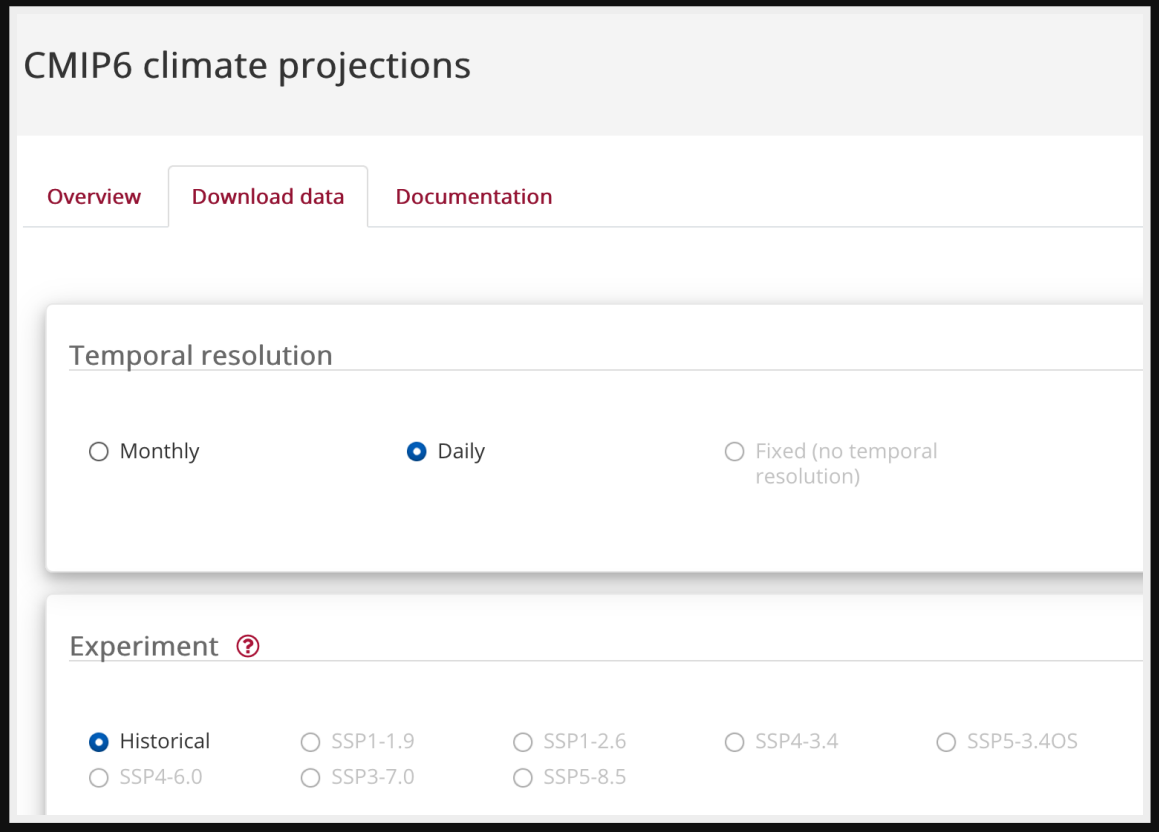
... wait

Two days ago

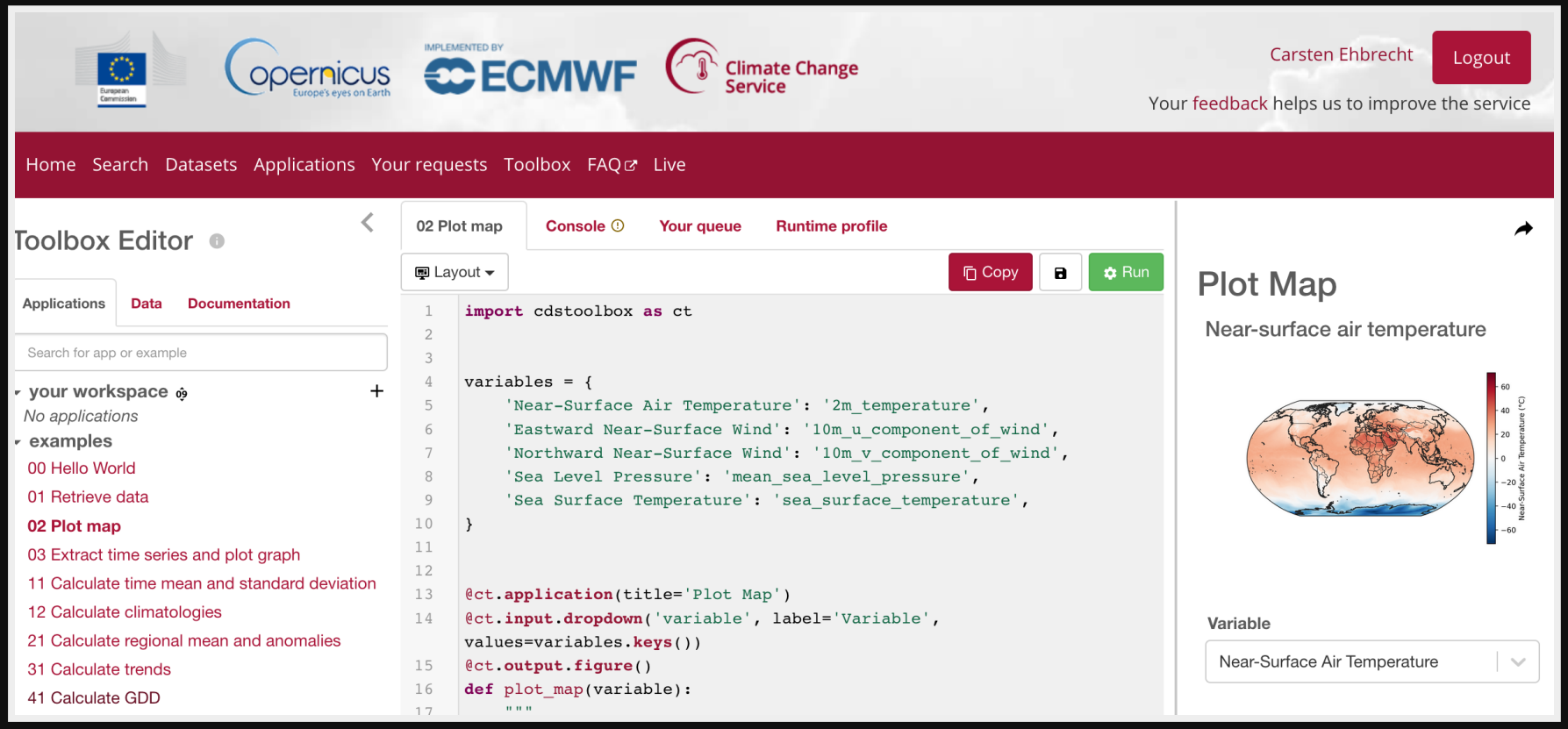
CMIP6 is now live!



Climate Data Store - Download data



Climate Data Store - Toolbox



But

The climate data is accessed remotely

Remote data access

- Remote data pool for CMIP6, CMIP5, CORDEX
- Load-balanced data servers at three sites (CEDA, IPSL, DKRZ)
- THREDDS Data Server … but using only file access (not OpenDAP)

Climate data is big

- A single dataset may have several Gigabytes
- But you just want a month for a specific area

Rook - WPS

- An OGC Web Processing Service
- Using PyWPS - GeoPython
- Providing climate data operators as a service
- Used for data reduction: Temperature, 1990, Africa

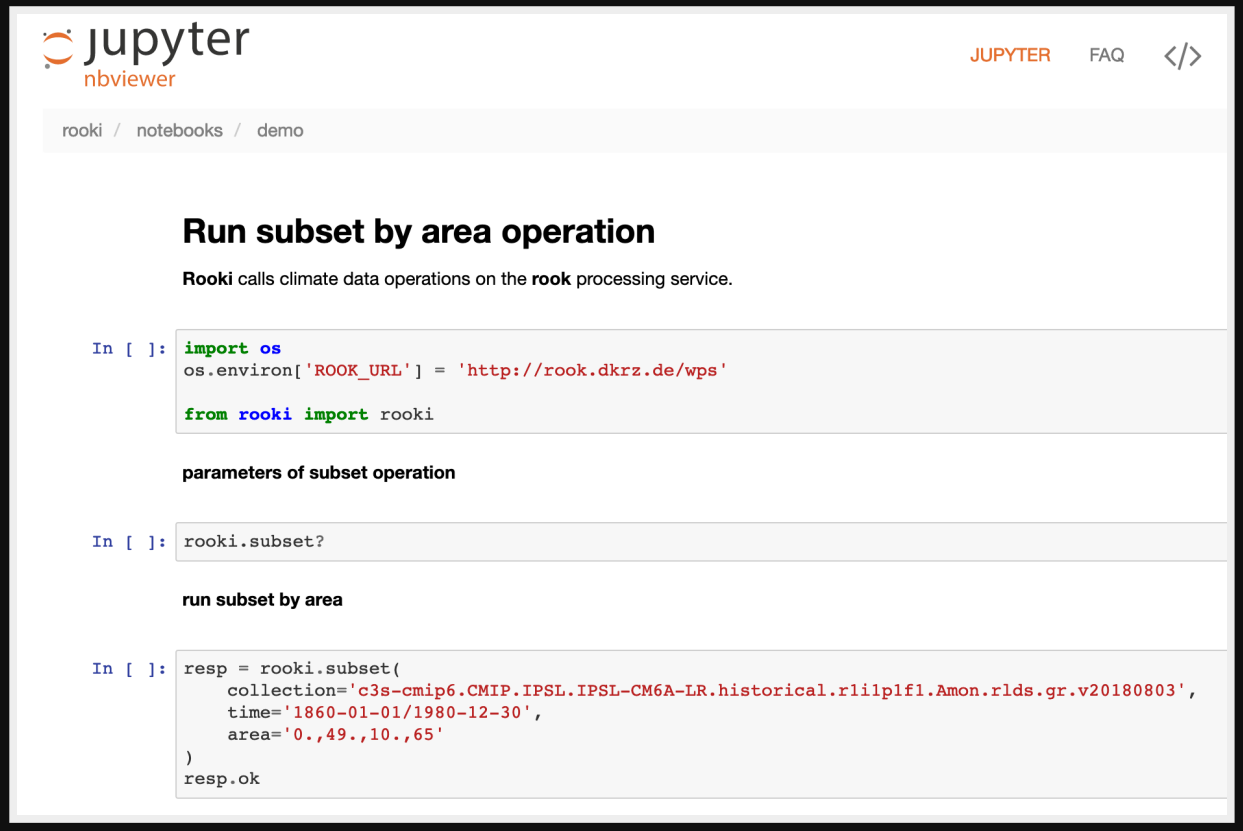
Rook - Operators

- Subsetting - time, area, level
- Averaging - time, area, level
- Regridding (a pain!)

Rook - Clisops

- The Python library implementing these operators
- Using xarray - low level library
- Joined effort together with Ouranos https://clisops.readthedocs.io/en/latest/

Rooki

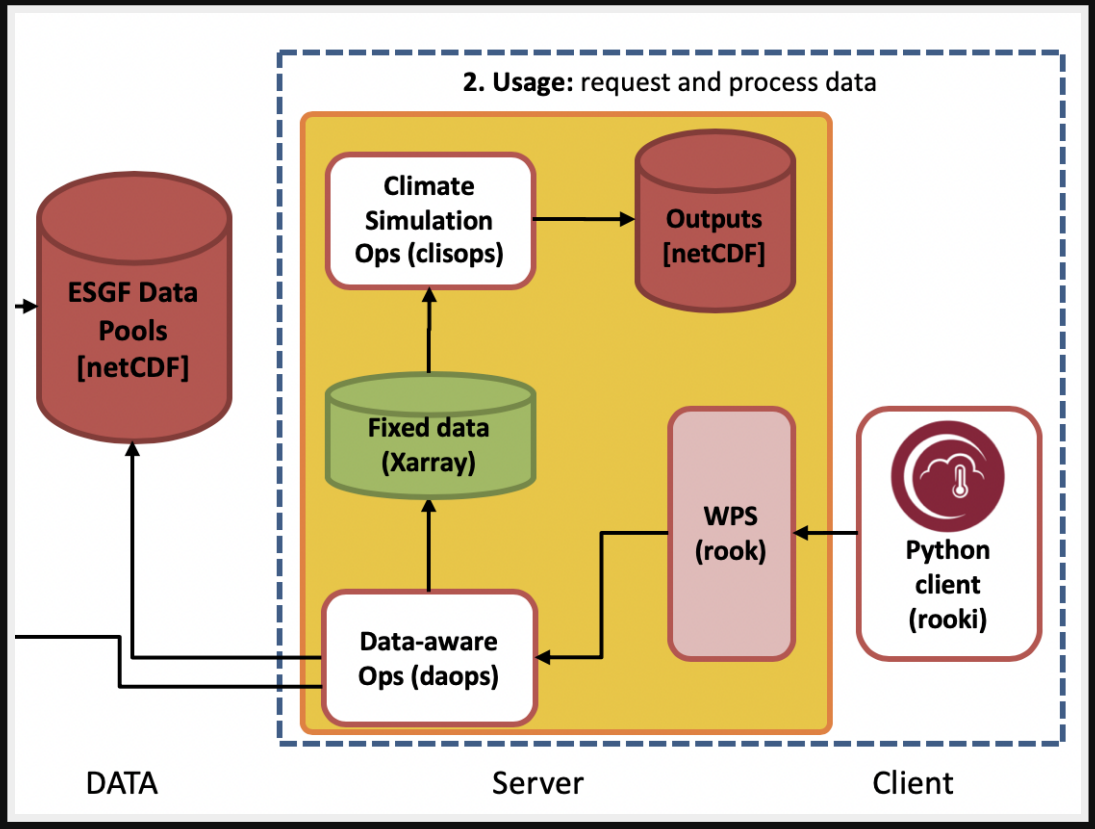

jupyter
nbviewer
JUPYTER
FAQ
rooki / notebooks / demo
Run subset by area operation
Rooki calls climate data operations on the rook processing service.
In [ ]:
import os
os.environ['ROOK_URL'] = 'http://rook.dkrz.de/wps'
from rooki import rooki
parameters of subset operation
In [ ]:
rooki.subset?
run subset by area
In [ ]:
resp = rooki.subset(
collection='c3s-cmip6.CMIP.IPSL.IPSL-CM6A-LR.historical.r1i1p1f1.Amon.rlds.gr.v20180803',
time='1860-01-01/1980-12-30',
area='0.,49.,10.,65'
)
resp.ok

Rooki - Library

- Python WPS client - interactive or as library
- Using OWSLib - GeoPython
- Joined effort with Ouranos (birdy)
- https://rooki.readthedocs.io/en/latest/

All together

TODO: replace



Projects

- Coperniucs C3S: https://climate.copernicus.eu/
- Roocs: https://roocs.github.io/
- Birdhouse: http://bird-house.github.io/
- GeoPython: https://geopython.github.io/

Thanks

Questions?