Radar data portal: Web access to archived radar data at DWD
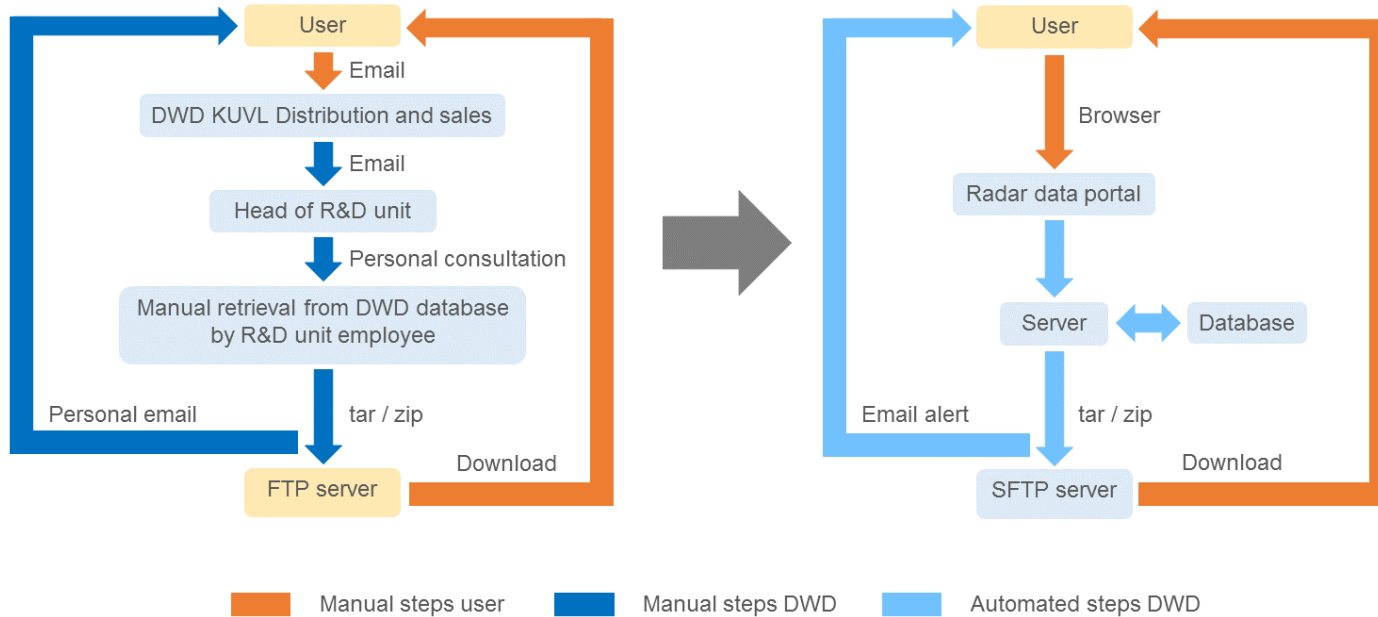
DFG Priority Programme 2115: PROM

Hella Riede, Kathleen Helmert (DWD)

Motivation

Radar data portal – in short

What is it about?

- Automated download of DWD data (mainly **radar data**) from **SKY database** for DWD partner institutes

- Radar data which are not **Open Data**

- **Data for a limited circle of users** at DWD partner universities for the **purpose of research**, such as the evaluation of measurement campaigns

... not?

- **real-time data** → SKY database requests can be scheduled, leaving priority to operational requests. Requested data are cached on a dedicated disk for a certain time period, depending on disk space

- **OpenData** – the data needed for research goes transcends Open Data (polarimetric moments, ...)

→ **DWD-internal user request to DWD IT**

DWD-internal radar data portal

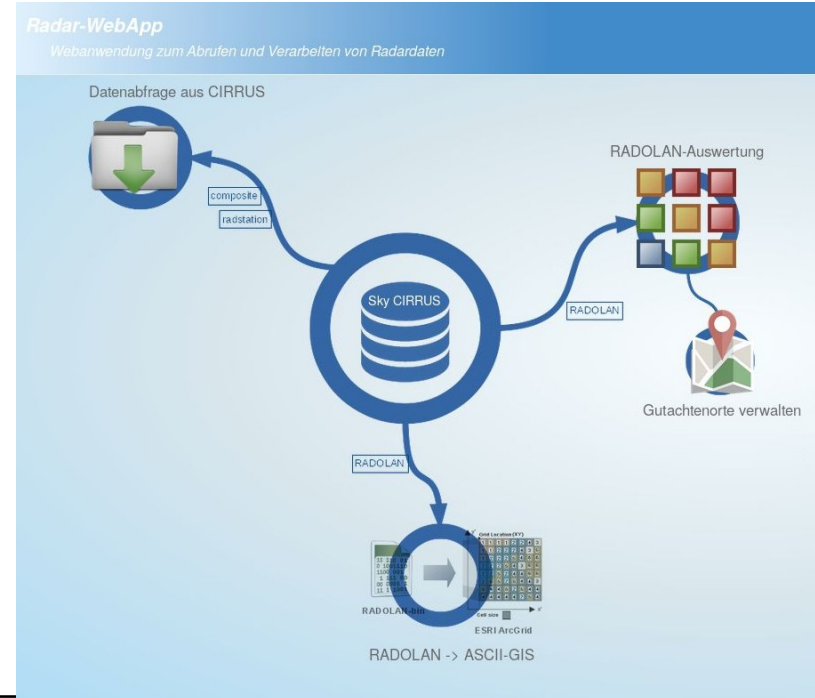Created by Mario Hafer for RADOLAN developers at DWD

➡ http://oflxs550.dwd.de

! access at the moment only from within DWD

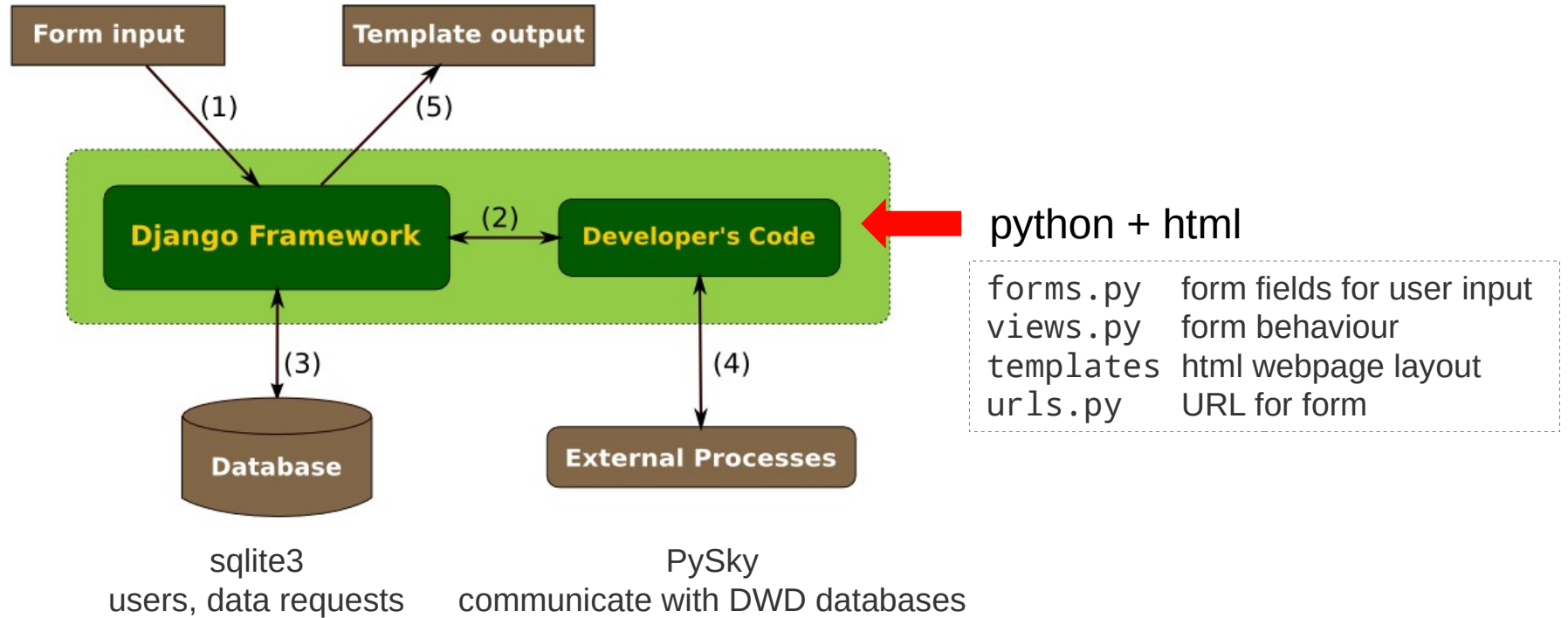**Django**: python-based webframework

https://djangoproject.com/

Idea: scientists offer data to scientists through a web framework that uses a tool known from daily scientific work – python

The web framework for perfectionists with deadlines.

Form input

Template output

(1)

(5)

Django Framework ↔ (2) **Developer's Code**

python + html

```
forms.py     form fields for user input
views.py     form behaviour
templates    html webpage layout
urls.py      URL for form
```

(3)

(4)

Database

External Processes

sqlite3
users, data requests

PySky
communicate with DWD databases

https://code.djangoproject.com/wiki/StringEncoding

- CM SAF portal: access to data in SKY, which is (maybe) not allowed anymore, within 5 minutes using any valid mail address

- Open Data portals: no login (Geo-Portal, CDC-Portal) and don't contain the detailed radar data for research[1]

- Other portals such as PAMORE for model data are legacy projects, which are not allowed to be reused (and have access SKY database, which is actually (maybe) not allowed anymore)

- Portals should be programmed in Java because some document says so ;)

[1] https://cdc.dwd.de/portal/ – great plots for quick-looks e.g. precipitation yes/no, but no radar data
https://maps.dwd.de – plots and data, but only last 2 days, no access to SKY databases
https://opendata.dwd.de/climate_environment/CDC/grids_germany/hourly – RADOLAN data archive
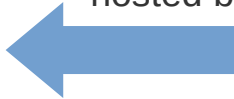
EUROPEAN WEATHER CLOUD

CLOUD COMPUTING-BASED INFRASTRUCTURE, FOCUSED ON THE NEEDS OF THE METEOROLOGICAL COMMUNITY

hosted by

Croatian weather service after earthquake in 03/2020

European Weather Cloud (EWC)

- from **ECMWF**, **EUMETSAT** for European Meteorological Infrastructure (EMI) = **national weather services**

- Idea: "running **software close to the data**, rather than downloading vast amounts of data locally and needing a local infrastructure in support"

- work on weather and climate "big data" in a **cloud-based infrastructure**

- **data access** infrastructure for new forms of data-driven collaboration across EMI and **users of meteorological data**

- **Future: federated cloud** incorporating national weather services in common cloud infrastructure

https://www.europeanweather.cloud/about

https://confluence.ecmwf.int/display/EWCLOUDKB/Basic+Concepts

Django @ EWC

transferring
radar data
upon request

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platform for data portal

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Wetter und Klima aus einer Hand

has the data

public URL
w/ login

you

	Done…	Working on ...
DWD	• hand-over of source code and own deployment	• data in HDF5 format (not BUFR or runlength) • authentication (switched off for DWD) • more radar data categories • English interface • your wishes from last year • lobby for better collaboration interfaces for data and code
DWD+EWC		• data transfer scripts
EWC	• tenancy request written to ECMWF and tenancy obtained	• set up virtual server • getting the disk space • running django on EWC • security clearance for a public URL

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DWD goals 2020–2030

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Thank you!

Questions?