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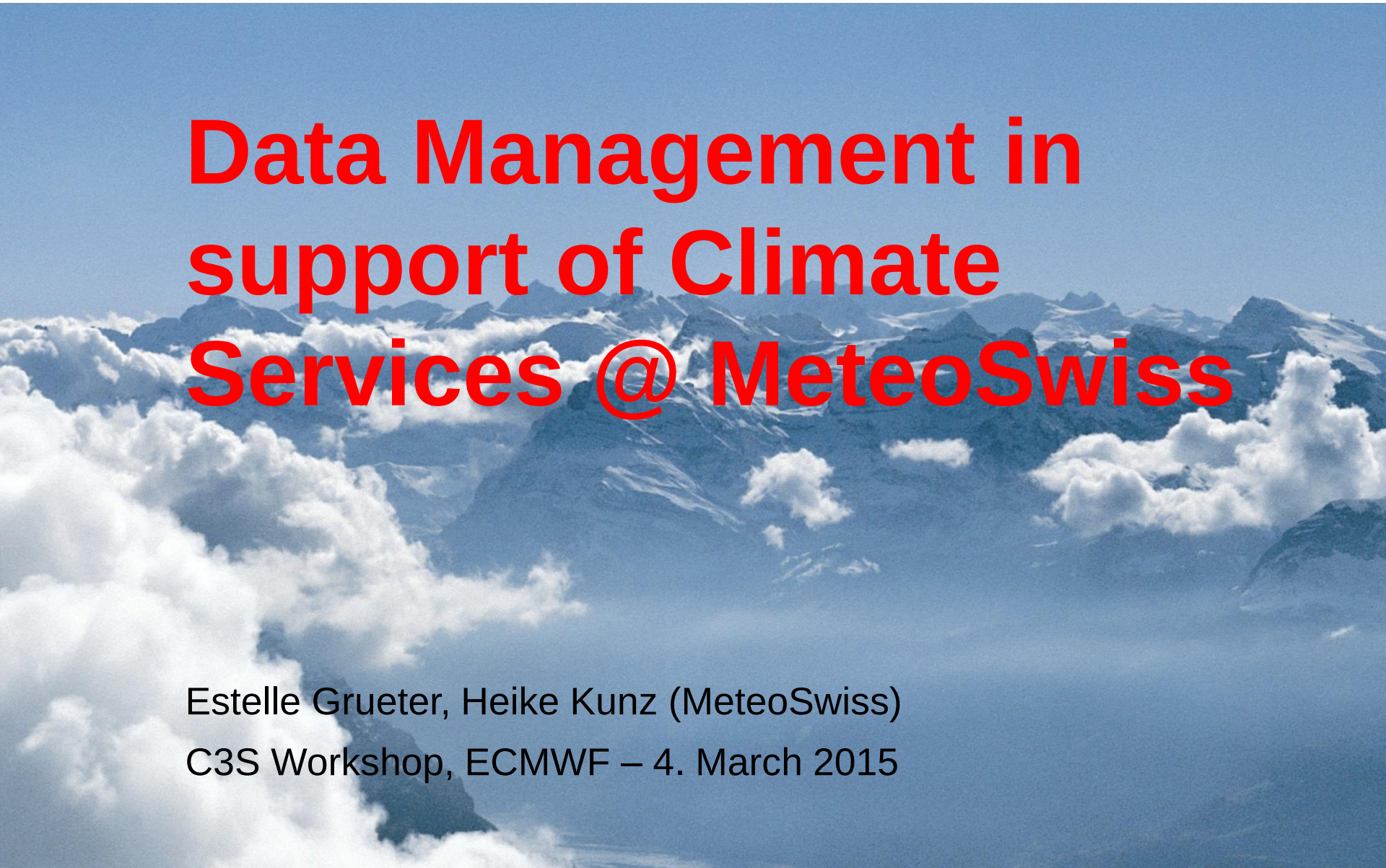
Confederaziun svizra

Eidgenössisches Departement des Innern EDI
Bundesamt für Meteorologie und Klimatologie MeteoSchweiz

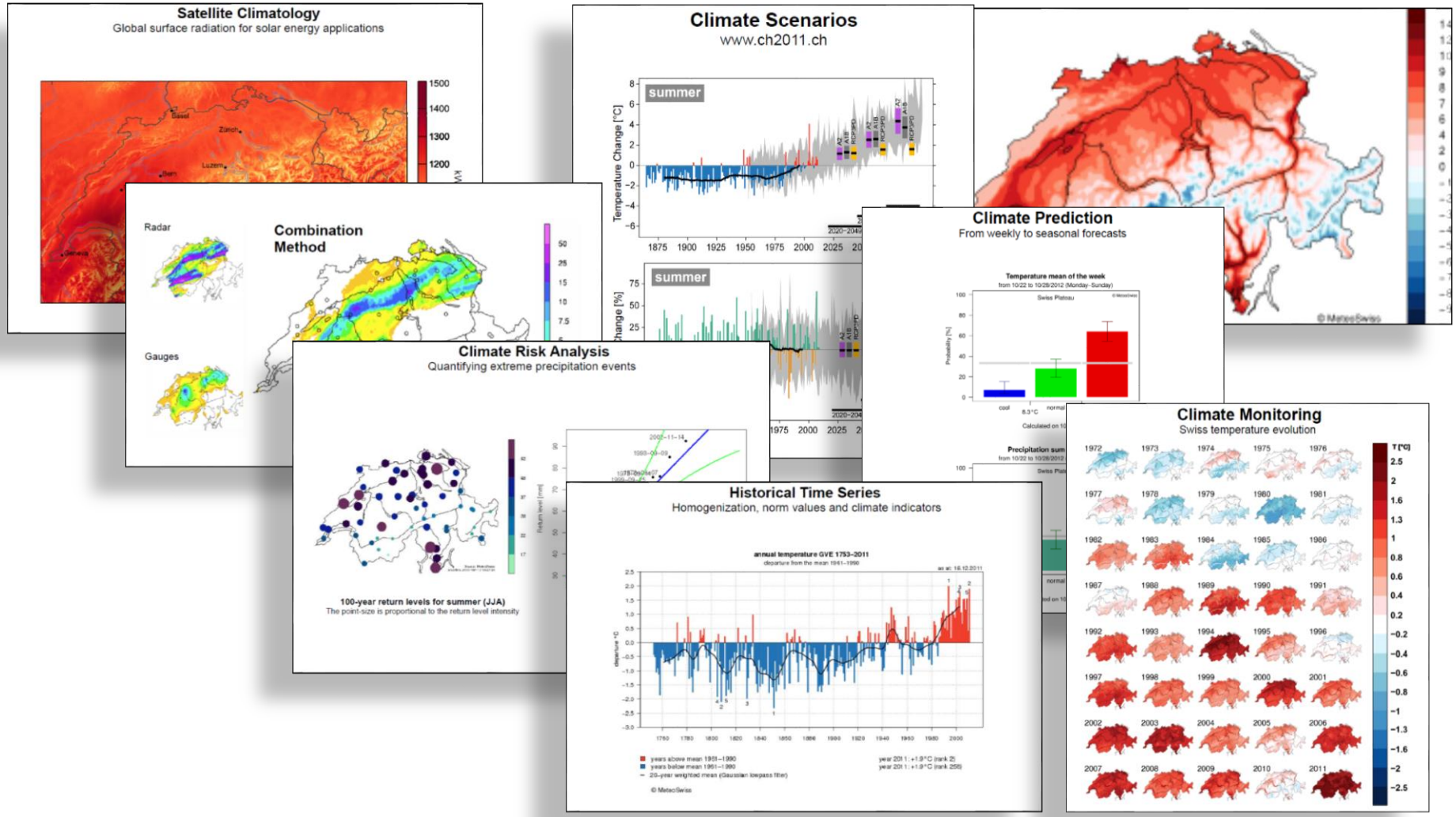


Data Management in support of Climate Services @ MeteoSwiss

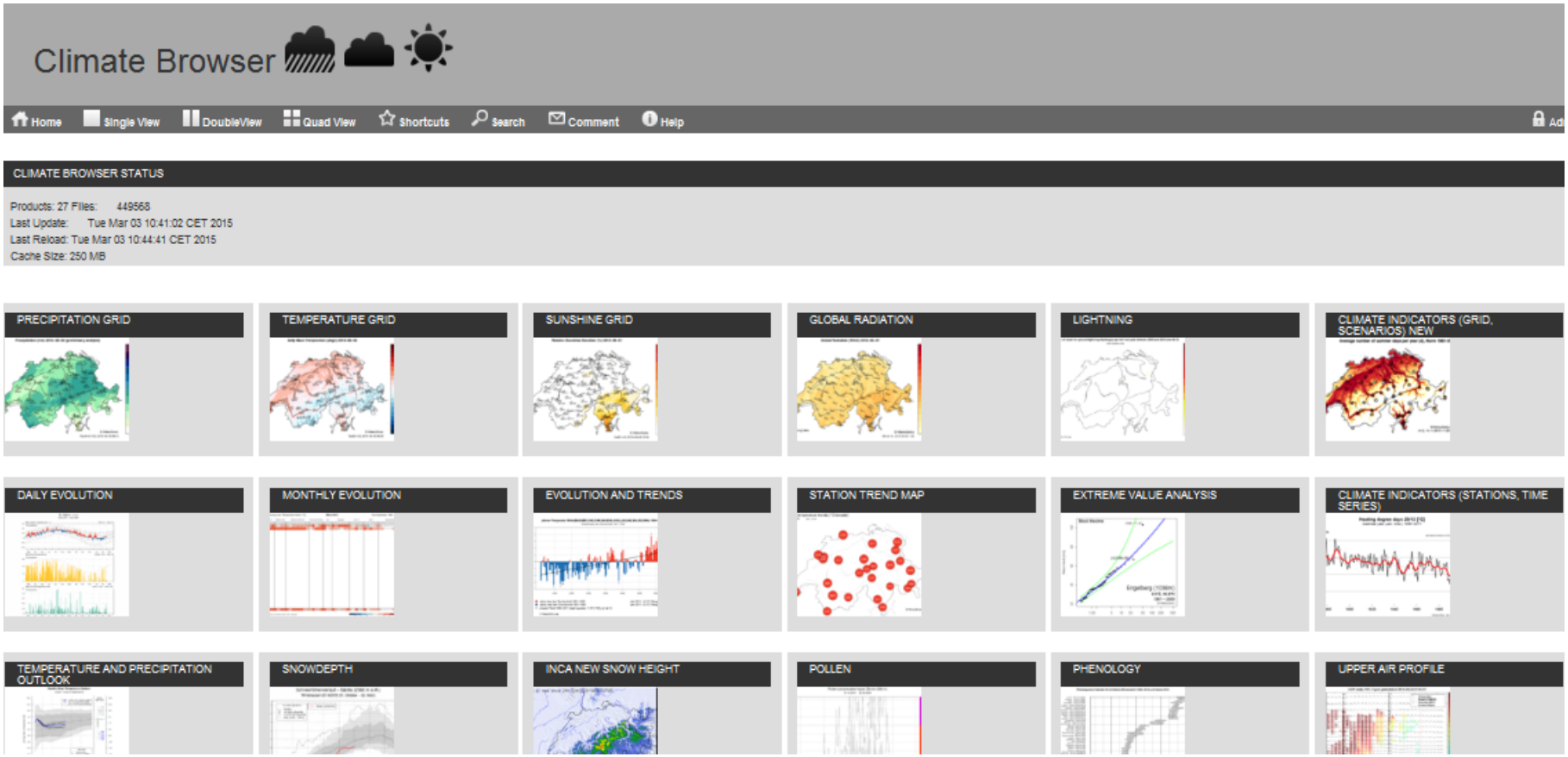
Estelle Grueter, Heike Kunz (MeteoSwiss)

C3S Workshop, ECMWF – 4. March 2015

Output : Climate Services & products



Service : Climate Portal @ MeteoSwiss

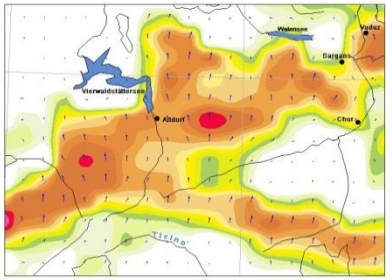


→actually not available yet for the public but only for internal use

Basis: Multi purpose, central integrated data platform

Cameras

Radar



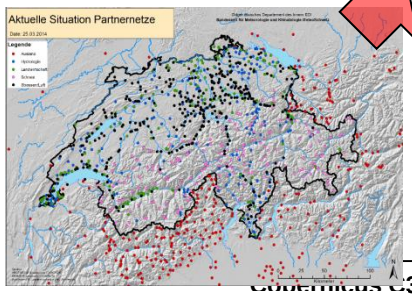
NWP data

AWS & obs

MeteoSwiss central data platform

Integrated measurement data & meta data for realtime & non realtime applications

→ Stored in a uniform way, centrally administered and configurable



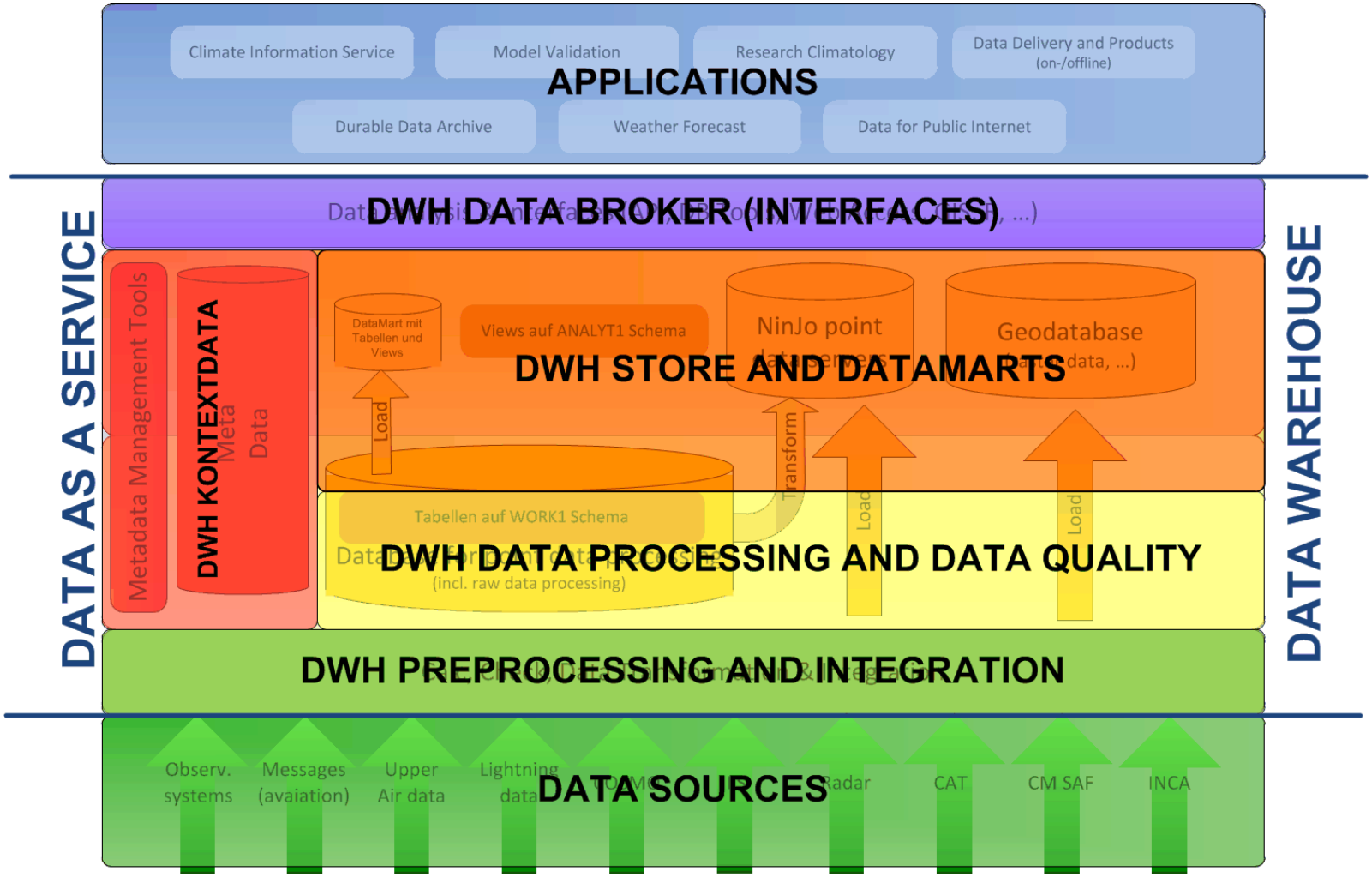
3rd party data

AMDAR

Profiles

Soundings

Approach: Conceptual Architecture



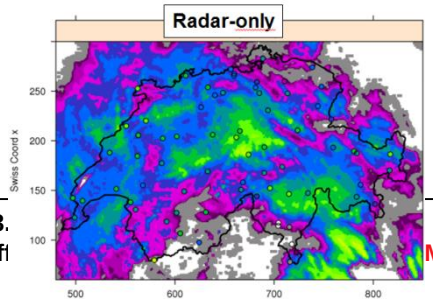
Benefits: Integration of data types

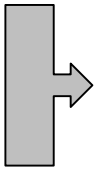
Unified homogenized data basis including - besides usual data types (incl. ECVs) also

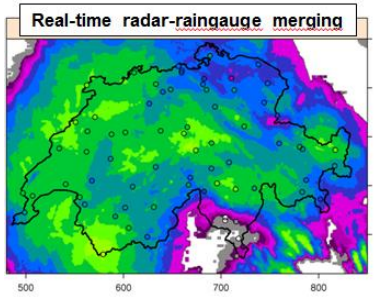
- homogenized data series
- gridded data (as result of climate analysis)

to generate – among others - climate products such as:

- Climate indices
- Products of combined data types (Example: Radar & rain gauges)
- …







Benefits: Data Management

Pinterest.com

- **Data extraction:**
  - generic interfaces are available to extract data from different sources (e.g. surface data, radar, profiles) and of different type (e.g. observations, gridded data).

    New tool under development to allow data extraction also from the outside using web services

Archive-solutions-uk.co.uk

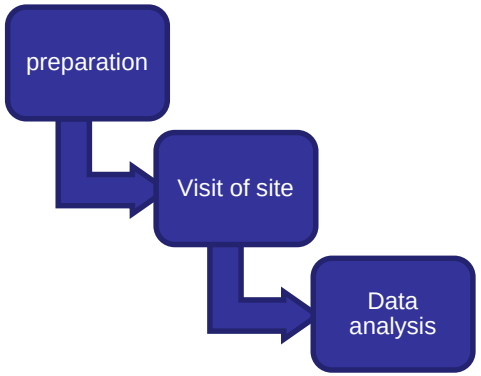
- **Data archive:**
  - all complete data series (besides model fields and satellite data) stored and archived in the same infrastructure (CRUD)

Quality information:

Cylex.net

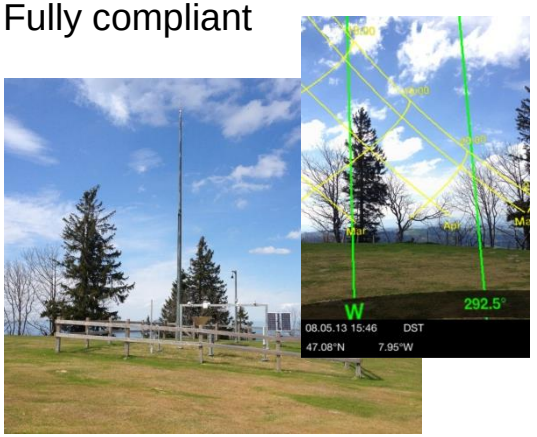
- Framework for QC tools using different data types (in development) → replacement of existing tools
- Quality assessment of site location (also for 3rd partner stat.)
- Quality Information assigned to measurements or available through meta data

Quality: assessment of site location



Information about the installed instruments		
What assessed instruments are installed?	T, RH , p, Wind, Precipitation, Radiation	
Comments about the station or non-assessed instruments		
Temperature and Humidity	Not Compliant	
Sensor	Davis: Vantage Pro2 (6153, with fan)	
Is the sensor correctly ventilated?	Yes	2
Is the sensor protected and weather-proof?	Yes	2
Accuracy of instrument at 20C	0.50 K	1
Accuracy of relative humidity instrument	3.00%	2
Measurement height	2.0 m	2
Is the sensor correctly exposed?	No	0
Leroy site classification	5	0
Station supervision [points]	6	2
Frequency of calibration in lab or replacement? [years]	never	0
Frequency of comparison measurements or controls on site by ope	24 months	2
Frequency of maintenance by Keeper? [week]	2 weeks	2
Is there a parallel measurement with a second instrument?	No	0
Is there automatic data control or monitoring?	Yes	2
Post-Analysis: Effective data availability	96%	2
Post-Analysis: Effective max. downtime of an instrument in 80% of c	3 days	2
Comments	Sensor is between buildings	
Pressure	Compliant	
Sensor	Davis: Vantage Pro2 (6153, with fan)	
Is the sensor protected and weather-proof?	Yes	2
Accuracy of instrument at 20 °C	1.00 hPa	1
Altitude of pressure sensor [m]	705.0 m	
Accuracy of measurement altitude [cm]	100 cm	1
Is the sensor correctly exposed?	Yes	2
Station supervision [points]	3	1
Frequency of calibration in lab or replacement? [years]	never	0
Frequency of comparison measurements or controls on site by ope	24 months	1
Is there a parallel measurement with a second instrument?	No	0
Is there automatic data control or monitoring?	Yes	2
Post-Analysis: Effective data availability	96%	1
Post-Analysis: Effective max. downtime of an instrument in 80% of c	3 days	2
Comments		

Fully compliant



Wind: not compliant

Principles of procedure:

- requirements based on **CIMO Guide**
- Adapted to **special conditions** of Switzerland (e.g. mountains etc)
- Limited to **meteorological und climatological** measurements (no road weather, agrometeorology)
- **Recurring** process
- **Objectivity** of criteria is essential
- Development of procedure by MeteoSwiss but execution by a **neutral independent party**

Each parameter is assessed individually

Outcome

- → Common data basis simplifies generation of products combining data from different sources
- → Centralized data store guarantees consistency throughout products and application areas
- → Generic interfaces allow applications such as the climate analysis tools (CATs) to retrieve ad write back data in a standardized way.
- → Integrated data store facilitates establishment of toolboxes (i.e. for QC) using data from different sources.
- → Central metadata repository is one of the key factors for a successful data management

Thank you very much for your attention!

Questions?