













Exposure Mapping







Status of Meteorological
Data Collection Center:
Experiences, Issues, Challenges

EFAS annual meeting





Presented by **Dr. Markus Ziese** 28 09 2023



Who we are

- MDCC operated by KISTERS AG and GPCC at Deutscher Wetterdienst (DWD)
- 'front end'-team:
 - Dr. Christoph Schweim (MDCC Project Lead)
 - Dr. Markus Ziese (MDCC Project Lead DWD-part)
 - Carina Lemke (Scientist)
 - Zora Schirmeister (Scientist)
 - Jakub Walawender (Scientist)
 - And many more in the background













Carina Zora

Jakub

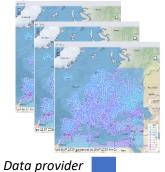
Christoph

CEMS-MDCC System Over

Kasse

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System Overview – Dataflow and Processing



293,000

Sensors measuring cloud cover, dew point temperature, evaporation, relative air humidity, solar radiation, precipitation, sunshine duration, air temperature, water vapour pressure, wind speed and wind direction



real time 24/7



42

data products

interpolated maps

at a spatial resolution of 1 arcmin by 1 arcmin; daily: precipitation, min/max temperature, solar radiation, wind speed and water vapour pressure 6-hourly: mean temperature, precipitation



4 parameter

point lists for **EFFIS**

20 maps

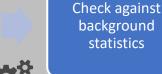
of SPI and HCWI for **EDO**

/ NISTERS

Automatic Import format consistency checks

Temporal consistency checks
Cross validations

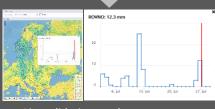
Spatial Temporal consistency checks e.g. cloud cover



Calculation and dissemination of gridded data products



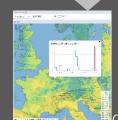
Overview failed imports
Non delivered data



List validation results
Quality Flags & Error Correction



Visualization of questionable data with background information



Quality Flags & Error Correction









Kassel

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CEMS-MDCC – Current Status

32 currently active data providers



РЕПУБЛИЧКИ ХИДРОМЕТЕОРОЛОШКИ ЗАВОД РЕПУБЛИКА СРПСКА

REPUBLIČKI HIDROMETEOROLOŠKI ZAVOD REPUBLIKA SRPSKA





















ČESKÝ HYDROMETEOROLOGICKÝ ÚSTAV











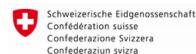








FINNISH METEOROLOGICAL INSTITUTE



Bundesamt für Meteorologie und Klimatologie MeteoSchweiz















ORSZÁGOS

SZOLGÁLAT

METEOROLÓGIAI





Bosna i Hercegovina Federacija Bosne i Hercegovine FEDERALNI HIDROMETEOROLOŠKI ZAVOD



















Some numbers

- > 71,000 stations in database
- > 9,000,000 data records to process each day
- > 1300 GB disc space of database

Parameter description	Active stations in EFAS domain	Used for
Precipitation	~ 17300	EFAS, EFFIS
Relative Air humidity	~ 8600	EFFIS
Solar radiation	~ 5800	EFAS
Air temperature	~ 16800	EFAS, EFFIS
Water vapor pressure	~ 4170	EFAS
Wind speed	~ 13300	EFAS, EFFIS

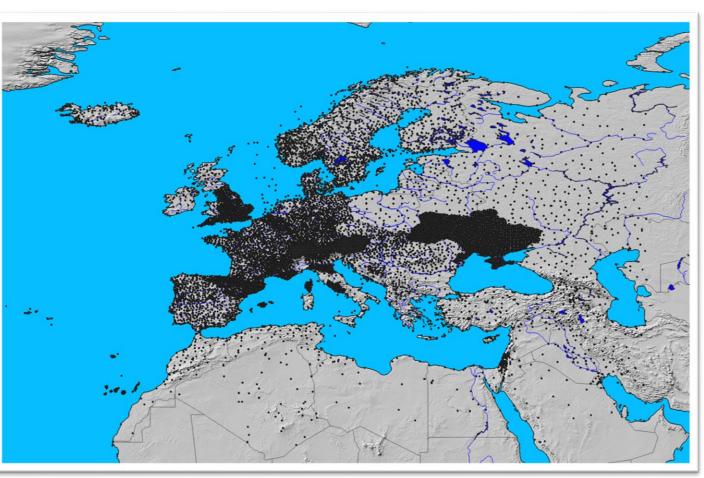






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Active stations in CEMS-MDCC database (EFAS 1 arcmin domain)



Number of stations:

Total: 55701

• Active: 22604

thereof 4695 virtual stations

• Inactive: 33097

• thereof 9310 virtual stations



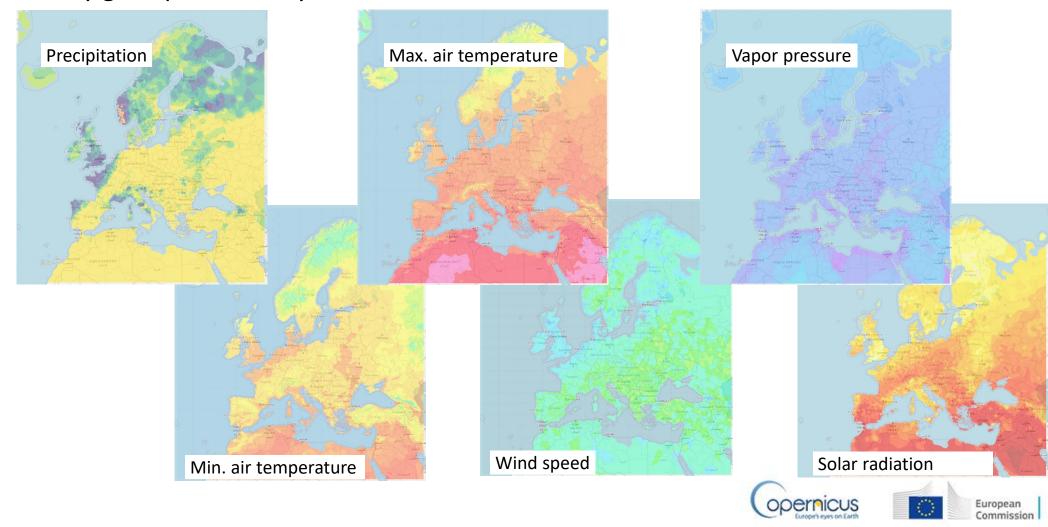


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CEMS-MDCC – Current Status

Interpolated grids for LISFLOOD model

• Daily grids produced by CEMS-MDCC





CEMS-MDCC – Current Status

Interpolated grids for LISFLOOD model

• 6-hourly precipitation and mean temperature grids produced by CEMS-MDCC















CEMS-MDCC – Current Status

Standardized Precipitation Index (SPI) - Global, ERA-5 based

Heat and Cold Wave Indicator (HCWI) - Global, ERA-5 based





CEMS-MDCC – Recent and Planned Evolution

Ongoing and planned developments

- Improvements in data validation
 - → see specific presentation "Meteorological data collection: new data validation framework"

- Improve coverage with station data
 - → See poster!







How to contribute data to CEMS-MDCC

Data use license

- Data is used in accordance with the license agreement between the European Environment Agency (EEA) and EUMETNET:
 - Meteorological and hydrological station data for use by the Copernicus services
 - Station data is only used for Copernicus services, not made available to the public
 - Only derived products may be publicly available
 - Details can be found in the license agreement
- Data license agreement for non-EUMETNET partner with similar conditions as for EUMETNET partners, each partner has to sign ,its own' license







How to contact CEMS-MDCC

Contact details

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For questions in relation to the data license:

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email: peter.salamon@ec.europa.eu

We are looking forward to work with you and your data!





