



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

**EFAS annual meeting**

Presented by Damien Pichon  
27 09 2022



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## Outline

- CEMS Meteo DCC Team – Who are we
- CEMS Meteo DCC System – Current Status
- Recent Evolution
- Planned Developments
- How to contribute



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## Who we are

- METEO operated by KISTERS AG and Deutscher Wetterdienst (DWD)
- ‘front end’-team:
  - Dr. Christoph Schweim (METEO Project Lead)
  - Dr. Markus Ziese (METEO Project Lead DWD-part)
  - Carina Lemke (Scientist)
  - Zora Schirmeister (Scientist)
  - Jakub Walawender (Scientist)
  - Damien Pichon (Consultant)
  - And many more in the background





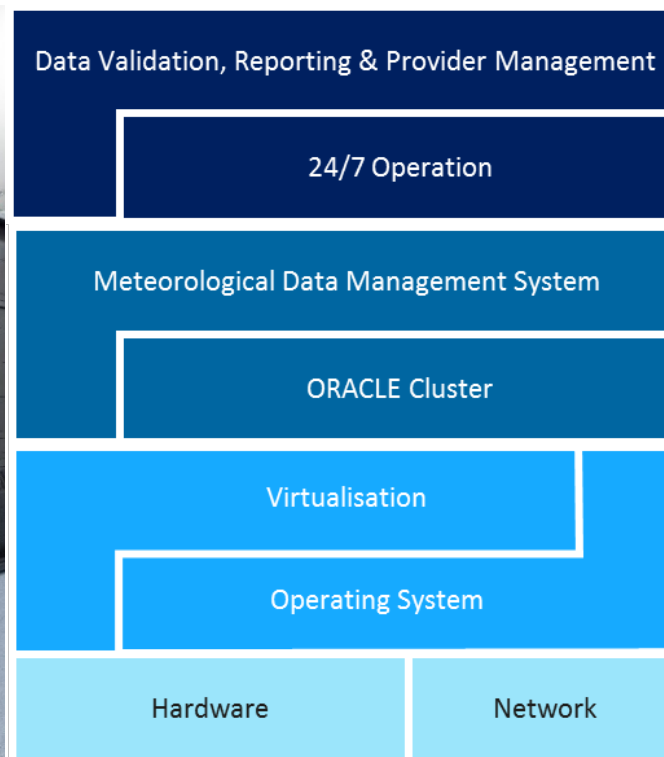
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# CEMS Meteo DCC Team – Who are we

## Operated by KISTERS and DWD



Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Christoph



Carina



Zora



Markus



Damien



Jakub

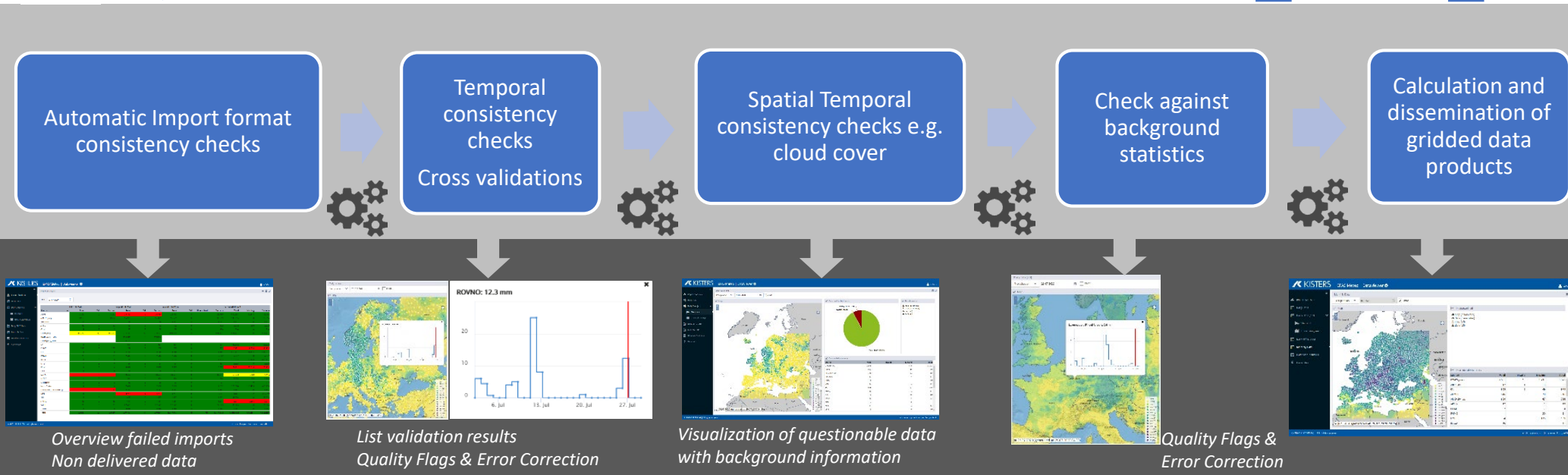
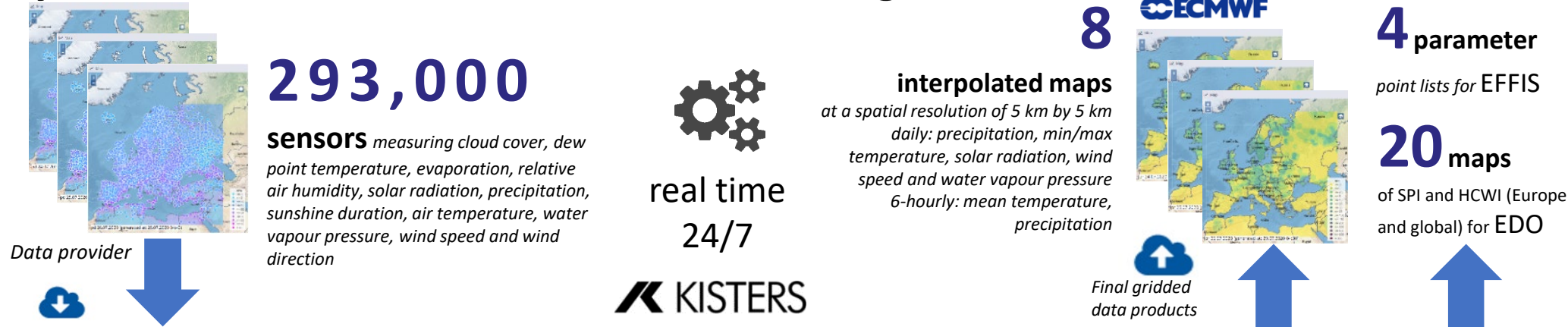
... and many more in the background ...



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# CEMS METEO

## System Overview – Dataflow and Processing







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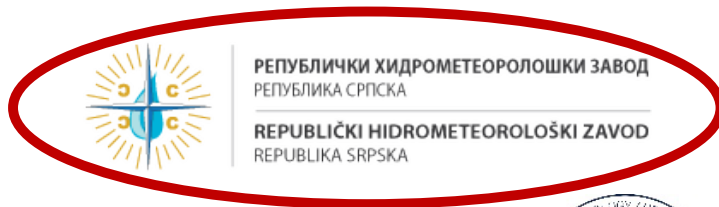
# CEMS METEO

## Current active data providers

Flanders  
Hydraulics Research



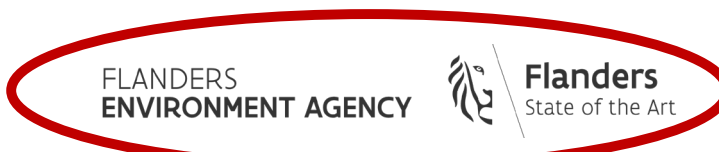
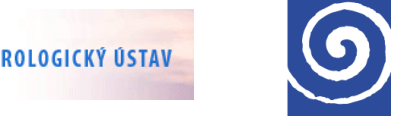
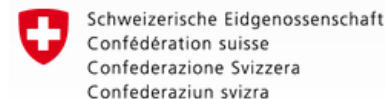
Flanders  
State of the Art



SMHI



arpae  
emilia-romagna



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## Some numbers

- > 68,788 stations in database
- > 7,000,000 data records to process each day
- > 1300 GB disc space of database

Parameter description	Active stations in EFAS domain	Used for
Cloud cover	6977	
Dew point temperature	11763	
Evaporation	247	
Precipitation	17882	EFAS, EFFIS, EDO
Relative Air humidity	8590	EFFIS
Solar radiation	9143	EFAS
Sunshine duration	13212	
Air temperature	16886	EFAS, EFFIS, EDO
Water vapor pressure	4176	EFAS
Wind direction	12684	
Wind speed	13285	EFAS, EFFIS

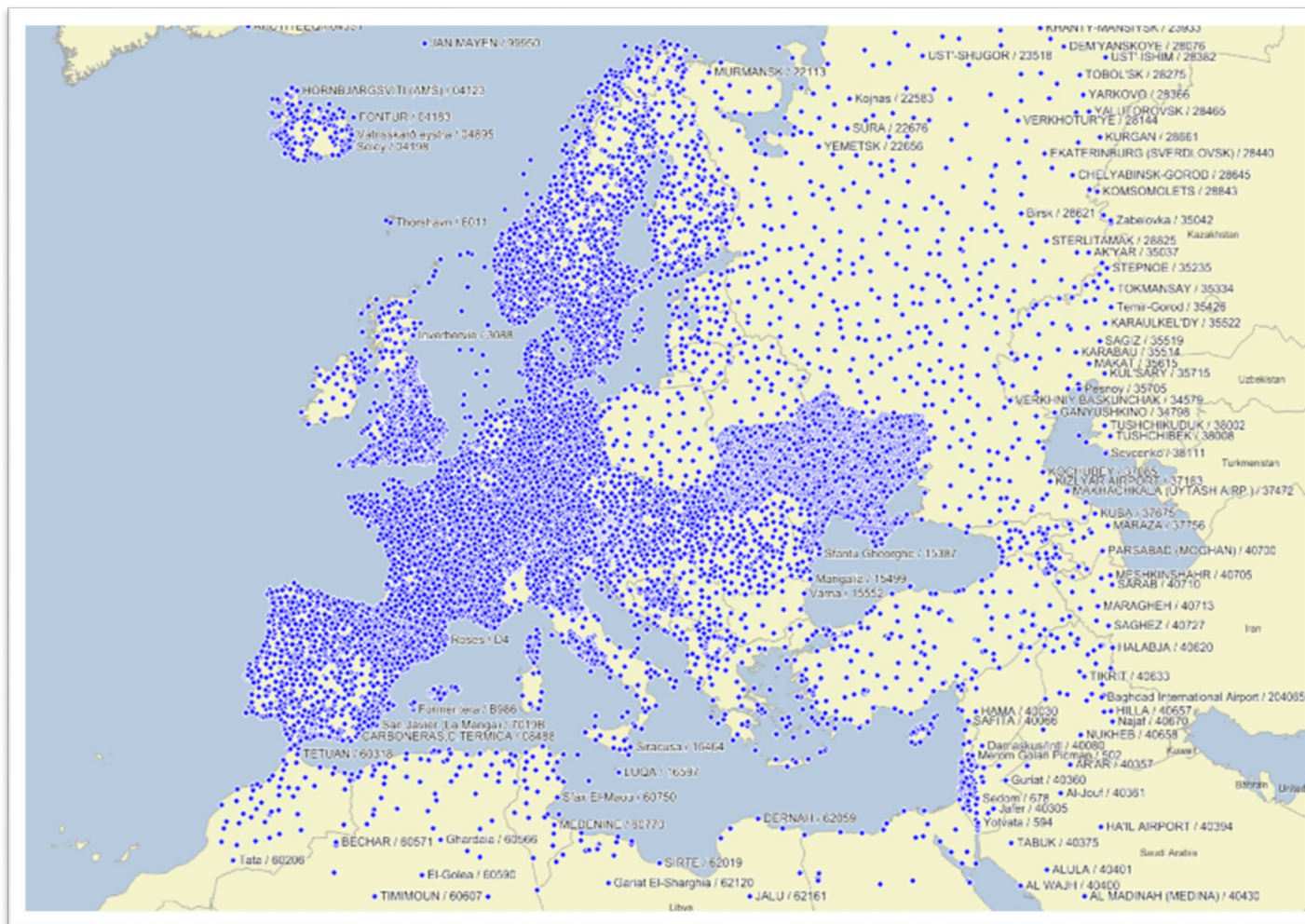




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# CEMS Meteo DCC System – Current Status

## Active stations in CEMS-MDCC database (EFAS domain)



Number of stations:

- Total: 48640
- Active: 20062
  - thereof 4695 virtual stations
- Inactive: 27883
  - thereof 9310 virtual stations



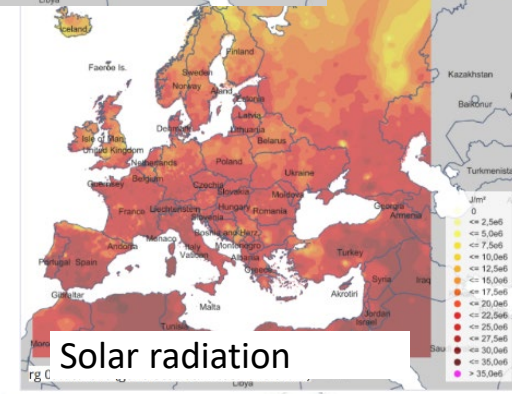
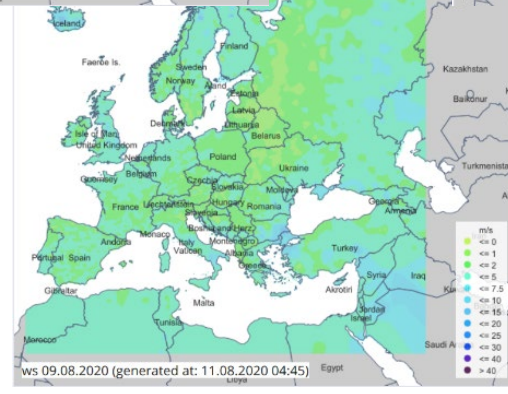
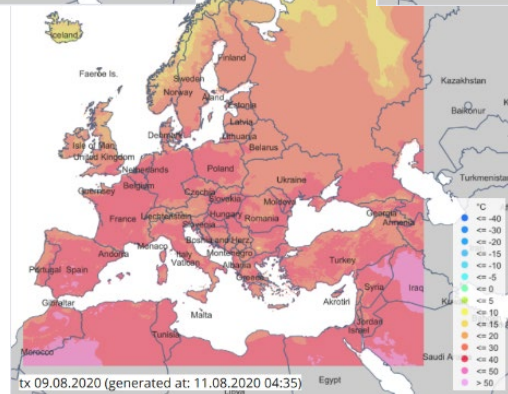
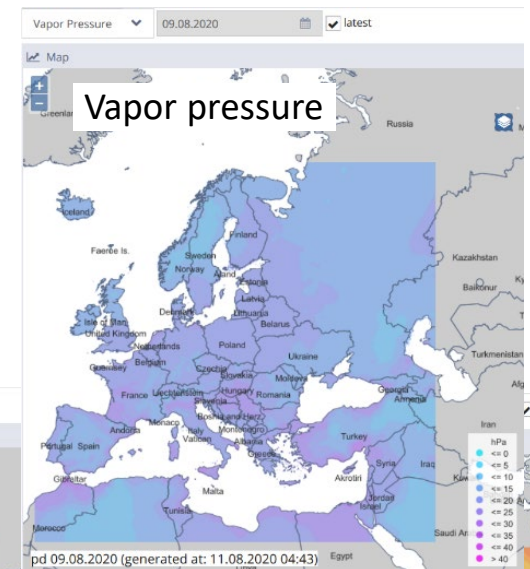
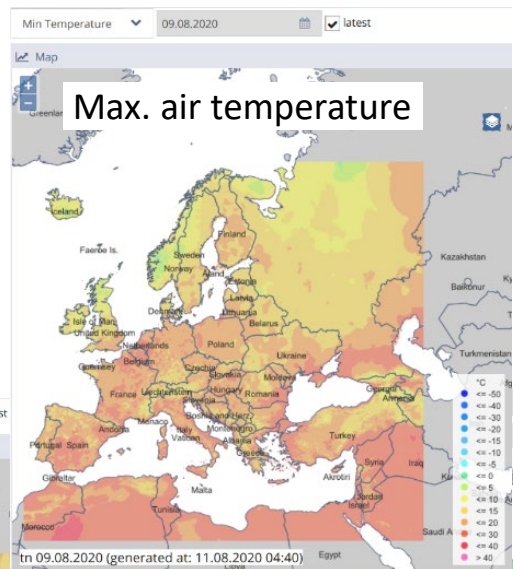
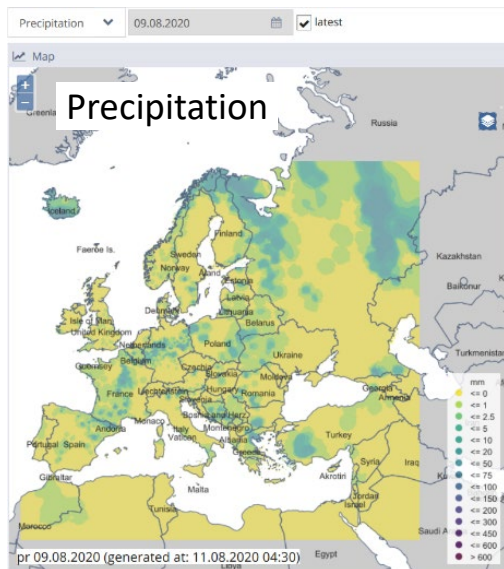


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# CEMS Meteo DCC System – Current Status

## Interpolated grids for LISFLOOD model

- Daily grids produced by CEMS-MDCC





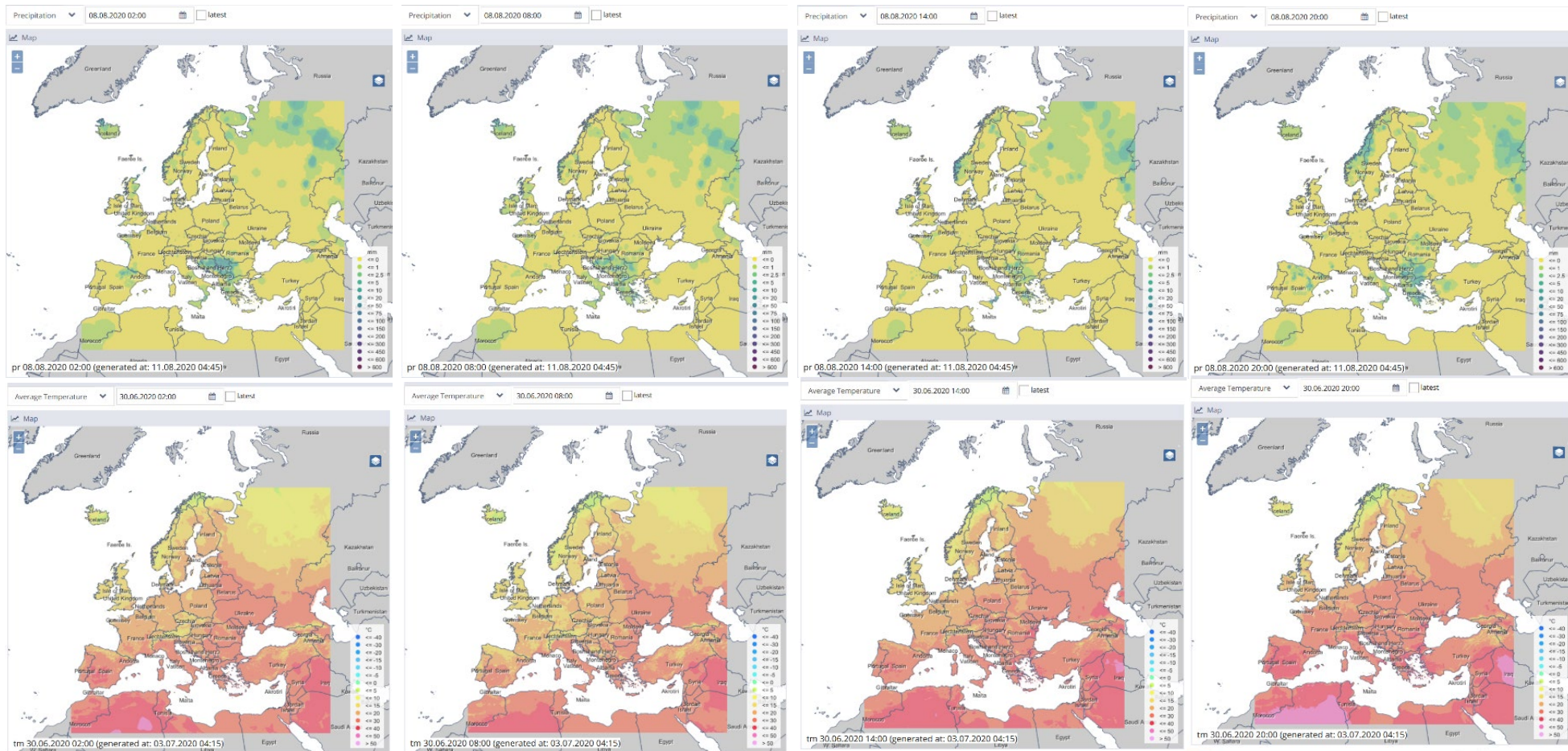


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# CEMS Meteo DCC System – Current Status

## Interpolated grids for LISFLOOD model

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







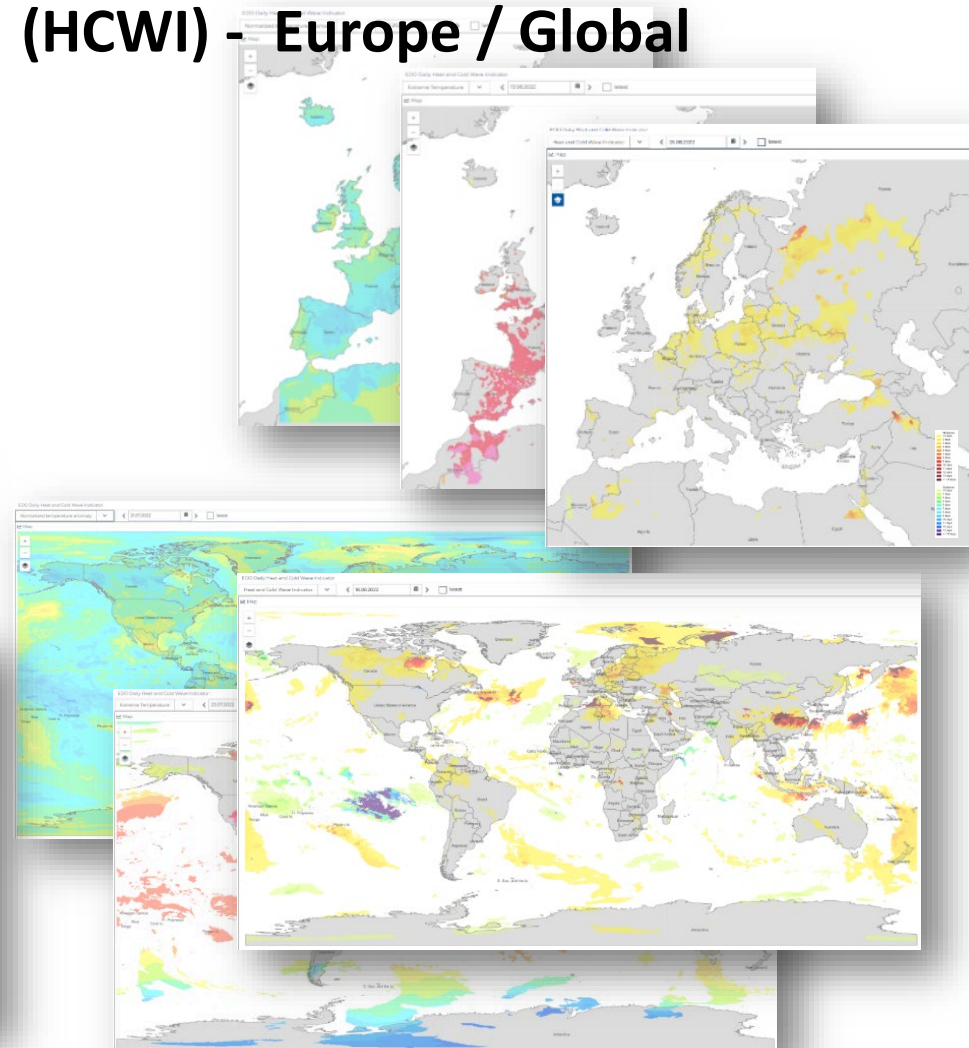
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# CEMS Meteo DCC System – Current Status

## Standardized Precipitation Index (SPI) - Europe / Global



## Heat and Cold Wave Indicator (HCWI) - Europe / Global



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## CEMS MDCC System – Planned Evolution

### Ongoing and planned developments

- Improvements in data validation  
→ see specific presentation “What’s New in EFAS”
- Improve coverage with station data  
Always looking for new data providers





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# How to contribute data to EFAS

## Meteorological station data

- As many parameters as possible:
  - **Precipitation**
  - **Relative humidity**
  - **Solar radiation**
  - **Temperature (including min/max)**
  - **Water vapour pressure**
  - **Wind speed**
  - Cloud cover
  - Dew-point temperature
  - Evaporation
  - Sunshine duration
  - Wind direction
- Time-period: near real-time but also historic data from 1 January 1970 to present (if available)
- Time-resolution: at least 6-hourly, if possible hourly or better

**Station metadata:** number/ID, name, coordinates, elevation, instrument type (optional)



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# How to contribute data to EFAS

## Technical details

- (S)FTP server on your side: we download data files from your (S)FTP server
  - SFTP server at CEMS-MDCC: you deliver data files to our SFTP server
  - Web data portal: we download data from your web server via URL or API
  - Email: you send emails to us with data as attachment
- 
- Data transfer as often as possible (at least once per day, but possibly more often or continuously)





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# How to contribute data to EFAS

## 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 'it's own' license



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## How to contact CEMS-MDCC

### Contact details

Email: [efas.mdcc@dwd.de](mailto:efas.mdcc@dwd.de)

Markus Ziese (CEMS-MDCC/DWD), phone: +49 69 8062 2973

For questions in relation to the data license:

Peter Salamon (JRC Ispra), phone: +39 0332786013,  
email: [peter.salamon@ec.europa.eu](mailto:peter.salamon@ec.europa.eu)





**Rapid Mapping**



**Risk & Recovery Mapping**



**Floods**



**Fires**



**Droughts**



**Population**



**Built-up areas**