Climate Observations in Germany

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National and regional needs

- Climate observations in support of assessment and implementation of adaptation
  - Observing systems have in most cases been developed for purposes other than climate
  - In general the spatial and temporal coverage of climate observations in Germany is considered to be sufficient
  - The German Adaptation Strategy (DAS) and its Adaptation Action Plans (APAs) are regularly being monitored w.r.t. to progress in implementation based on an indicator system (~80)
  - Sectorial vulnerability is being analysed within the Network Vulnerability comprising 16 federal agencies
  - This may lead to new and additional recommendations for climate observations
Climate observations by Germany

- Inventory Report published in 2013
- Addresses 34 ECVs relevant for Germany
- Fed into the 6th National Communication
- Plus phenology as an additional source of information
Climate observations in Germany

- Plus phenology as an additional source of information
- GCOS German Coordinator since 1992
- Annual GCOS round tables since 1998
- D-GEO is informed about GCOS activities
National and **regional** needs

- **EUMETNET Observations Programme**: aiming at improving general weather forecasting and climate monitoring over Europe
- **EUMETSAT**: operational satellites for weather and climate
- **WMO Regional Climate Centre Network** fulfils regionally (RAVI – Europe) agreed functions to support members in meeting their national requirements for climate services ([www.rccra6.org](http://www.rccra6.org))

  - Functions include
    - Provision of data sets
    - Climate monitoring products
    - Longe-range forecast products

- **Copernicus Climate Change Service** of the European Union
  - To address additional information relevant for climate change monitoring, i.e. GHG, air quality, etc.
National climate risk profile

- German climate atlas shows present anomalies and future developments at [www.deutscher-klimaatlas.de](http://www.deutscher-klimaatlas.de)
- Various indicators relevant for different sectors
- In general
  - Moderate changes in mean values expected
  - Additional risks from increasing extreme events
- German Adaptation Strategy together with Action Plans working towards enhancing resilience
National climate risk profile

Number of hot days

National climate risk profile

Number of hot days

Changes in number of hot days based on 19 climate model runs (A1B-scenario)
Historical climate data @ DWD

Precipitation only

- Not yet digitized = 126000 station years
  - = 250 person years
- Digital daily values = 64%
- Not yet digitised = 31%

Climate

- Not yet digitized = 19500 station years
  - = 390 person years
- Digital daily values = 61%
- Not yet digitised = 5.9%
New data sources for climate monitoring

- **Satellites**
  - DWD hosts the EUMETSAT Satellite Application Facility on Climate Monitoring (CM SAF, [www.cmsaf.eu](http://www.cmsaf.eu))

- **Radar-based quantitative precipitation monitoring (RADOLAN)**
  - Decadal, geo-temporally homogeneous and high-resolution quantitative precipitation reanalysis from 1 January 2001 until the present day

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Percentiles Number of clear days 2014 (reference period 1982–2009)

Number of clear days (Europe)

Legend:
- **2014**
- **1982–2009**
- **stdev**
- **10th and 90th perc**

- **Minimum**: 10.4 mm
- **Maximum**: 54.0 mm
- **Mittel**: 22.5 mm

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S. Rösner – 02/2015
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Main challenge:

How to make full use of existing data?

- Historical data still need to be digitized
- New data sources like satellites and radar
- Huge amount of model data
- How to translate data into meaningful information for decision maker?

Key question:

How to secure expensive observations in the deep ocean over the next decades?

- Some of the German activities described in the 2013 German GCOS Inventory Report are considered not being sustainable
Thank you for your attention!

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