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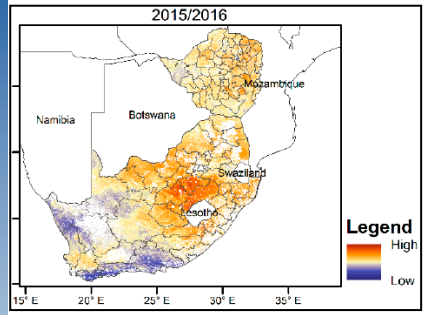

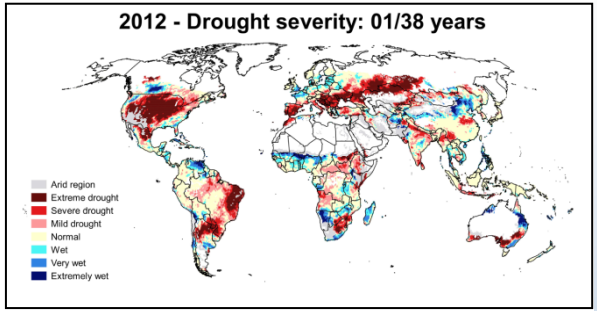

Stefan Siebert (University of Göttingen)

GlobeDrought

Global information system on droughts and their impact

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Overall objectives:

- To analyze **drought risk** and **drought impacts** at global scale and for selected case study regions
- To develop a **web-based drought information system** (global & regional) presenting the data generated in the project
- To develop an **experimental early warning system** providing information on drought status and seasonal drought forecasts

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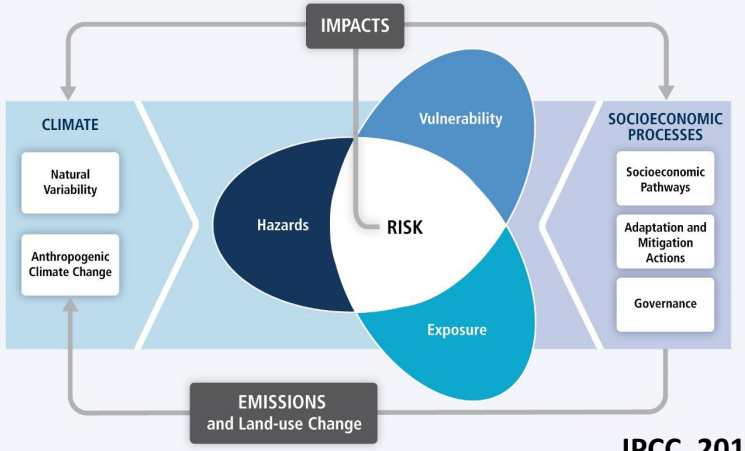

IPCC, 2014

1st stakeholder workshop

Studying drought impacts on:

Agricultural systems

Water supply

Irrigated **Rainfed**

- Integrated assessment considering indicators for **hazard**, **exposure** and **vulnerability**
- Assessment at **global scale** and for selected regions such as **South Africa** and **Zimbabwe**
- Considering distinct time scales (**long-term drought risk**, current **drought status**, experimental early warning system projecting potential **future drought development**)
- Combining process based crop- and hydrological **modeling** with **remote sensing**

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Global drought risk (rainfed systems) computed at high resolution for period since 1981

Drought hazard 2010-2018

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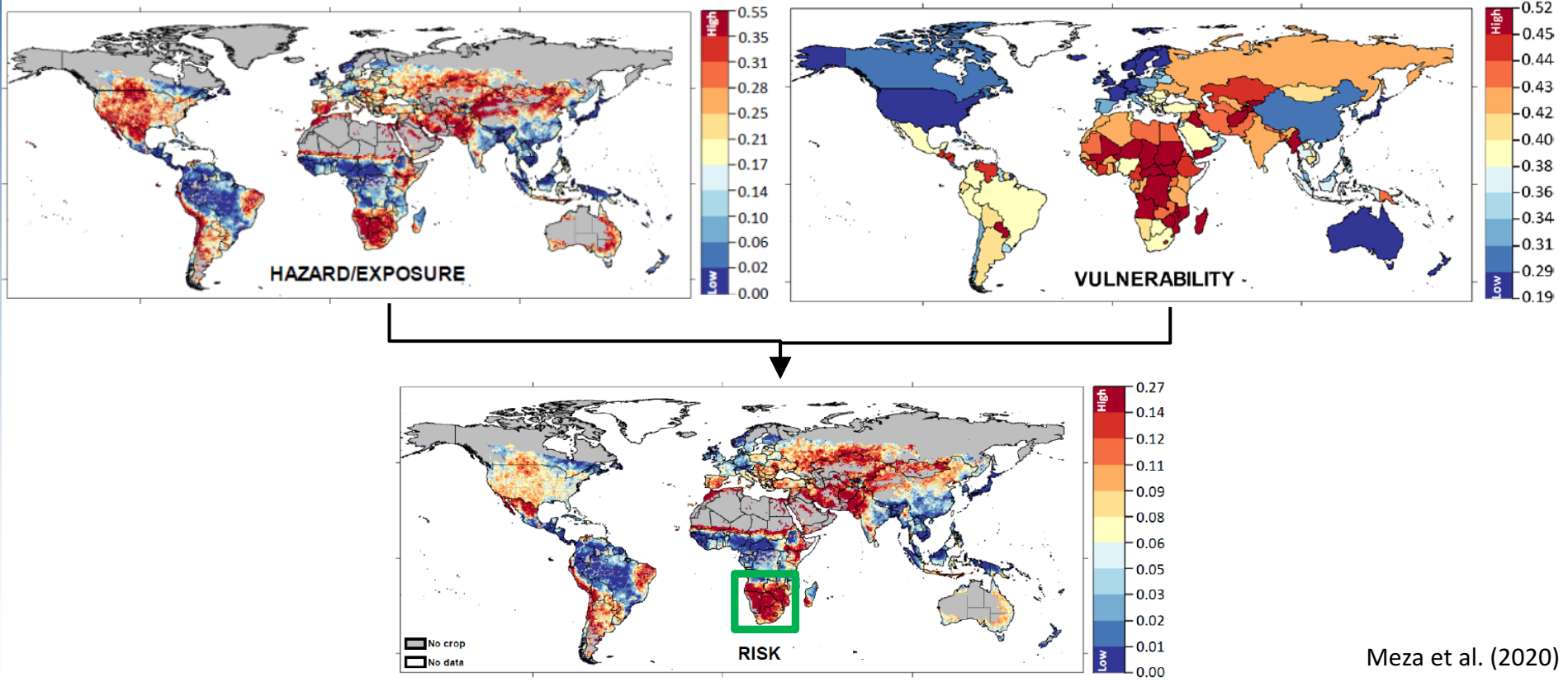
Global drought risk (rainfed systems) computed at high resolution for period since 1981



Meza et al. (2020)

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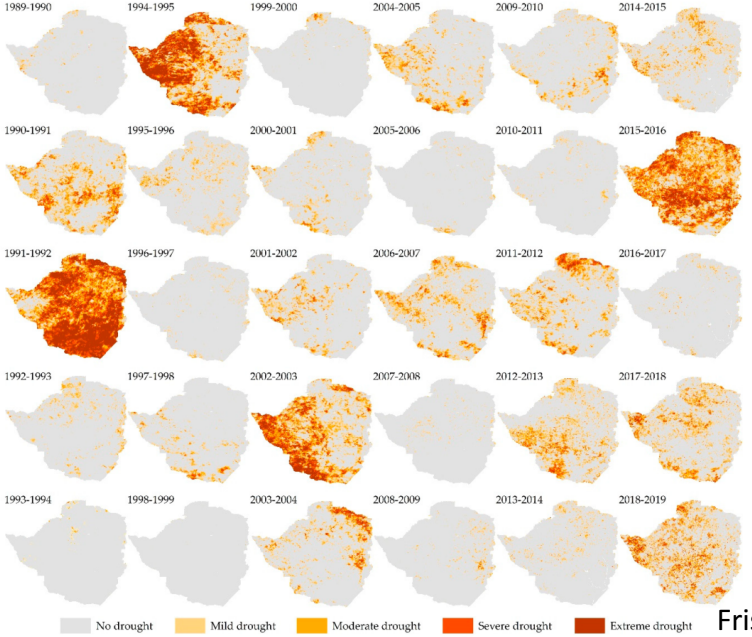
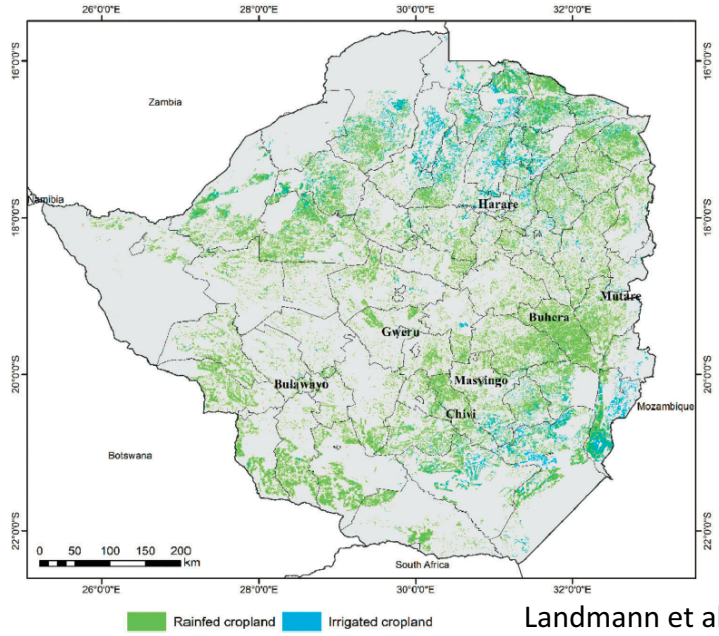
Regional studies - Zimbabwe



Frischen et al., 2020



Landmann et al., 2019

Drought hazard **+** **Exposure**

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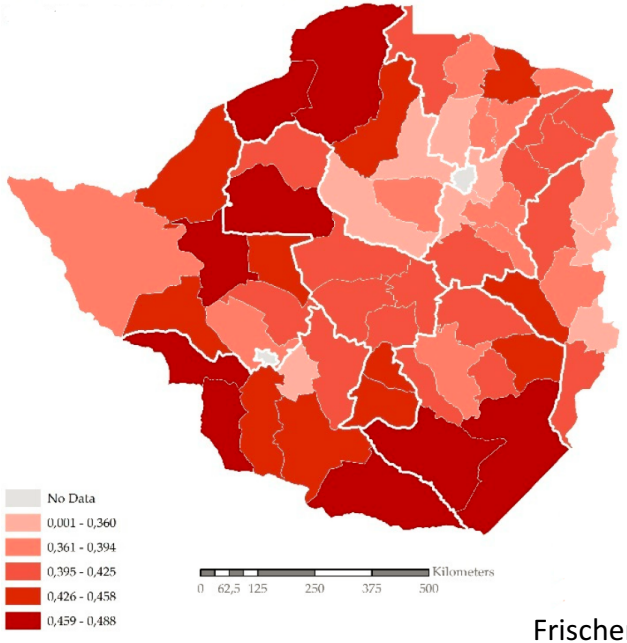
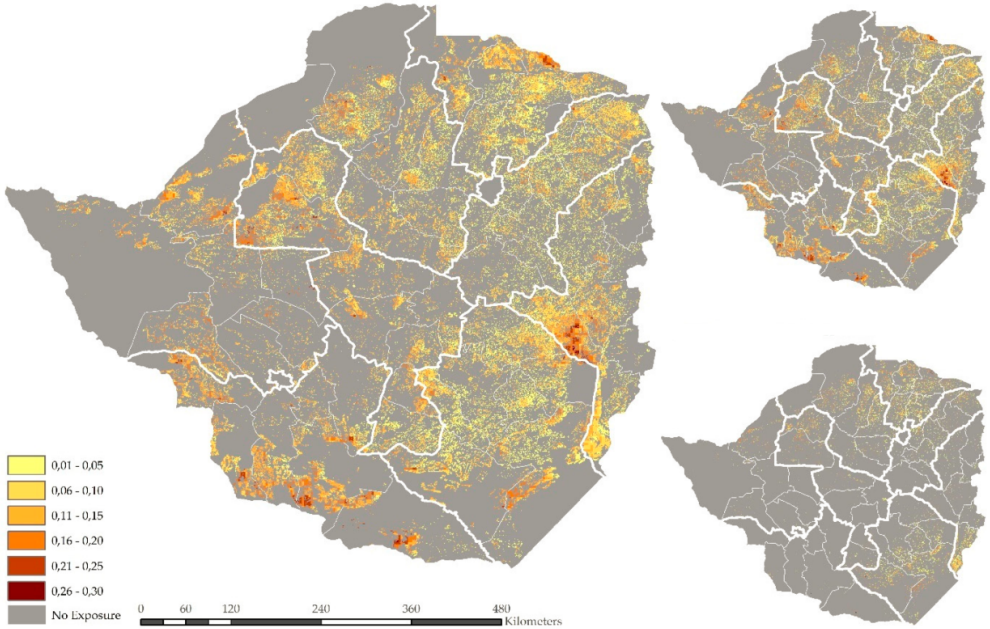
Regional studies - Zimbabwe



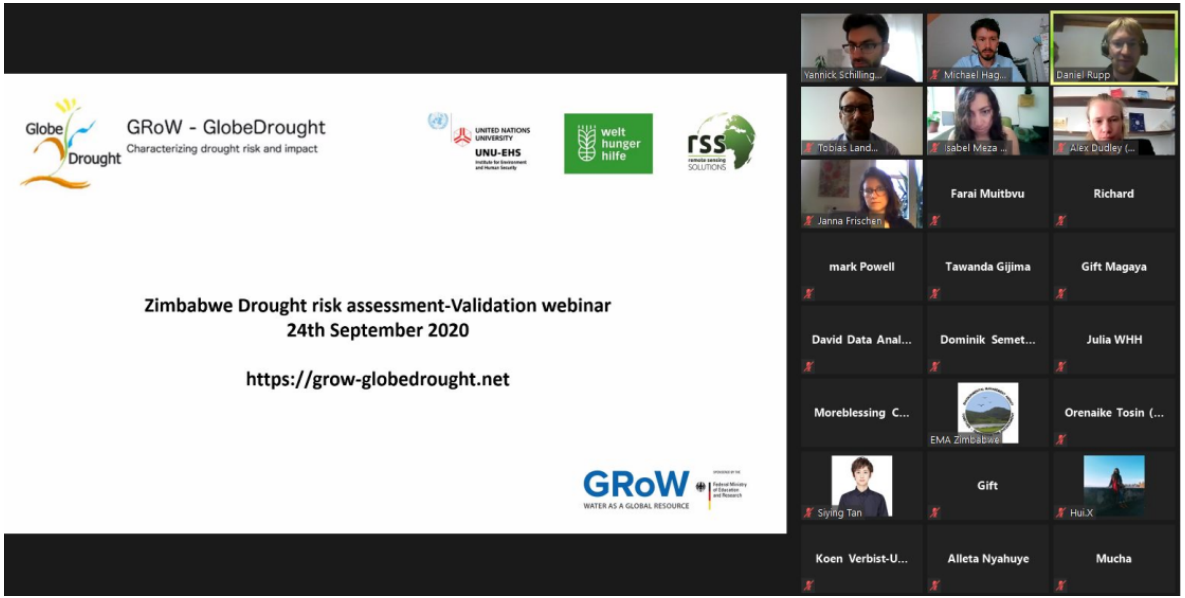


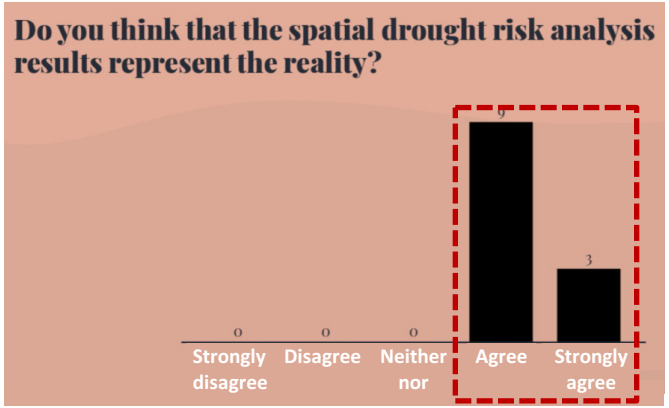
Frischen et al., 2020

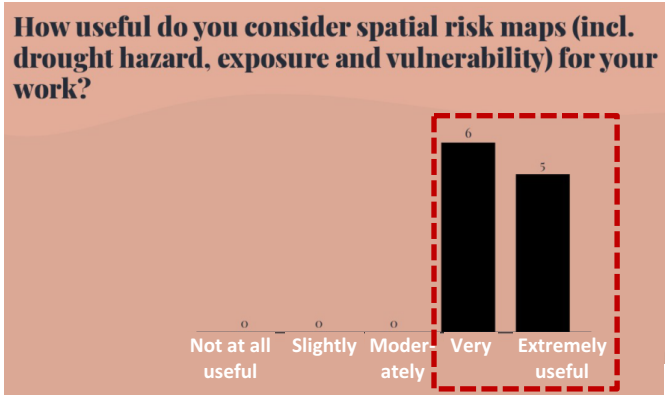
+ Vulnerability = Drought risk

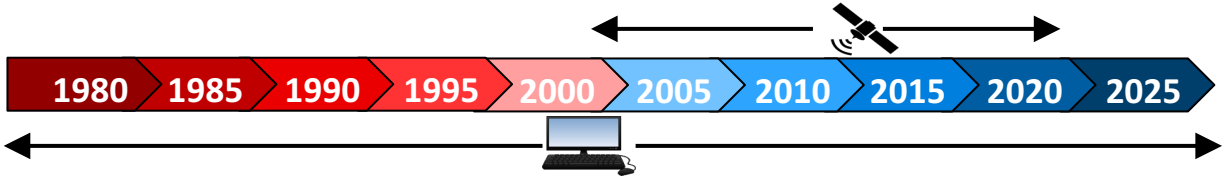
Regional studies - Zimbabwe

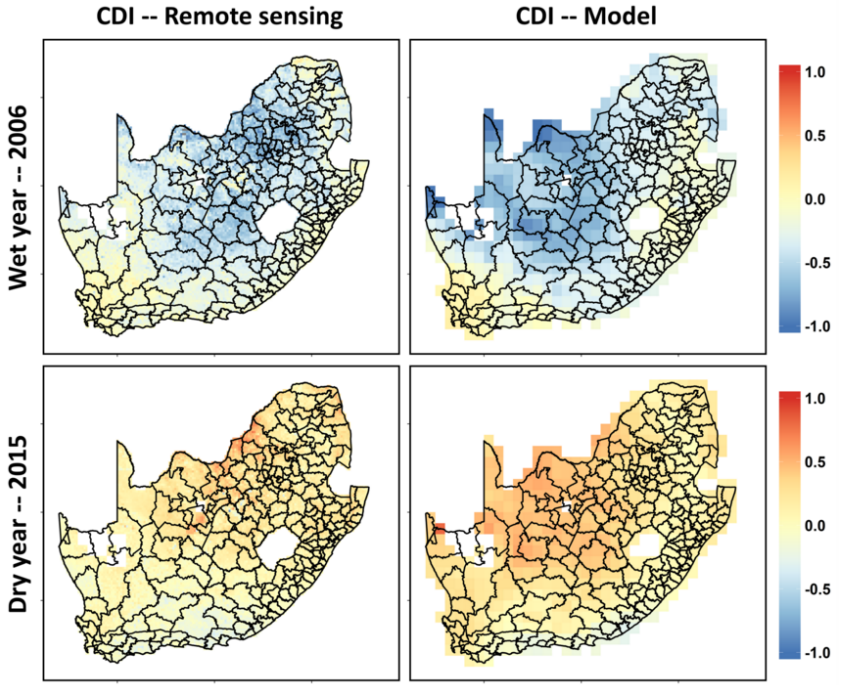
Virtual validation workshop (09/2020) & **online survey** with relevant stakeholders











Consistent computing of the **Crop Drought Index (CDI)** for **South Africa** based on **remote sensing** and crop water **modeling**

High resolution remote sensing data only available for relative short period

but

drought is defined as **deviation from normal conditions**

↓

Crop model needed to define what is “normal”

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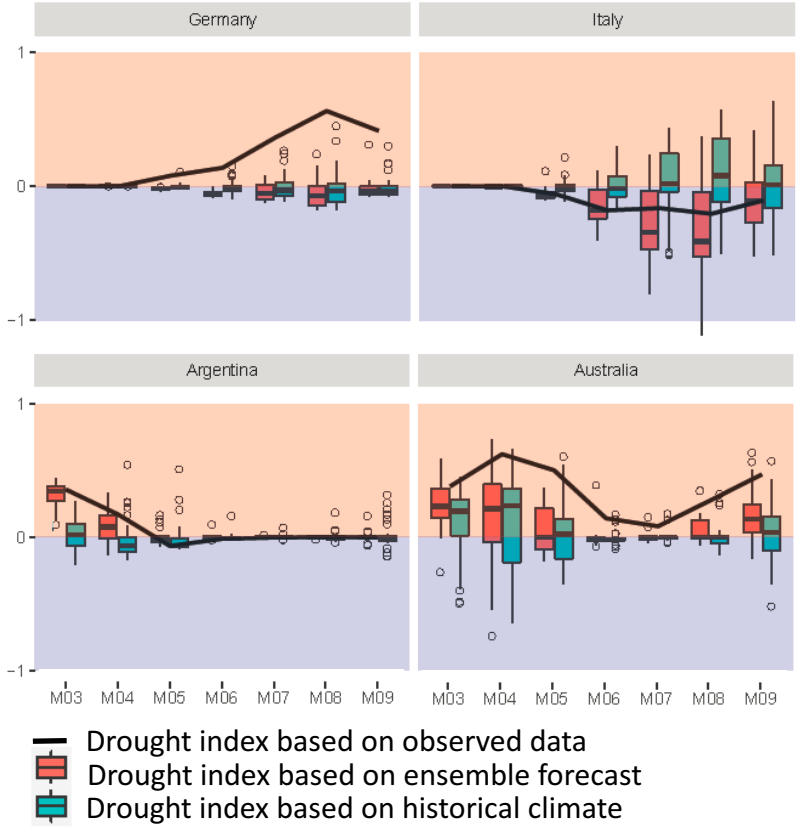
Using bias-corrected global ensemble ECMWF-forecasts for drought forecasting



Case study:

Simulating the drought in year 2018 in a joint study with **KIT-IMK Garmisch (GRoW-SaWaM)**

- ERA5-input until 03/18
- Starting on 1st March 2018 using
  a) Historical climate data
  b) Ensemble forecasts

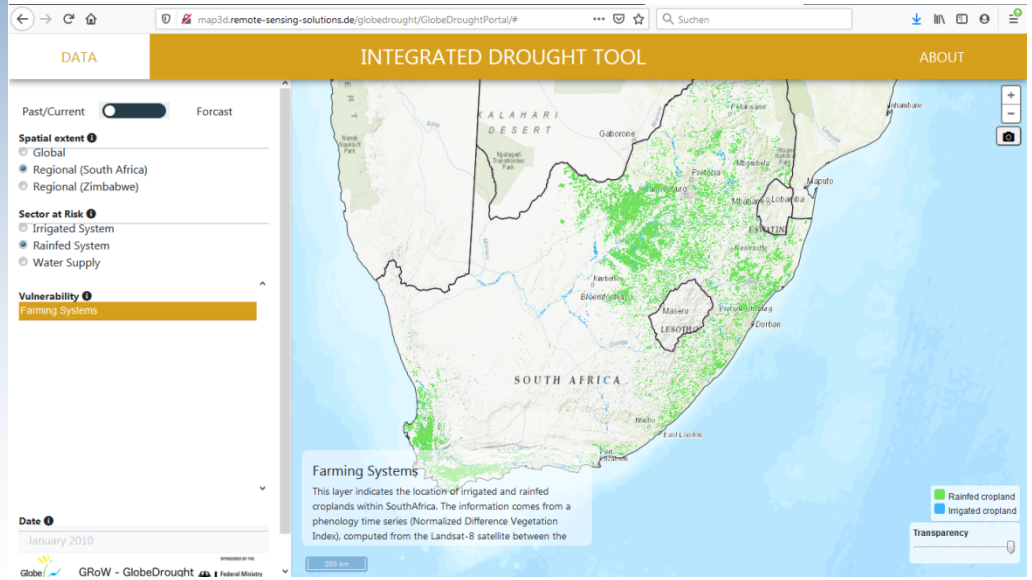
First results:

- Drought situation in Argentina, Australia and Italy better reproduced with ensemble forecasts
- Severe drought in Germany outside of the range predicted by historical climate or ensemble forecasts

GlobeDrought information system:

http://map3d.remote-sensing-solutions.de/globedrought/GlobeDroughtPortal/

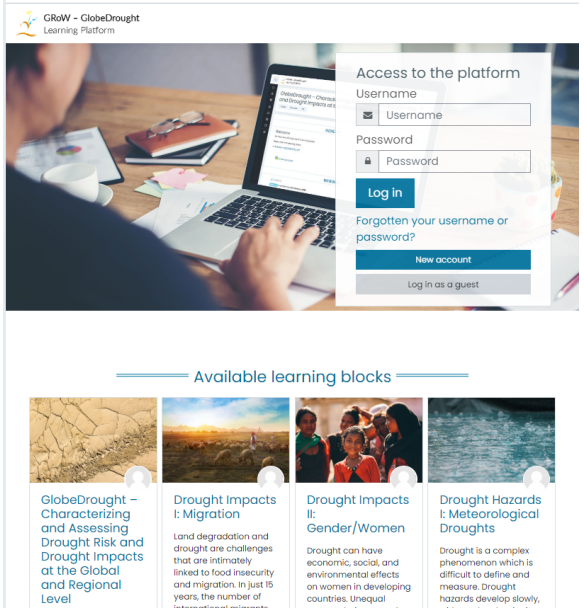
=> Presentation Tobias Landmann (RSS) this afternoon at the **stakeholder forum**

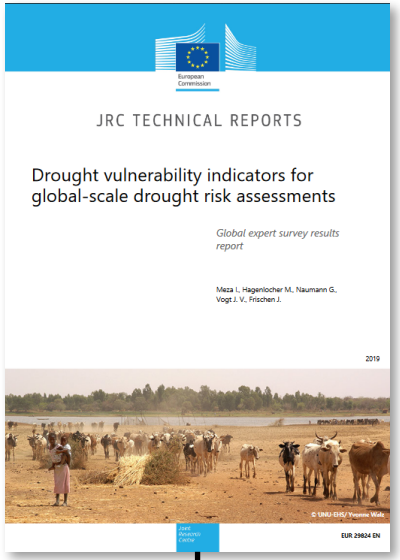


GlobeDrought eLearning platform:

https://elearning.grow-globedrought.net

=> **12 webinars & online lectures** available at the project website



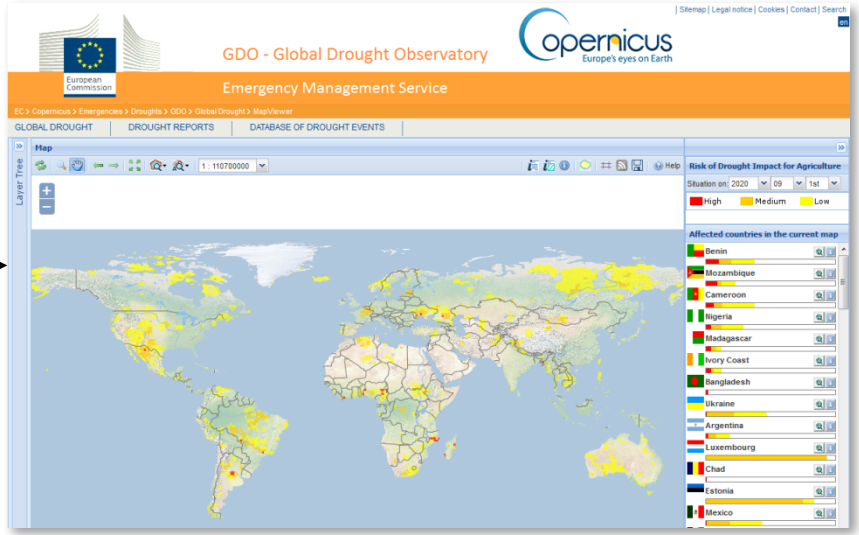


Joint publications with stakeholders:

https://grow-globedrought.net/publications/

=> **14 articles and reports published**, can be accessed through the project website

=> **Direct uptake** and **implementation** of new methods and project results into information systems maintained **by the stakeholders**



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Many thanks for your attention and please visit us at:

- **Stakeholder Forum A**: Digital innovations for managing water quantity
- Our **virtual market place** available from 09AM-06PM on conference days and 03PM-06PM the other days
- Our **final project workshop** in virtual format on November 3-4, 03PM-05PM (CEST)
  https://grow-globedrought.net/final-workshop/

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