

go-CAM

Implementing strategic development goals in Coastal Aquifer Management



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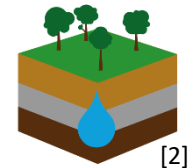
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Dr. Jürgen Meyerdirks



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|--|--------------|
| 1. Context and objectives of go-CAM | M. Eley |
| 2. Interim results of data analysis and modeling | |
| 3. A coastal aquifer management tool: CAM | K. Scheihing |
| 4. CAM workflow | |
| 5. Conclusions and outlook | |



- Groundwater essential source of drinking water
- Groundwater reservoirs are central to the “resource-oriented” SDG 6
- For now groundwater is not sufficiently addressed by SDGs



The SDG 6 indicators, especially in coastal areas, can not be evaluated without model studies.

New physically based indicators are required which define groundwater status, risks and trends (Foster et al. 2017).

(further references: FAO Water Report 2017, Guppy et al. 2018, Schöniger et al. 2019, Cuthbert et al 2019, Michael et al. 2017)

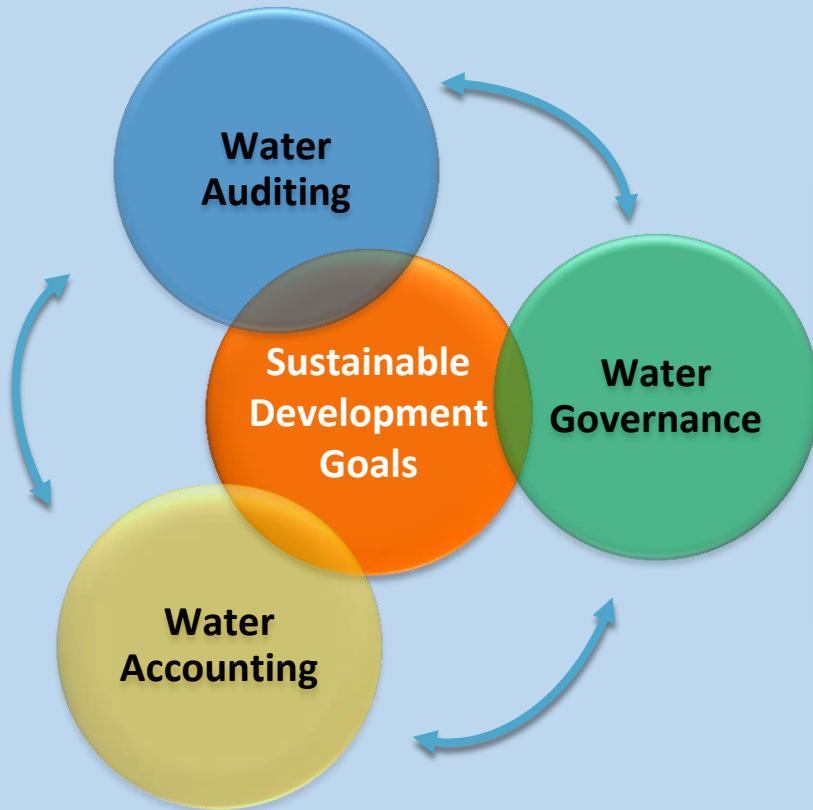


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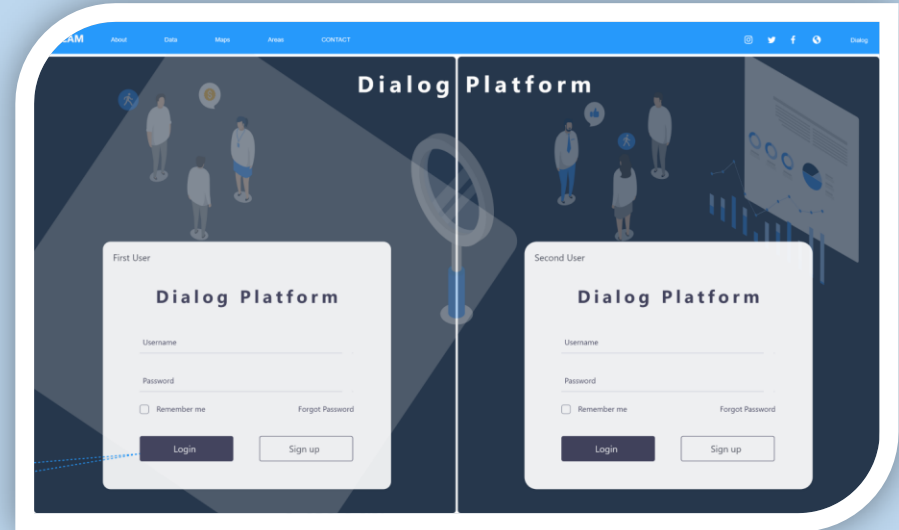
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CAM Dialog Platform & Decision Support

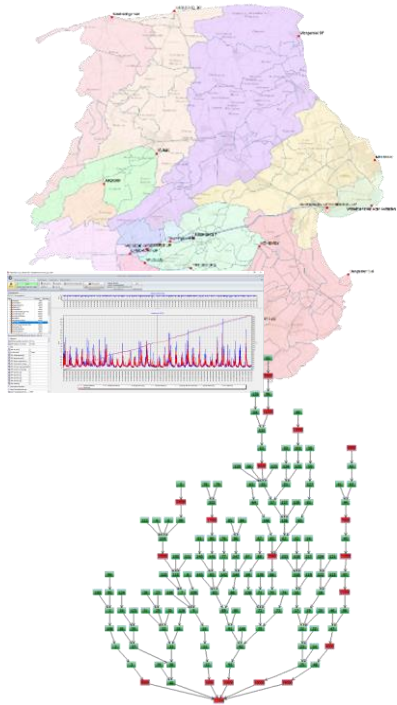


- Initial development of CAM enforced by case studies

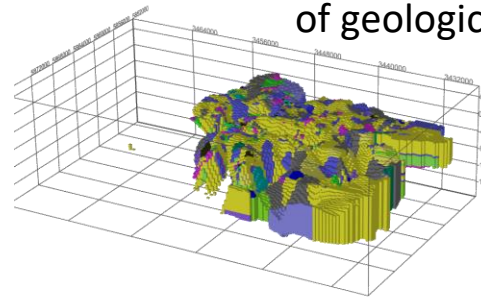
	focal points	findings and challenges
WR1	Artificial drainage Groundwater supply Agriculture Industry	Risk of saltwater intrusion Socio economic change Climate change
	Groundwater supply Agriculture	Risk of nitrate pollution Climate change
WR2	Private water supply Agriculture	Risk of Saltwater intrusion Climate change Competition of use
WR3	Private water supply Agriculture	Climate change Risk of saltwater intrusion Competition of use
WR4	Reservoir water Agriculture	Climate change Poor water quality Complex water management Water losses Potential of gw abstraction Increase of water demand



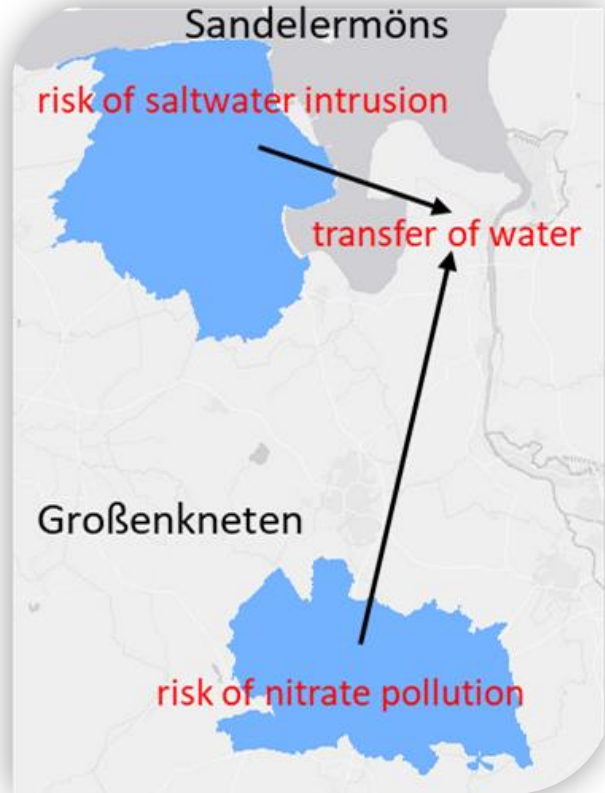
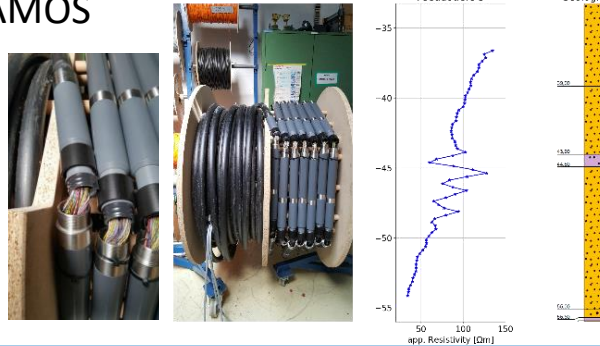
hydrological model



hybrid parameterization of geological models



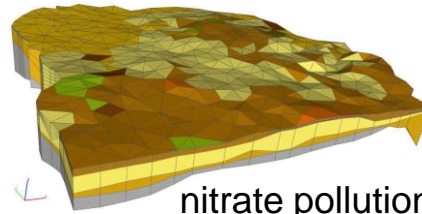
SAMOS



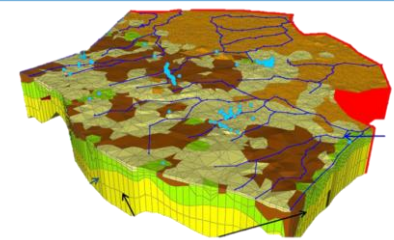
discharge monitoring



groundwater transport models



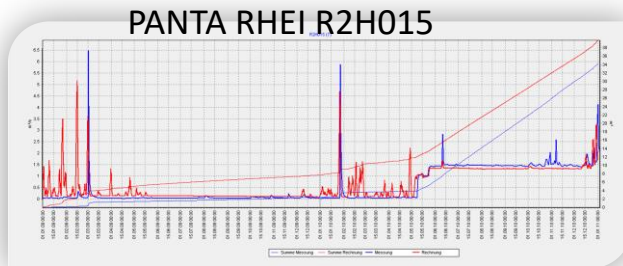
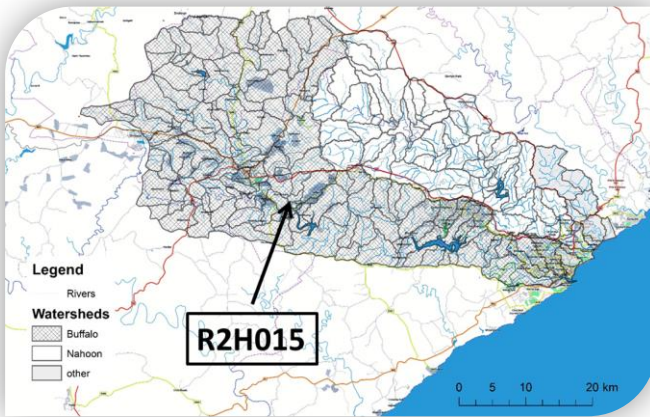
nitrate pollution



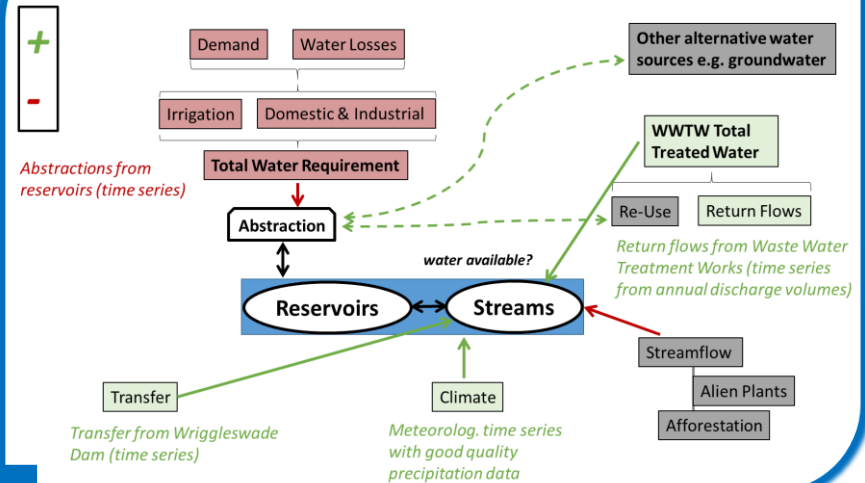
saltwater intrusion

Development of a hydrological model

Catchments:
 Buffalo River: 1 279 km²
 Nahoon River: 589 km²



Regional analysis



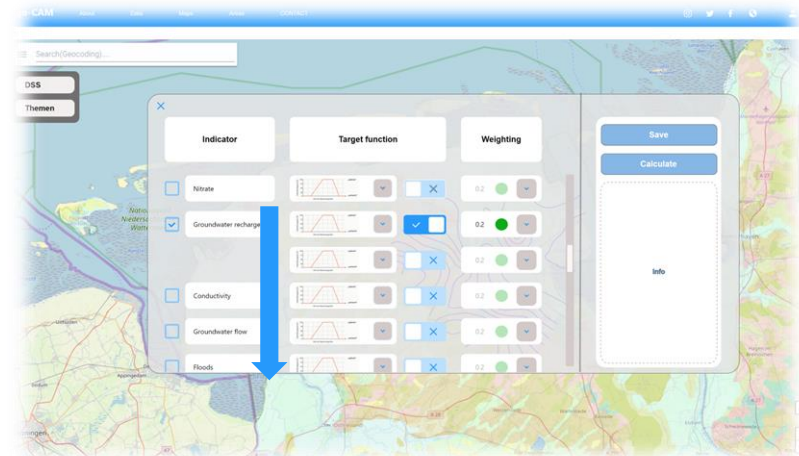
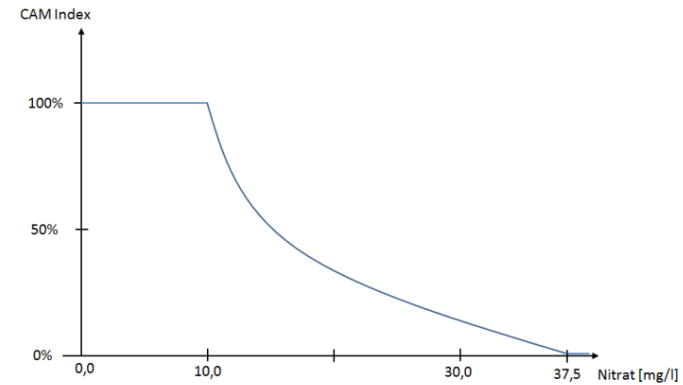
CAM Dialog Platform & Decision Support



Stakeholder

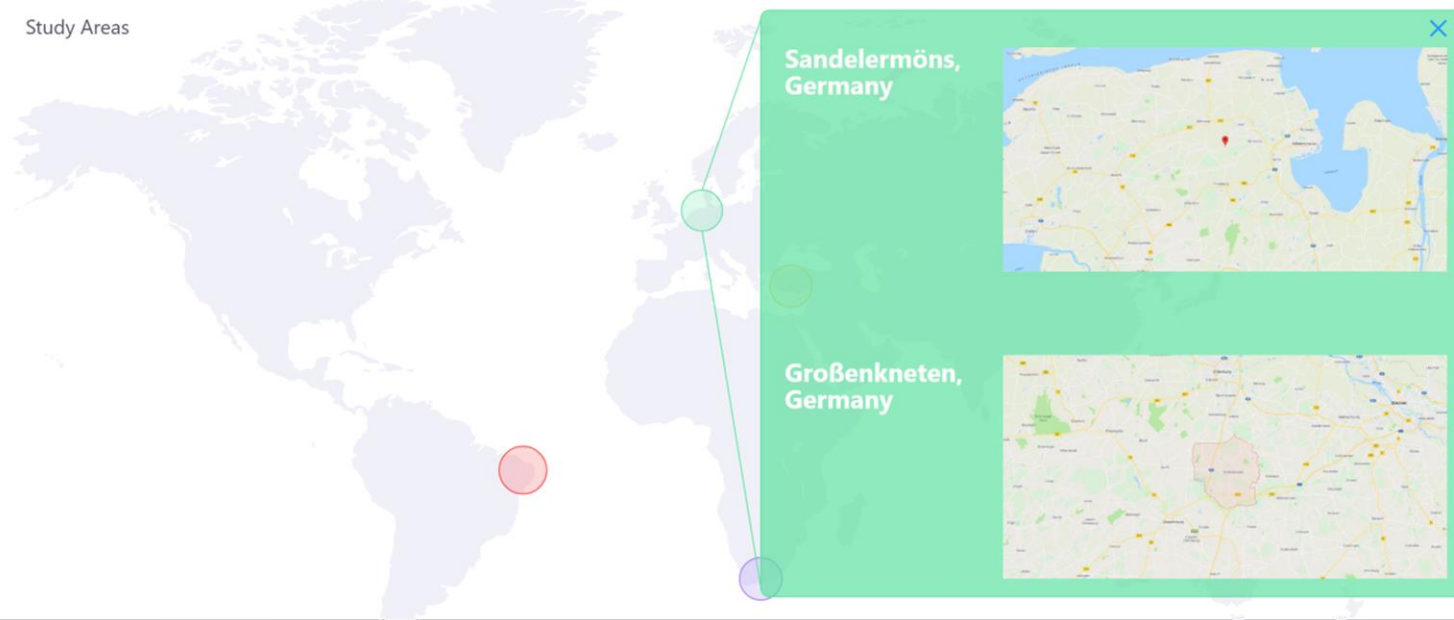


- Informed by data and models on water quality and quantity (scenario projections)
- As well as auditing analyses and governance settings
- Each project is accessible for multiple users
- Allows each user to define preferences (indicators)
- Stakeholder gain transparency and objectivity in the decision making process



- How do different scenarios influence my set of objectives?
- Each stakeholder defines relevant indicators and target functions (e.g. nitrate)
- Target function: translates numeric values into CAM-Index
- Target function for multiple indicator
- Index input for MCDA processing for decision support

Study Areas



Overview
of projects
in CAM



57 Layers

Click to search for geospatial data published by other users, organizations and public sources. Download data in standard formats



3 Maps

Data is available for browsing, aggregating and styling to generate maps which can be saved, downloaded, shared publicly or restricted to specify users only.



1 Documents

As for the layers and maps GeoNode allows to publish tabular and text data, manage theirs metadata and associated documents.



3 Users

Geonode allows registered users to easily upload geospatial data and various documents in several formats.

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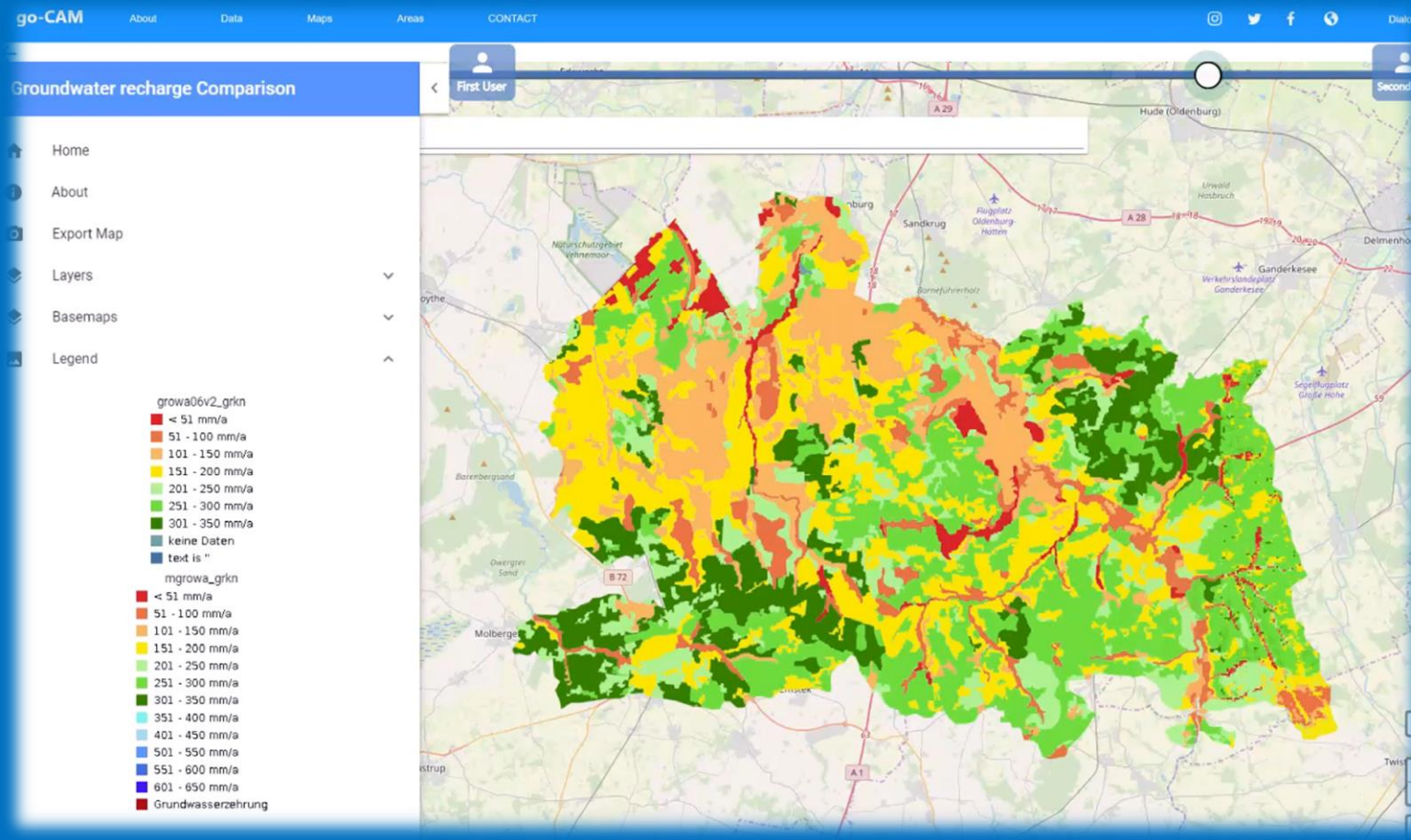
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Example for dialog:
Comparison
of gw-recharge
under different
climate change
scenarios



- **Product:** CAM Dialog Platform & Decision Support Tool
- **Benefit:**
 - increase transparency and objectivity in water management
 - informed by water accounting (modeling), auditing and governance
- **User Group:** stakeholder in the water sector (water boards & associations, agencies,...)
- **Current challenges:**
 - identification of suitable indicators (related to SDG 6.4 + 6.5)
 - derivation of objective functions for MCDA
 - integrating “soft” governance settings
- *Test a preliminary version of CAM on this conference!*

Thank you for your attention!



Pictures Slide 5:

[1] Wikipedia.de

[2] <https://www.globalgoals.org/resources>, (taken from Guppy et al. 2018)

Reference Slide 5:

Foster, S., Carter, R. & Tyson, G. (2017). The UN-SDGs for 2030. Essential Indicators for Groundwater. International Association of Hydrogeologists.

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