Hydroinformatik - SoSe 2024
HyBHW-S1-01-V2: Umweltinformatik

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Dresden, 03.05.2024

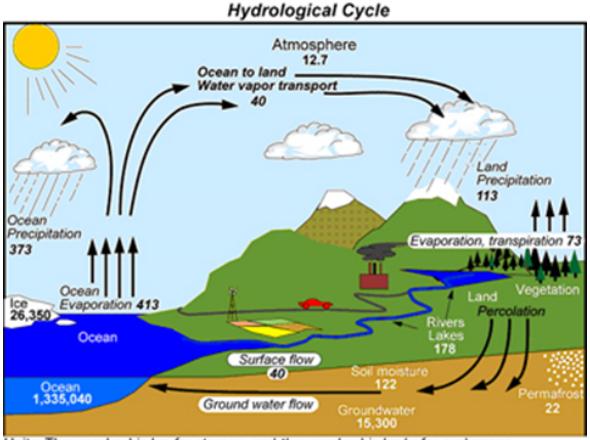
https://www.ufz.de/index.php?de=40416
https://bildungsportal.sachsen.de/opal/auth/RepositoryEntry/32518209537?10

Fahrplan für heute ...

1. Einführung in die Hydrosystemanalyse / Hydroinformatik
2. Ihre Fragen

Hydrosystemanalyse

Hydrosysteme

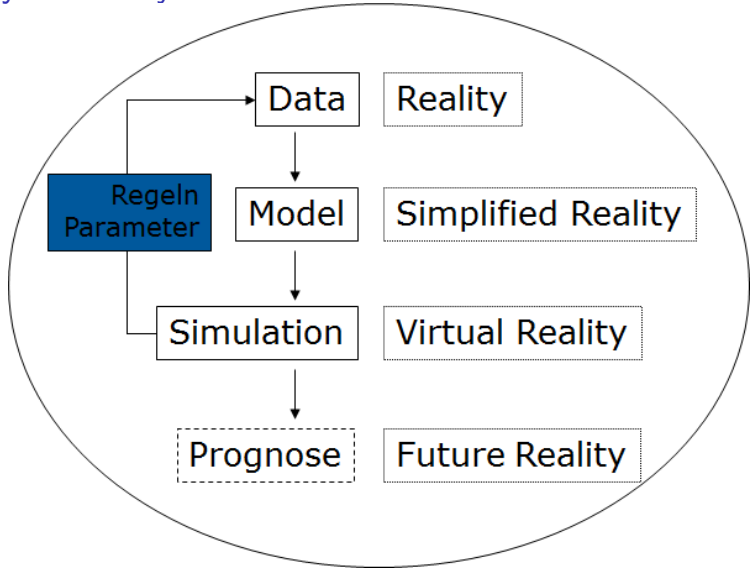


Referenz: Sachse et al. (2014) OGS Tutorial "Computational Hydrology"

Totes Meer (Dead Sea) - Arid

Elbe - Humid

Systemanalyse



$\hookrightarrow$

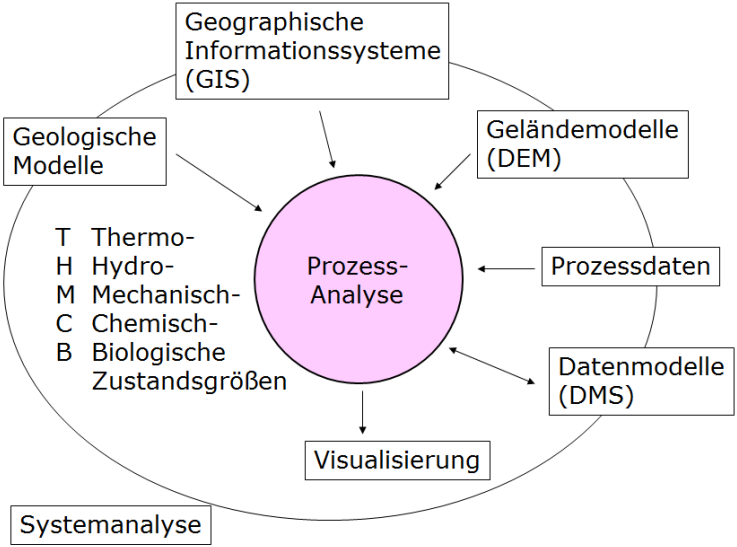
Kalibrierung $\longrightarrow$

Verfizierung $\longrightarrow$

Validierung

$\hookleftarrow$

Systemanalyse



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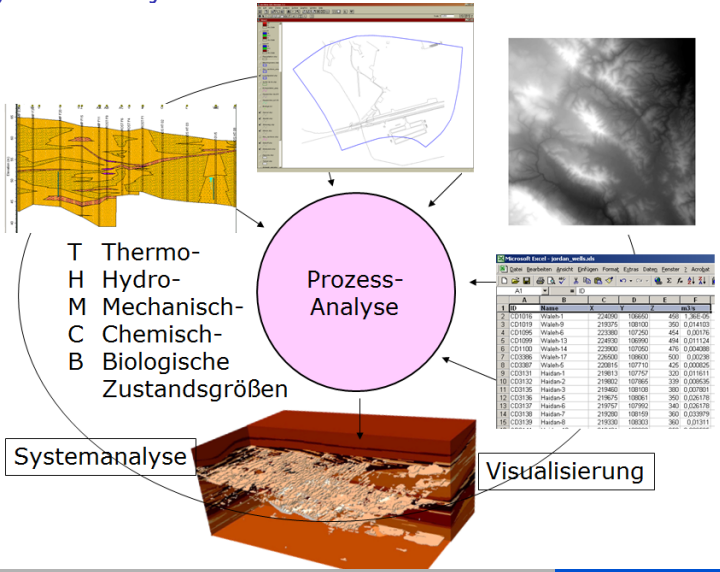
Systemanalyse



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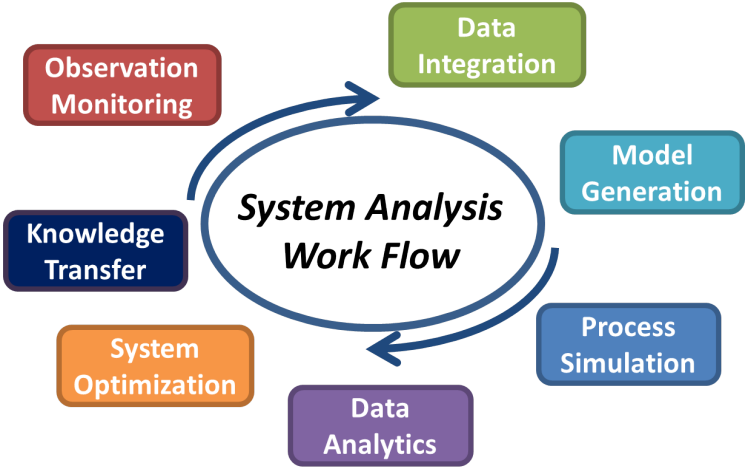
Umweltinformatik

- Workflows
- Visualisierung

- Big-Data
- Datenbasierte Methoden (Maschinelles Lernen)
- ...

- Beispiele (Hydrologie, Geotechnik, Geothermie, ...)

(Generic) Workflows



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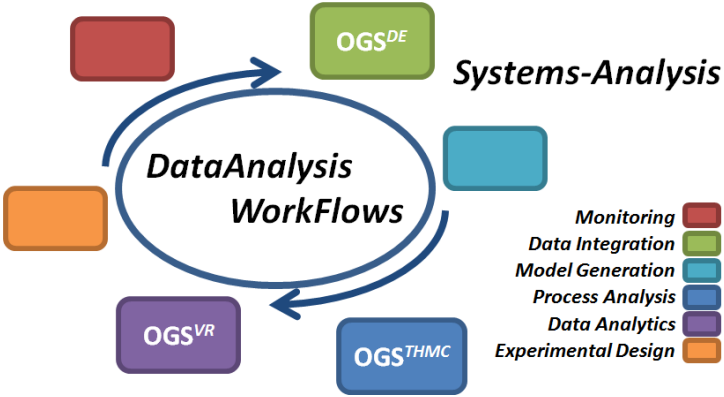
(Generic) Workflows - Entwicklung



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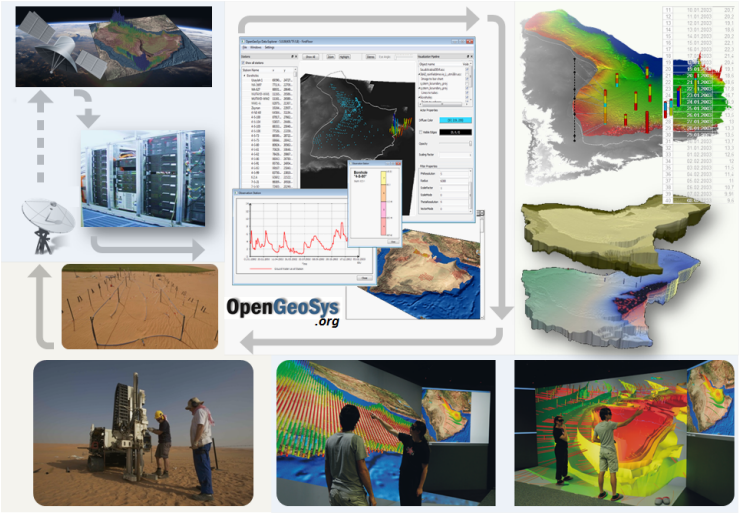
Workflows (Hydrologie)



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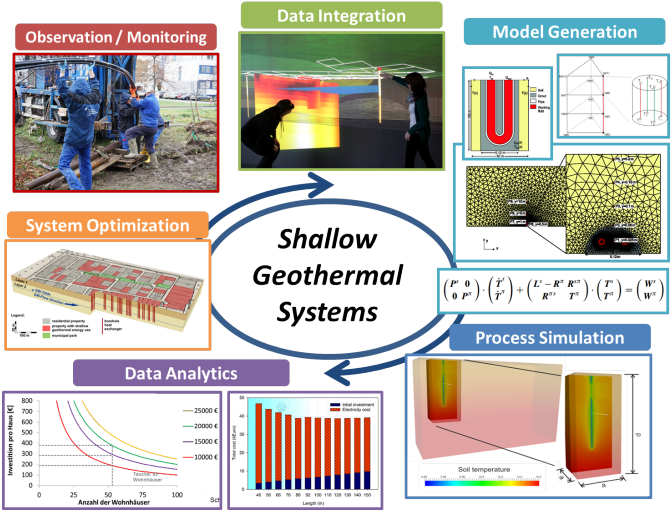
Workflows (Geothermie)



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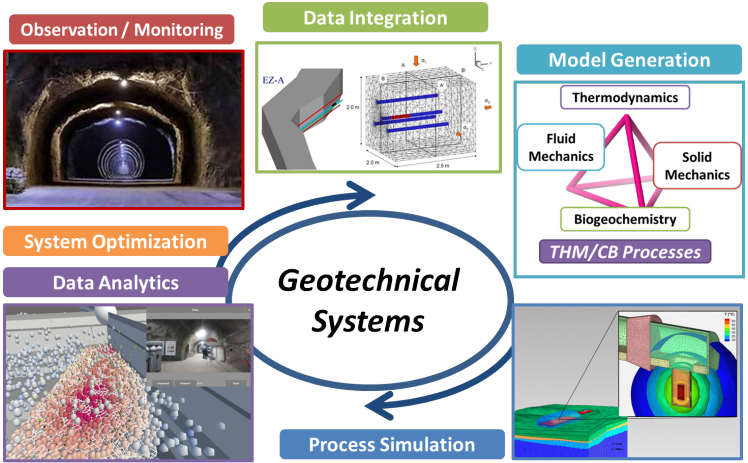
Workflows (Geotechnik)



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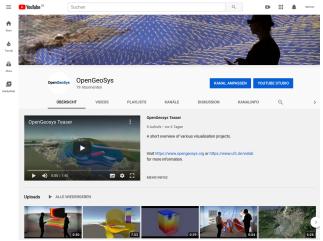
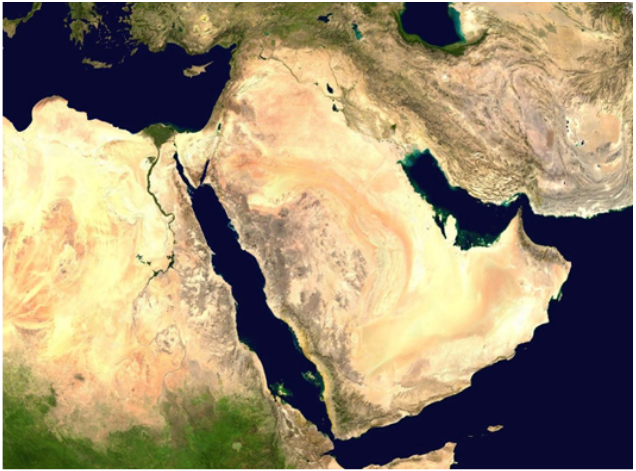
Umweltinformationssysteme: Chaohu



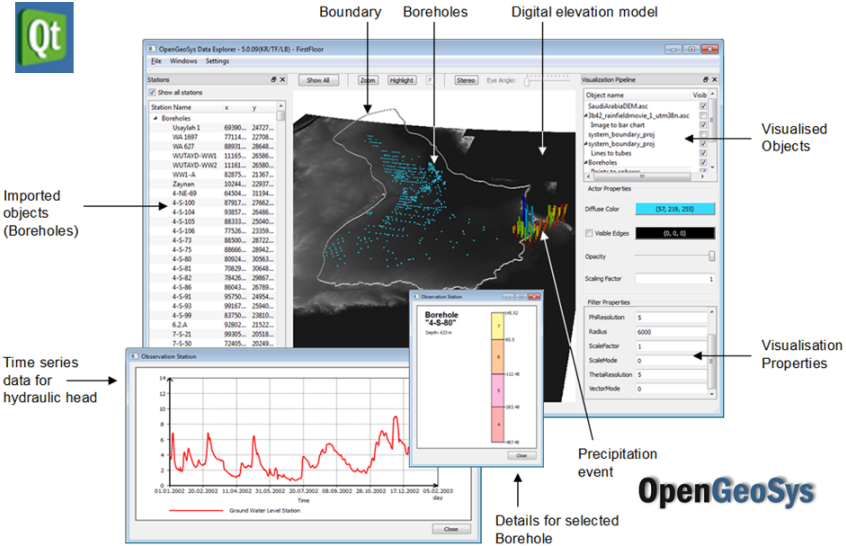
Notizen:

- OGS@YouTube
- ...

Mega-Aquifers: Saudi Arabien



Mega-Aquifers: Saudi Arabien



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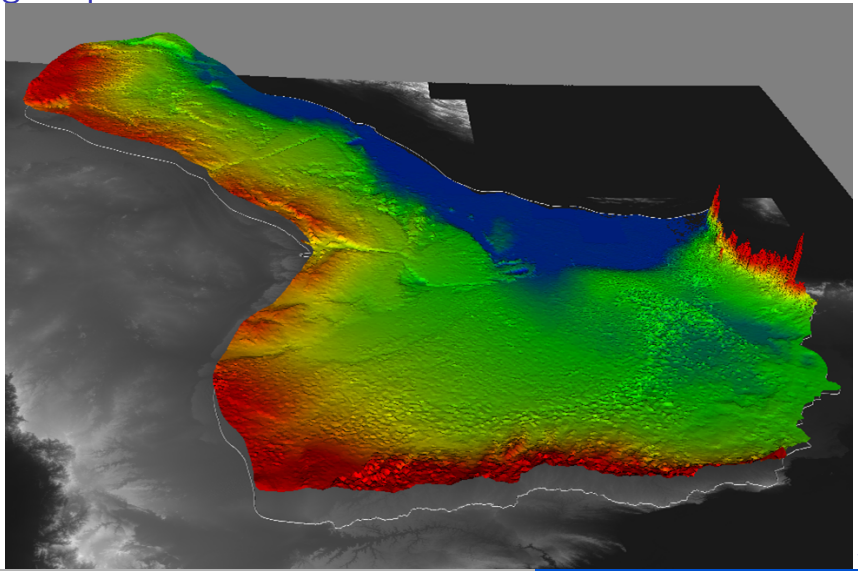

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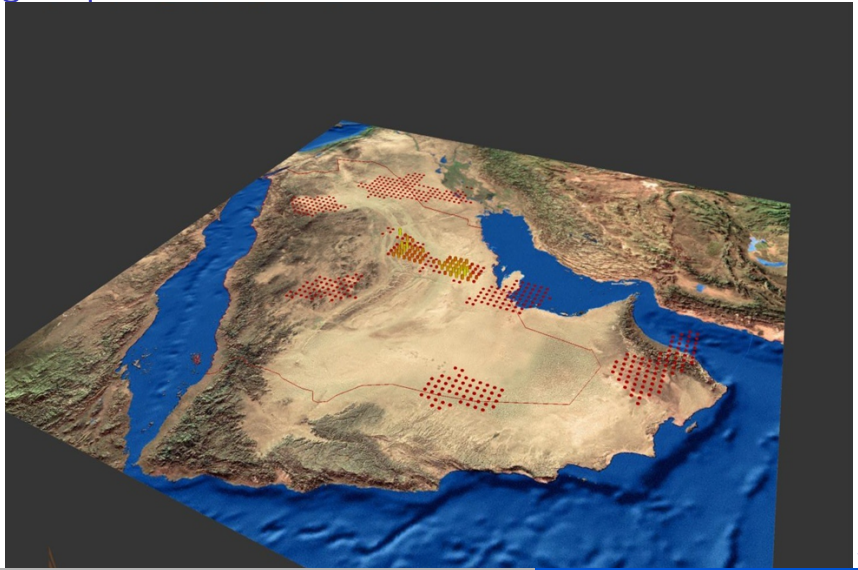

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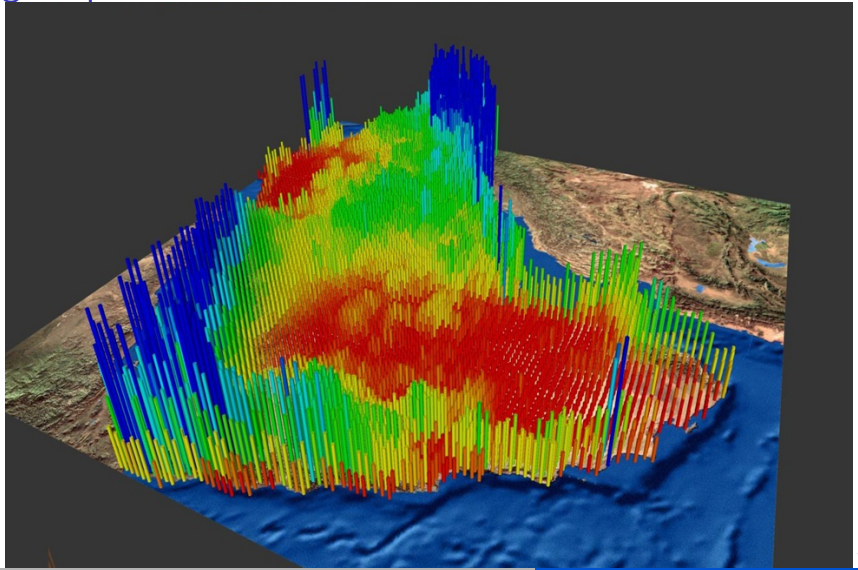

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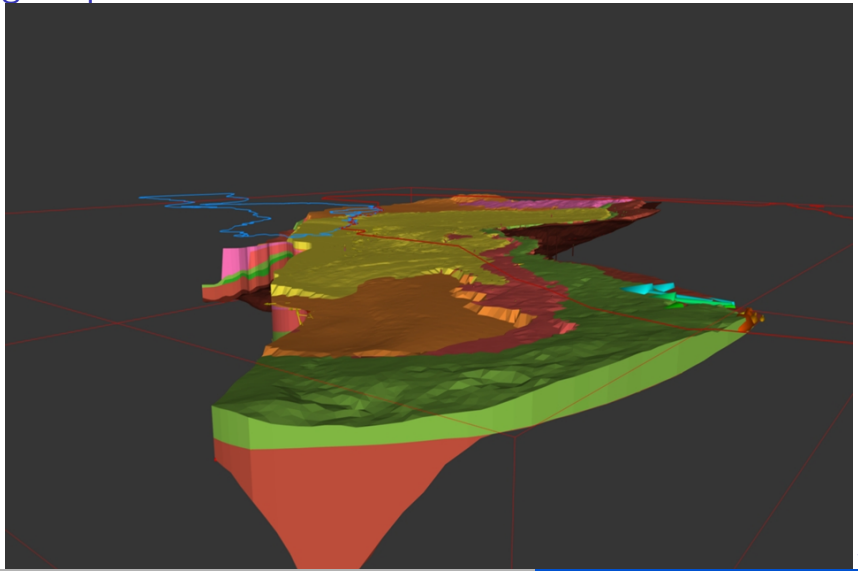

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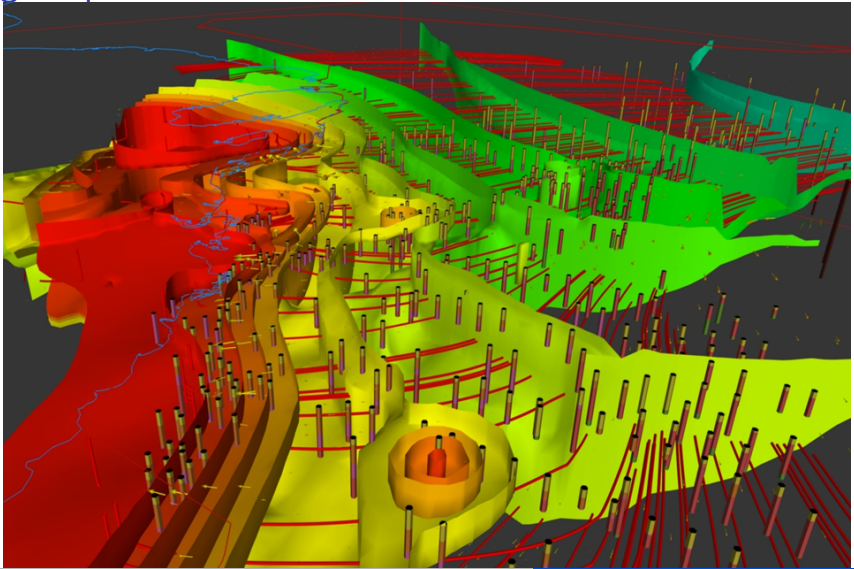
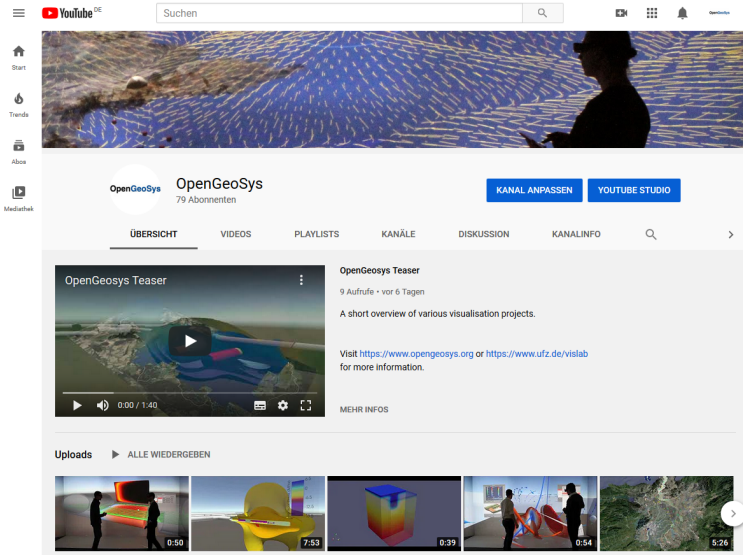


OpenGeoSys @ YouTube



OpenGeoSys workflows

Notizen:

- ...

https://www.youtube.com/user/OpenGeoSys

Hydrologische Systemanalyse

Methoden

Hydroinformatik (Lehrinhalte)

1. Grundlagen der objekt-orientierten Programmierung (C++)
2. Grundlagen der hydrologischen Modellierung

- GIS (Catchment-Analysen ...)
- Netzwerk-Modelle (ANN, Bayessche Netze)
- Konzeptionelle Modelle (HRU ...)
- Numerische Methoden (prozess-basierte, Mehrfeldproblemen ...)

Selbststudium (Hausaufgaben)

HA01: Werkzeuge

- Compilerinstallation (C++): MinGW
- Python
- ...

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