Regional Climate Change: from observations and modelling to decision support The Helmholtz Climate Initiative REKLIM

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Helmholtz Climate Initiative - The Climate problem -





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UMWELTFORSCHUNG

UFZ

Helmholtz Globaleat Climate Change









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GFZ

- complex system
- determined by external forcing and internal dynamics and interactions

process parameterization to be improved (obs.<-> models)

regional climate impact/response

HELMHOLTZ

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ZENTRUM FÜR

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From observations and modelling to decision support for mitigation and adaptation





- Synthesis of observations (in situ and remote sensing) and modelling (past-present-future)
- Improvement and validation of models and remote sensing algorithms
- Multidisciplinary approach (physics, chemistry, biology, geology, economics)
- * Process studies (observations and models)
- * Large infrastructure







- Contribution to Nat. and Internat. Climate Research
 - World Climate Research Programme (WCRP)
 - Intergovernmental Panel on Climate Change (AR5)
 - International Geosphere-Biosphere Programme (IGBP)
 - Global Earth Observing System of Systems (GEOSS)
 - International Human Dimensions Programme (IHDP)
- Contribution to decision-making
 - policy makers, authorities, industry, public
 - improved basis for adaptation and mitigation measures
 on regional scales



Observing Tools





Modelling Tools







- 1. Coupled Modelling of the Regional Earth System
 - 2. Sea Level Change and Coastal Impacts
 - 3. Northern High Latitudes
 - 4. Land Surface in the Climate System
 - 5. Chemistry Climate Interactions from Global to Regional Scales
 - 6. Extreme Events Storms, Heavy Precipitation, Floods and Droughts
 - 7. The Economics and management of regional climate mitigation and adaptation

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- Integration -







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Helmholtz Climate Initiative Topic 1 (AWI, KIT, GKSS, UFZ) # HELMHOLTZ ASSOCIATION

Coupled Modelling of the Regional Earth System







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Helmholtz Climate Initiative Topic 4 (KIT, FZJ, GFZ, HMGU, UFZ)

Land Surface in the Climate System



- land-cover change
- regional (meso-γ) scale
- observation + modelling



- strong (irreversible) regional response to global climate change
- economic vulnerability to climate change

WEITEORSCHIIN

 political, economic, environmental stakeholders



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Helmholtz Climate Initiative Topic 5 (FZJ, KIT, GFZ, AWI, DLR) # HELMHOLTZ

Chemistry Climate Interactions: Global to Regional Scales













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Vielen Dank für Ihre Aufmerksamkeit!



Tennessee Williams (Amanda in The Glasmenagerie): ... the future becomes the present, the present the past, and the past turns into everlasting regret if you don't plan for it.