

Background

Sustainable development of rural areas depends on secure subsistence of agriculture in the future. Climate change may have positive or negative



impacts on agriculture, depending on boundary conditions. Besides the reduction of greenhouse-gas emissions, adaptation of agriculture and landscape management is needed.

Objectives

The project LandCaRe (Land, Climate and Resources) 2020 investigates effects of regional climate change and weather extremes on agriculture and on water and material fluxes at the landscape level.

Central objective of the project is the development of a dynamic decision support system (*LandCaRe-DSS*) (DSS = Decisions support system), which can be adapted to different regions and individual farms. In an interactive way different scenarios with changing user options can be produced.

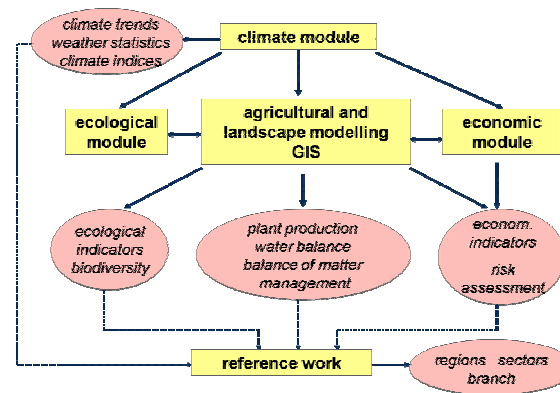
The DSS includes past and future climate trends and weather statistics, effects on plant production and agricultural income as well as risks of damage caused by extreme events. Ecological aspects like water and matter fluxes and biodiversity are also included.



Decision Support System

The LandCaRe-DSS consists of modules for climate, ecology and economy. Spatial integration is achieved by geographical information systems (GIS). A user interface enables the query and display of data for selected parts of the landscape.

The DSS is dynamic that means, the user can create new simulations based on selected parameters and climate scenarios. Results can be looked-up and visualised by a virtual library.



Pilot Regions

The LandCaRe-DSS will be developed exemplarily for two different regions:

1. The "Weißeritzkreis" (Saxonia) represents a humid mountain area with a relative high amount of precipitation.
2. The "Uckermark" (Brandenburg) is classified as dry lowlands with a low amount of precipitation and an increasing risk of droughts.

Transfer to other regions will be prepared during the project.

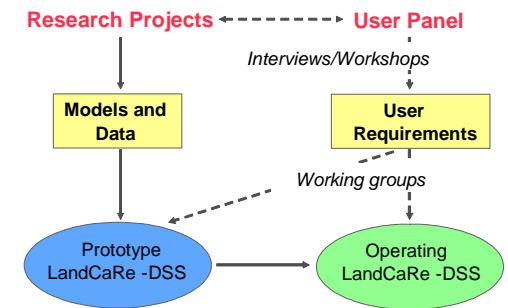
User Panel

The LandCaRe-DSS is addressed to agriculture, related economy sectors, administrations and organisations. Depending on the scope of the user, the DSS can be applied on farm scale or regional scale.

The participation of potential future users is necessary to increase the quality of the DSS, including their specific demands, knowledge and data on land use and management. This requires intensive communication between users and research partners.

Communication

Via telephone interviews, workshops and working groups potential future users of the DSS are included in the project. Together, requirements are defined, a user friendly design is developed and adaptations to other regions are prepared. Further participations in the communication process are possible



Projects Partners



Department of Meteorology,
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Institute for Coastal
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Meteorological Institute,
University of Bonn

Further Associates

Institute for Organisational Communication (IFOK)
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HS Görlitz (FH), Department of Informatics,
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LivingLogic AG, Bayreuth

Farmware GmbH, Klipphausen

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Project Homepage

www.landcare2020.de

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