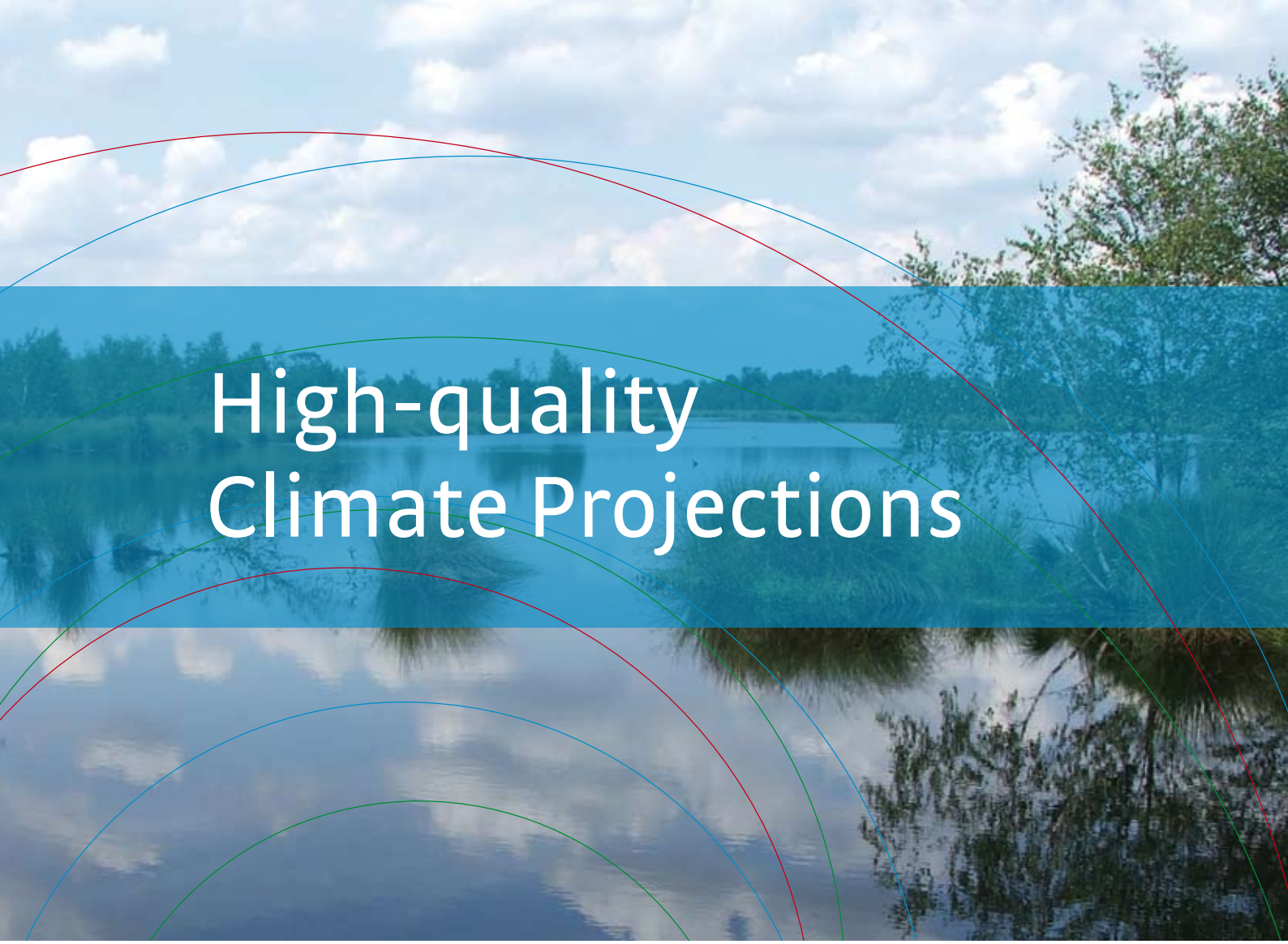

# High-quality Climate Projections

Knowledge for Climate

## Knowledge for Climate

Knowledge for Climate is a research programme for the development of knowledge and services that makes it possible to climate proof the Netherlands. Governmental organisations (central government, provinces, municipalities and water boards) and businesses actively participate in the research programme. Knowledge for Climate focuses on eight areas, called hotspots: Mainport Schiphol, Haaglanden region, Rotterdam region, Major rivers, South-West Netherlands Delta, Shallow waters and peat meadow areas, Dry rural areas and the Wadden Sea region. An important part of the programme is the Knowledge Transfer. We cooperate with Universities in other parts of the world and stimulate Knowledge transfer within Delta areas through the Delta Alliance.

The programme works with eight consortia doing research on eight themes, one of them being High-quality Climate Projections.

## High-quality Climate Projections

Climate change is a global phenomenon, but most impacts are felt at the regional and local scale. To be able to do impact analyses, researchers need high quality information on regional climate, now and in the future. This programme aims to provide this climate information and to improve the access to climate data.

A central theme in this programme is uncertainty about the pace and extent of climate change: how to reduce, quantify and communicate these uncertainties?

## Goal

This research programme will provide high quality information on current and future climate in the Netherlands on a regional scale, for climate impact studies and for developing climate (change) adaptation strategies on national and regional scales.

We do so by improving:

- our knowledge of the mechanisms of local climate change in The Netherlands (reducing uncertainties)
- estimates of extremes and uncertainty ranges and providing coherent time series (quantifying uncertainties)
- the coupling between climate projections and impact models for hydrology, ecology, agriculture, air quality, and land use (quantifying the effect of uncertainties)
- access to data and information on climate change and its impacts to users (communicating uncertainties)

## The Work packages

The four aims are carried out in the following four activities, respectively:

**WP1**

### Mechanisms of local climate change in the Netherlands

Traditionally, climate research is dominated by large spatial scales and long time scales. However, the impacts of climate change will be mainly experienced at a local scale. We aim to increase our knowledge of those (small-scale) meteorological phenomena that have a large impact on the Dutch society: extreme periods of precipitation and drought, extremes in wind conditions and the pace of sea level rise. Showcases will be provided of a new generation of climate information obtained from a climate model at very high resolution.

**WP2**

### Time series, extremes and probabilities

The fact that climate changes are uncertain poses a challenge when developing adaptation strategies with a long time horizon. Therefore, we will study methods to quantify uncertainties, and develop, where possible, methods to assign a probability to a specific climate projection. Various methods will be investigated to obtain information at small spatial and temporal scales, and on regional differences within the Netherlands, for example due to land characteristics (cities) and the influence of the North Sea. In addition, a more complete picture of climate change will be obtained by providing examples of weather events and time series for a future climate.

**WP3**

### Coupling of climate projections to impact research

Many couplings exist between climate models and impact models. However, generally these are made separately for different disciplines and with different methods. We aim to improve the consistency of couplings between climate and impact models, thus enabling better integration of climate impact projections. The latter include models of hydrology, ecology, agriculture, air quality, and spatial planning.  With the help of the coupled models the effect of uncertainties in climate change projections on estimated climate change impacts will be studied.

**WP4**

### Climate services

Information on (local) climate change and its impacts for specific sectors is sometimes sparsely available and/or scattered. We aim to improve the exchange of climate information (including uncertainties) in the chain of climate research – impact/adaptation research – decision making, and vice versa, by providing more overview and integration of data on climate change and its impacts. Practical tools will be developed to visualize and tailor the data for different temporal and spatial scales through web interfaces. Information will be given on the assumptions behind the information, on the interaction between disciplines, and on how the information can be interpreted.

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## Stakeholders

- impact researchers
- national and regional government organisations
- private companies, NGO's

## Working with Hotspots

- Hotspot Schiphol Mainport
- Hotspot Major rivers

## Consortiumpartners

VU University Amsterdam
Deltares Enabling Delta Life
TNO
Royal Netherlands Meteorological Institute Ministry of Transport, Public Works and Water Management
Deutscher Wetterdienst Wetter und Klima aus einer Hand
SMHI
University of Exeter
Universiteit Utrecht
TU Delft
Wageningen UR For quality of life
KWR

To develop the scientific and applied knowledge required for climate-proofing the Netherlands and to create a sustainable knowledge infrastructure for managing climate change

## Consortia Knowledge for Climate

- Climate Proof Flood Risk Management
- Climate Proof Fresh Water Supply
- Climate Adaptation for Rural Areas
- Climate Proof Cities
- Infrastructure and Networks
- High-quality Climate Projections
- Governance of Adaptation
- Decision Support Tools

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