



Outlook to new climate change scenarios for the Netherlands

- Issued ~2013
- More information on variability at weekly, monthly and yearly time scales
- More information on likelihood of scenarios, and new extreme scenarios
- Concept of Future weather

Brainstorm sessions still active.
Become part of it: visit the poster.

Outlook to new climate change scenarios for the Netherlands
Bart van den Hurk, Bernadette Overbeek and Albert Klein Tank

The KNMI-OS climate change scenarios are being used in response to societal needs for information to assess vulnerability and explore robust adaptation options. Yet, new scientific developments and additional user requests have generated the momentum for a new generation of climate change scenarios, to be launched around 2013 in conjunction with the fifth IPCC report. Responding to user needs, these **KNMI-OS** scenarios will contain more information on the probability of occurrence for different future climate states, and a set of "Future Weather" may look like.

1. KNMI's OS
The current set of 4 climate change scenario lists projected changes in key variables (see Figure 1).

Scenario	Temperature	Precipitation	Wind	Extreme
Scenario 1	+	+	+	+
Scenario 2	+	+	+	+
Scenario 3	+	+	+	+
Scenario 4	+	+	+	+

2. User consultation
Recent user consultation meetings - where experiences with the KNMI-OS scenarios were exchanged - led to new insights and new desires:

- New variables (min/max temperature, more extreme return levels, evaporation and radiation, wind direction)
- More information on temporal variability (full annual cycle, variability and persistence within seasons and between years, near future changes, observed changes since 1990)
- Links with other scenarios (consistency with KNMI-OS, link with IPCC emissions and land use scenarios).

3. New components
3.1 Probabilistic scenarios
Although the structure of a number of discrete scenarios will be maintained, probabilities and links with other scenarios are included by estimating a "likelihood of occurrence" given future GHG emissions (Figure 2).

3.2 Future weather
To generate realistic time series of a set of related weather variables at multiple locations use a matrix of a number of global and regional model simulations at a high spatial and temporal resolution. The simulations will be adjusted to conditions that are compatible with the **KNMI-OS** scenarios (Figure 4).

3.3 Probabilistic scenarios
Representations of different future climate states in **KNMI-OS**. Both a range of return levels and an estimate of the probability of occurrence are included. Note: all monthly extremes of future climate are probabilistic indicators.

4. Time frame
Global climate model simulations using the new IPCC SPC-scenarios are currently underway. First analysis and definition of new (regional climate) model simulations will take place in early 2012. First versions of **KNMI-OS** numbers will be generated in 2012. Around 2013 the official release of the new scenarios including documentation, websites, and processing tools is foreseen.

5. Conclusion
A new set of KNMI climate change scenarios (**KNMI-OS**) is under development. The scenarios will take updated user requirements clearly into account, and contain more information on likelihood of occurrence, modes of variability and spatial, temporal and physical consistency of time series resulting from Future Weather simulations. Frequent user consultation is part of the development process. See www.knmi.nl/innovatiescenario for further updates.