# Localization of climate change scenarios for Latvia for further adaptation applications

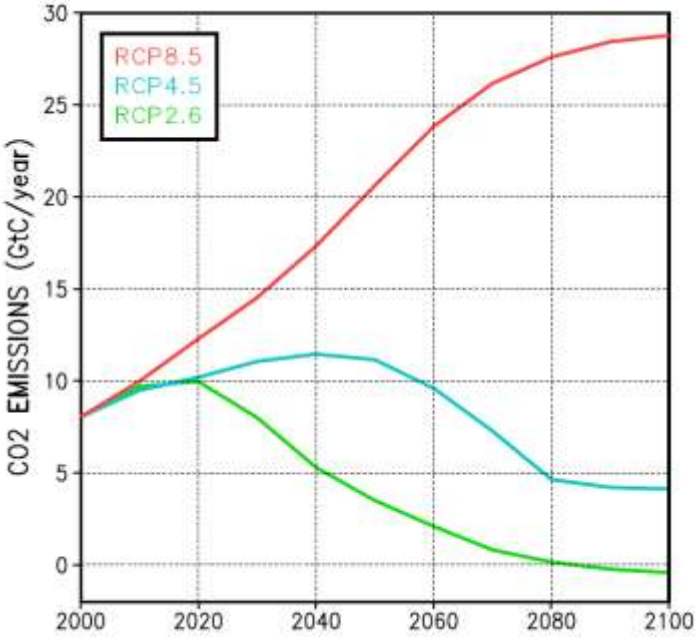
**Svetlana Aniskevich**
svetlana.aniskevica@lvgmc.lv

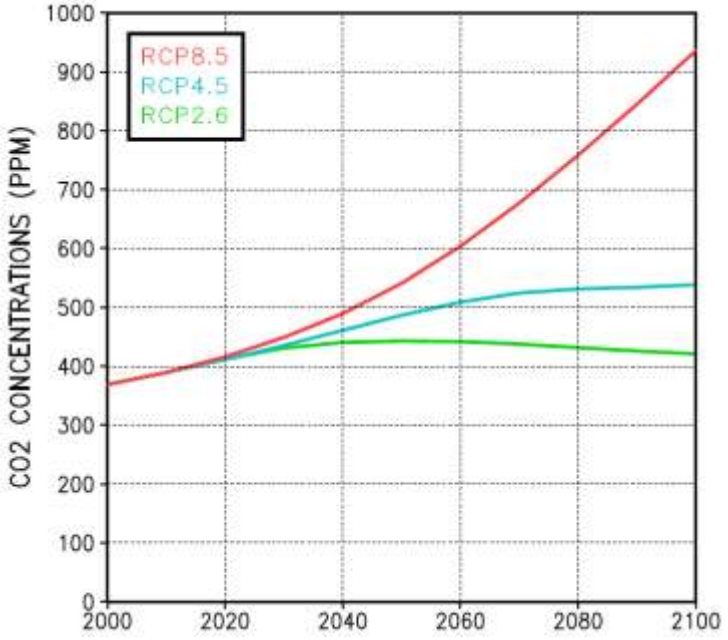
Latvian Environment, geology and meteorology centre
Climate and methodological division

Riga
31.10.2017.

# IPCC 5th assessment report

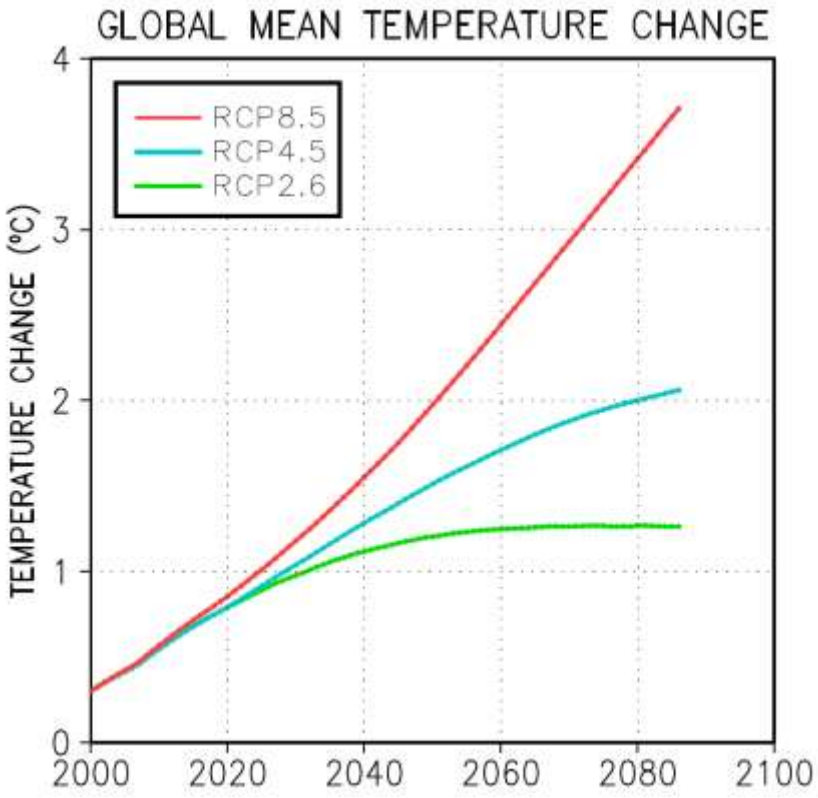
- According to Intergovernmental Panel on Climate Change (IPCC), global warming will continue during the 21st century, although the severity of the simulated changes varies among the climate models and is largely dependent on the evolution of future greenhouse gas emissions.
- The future evolutions of the greenhouse gas (carbon dioxide, methane, etc.) and aerosol particle concentrations have been represented with three alternative forcing scenarios called Representative Concentration Pathways or RCPs
- Projections are given separately for three greenhouse gas scenarios, one representing moderate, one medium and one strong climate change.



# Global climate models

- In order to analyze climate changes in Latvia, climate scenarios have been derived from the output of global climate models (GCMs) participating in Phase 5 of the Coupled Model Intercomparison Project (CMIP5)
- The climate variables considered are daily mean, minimum and maximum air temperature, precipitation and wind speed.




**CMIP5 models**

- 28 models were used in calculating projections for surface air temperature and precipitation under RCP4.5 and RCP8.5
- 25 climate models were examined for the daily maximum and minimum temperatures and 24 models for wind speed (for RCP4.5 and 8.5)

# Localization of model data

**Observation data**

Quality control

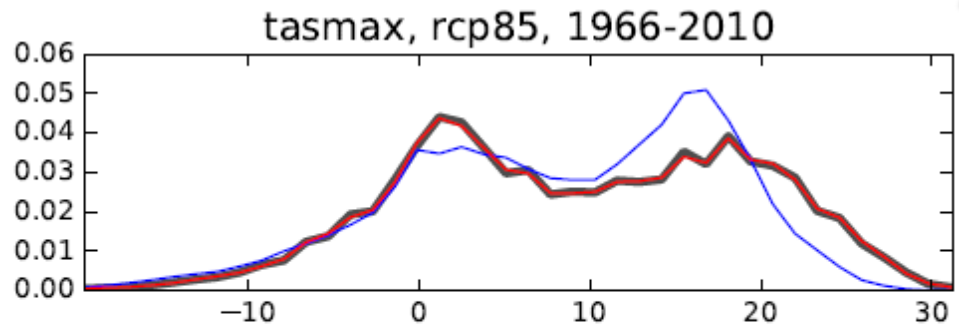
Spatial interpolation

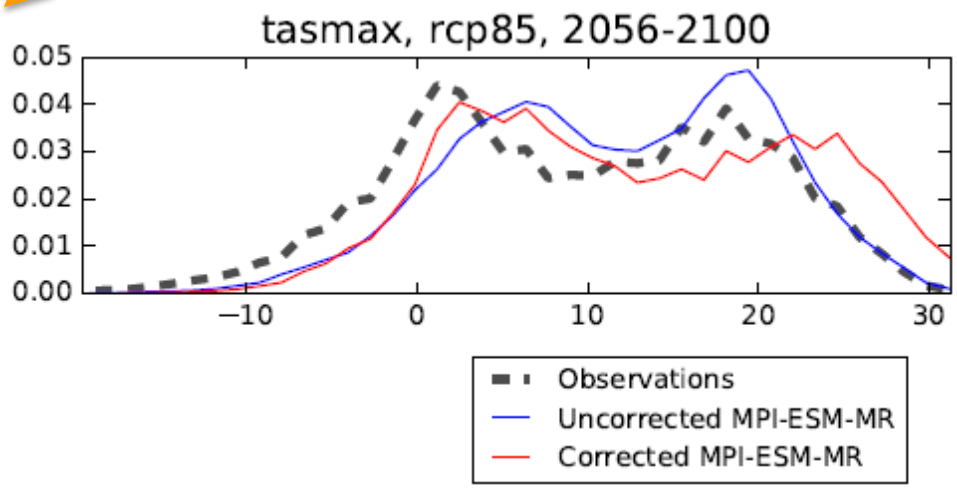
Present climate

**CMIP5 models**

Model bias correction

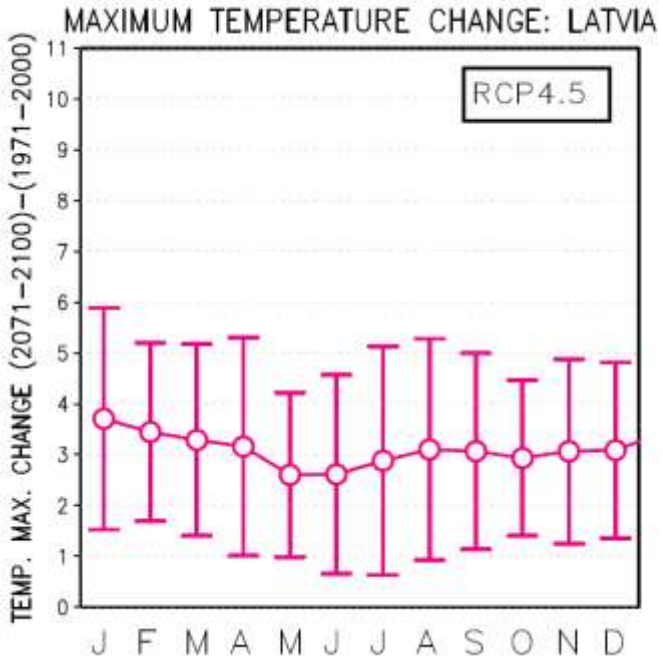
Estimation of future climate

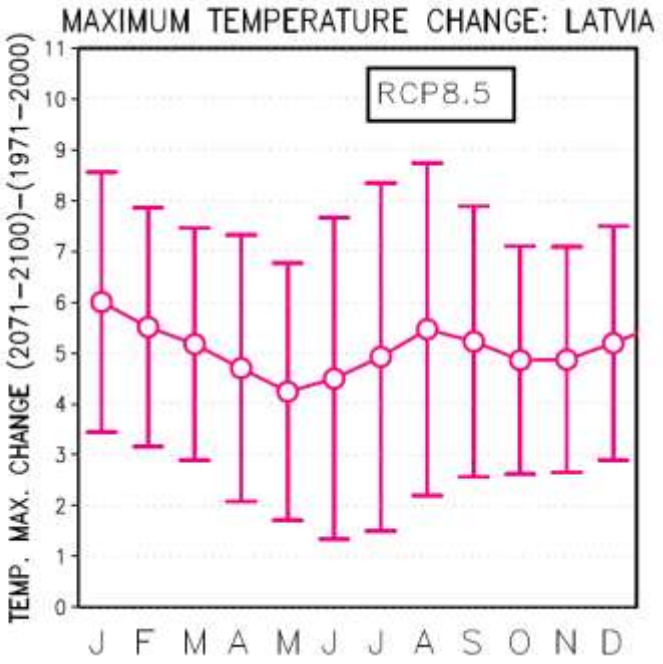


# Climate change scenarios

- Monthly multi-model mean changes for the period 2071–2100, along with uncertainty intervals representing differences among the various GCM simulations, were calculated for the various climate variables
- For any individual RCP scenario, the uncertainty of future changes in a climate variable (e.g., temperature) consists of two components, modelling uncertainty and internal natural variability.

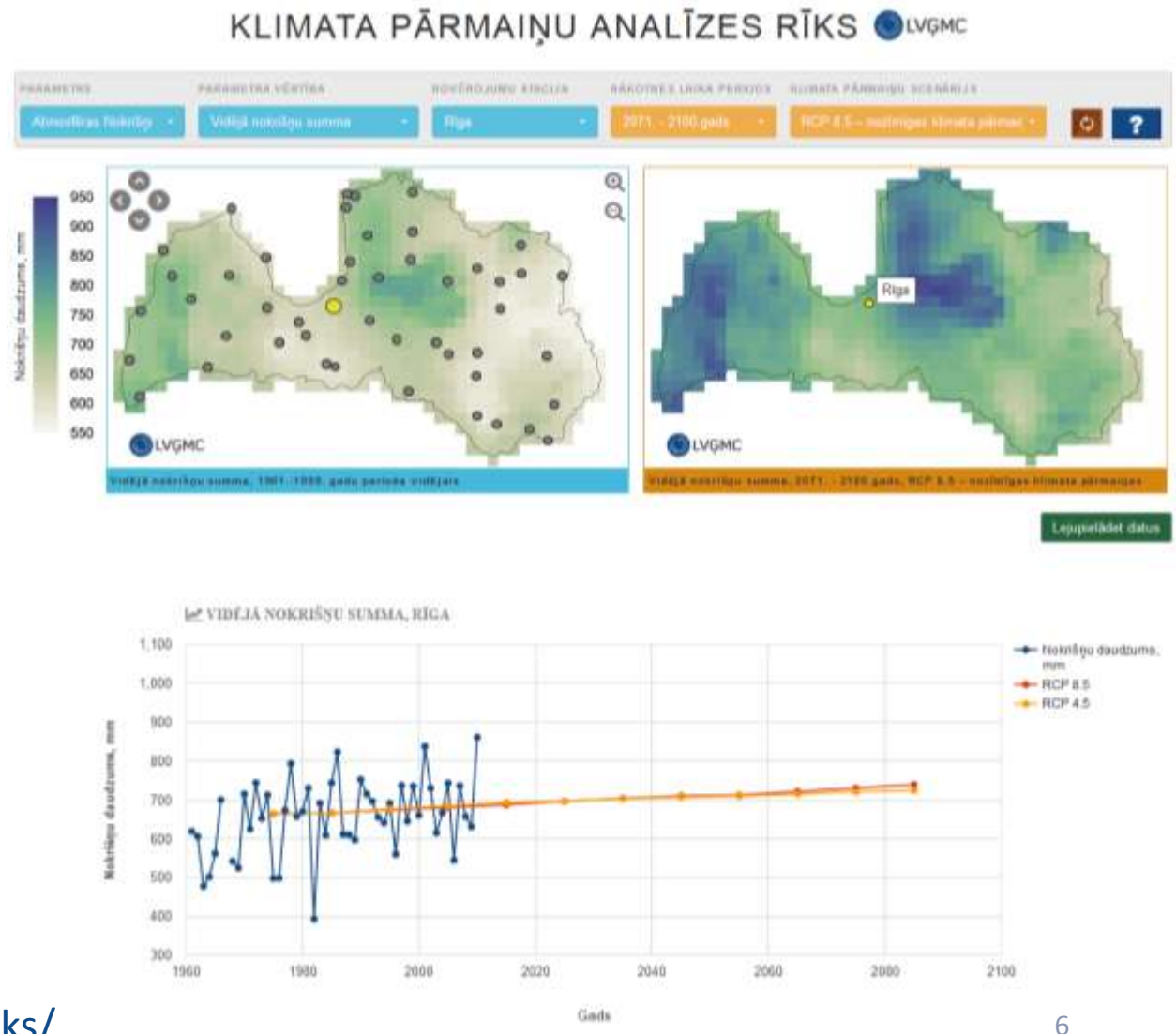



Seasonal course of the best-estimate change in daily maximum temperatures for RCP 8.5 scenario is clearly bimodal, with largest changes projected for January and August

# Informing society about climate changes

This year a new interactive climate change analysis tool was published, allowing to follow the past climate changes and visualizing forecasted climate scenarios in the nearest and the furthest future.




http://www2.meteo.lv/klimatariks/

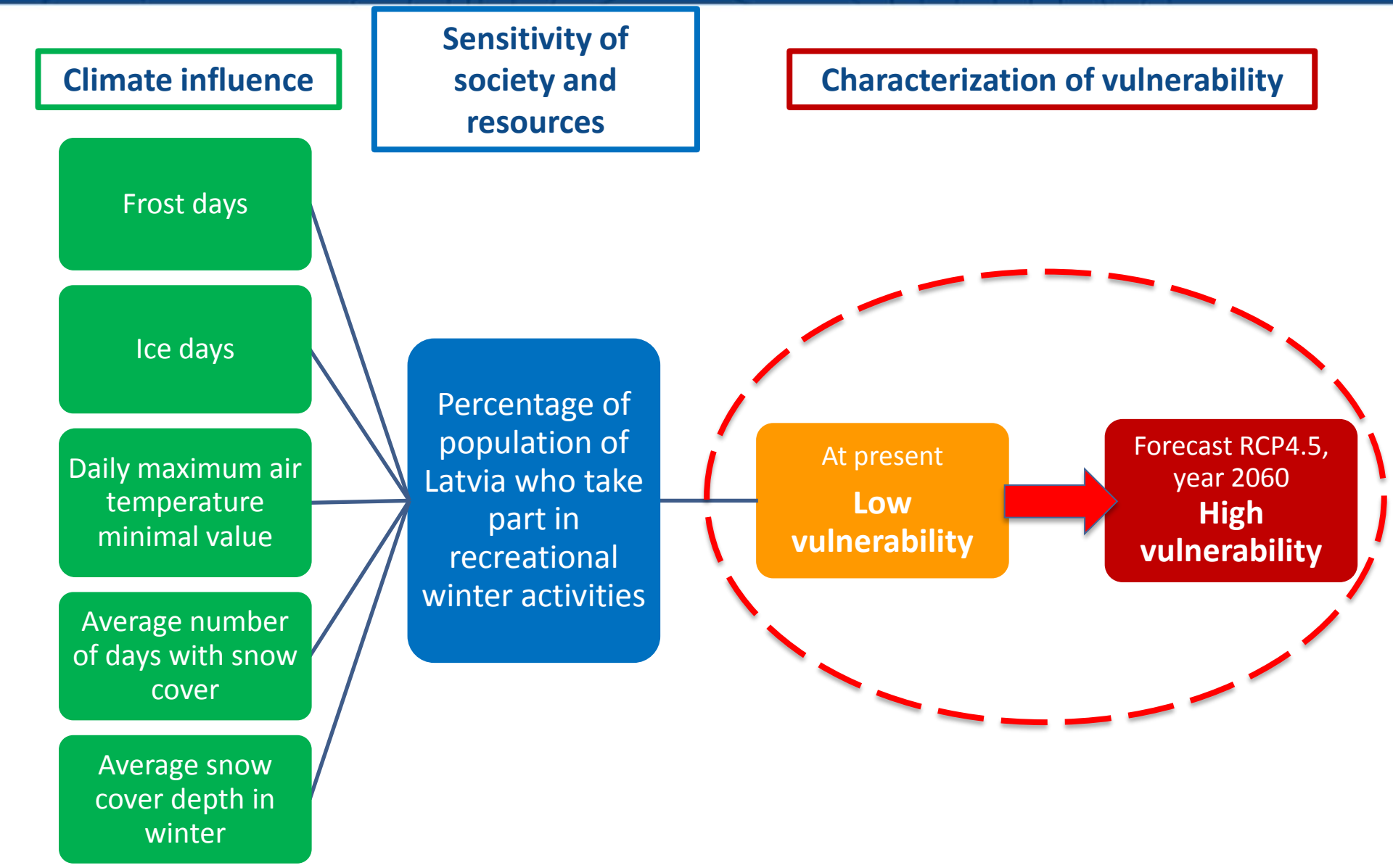
# Structure of climate change adaptation monitoring system

Climate change adaptation monitoring system goal is to track climate change impact on domains of economy, evaluate vulnerability and adaptive capacity of sectors and to stimulate improvement of adaptation activities.

Structure of climate change adaptation monitoring system consists of two interrelated parts:

- **Climate change monitoring,** performed by LEGMC
- **Adaptation monitoring**, based on adaptation indicators developed by experts from different economy sectors, e.g. health and welfare, agriculture and forestry, civil protection etc.

# Recreational winter activities



# THANK YOU FOR THE ATTENTION!

www.meteo.lv
https://twitter.com/LVGMC_Meteo