

## CLIMATE CHANGE ANALYSIS TOOL GUIDE

Climate Change Analysis Tool allows you to explore the current and the future climate in Latvia in the form of maps and graphs. More information is available in the report "Climate change scenarios for Latvia" (in Latvian) - <http://www4.meteo.lv/klimatariks/zinojums.pdf> and in the summary of the report (in English) - <http://www4.meteo.lv/klimatariks/summary.pdf>.

### Logging in

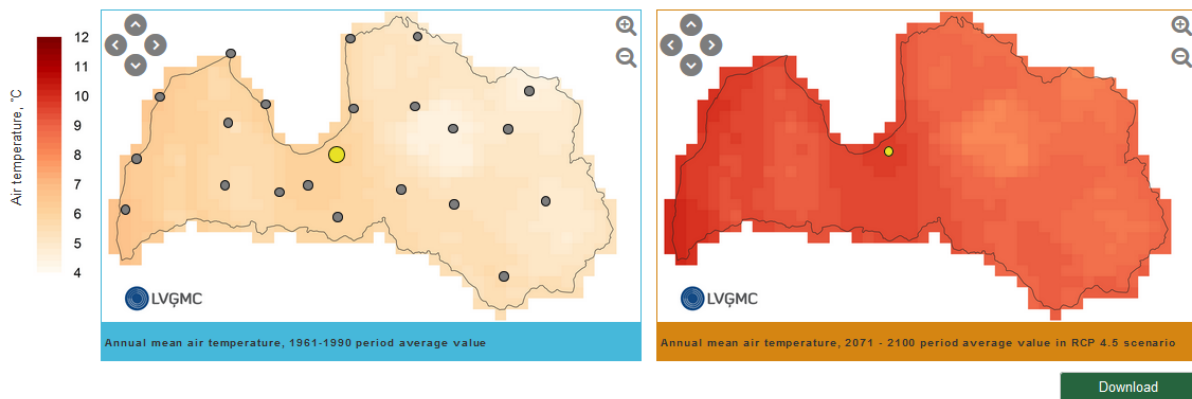
You can log in to Climate Change Analysis Tool via a web browser by entering the address <http://www4.meteo.lv/klimatariks/>.

### Requirements

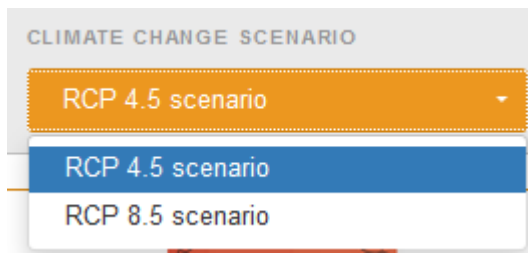
To successfully explore the Climate Change Analysis Tool it is recommended to use the following Internet browsers:

- Mozilla Firefox
- Google Chrome
- Opera
- Edge

### Maps



Maps in the Climate Change Analysis Tool spatially represent the predicted changes in the climate parameters over time. In the picture above map to the left depicts the observed average climatic index values over the period from 1961 to 1990, while the map to the right - climate model forecasts for selected climatic indices and periods and various climate change scenarios. All values are 30 year averages and are depicted in a grid with 10x10km cells.



It is possible to choose between two different climate change scenarios: RCP 4.5 and RCP 8.5, which characterize moderate and significant climate change respectively. Meteorological stations used in the analysis of past and future climate indices are also shown on the map.

**Data download** ×

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*The data displayed on the maps can be downloaded in the form of a .csv file that contains the coordinates of each grid cell in the LKS-92 system and the corresponding parameter values.*

Mean air temperature, 1961 - 1990

Mean air temperature, RCP 4.5 – moderate climate change, 2071 - 2100

I'm not a robot

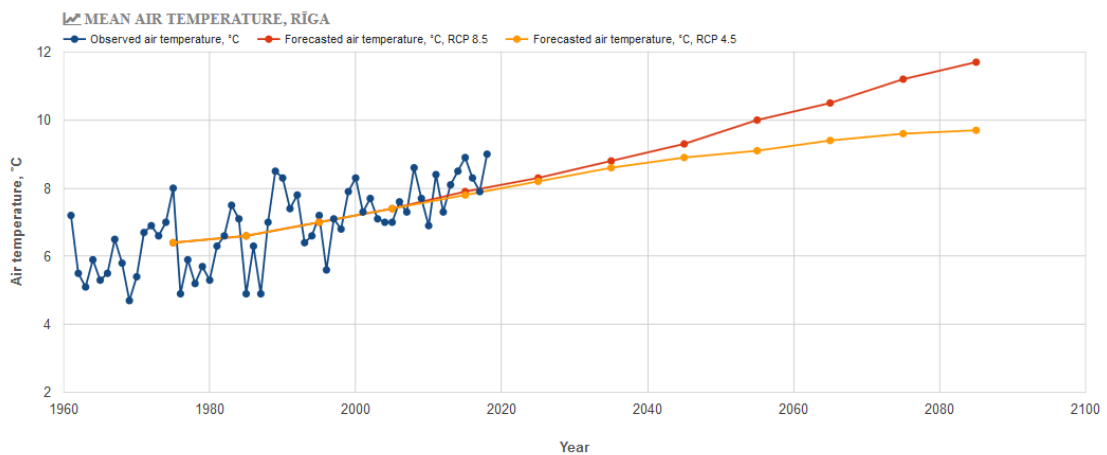
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The data displayed on the maps can be downloaded in the form of an ASCII text *csv* file that contains the coordinates of each grid cell in the LKS-92 projected coordinate system and the corresponding climatic index values.

## Charts



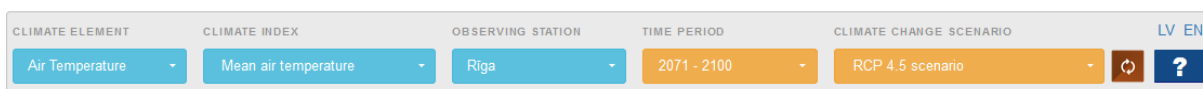
The chart below the maps shows the comparison of observed and predicted changes of the selected climate index over time. The blue line in the chart shows the observed values for the selected station over the time period from 1961 to the last year. Wind speed indices are available for the period from 1966 to the last year. The annual values of the climatic indices were calculated according to the data quality control procedure. If a significant amount of missing observation data were detected, the annual values were set to missing accordingly.

The yellow and the red lines in the charts represent the forecasted climatic index values according to various climate change scenarios: RCP 4.5, which characterizes moderate climate change, and RCP 8.5, which characterizes significant climate change. Points on the lines represent the average values of 30 year periods from 1961-1990 until 2071-2100. For future scenarios, the point values correspond to the value of 10x10 km cell where the respective station is located.

Climate change scenario: RCP 4.5  
 Time period: 2031. - 2060.  
 Mean air temperature,  
 Forecasted air temperature, °C, RCP 4.5: 8.9

For any point in the graph it is possible to view the respective year or period and the exact value in the pop-up window.

## Menu



By using drop-lists at the top of tool different parameters can be selected:

*Climatic element* – Air temperature, Atmospheric precipitation, Wind speed.

*Climatic index* – Various indices can be selected according to the selected element:

Indices	Description
<i>Air temperature indices</i>	
Maximum air temperature	Annual mean value of daily maximum air temperature

<b>Indices</b>	<b>Description</b>
Minimum air temperature	Annual mean value of daily minimum air temperature
Mean air temperature	Annual mean value of daily mean air temperature
Number of frost days	Number of days per year when daily minimum air temperature is below 0 °C
Growing season length	Number of days per year in between first and last day when daily mean air temperature is above +5 °C for at least 6 consecutive days
Number of ice days	Number of days per year when daily maximum air temperature is below 0 °C
Number of summer days	Number of days per year when daily maximum air temperature is above +25 °C
Minimum of daily mean temperature	Annual minimum value of daily mean air temperature
Maximum of daily mean temperature	Annual maximum value of daily mean air temperature
Minimum of daily minimum temperature	Annual minimum value of daily minimum air temperature
Maximum of daily minimum temperature	Annual maximum value of daily minimum air temperature
Number of tropical nights	Number of days per year when daily minimum air temperature is above +20 °C
Minimum of daily maximum temperature	Annual minimum value of daily maximum air temperature
Maximum of daily maximum temperature	Annual maximum value of daily maximum air temperature
Warm spell duration index	Number of days per year when daily maximum air temperature is above 90 <sup>th</sup> percentile for at least six consecutive days
<i>Atmospheric precipitation indices</i>	
Precipitation sum	Annual atmospheric precipitation sum
Highest 1-day precipitation amount	Highest 1-day precipitation amount per year
Highest 5-day precipitation amount	Highest 5-day precipitation amount per year
Heavy precipitation days	Number of days per year when daily precipitation amount is above 10 mm

<b>Indices</b>	<b>Description</b>
Very heavy precipitation days	Number of days per year when daily precipitation amount is above 20 mm
Simple daily intensity index	Annual atmospheric precipitation sum in wet days (daily precipitation sum is at least 1 mm) in relation to number of wet days in given year
<i>Wind speed indices</i>	
Mean wind speed	Annual mean value of daily mean wind speed
Stormy days	Number of days per year when daily mean wind speed is above 10.8 m/s
Calm days	Number of days per year when daily mean wind speed is below 2 m/s

*Observing station* – according to the chosen element, it is possible to examine graphs with observed and forecasted climatic index values at a meteorological observing station. Air temperature and wind speed indices are available at 22 stations, while atmospheric precipitation indices were calculated at 48 stations.

*Time period* – forecasted climatic index values are available for consecutive 30 year periods: from 2011 to 2040, from 2041 to 2070 and from 2071 to 2100.

*Climate change scenario* - The predicted climatic index values are consistent with one of two climate change scenarios used in the study: a moderate climate change scenario and a significant climate change scenario. Future climate change scenarios are based on greenhouse gas emission scenarios – Representative Concentration Pathways (RCP), developed by Intergovernmental Panel on Climate Change (IPCC). Moderate climate change corresponds to RCP 4.5 greenhouse gas emission scenario, while significant climate change corresponds to RCP 8.5 scenario.