Ministry of Environmental Protection and Regional Development
Republic of Latvia

Climate Change Risks and National Adaptation in Latvia

31 October 2017, Riga

Baltic Pathway Towards Low Carbon and Climate Resilient Development

Dr. Oec. Ilze Prūse
Director of Climate Change Department

Vides aizsardzības un reģionālās attīstības ministrija

Some of variables describing climate changes in Latvia

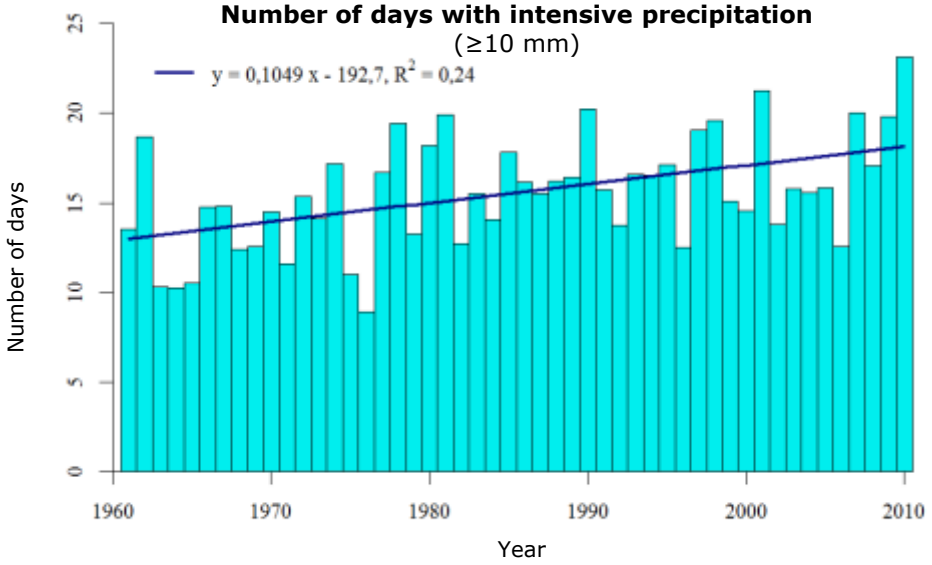
Climate variable		Previous climatological value (1961-1990)	Previous changes (1981-2010 vs 1961-1990)	Future changes (2071-2100 in relation to 1961-1990)	
				RCP4.5	RCP8.5
Maximum temperature	Annual max value	+29.3ºC	↑ +0.7 ºC	↑ +3.6ºC	↑ +5.7ºC
	Annual-mean value	+9.5ºC	↑ +0.7 ºC	↑ +3.4ºC	↑ +5.4ºC
	Annual min value	-14.4ºC	↑ +1.4 ºC	↑ +6.5ºC	↑ +9.5ºC
Mean temperature	Annual max value	+22.4ºC	↑ +0.7 ºC	↑ +3.2ºC	↑ +5.4ºC
	Annual-mean value	+5.7ºC	↑ +0.7 ºC	↑ +3.5ºC	↑ +5.5ºC
	Annual min value	-18.6ºC	↑ +1.7 ºC	↑ +7.5ºC	↑ +11ºC
Minimum temperature	Annual max value	+17.6ºC	↑ +0.8 ºC	↑ +3.1ºC	↑ +5.6ºC
	Annual-mean value	+2ºC	↑ +0.7 ºC	↑ +3.6ºC	↑ +5.6ºC
	Annual min value	-24.1ºC	↑ +1.9 ºC	↑ +9.3ºC	↑ +13.5ºC
Summer days		15 days	↑ +3 days	↑ +31 days	↑ +53 days
Tropical nights		0 days	↕ 0 days	↑ +4 days	↑ +14 days
Growing season length		195 days	↑ +2 days	↑ +27 days	↑ +49 days
Frost days		134 days	↓ -9 days	↓ -52 days	↓ -81 days
Ice days		62 days	↓ -9 days	↓ -32 days	↓ -46 days

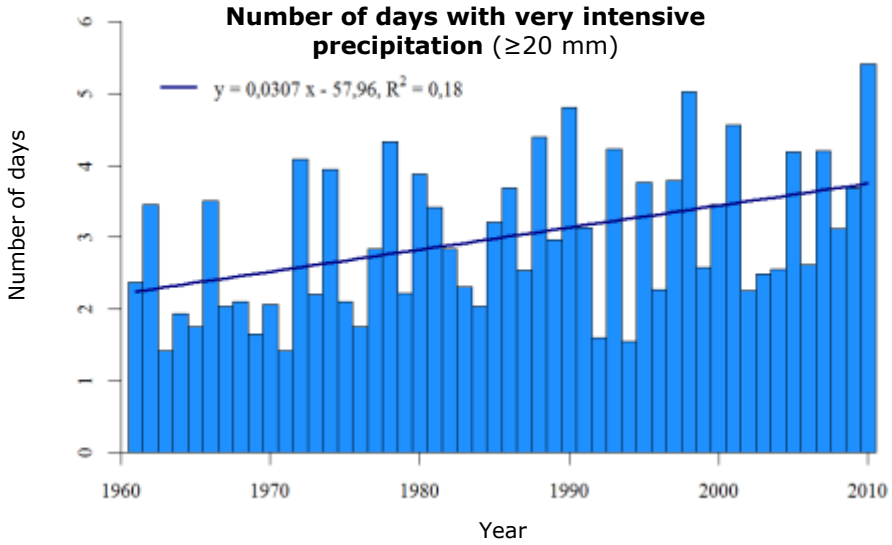
Data: http://www2.meteo.lv/klimatariks/

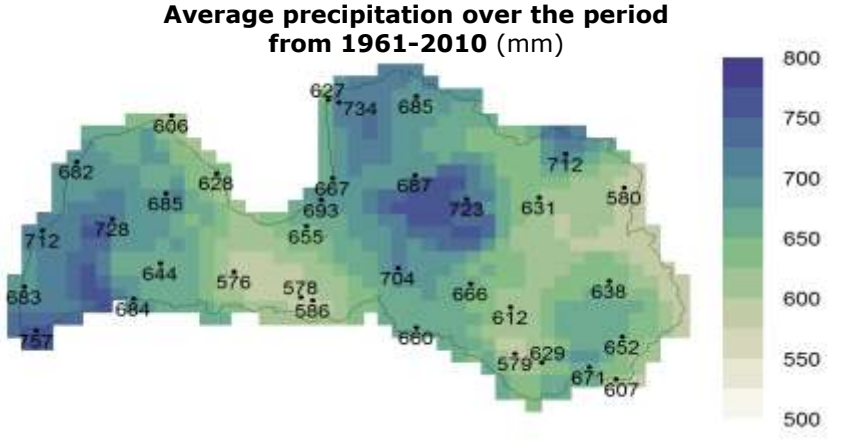
Ministry of Environmental Protection and Regional Development Republic of Latvia

Example – precipitation in Latvia in 1961-2010

- Increase in annual precipitation, especially in winter season
- Increase in extreme precipitation



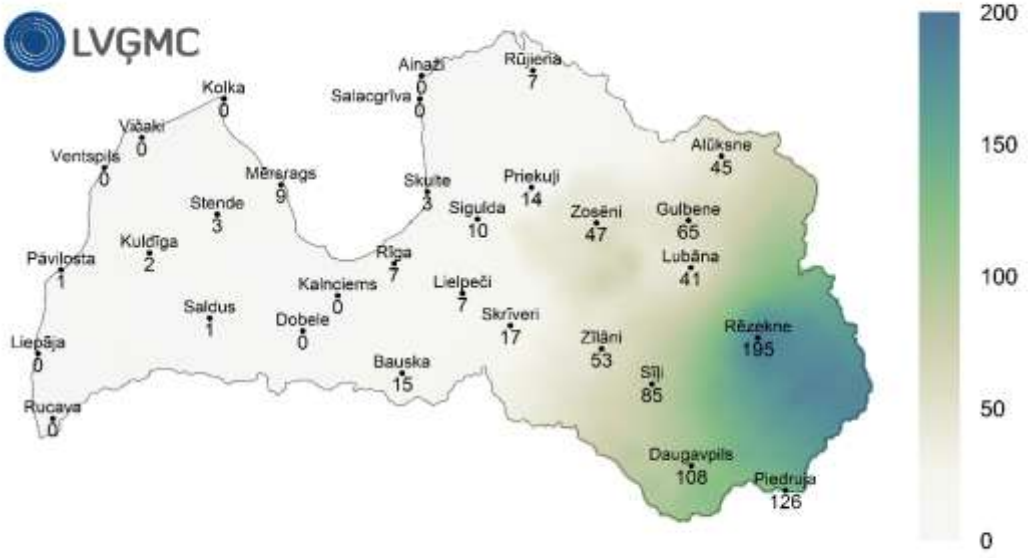




Data: http://www2.meteo.lv/klimatariks/

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Example – extreme precipitation in one day (August 2017)



Percipitation in Latvia from 9 am on 23 August till 13 pm on 24 August 2017 in comparison to August norm

Data: LEGMA

Photo: Delfi aculiecinieks

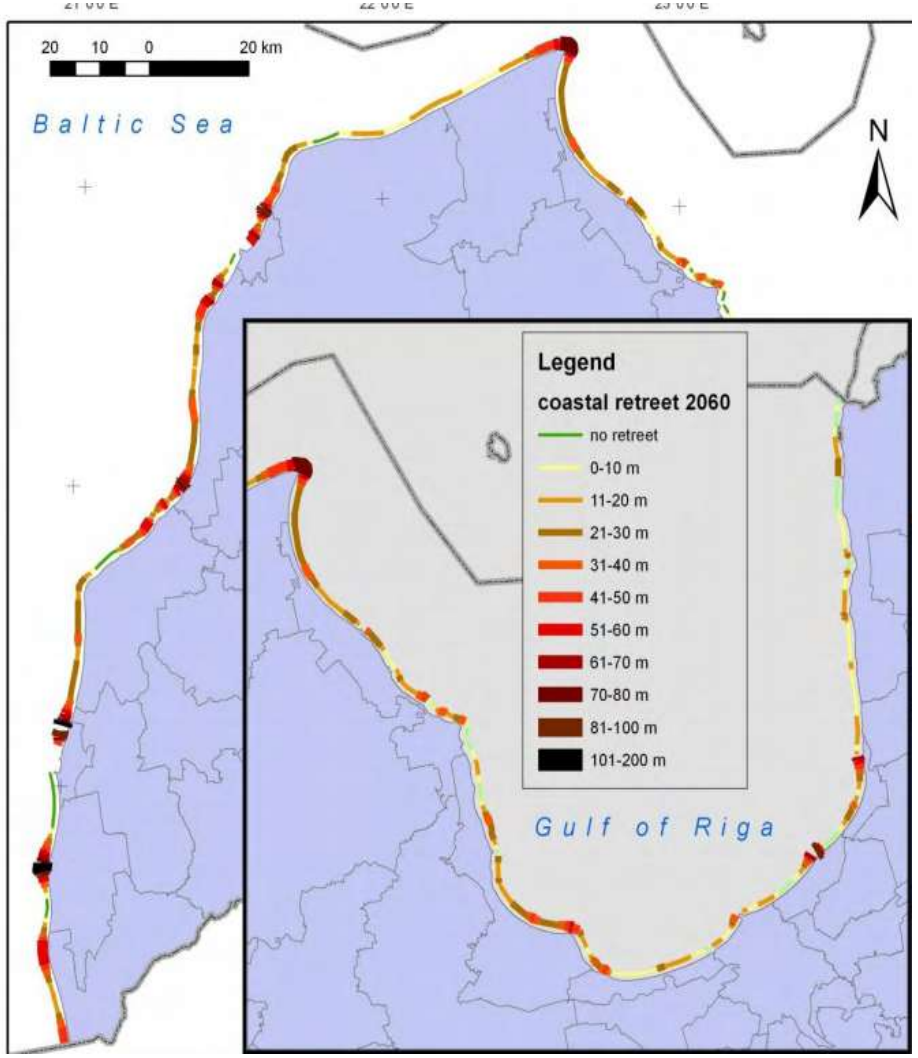
Photo: @LVceli/Twitter

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Latvia's coastal retreat (erosion) forecast by 2060

Coastal retreat forecast **2060**

- Increase in the total length of coastal sections affected by retreat by 17.8 % (Σ=331 km) by the year 2060.
- Maximum expected coastal retreat (in separate, short sections) – 150-200 m until the year 2060.
- Territory of Latvia will be reduced by approx. 9.2 km² by the year 2060.



Source: Dr.Jānis Lapinskis

Ministry of Environmental Protection and Regional Development Republic of Latvia

Main identified climate change related risks in Latvia

- water contamination/ eutrophication;
- rising water temperatures;
- decrease of dissolved oxygen volumes in water;
- infection diseases uncharacteristic for Latvia;
- new species, including, pests;
- drive out of ecologically sensitive species;
- flood and ice drift;
- storm and storm surge;
- forest and peat fire;
- water raising in rivers and lakes;
- change of tourism season length and characteristics;
- erosion;
- infrastructure damage;
- landslide;
- increased run-off;
- decreased network capacity;
- increased electrical transmission network damage;
- rail bending;
- equipment overheating;
- embankment instability;
- acute intestinal infection and chronic diseases;
- insect-born infections;
- mortality from respiratory diseases;
- heat strokes;
- spread of tree diseases and insect populations;
- black frost;
- desiccation;
- lacking winter frost putting barriers to forest exploitation;
- hydro energy exhaustion in summer.

More information: http://www.varam.gov.lv/lat/publ/petijumi/petijumi_klimata_parmainu_joma/?doc=23668

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Main identified measures for adapting to climate change in Latvia

- care of elderly and disabled persons;
- collection of data on losses;
- warning systems;
- provision of natural shading;
- control of invasive species;
- wetland preservation;
- strengthening of shoreline;
- revision of construction regulations;
- rain water collection/discharging;
- forest management adaptation;
- crop diversification;
- green infrastructure in cities;
- adaptation inclusion in policies;
- forest road maintenance;
- appropriate breed selection;
- amelioration;
- insurance;
- readjustment of economic sectors;
- education, informing;
- limitation of pests and pathogens;
- protection of cultural landscape;
- protection of affected local species;
- monitoring and projections;
- readjustment of territory planning;
- supply with drinking water;
- energy system readjustments.

More information: http://www.varam.gov.lv/lat/publ/petijumi/petijumi_klimata_parmainu_joma/?doc=23668

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Adaptation aspects in the «Environmental Policy Guidelines for 2014-2020»

Goal: to enhance Latvia's readiness to adapt to climate change and its impacts.

- Climate change modelling in Latvia and development of an integrated data system (done)
- Risk and vulnerability assessment and identification of adaptation measures (done)
- Development of climate change monitoring system (done)
- Improvement of national system for preparedness and reaction on climate change extremes (currently by Lay on Civil protection and catastrophe management)
- Improvement of infrastructure to reduce climate change caused flooding (flood risk maps developed for all river basins)
- Protection from coastal erosion of coastal areas with nationally important infrastructures (ongoing)
- Integration of adaptation measures in other policies and work of municipalities (ongoing)

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Draft of Latvia's Adaptation Strategy 2030

Goal: **Reduce vulnerability** of Latvia's people, economy, infrastructure, buildings and nature from climate change impacts and **enhance utilisation of** climate change created **opportunities**.

1. **Human life** and health is protected from adverse impacts of climate change.
2. **Economy** is able to adapt to climate change and use its provided opportunities.
3. **Infrastructure and buildings** are climate resilient and planned taking into account possible climate change risks
4. **Values of nature and cultural history** are preserved by limiting adverse impacts of climate change on them
5. **Knowledge and information** for the development and implementation of climate change adaptation policy is ensured

Ministry of Environmental Protection and Regional Development
Republic of Latvia

Thank you for your attention!
Questions?

Dr. Oec. Ilze Prūse
Director of Climate Change Department
Ministry of Environmental Protection and Regional Development