

Background The Alps are particularly affected by climate change. Temperatures in this region increased at more than twice the global average rate in the last century, and further warming is already unavoidable. Consequences may include thawing of permafrost, melting glaciers and extreme events

such as heavy precipitation and long periods of drought. Climate change will bring major changes to your economy, environment and society. Adverse consequences can be reduced or avoided, and future development potential safeguarded, through adaptation. It's time to take action now!



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General

Energy

Health

Spatial
Planning

Biodiversity

**Natural
Hazard**

Agriculture

Water

Forestry

Tourism

Natural Hazard & Risk management

WHY?

Climatic changes documented to date in the Alps will play a role in the occurrence of natural disasters that will affect both communities and the environment. Impacts can vary in magnitude and effects; the issue is expected to be greater in the future, affecting all economic sectors and the society. Therefore it is necessary to develop adaptation strategies and practical approaches to be prepared for disasters like floods, landslides and debris flows.

Collect knowledge, develop tools and get to action

- To harmonize the knowledge and the know-how into a “common language” and encourage cross-border networking (e.g. in the creation of hazard maps) all over the alps would greatly improve the effectiveness of natural hazard management.
- Tools smart and specifically crafted for risk management will prove useful in enabling adaptation measures and exploring their social and economic consequences.

HOW?

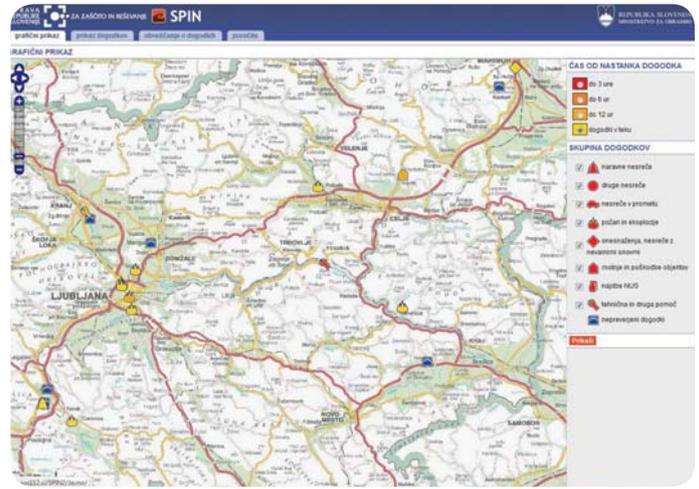
Meeting the risk - Foster efficient risk communication and cooperation

- To improve public preparedness and personal responsibility by informing people about hazards and risks and encouraging participation in emergency planning.
- To foster long-lasting motivation to participation among the stakeholders by talking frankly and openly about any doubts and uncertainties.

Take actions to prevent natural hazards

- To incorporate climate change adaptation into spatial planning and to think of flood risk management in terms of an entire river basin.
- Promote water retention, the reactivation of natural flood plains, increase the size of floodwater, conduits and basins.





ALPINE RHINE: SAFETY AND RECREATION

The Austrian and Swiss authorities are collaborating on a project to improve flood protection along the last 26 kilometres of the Alpine Rhine, where the 300,000 people who live there are exposed to a pronounced risk of flooding. The plan is to increase the river's run-off capacity in line with peak flows from the upper reaches in the light of some higher levels of precipitation in recent years. All the works have to satisfy the legal requirements in both countries, including ecological improvement and the sparing use of resources. The cost of the works totals about 490 million euros, while the flood damage potential is put at 4-6 billion euros. [Further information \(de\)](#)

FLOOD WARNING TEXT MESSAGES

Flooding can cause damage involving very high costs. The Slovene Ministry of the Environment has accordingly developed an early warning system for floods. The relevant data relating to precipitation and draw-off are collected and imported into a hydrological model. A user-friendly web-site with online maps shows the hazard zones in real time. The system also permits rescue services to be warned of imminent dangers via text messages, which ensures a very fast response. The system could also be adapted for use with other natural hazards. [Further information \(sl\)](#)



You can take action now!

Together with

- National and regional administration
- Researchers and experts on climate change adaptation
- Civil society organizations such as NGOs
- Entrepreneurs



Download this factsheet and share it

Service Further measures, tools, practical examples and information on how to adapt to climate change can be found at www.c3alps.eu

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About C3-Alps The C3-Alps initiative is conducted by a transnational consortium of 17 partners from all Alpine countries. The partnership combines authorities responsible for climate adaptation policies on national and regional levels and expert institu-

tions that support national and European adaptation strategies. C3-Alps is coordinated by the Environment Agency Austria and is co-funded by the Alpine Space programme, through the European Regional Development Fund – European Territorial Cooperation.