Interreg Co-funded by the European Union

Alpine Space

X-RISK-CC

PROJECT NEWSLETTER

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X-RISK-CC IS COMING TO AN END – AND HERE ARE THE RESULTS

After three years of transnational cooperation, research, pilot actions, and stakeholder engagement, the X-RISK-CC project is coming to a close. The project aimed to improve the understanding and management of weather extremes and their compound and cascading risks in the Alpine Space, supporting authorities and practitioners in adapting to a changing climate.

As the project draws to a close, we are proud to present a robust set of practical, science-based outcomes that will continue to support climate risk management, spatial planning, and adaptation efforts across the Alps – long after the project has ended.

PROJECT OUTCOMES AT A GLANCE

DIGITAL LIBRARY ON PAST AND FUTURE WEATHER EXTREMES

One of the core outcomes of X-RISK-CC is a comprehensive digital library that brings together local and Alpine-wide knowledge on future weather extremes, making it accessible for practical use. Combining scientific analyses of past and future climate with user-friendly tools for exploring data and guidelines, the library supports, planners, researchers, and policymakers.

Key highlights:

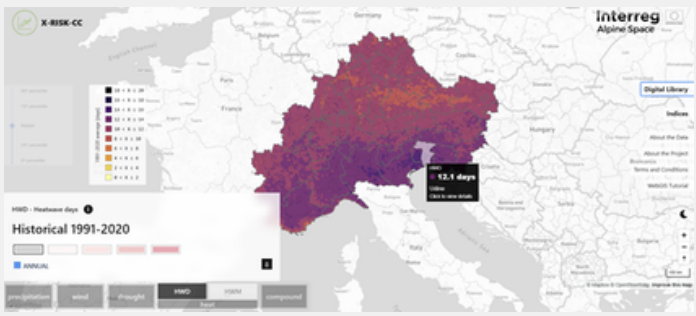
INTERACTIVE WEBGIS

The X-RISK-CC WebGIS provides free access to data on past and future weather extremes across the Alpine region. Users can explore precipitation, heat, drought, wind, and compound extremes at different spatial scales and temporal horizons.

The tool supports risk assessments, impact studies, and adaptation planning, paying special attention to compound events that occur simultaneously or in sequence across regions.

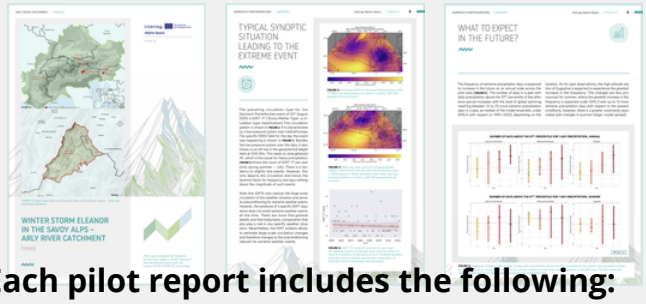
Access the WebGIS here:

https://cct.eurac.edu/x-risk-cc



REPORTS ON PAST AND FUTURE EXTREMES IN PILOT AREAS AND IN THE ALPINE SPACE

Detailed analyses were carried out for the Alpine Space and pilot areas. These reports translate climate data into actionable knowledge for local and regional risk management.



Each pilot report includes the following:

- key messages and implications for practice
- analysis of past extreme events
- expected future changes under climate change scenarios
- methodological background

List of pilot reports:

- WINTER STORM ELEANOR IN THE SAVOY ALPS – ARLY RIVER CATCHMENT (France)
- SHORT-DURATION RAINFALL EXTREMES LEADING TO CASCADING AND COMPOUND MASS MOVEMENTS IN GARMISCH-PARTENKIRCHEN (Germany)
- DROUGHT AND HEATWAVES IN GORENJSKA – SORA CATCHMENT (Slovenia)
- FLASH FLOODS IN GORENJSKA – SORA CATCHMENT (Slovenia)
- THE VAIA STORM IN THE EASTERN ALPS – THE CASE OF TRENTINO – SOUTH TYROL (FASSA/FIEMME AND CAREZZA/EGA VALLEYS) (Italy)
- SHORT-DURATION RAINFALL EXTREMES LEADING TO GRAVITATIONAL MASS MOVEMENTS IN A TRANSBOUNDARY ITALIAN-AUSTRIAN AREA – WIPPTAL AND STUBAITAL (Italy/Austria)

The Alpine Space report offers a synthesis of projected changes in weather extremes across the Alps and describes the methodological background. It is accessible here: ALPINE SPACE REPORT ON PROJECTED FUTURE CHANGES IN WHEATHER EXTREMES

PROJECT OUTCOMES AT A GLANCE

X-RISK-CC RISK MANUAL AND RISK PATHWAY REPORTS

To support practitioners in dealing with increasingly complex climate risks, X-RISK-CC developed a Risk Manual and two complementary analytical reports.

X-RISK-CC RISK MANUAL

This practical guide is designed to help regional and local administrations, integrate climate risks—especially compound and cascading risks—into risk management, spatial planning, and disaster preparedness.

Access the manual here:
https://www.alpine-space.eu/wp-content/uploads/2025/08/X-RISK-CC_O2_1_Risk-manual.pdf

REPORT ON PAST AND FUTURE (COMPOUND) HAZARDS IN PILOT AREAS

Through pilot case studies across the Alps, this report shows how droughts, floods, storms, and heatwaves can trigger compound and cascading impacts, supporting the development of tailored adaptation strategies at local level.

Access the report here:
https://www.alpine-space.eu/wp-content/uploads/2025/07/D2.1.1_Report-on-past-an-future-hazards-in-the-pilot-areas.pdf

REPORT ON PAST AND FUTURE RISK PATHWAYS

This report explores how climate change amplifies risks by linking hazards with exposure and vulnerability. It introduces climate risk storylines, risk questionnaires, and exposure checklists, offering actionable insights for forward-looking risk management.

Access the report here:
https://www.alpine-space.eu/wp-content/uploads/2025/07/D2.2.1_Report-on-past-and-future-risk-pathways-in-the-pilot-areas.pdf

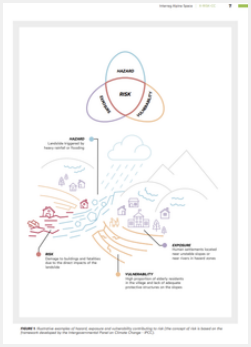
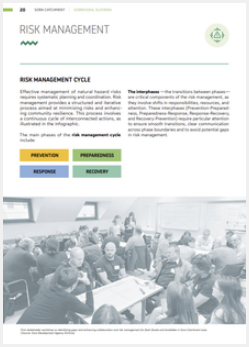
PROJECT OUTCOMES AT A GLANCE

PILOT AREA DOSSIERS

For each pilot area, pilot dossiers have been developed to make all project results **accessible to the general public** and to **raise awareness of current and future climate-related risks**. Each dossier summarizes, in a user-friendly format, the local context of the pilot area, past and future weather extremes, key risks, and the action plan developed to improve local risk management. The documents are available both in English and in local languages.

Access the pilot area dossiers here:

- **Arly Catchment** (Savoie, France)– available in *English* and *French*
- **Fleres Valley** (South Tyrol, Italy) – available in *English*, *Italian* and *German*
- **Garmisch-Partenkirchen** (Bavaria, Germany) – available in *English* and *German*
- **Sora Catchment** (Gorenjska, Slovenia) – available in *English* and *Slovenian*
- **Stubai Valley** (Tyrol, Austria) – available in *English* and *German*
- **Fiemme and Fassa Valleys** (Trentino, Italy) – available in *English* and *Italian*
- **Ega Valley / Carezza** (South Tyrol, Italy) – available in *English*, *Italian* and *German*


PILOT ACTION PLANS

Pilot action plans have been completed for all pilot areas, translating X-RISK-CC findings into **concrete, locally tailored climate risk management measures**.
These plans describe the background and rationale of each action, the design criteria applied, and the implementation pathways, **providing a solid basis for long-term uptake, replication, and integration into existing plans and frameworks, thereby improving the management of risks under climate change.**

Access the tailored action plans here:

- Tailored action plan – Arly Catchment
- Tailored action plan – Fiemme and Fassa Valleys
- Tailored action plan – Garmisch-Partenkirchen
- Tailored action plan – Sora Catchment
- Tailored action plan – South Tyrol
- Tailored action plan – Stubai Valley

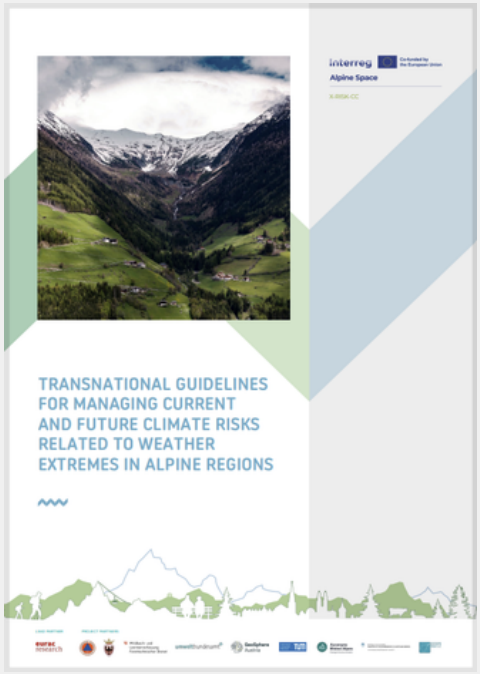
PROJECT OUTCOMES AT A GLANCE

TWO-TIER DIGITAL SOURCEBOOK

X-RISK-CC has produced two key documents to help regional authorities and policymakers transfer and scale up the project's outcomes across the Alpine region. These documents are available on the project website and through a dedicated thematic module on CAPA – the Climate Adaptation Platform for the Alps.

Action Proposals for managing climate risks of weather extremes in the Alps

Building on the achievements of the entire project, the transnational Action Proposals aim to enhance the policy readiness and resilience of Alpine territories to the increasing risk of weather extremes by integrating climate change into existing risk management policy frameworks in a pro-active, forward-looking, and transboundary approach. The proposals address policymakers at subnational, national and transnational levels, are aligned with relevant policy frameworks, and support the project's tailored action plans through pilot areas in a multi-level governance approach.



Transnational Guidelines for managing current and future climate risks related to weather extremes in Alpine regions

The Guidelines provide a modular, step-by-step roadmap that enables regional and local risk managers across the Alps to adapt their practices to climate change and develop tailored risk management solutions. While the X-RISK-CC Risk Manual establishes the technical framework, these Guidelines provide process-oriented guidance on translating risk assessment results into concrete adaptation planning and decision-making. To ensure practical application, examples from the project's pilot areas are used to illustrate each step of the workflow and the use of specific tools and methods.

VOICES FROM THE PARTNERSHIP

Quotes from partners **reflecting on the impact of X-RISK-CC across the Alpine Space** illustrate the project's lasting legacy. These testimonials emphasize important lessons learnt and demonstrate how X-RISK-CC has enhanced understanding, cooperation, and the ability to address complex climate risks in various regional contexts.

EUROPEAN ACADEMY OF BOZEN-BOLZANO – EURAC RESEARCH

The continuous exchange between science and practice has been the core strength of X-RISK-CC. This dialogue helped us build a common knowledge base on climate risks and co-create outcomes that effectively support the understanding and management of current and future extreme events.

CIVIL PROTECTION AGENCY, AUTONOMOUS PROVINCE OF BOLZANO

"The X-RISK-CC project strengthened coordination and cohesion between municipalities and the Province of South Tyrol, with both municipal administrations and the Civil Protection Agency finding value in the structured exchange fostered through pilot activities and province-wide information workshops on civil protection topics.

The participatory discussions throughout the project highlighted key gaps and improvement needs—such as early warning systems, the role of systematic debriefings, the need for a communication on risk awareness—and fed into a tailored action plan for South Tyrol, that converges into the climate change adaptation strategy for the province."

AUTONOMOUS PROVINCE OF TRENTO

Following an event as impactful as the Vaia Storm, the X-RISK-CC project was a valuable opportunity to pause, reflect, and take stock, through a sort of debriefing activity that involved all relevant stakeholders. It was a moment of shared analysis that helped us identify the objectives to focus on in the coming years to respond more effectively to climate change and its impacts on our territory."

DEVELOPMENT AGENCY SORA

The X-RISK-CC project has shown that extreme weather events are increasing in frequency and complexity, and that effective risk management relies on strong cooperation between local operational actors and national expert institutions. Locally adapted early-warning systems, improved data sharing, and co-designed actions were identified as key elements for strengthening community preparedness and response to floods and droughts. Within the X-RISK-CC project, we significantly strengthened cooperation between the Slovenian Environment Agency (ARSO) and local Civil Protection commanders in the municipalities of the Sora Catchment. Based on lessons learned also from the August 2023 floods, the project addressed the need for more precise and locally tailored early warning in this torrent-prone catchment by implementing improved, automated SMS-based flood alerts for Civil Protection commanders.

AUVERGNE RHÔNE-ALPES ENERGY ENVIRONMENT AGENCY

"Through X-RISK-CC, AURA-EE brought together diverse stakeholders from the Arly region to collaborate on a shared challenge, each contributing their unique experiences, perspectives, and expertise. Because everyone is affected, everyone can be part of the solution to address natural hazards and extreme weather events. X-RISK-CC demonstrated that tools to tackle these risks already exist at a local scale, but strengthening connections between stakeholders and territories can significantly improve responsiveness. This aligns with the vision of an integrated natural risk management system."

ENVIRONMENT AGENCY AUSTRIA

"X-RISK-CC has demonstrated that adapting risk management to new climate realities is both urgently needed and feasible. The lessons learned and solutions developed by the pilot areas show the way towards a more resilient Alpine region and offer great potential for upscaling, transfer, and learning. And that is exactly what we want to achieve with our transnational action proposals and guidelines for the climate risk management of weather extremes: enabling other Alpine regions to prepare for intensifying risks under climate change, and offering policy options for strengthening and upgrading risk management systems across multiple levels, sectors, and jurisdictional boundaries."