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From vulnerability to resilience: Auvergne-Rhône-Alpes at the forefront of climate action

Leveraging expertise, collaboration, and tested solutions to tackle climate risks in the French Alps

The Auvergne-Rhône-Alpes region, a hotspot for climate adaptation innovation, leverages the Auvergne-Rhône-Alpes Energy and Environment Agency (AURA-EE) to connect stakeholders, test solutions, and integrate adaptation and mitigation efforts, scaling successful strategies to strengthen Alpine resilience.

Key Learnings

- **Collaborative approach:** Developing climate strategies by engaging local authorities, researchers, civil society, and regional stakeholders ensures that solutions reflect real territorial needs and build local ownership.
- **Evidence-based decision making:** Data and local knowledge enable identifying vulnerabilities, anticipating future scenarios, and guiding targeted adaptation and mitigation actions.
- **Integrated and scalable solutions:** Combining adaptation to local risks with mitigation measures (using nature as carbon sinks) strengthens resilience. In parallel, structured replication programmes within European projects create a framework to transfer knowledge and scale successful strategies across the Alpine region.

About the region

Auvergne-Rhône-Alpes, created in 2015 from the merger of Auvergne and Rhône-Alpes, is a south-central and southeastern French region distinguished by diverse landscapes – from the Massif Central highlands in the west to the French Alps in the east. The Alps, one of Europe's most prominent mountain ranges, span the region's eastern part and include Mont Blanc, Western Europe's highest peak, near the Italian border. This strategic location makes Auvergne-Rhône-Alpes a vital crossroads for transport and a hotspot of biodiversity, contributing to its role as a major European economic hub and the second-most populous region in France. Nevertheless, this exposure also makes the region highly vulnerable to climate-related impacts.

Climate Hazards

Extreme Heat, Droughts, Flooding

Sector

Mountain Areas, Tourism, Agriculture, Energy,

Transport, Forestry

Key system

Critical Infrastructure, Local Economic System

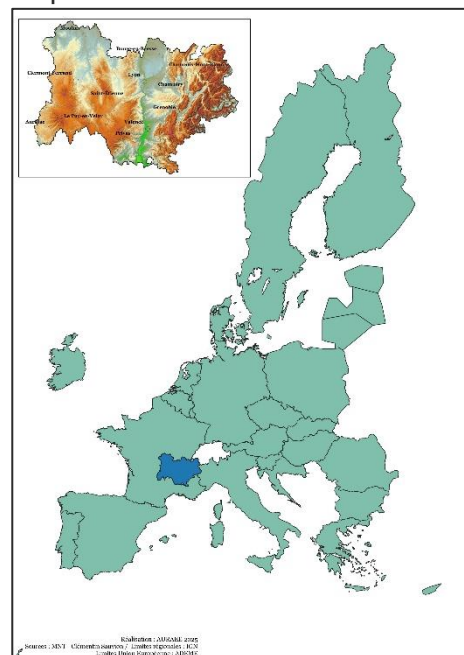


Figure 1: Location of Auvergne-Rhône-Alpes. Image Credit: AURA-EE.

Climate Threats

Climate-related hazards in Auvergne-Rhône-Alpes are unfolding more rapidly and intensely than the global average, creating a complex web of environmental and socio-economic challenges. The region is warming at an accelerated rate compared to the European average, with temperatures rising faster than the global mean. This warming drives the rapid retreat of glaciers (such as the Mer de Glace) and significantly shortens and thins the seasonal snowpack, even at mid-altitudes. Changing water regimes add to the pressure: glacier melt and reduced snow cause high spring flows and critical summer droughts, intensifying competition among users.

Thawing permafrost destabilises high-altitude rock faces, increasing rockfall and landslide risks for infrastructure and mountain communities. At the same time, more intense and erratic rainfall triggers flash floods within hours and mudflows in alpine valleys.

Ecosystems and biodiversity also face growing threats. Alpine species migrate to higher elevations in search of cooler temperatures but shrinking habitat ranges threaten their survival. Prolonged droughts weaken forests, making them more vulnerable to pests such as the bark beetles, leading to widespread tree mortality.

These hazards place key economic sectors at serious risk. The tourism industry (particularly winter sports) faces unreliable snowfall, pushing resorts to rely on artificial snow or shift toward year-round activities. Agriculture, including viticulture, fruit farming, and livestock, struggles with late frosts, summer heatwaves, and recurring droughts. The energy sector, especially hydropower, faces growing uncertainty due to unstable water flows. Forestry and natural ecosystems continue to experience long-term disruption, underscoring the region's urgent need for climate adaptation.

Auvergne-Rhône-Alpes: a hotspot for climate adaptation and innovation

The Auvergne-Rhône-Alpes region has long been committed to adapting to climate change to enhance resilience. This commitment intensified in 2007, when the Auvergne-Rhône-Alpes Energy Agency (AURA-EE) began coordinating adaptation initiatives. Through these efforts, the agency mobilised experts, contributed to strategic planning, and implemented projects to better understand and respond to the regional climate impacts. Combined with the region's diverse ecosystem, scientific expertise, and proactive governance, these efforts have established Auvergne-Rhône-Alpes as a hotspot for adaptation innovation:

- 1. A “testing ground”:** The severe impacts of climate change, from ski resort closures and glacier melt to droughts, forest fires, and landslides, make Auvergne-Rhône-Alpes a real-world laboratory for adaptation. Its diverse ecosystems face daily pressures, driving solutions in tourism, water, disaster risk prevention, and agriculture. Examples include urban green islands, forests as natural barriers, and farmland repurposed to reduce flooding.
- 2. Scientific hub:** Centred around Grenoble, the region brings together universities and institutes such as Université Grenoble Alpes, INRAE, and CNRS, specialising in glaciology, hydrology, ecology, and social sciences. This concentration of expertise provides a strong base for evidence-based adaptation, from studying glacier retreat to using forests as natural barriers against landslides while balancing fire and water risks.
- 3. Proactive Governance:** Local authorities actively engage in climate policy through frameworks like the SRADDET (Schéma Régional d'Aménagement, de Développement Durable et d'Égalité des Territoires). Further, the work of AURA-EE, local authorities mobilise funding, foster inter-municipal cooperation, and engage stakeholders to deliver and scale adaptation projects. This governance model supports innovation, strengthens collaboration, and lays the groundwork for long-term climate resilience.

AURA-EE and its collaborative principle

AURA-EE builds on the region's capacities and existing [governance framework](#) to advance climate resilience by connecting local authorities, researchers, businesses, and civil society. As a non-profit organisation representing over 70 members, including local and regional authorities, energy producers, NGOs, and professional associations, the agency coordinates multi-regional thematic networks, allowing stakeholders to share experiences and join forces in areas such as climate adaptation and mitigation, sustainable energy, and circular economy. Through these platforms, stakeholders jointly develop practical, evidence-based solutions that address climate challenges, while also gaining tools and capacities to act effectively.

Catalysing collaboration through European projects

Through AURA-EE, the region actively participates in European-funded projects (e.g., ADAPTNOW, X-RISK-CC and NACAO projects) to strengthen regional collaboration. The agency coordinates projects, secures funding, and drives knowledge exchange, uniting diverse actors, from small municipalities to major research centres, to access international expertise and build lasting relationships.

Empowering decision-making with data and tools

Local actors gain tools and reliable data to support informed decision-making. Environmental information (such as energy consumption, waste production, and air quality) is collected and interpreted to provide actionable insights. For example, [TerriSTORY®](#), developed by AURA-EE, is a digital tool that compiles and generates data on a wide range of regional parameters, helping decision-makers determine which actions will improve sustainability, employment, energy efficiency, and resource management. The tool clearly visualises complex climate and energy information, enabling local authorities to track progress in their environmental transition and prioritise adaptation measures.

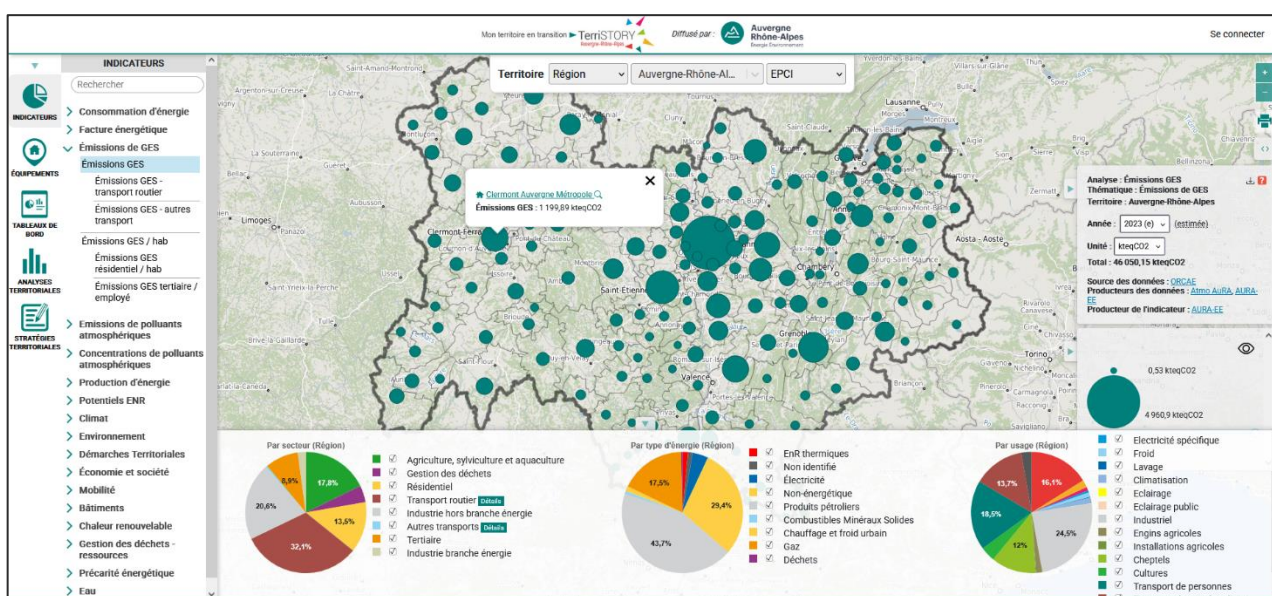


Figure 2: [TerriSTORY®](#) platform. Image Credit: AURA-EE.

Building capacity through facilitation and co-creation

AURA-EE empowers local stakeholders to shape their own adaptation strategies through workshops, training, and the ClimaSTORY® methodology. Using role-play, storytelling, and local data, communities explore future scenarios, select solutions, and jointly develop strategies rooted in local realities. This approach fosters ownership, strengthens governance, and supports long-term, scalable adaptation across the region.

Integrating Adaptation and Mitigation for Alpine Resilience

Tackling climate change in the Alps requires an integrated approach that combines adaptation to local hazards with mitigation efforts. The region faces accelerating, interlinked, and sometimes cascading risks, from droughts and wildfires to landslides and floods. At the same time, reducing greenhouse gas emissions and strengthening resilience across sectors is essential to limit future climate pressures. Through AURA-EE participation, the following three significant EU projects showcase how this integrated vision is being

translated into practice, enabling the region to test innovative tools, strengthen local capacities, and promote scalable strategies across borders:

4. The [ADAPTNOW](#) project (2021-2027) transforms the ClimaSTORY®, evolving it from an engagement tool into a decision-support platform for real territories. By adding indicators from the TerriSTORY® database, creating a digital platform, and training facilitators, ADAPTNOW strengthens local capacity to develop actionable climate strategies. Tested in Highly Affected and Exposed Territories in the Alps, including Baronnies en Drôme Provençale, it already has over 700 participants and 75 trained facilitators, with implementation continuing through 2025.

"The ADAPTNOW project has significantly advanced climate adaptation in our region. It provided a platform for testing the ClimaSTORY® "support" formula in the Baronnies, which led to the creation of a new training module for local facilitators. Working alongside ADAPTNOW partners also inspired new approaches and strengthened collaboration across communities."

Laurence Monet, Project Manager in climate change adaptation and risk mitigation, AURA-EE

5. The [X-RISK-CC](#) project (2021-2027) addresses compound and cascading risks across the Alps, such as droughts, wildfires or rainfall triggering landslides and economic disruption. By developing harmonised data on climate extremes and working with practitioners in cross-border areas, the project strengthens risk management systems. Insights are turned into local action and regional policy, in collaboration with networks like EUSALP (the EU Strategy for the Alpine Region) and the Alpine Convention.
6. The [Nature-based Carbon Offsets \(NACAO\)](#) project (2023-2027) complements adaptation efforts by supporting mitigation through nature-based solutions, enhancing carbon sinks in ecosystems like forests and wetlands. Bringing together six European regions, it promotes knowledge exchange, governance models, and market mechanisms to scale carbon offsetting in ways that are both environmentally sound and socially fair.

Scaling up and replicating adaptation

Climate adaptation efforts do not stop at local innovation; in the Alps, successful approaches are actively scaled up and transformed into transferable models that other regions can adopt, adapt, and implement. This reflects the core strategy: turning local breakthroughs into shared assets and building a resilient Alpine community through structured knowledge transfer.

The ADAPTNOW Promoting Organisation Programme is a prime replication example, which moves beyond passive dissemination to create a hands-on, mutual learning process. Up to six external public authorities can replicate ADAPTNOW's tools, including the enhanced ClimaSTORY® methodology, through direct collaboration with expert project partners. The replication programmes' consortium selects a relevant expert within the consortium to support each participating territory, and organises capacity-building activities, such as hands-on visits or tailored on-site coaching, depending on the territory's needs

and priorities. Participating authorities commit to integrating what they learn into their own climate adaptation and mitigation policies, and to publicly sharing their outcomes.

Summary

The Auvergne-Rhône-Alpes region stands out as a key hub for climate innovation, driven by its diverse hazards, strong scientific expertise and governance model supported by the Auvergne-Rhône-Alpes Energy Agency (AURA-EE). Through collaboration and evidence-based decision-making, local authorities, researchers, and civil society develop strategies that respond to real territorial challenges. By considering adaptation and mitigation (combining risk reduction and ecosystem-based carbon strategies) and sharing lessons through structured knowledge transfer, the region strengthens resilience across sectors and supports a broader uptake of effective climate solutions.

Further information

- [NACAO](#) – Promoting nature-based carbon offset solutions
- [ADAPTNOW](#) – ADAPTation Capacity Strengthening for Highly Affected and Exposed Territories in the Alps NOW
- [X-RISK-CC](#) – How to adapt to changing weather extremes and associated compound risks in the context of Climate Change

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