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FRAME

Fostering Resilience for mEtal heritage

OBJECTIVES

This project investigates how climate change affects Switzerland's built heritage and develops strategies for climate-resilient conservation of metal substrates. It aims to identify emerging forms of metal degradation, quantify corrosion under climate and pollution stress, and determine key climatic drivers such as temperature, humidity, and precipitation. Through case studies combining microclimatic data with in-situ corrosion monitoring, it assesses vulnerability and generates heritage-specific indicators. The project also evaluates long-term treatments, comparing greener biopassivation with traditional methods, to guide future conservation practices and enhance the resilience of metal heritage.

PROGRAM

Using a case study approach, the project examines metals including zinc, aluminum, iron, and copper. Building on test sites from 2015, it compares treated and untreated elements. Primary sites include the Absinthe Dryer in Boveresse (zinc), Farelhaus in Biel (aluminum, galvanized iron), and bronze sculptures in Lucerne, Bern, and Lausanne, providing a broad range of exposure conditions and insights into long- versus short-term weathering. In situ assessments (surface inspections, physico-chemical analyses, electrochemical measurements) and laboratory analyses quantify degradation rates, identify climatic sensitivities, and characterize corrosion mechanisms. Archival research provides historical context on past conservation and exposure.

RESULTS

While comprehensive climate modelling is beyond the FRAME project's scope, meteorological and exposure data collected will support future predictive modelling within the overarching CRCH project. The study will generate practical recommendations for monitoring, preventive maintenance, and conservation strategies, fostering inter- and transdisciplinary collaboration and laying the groundwork for enhancing Switzerland's metal-built heritage resilience.

Fig. : Séchoir de Boveresse.
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PROJECT LEADER

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PARTNERS

BFH - Hochschule der Künste Bern, Dr. Nina Mekacher (coordinator of CRCH project)
SUPSI - Dipartimento Ambiente Costruzioni e Design

DURATION FRAME

24 months
01.02.2026 – 31.12.2027

DURATION CRCH

48 months
01.12.2024 – 30.11.2028