Improving Monitoring for Better Integrated Climate and Biodiversity Approaches, Using Environmental and Earth Observations

Tomas Mildorf, University of West Bohemia in Pilsen, Czech Republic

Online Webinar
Friday, 24 April 2026 | 11:00–13:00 CET
Bioclima: Understanding Biodiversity in Times of Climate Change

Funded by the European Union

BioClima: EU - Grant Agreement No. 101181408

The BioClima Vision

BioClima envisions **AI-driven Earth observation** as a catalyst for **climate adaptation** and **biodiversity conservation**. Integrating remote sensing, in situ data, and predictive analytics supports **data-informed decisions** and **international collaboration**, advancing scalable, nature-based solutions across Europe and China.

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1.

About BioClima

Quick facts

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EU-China international cooperation project

Funding on the EU side

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- **Programme:** Horizon Europe – Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment
- **Topic:** HORIZON-CL6-2024-CLIMATE-01-7 - EU-China international cooperation on improving monitoring for better integrated climate and biodiversity approaches
- **Type of Action:** RIA – Research and Innovation Action

Funding on the Chinese side

中华人民共和国科学技术部
Ministry of Science and Technology of the People's Republic of China

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Factsheet

- **Duration:** 48 months
- **Start:** January 2025
- **End:** December 2028
- **Budget:** €5M
- **Grant Agreement No:** 101181408
- **Funding Authority:** European Research Executive Agency (REA)
- **Partnership:** 17 European and 20 Chinese partners
- **Coordinator:** University of West Bohemia in Pilsen, Czech Republic

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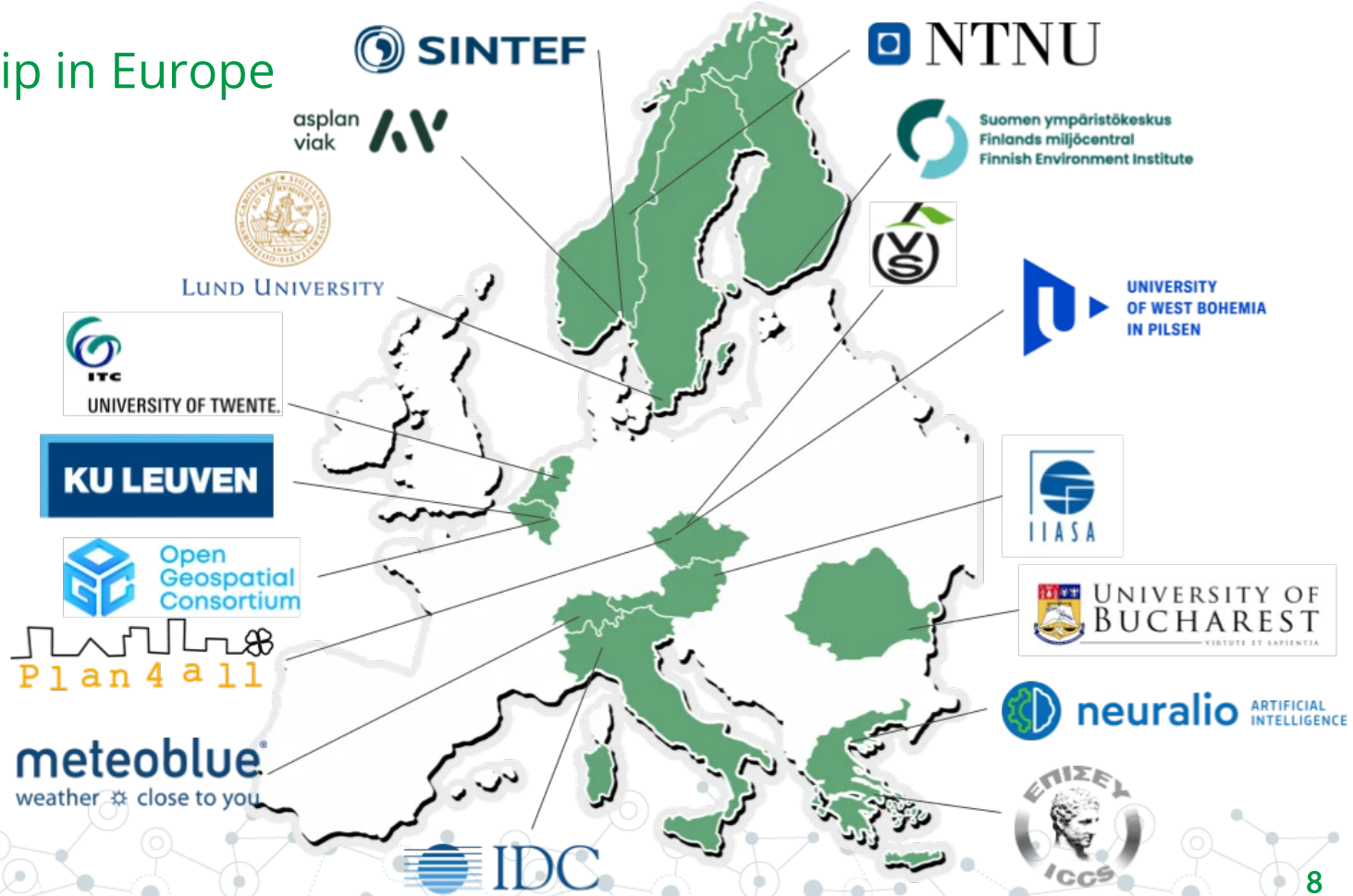
Partnership in Europe



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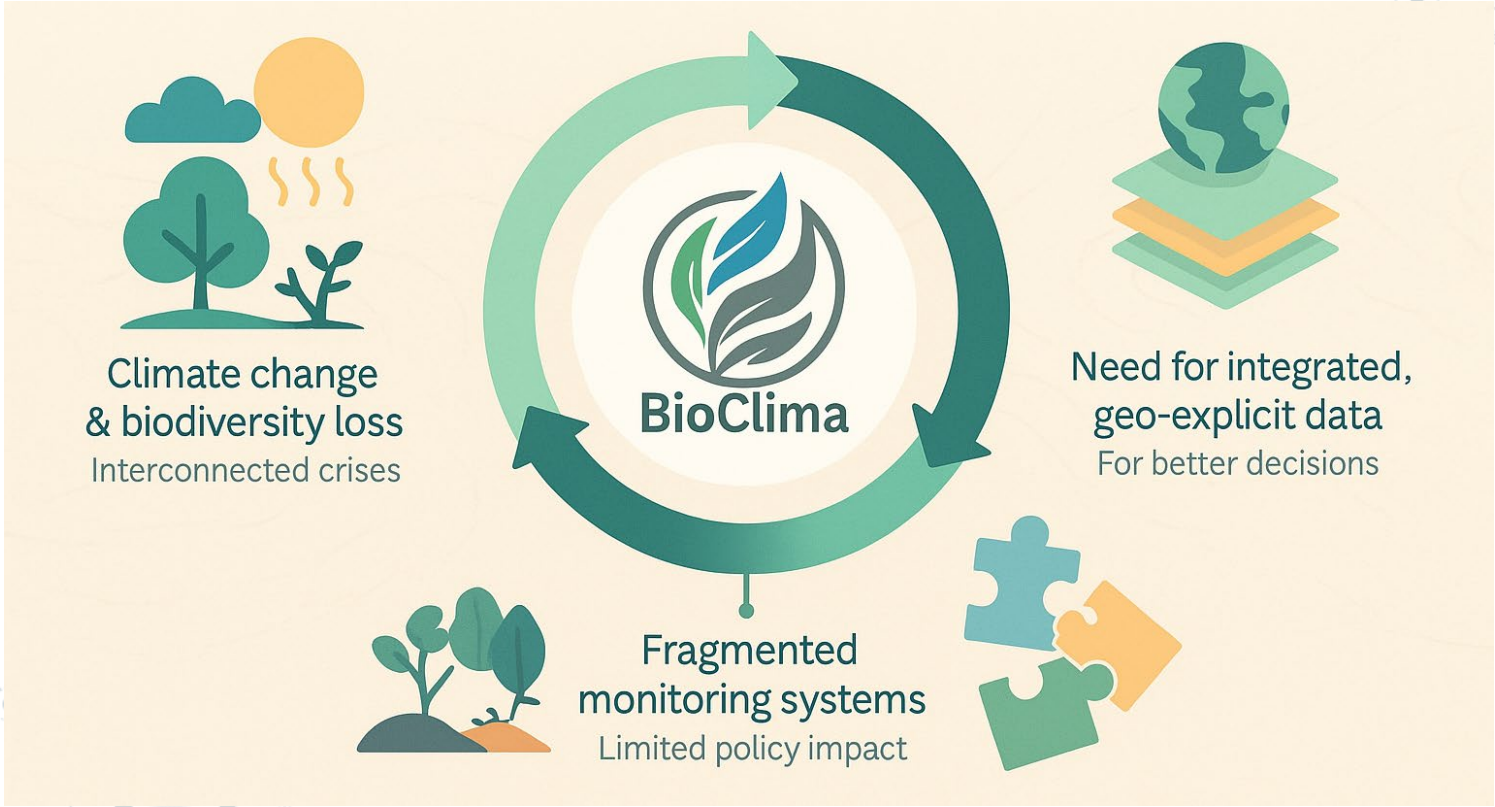
Partnership in Europe

Partnership in China

2.
BioClima Objectives

Why BioClima? - Responding to a Global Challenge



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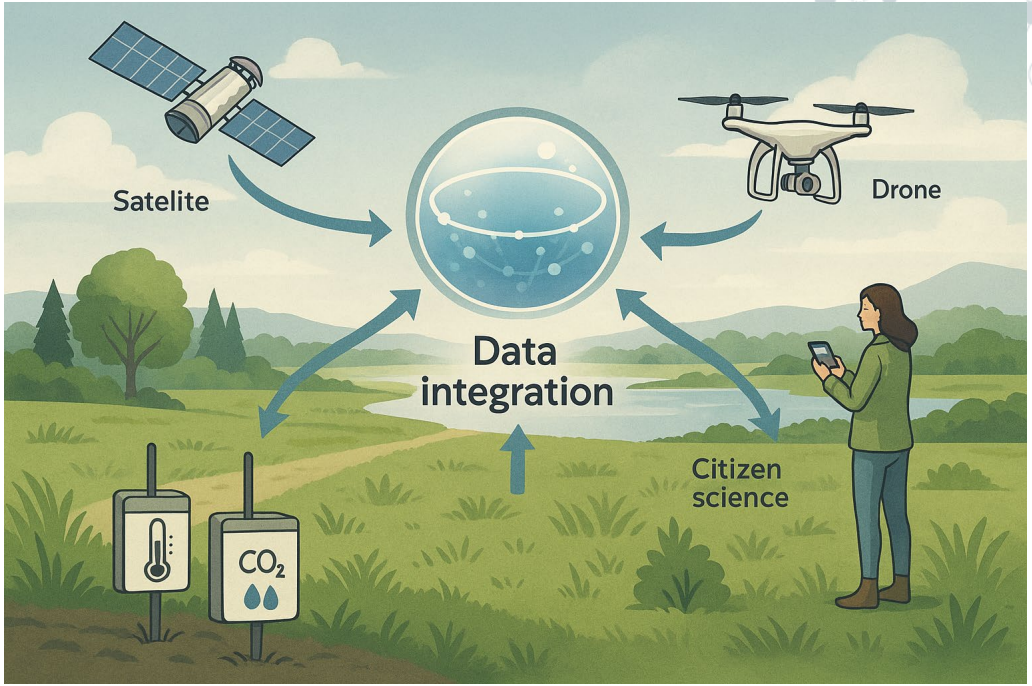
O1 Develop Integrated Observational Systems

To establish advanced integrated monitoring systems for climate and biodiversity that combine Earth observations and environmental datasets to provide comprehensive, geographically-explicit insights into terrestrial ecosystems in the EU and China.



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O2 Advance Data Fusion and Analytical Modelling

To develop sophisticated data models and analytical pipelines that enable seamless fusion of diverse data streams, including climate, land use, and biodiversity datasets, to support predictive modelling, ecological risk assessment, and decision-making. Use of traditional methods as well as innovative AI/ML methods are foreseen.

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O3 Enhance Biodiversity and Climate Change Monitoring via Spatial Patterns

To improve the monitoring of biodiversity and climate change impacts through the development and application of Essential Biodiversity Variables (EBVs) and Essential Climate Variables (ECVs), focusing on vulnerable ecosystems such as forests and grasslands. Assess the impact of climate change on biodiversity and explore the synergies and trade-offs between biodiversity conservation and climate mitigation through detailed comparative case studies in both the EU and China.

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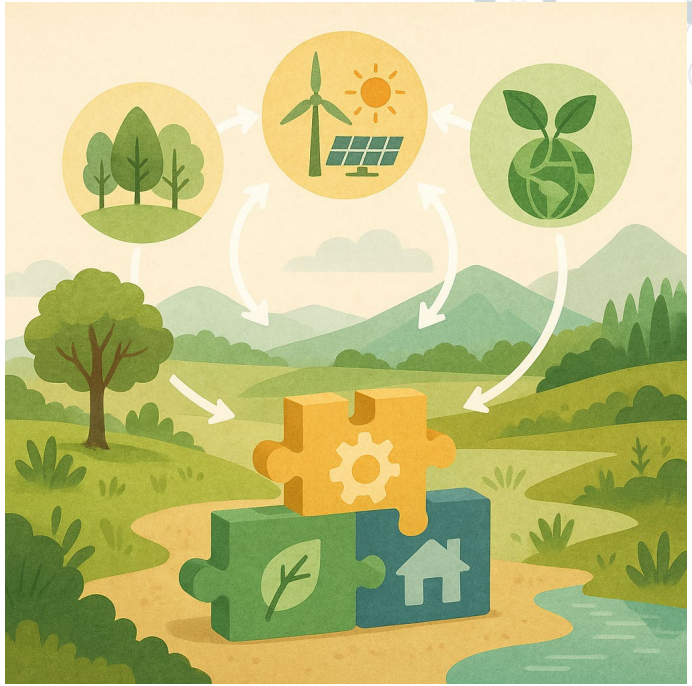
O4 Promote Synergies in Biodiversity Conservation and Climate Mitigation and Adaptation

To identify and implement nature-based and technological solutions that maximise synergies between biodiversity conservation, climate change mitigation, and adaptation efforts, contributing to the resilience and sustainability of terrestrial ecosystems.



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O5 Support Policy and Decision-Making and Upscale from Local to Global

Execute and evaluate **use cases** to demonstrate synergies between climate and biodiversity monitoring, and upscale them to European scale. To provide scientific insights and evidence-based recommendations to support policy-making and the implementation of integrated climate and biodiversity strategies at national and international levels.

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O6 Strengthen International Cooperation, Sustainability, and Capacity Building

Strengthen **EU–China cooperation** through joint knowledge exchange and collaborative environmental research, aligned with GEO, UNFCCC and GBF. Develop a comprehensive strategy for international **communication**, **dissemination**, and **sustainable exploitation of results**, including **education** and **capacity-building** for stakeholders, policymakers, and scientists.

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UNFCCC

GEO

Kunming - Montreal
GLOBAL BIODIVERSITY FRAMEWORK

5.
BioClima Implementation

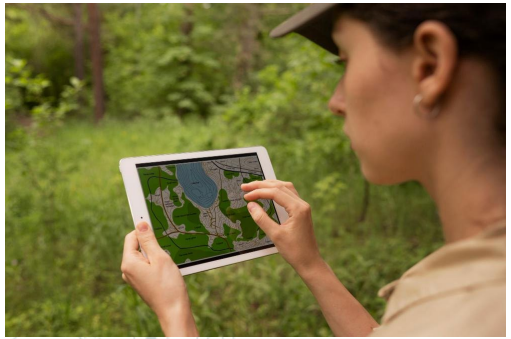
Case Studies

European

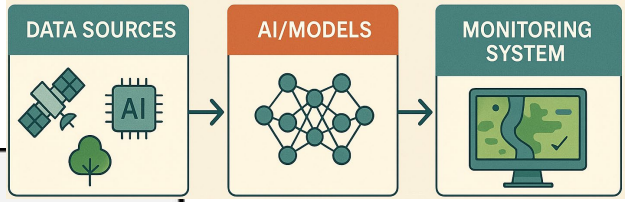
BioClima's European sites represent diverse ecosystems - from boreal and Alpine regions to Mediterranean and agricultural landscapes.

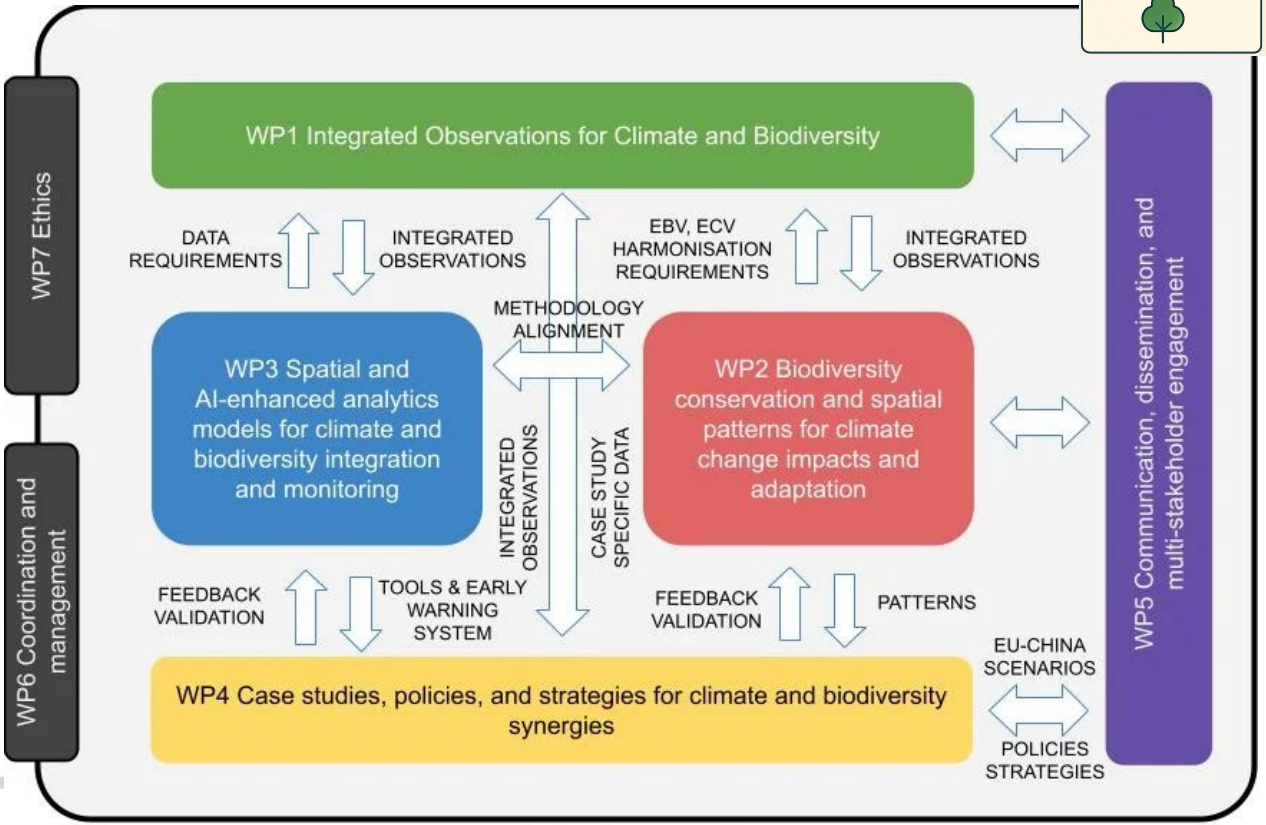
Chinese

China contributes case studies from more than 19 major conservation areas, covering forests, mountains, coastal zones, and tropical regions.



Implementation Plan





Interlinks between work packages

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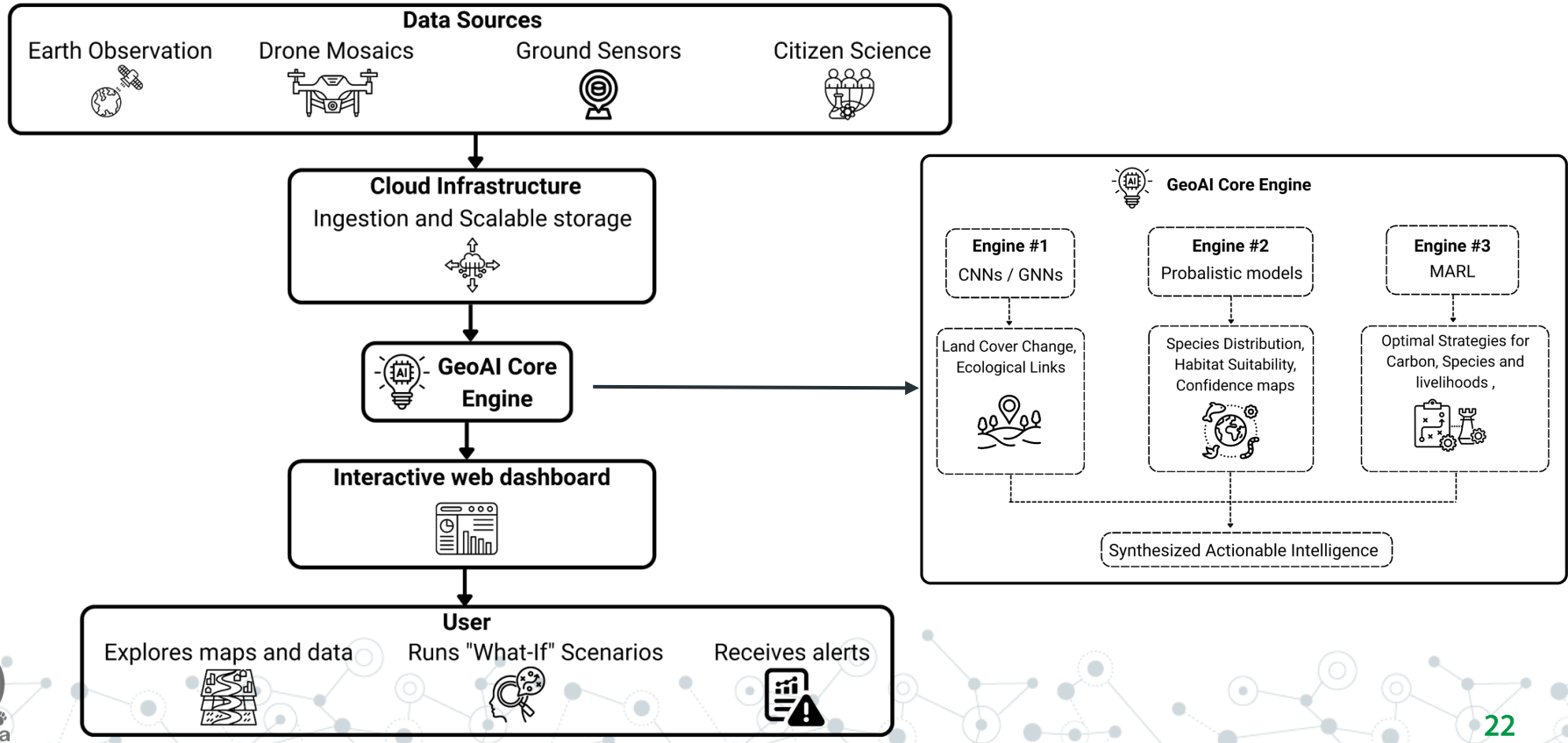
BioClima Technical Flowchart



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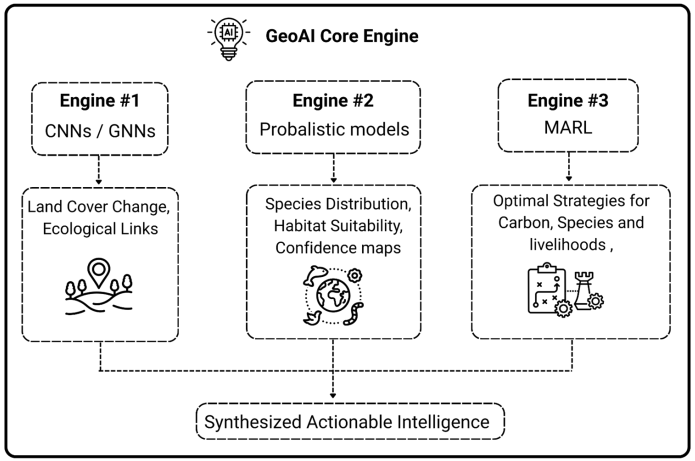
GeoAI Core Engines



Probabilistic Species Distribution Models

What it does: Fuses climate, land use and habitat data to predict where different species can thrive now and in the future. Crucially, it provides confidence maps to show the certainty of its predictions.

Why it matters: Allows for proactive conservation, protecting the habitats of tomorrow

Land Cover & Ecological Connectivity

What it does: Uses Convolutional and Graph Neural Networks to detect land-cover changes at a 10-meter resolution and identify crucial ecological corridors between habitats.

Why it matters: Helps us understand habitat fragmentation and prioritize conservation efforts.

Multi-Agent Reinforcement Learning (MARL)

What it does: This is our most innovative feature. It treats each landscape unit as an "agent" that learns through simulation. These agents test different actions—conserve, restore, or develop—to find strategies that maximize combined rewards for carbon storage, species richness, and local livelihoods.

Why it matters: It moves beyond simple prediction to help us find optimal, win-win solutions for both people and nature.

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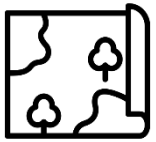
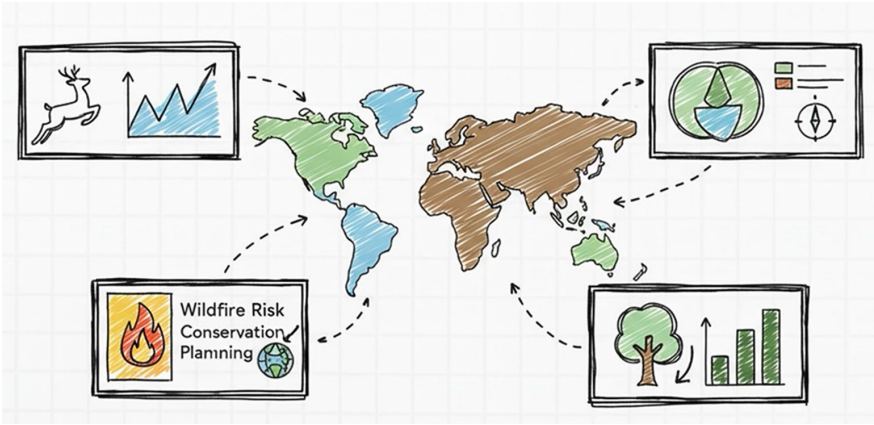
The BioClima Dashboard Functional Capabilities

Wildlife Population Monitoring

Forest Ecosystem Projection



Habitat and Land Cover Mapping



Wildfire Risk Modelling

Habitat Suitability Modelling

Spatial Conservation Planning

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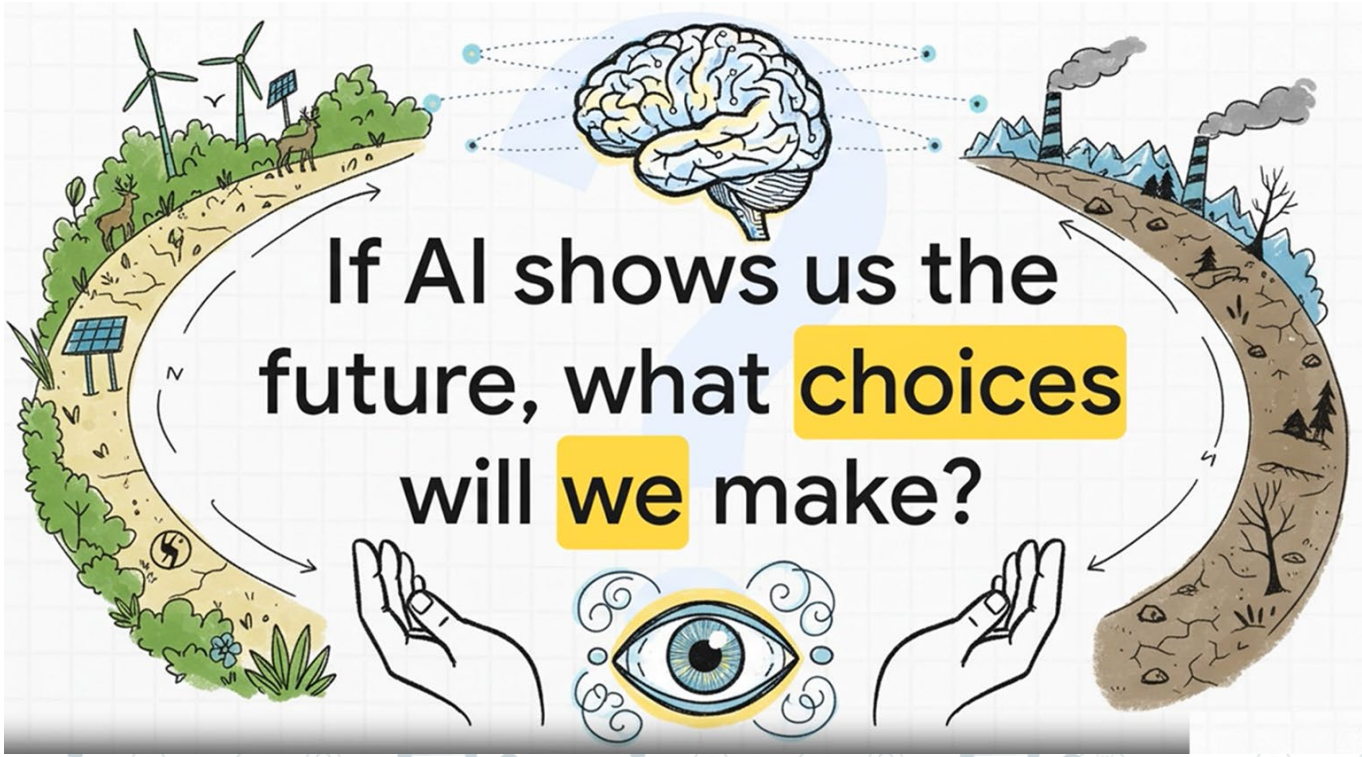
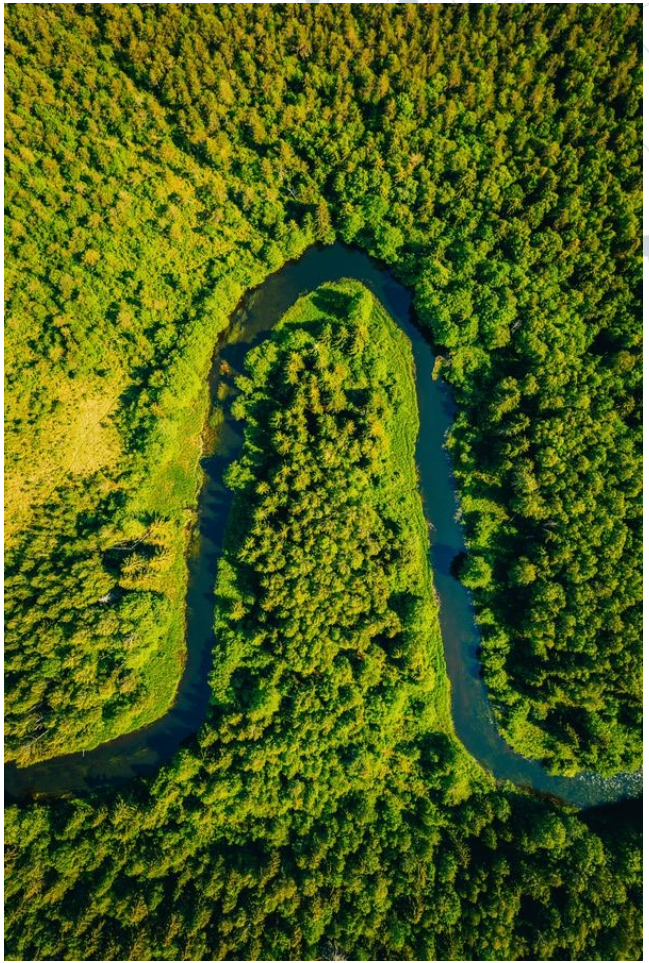
Data- and Evidence-Based Choices



Policy Alignment

- Supports **EU Green Deal** & **Biodiversity Strategy**
- Linked to **EU-China Flagship on Climate and Biodiversity**
- Builds on **GEO BON**, **EuropaBON**, **Sino-BON**, **GEOSS**, **Copernicus**



GEO BON

EUROPABON

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BioClima Doesn't Start from Scratch

Thank you!

Any questions?

mildorf@kgm.zcu.cz

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