Experiences and lessons from the EU-funded project "PastorAlp"

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Position EuroGEO with view to the new GEO strategy.

Identify and exploit synergies across national and EU projects and initiatives.

Support a nexus approach to address the triple pollution-climate-biodiversity crises.

Create a dialogue among scientists, policy makers and end-users to support the co-design of EO based tools, knowledge, and policies.
DURATION: 01/10/2017 - 31/03/2023 (5.5 YEARS)

BUDGET: 2,314,400 €

COFUNDED (60%) BY THE EUROPEAN COMMISSION (LIFE PROGRAMME, CLIMATE CHANGE ADAPTATION)
EUROGEO WORKSHOP 2023

PASTORALP FINAL CONFERENCE
15-17/03/2023
"Global challenges in mountain agropastoral systems - Scientific evidence on impacts, adaptation and policies"

~150 attendees
Policy makers
Scientists
Socio economic sector
End-users
Citizens
*European Geospatial Workshop 2023*

**IPCC AR6 Figure SPM.2**

- **PGshare** = share of permanent grassland in the total utilised agricultural area

- **Observed impacts of climate change on human systems**
  - **Impacts on water scarcity and food production**
  - **Impacts on health and wellbeing**
  - **Impacts on cities, settlements and infrastructure**

- **Regional assessments**:
  - Global
  - Africa
  - Asia
  - Australasia
  - Central and South America
  - Europe
  - North America
  - Small Islands
  - Arctic
  - Cities by the sea
  - Mediterranean region
  - Mountain regions

- **Confidence in attribution to climate change**:
  - High or very high
  - Medium
  - Low
  - Evidence limited, insufficient

- **Impacts to human systems in panel (b)**:
  - Increasing adverse impacts
  - Increasing adverse and positive impacts

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*From Schils et al. 2022 Agriculture, Ecosystems and Environment*
Project main goal:
Reduce the vulnerability and increase the resilience of alpine mountain pastures and pastoral communities by assessing impacts of climate change and testing feasible, integrated and improved adaptation technical measures and policies recommendation in intended case study areas (PNE and PNGP) – two open air laboratories

- 70.000 ha of extensive pastures grazed by sheep, cattle goats, horses
- 70% national collective properties regulated by national laws (creation of pastoral units and breeder consortia)
- First National protected area in Italy (1922)
- Protect the Alpine ibex (Capra ibex L.) at risk of extinction, now >2800 individuals.
- 71.000 ha of rural area and 8.400 habitants
  - Cattle and sheeps

- Extreme events (summer droughts, Intense rainfalls events)
- Land abandonment
- Biodiversity
- Wolf predation
STAKEHOLDER ENGAGEMENT

In the original proposal, the terms:
Stakeholder engagement occurs ~50 times
Stakeholders occurs ~220 times
Some results - sustainability of data

- Field surveys & remote sensing (Sentinel 2) & modelling
- Harmonized legend: Grasslands (Y-N) / productivity / 13 pastoral categories

More than 10,000 hectares of pastureland mapped

Classification Accuracy: 83%

Filippa et al 2022 On the distribution and productivity of mountain grasslands in the Gran Paradiso National Park, NW Italy: A remote sensing approach
Some results - sustainability of data

- Pasture productivity map [KgDM/ha]
- Yearly update
- Planning
Some results - sustainability of data

Irrigation Water Requirements
Mean 2005-2021 [mm]

\[ \text{IWR} = \text{Prec} - \text{ETcrop} \]
\[ \text{ETcrop} = K_c \times \text{ET0} \]

- Irrigation Water Requirements [mm]
- Yearly update
- Planning
Some results - sustainability of data
The PASTORALP activities allowed the Agriculture Department of VdA to adopt the experimentation results from the pilot sites to the regional scale through:

- A formal agreement between the Department of Agriculture and ARPA;
- Preparation of CAP 23/27 payments measures with “regional specifications”
- Preparation of a regional land/pasture registry (satellite data);
- Development of pasture plans based on PASTORALP project results
- Meetings with DG Agri and DG Envi and with AGEA
- Tool for the estimation of irrigation water requirements (improvement for water resource management)
- Inclusion of adaptation measures and policy recommendations into the CC Regional Adaptation Plan (sector agriculture)
Different perspectives:

1. Legislative (EU directives)
2. Regulations (State laws)
3. Implementation (LR/regional acts)
4. Administrative (tenders, procedures)
5. Inspection (checks)
6. Participatory (socio-eco-ambient partnership)
7. Exploratory (R&D entities)
8. Associative (sector associations)
9. Consultative (technicians)
10. Lively (farmers/herders)
- **Stakeholder engagement**: importance of a bi-directional process. (Agro-pastoral systems crucial for the mountains)

- **Local to global**: different visions with a common goal: understanding the complexity of European 'agriculture'

- **Public support**: useful if respecting territorial peculiarities (appropriate level of policy planning)

- **Results** became tools operational and effective
EUROGEO WORKSHOP 2023

THANK YOU

Marta Galvagno & Pastoralp Team & Friends

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https://www.pastoralp.eu/home/

BOLZANO 2-4 OCTOBER 2023
Farmers’ perception of climate change & capacity for adaptation
Impacts of climate change
Vulnerability of the entire system
Best adaptation strategies for adoption
Biodiversity conservation
Repliicality
Governance and adoption

Mountain permanent grasslands (Multifunctionality)
Welcome to the LIFE PASTORALP platform

Real time monitoring

Cartography

Impacts

Adaptation

Vulnerability

WebGIS

The PASTORALP platform is intended to support pastoral communities to adapt to climate change and to raise awareness of stakeholders, target groups and general public on issues related to high mountain climate change vulnerability, impacts and adaptation.
On the distribution and productivity of mountain grasslands in the Gran Paradiso National Park, NW Italy: A remote sensing approach

Gianluca Filippa, Edoardo Cremonese, Marta Galvagno, Arthur Bayle, Philippe Choler, Mauro Bassignana, Anais Piccot, Laura Poggia, Ludovico Oddi, Simon Gascoin, Sergio Costafreda-Aumedes, Giovanni Argenti, Camilla Dibari

Research article

Uncertainties in the adaptation of alpine pastures to climate change based on remote sensing products and modelling


Show more
Some results - sustainability of data
Some results - sustainability of data

Mappatura utilizzi [taglio/pascolamento]