

Cooperation with the Alpine Convention – experience sharing on adaptation to climate change in the Alps



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Alpine Convention

Italy

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(3) Eurac Research

Introduction

I am an Associate Professor of Atmospheric physics and climatology at the University 'G. d'Annunzio' of Chieti-Pescara

We are in central Italy (Abruzzo Region) at 200km from Rome, a Campus on the adriatic coast with 27000 students, 1200 professors and researchers with tenure



The Abruzzo region
Total surface: 1.079.512 Ha

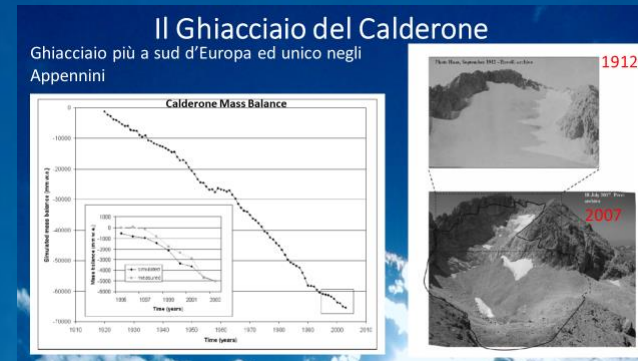
Mountains in Abruzzo extend over 702.000 Ha;
475.000 Ha are heavily wooded

Abruzzo includes also 130 km of sea shore (Adriatic sea)

- People living in Abruzzo: **1.326.513** (January 1, 2016)
- Abruzzo includes 305 municipalities and 4 provinces

In our Region there are the two highest peak of the Apennines: Gran Sasso and Majella

Calderone the southern glacier of Europe



Introduction

- 1) Pilot project of adaptation to climate change in Alpine villages (A PhD program)
- 2) Extend the best practice and the activities on the Apennines mountains



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE



alpenkonvention • convention alpine
convenzione delle alpi • alpska konvencija
www.alpconv.org



The collaboration between our University, Eurac, Alpine Convention and the Italian Minister for the Environment has 2 main objectives

Alps

Apennines





Fondazione
Lombardia
per l'Ambiente

eurac
research



The Pilot project based on the Budoia charter

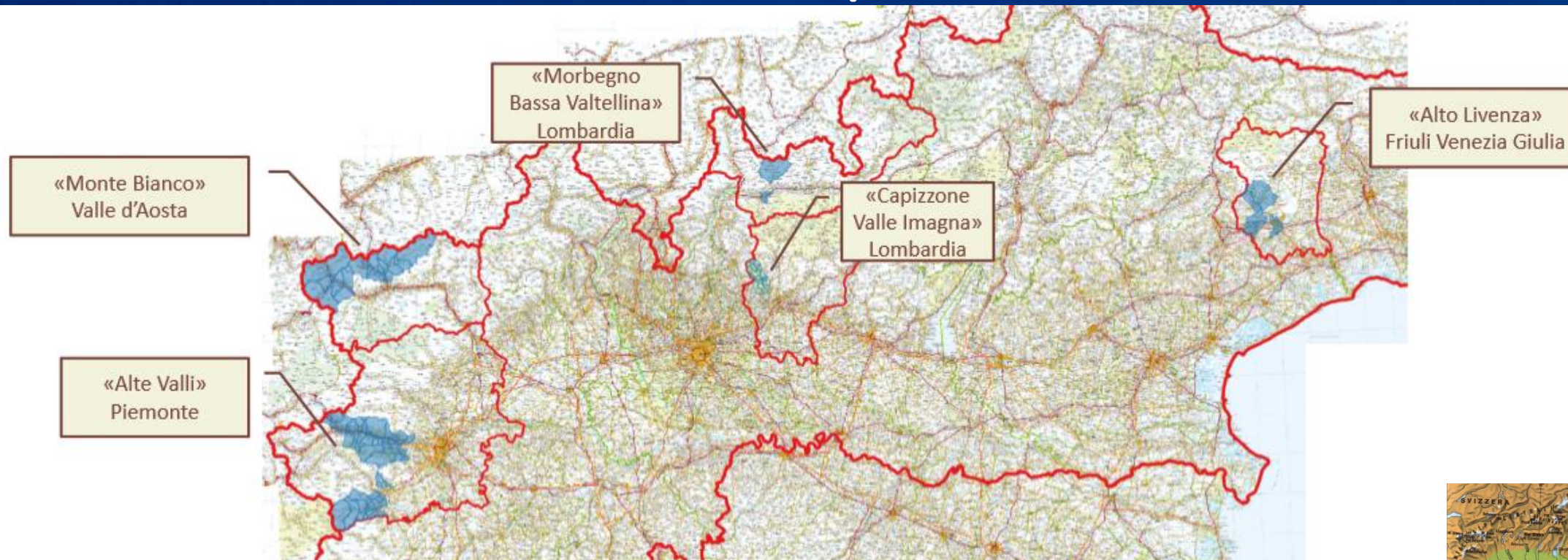
The Budoia charter for the Alps

- **Voluntary agreement between Municipalities and Association of Municipalities** signed on 24 June 2017 in Budoia, Friuli Venezia Giulia on the occasion of the Assembly of the International Network of Municipalities «Alliance in the Alps»
- Municipalities express **the shared intent to adopt local adaptation strategies**, carry out actions aimed at assessing the **potential risks and opportunities deriving from climate change** for the municipal area
- **Improve the capacities of administrations to manage and respond effectively to present and future climate impacts.**











- Funded by the Permanent Secretariat of the Alpine Convention as a Project to implement the Budoia Charter in five pilot sites (Lombardy, Valle d'Aosta, Piedmont, Friuli Venezia-Giulia) with the scientific coordination of the Lombardy Foundation for the Environment (2018-2019)
- The project intends to transfer and adapt impacts, objectives and adaptation measures elaborated in the PNACC, SRACC, DARACC and other documents on the Italian Alpine territory with application on the five pilot areas.

The five pilot areas



The methodology

Tabella 2: Valori medi e deviazione standard degli indicatori per ciascuna macroregione individuata.

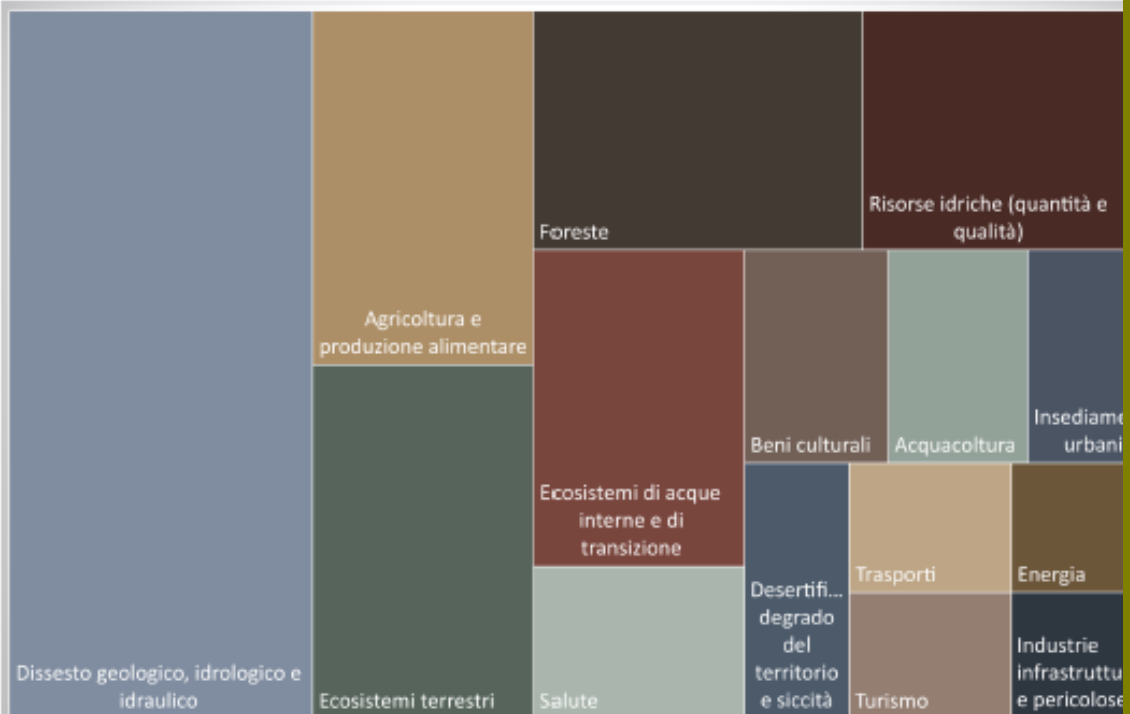
	Temperatura media annuale – Tmean (°C) 	Giorni con precipitazioni intense – R20 (giorni/anno) 	Frost days – FD (giorni/anno) 	Summer days – SU95p (giorni/anno) 	Precipitazioni invernali cumulate – WP (mm) 	Precipitazioni cumulate estive – SP (mm) 	95° percentile precipitazioni – R95p (mm) 	Consecutive dry days – CDD (giorni) 
Macroregione 1 Prealpi e Appennino settentrionale	13 (±0.6)	10 (±2)	51 (±13)	34 (±12)	187 (±61)	168 (±47)	28	33 (±6)
Macroregione 2 Pianura Padana, alto versante adriatico e aree costiere dell'Italia centro-meridionale	14.6 (±0.7)	4 (±1)	25 (±9)	50 (±13)	148 (±55)	85 (±30)	20	40 (±8)
Macroregione 3 Appennino centro-meridionale	12.2 (±0.5)	4 (±1)	35 (±12)	15 (±8)	182 (±55)	76 (±28)	19	38 (±9)
Macroregione 4 Area alpine	5.7 (±0.6)	10 (±3)	152 (±9)	1 (±1)	143 (±47)	286 (±56)	25	32 (±8)
Macroregione 5 Italia centro-settentrionale	8.3 (±0.6)	21 (±3)	112 (±12)	8 (±5)	321 (±89)	279 (±56)	40	28 (±5)
Macroregione 6 Aree insulari ed estremo sud Italia	16 (±0.6)	3 (±1)	2 (±2)	35 (±11)	179 (±61)	21 (±13)	19	70 (±16)

Start with the climate analysis using the National and local adaptation plan to climate change that identified 6 areas with homogenous climate characteristics

The methodology

Identify the impacts of climate change for different sectors:

I settori più colpiti e prioritari secondo il territorio. Elaborazione dei risultati alla domanda: «Indica, per il tuo territorio di appartenenza, quali settori consideri più vulnerabili agli impatti dei cambiamenti climatici e classificali assegnando un valore da 1 fino a 15 in base alla maggiore e minore vulnerabilità»



Extreme weather events

Reduction of snow and / or glaciers coverage

Floods caused by floods or flooding of rivers

Degradation and erosion of soils, landslides and landslides

Variation and decrease in the production of some food products

Decrease in quantity and worsening of water quality / salinization

Loss of biodiversity, degradation of ecosystem services

Migration of fauna and flora species

Increased risk and severity of forest fires

Worsening of air quality and increased health risks

Increase in vector-borne diseases (insects)

Decrease in tourist activities

Interruptions in energy distribution due to e.e. or consumption peaks

Interruption of communication networks due to extreme events

Interruptions of transport networks



The methodology

Local tools: analysis for adaptation to climate change



Sectors

Impacts

Objectives

Tools

	1.1.Lo strumento è di natura sovra-/inter-settoriale?	1.2.Lo strumento è di natura settoriale?	1.3.Di quali settori si occupa?	2.1.Lo strumento riporta esplicitamente un'analisi di impatti o effetti ambientali/socioeconomici?	CC/CCA/CCM	3.1.Lo strumento è organizzato/riporta degli obiettivi?	CC/CCA/CCM	3.2.Obiettivi generali e specifici?	4.1.Lo strumento riporta delle Misure?	CC/CCA/CCM
Piano stralcio di assetto idrogeologico	SI (INTER)	SI	NON SPECIFICATI Dissesto Idrogeologico; Agricoltura; Foresta; Centri urbani	SI		SI		GENERALI E SPECIFICI	NO (LINEE DI INTERVENTO)	
Piano di indirizzo forestale	NO	SI (del PTCP)	Foresta	SI	CC	SI		NON SPECIFICATO	SI	
Piano gestione del parco della Bosca Piano locale di interesse sovracomunale	NO	SI	NON SPECIFICATI Foresta; Dissesto idrogeologico; Acqua; Agricoltura; Biodiversità	SI	CC	SI		GENERALI E SPECIFICI	SI	
Piano insediamenti produttivi Morbegno Talamona	NO	SI	Industria	SI		SI		NON SPECIFICATO	NO	

Methodology can be exported in other mountain contexts

From Budoia to Borgo Lanciano



Politica

Clima e ricostruzione: Mazzocca firma la carta degli Appennini

Doriana Roio
24 MAGGIO 2018 10:48 [Twitter] [Facebook] [Email]

Nota - Questo comunicato è stato pubblicato integralmente come contributo esterno. Questo contenuto non è pertanto un articolo prodotto dalla redazione di ChietiToday



Il Sottosegretario d'Abruzzo Mario Mazzocca, neo Sovrintendente all'Ufficio Speciale per la

I più letti

1 Palazzi in pericolo a Santa Maria, Giustizia Sociale: "Ecco la soluzione per le famiglie"

Carta degli Appennini per l'azione dei Comuni appenninici nell'adattamento locale ai cambiamenti climatici

Promossa da



Con il supporto scientifico di



On 22nd of May 2018
We signed the Apennines
Charter following the
Budoia charter

Municipalities of the Abruzzo Region involved:
Provincia dell'Aquila:

Aquila, Secinaro, Fontecchio, Ortona dei Marsi, Ovindoli, Sulmona, Cagnano Amiterno, Roccaraso, Molina Aterno, Capitignano, Pacentro, Scanno, Corfinio;

Provincia di Pescara:

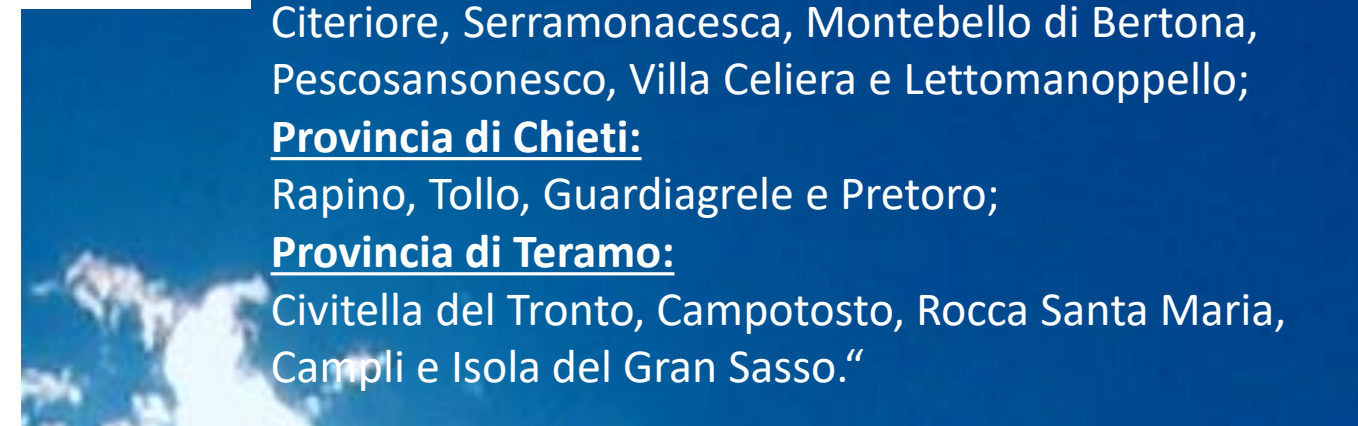
Caramanico Terme, San Valentino in Abruzzo Citeriore, Serramonacesca, Montebello di Bertona, Pescosansonesco, Villa Celiera e Lettomanoppello;

Provincia di Chieti:

Rapino, Tollo, Guardiagrele e Pretoro;

Provincia di Teramo:

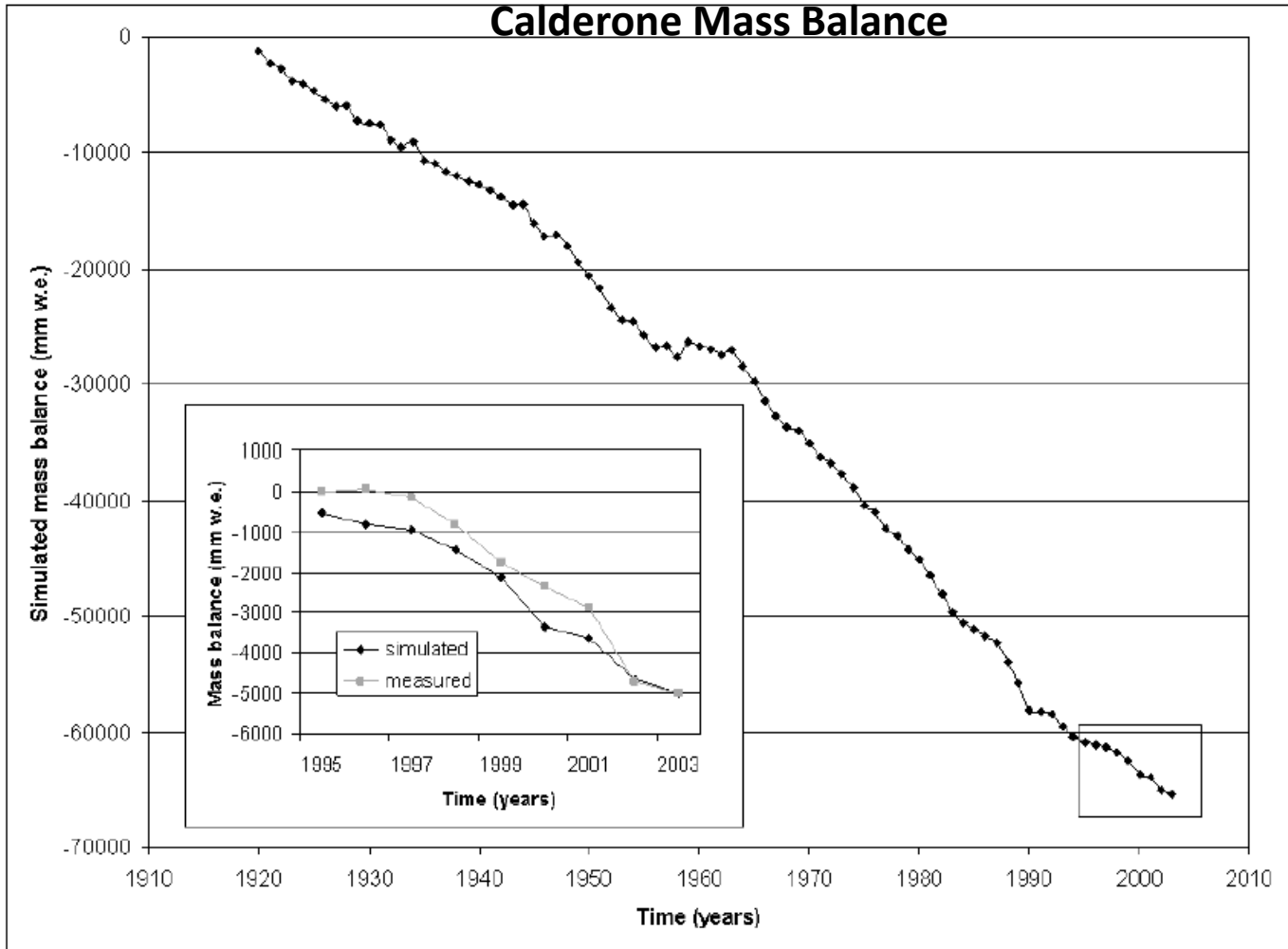
Civitella del Tronto, Campotosto, Rocca Santa Maria, Campli e Isola del Gran Sasso."



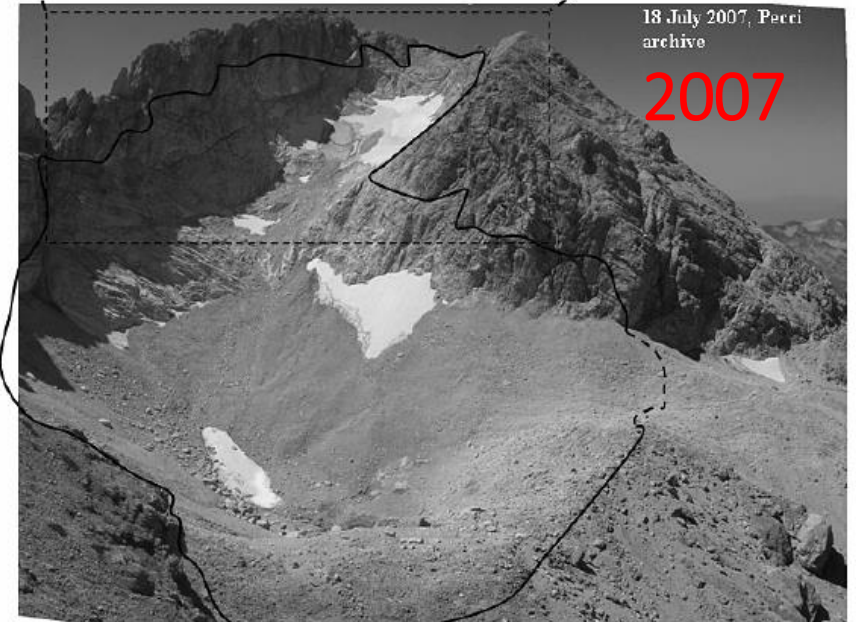
Calderone Glacier

Southernmost glacier in Europe and unique in the Apennines

Calderone Mass Balance

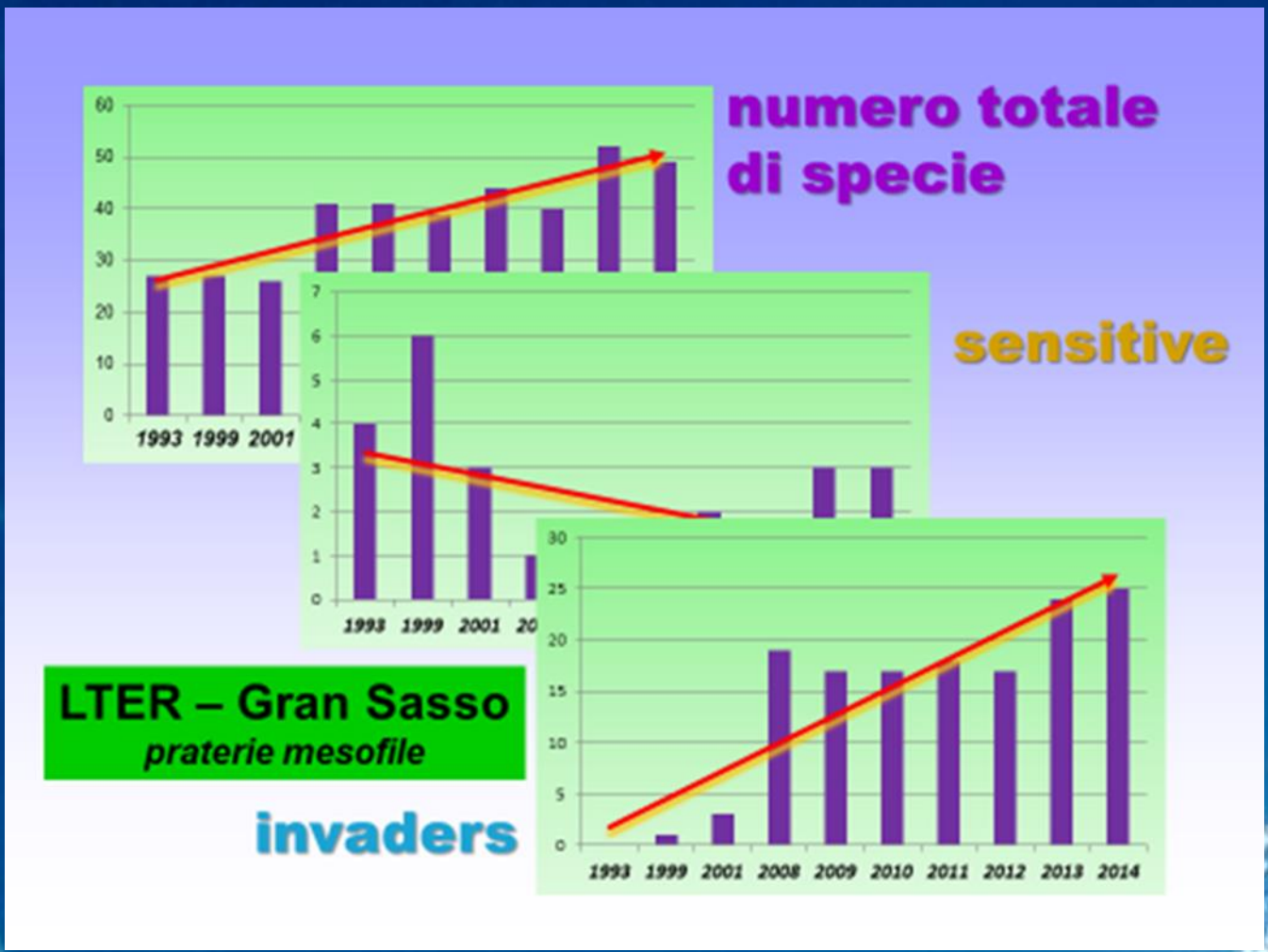


1912



2007

Biodiversity on the Gran Sasso



Impacts on agriculture



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Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv



Short Communication

Precipitation intensity under a warming climate is threatening some Italian premium wines

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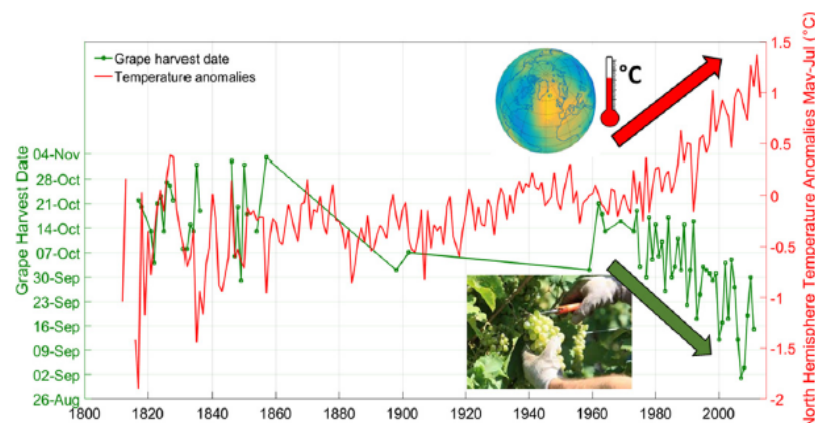
^b Pennsylvania State University, Department of Meteorology and Atmospheric Science, University Park, PA 16802, USA



HIGHLIGHTS

- Global warming is recorded also locally and is impacting grapevine phenology.
- Harvest date of premium wine analysed with local meteorological data shows the role of climate change.
- Increase of Precipitation intensity exacerbate the influence of the temperature rise on grapevine.
- Short intense precipitations are not beneficial for grapevine.
- Keeping the high quality of wine using unchanged cultivation technique is becoming harder.

GRAPHICAL ABSTRACT



Vineyard are moving to higher altitude areas: to adapt to climate change

From National to local Adaptati on Plan to climate change

REGIONE ABRUZZO

DPC - DIPARTIMENTO OPERE PUBBLICHE, GOVERNO
DEL TERRITORIO E POLITICHE AMBIENTALI

DPC025 - SERVIZIO POLITICA ENERGETICA, QUALITÀ DELL'ARIA E SINA

Linee guida per la predisposizione del Piano Regionale di Adattamento ai Cambiamenti Climatici

Silvia Ferrante¹, Tommaso Pagliani¹, Piero Di Carlo²

(1) Centro di Documentazione sui Conflitti Ambientali per l'Abruzzo
c/o Municipio - Piazza Principe di Piemonte 16, 66030 Frisa (CH)

(2) Università degli Studi di Chieti – Pescara – Dip. DISPUTER
Via dei Vestini, 31 - Campus Universitario - 66100 Chieti Scalo

20 giugno 2018



PIANO ADATTAMENTO
CAMBIAMENTI CLIMATICI
REGIONE ABRUZZO
ABRUZZO RESILIENT REGION



CDCA

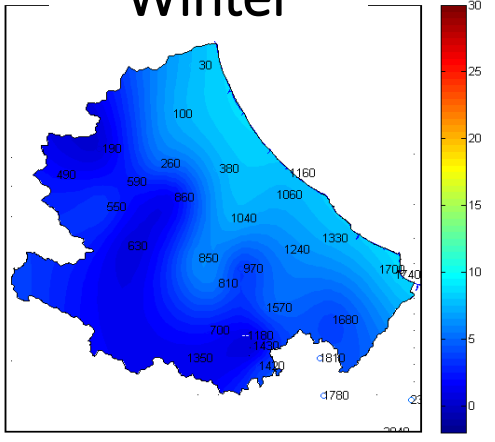


CDCA
ABRUZZO

Regional Temperature 1960-1990 vs 1991-2015

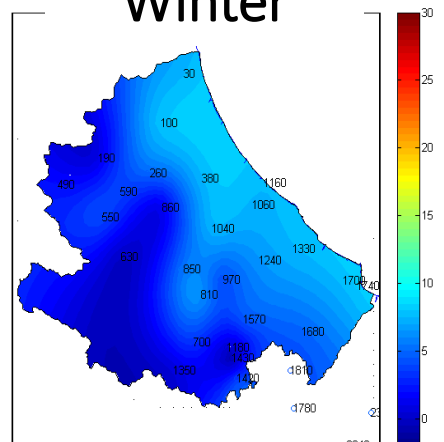
1960-1990

Winter



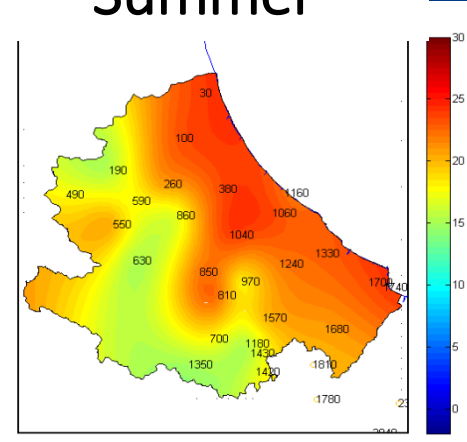
1991-2015

Winter



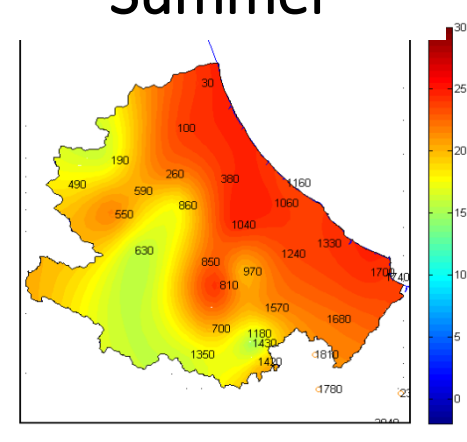
1960-1990

Summer

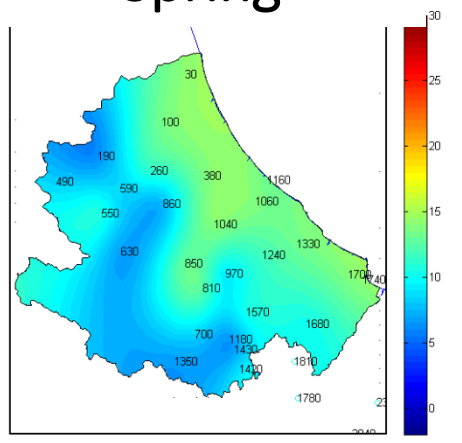


1991-2015

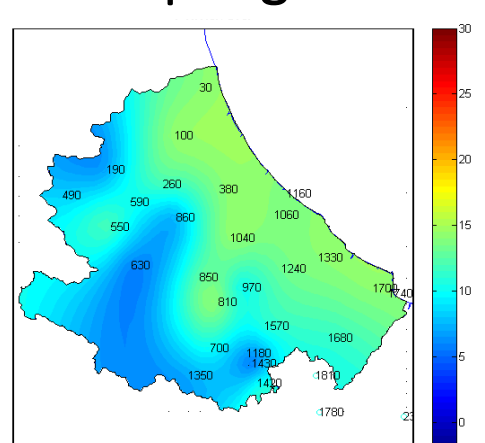
Summer



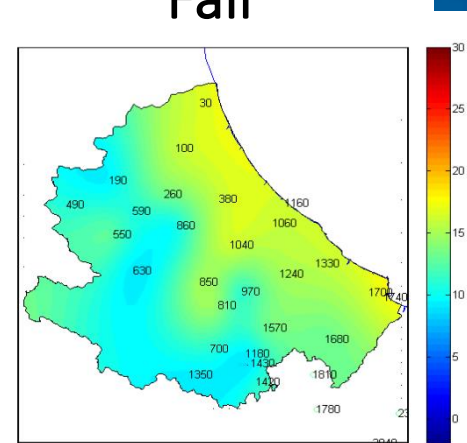
Spring



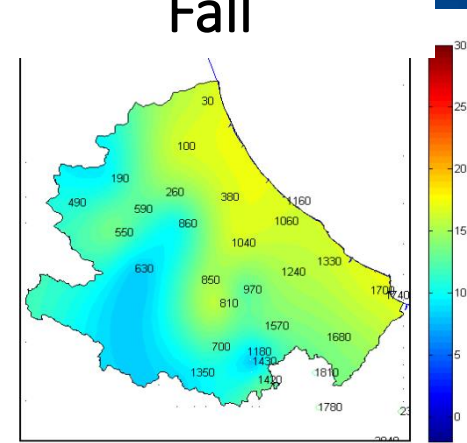
Spring



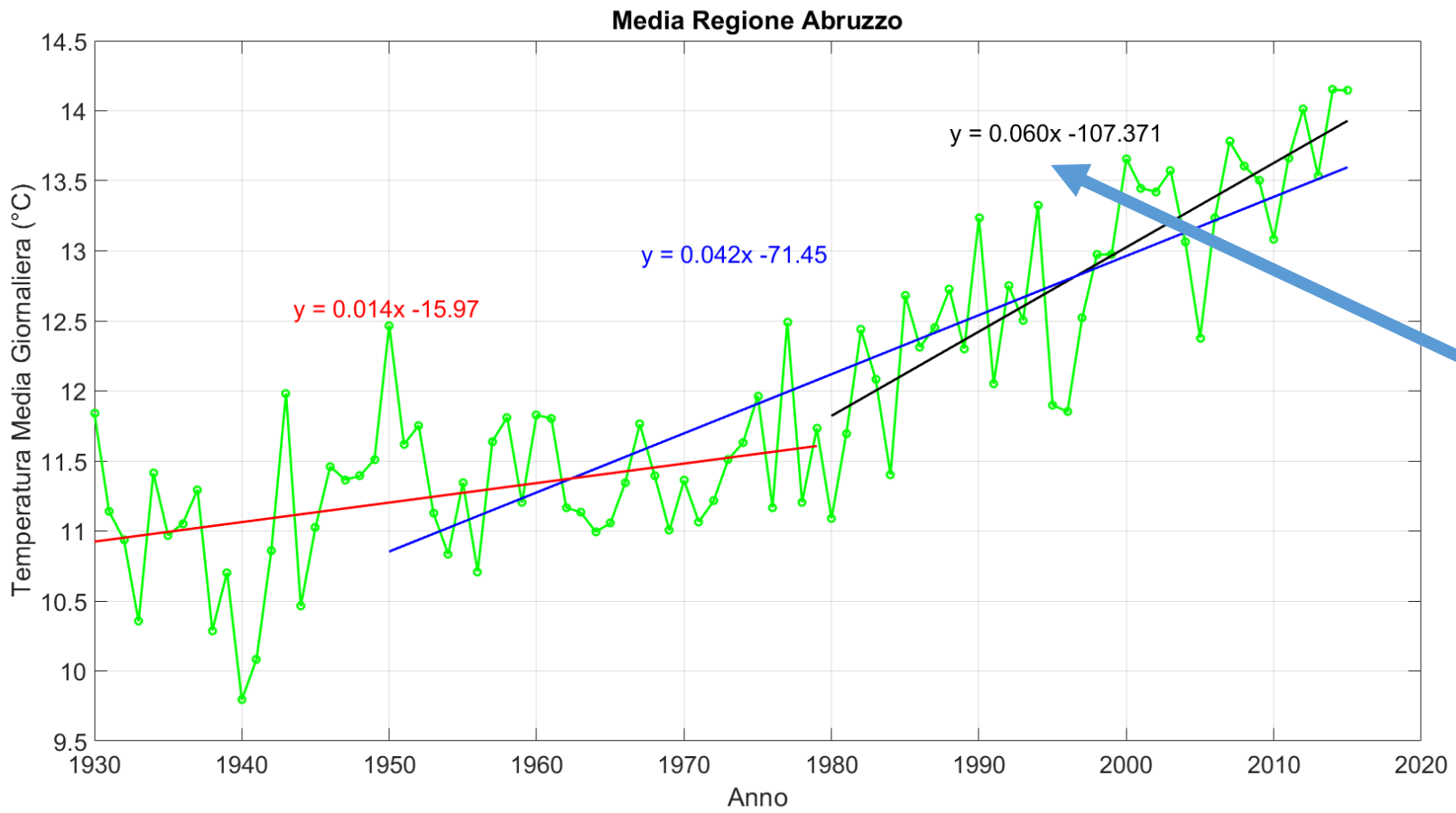
Fall



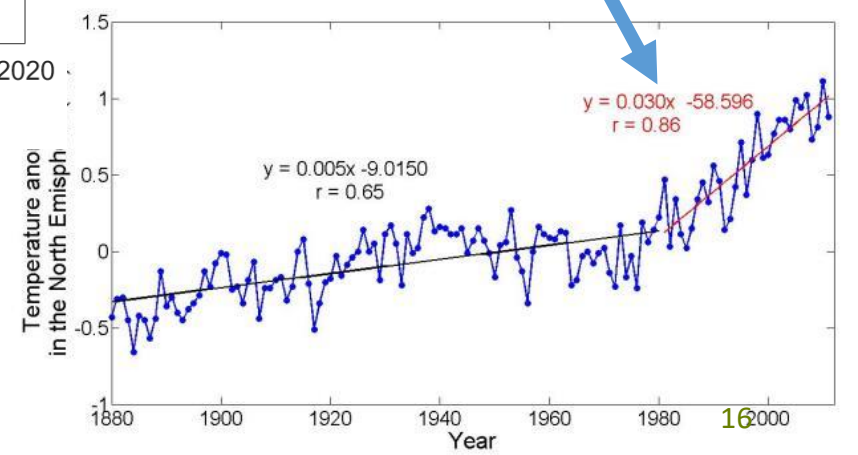
Fall



Local temperature changes (Abruzzo Region)



Local mountain increase rate about two times of that of the mean north Hemisphere



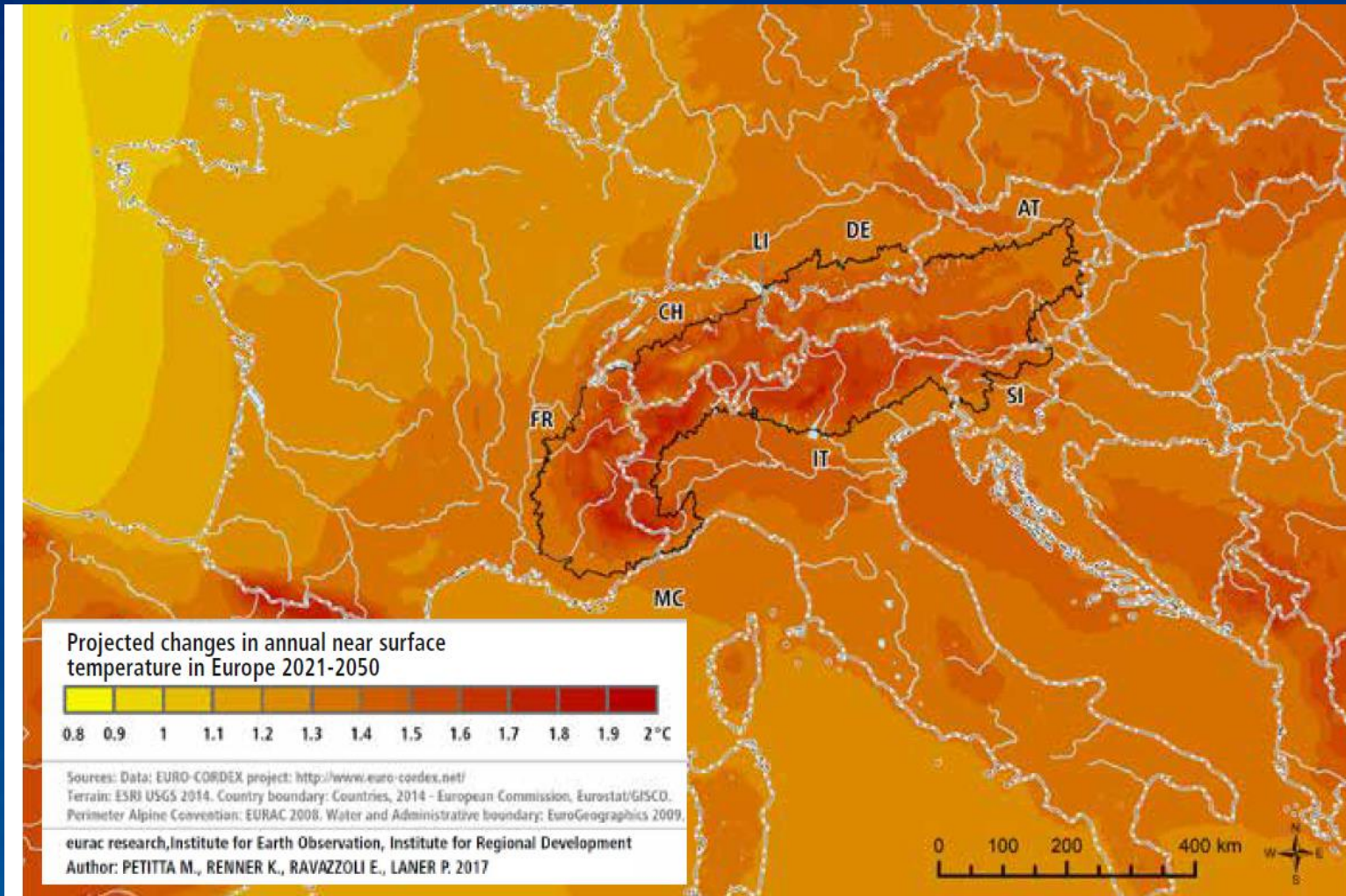
Conclusion

We are very happy to collaborate in future projects such as:

- on climate change adaptation, sharing the Pilot project based on the Budoia Charter
- on network of mountain observatories of climate
- any other project where we can contribute

Thank you very much for your attention

Projected temperature change 2021-2050



Projected temperature change in Europe: The map shows the projected temperature change in the Alpine area (2021-2050) compared with the reference period (1971-2000). The temperature rise is likely to be more severe in the Alpine region compared to other European areas, with a projected rise by almost 2 °C.²

Incendi

del 04 Settembre 2015

ilCentro
QUOTIDIANO DELL'ABRUZZO

estratto da pag. 7

Un'altra estate di fuoco che ci costa 15 milioni



Sei in: IL CENTRO > PESCARA > DUE MESI DI ROGLI, ECCO...



ABRUZZO IN FIAMME

Due mesi di roghi, ecco l'elenco inviato al premier Gentiloni

Dalle fiamme di Montesilvano ai disastri del Gran Sasso e del Morrone: 160 Comuni colpiti. Determinante questa relazione per ottenere 370 milioni di risarcimento danni

03 settembre 2017

GLI INCENDI IN ITALIA

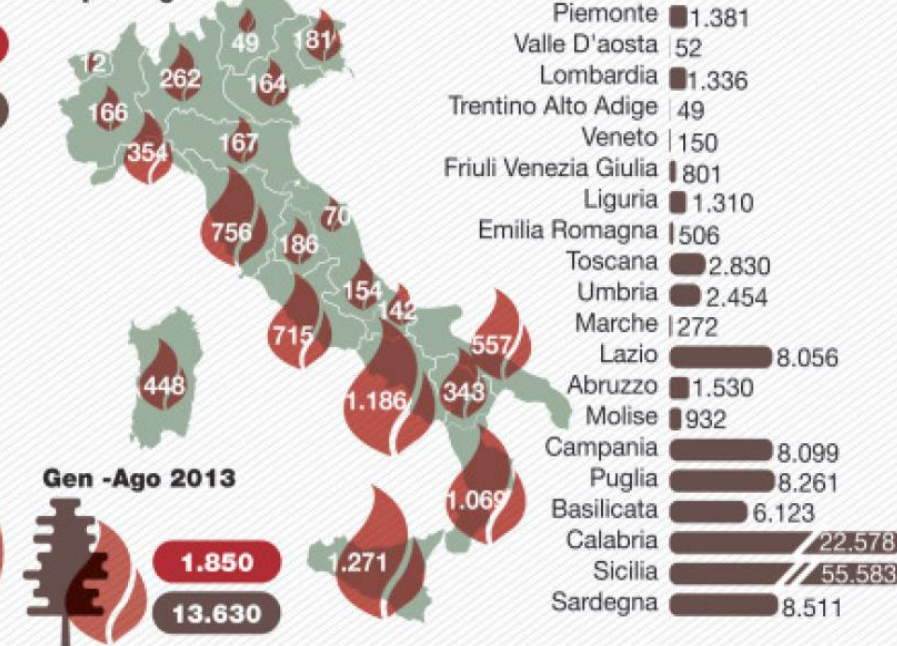
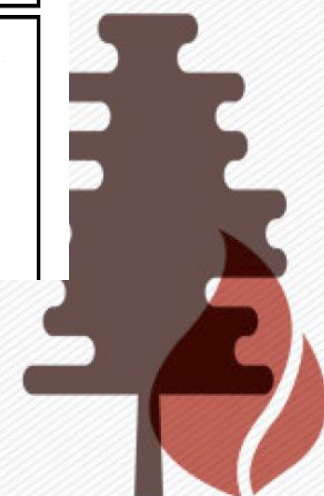
Fonte: JRC

Bilancio 2012

8.252 roghi

1.814 ettari bruciati

Così per regione

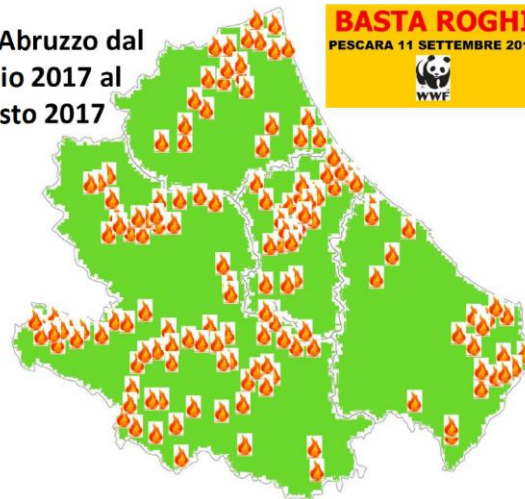


Gen -Ago 2013

1.850

13.630

I Roghi in Abruzzo dal 1 Gennaio 2017 al 31 Agosto 2017



Report incendi 2017: fiamme in 136 Comuni su 305, 210 i roghi. Bruciati oltre 6000 ettari

2007

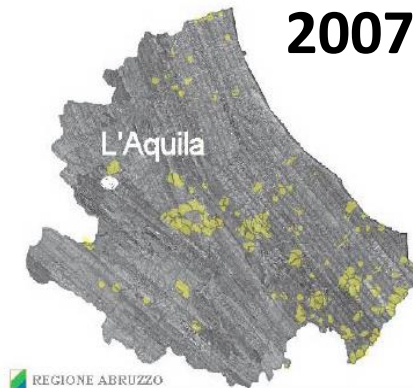


Figure 1. Map of the fires (yellow spots) reported during the summer 2007 in the Abruzzo region (Central Italy). The monitoring site was in L'Aquila (white spot).