



COST ACTION FP 0703

**Echoes: Expected Climate cHange
and Options for European Silviculture**

Country Report: Major points

ITALY

22-24 January 2009, Florence - Italy

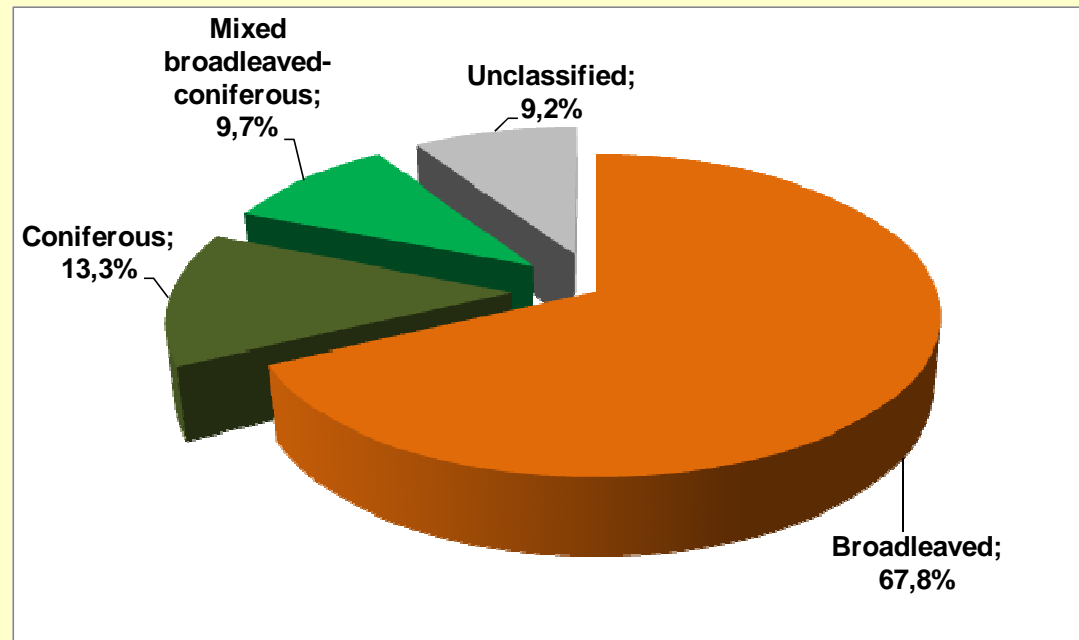
Paolo Di Martino

University of Molise, EcoGeoFor Lab

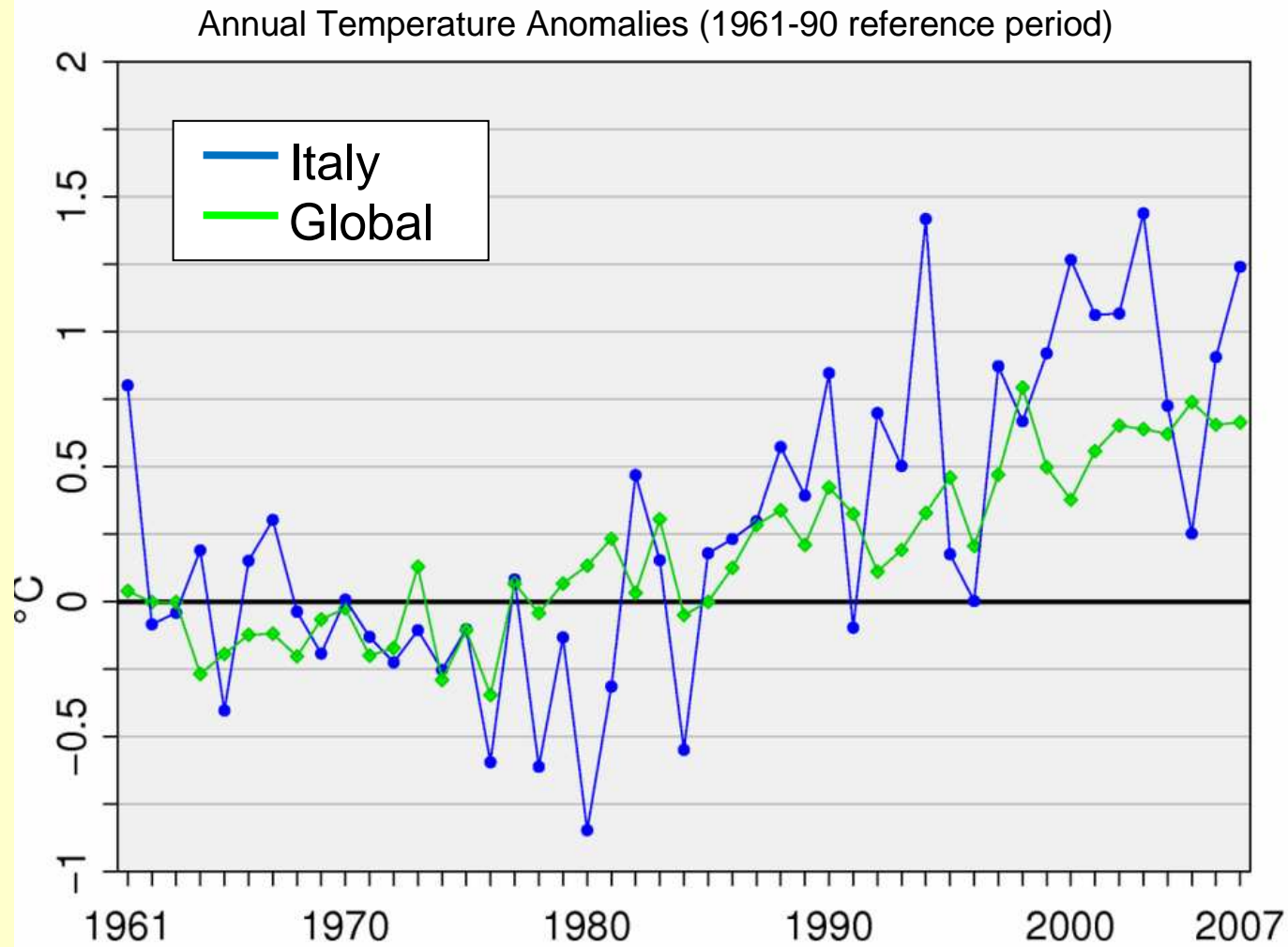
dimartin@unimol.it

FORESTS IN ITALY

According to the latest National Forest Inventory (2005) forests covered the 34,7% of the total area of the Country (10,467,533 hectares)



IMPACTS



Source: APAT and Climatic Research Unit East Anglia University

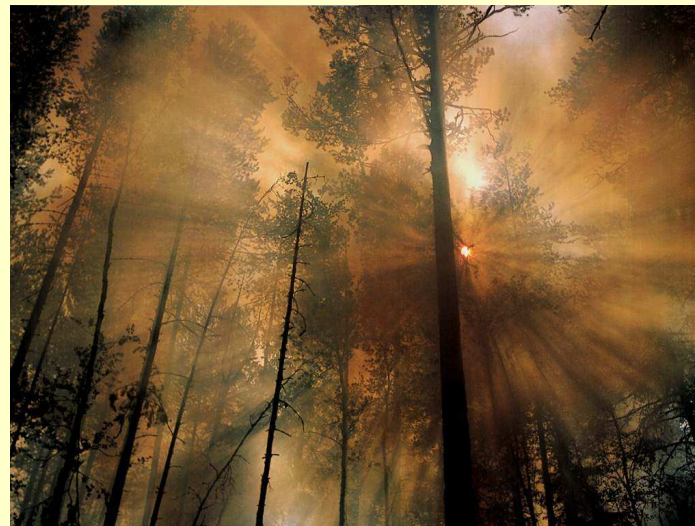
In the last 9 years, the Italian temperature anomalies values are higher than the global anomalies except for the year 2005

Expected impacts

- **Higher temperature** (T) without increase in precipitation or with decreasing rainfall will lead to increased occurrence of drought.
- **Precipitation** (P) is expected to decrease; this, in combination with increased temperature will lead to more droughts which will reduce plant growth and primary productivity.
- **Abiotic risks** The most important abiotic risk is the fire which is expected to increase due to climate change.

Source: Impacts of Climate Change on European Forests and Options for Adaptation. Report to the European Commission Directorate-General for Agriculture and Rural Development.

Year	N° of Fires	Ha
2000	8,595	58,234
2001	7,134	38,186
2002	4,601	20,218
2003	9,697	44,064
2004	6,428	20,866
2005	7,951	21,470
2006	5,643	16,422
2007	10,639	116,602



Expected impacts

•**Biotic disturbances.** the higher incidence of extreme weather events, increasing T and severe droughts will strongly affect biotic disturbances. It is highly probable that T increase will lead to distributional shifts of insect populations.

Biscogniauxia mediterranea, a native pathogen of oaks tree



Phytophthora cinnammomi a non native pathogen of chestnut.

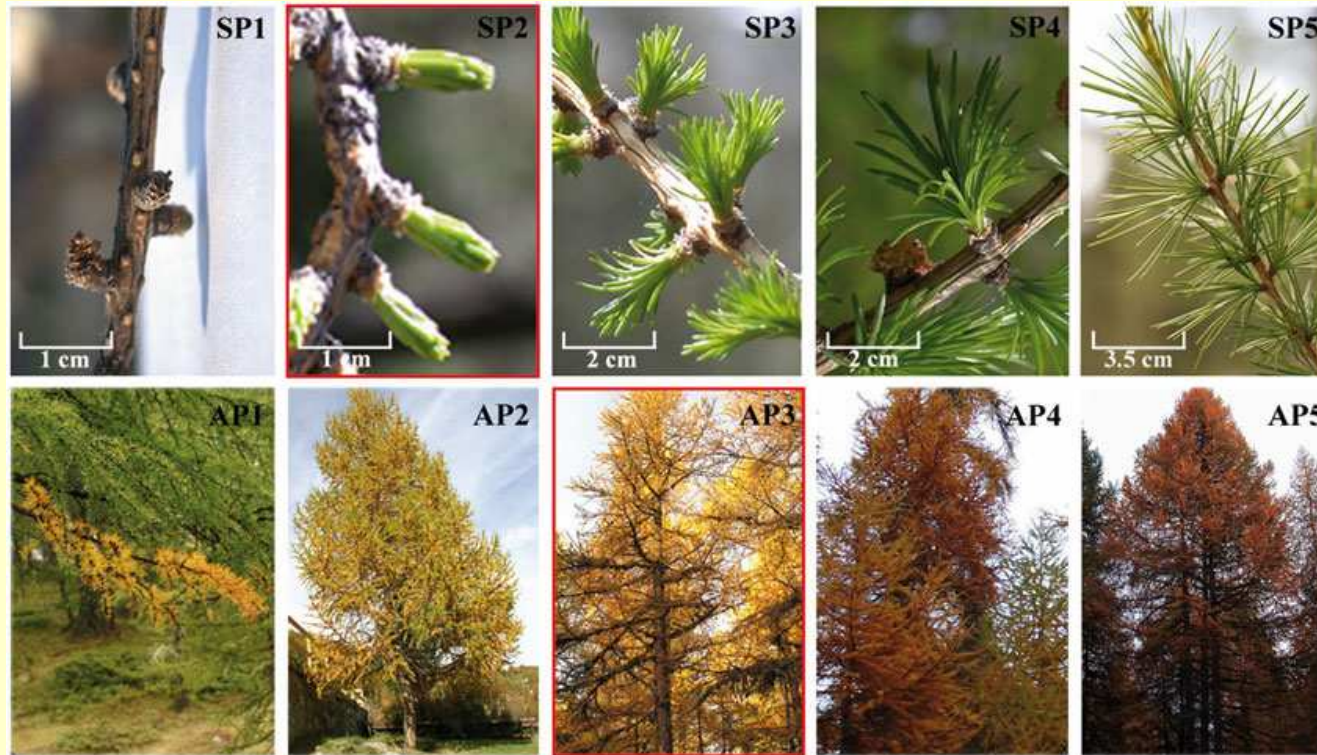
Pest organisms have the ability to adapt much faster than their host trees



Source: Vannini, Anselmi et al. 2007, Carbolitaly Project

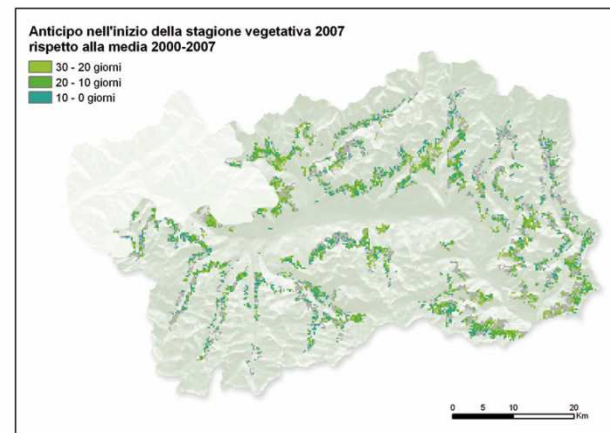
Observed impacts and monitoring

Phenology modification of *Larix decidua* in Western Alps



Source: Regione Valle d'Aosta

Project REPHLEX (Remote sensing of PHenology Larix Experiment)



Research studies on Impacts and Adaptation

CARBOITALY project

An Italian net for measuring forest and agriculture carbon sinks and developing a system to predict the absorption of greenhouse gases by terrestrial ecosystems. The structure and the objectives are described of a national project recently started in Italy with the aim of quantifying carbon sinks by forest and agriculture ecosystems.

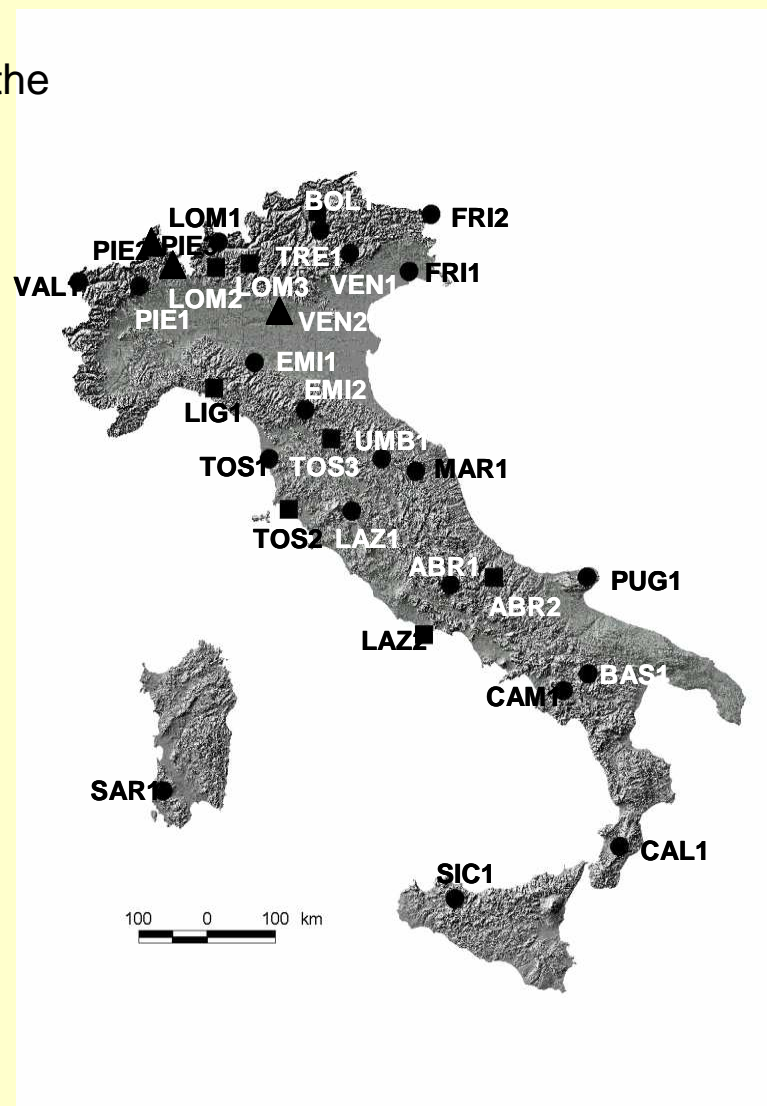
Five main research lines are planned:

- measurement of CO₂ fluxes in terrestrial ecosystems;
- regionalization;
- building and experimental testing of a predicting system;
- fluxes of non-CO₂ trace greenhouse gases;
- scenarios and politics.

Research studies on Impact and Adaptation

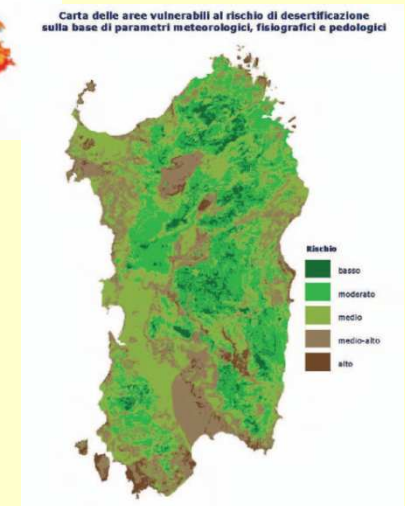
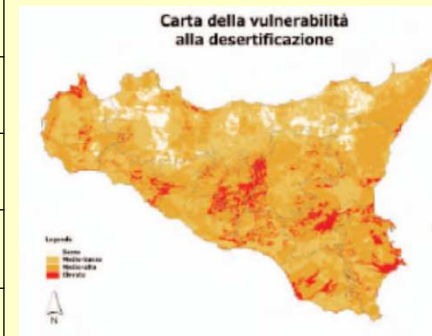
CONECOFOR Project

The main objective of ground vegetation monitoring in the CONECOFOR network of permanent plots in different forest type stands is to record changes due to natural dynamics and macro-disturbance factors (air pollution, climate change), biodiversity, biotic damages. The vegetation survey is performed in 31 permanent plots.



Research Projects on Desertification

DESERTN ET	Monitoring and actions to Combat Desertification in Mediterranean
MEDALUS I	Mediterranean Desertification And Land Use
MEDALUS II	Mediterranean Desertification And Land Use
MEDALUS III	Mediterranean Desertification And Land Use
MODMED	Modelling vegetation dynamics and degradation in Mediterranean eco systems
REACTIO N	Restoration actions to combat desertification in the northern Mediterranean
RESMEDE S	Remote sensing of Mediterranean desertification
RIADE	Integrated researchs for the application of processes and technologies to fight desertification
RIMBDES	Assessment of hedgerows and afforestation as tools on desertification in Mediterranean environment
VULCAN	Vulnerability assessment of shrubland ecosystems in Europe underclimatic changes



Processes and strategies

Rural Development Plans 2007–2013



The Axis 2 includes financial funds for:

First afforestation of agricultural and non agricultural land and restoring forestry potential.

An estimation of the potential area of afforestation and restoration is about 400,000 hectares during the plan period.

Issue: Tree species for plantation not defined at a national scale.



The latest Italian forest programme:

No mention on forest management under climatic changes