FORESTERRA

Enhancing FOrest RESearch in the MediTERRAnean through improved coordination and integration

FORESTERRA Dissemination Workshop

27-28 May 2014

Keynote presentation:

Francisco Manuel Cardoso CASTRO REGO

Portugal

ISA-CEABN
Universidade de Lisboa
Instituto Superior de Agronomia
Centro de Ecologia Aplicada "Prof. Baeta Neves"

ISA/CEABN Headquarters and Team

The headquarters in Lisbon

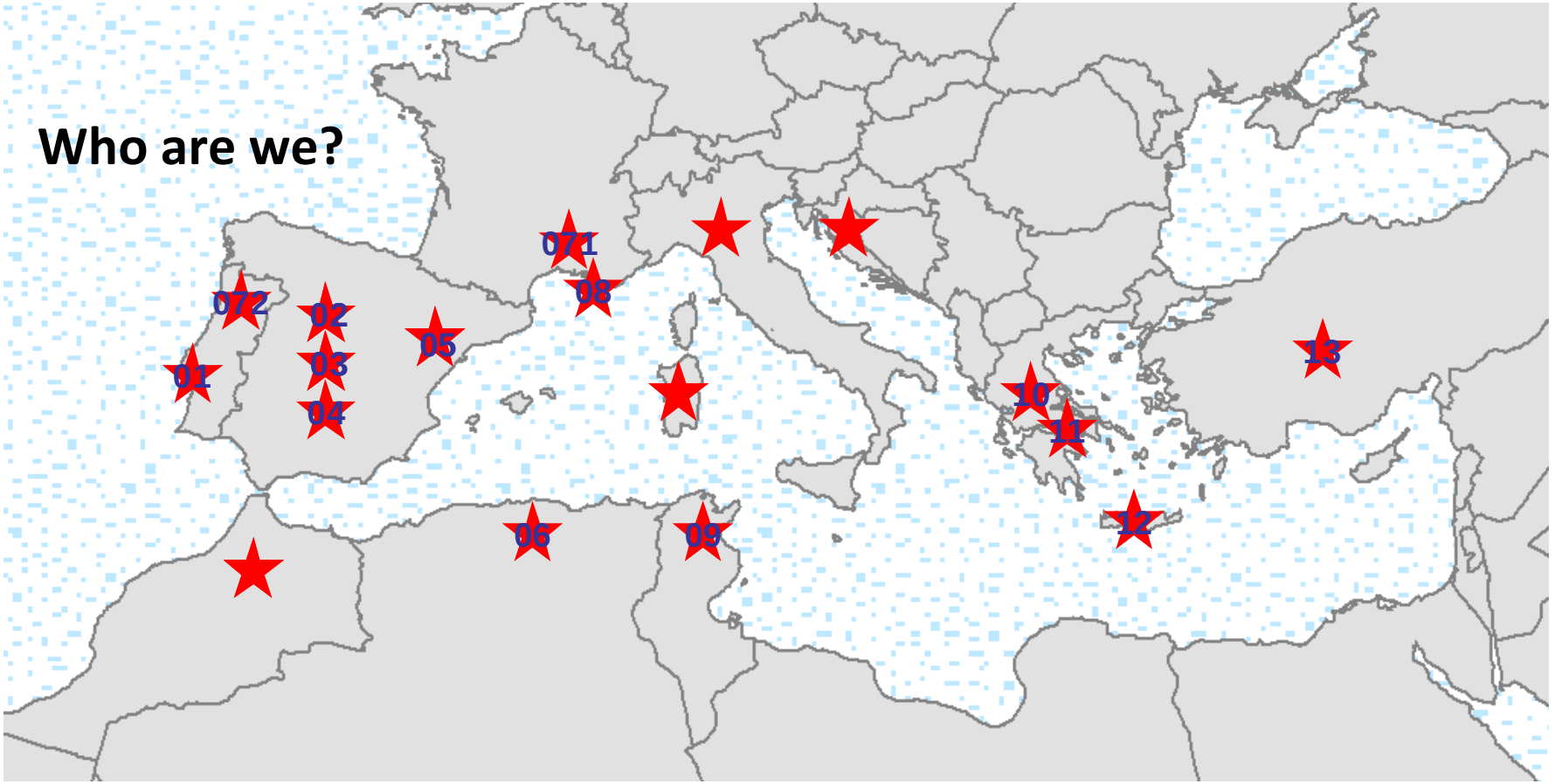
The team in 2003

We applied for a call for a FORESTERRA Networking Action on “Understanding global change drivers, impacts & indicators on forest ecosystems: a Mediterranean-scale approach”.

This keynote presentation is made on behalf of the group involved in the FORESTERRA Networking Action under the title:

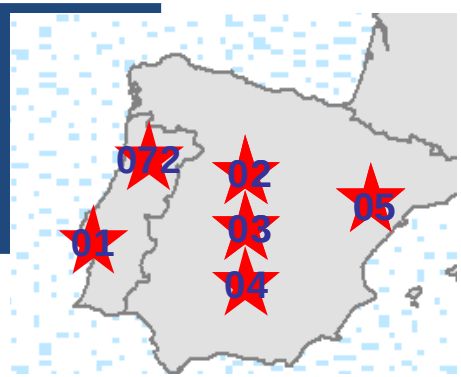
Global Change Impacts on Wildland Fire Behaviour and Uses in Mediterranean Forest Ecosystems, towards a « wall less » Mediterranean Wildland Fire Laboratory

MedWildFireLab

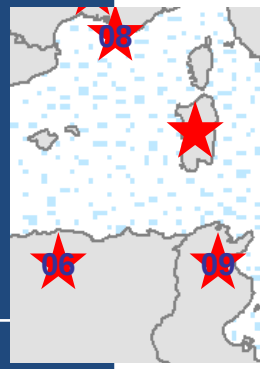


Geographical distribution of the partners.
Not numbered stars localise research teams interested by MedWildFireLab activities but which did not succeed to be funded according to their national funding rules

P02	Mercédes GUIJARRO GUZMAN	Spain	INIA-CIFOR Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria Centro de Investigación Forestal
P03	Cristina MONTIEL-MOLINA	Spain	UCM-GPSF Universidad Complutense de Madrid Facultad Geografía e Historia Departamento de Análisis Geográfico Regional y Geografía Física
P04	José Manuel MORENO RODRIGUEZ	Spain	UCLM-DES University of Castilla-La Mancha Department of Environmental Sciences
P05	Ramon VALLEJO	Spain	CEAM Fundación Centro de Estudios Ambientales dei Mediterráneo



P06	Ouahid ZANNDOUCHE	Algeria	Institut National de Recherche Forestière Cheraga, Alger
P07	Jean-Luc DUPUY	France	INRA-URFM, Institut National de la Recherche Agronomique Centre de Recherche PACA Unité de Recherche Ecologie des Forêts Mediterranéennes Equipe Physique et Ecologie du Feu
SP07	Paulo FERNANDES	Portugal	UTAD-CITAB, INRA-URFM's subcontractor Universidade de Trás-os-Montes e Alto Douro Escola de Ciências Agrárias & Veterinárias Departamento de Ciências Florestais & Arquitectura Paisagista
P08	Mohamed Lahbib BEN JAMÂA	Tunisia	INRGREF-GVRF Institut National de Recherches en Génie Rural Eaux et Forêts Gestion et Valorisation des Ressources Forestières



P09	Mr. Gavriil XANTHOPOULOS	Greece	DEM Hellenic Agricultural Organization Demeter Institute of Mediterranean Forest Ecosystems and Forest Products Technology
P10	Mrs. Margarita ARIANOUTSOU-FARAGITAKI	Greece	UAECO National and Kapodistrian University of Athens Faculty of Sciences Department of Ecology and Systematics
P11	Mr. George KAZAKIS	Greece	MAICh-GIEM Mediterranean Agronomic Institute of Chania

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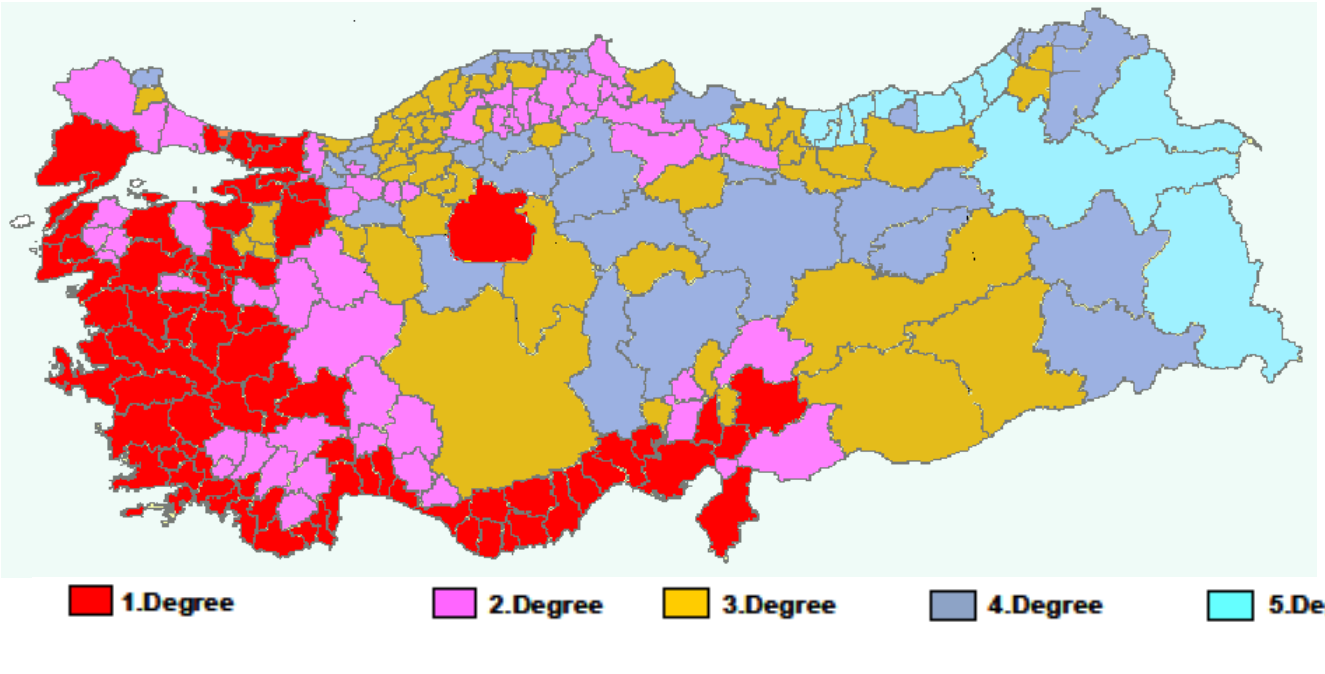
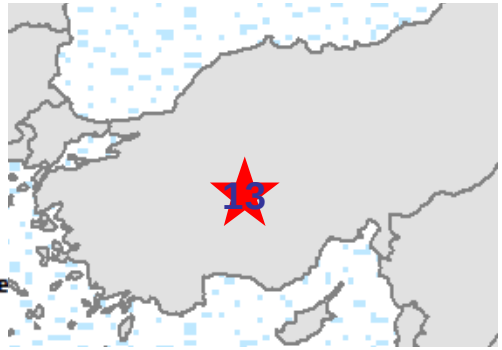
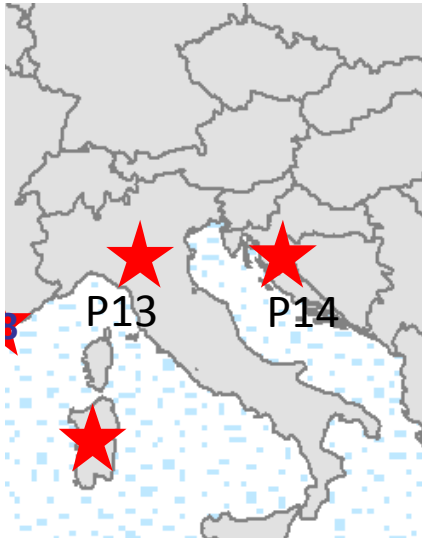
P12	Mr. Ahmet KISA	Turkey	IFFTC General Directorate of Forestry Regional Forestry Directorate of Antalya International Forest Fires Training Centre





IFFTC is a 50ha complex been established by the Turkish Ministry of Environment and Forestry in Antalya to focus on fire management.

P13	Piermaria CORONA	Italy	CRA Consiglio per la ricerca e la sperimentazione in agricultura, Arezzo
P14	Tamara JAKOVLJEVIC	Croatia	CFRI Croatian Forest Research Institute, Zagreb



Why Mediterranean?

Application for FORESTERRA Networking Action on
"Understanding global change drivers, impacts & indicators on forest ecosystems: a **Mediterranean-**scale approach"

Global Change Impacts on Wildland Fire Behaviour and Uses in **Mediterranean Forest Ecosystems,** towards a « wall less » **Mediterranean** Wildland Fire Laboratory

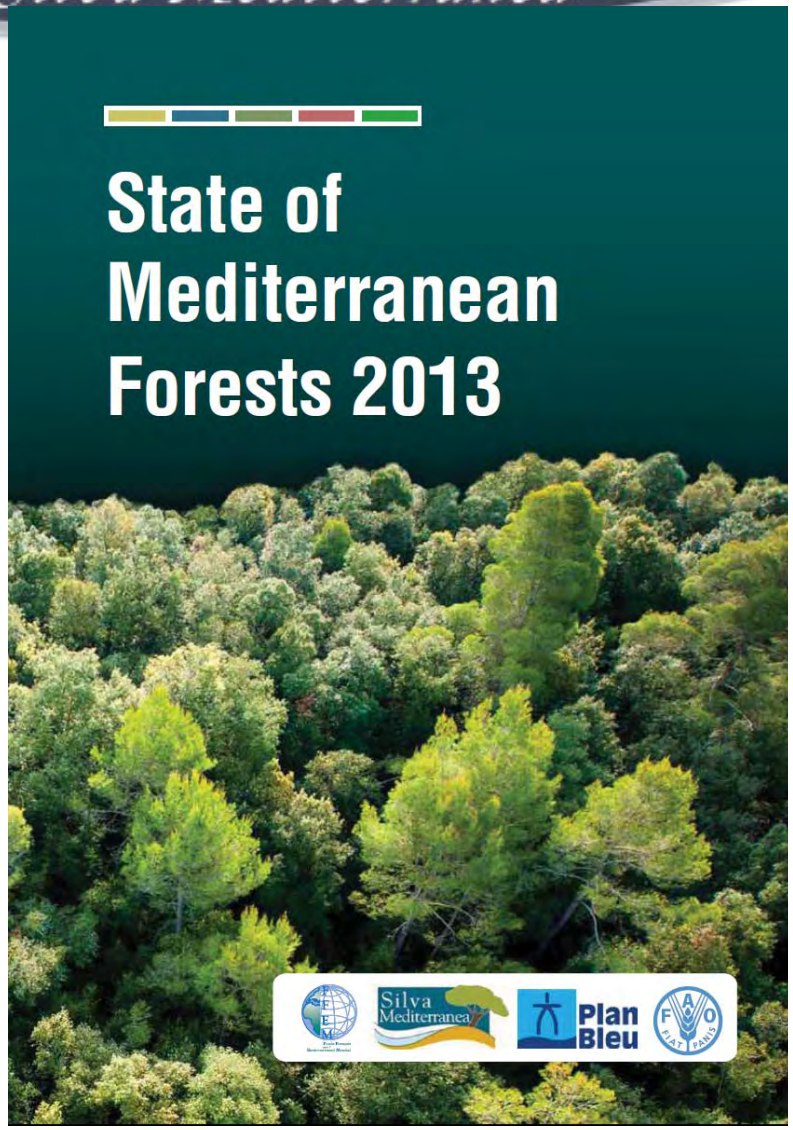
MedWildFireLab

The Mediterranean is different

State of Mediterranean Forests

29th Meeting of the Expert group on Forest Fires

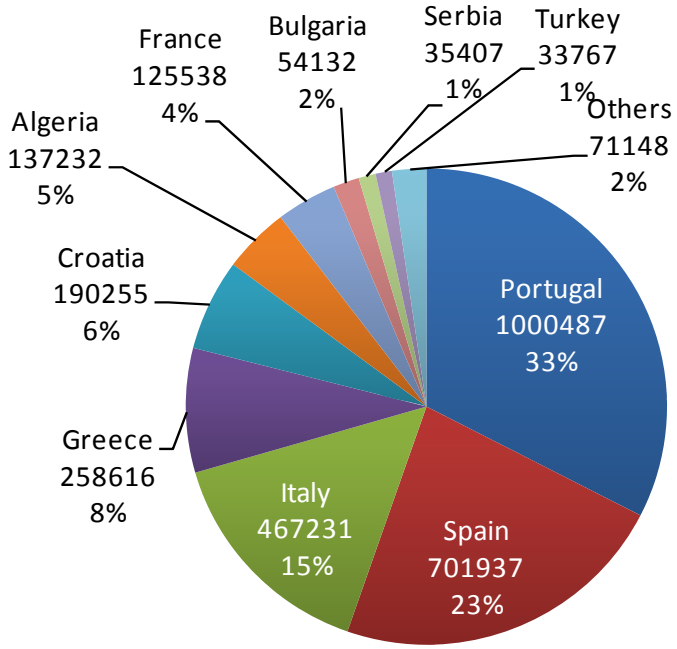
Valentina GARAVAGLIA and Christophe BESACIER
Ispra – 5/6 November 2012



Burnt area in the Mediterranean

The **total burnt area** in the Mediterranean is **over 3 million ha** for the period 2003-2007 (**over 600 000 ha per year**).

Greece, Italy, Portugal and Spain represent **almost 80% of total** burnt area for the period 2003-2007.



Total burnt area
in the Mediterranean countries (2003 -2007): **3 117 418 ha**

Between 2007 and 2010

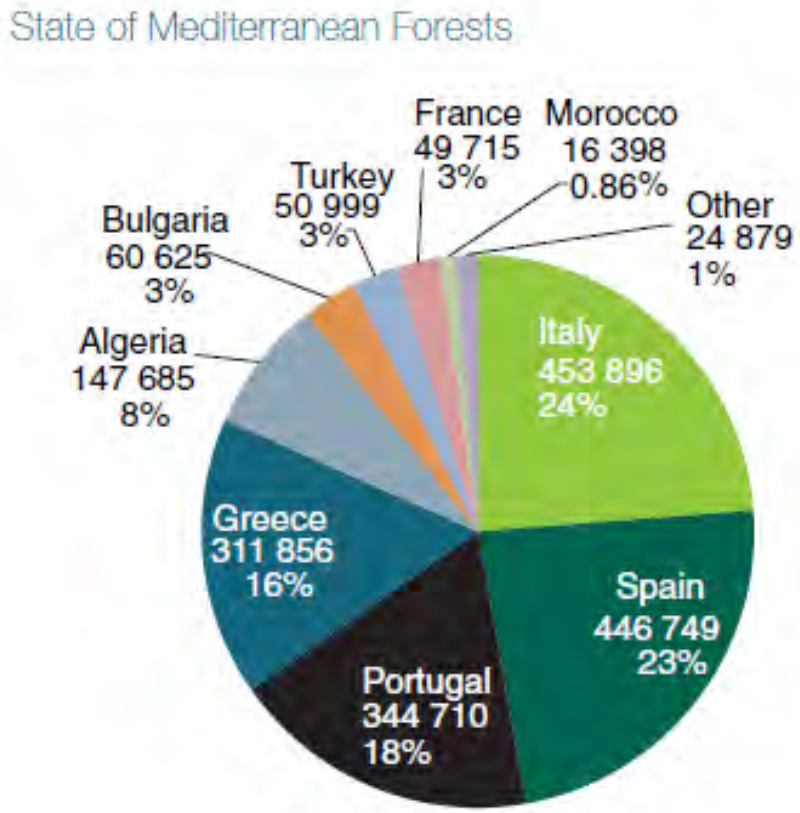


Figure 2.24. Burnt area (including OWLs and agricultural lands) in Mediterranean countries that provided complete data series, 2006–2010 (left), and burnt forest area in Mediterranean countries that provided complete data series, 2006–2010 (right)
Note: Other = Cyprus, Lebanon, Slovenia and Tunisia.
Sources: FAO, 2006a and b; FAO, 2010b; EFFIS and European Forest Fire Database; local authorities.

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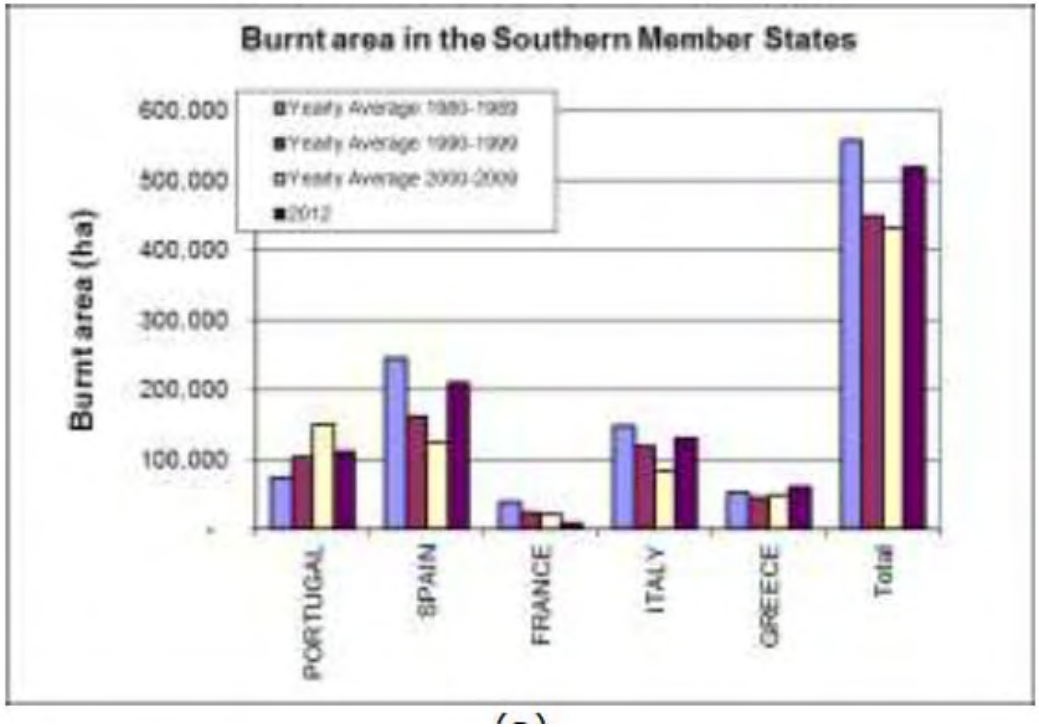
More information for 2012

JRC does a very good job!

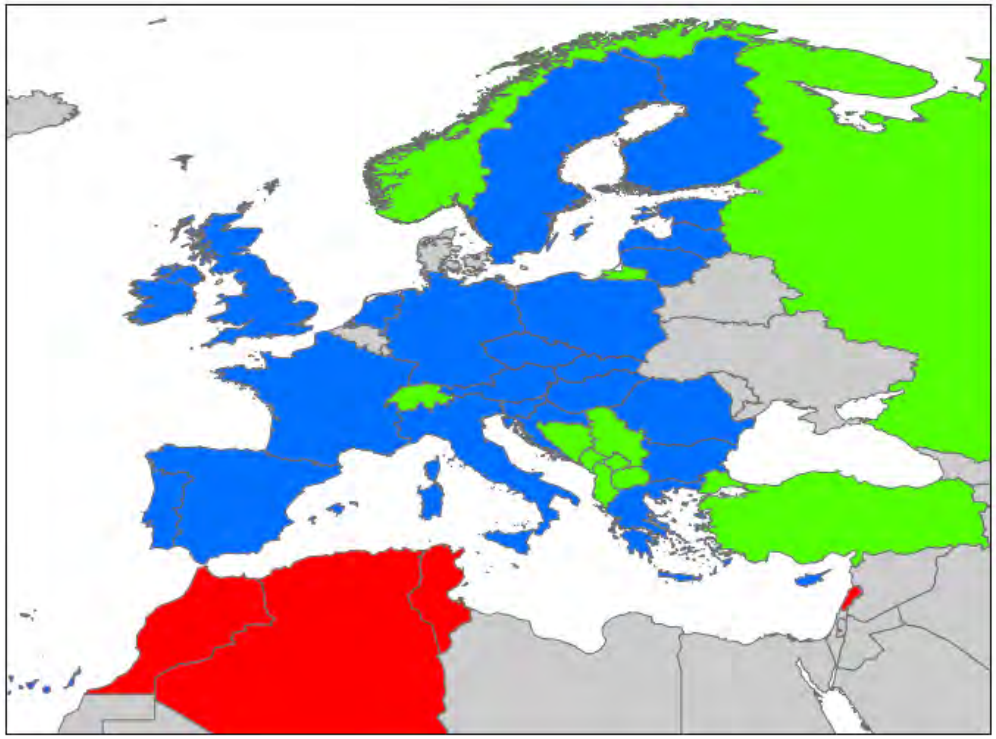
Yearly average areas burned by decade.

The problem remains the same!



2.1 SOUTHERN MOST AFFECTED COUNTRIES (1980 – 2012)

What happens in the countries that are now also members of the Expert Group on Forest Fires (EGFF)?



Currently, 38 countries are signed up members of the EGFF, including 24 EU Member States (Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, the Netherlands and the United Kingdom), 10 European non-EU countries (Albania, Bosnia & Herzegovina, FYROM, Kosovo, Montenegro, Norway, Russia, Serbia, Switzerland and Turkey), and 4 MENA countries (Algeria, Lebanon, Morocco and Tunisia).

State of forest resources in the Mediterranean region

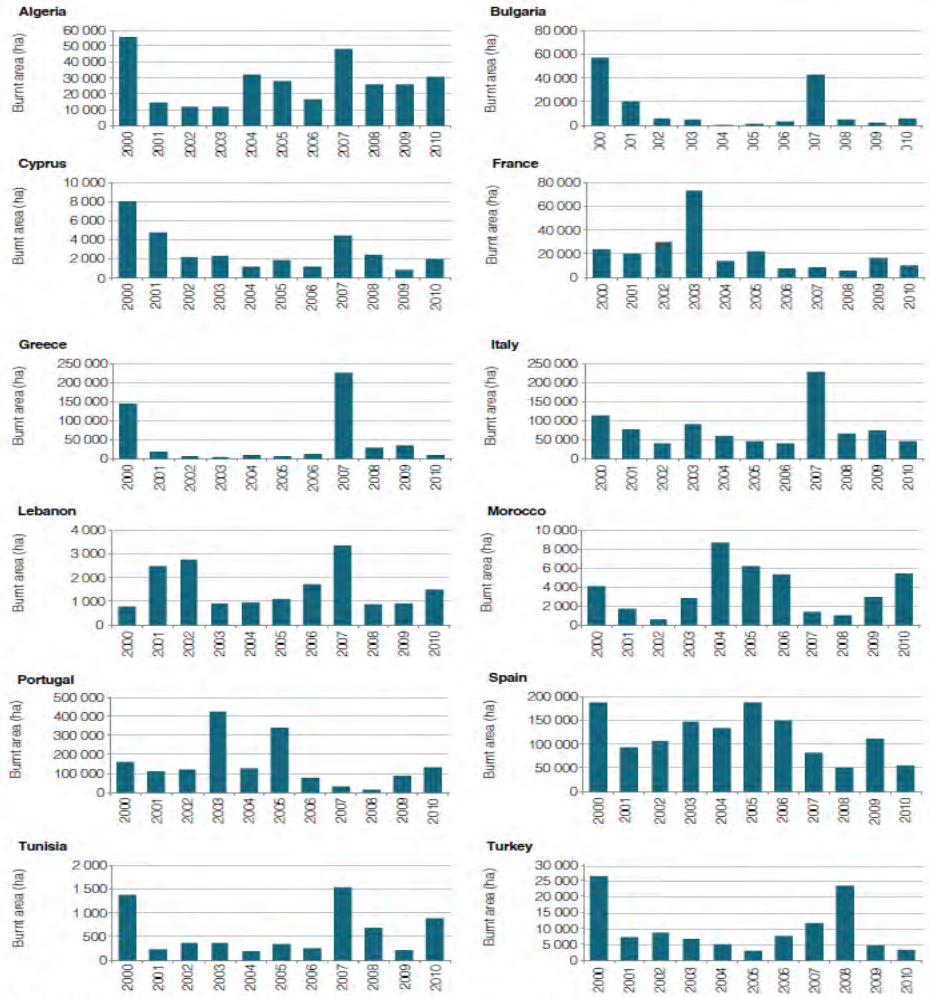


Figure 2.26. Annual burnt area including OWLs and agricultural lands), 13 Mediterranean countries with complete data series, 2000–2010
Sources: FAO, 2006; FAO, 2010b; EFFIS and European Forest Fire Database; local authorities.

Burnt area in the Mediterranean

A **strong annual variation** on the period 2000-2010 affects all the countries.

But no general trend to decrease!

Areas burned in 2012

Almost 1 million hectares!

Country	Area (Ha)
Albania	54130.7
Algeria	201219.4
Bosnia and Herzegovina	87697.01
Bulgaria	16700.3
Croatia	33240.21
Cyprus	2347.59
France	3354.31
FYROM	27701.14
Greece	52318.89
Hungary	959.13
Italy	83077.25
Kosovo under UNSCR 1244	8376.48
Montenegro	37024.54
Morocco	11174.43
Portugal	101279.61
Romania	3097.31
Serbia	10652.98
Slovenia	261.69
Spain	189744.27
Syria	12965.48
Tunisia	3020.93
Turkey	9685.75
TOTAL	***950029.39***

Forest fires in the Mediterranean basin

Millennia of **human activities** on Mediterranean **landscapes** have modified natural forest fire dynamics and the capacity of vegetation to respond to disturbances .

Furthermore, **climate change**, increasing climate or weather extremes (e.g. droughts or heat waves), is adding new threats and higher risks to cope with.

Global change due to climatic changes (temperature and precipitation)

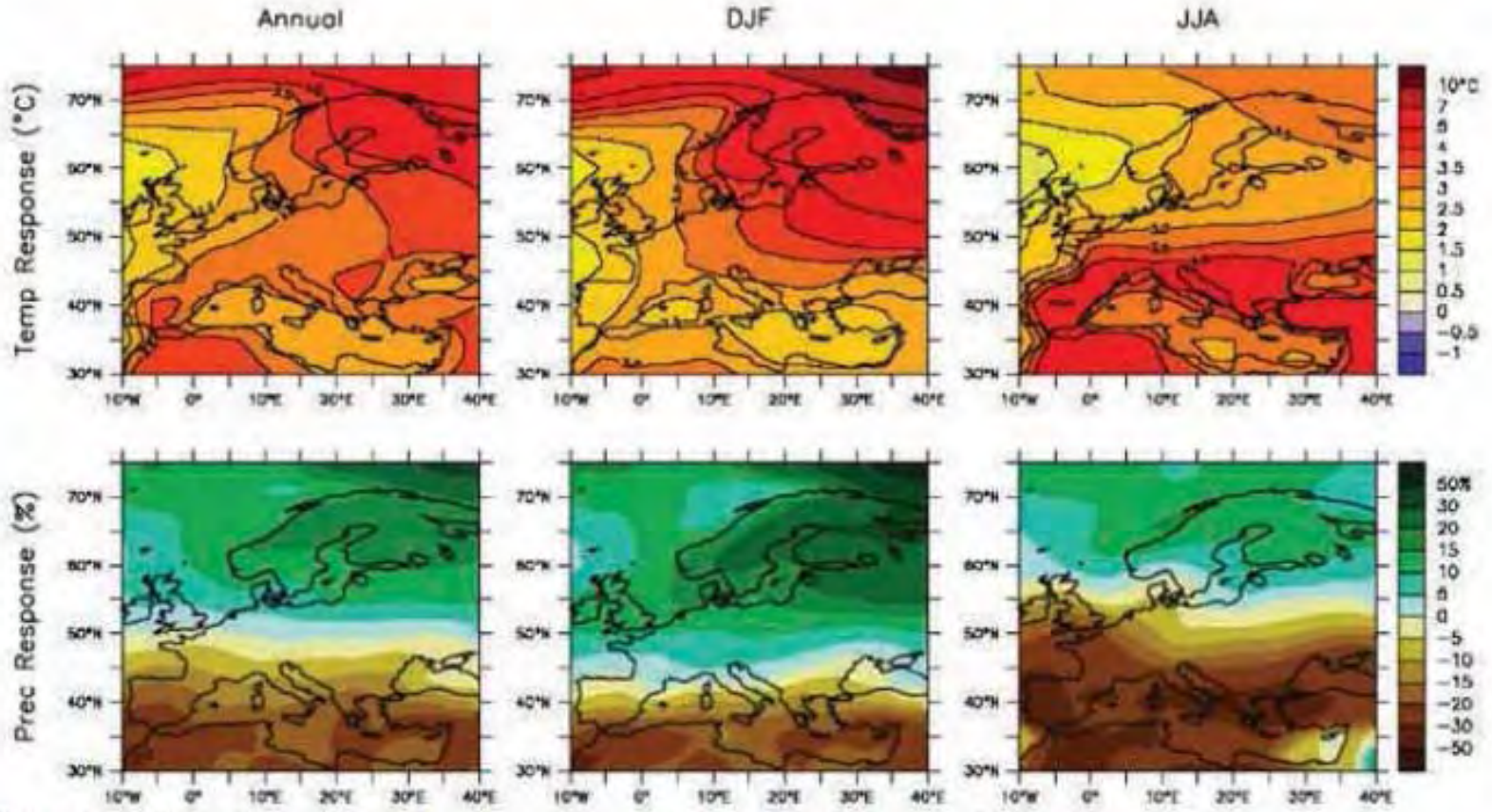


Figure 1.25. Comparison of current temperatures and rainfall, with projections for 2100
Note : DJF= December, January, February; JJA = June, July, August.
Source: IPCC, 2007b.

Scenarios for the Mediterranean in 2100:

	Temperature variation (°C)		Precipitation variations (°C)	
Season	Min	Max	Min	Max
Winter	+1.7	+4.6	-16	+6
Spring	+2	+4.5	-24	-2
Summer	+2.7	+6.5	-53	-3
Autumn	+2.3	+5.2	-29	-2
Annual	+2.2	+5.1	-27	-4

Source: IPCC, 2007b.

The limits of the Mediterranean

Geographical distribution of the number of dry months in the Mediterranean region as compared with the limits of *Olea* (Desfontaines 1975)

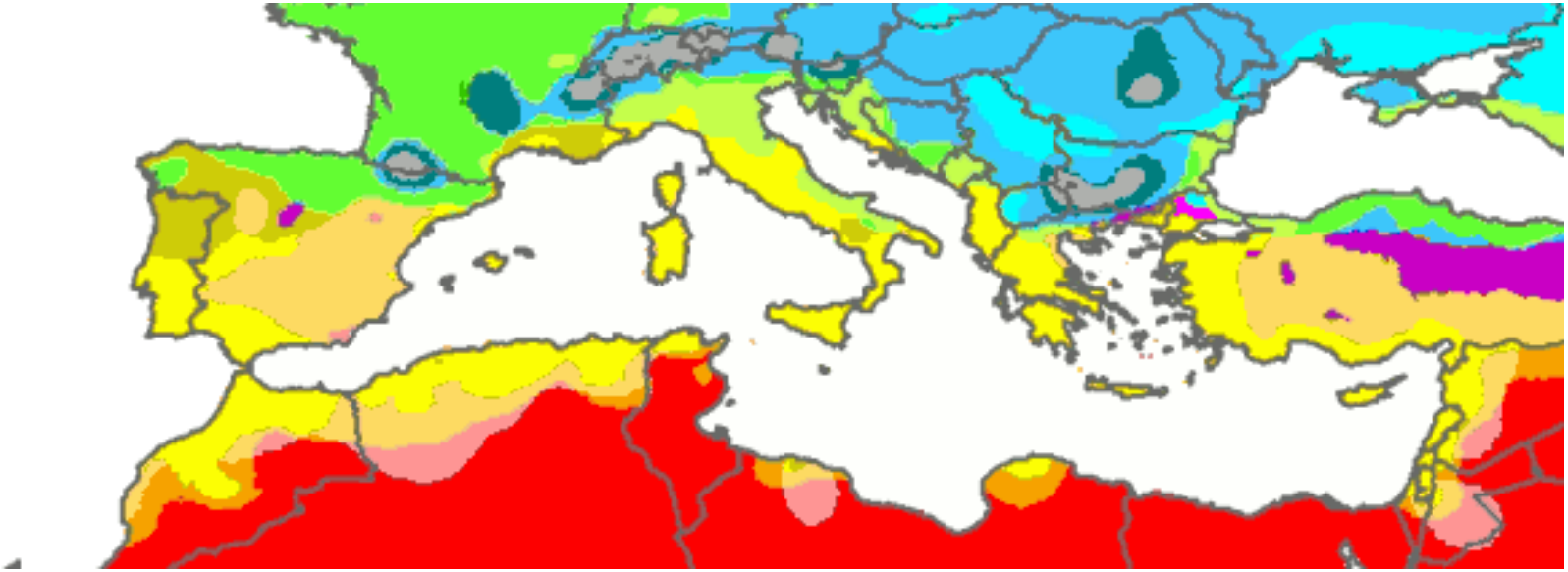
1 = no dry months; 2 = one to three dry months; 3 = three to five dry months; 4 = more than five dry months.

The limits of the Mediterranean

Distribution of the Mediterranean matorral (maquis) after Tomaselli (1977)

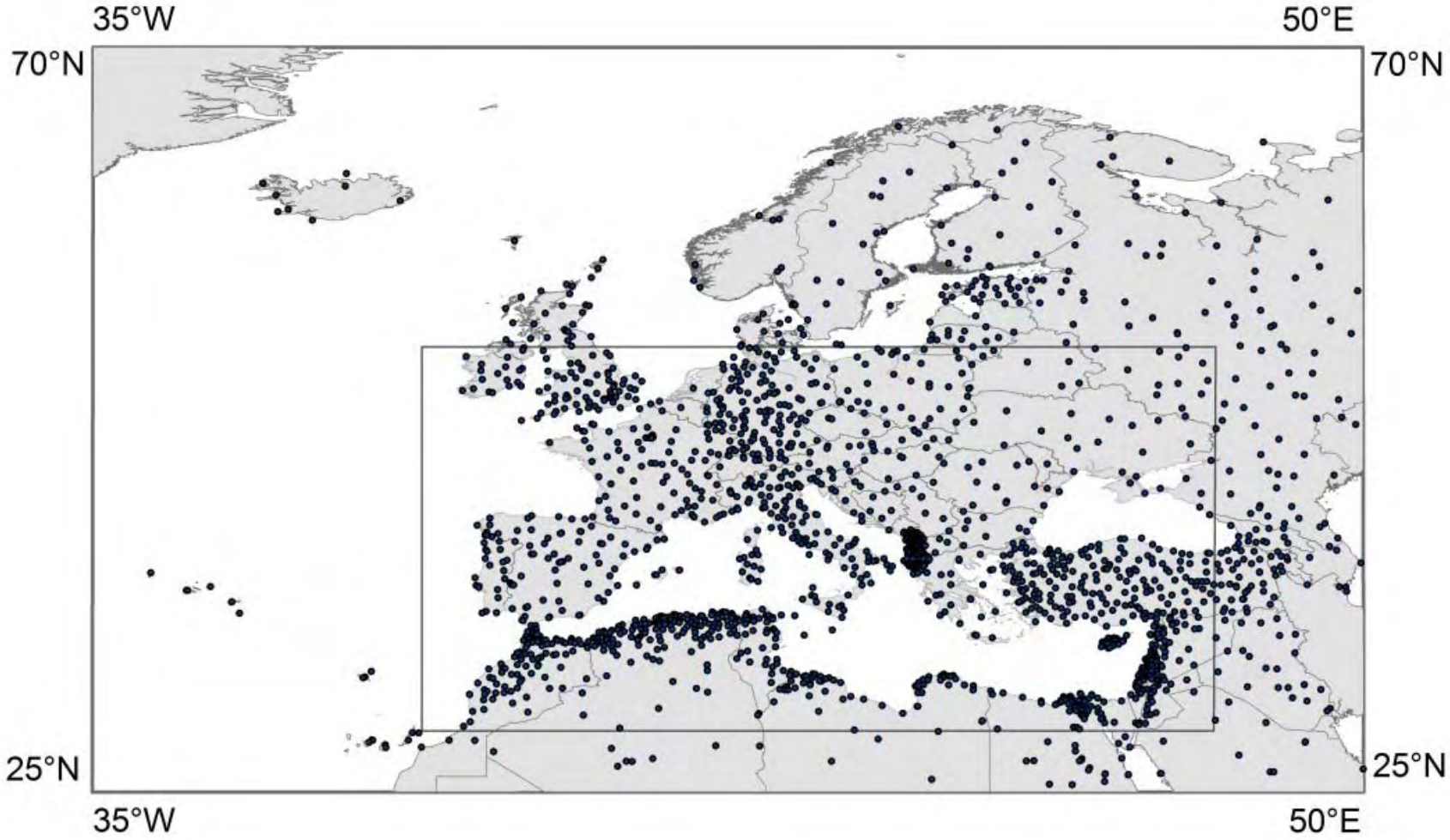
The limits of the Mediterranean

The distribution of the Mediterranean climate according to the Koppen classification

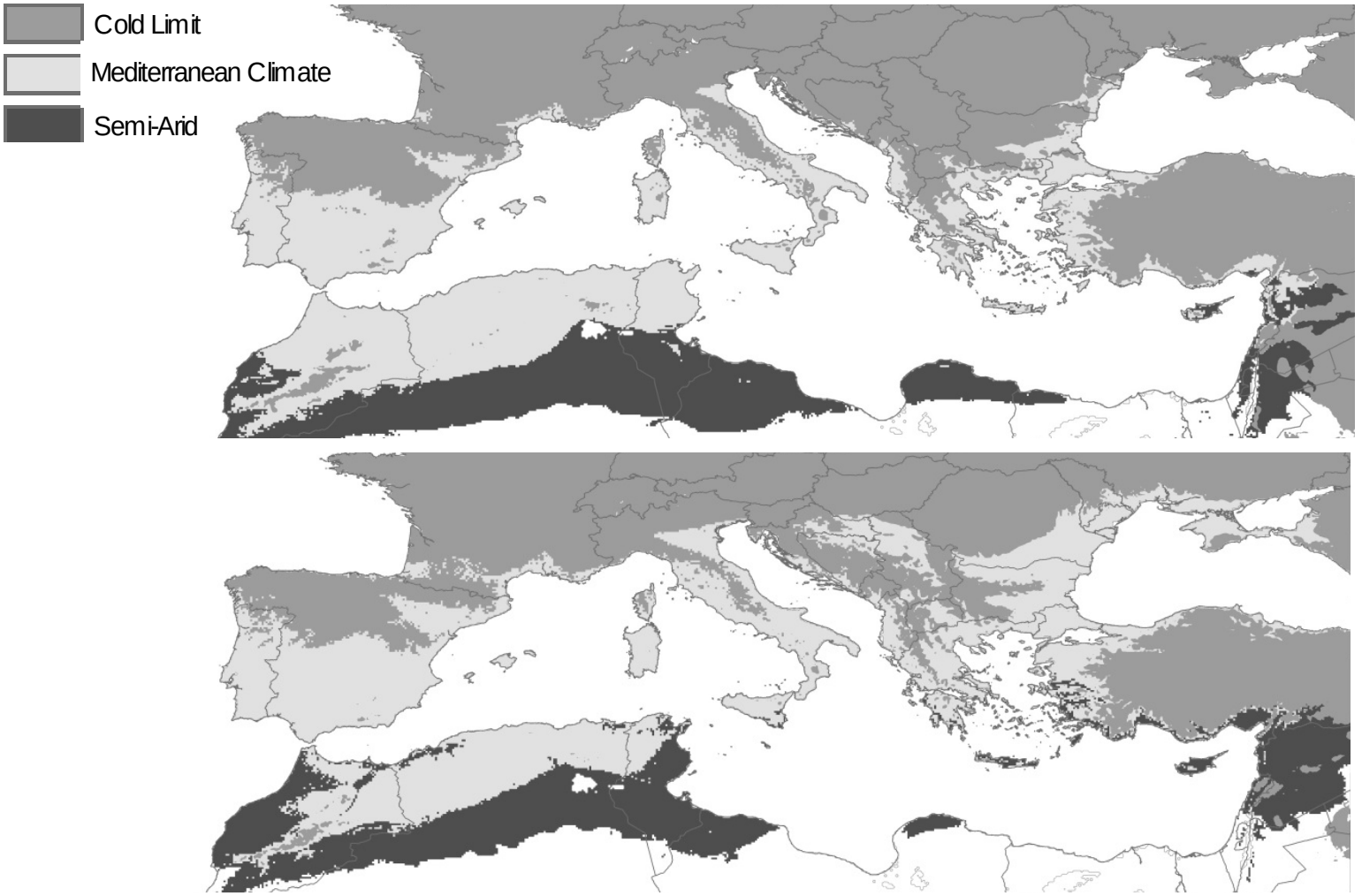


http://en.wikipedia.org/wiki/File:Koppen_World_Map_(Mediterranean_Sea_area_only).png

A modelling exercise using existing climate data from FAO and World Climate weather stations (locations shown).



Results of a simulation exercise



Current distribution

Scenario with:

More 2° C

Less 20% precipitation

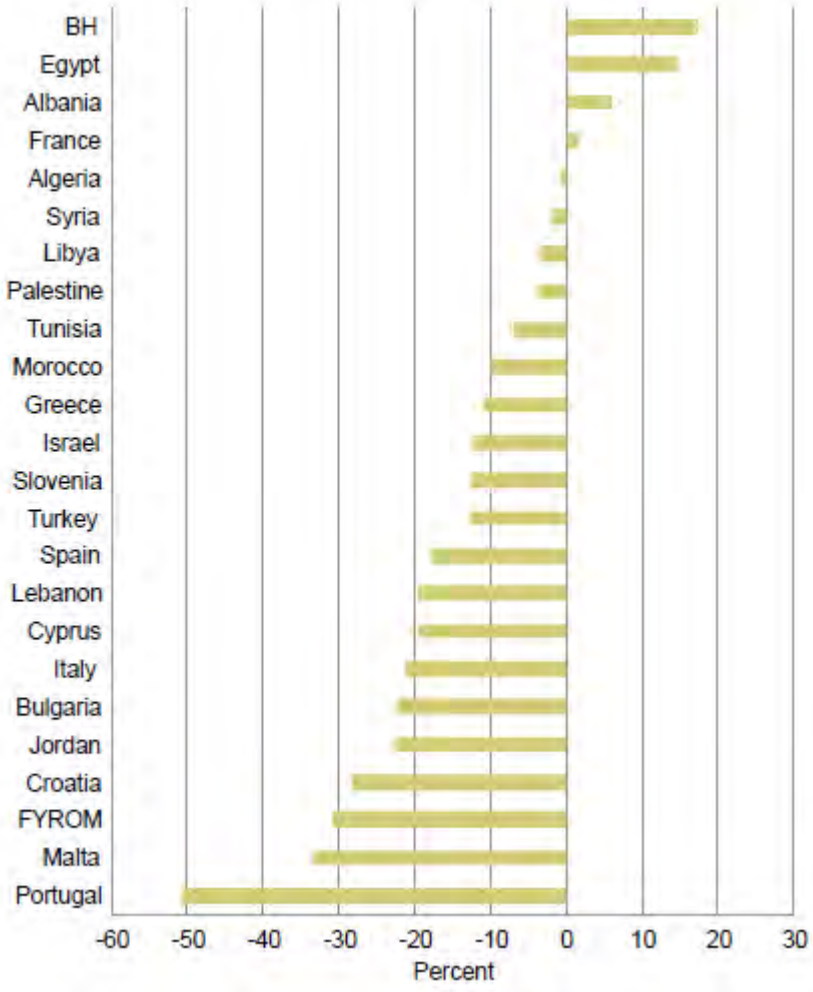
Concept of Global Change

Global change concerns not only the climate change but also the economic and sociological changes which induce major changes in land uses: rural abandonment, urban sprawl, increasing pressure of tourism close to the coast.

All these changes modify wildland fire danger: scientific research and technological activities have to provide land managers, fire-fighters, and policy-makers tools adapted to the new conditions.

State of Mediterranean Forests

Soil degradation and land-use change proceed at alarming pace



Global change due to human (social) dynamics

Figure 1.24. Changes in the area of arable land, Mediterranean countries, 1992 to 2009
Note: BH = Bosnia and Herzegovina; FYROM = The former Yugoslav Republic of Macedonia; Syria = Syrian Arab Republic.
Source: FAOSTAT, 2012.

Global Change Impacts on Wildland Fire Behaviour and Uses in Mediterranean Forest Ecosystems, towards a « wall less » Mediterranean Wildland Fire Laboratory

MedWildFireLab

Three major aims:

•To enhance the cooperation and exchange of knowledge between scientists and students, between engineers, technicians and workers among Mediterranean fire research and technological development teams

•To ensure the transfer from basic to applied research in this domain for the Mediterranean environment in the context of global change: change of land use and climate change.

•To develop a Euro-Mediterranean Research Area in the wildland fire domain coherent with the European Union's objectives, the European Parliament's and Union for the Mediterranean's recommendations.

Five main goals:

•To improve the efficiency of research through exchange of knowledge

•To select common concepts and vocabulary

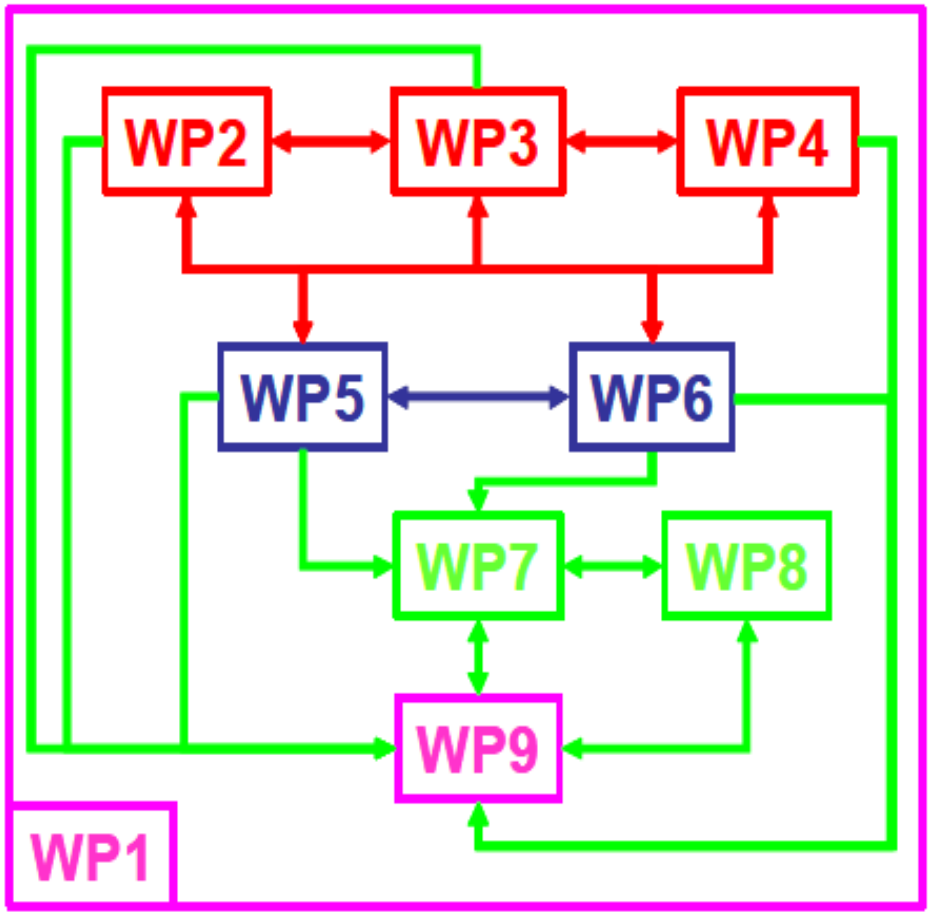
•To foster data sharing and mutual opening of existing infrastructures (experimental sites, research facilities, databases…)

•To elaborate adapted methods for research and technological development

•To integrate the specific spatial scales and diverse roles of the Mediterranean wildland areas, mainly those concerned by wildland fires

•To achieve these aims and goals, the partners constitute a multidisciplinary consortium at Mediterranean scale.

General structure



WP1: Coordination

WP2. Physical and Chemical Sciences

WP3. Biological Sciences

WP4. Social and Human Sciences

WP5. Technological Activities (Wildland Urban Interface & Prescribed Burning)

WP6. Wildland Fire Fighting Training

WP7. Promotion actions

WP8. Towards a wall-less Mediterranean Wildland Fire Laboratory

WP9. Communication and Dissemination

WP1: Coordination, Management and Governance of the project

Coordination team: ISA-CEABN (Coordinator), UCM-GPSF (Deputy coordinator (administrative secretariat), and a secretariat, in order to:

(i)ensure the implementation of the project activities in due time

(ii)promote efficient relationships among the consortium

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WP2. Contribution of Physical and Chemical Sciences

Task 2.1. Global change impacts on wildland fire ignition process

Task 2.2. Global change impacts on wildland fire behaviour

Task 2.3. Evaluation of wildland fire behaviour models or systems of models

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WP3. Contribution of Biological Sciences

Task 3.1: State of the art

Task 3.2. Characteristics of dead wildland fuel

Task 3.3. Characteristics of living wildland vegetation – potential fuel

Task 3.4. Restoration of burned areas

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WP4. Contribution of Social and Human Sciences

Task 4.1. State of the art

Task 4.2. Socio-economic causes and factors of wildland fires

Task 4.3. Influence of the recent territorial dynamics in fire regimes

WP5. Technological Activities

Task 5.1. Up-dated state of the art

Task 5.2. Promote methodologies for the management of the Wildland-Urban Interfaces

Task 5.3. Prescribed burning, a tool for forest management

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WP6. Wildland Fire Fighting Training

Task 6.1. State of the art:

Task 6.2. Wildland fire-fighters training for the future in Mediterranean basin

Task 6.3. Initiation and scientific support of training for the future

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WP7. Promotion actions towards National, European and Mediterranean Institutions

Task 7.1. Elaboration and dissemination of Policy briefs

Task 7.2. Dissemination of the Policy briefs by the coordination staff and the Steering Committee

WP8.Towards a wall-less Mediterranean Wildland Fire Laboratory

Task 8.1. Conditions and agreements contents for creating a long term cooperation structure

Task 8.2. Launching of the eponym TJRU: the wall-less Mediterranean Wildland Fire Laboratory

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WP9 Communication and MedWildFireLab Web site www.medwildfirelab.org

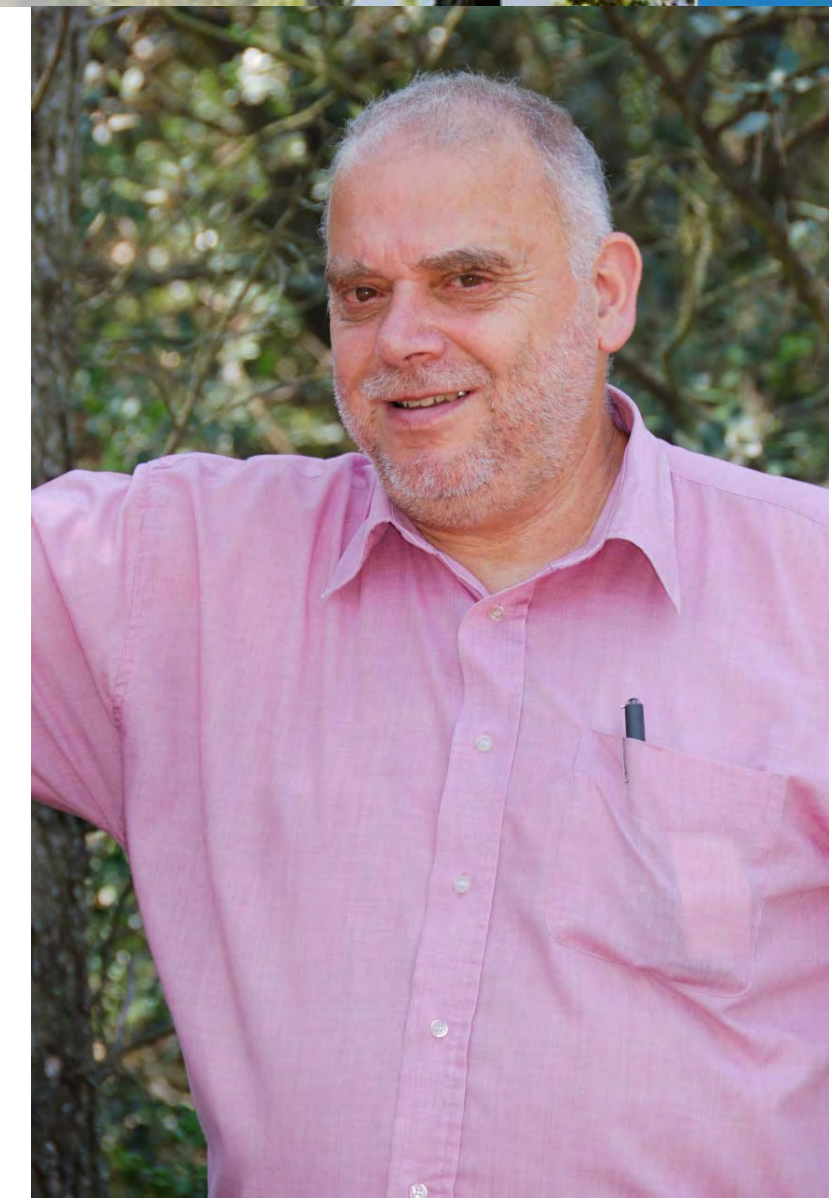
Task 9.1. MedWildFireLab e-Bulletin

Task 9.2. MedWildFireLab e-Library will be based on a previous e-Library developed under EUFIRELAB project and Fire Intuition (FIRE PARADOX)

Task 9.3 MedWildFireLab e-Observatory will contain 1500 references up-dated on EUFIRELAB web site (work by Jean-Charles Valette)

Task 9.4. Others functions

Thank you, Jean-Charles Valette



The long-term vision:

A long-term cooperation structure, as the proposed Transnational Joint Research Unit (TJRU) in the Wildland Fire Domain, is absolutely required to make full use of all the extraordinary progress in knowledge and the very substantial technical achievements made with public funds (national and EU) in the past decades.

This is a major goal of the consortium and the idea behind the wall-less Mediterranean Wildland Fire Laboratory.

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The long-term vision:

We will have the first kick-off meeting next October in Castelo de Vide (Portugal), a city inside the castle walls, as an inspiration to build the wall-less laboratory and reach the whole forested landscape!

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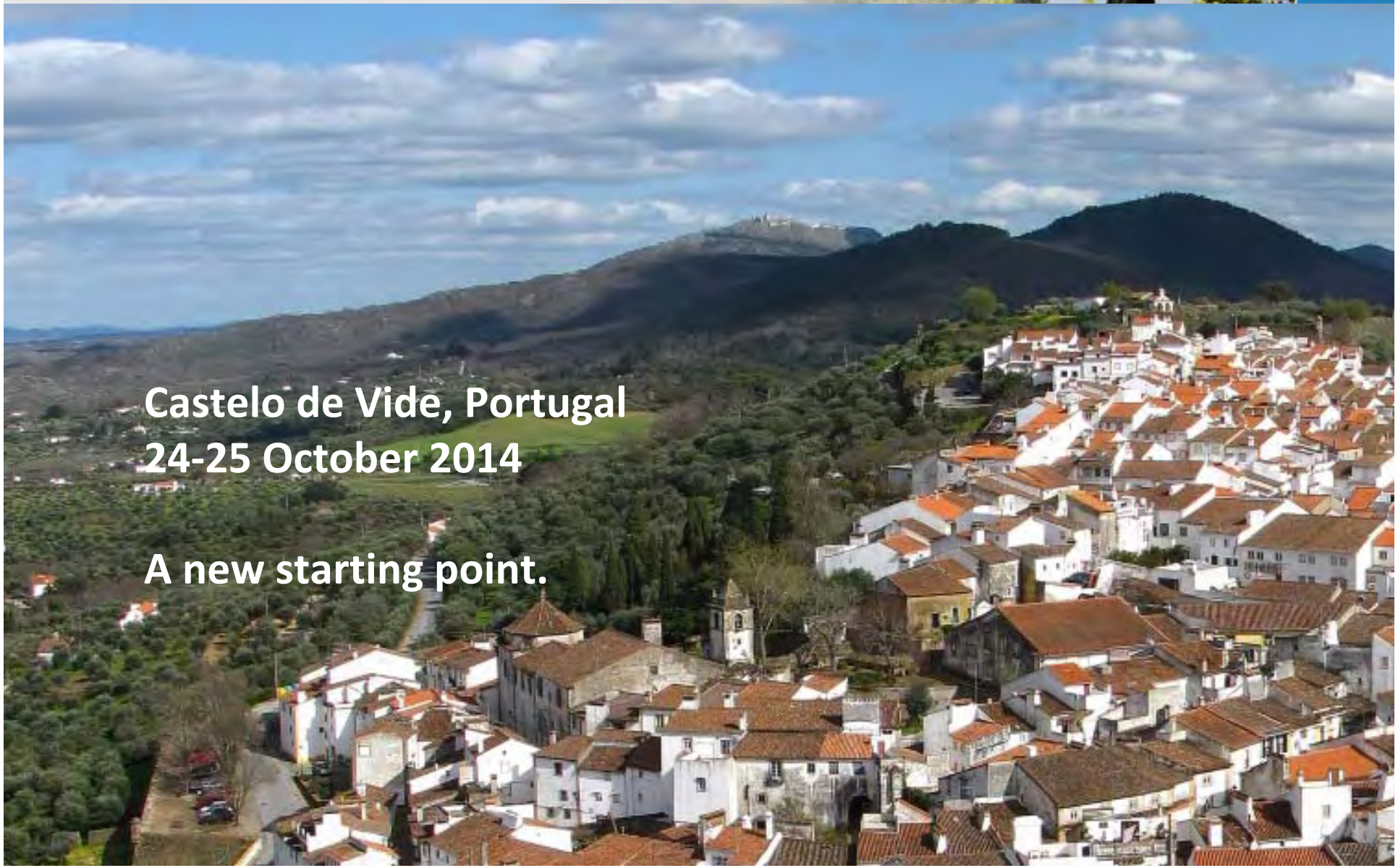

Castelo de Vide, Portugal
24-25 October 2014

A new starting point.