FIRE PARADOX

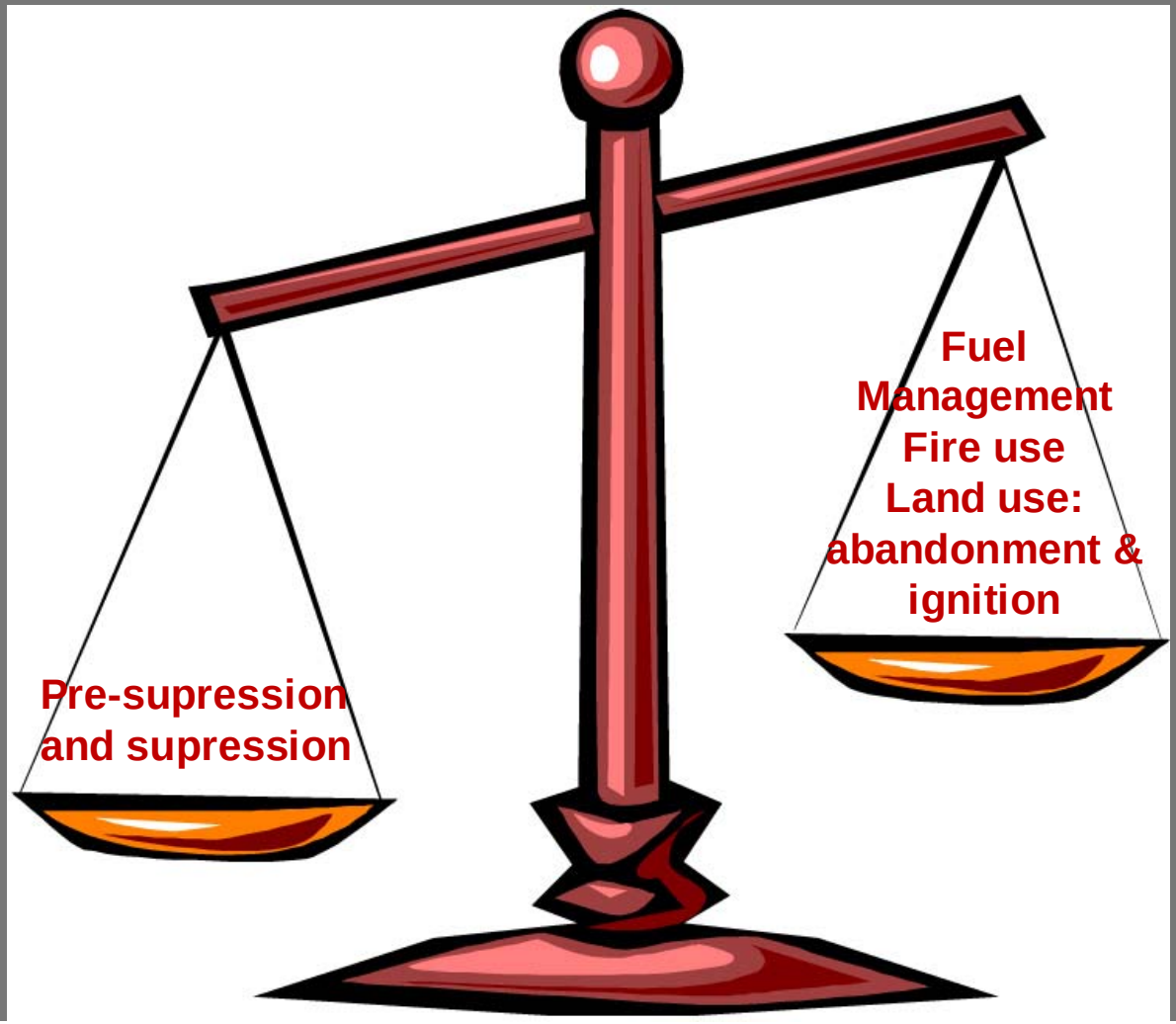
- 6th Framework Programme for R & D
- Topic: Integrated forest fire management

36 partners in 16 countries, including:

- Universities and forestry schools
- Research institutes
- Fire management agencies
- International organisations and networks
- Associations
- SMEs

Philosophy

The European problem: unbalanced fire management policy



Philosophy

Need for new strategy of fire management

The two faces of fire

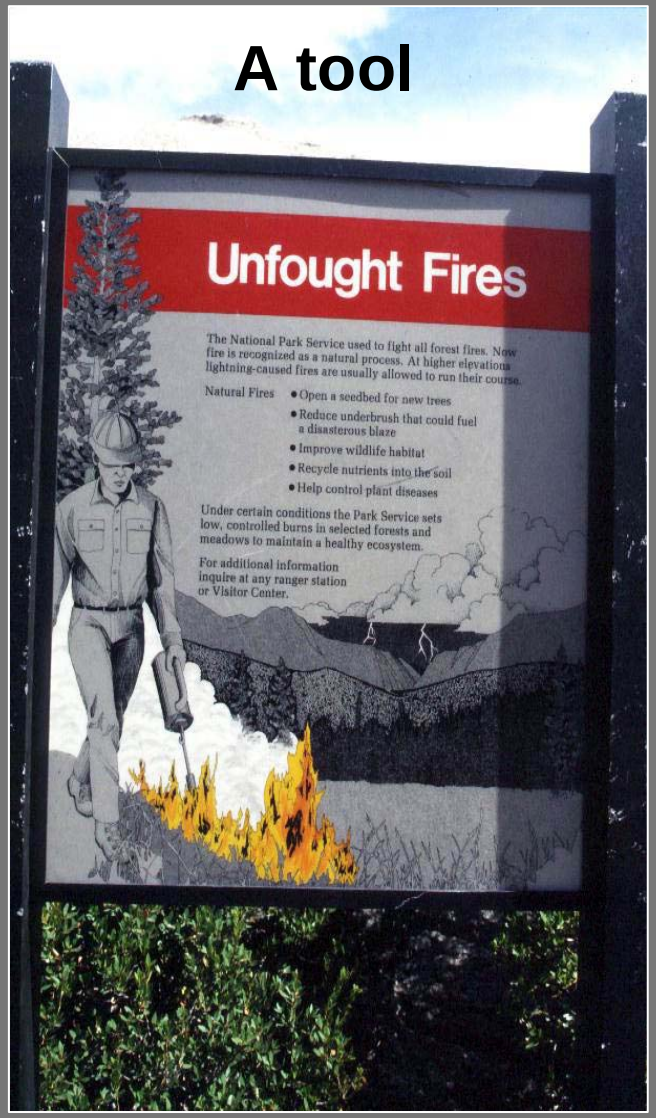
Damaging

Beneficial

The different views of fire

An emergency

A tool



A process

PREPARATORY MEETING

Madrid (Spain), 2005

FIRST PLENARY MEETING

Mafra (Portugal), 2006

SECOND PLENARY MEETING

Las Palmas (Spain), 2007

THIRD PLENARY MEETING

Cagliari (Italy), 2007

FOURTH PLENARY MEETING

Chania (Greece), 2008

Special meetings (Morocco)

FIFTH PLENARY MEETING

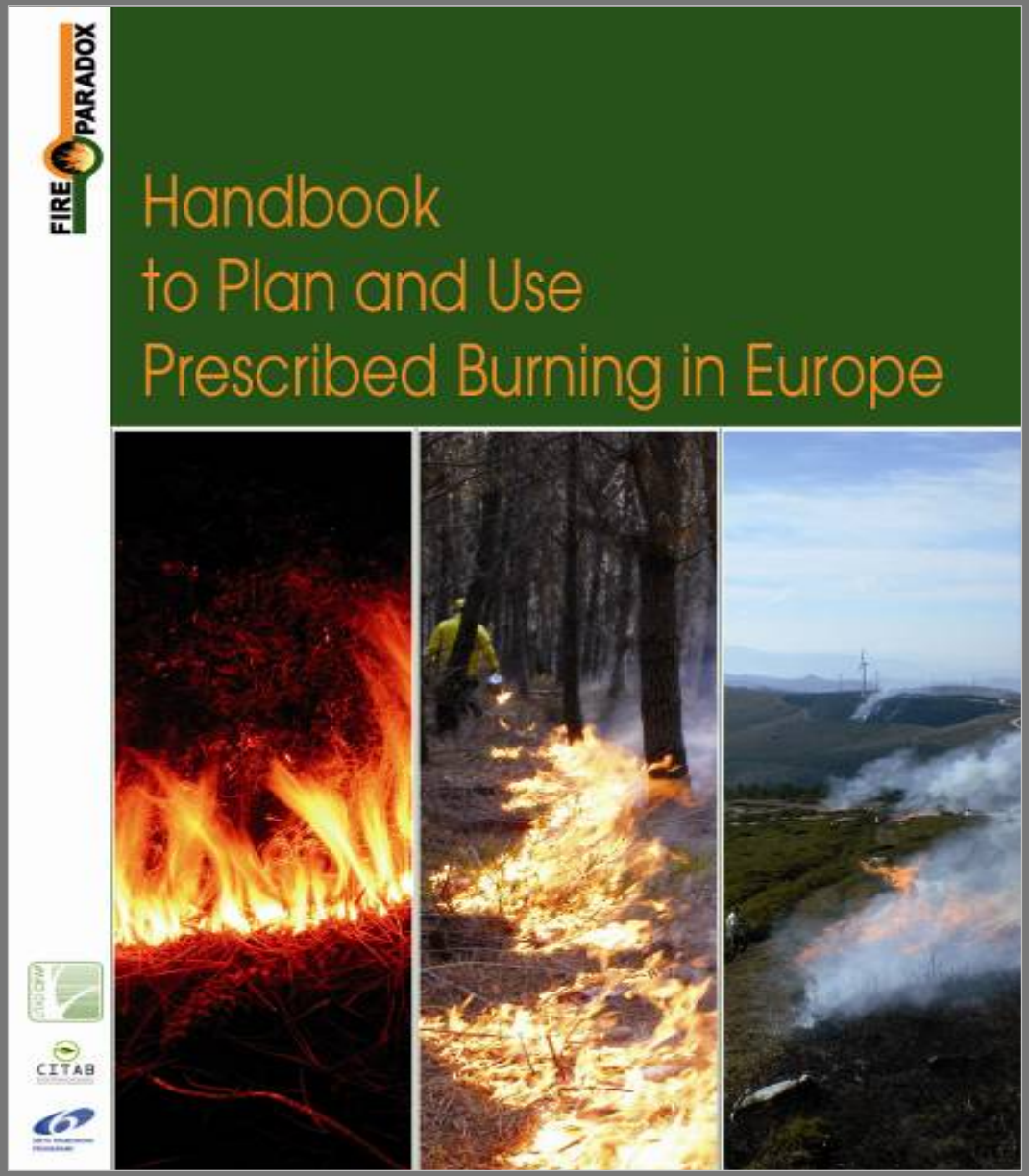
Puerto Madryn (Argentina), 2009

SIXTH (FINAL) PLENARY MEETING

Freiburg (Germany), 2010


FIRE
PARADOX
What is the legacy of FIRE PARADOX ?
bombers GRAF

Products on prescribed burning



Burning windows for Europe


Hazard reduction (Portugal)


Hazard reduction (Canary Isl., Spain)


Habitat management (UK)


Hazard reduction & habitat mgt. (France)

Products for suppression fire

Suppression fire database

Case studies

Reports of case studies

1st page # Site: Aude. France#

Basic actions

Ortophoto map

Image taken by the look out.

3rd page # Site: Lousa. Portugal#

HIGHLIGHTS

State of the smoke column at the beginning of the exercise

Beginning of the storm (01.27p.m.). The fire behavior was changing.

You can observe the effect of a storm on a fire exercise.

The imminent storm suctionates the convection smoke of the exercise and address the fire towards her.

Aerial view of the burn out. The smoke column tends to become vertical and is moving towards the centre.

Moment when the left flank was opening and the burn out maneuver was initiated from the head to the rear in order to get speed.

Training in suppression fire (Portugal)

Sequence of images

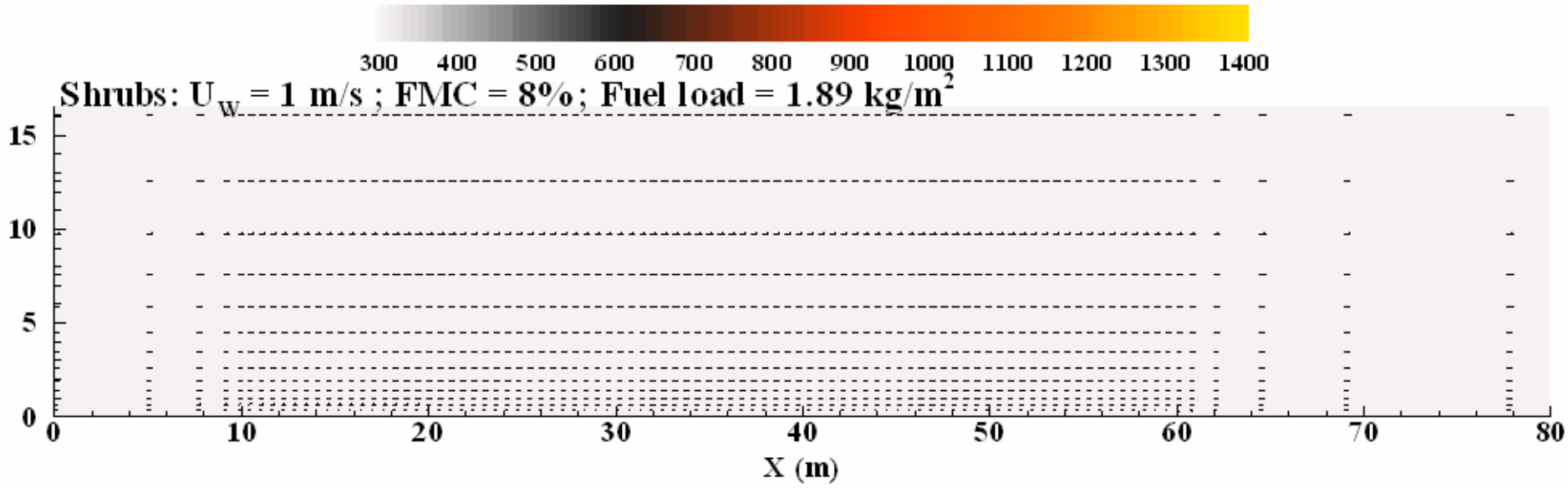
FIRE PARADOX

FIRE PARADOX

FIRE PARADOX

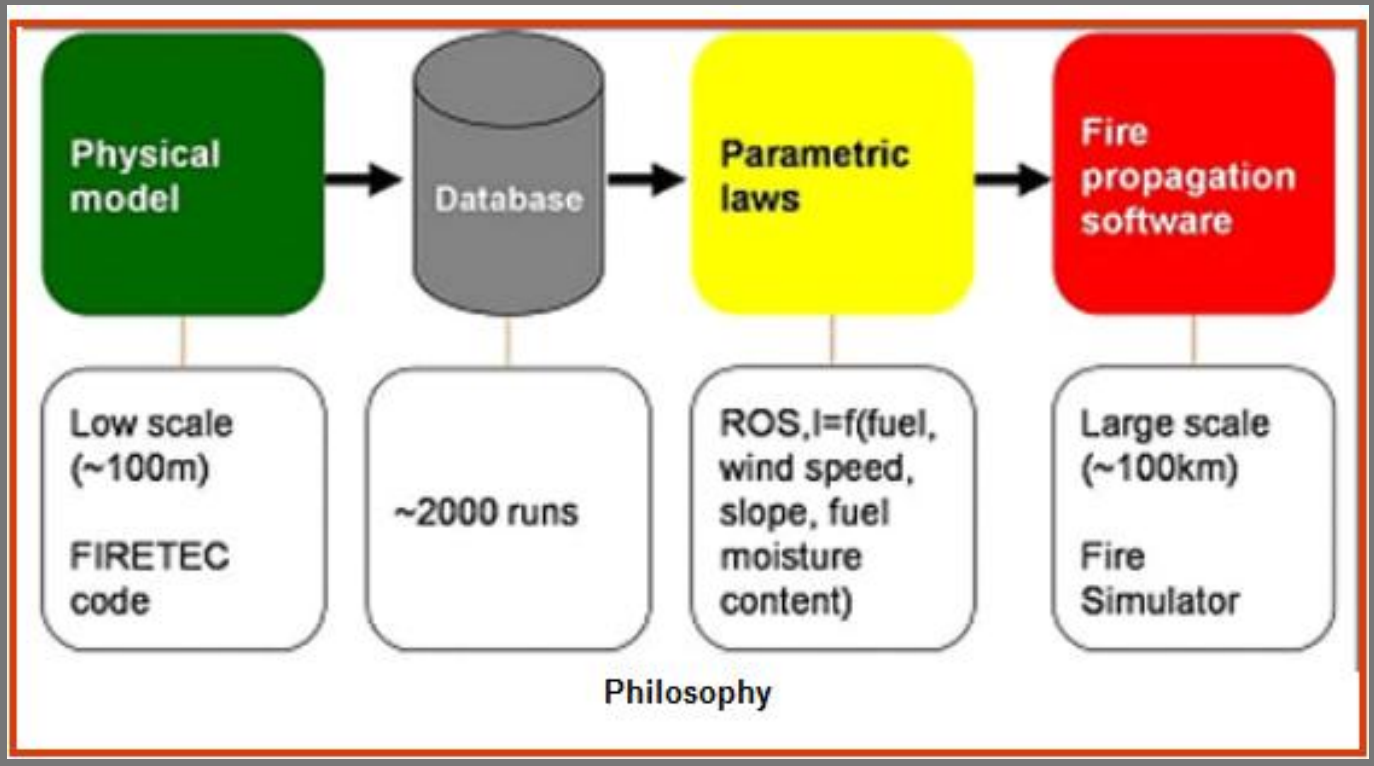
FIRE PARADOX

Suppression fire simulations

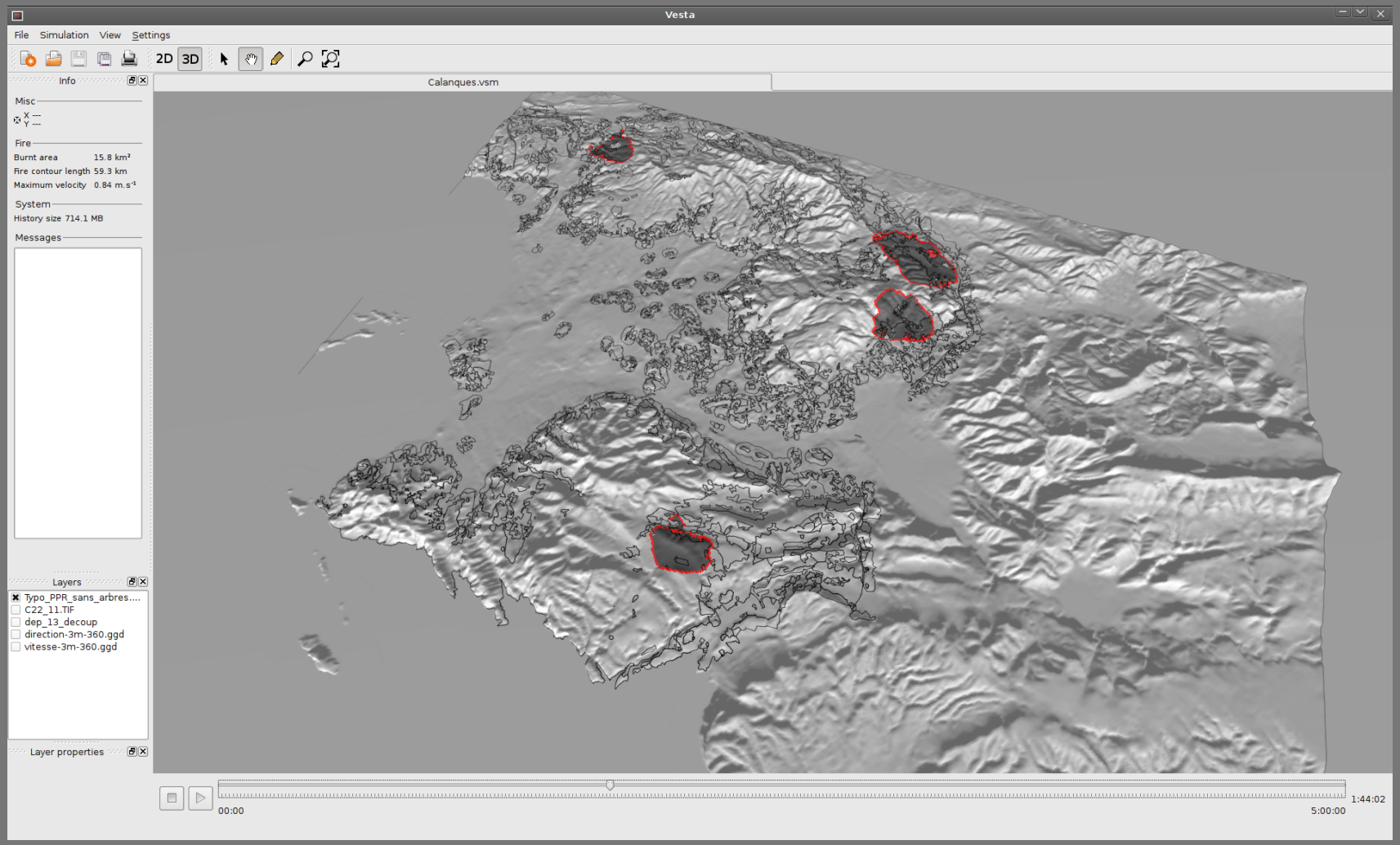


Firestar 2D

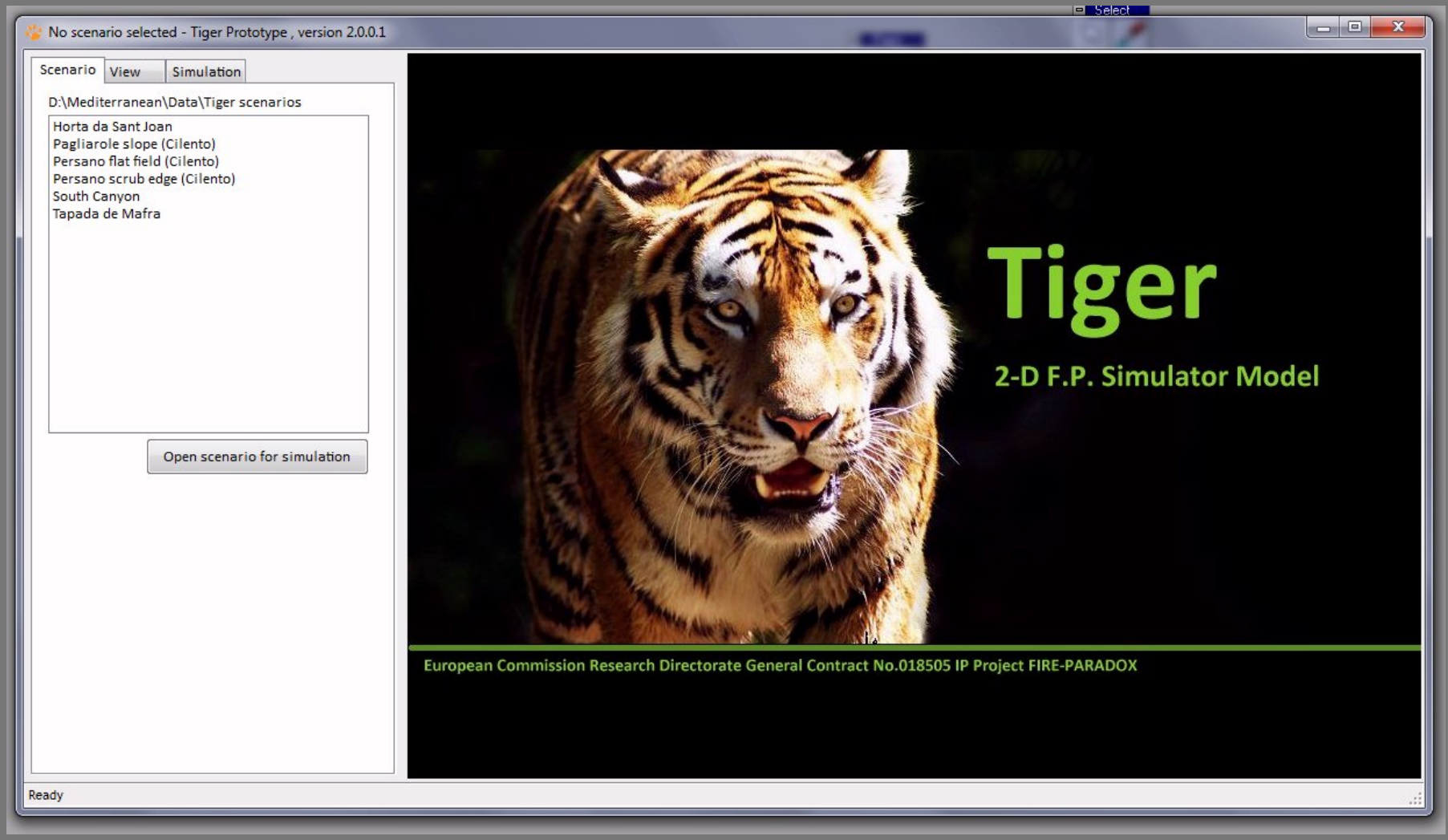
Large scale fire simulator



Large scale fire simulator

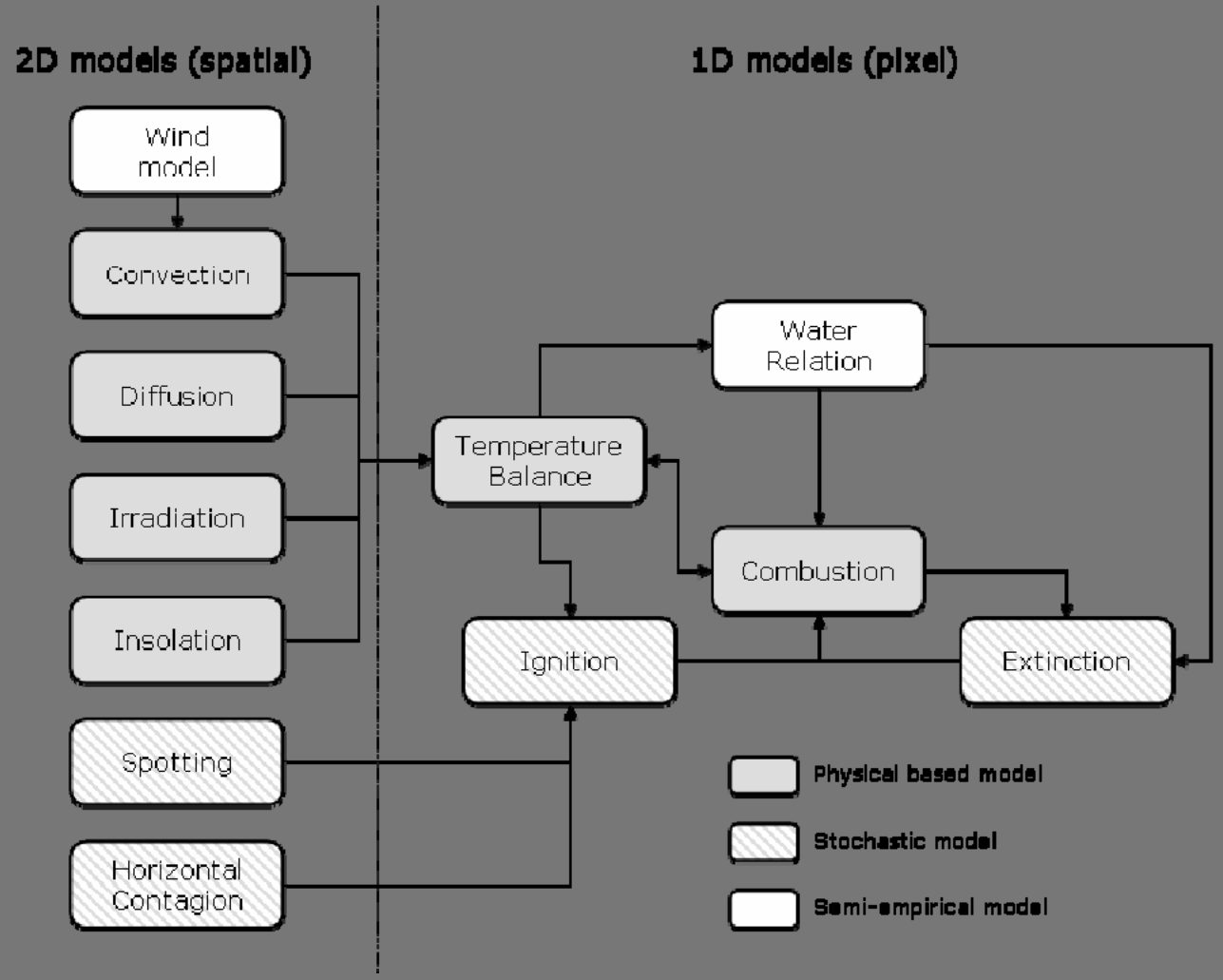


Tiger – 2D Low scale fire simulator

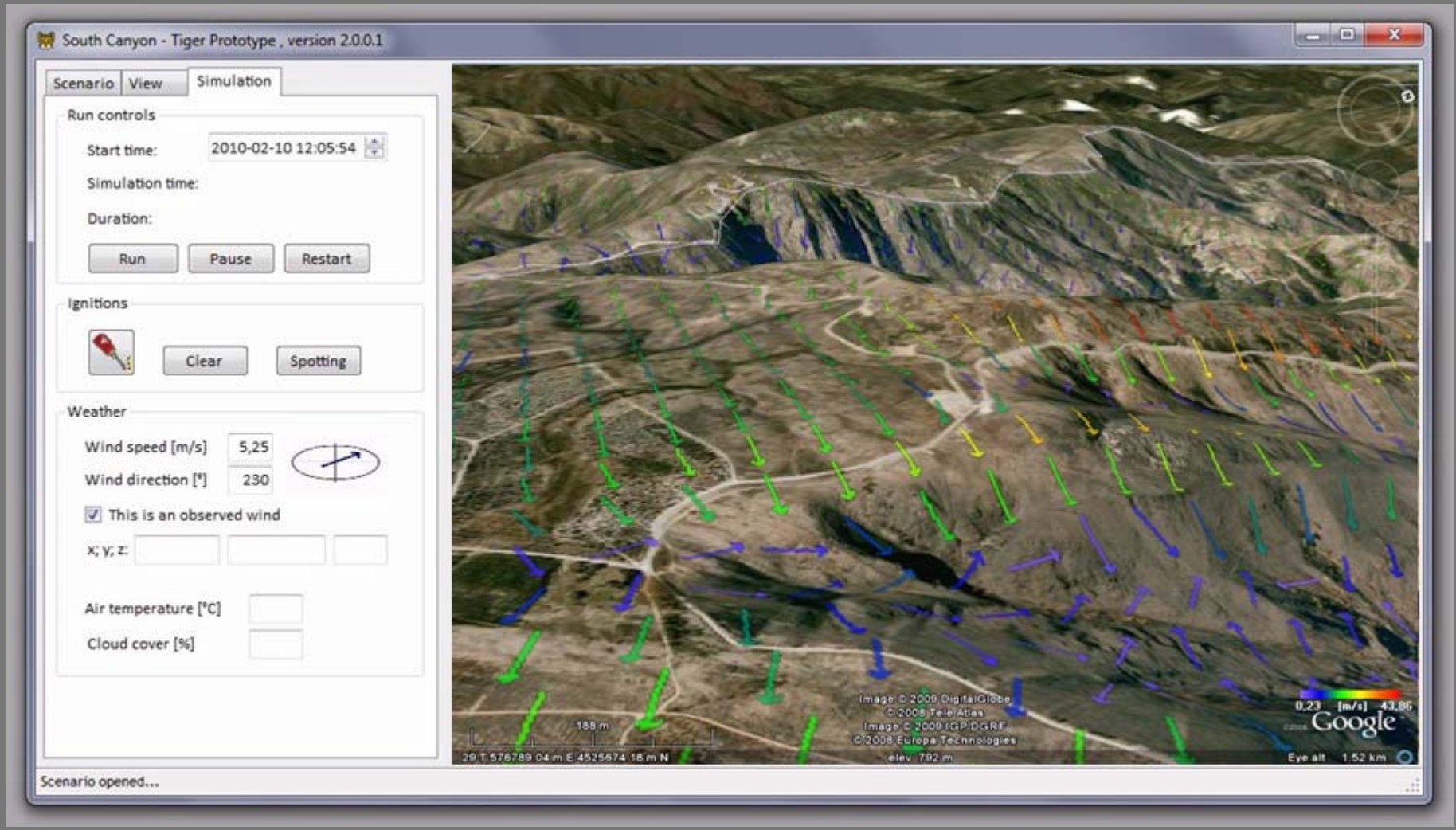


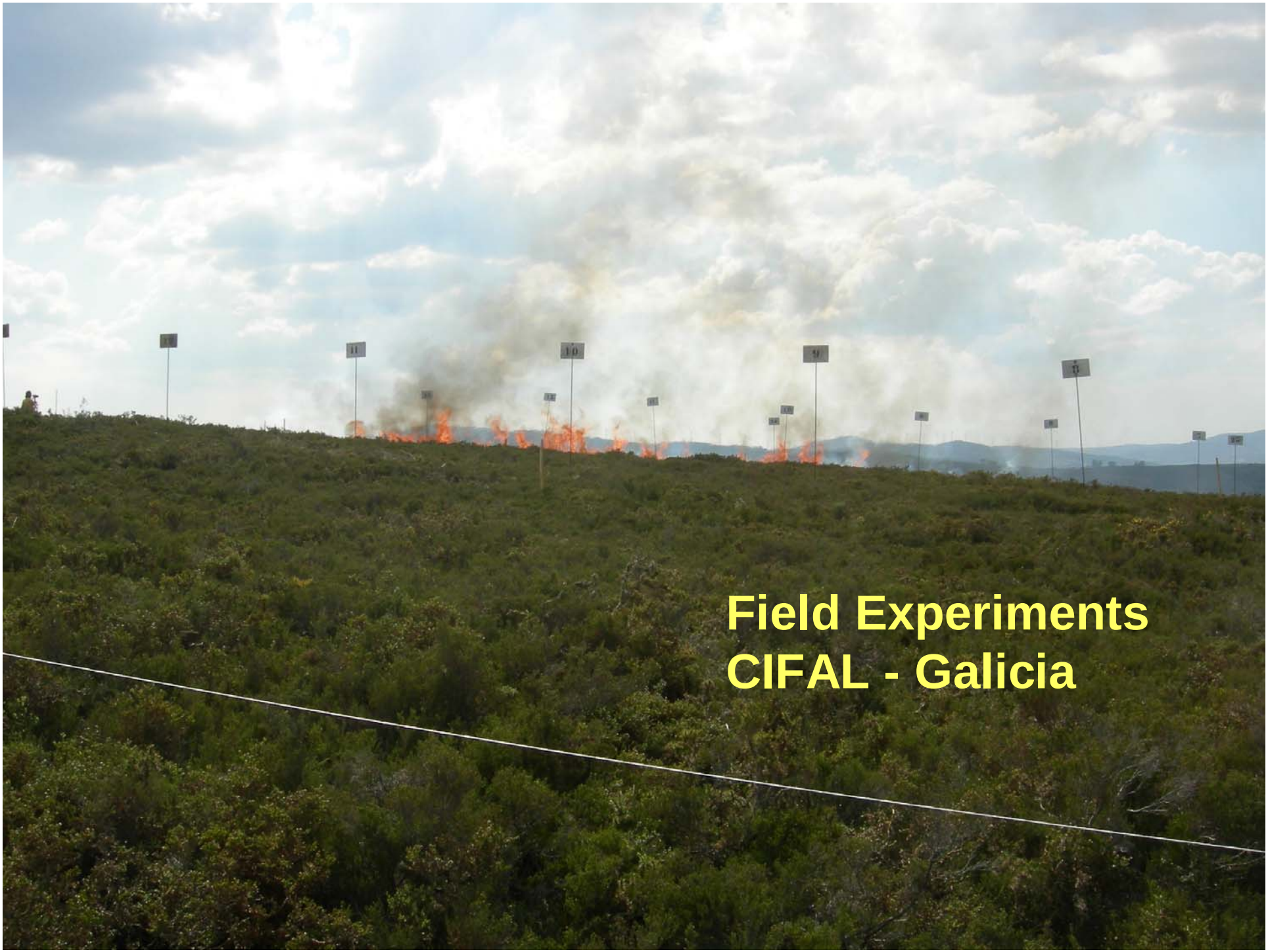
Tiger – 2D Low scale fire simulator

The model structure

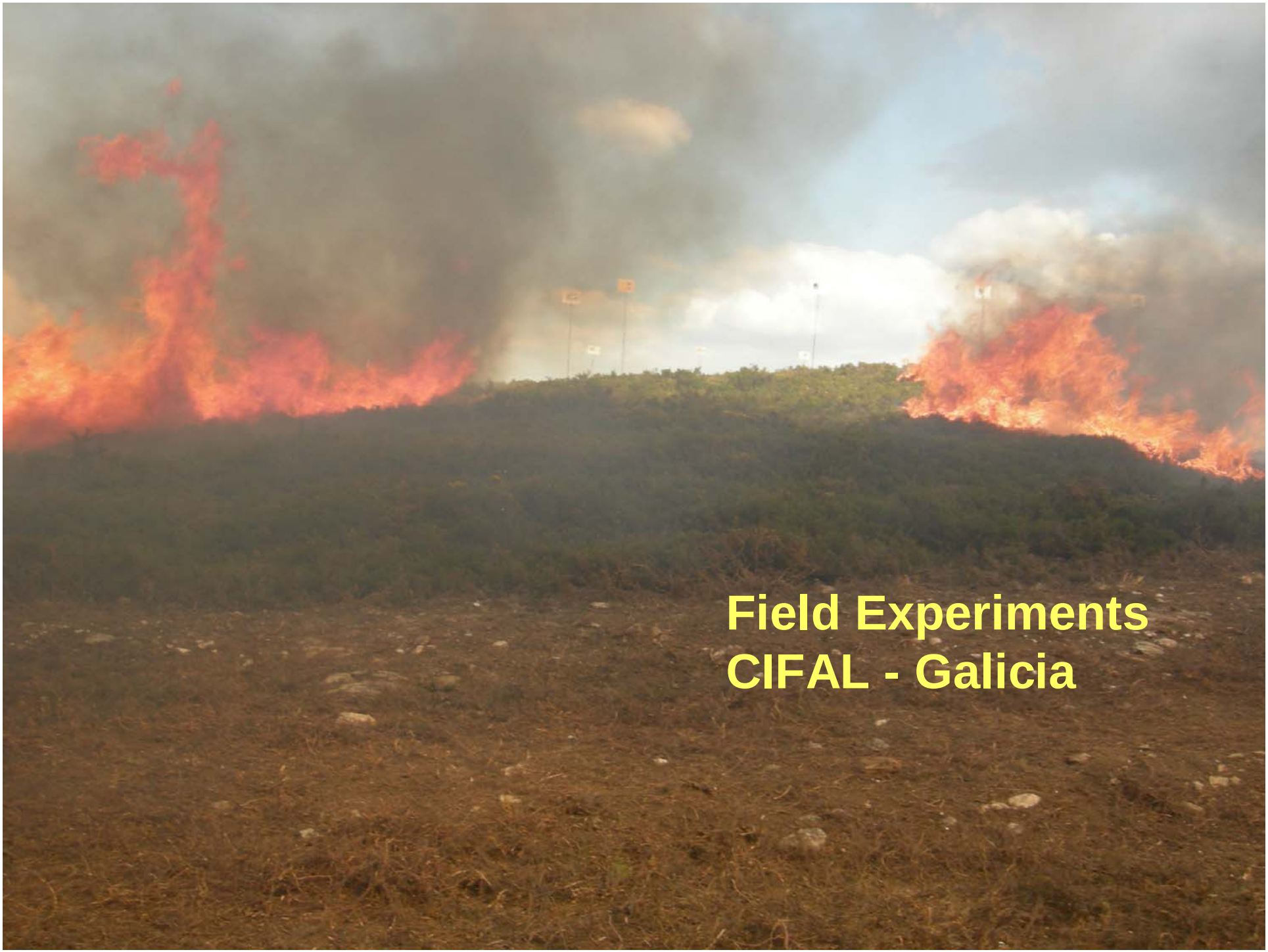


Tiger – 2D Low scale fire simulator

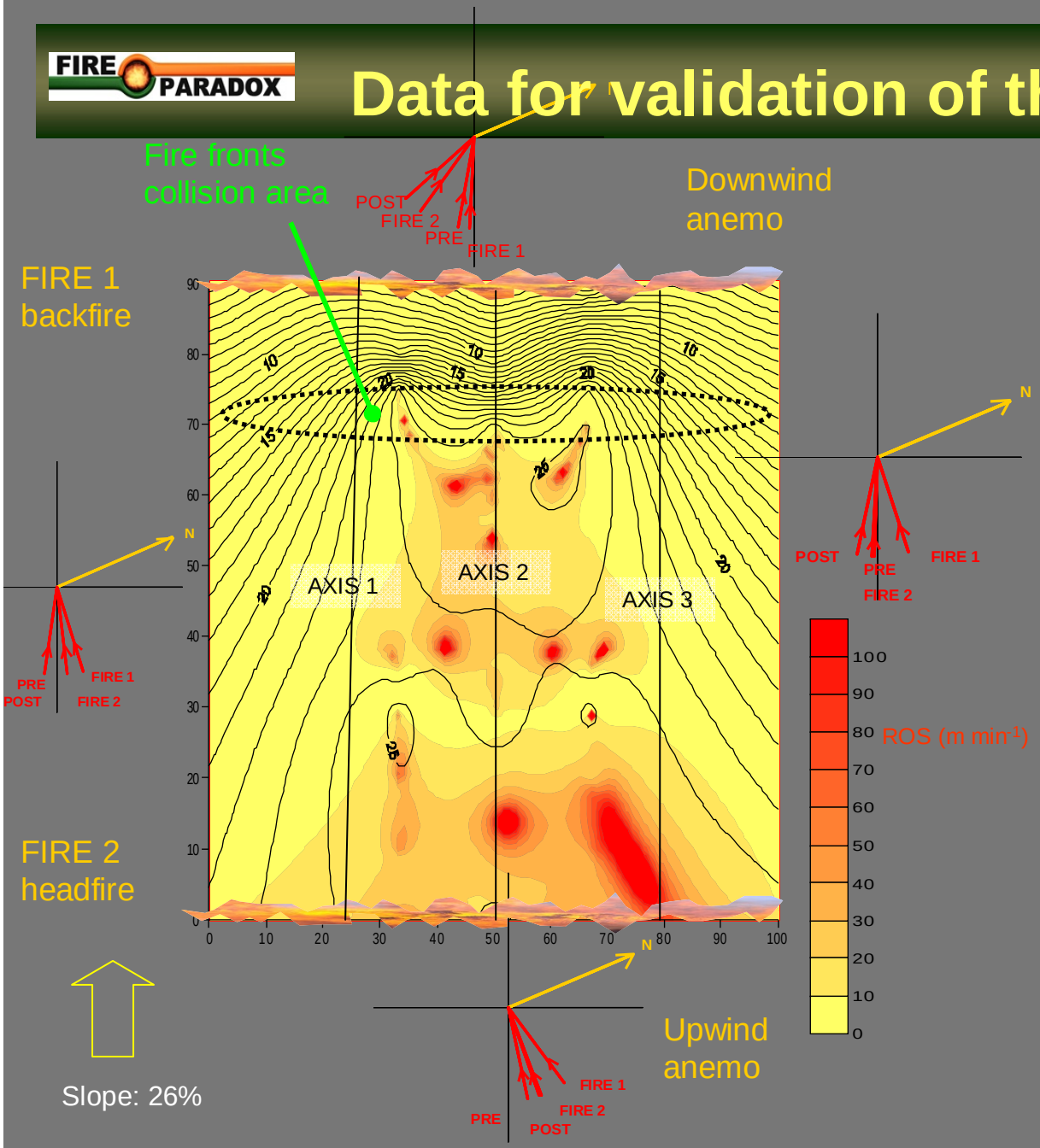



Field Experiments
CIFAL - Galicia


Field Experiments
CIFAL - Galicia


Field Experiments
CIFAL - Galicia

Data for validation of the models



Anemometer position		Mean wind speed (m s^{-1})*	Gust factor
Upwind	PRE	2.00 a	1.73
	FIRE 1	1.60 a	2.21
	FIRE 2	2.40 b	1.46
	POST	1.73 a	1.60
Right	PRE	3.69 a	1.47
	FIRE 1	3.72 a	1.69
	FIRE 2	3.99 a	1.44
	POST	3.50 a	1.46
Left	PRE	2.66 a	1.57
	FIRE 1	2.21 a	1.91
	FIRE 2	2.01 a	2.12
	POST	2.10 a	1.59

*Mean valuesfor 30 s period

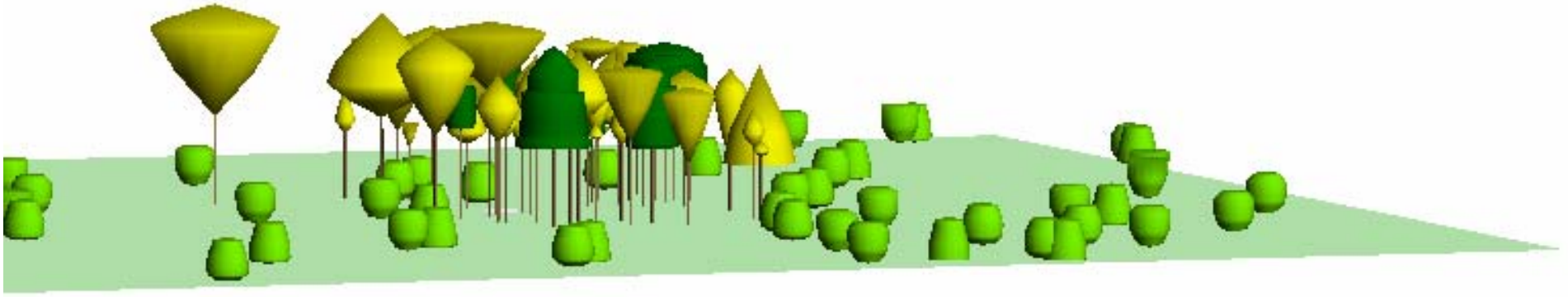
FIRE PARADOX

Fuel Manager

A fuel manager for wildland fire modelling

Philippe DREYFUS ; Isabelle LECOMTE; François PIMONT ;
Éric RIGOLOT; Oana VIGY
UR Mediterranean Forest Ecology, Avignon, France

François de COLIGNY; Sébastien GRIFFON
UMR AMAP, Montpellier, France



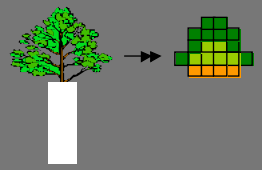
Fire behavior modeling process

Field measurements

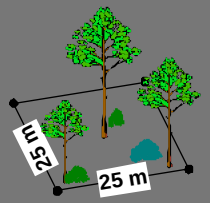
Destructive sampling

1) Particles

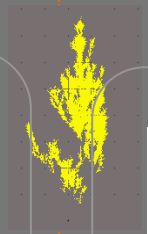
2) Crown



Stand description



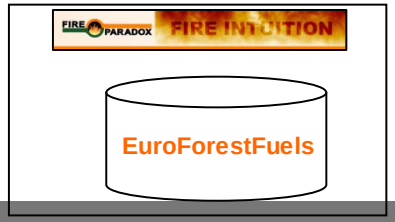
Composition
Cover
Structure



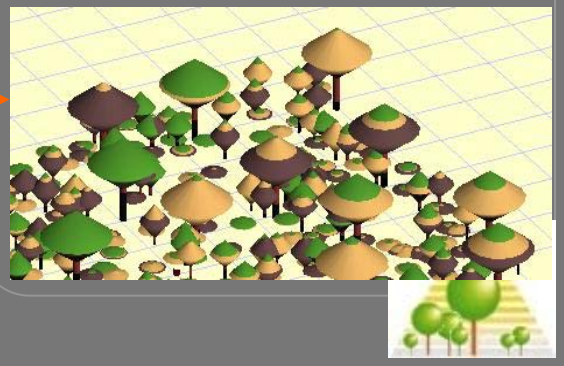
Architectural / Allometric models

Fuel modeling

Data base
EuroForestFuels (WSL, UE)

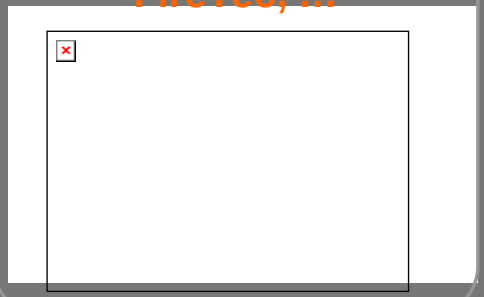


Vegetation scene
Fire Paradox Fuel Manager

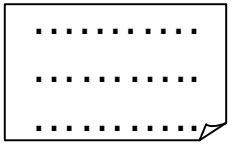


Fire modeling

Fire models
FireTec, ...



Data files



Communication

Online multimedia Platform for public awareness

Communication

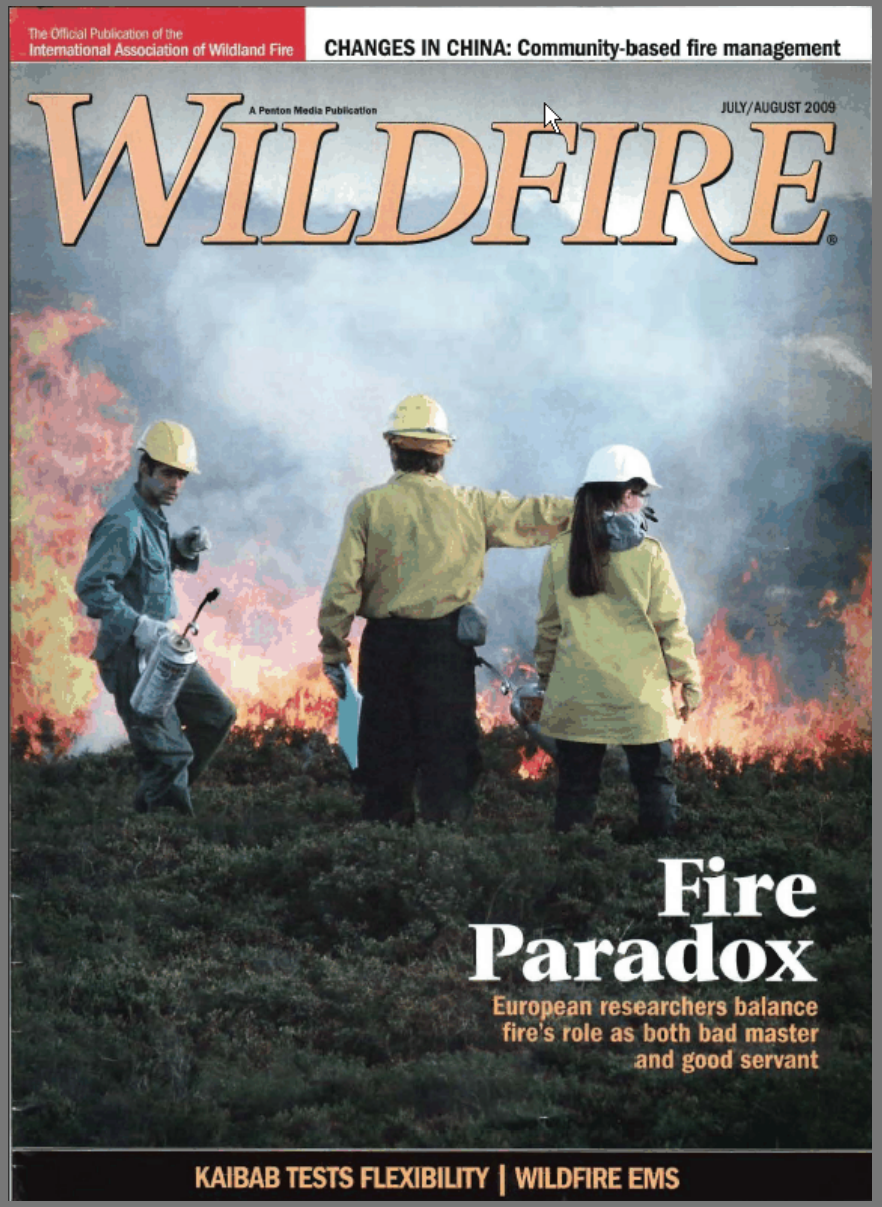
EFI Discussion Paper 15, 2009

Living with Wildfires: What Science Can Tell Us

A Contribution to the Science-Policy Dialogue

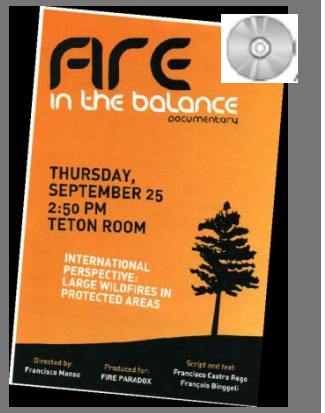
Yves Birot (ed.)

EUROPEAN FOREST INSTITUTE



Communication

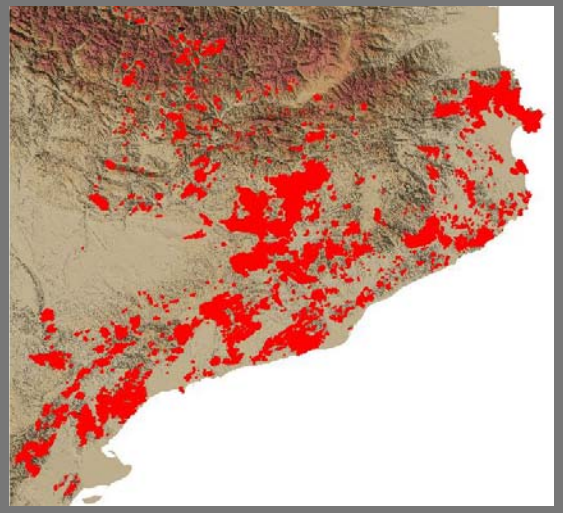
- Film production
  - Fire Paradox documentaries
  - Video-package

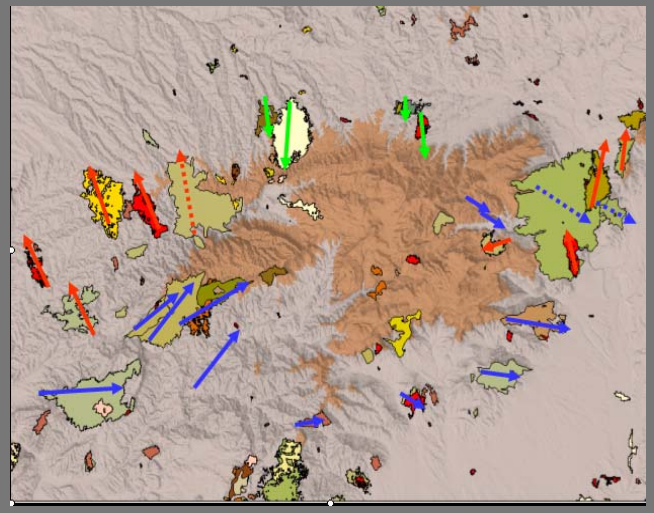


- Special issues of peer reviewed journals
  - Forest Ecology and Management
  - Forest Policy and Economics

Guidelines

- ✓ **Guidelines on fire management in forestry planning**



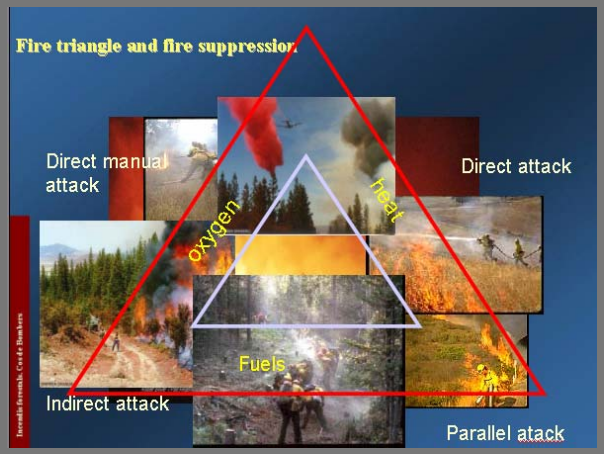


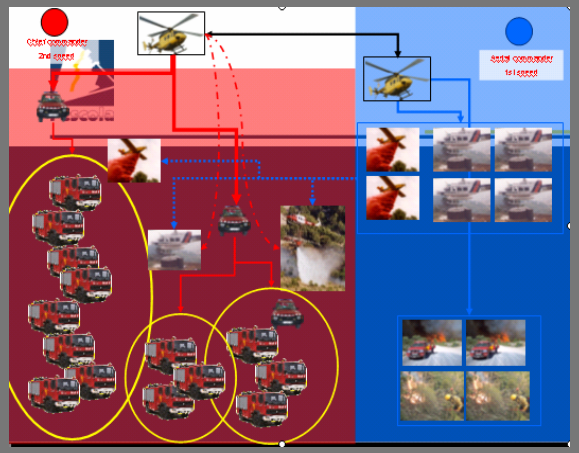
Guidelines

- ✓ **Guidelines on incorporating fire management in self protection**

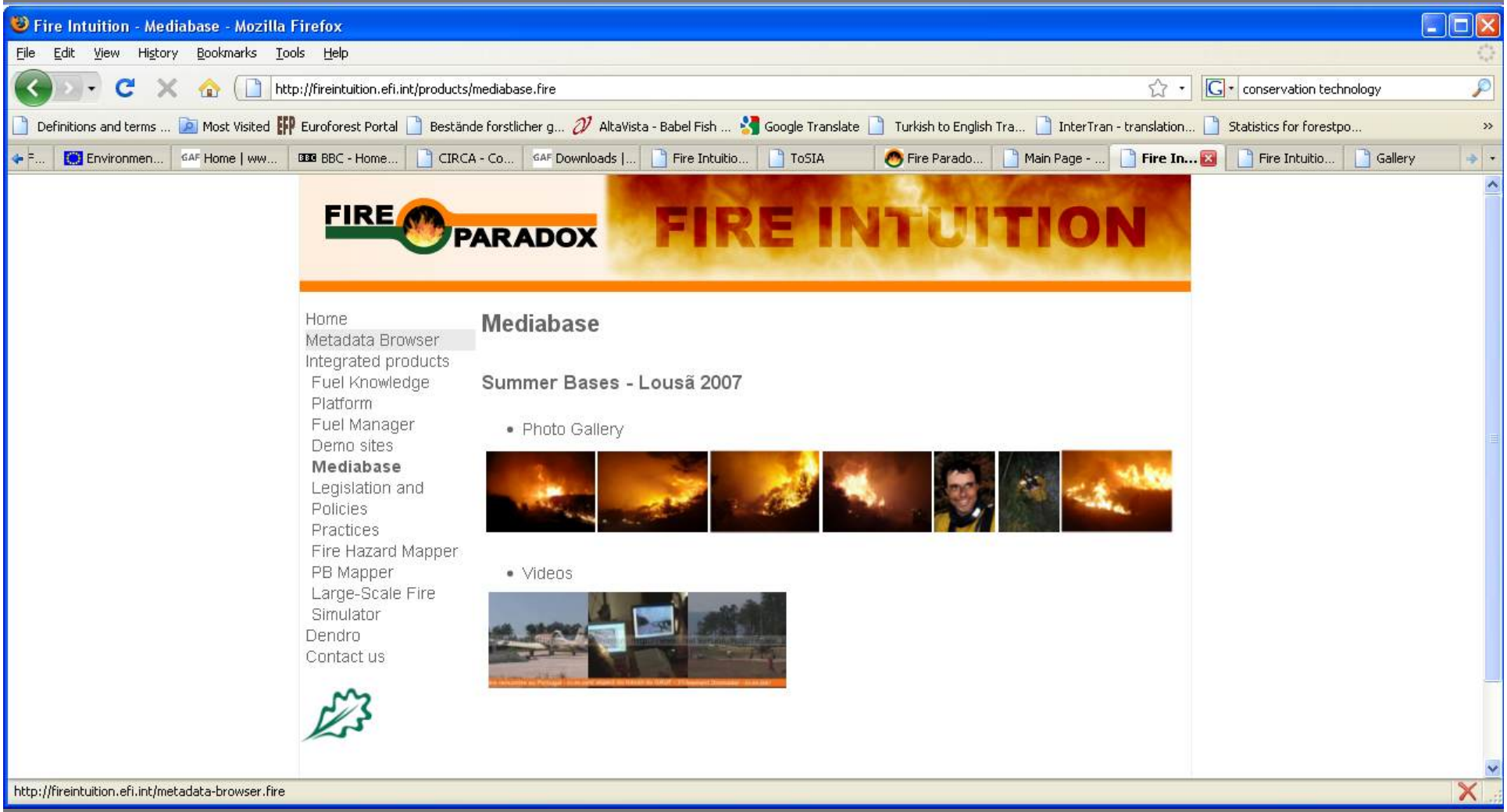
Guidelines

- ✓ Guidelines on structural setup for addressing large fires
- ✓ and applying fire management practices



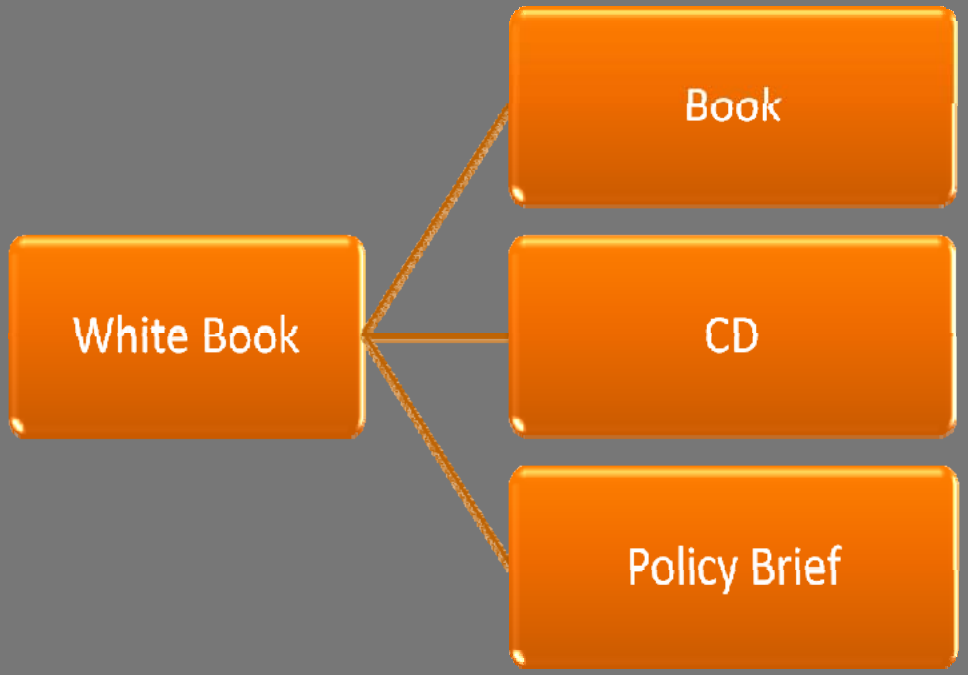


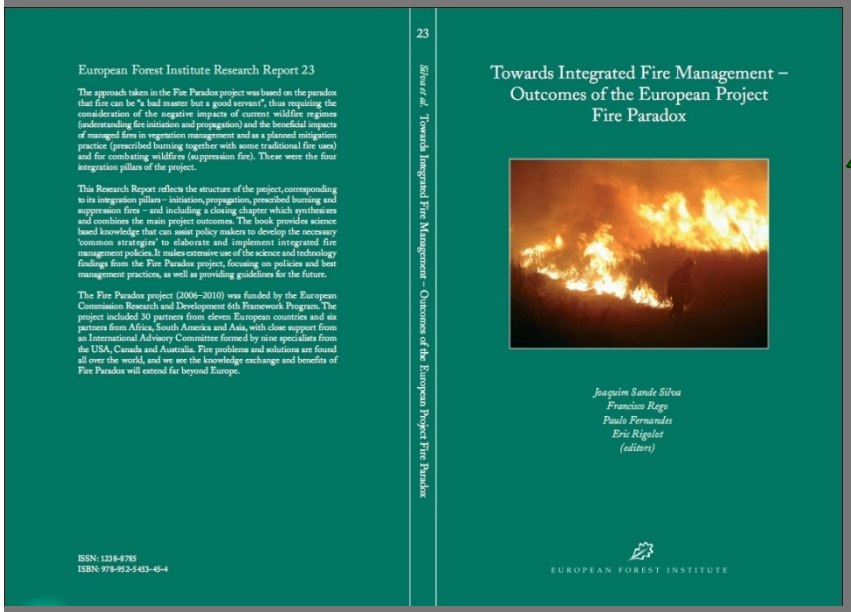
Information management platform



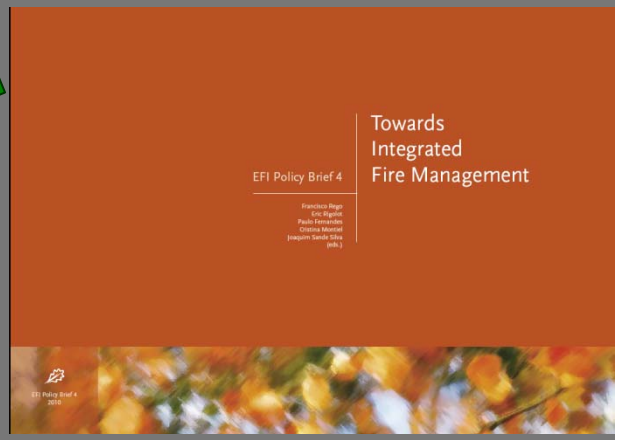
White Book

Meta Product P12.3 – 1b





The EFI Research Report



The EFI Policy Brief

CD

EFI Research Report 23 - Book

European Forest Institute Research Report 23

The approach taken in the Fire Paradox project was based on the paradox that fire can be "a bad master but a good servant", thus requiring the consideration of the negative impacts of current wildfire regimes (understanding fire initiation and propagation) and the beneficial impacts of managed fires in vegetation management and as a planned mitigation practice (prescribed burning together with some traditional fire uses) and for combating wildfires (suppression fire). These were the four integration pillars of the project.

This Research Report reflects the structure of the project, corresponding to its integration pillars – initiation, propagation, prescribed burning and suppression fires – and including a closing chapter which synthesizes and combines the main project outcomes. The book provides science based knowledge that can assist policy makers to develop the necessary 'common strategies' to elaborate and implement integrated fire management policies. It makes extensive use of the science and technology findings from the Fire Paradox project, focusing on policies and best management practices, as well as providing guidelines for the future.

The Fire Paradox project (2006–2010) was funded by the European Commission Research and Development 6th Framework Program. The project included 30 partners from eleven European countries and six partners from Africa, South America and Asia, with close support from an International Advisory Committee formed by nine specialists from the USA, Canada and Australia. Fire problems and solutions are found all over the world, and we see the knowledge exchange and benefits of Fire Paradox will extend far beyond Europe.

ISSN: 1238-8785
ISBN: 978-952-5453-45-4

23

Silva et al. Towards Integrated Fire Management – Outcomes of the European Project Fire Paradox

Towards Integrated Fire Management – Outcomes of the European Project Fire Paradox

Joaquim Sande Silva
Francisco Rego
Paulo Fernandes
Eric Rigolot
(editors)

EUROPEAN FOREST INSTITUTE

Photo: Pedro Palheiro GAUF/DGRF Portugal 2007

EFI Research Report 23 - CD

- Deliverables, Internal Reports and products
- Easy consultation of documents on the web browser
- Search and sorting capabilities

Photo: Pedro Palheiro GAUF/DGRF Portugal 2007

EFI Policy Brief

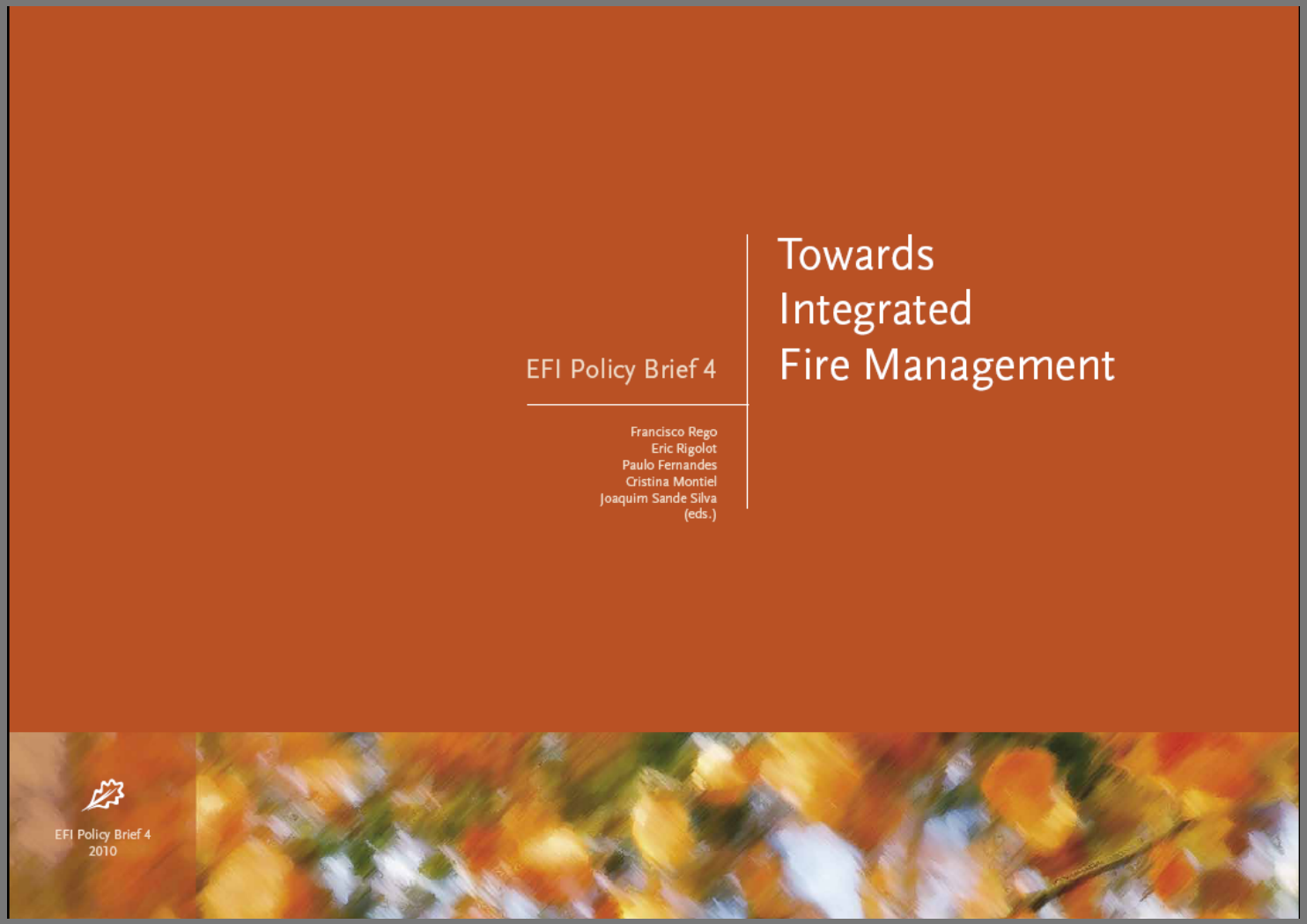


Photo: Pedro Palheiro GAUF/DGRF Portugal 2007

Policy Brief

- ✓ Europe’s tradition of fire use

Policy Brief

- ✓ Understanding and regulating traditional fire use

Policy Brief

- ✓ Reinforcing the use of prescribed burning

Prescribed fire in a *Calluna* heathland in Germany. The use of prescribed fire for the conservation and restoration of the biodiversity heritage of former cultivated lands, or for the maintenance of open landscape elements with aesthetic or otherwise historic value are included in the activities conducted in the frame of the Eurasian Network for Fire in Nature Conservation and the Global Fire Monitoring Center (http://www.fire.uni-freiburg.de).

Policy Brief

✓ Promoting suppression fire as an additional tool in fire fighting

Pedro Palheiro GAUF/DGRF Portugal


FIRE USE
APPROPRIATE TRADITIONAL FIRE USE
UNAPPROPRIATE FIRE USE
TRADITIONAL BURNING
PREVENTION STRATEGIES

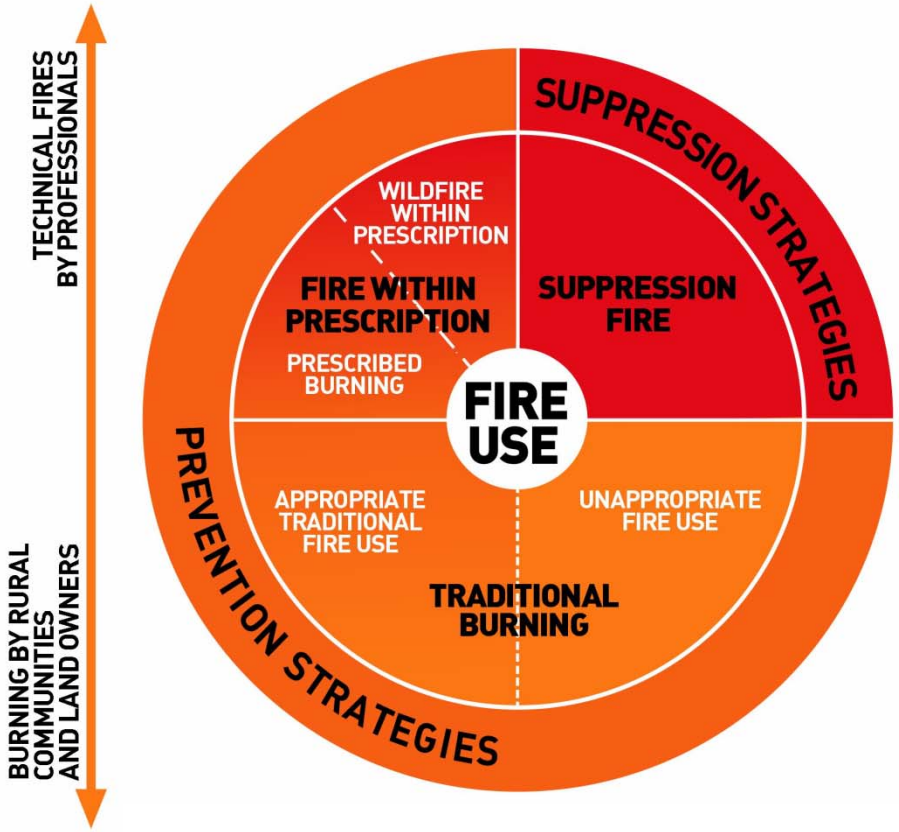

WILDFIRE WITHIN PRESCRIPTION
FIRE WITHIN PRESCRIPTION
PRESCRIBED BURNING
FIRE USE


SUPPRESSION STRATEGIES
SUPPRESSION FIRE
FIRE USE

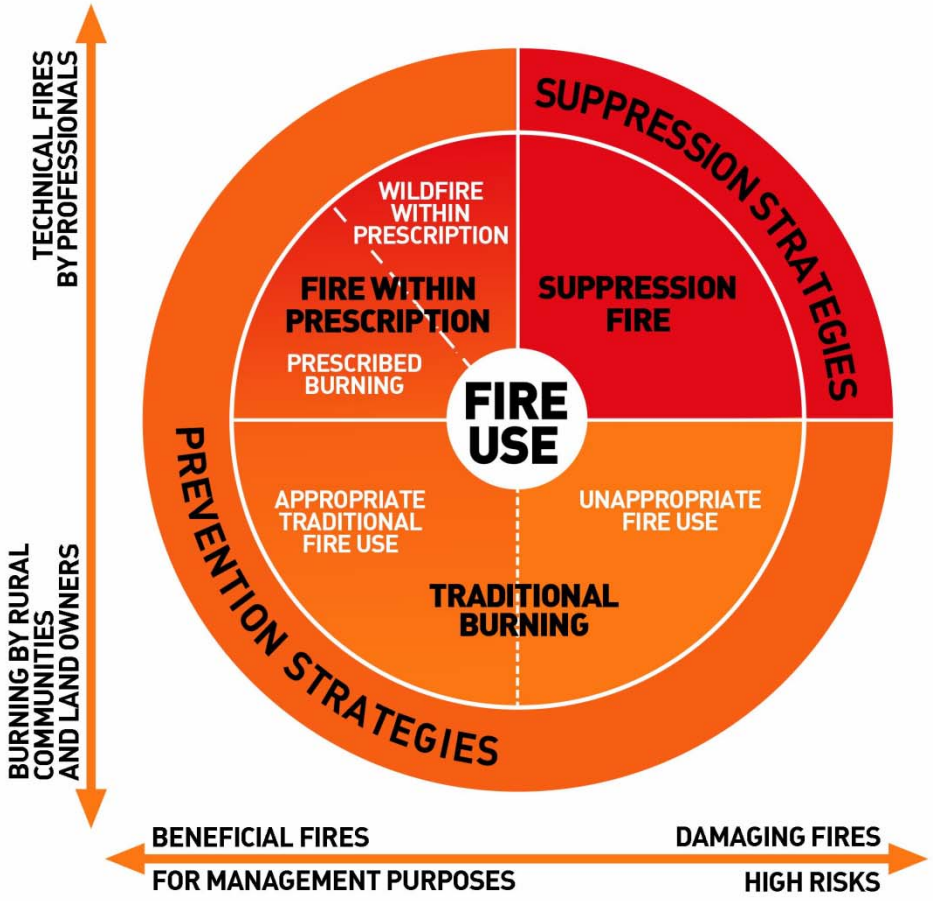

SUPPRESSION STRATEGIES
WILDFIRE WITHIN PRESCRIPTION
FIRE WITHIN PRESCRIPTION
PRESCRIBED BURNING
SUPPRESSION FIRE
FIRE USE
APPROPRIATE TRADITIONAL FIRE USE
UNAPPROPRIATE FIRE USE
TRADITIONAL BURNING
PREVENTION STRATEGIES

INTEGRATED FIRE MANAGEMENT

INTEGRATED FIRE MANAGEMENT

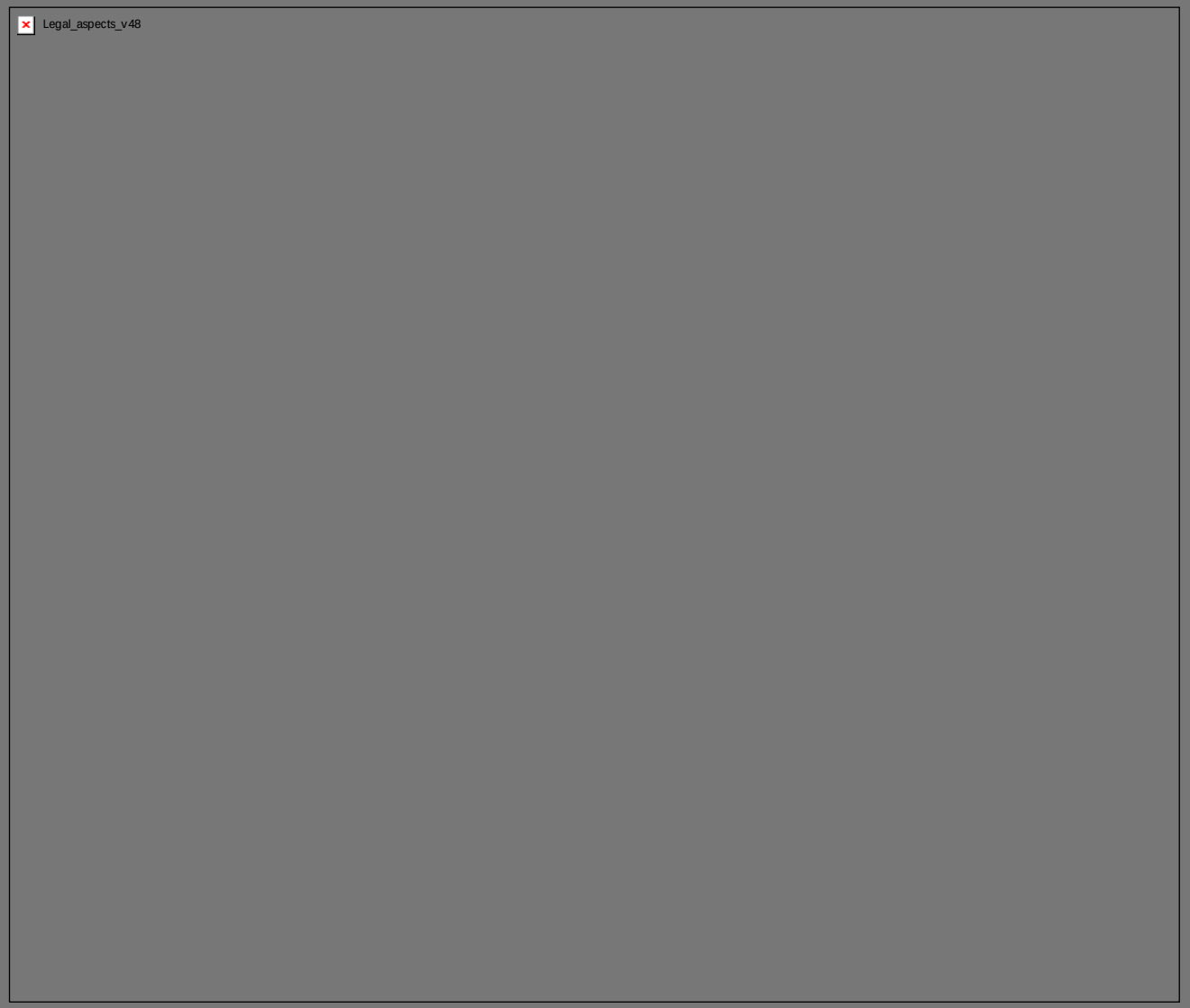


INTEGRATED FIRE MANAGEMENT



Fire policies in Europe

- Awareness of policy-makers towards fires has derived from catastrophic incidents
- Fire policies have generally been based on fire exclusion
- Legislation on fire use restrictive or inexistent



Need for new policy approaches

Fire exclusion vs. Regulation of fire use practices

SALAMANCA

Junta de Castilla y León
Delegación Territorial
Servicio Territorial del Medio Ambiente

SOLICITUD DE PERMISO DE QUEMA DE MATORRAL O PASTOS

D. ..... D.N.I. ..... Residente en .....
T^a. M. ..... Calle ..... C. Postal .....

NOTIFICA: Que es su deseo utilizar el fuego como operación cultural necesaria para el mejor aprovechamiento de la finca de su propiedad que se describe a continuación:

NOMBRE: ..... SITUACIÓN .....

Objeto de la quema .....
Matorral ..... Altura ..... Superficie a quemar .....
Dedicada al cultivo de .....

Distancias		Características de los linderos respecto a la quema
A ..... mts. de masa arbolada.	N	
A ..... mts. de carretera	S	
A ..... mts. de vivienda.	E	
	O	

Y SE COMPROMETE: A realizar la quema, en caso de ser autorizada, de acuerdo con las condiciones que se establezcan.

Fecha y firma

EJEMPLAR PARA EL INTERESADO

Condiciones de la Autorización

1.º La quema se realizará:
2.º ..... Tendrá que notificar al menos con 24 horas de antelación al Agente Forestal de la zona y a la Guardia Civil, señalando fecha exacta y hora de comienzo.
3.º Debe realizarse antes de iniciar la quema de cortafuegos de ..... mts. de ancho.
4.º Dadas las características de la quema deberán permanecer presentes un mínimo de ..... personas y ..... tractores, con la siguiente herramienta:.
5.º .....

Fecha y firma

El

Need for new policy approaches

Fire exclusion vs. Professional and technical use of fire

Wildfire caused by livestock farmers (Avila, Spain)

PRESCRIBED BURNING

SUPPRESSION FIRE

Need for new policy approaches

Fast and ad hoc reaction to a catastrophic situation	→	Proactive mitigation measures
Suppression-oriented policies	→	Preventive and integrative policies
Short-term policies	→	Long-term policies
Fire exclusion from the ecosystems	→	Integrated fire management

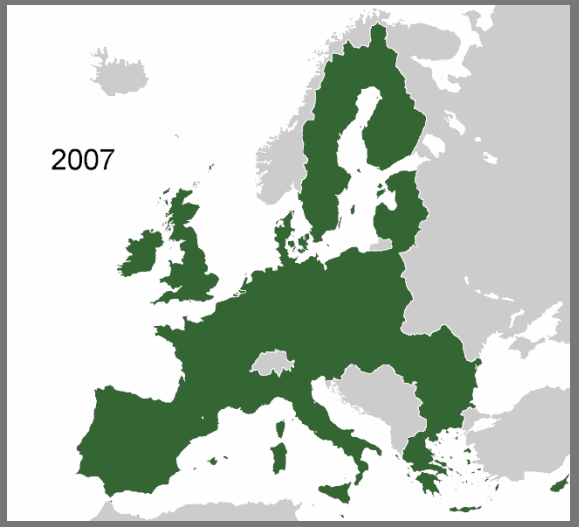
Fire Framework Directive

Selection of the Directive legal form:

Directives are frequent in environmmental matters.

Regulations require uniform regulation and direct application, while Directives provide flexibility and margin of action.

The aim of a Framework Directive is to attain a basic approach or minimum legal harmonisation of Member States legislation.



Legal basis:

European Commission initiative

Co-decision Parliament and Council

Legally binding instrument

The Fire Framework Directive will be the basis for the policy shift in Member States, in order to achive an integrated fire management system, adapted to the European context

Fire Framework Directive

FIRE PARADOX PROPOSAL FOR A FRAMEWORK DIRECTIVE ON WILDLAND FIRE MANAGEMENT:

CHAPTER I. General stipulations

CHAPTER II. Integrated wildland fire management

CHAPTER III: Regulation of fire use

CHAPTER IV. Social awareness, transfer of knowledge and professional training

CHAPTER V. Final stipulations

Fire Paradox Proposals

1. A clear concept of **INTEGRATED FIRE MANAGEMENT** where fire use has a central role

2. An European **FRAMEWORK DIRECTIVE on FIRE** based on the concept of Integrated Fire Management

3. A development of academic and professional **TRAINING AND EXCHANGE PROGRAMS** that use all the concepts and materials produced by the project


Thank you
for your attention !