Generalitat de Catalunya
Departament d'Interior
Direcció General d'Emergències i Seguretat Civil
Divisió Operativa
GRAF

Lo Forestalillo

Nº 94 28-09-2006

Situation of Forest Fire in Catalonia

Pulaski, slicer and rope

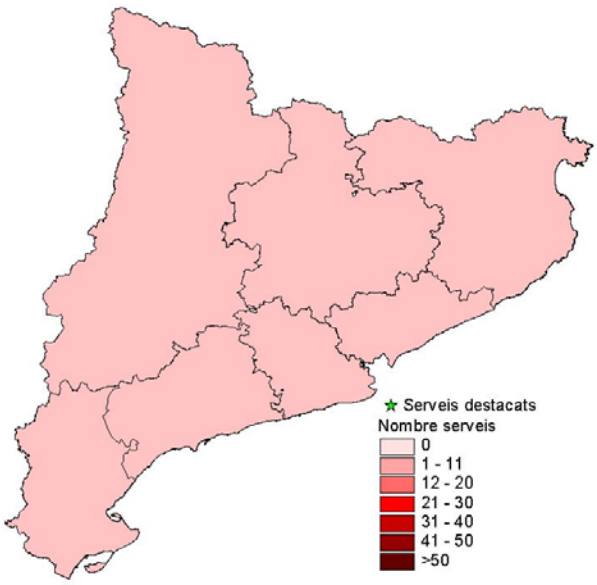
As a tradition in the Catalan fire service, the summer season finishes with the Pulaskinada, this year in Cassà de la Selva (2006).

What we had

Tendency compared:

	25/09/2005	25/09/2006
Nº Serveis (VA+VU+VF)	6646	4838
Superficie (ha)	7242	4338 (*)

(*) PROVISIONAL SURFACE WAITING FOR VALIDATION



Number of services (VA+VU+VF) from the 21/08 to the 11/09/06 and service larger than 2 ha.

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Description of the situation

Evolution of the drought (availability of live fuel and large dead fuel)

Radical change with the last chart (see Lo Forestalillo 92 ; 12/09/06) where the dryness was always marked on the southern half of Catalonia after the last rains, there remains nothing any more but Pallars Sobirà and the extreme south of Montsià which show an important dryness.
It is the moment of a second growth of the vegetation, not as important as in spring and conditioned by the arrival of the cold and the sunlight.

***Fig. 3**. Accumulated drought (index Drought Code) on the **17/10/05**.*

***Fig. 4**. Accumulated drought (index Drought Code) on the **25/09/06**.*

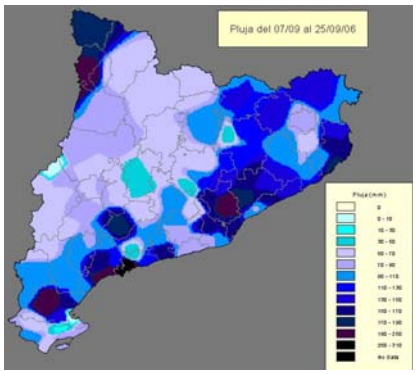
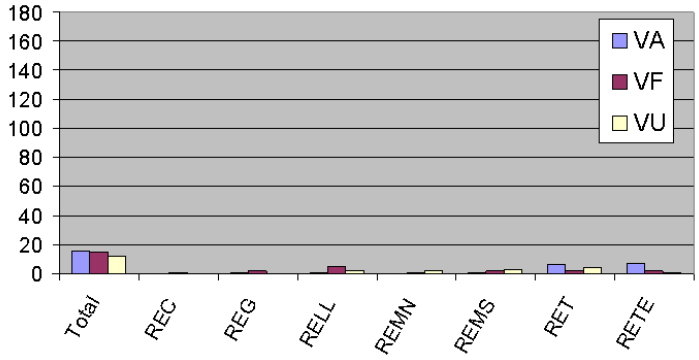


***Fig. 5**. Accumulated rains from the 07/09/2006 to the 25/09/06.*

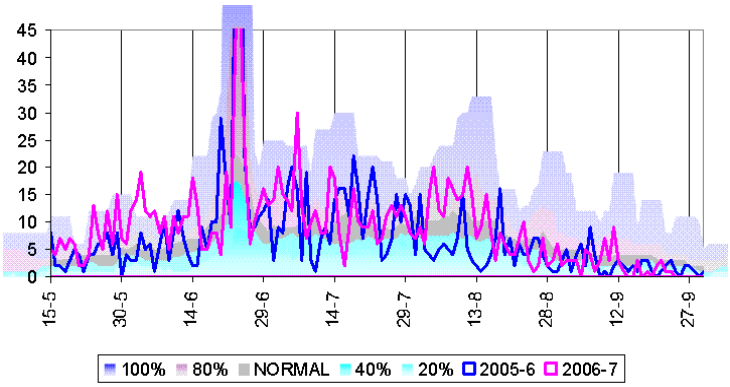
Evolution of services (VA, VU and VF)

The graph shows a tendency of mathematical end of campaign (15/09); Mbs 13 is in values very similar to the year 2005, despite everything, there are points of inflection which arrive at values lower than normal of the 5 last years.



Graph 1.** Total services and for region according to the type of affected vegetation of the last 15 days, from the **11th** to the **25th of September.

Graph 2.** Mbs13 Forest fire services) from the 15/05/06 to the 25/09/06, compared to the same period in 2005/6. The evolution of the year is also compared **the number of normal services (in grey, percentile 50%), less of the normal (in blue) and more (in violet) of the last 5 years.



Importants points

3.1.- First important episodes of rain.

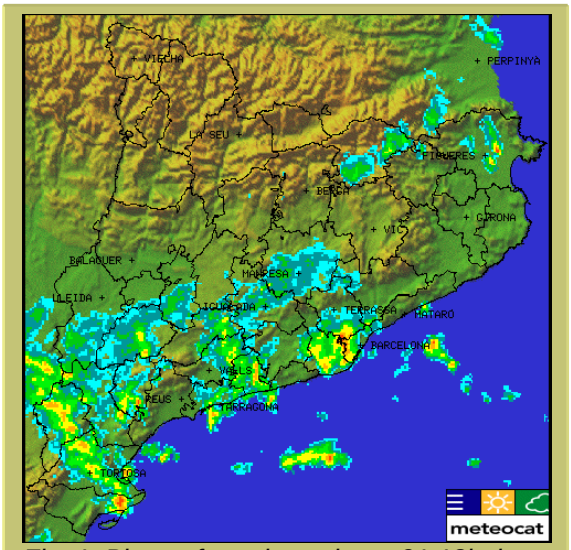


Fig. 1. Picture from the radar at 21:18h the 22/09/06. (Source: SMC)

With the end of summer and the beginning of autumn, the first rains arrived.
In fact, there were two episodes of rains generalized in the month of September (>70% of the stations recorded precipitations), generic data are as follows :

Days	Surfaces affected	Average of precipitation
12, 13 et 14	98%	90 mm
23	97%	15 mm

The last episode started of a depression located at the west of Western Europe and which is responsible for the arrival of the disturbance having given rains on a great part of Catalonia.
At the time of the two episodes, some zones collected more than 250 mm ; it is the case of Tarragona and closest neighbourhoods.

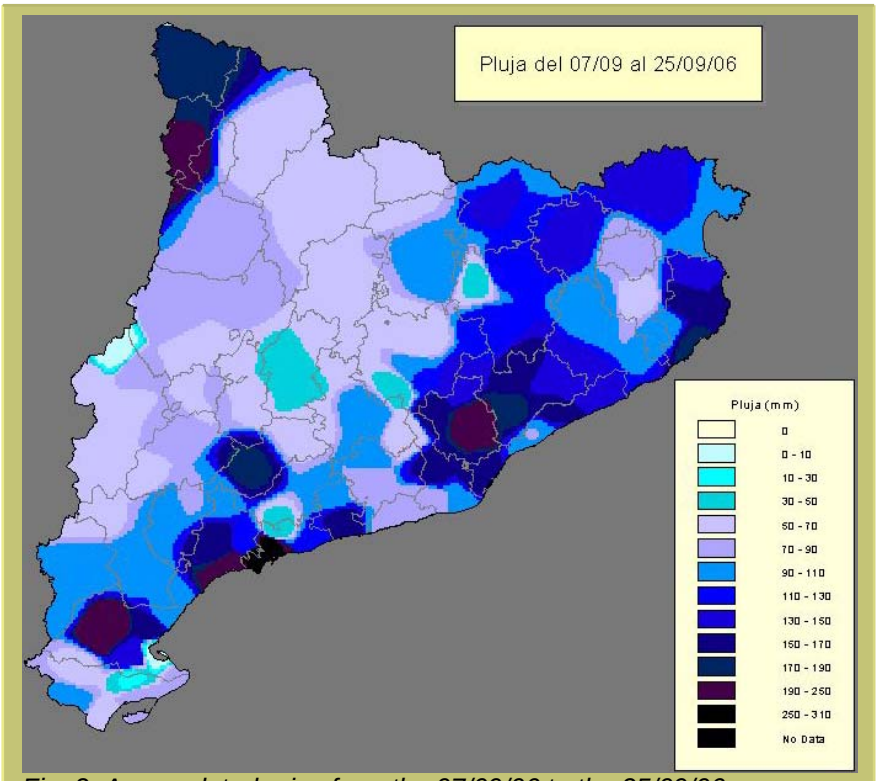


Fig. 2. Accumulated rains from the 07/09/06 to the 25/09/06.

3.2.- Whereas the rains in Catalonia start, more than 1200ha burn in Castille-Leon.

From the 6th to the 14th of September, an episode of dry storms has affected a good part of the Iberian peninsula and more particularly the Community of Castille-Leon.

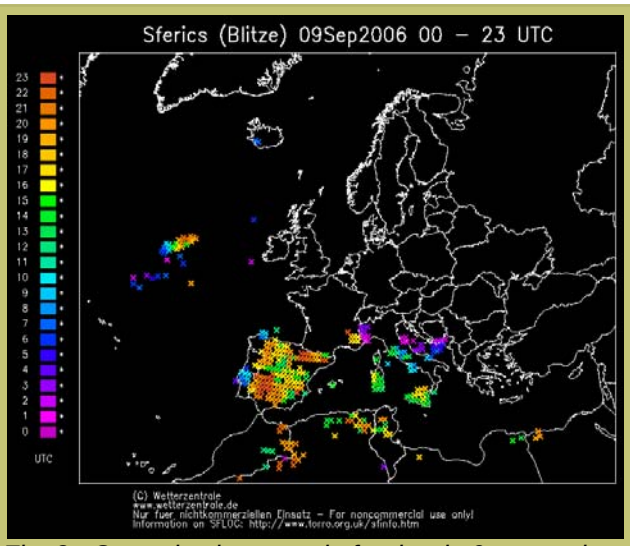


Fig. 3.: Carte des impacts de foudre du 9 septembre.
Source : www.wetterzentrale.de

In the province of Lleó, we recorded, in three days, 68 fires which burned more than 1200 ha ; the principal cause of these fires was lightning.
The dry storm which affected this province caused in only one afternoon up to 2000 impacts of lightning. Only during this period, 60% of the surface of the season were burned in this Community.
The principal difficulties encountered by the fire resources were the simultaneity and the difficulty of access.

3.2.- The 10 myths of forest fires (curiosities).

And more there is no wind !!!!!.(fortunately that there was no wind)
We traditionally believes that the most important factor in the propagation speed and the intensity of the fire is the wind, this is not at all certain because it mitigates other factors which produce the behaviour of large forest fire which are : the fuel availability and the load, the accumulated dryness, which shows a difference marked on the intensity and the propagation speed. As show in the examples of Solsonès fire in 1998 or in Sant Llorenç fire in 2003.

Fire does what it want!!!!
When the various factors influencing the fires behaviour are not known or are not included / understood, we allots to fire an "erratic" behaviour.
Currently the fire behaviour is understood and is foreseeable thanks to the studies of the last fires (historical fires). This repetitive behaviour answers the characteristics of topography, of the weather situation of the moment and of the fuel, thus we can know by advance the fire behaviour that we will have at a given time and in the following hours (fire of design).

"El tío de la moto"(the biker)," pinyes que salten" (pine cones which jumps), "conill de la cua encesa" (rabbit with the tail on fire) : spot fires
It is more than obvious that the convective columns of the forest fires transport in suspension and on long distances incandescent particles. These particles are going high using the upswing of the hot air of the column, until they fall down to the ground making favourable a new ignition point. This one is normally supported by the conditions of convection and radiation that the front created during its advance. The wind supports the transport of these particles at long distances (hearths proven with more than 12km). On the other side, the presence of instability in the atmosphere is also favourable to the development of more intense fires and facilitates the increase in the convective column with, for consequence, the rise of particles.

The holm oak dos not burn.

It is certain that the holm oak (*Q.ilex*), just like these first cousins *Q.Coccifera or Q.suber* have a relativelely low inflammability compared with other resinous species (*Pinus halepensis, Juniperus phoenicia..)* or with certain essential oils (*Rosmarinus, Cistus*..). However, with conditions of accumulated dryness, the vegetable formations dominated by the oak (usually with important densities being given the lack of forest management causing an inter specific competition) have a continuity of fuel vertical and horizontal, with high densities of biomass, which can cause fires more difficult to control once the environment of fire created, if we compare them with fires which are propagated in other arborescent formations with similar accumulated conditions of drought.

Fire, it is airplanes and helicopters which extinguish it. Hopefully they are here!!!

The direct attack with the aerial resources is a type of operation included in all the Catalan extinction system. Each operation is necessary but alone is not effective. This one supports the reduction of the intensity and allows the ground attack with water lines and manual tools which are those which extinguish really the fires. Sometimes, the aerial resources manage to slow down the propagation of the front but in no case, they extinguish the fires because without the combination with ground work, the action of the planes would be no effective. All fires die out since the ground.

Fire-break are safe!!!

A safe area is a clear zone of fuel and whose size makes it possible not to unfold the fireshelter (black, without possibility of burning again) in which we can be paced and not to receive the radiation and the direct convection of the front. Normally, the width of the safe area must be 4xL (L is length of flames).

No, all fire-break do not respect this rules either by the distance to the vegetation or by the quantity of vegetation available or by the position of the fire-break compared to the alignment of the front.

The night, that does not burn !!!!!

In theory, the normal oscillation of the temperatures diurnal and night is accompanied by an oscillation of the relative humidity. In the broad outline, by decreasing the temperatures at night, moisture are increasing, that involves a behaviour of fire more favourable to the extinction. It should not be forgotten that all the plants do not answer at the same speed to these variations of moisture (combustible large, fine, …). There are cases of recovery of night moistures, is not made in concrete synoptic situations. These situations, the night conditions do not suppose an advantageous behaviour of the fire for the fight.

Northern side of the valley do not burn!!!!!

It is certain that the slopes directed in the south have a factor moreover in the alignment which is the exposure. Thus the northern side burn from side or tail. The intensities, indeed, can be reduced since the fuel is less available not having received the radiation of the sun, but if the temperature, the moisture and the drought of the area make it possible the northern side of the valley to burn and even burn without possibility of extinction, in many case. In the northern side of the valley, moisture is higher, therefore there is more fuel but which is less sensitive to fire.

If the fire-fighters had arrived before...

Since always, many efforts are forwarded to create a fore service sufficiently to dimension and to answer quickly and correctly. We still believe that any fire with its ignition is a small fire, but it is not true. Conditions of pronounced drought, low relative moisture and high temperatures give the conditions so that a forest fire, as of its departure, presents conditions of intensity such as one will not be able to fight it in direct attack.

So that it is important to carry out a rapid identification of the fire and to dimension the attack according to the potential, but it is not the factor which will avoid the forest fire and these consequences. What will avoid it, like we know, is the management of our forests.

Working with the Pulaski is a waste of time.

There is an increase in the use of this manual tool to anchor the perimeter and that because of its effectiveness and the freedom of movement which it gets.

The combination of this tool with water gives good results in places, for example, where there are many heavy fuels which requires to be drowned with much water. In an opposite way, the pulaski can pass behind the water line when this one must advance quickly to reduce to the maximum the coefficient of fire propagation, but by leaving the perimeter unstable with hot points.

Moreover, on surfaces fires, the pulaski can be used in direct or parallel attack efficiently if we are familiarized with its use ; and in the inaccessible grounds, it is the single manner of fighting fire.

Its fickleness also enables us to use it for a parallel attack (against fire or tactical burning) requiring the preliminary construction of a defense line.

3.3- Celebration of the 6th Pulaskinada in Cassà de la Selva (Gironès).

The last 16th of September took place in Cassà de la Selva the 6th Pulaskinada, festivity which concludes the forest fire campaign 2006, and in which have to take part firemen of all Catalonia as wheel as a noticed participation of French firemen, come especially fort he occasion.

It is necessary to underline the good environment of the day, the implication and the organization of the firemen of Cassà de la Selva.

The results of the sporting tests are as follows:

Launching of pulaski:
David Borrell GRAF Girona, with a length of 30,2 m

160 m of defense line:
GRAF Girona

Ability with the slicer (Look out):
Bombers Voluntaris de Sant Hilari Sacalm

Rope shooting:
GRAF Barcelona

We wanted to still thank the organizers and the participants. Appointment is given next year.

Corrigendum

In Lo Forestalillo 92 we wrote in part 3 (interview of Amandio Torres, vice-president du SNBPC) that the official surface burned in Portugal was 134.000ha since January, whereas it burned only **66.000 ha**.