



AERIAL FIRE FIGHTING ACROSS SOUTHERN EUROPE

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AERIAL FIRE FIGHTING

- 1. Regulatory issues**
- 2. Lack of crews and training requirements**
- 3. Large fires aerial coordination**
- 4. Night operations**

- 1. Regulatory issues**
 - a) Beginning**
 - b) Present**
 - c) Future**

AERIAL FIRE FIGHTING

1. Regulatory issues a) Beginning

- The helicopters began in aerial firefighting late 80
- More than 10 years with no specific regulatory for FF
- November 2000 (Rule 1684/2000) the first FF regulation:
 - Competent authority
 - Need of specific FF TR
 - Requirements for specific FF TR
 - Minimum Commercial pilot
 - 300 hr TT
 - FF Course
 - 2 years validity
 - 100 hrs FF before this date no need requirements

AERIAL FIRE FIGHTING

1. Regulatory issues a) Beginning

Rule May 2001 FTL in FF

- Definitions
 - Base
 - rest
 - Day off
 - Activity
 - Etc.
- Max 12 hrs activity each day
- Max 2hrs each flight
- 40 minutes off for 2 hrs flight
- 10 minutes for preflight
- Max 8 hr fly each day
- Max 80 hrs in 28 consecutive days

AERIAL FIRE FIGHTING

1. Regulatory issues a) Beginning

Rule June 2001 requirements of TR FF

- Requirements FF TR:
 - Commercial pilot licence
 - 300 hrs TT in helicopter
 - FF course
- FF Course:
 - Ground training 80 hrs
 - Flight training:
 - 5 hrs flying with no external load
 - 6 hrs flying with external load
- FTO
- TRTO
- Authorized Operator
- Instructors/Examiner: Only FI/FE

AERIAL FIRE FIGHTING

1. Regulatory issues a) Beginning

Rule July 2002

- Operating Procedures
 - Operations Manual
 - Crew Requirements
 - Training relevant to the type or variant
 - Recurrent training 12 months
 - Operator proficiency check 12 months

AERIAL FIRE FIGHTING

Rule February 2007 (Order Fom 395/2007) Regulation FF

- **Scope**
- **Requirements FF TR**
 - At least CPL
 - TR aircraft to be used
 - 300 hrs PIC
- **FF TR course**
 - Ground school 80 hrs.
 - Flight 5 hrs of flight training + TR aircraft to be used
- **Revalidation**
 - proficiency check
 - 4 hrs PIC in FF in the last 2 years
- **Renewal**
 - **Less than 3 months**
 - 1 hr flight training
 - proficiency check
 - **Between 3 months and 2 years**
 - 2 hrs flight training
 - proficiency check
 - **More than 2 years**
 - 5 hrs Ground school
 - 2 hrs Ground school in HFM
 - 3 hrs flight training
 - proficiency check

AERIAL FIRE FIGHTING

1. Regulatory issues b) Present

- 2012 A working group was created for the development of the rule that does not regulate by EASA
- We have the opportunity to give the point of view of the operators and the pilots.
 - New rule:
 - Operator course
 - Requirements
 - At least CPL licence
 - FF Course
 - 30 hrs Ground school
 - Flight training:
 - 10 flight hours
 - In case of high flight experience 5 flight hours
 - Helicopter used in FF training must be with more than 1000 kg empty weight
 - ATO
 - authorized operators
 - Instructors: highly experienced pilots
 - **For helicopters with more than 4.000 kg MTOW multicrew operation**

AERIAL FIRE FIGHTING

From late 80 to 2.000
No specific rules
All pilots can flight FF

Between 2.000 to 2.007
Pilots with more than 100 hrs in FF before year 2.000 o 300 hrs TT + FF course

between 2.007 to 2.015
Pilots with 300 hrs PIC + FF course

From 2.015
Pilots with more than 500 hrs
PIC + FF course

AERIAL FIRE FIGHTING

**1. Regulatory issues
b) present**

1. Regulatory issues.

	PIC	ACT *	ASC **	PICmin
Helicopter:				
Water bombing and Fire Brigade Transport	500	50	100	400

- * ACT.- Similar Activities
- ** ASC.- Similar Aircraft

AERIAL FIRE FIGHTING

1. Regulatory Issues

b) Present

- The problem of the FF captains actually increases because the minimum requirements are increased from 300 hours PIC to 500 hours PIC.
- In addition there is the problem with log flight time. How can pilots log flight hours sitting in the copilot seat? Just a copilot time? and then, how can they log hours until 500 hrs of PIC?
- And the most important problem:

How do we get the new pilots to the minimum hours of PIC demanded by the rule?

In what other jobs can the new pilots reach 500 hours PIC ?

How long can it take them to get it?

AERIAL FIRE FIGHTING

1. Regulatory issues

c) Future

**We have more problems than solutions
but we are working**

AERIAL FIRE FIGHTING

The big question is:

Who should regulate in FF & SAR?

Possibilities:

We can distinguish two ways:

- EASA has to make the rules so that they can be met for all members and then the rules should be very generally stated
- National Authority can make rules that fit the operational reality of the particular country

Airworthiness

It is logical that airworthiness is regulated by EASA. Airworthiness requirements are the same across the EASA environment. **So this point should be regulated by EASA (part M and part 145)**

Operation

The operation of FF is very particular to each country

If regulated by the national authority there can be a direct contact between the national authority and the operators and the rule will be adapted to the reality of each country. **So this point should be regulated by the National Authority**

AERIAL FIRE FIGHTING

2 Lack of crews and new training requirements.

a) Lack of crews

Necessary generational change is complicated by:

- Type of contract: Seasonal
- Type of work: Depending on the season you can fly many or few hours
- Requirements of the rule and the way to log flight hours for copilot or the “other pilot”

170 helicopters in Spain:

89 single engine light

67 medium twin engine

14 heavy twin engine

With so many small helicopters in single pilot operation it is impossible to give the necessary experience to new pilots.

And medium and heavy helicopters will be forced to multi-crew operation.

It will be very difficult to make new crews reaching the requirements under the rule

AERIAL FIRE FIGHTING**2 Lack of crews and new training requirements.****b) Training requirements**

- The rule is currently being developed primarily as the CAT 965
- Recurrent training and checking relevant to the type or variant appropriate to the type or variant of aircraft
- Recurrent training and checking relevant to the type of activity
- Annual operator proficiency check
- Training and checking on emergency and safety equipment every 12 months
- CRM training
- Ground training and flight training helicopter or FSTD once a year.
- Recent experience, no person shall act as PIC if:
 - Three operations in the last 90 days
 - Proficiency check in the last 180 days or 1 hour of training

AERIAL FIRE FIGHTING

3. Air coordination in large fires

- Large Fire is considered from 500 hectares or more
- Aircraft coordination is used with 4 or more aircraft in the fire

The missions of the aircraft coordination depend on the type of aircraft, plane or helicopter

Objectives

- Increase safety of aircrafts
- Improve the effectiveness of using the aircrafts
- other Mission

AERIAL FIRE FIGHTING

3. Air coordination in large fires

Other Missions:

To advise the Chief of extinction:

- Plans extinction
 - Best drop of water sites depending on the performances of aircraft
 - Collect and fly over the fire to give a global vision of the fire
 - Notify potentially dangerous situations for ground personnel and aircrafts
- Manage the aircraft's flight times in order to establish a schedule and always have aerial resources in the fire
- Assign refueling base for airplanes and helicopters avoid congestion in the same base
- Assign base for overnight for the aircrafts if necessary
- Assign carousels
- Looking for alternative points to fill up the water

AERIAL FIRE FIGHTING

3. Air coordination in large fires

Coordination Team:

- pilot
- 2 Technical Coordinators

Requirements

- pilot
 - At least CPL
 - 300 hours of PIC (50 ACT)
 - FF Course
 - Current Training and checking
- technical coordination
 - FF Course
 - Knowledge of aerial radio communications
 - Knowledge of aircraft performances
 - Knowledge of applicable aeronautical rules

AERIAL FIRE FIGHTING

3. Air coordination in large fires

Information needed before take off

- Designation of fire
- coordinates
- Aircrafts in the fire
- Aircrafts in the near future
- Name and telephone number of Chief of fire
- Working frequencies and channels

AERIAL FIRE FIGHTING

Flying to the fire:

- Nearby bases are located
- Water points
- Other information

Arrival at the fire:

- Communication with aircrafts to collect data:
 - Operational area
 - Time remaining on the fire
- Communication is established with the Chief of fire
- The area is recognized with the Chief of fire
- Photography and perimeter of the fire
- Chief of fire explains the work plan
- Assume coordination

During the fire:

- Organize aircrafts to meet the work plan
- Organize the bases where aircraft can refuel
- Organized relays of aircraft to meet the rule

Out of the fire:

- Technicians can coordinate from the ground
- Other aircraft will be designated to coordinate or
- Technicians will move to another aircraft to coordinate

AERIAL FIRE FIGHTING

3. Air coordination in large fires

Aerial resources:

- **20 Helicopters**
- **9 planes**

AVIONES	
DISTINTIVO	LOCALIZACIÓN
AT ROSINOS 1 y 2	ROSINOS
BP, BQ, BS	MATACÁN
FOCA 24	LABACOLLA
ACO LABACOLLA	LABACOLLA
FORMACION FOCA (2)	TORREJÓN

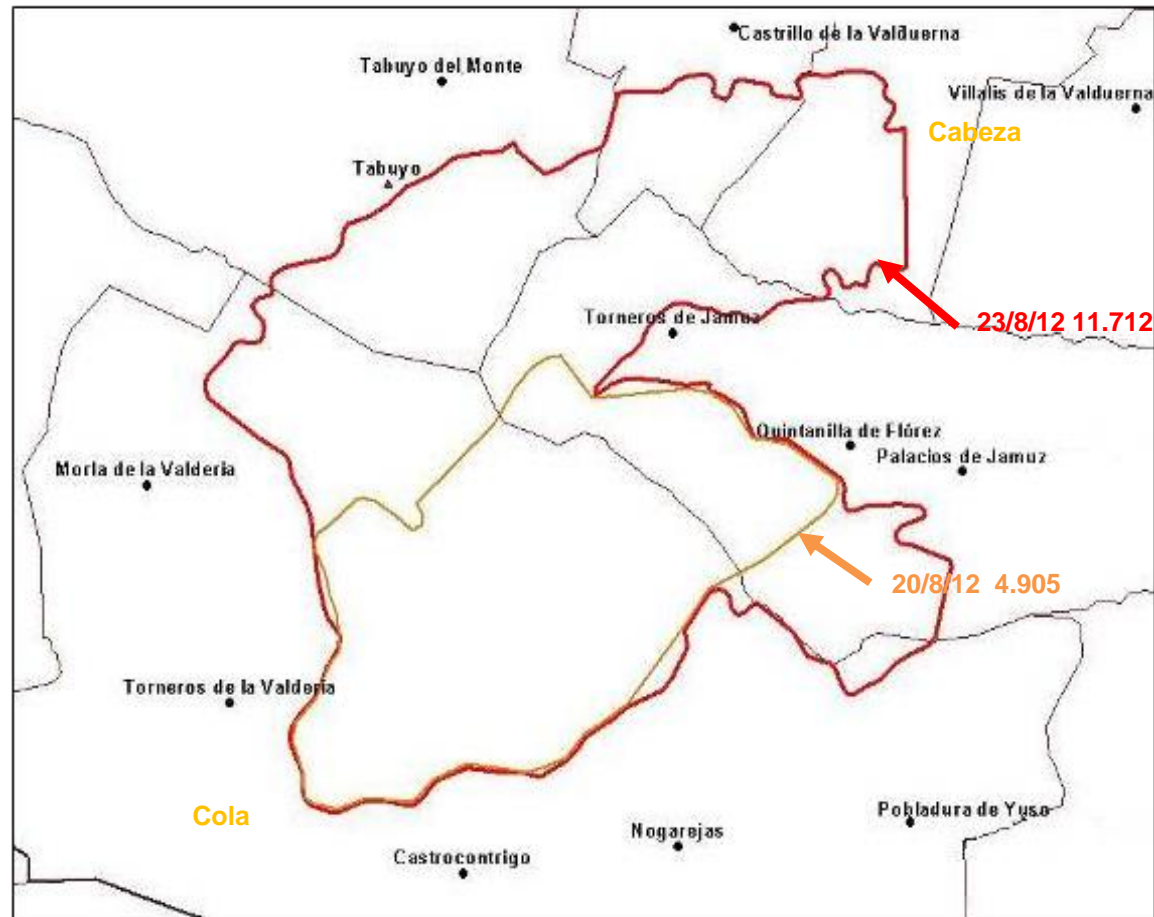
HELICÓPTEROS	
DISTINTIVO	LOCALIZACIÓN
LIMA 1	CUETO
LIMA 2	RABANAL
LIMA 3	CAMPOSAGRADO
LIMA 4	SAHECHORES
TABUYO 1 y 2	TABUYO
LUBIA 1 y 2	LUBIA
LAZA 1 y 2	LAZA
IGLESUELA 1 y 2	IGLESUELA
PINOFRANQUEADO 1 y 2	PINOFRANQUEADO
REBECO	ALCAZARÉN
SIERRA 3	GUADRAMIRO
ZULU 1	ROSINOS
ZULU 2	VILLARDECIERVOS
KAMOV IBIAS	IBIAS
KAMOV VILLARES	VILLARES DE JADRAQUE

AERIAL FIRE FIGHTING

3. Air coordination in large fires

Fire Nº 14 – Castrocontrigo (León) August 20, 21, 22 , 23 2012

Area:
20/08/12: 4.905 ha
23/08/12: 11.712 ha



AERIAL FIRE FIGHTING

3. Air coordination in large fires

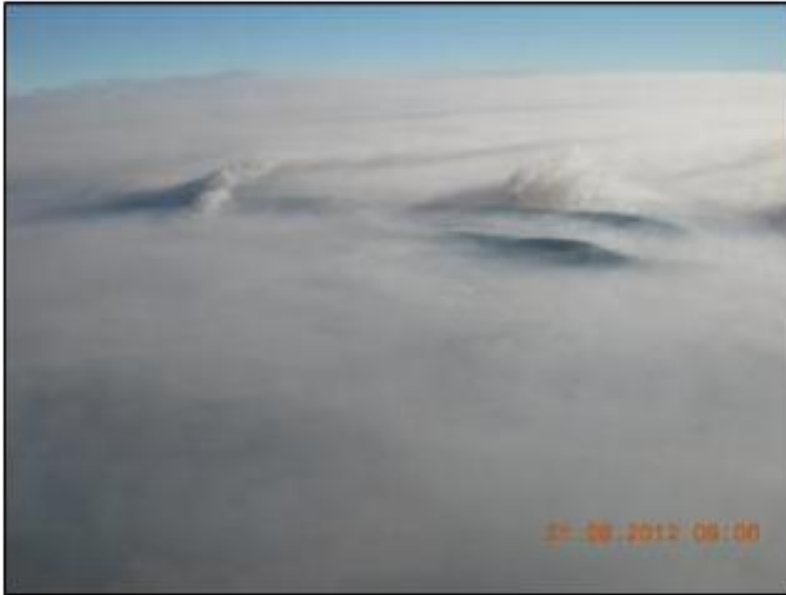
Common problems in coordination:

- Visibility
- topography
- Saturation communications
- Management refueling bases
- Management flight pilots times to meet the rule



AERIAL FIRE FIGHTING

3. Air coordination in large fires



Visibility on the second morning day

AERIAL FIRE FIGHTING**4. Night operations**

From my point of view, it is not possible to do the FF operation as we do now:

We need:

- Investment R&D.
- Rule framework

Two types of operations may exist:

- Monitoring fire (unmanned aircraft).
- Extinction of Fire (manned aircraft).

Necessary changes:

- Adapt FF bases for night loading of water
- Update operating procedures to night VFR at very low altitude
- triple crews
- Crew training for VFR night in FF
- Incorporation of new technologies to night FF

Perhaps the easiest way would be to start flying with unmanned aircrafts to monitor the evolution of the fire