# Short Photogallery of the plume monitoring Campaign

All images have to be cited referring to @bomberscat

## ALFARRAS FIRE Catalonia. Date: 27/06/2021

| 20:14 | Fire jumping the road                  |
|-------|--|
| 20:44 | Plume developed                        |
| 20:46 | Plume affected by nearby storm indraft |
| 21:20 |  |
| 22:04 | Plume grounded and spot fires          |

MARTORELL FIRE, Catalonia. Date: 13/07/2021

| 16:30 | Plume starting penetration stage into unstable mixing layer   |
|-------|---|
| 16:49 | Plume above LCL and cresting PyroCu. The penetration stage is ending                                  |
| 16:55 | The flat PyroCu indicates it is at ABL top. It is not deepening                                       |
| 17:19 |   |
| 17:22 | Fire ends its main run at<br>AP7 Highway. Firefighters<br>burnout operation reduced<br>fire intensity |

| 17:26 | Spot fires open left flank.<br>New runs uphill                |
|-------|---|
| 17:33 | New PyroCu, this time deepening stage is developing           |
| 17:45 |   |
| 17:58 |   |
| 18:43 | Biggest deepening. It is the deepest PyroCu seen              |
| 20:10 | Fire has lost deepening stage and is losing penetration stage |

LLANÇÀ FIRE: Catalonia 16/07/2022

| 13:35 |                 | ignition   |
|-------|-----------------|--|
|       |                 |  |
|       |                 |  |
|       |                 |  |
| 14:10 |                 | Convective plume meanwhile is in the canyon        |
| 14.45 |                 |  |
| 14:16 |                 | Wind effect when plume arrives on top of the ridge |
| 14:21 |                 | Separated plumes by each flank                     |
| 14:25 | 2021.7.16.14.20 |  |

| 15:01  Surface plume  Overshooting PyroCu  Fire going down the slope. It has lost intensity | 14:29 | First condensation on top of the plume |
|---|-------|--|
| slope. It has lost intensity  | 14:32 | Overshooting PyroCu                    |
| slope. It has lost intensity  | 15:01 | Eiro going down the                    |
| 15:32 Surface plume   | 13.01 | slope. It has lost intensity           |
|   | 15:32 | Surface plume                          |

| 15:56 |  | Small vertical plume                                 |
|-------|--|--|
| 13.30 |  | with a minor fire run                                |
|       |  |  |
| 16:37 |  | Wind driven plume                                    |
|       |  |  |
| 18:20 |  | Vertical plume with new intense fire runs            |
|       |  |  |
| 21:43 |  | Back to poor activity at sunset                      |
| 01:14 |  | New wind driven plume                                |
| 06:20 | 77 pt. 2021 6-18-008 17 pt. 2021 6-18-008 17 pt. 2021 6-18-008 18 pt. 20 | Back to flanking and<br>durface wind driven<br>plume |

# TORROELLA FIRE, Catalonia. Date: 22/07/2021

| 18:53 |   | Convective plume<br>developing. Early<br>penetration stage into a<br>very stable ABL           |
|-------|---|--|
| 19:18 |   | Fire reaches its highest<br>penetration with strong<br>wind shear. It stays at<br>Cplume stage |
| 19:39 |   | Timid overshooting. Wind shear destroys it   |
| 20:25 |   |  |
| 20:58 | SI January Control of |  |
| 21:11 |   | The night starts to create lower plume development. Its penetration is losing strength.        |



## SANTA COLOMA DE QUERALT, Catalonia.

| Date: 24/07/2021 |  |
|------------------|--|
| 15:51            | Fire evolving in the surface layer   |
| 16:36            | Plume starts the penetration stage   |
| 17:31            | Plume hits the ABL<br>top without<br>deepening                                     |
| 17:51            | The firefighter's job<br>has calmed down the<br>fire, back to the<br>surface layer |
| 18:12            | Flank opening re<br>starts the<br>penetration stage.<br>Good Cplume                |

| 18:18 | The Cplume keeps pushing the penetration stage                                  |
|-------|---|
| 18:21 | Penetration stage<br>gets to the ABL top<br>and plume flattens at<br>that level |
| 19:03 |   |
| 19:29 | Plume creates a<br>shallow overshooting<br>without reaching LCL                 |
| 20:07 |   |
| 20:30 | Deep overshooting goes over LCL with a shallow push                             |

| 20:49                     | BESERVE AND THE TEST STATE OF THE STATE OF T | Plume top flattens<br>due to stability. No<br>more deepening  |
|---------------------------|--|---|
| 21:13                     |  | Plume maintains an overshooting over the head fire, but ABL starts to shrink                            |
| 21:34                     |  |   |
| 21:59                     | School files - Second 20 20 10 20 75 Second 20 20 20 20 20 20 20 20 20 20 20 20 20   |   |
| Date: 25/07/2021<br>08:13 |  | Fire under a stable layer with some plumes starting the penetration stage where the fire can run uphill |

| 10:34 |            | Penetration stage into a stable ABL |
|-------|------------|-------------------------------------|
| 10:50 |            |                                     |
| 11:44 |            | Plume rising with ABL reaches LCL   |
| 12:58 |            | Deepening stage                     |
| 13:30 | 531.02 103 |                                     |

| 17:17 |       | Firefighters Jobs<br>drives the plume<br>back to the surface<br>layer and penetrating<br>pushes |
|-------|-------|---|
| 18:45 |       | Penetrating stage   |
| 18:51 | - Bal | Plume rises penetrating stage   |
| 19:11 |       | Plume above LCL deepening   |
| 19:37 |       | Deep PyroCu   |

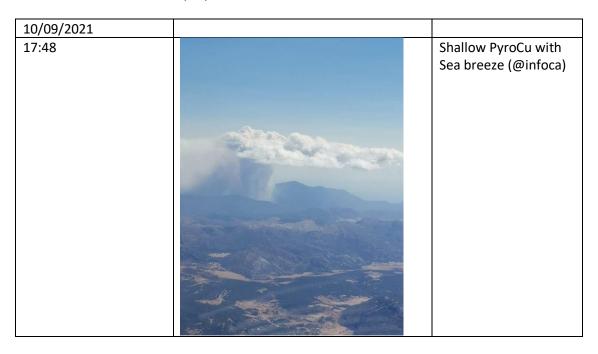
| 19:45 | PyroCu push flattens<br>due to shear  |
|-------|---|
| 20:12 | Breaking stability and achieving free convection. Plume rises to 8000 m becoming a PyroCb |
| 20:23 | Plume keeps pushing to free convection  |
| 20:52 | Plume starts to fade<br>away above the<br>stable layer                                    |
| 21:15 | Plume completely dissipated   |

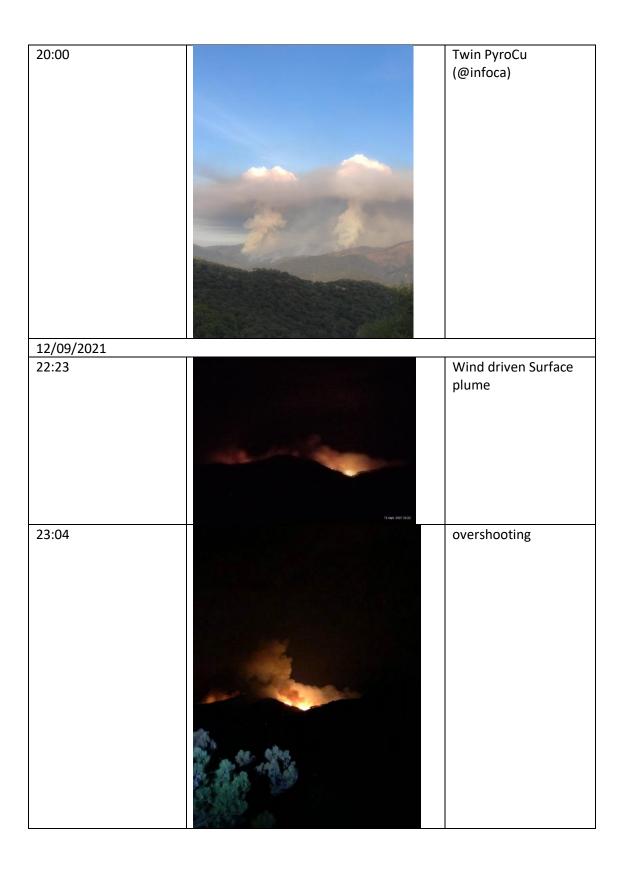
POBLA MASSALUCA fire. 12/07/2021

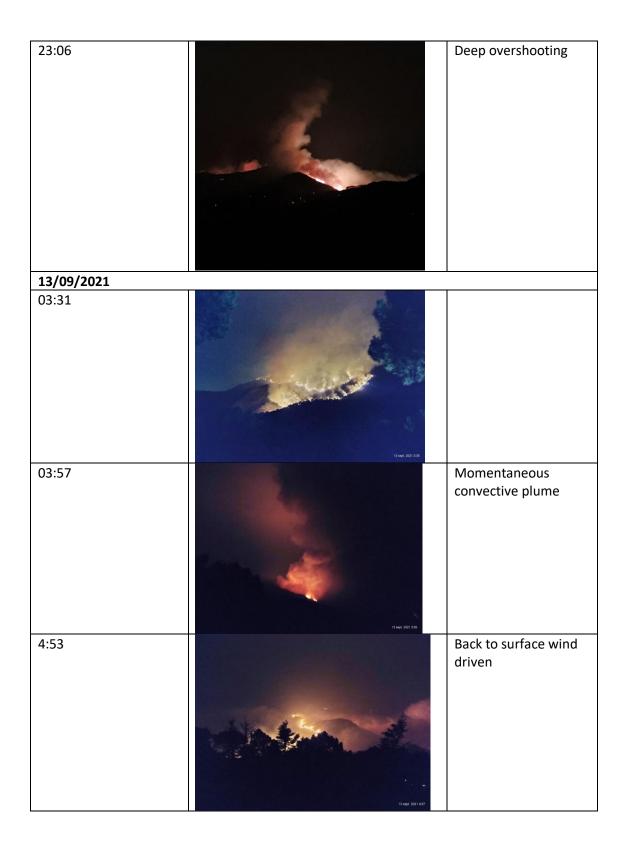
| 14:21 | IA FAMBRILA  W Nurse posicióñéa-roja effère | First plume   |
|-------|---|---|
| 14:43 |   |   |
| 14:51 |   | Convective plume  |
| 15:09 |   | Head fire blocked<br>byriver. Plume<br>becomes wind<br>driven |
| 15:28 |   | New flank fire run  |



# **SIERRA BERMEJA fire.** 09-13/09/2021







| 7:38  | 13 mgr. 2017 2377 |                           |
|-------|-------------------|---------------------------|
| 10:16 |                   | Wind driven surface plume |
| 11:01 |                   |                           |
| 11:28 | True 201 to a     |                           |