



European  
Commission

JRC SCIENTIFIC AND POLICY REPORTS

# Harmonized classification scheme of fire causes in the EU adopted for the European Fire Database of EFFIS

*Executive report*

Andrea Camia

Tracy Durrant

Jesús San-Miguel-Ayanz



Report EUR 25923 EN

---

### **European Commission**

Joint Research Centre  
*Institute for Environment and Sustainability*

### **Contact information**

#### **EFFIS**

Address: Joint Research Centre, Via Enrico Fermi 2749, TP 261, 21027 Ispra (VA), Italy

E-mail: [effis@jrc.ec.europa.eu](mailto:effis@jrc.ec.europa.eu)

Tel.: +39 0332 78 6138

Fax: +39 0332 78 5500

<http://forest.jrc.ec.europa.eu/>

<http://www.jrc.ec.europa.eu/>

### **Legal Notice**

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Europe Direct is a service to help you find answers to your questions about the European Union  
Freephone number (\*): 00 800 6 7 8 9 10 11

(\*): Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.  
It can be accessed through the Europa server <http://europa.eu/>.

JRC80682

EUR 25923 EN

ISBN 978-92-79-29385-6

ISSN 1831-9424

doi:10.2788/86859

Luxembourg: Publications Office of the European Union, 2013

© European Union, 2013

Reproduction is authorised provided the source is acknowledged.

*Printed in Ispra*

# Harmonized classification scheme of fire causes in the EU adopted for the European Fire Database of EFFIS

Executive report

**Andrea Camia, Tracy Durrant, Jesús San-Miguel-Ayanz**

Joint Research Centre of the European Commission  
Institute for Environment and Sustainability  
Forest Resources and Climate Unit  
T.P. 261, Via E. Fermi 1, 21020 Ispra (VA), Italy.

## Abstract

The information on the causes of forest fires is of paramount importance to support the environmental and civil protection policies and design appropriate prevention measure.

At the European level a simple common scheme with 4 fire causes classes (deliberate, accident/negligence, natural and unknown) has been used to record information on fire causes since 1992.

European countries use national schemes which in most cases are much more detailed than the simple 4 common classes, but they are not harmonized and detailed cross country comparisons are difficult.

The need for a new EU scheme, more detailed than the 4 basic categories and harmonized across European countries, to be recorded in the Fire Database of the European Forest Fire Information System (EFFIS), has been identified to improve the information level and the common knowledge on the origin of forest fires in Europe.

The new scheme has been conceived to be applicable with limited changes to the previous country settings, preserving as much as possible the historical data series of each country and exploiting at the same time as much as possible the level of detail of the information available.

This report provides a detailed description of the new scheme, its main features with precise definition of each cause class and the mapping of the historical national systems to the new harmonized system.

The scheme is hierarchical and is made of 29 fire cause classes, 8 groups and 6 categories. The explicit statement on the level of certainty in the attribution of the cause to a fire event has been introduced as a key element in the new scheme.

This harmonized fire cause classification scheme is expected to be adopted by the countries participating to the EFFIS network in the coming years, and therefore be recorded in the European Fire Database, with a significant added value for the knowledge about the origin of forest fires in Europe.

## Contents

1. Background and scope.....	5
2. EU level fire causes reporting requirements .....	6
3. The new European fire causes classification scheme .....	8
3.1. Certainty of knowledge of the fire cause .....	8
3.2. Fire causes classes, groups and categories .....	9
4. Definitions of individual fire cause classes, groups and categories .....	11
5. Conversion of historical fire data of the European Fire Database .....	14
6. APPENDIX – Mapping of the country systems to the new European system.....	15
6.1. Bulgaria.....	16
6.2. Croatia .....	17
6.3. Cyprus.....	18
6.4. Czech Republic .....	19
6.5. Estonia .....	21
6.6. Finland .....	22
6.7. France .....	23
6.8. Germany.....	26
6.9. Greece.....	27
6.10. Hungary .....	28
6.11. Italy .....	29
6.12. Latvia .....	31
6.13. Lithuania.....	32
6.14. Poland .....	33
6.15. Portugal.....	36
6.16. Romania .....	39
6.17. Slovakia.....	41
6.18. Slovenia .....	42
6.19. Spain .....	44
6.20. Sweden .....	47
6.21. Switzerland.....	48
6.22. Turkey.....	49

### 1. Background and scope

The European Forest Fire Information System (EFFIS) has been established jointly by the European Commission (EC) services Directorate General for Environment and Joint Research Centre (JRC) and the relevant fires services in the EU Member States and European countries.

EFFIS is the EC focal point of information on forest fires aiming to support the national services in charge of the protection of forests against fires in the EU and neighbouring countries, and also to provide the EC services such as the Monitoring and Information Centre (MIC) of Civil Protection and the European Parliament with up to date and harmonized information on forest fires in Europe.

Research activities for the development of the system initiated in 1998 and the first EFFIS operations were in the year 2000. In 2003, EFFIS was officially established in the context of Forest Focus Regulation<sup>1</sup>. An EC Group of Expert on Forest Fires was established, with representatives from the EC and national services that meet regularly to work jointly on EFFIS and share information on forest fires in Europe.

A key component of EFFIS is the European Fire Database, containing forest fire information compiled by countries members of the EFFIS network. Fire data provided each year by national authorities are checked, stored and managed by JRC within the fire database. The database stores key information on location, time, size and cause of over 2 million individual fire events, recorded in 22 European countries over the last 8 to 32 years (depending on country).

The first steps to create a common forest fire database in Europe were taken under the Regulation 2158/92<sup>2</sup> (now expired), which set up an action framework focussing mainly on measures for the prevention of forest fires. Under this regulation, a first forest fire information system, referred to as the Common Core Database, was established in order to collect information on forest fires, their causes and to improve the understanding of forest fires and their prevention. After Forest Focus Regulation of 2003, the Common Core Database was transferred to the EFFIS. Handed over to and further developed by the JRC it was re-named the European Fire Database.

The European Parliament (EP) in its resolution of September 2006<sup>3</sup> noted that, despite the fact that the EFFIS had managed to harmonize data on fires within Member States and to provide updated information on the natural risk factors, it did not permit investigation of the anthropogenic origins, did not determine socioeconomic risk factors and did not evaluate the repercussions of fires. The EP therefore called on the European Commission to submit a proposal to correct these shortcomings.

---

<sup>1</sup> Regulation (EC) No 2152/2003 of the European Parliament and of the Council of 17 November 2003 concerning monitoring of forests and environmental interactions in the Community (Forest Focus).

<sup>2</sup> Council Regulation (EEC) No 2158/92 of 23 July 1992 on protection of the Community's forests against fire

<sup>3</sup> European Parliament resolution on forest fires and floods P6\_TA(2006)0349

Following the EP recommendations, the further development of EFFIS has been ensured through a grant from the European Parliament on forest protection and conservation. In this context a tender was launched by JRC in 2008 and a service contract was awarded to a consortium<sup>4</sup> with the aim of developing a common framework for harmonized classification and reporting on fire causes in Europe and the definition of main factors affecting fire occurrence in the different European regions.

Among the outcome of the study there has been a proposal<sup>5</sup> of a common classification scheme of fire causes to be submitted and discussed for adoption by the Member States. Thus, as a follow up of the study, the classification scheme has been presented and discussed in various meetings of the EC Expert Group on Forest Fires, where the main national forest fire management services of the European countries are represented.

After some amendments to the initial proposal, a harmonized classification scheme of fire causes has been accepted in 2012 for adoption by the countries as a common mean to record fire causes when reporting national data to the European Fire Database.

This report intends to summarize the rationale and provide a in depth description of the harmonized scheme for fire causes reporting in Europe.

## **2. EU level fire causes reporting requirements**

The information on the causes of forest fires is of paramount importance to support the environmental and civil protection policies and design appropriate prevention measure.

European countries use national schemes for classifying forest fire causes. In the Common Core fire database a simple common EU scheme was adopted which considered the following four categories of fire causes: deliberate, accident/negligence, natural and unknown. The European Fire Database of EFFIS, which has taken over the Common Core fire database, stores both the EU scheme and the national cause categories. The latter in most countries are much more detailed than the simple 4 EU categories, but they are not harmonized and detailed comparisons are difficult.

Hence the need of a new EU scheme, more detailed than the 4 basic categories and harmonized across European countries, has been identified to improve the

---

<sup>4</sup> JRC Contract number 384340 of 4<sup>th</sup> December 2008. Members of the Consortium: CEMAGREF (lead contractor) (France), ONF (France), Fraunhofer-IAIS (Germany), IBIMET-CNR (Italy), FRI/IBL (Poland), NICIF (Portugal), SFI/GIS (Slovenia), GMV (Spain)

<sup>5</sup> Ganteaume A., Jappiot M., Duché Y., Savazzi R., Bonora L., Conese C., Piwnicki J., Lourenço L., Bento-Gonçalves A., M., Ferreira A., Suarez-Beltran J. (2010) Proposal of a harmonized classification scheme for EU. Deliverable D3 of JRC Contract number 384340 "Determination of forest fire causes and harmonization for reporting them". European Commission, Joint Research Centre, 68 p.

information level and the common knowledge on the origin of forest fires in Europe.

The new scheme has been conceived to be applicable with limited changes to the previous country settings, preserving as much as possible the historical data series of each country and exploiting at the same time as much as possible the level of detail of the information available. A mapping of the historical national systems to the new harmonized system was also realized to the possible extent.

Because the level of detail of classified fire causes is quite varied among countries, and the causes of forest fires may also differ significantly, the system has been designed in a hierarchical way, providing in this way some flexibility and facilitating the mapping of the different systems currently used in Europe to the common scheme.

A key feature of the new scheme is that common fire causes categories have to be widely agreed/recognized; in addition clear and unambiguous definitions are integral part of the new classification scheme.

Identifying the origin and cause of a forest fire is not easy; it is not always possible and implies in all cases significant efforts and skill. Certain causes may also have legal implications within the country, with additional complications when responsibilities have to be identified. The harmonized fire causes classification scheme for EU is aimed to enhance reporting for statistical and scientific purposes, thus it is not related to legal responsibility and prosecution.

Nevertheless a key feature that has been introduced in the scheme is the explicit statement of the confidence level of the knowledge of a fire cause and the exclusion of any purely "guessed" fire cause. In the new scheme it is requested that the cause of a fire is reported only if targeted investigations have been carried out; the cause is qualified as "certain" only if, after investigation, the ignition point of the fire has been found and the cause has been identified with no doubts. More details are provided in the following section.

### 3. The new European fire causes classification scheme

In the new European fire cause classification scheme, the cause of each fire event has to be reported with 2 entries (fields):

- a) Certainty of knowledge of the fire cause
- b) The fire cause category

#### 3.1. Certainty of knowledge of the fire cause

The new scheme is based on the objective assessment of the fire cause through dedicated investigations which entail the identification of the point of origin of the fire (ignition point).

If the point of ignition is detected (and possibly also the ignition device), the fire cause might be identified and reported in the database as *certain* (however in some cases, even with known point of ignition, the cause cannot be identified and remains *unknown*). If not, the fire cause is to be reported as either *uncertain* or *unknown*.

If the point of ignition cannot be precisely specified remaining vaguely identified while different elements from the investigation support specific assumptions about the fire cause, then the fire cause can be reported as *uncertain*.

If the point of ignition is not detected, the fire cause is to be reported in the database as *unknown*.

A summary of the above is given with the diagram in Figure 1, which illustrates a dichotomous key to assess the level of certainty in the identification of the fire causes to be reported in the fire database.

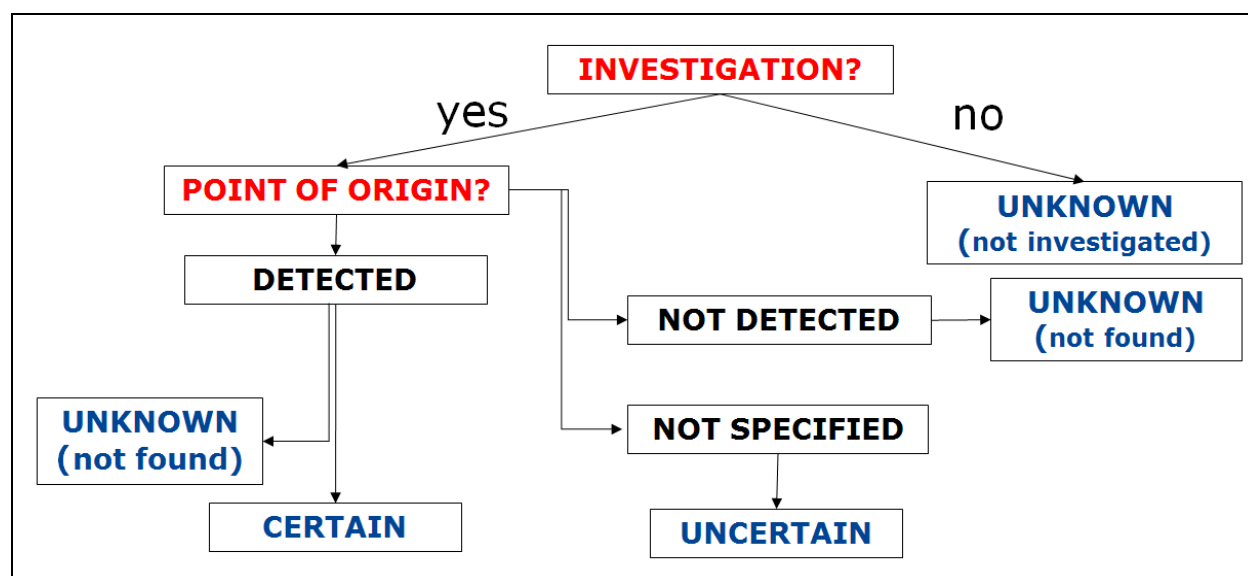


Figure 1. Key to the level of certainty of fire causes identification (details in the text)



The possible entries in the database item "certainty of knowledge" are the following:

<b>Code</b>	<b>Description</b>
<b>1</b>	Information not given (level of certainty not specified)
<b>2</b>	Cause not investigated (unknown because investigation not carried out)
<b>3</b>	Cause not found (unknown because investigation carried out but cause not found)
<b>4</b>	Cause uncertain (point of origin not found precisely or cause assumed after a number of different elements from the investigation)
<b>5</b>	Cause certain (point of origin found and cause positively determined after investigation)

Code 1 is the default, and it is used when the information on the level of certainty is not provided. Codes 2 and 3 are variations of "unknown".

### ***3.2. Fire causes classes, groups and categories***

The new fire causes classification scheme has 3 hierarchical levels. At the level with higher detail there are 29 fire cause classes, organized into 8 groups which in turns correspond to 6 generic categories.

The 6 categories of the upper level are similar to the former "Common Core" EU scheme and are the following:

1. Unknown
2. Natural
3. Accident
4. Negligence
5. Deliberate
6. Rekindle

In this new scheme the former accident/negligence cause has been split into two categories and a new generic category "Rekindle" for restarting fires has been introduced.

Within each category, different groups and classes define the lower 2 levels of the classification. Table 1 shows the complete list of classes, groups and categories of the new scheme. The numerical code of each item is also given in the table.

The precise description of each class is given in section 4.

## Harmonized classification scheme of fire causes in the EU

**Table 1. Classes, groups and categories of the harmonized fire causes classification scheme**

CATEGORY	GROUP	CLASS		
100 UNKNOWN	100 Unknown	100 Unknown		
200 NATURAL	200 Natural	201 Lightning		
		202 Volcanism		
		203 Gas emission		
300 ACCIDENT	300 Accident	301 Electrical power		
		302 Railroads (Railways)		
		303 Vehicles		
		304 Works		
		305 Weapons (firearms, explosives, etc.)		
		306 Self-ignition (auto-combustion)		
		307 Other accident		
400 NEGLIGENCE	410 Use of fire	411 Vegetation management		
		412 Agricultural burnings		
		413 Waste management		
		414 Recreation		
		415 Other negligent use of fire		
	420 Use of glowing objects	421 Fireworks, firecrackers and distress flares		
		422 Cigarettes		
		423 Hot ashes		
		424 Other use of glowing object		
		500 DELIBERATE	510 Responsible (arson)	511 Interest (profit)
				512 Conflict (revenge)
				513 Vandalism
514 Excitement (incendiary)				
515 Crime concealment				
516 Extremist				
520 Irresponsible	521 Mental illness			
	522 Children			
600 REKINDLE	600 Rekindle	600 Rekindle		

## **4. Definitions of individual fire cause classes, groups and categories**

In what follows definitions of each fire causes category, group and class are given, with the corresponding numerical codes.

### **100 UNKNOWN**

Wildfire with no cause found.

### **200 NATURAL**

Any wildfire caused by natural origin, with no human involvement in any way.

#### **201 Lightning**

Wildfire caused directly or indirectly by lightning.

#### **202 Volcanism**

Wildfire caused by volcanism.

#### **203 Gas emission**

Wildfire caused by natural emissions of gas (e.g. coming from peat bog) that can self-ignite.

### **300 ACCIDENT**

Wildfire unintentionally and indirectly caused by human without use of fire, connected neither to will nor to negligence rather to fatality.

#### **301 Electrical power**

Wildfire caused by sparks due to failure of electric lines or other electric wirings: short-circuits due to contact between two lines or between line and vegetation or bird, fall of the line, etc.

#### **302 Railroads (Railways)**

Wildfire caused by sparks emitted by train brakes or fall of catenaries. It has to be linked with the operation of trains. Fires lit intentionally or not by passengers or railway employees (by smoking, managing vegetation, etc.) are not classified in this category and have to be classified in the category corresponding to "what these persons did" to set the fire (and not to "where they were").

#### **303 Vehicles**

Wildfire caused by exhausts (expulsion of glowing carbon deposits, hot catalytic converter) and brakes of vehicles travelling along the road, or by road incidents (burning motor for example) or traffic accidents

#### **304 Works**

Wildfire caused by sparks emitted by engines and machinery (such as chainsaw) in industry, forestry and agriculture or people at work (explosions, welding, grinding, smouldering) or by ignition of flammables and vapours during works in industrial activities.

### **305 Weapons (firearms, explosives, etc.)**

Wildfire caused either by military exercises (firing, explosions) or by citizens using firearms (in hunting activities for instance) or explosion due to explosives during works. This class takes also into account the fires set after explosions due to ammunitions from I and II World Wars buried underground.

### **306 Self-ignition (auto-combustion)**

Wildfire caused by self-ignition of vegetation wastes and other products left in piles.

### **307 Other accident**

Wildfire caused by other accidental cause (Other technical incidents) than those previously defined. In this class are coded the wildfires due to "Sun" because the sun alone does not allow the ignition but needs an object like a piece of glass. Also included are causes such as "Glass", "Friction energy", "thermal reaction of chemicals" or "Self-ignition of coal".

## **400 NEGLIGENCE**

Wildfire unintentionally caused by human using fire or glowing object, not connected to fatality

### **410 Use of fire**

Wildfire unintentionally set by people making fire especially for cleaning or recreation. The difference between "deliberate" and this category is that the fire is initially voluntarily set for a specific purpose and not in order to destroy the natural area. To be classified in this category, the fire has to escape and get out of control.

#### **411 Vegetation management**

Wildfire caused by any kind of vegetation burnings for private, forestry, pastoral (pasture regeneration) purposes including prescribed burnings, burning of slashes or of piles of vegetal waste but except for agricultural purposes.

#### **412 Agricultural burnings**

Wildfire caused by all types of agricultural burnings (stubble burnings, etc.).

#### **413 Waste management**

Wildfire caused by garbage burnings in official or illegal dumps (dunghill) including private, industrial and commercial.

#### **414 Recreation**

Wildfire caused by people engaged in a recreational activity (vacationing, fishing, picnicking, non-commercial berry picking, hiking, and hunting) setting barbecues, bonfires and campfires of any kind (for cooking, heating, etc).

#### **415 Other negligent use of fire**

Wildfire caused by other use of fire than those previously defined. In this class are coded the wildfires due to "bonfires at work" "facility fires" and "Candles".

## **420 Use of glowing objects**

Wildfire unintentionally set by people using glowing objects such as (i) fireworks, (ii) cigarettes, (iii) hot ash handling by residents or (iv) during working activities such as apiculture, fumigation or disinfection or when expulsion of firebrands out of chimney.

#### **421 Fireworks, firecrackers and distress flares**

Wildfire caused by fireworks with or without preventive measures, by firecrackers and by distress flares regardless of who lit it.

### **422 Cigarettes**

Wildfire caused by cigarettes and tobacco pipe regardless of the activity or the location of the smoker. It includes the fires set by the match used for lighting the cigarette and negligently thrown away by the smoker, but not cases where a cigarette or matches have been used to set an arson fire.

### **423 Hot ashes**

Wildfire caused by hot ash handling by people after a barbecue or a fire. This class is related to recreational activities. Hot ashes related to work are classified in the following class.

### **424 Other use of glowing object**

Wildfire caused by other use of glowing object than those previously defined. In this class are coded wildfires due to working activities such as apiculture, fumigation or disinfection or due to glowing firebrands expelled out of chimneys regardless of the building.

## **500 DELIBERATE** (synonyms: intentional, voluntary)

Wildfire intentionally caused by human with the use of fire.

### **510 Responsible (arson)**

Wildfire wilfully ignited by people over the legal age, which burns or spreads to vegetation or property without consent of the owner.

#### **511 Interest (profit)**

Wildfire set for profit, either directly for monetary gain or from a goal other than money: fraud, insurance, liquidate property, dissolve business, inventory, employment, parcel clearance, competition for agricultural, forestry, hunting and pastoral purposes to frighten wildlife, to get a job in the fire fighting area, to change land-uses or to get a better salary as fire-fighter, etc.

#### **512 Conflict (revenge)**

Wildfire set in retaliation for real or perceived injustice or wrong:

- Personal revenge: (to retaliate for a one-to one or personal grievance, argument, fight, personal affront or any of infinite arrays of events perceived by the offender to warrant retaliation).
- Societal retaliation: (in revenge against the society that the author perceives has wronged him).
- Institutional: (fire against institutions or use of fire to settle grievances with the institution and to intimidate those associated with the institution).
- Group retaliation: (fire as expression of anger towards the group or its members rather than anger at a specific individual within the group).
- Intimidation.

#### **513 Vandalism**

Malicious or mischievous fire setting that results in damage to property: wilful and malicious mischief or peer group pressure.

#### **514 Excitement (incendiary)**

Wildfires set to gain attention and to meet the needs of being important. Seeking of thrill, attention, recognition, relief of boredom. Includes fires lit in order to admire the spectacle of extinguishing means.

#### **515 Crime concealment**

Wildfire set to hide or conceal the primary crime activity: murder, suicide, breaking and entering, embezzlement, larceny, destroying records. Fires set as diversionary tactic fall into this category.

### **516 Extremist**

Wildfire set to further social, political or religious causes: terrorism, discrimination, riots/civil disturbance.

### **520 Irresponsible**

Wildfire caused by people not responsible for their actions because under legal age or mentally ill.

### **521 Mental illness**

Wildfire caused by people in case of pyromania or other mental illnesses.

### **522 Children**

Wildfire set by children (under legal age) for game or entertainment.

### **600 REKINDLE**

Wildfire caused by re-ignition of a previous fire, due to latent heat or embers.

## **5. Conversion of historical fire data of the European Fire Database**

The new scheme should be adopted by the countries participating to the EFFIS network in the coming years. To ensure the continuity of the historical records, a conversion from the current country schemes to the new European scheme has been carried out in the European Fire Database.

In the Appendix the mapping adopted for each country, and therefore the correspondence between the European and the country scheme, is detailed together with the main results of the conversion made.

It is inevitable that there is not an exact 1:1 correspondence between every country cause category and the new codes. In some cases the country codes could be assigned to more than one of the new EU codes. In other cases the country codes made a distinction that is not present in the EU codes.

In cases where one local cause could be mapped to several possible new causes, the most likely cause was chosen and used in all cases for historical data.

In cases where several local causes mapped to a single new cause, the conversion was simpler. The original country cause was also retained in the database to keep all the information available about the fire.

## **6. APPENDIX – Mapping of the country systems to the new European system**

In what follows results of the conversion of historical fire data of the European Fire Database are detailed for each country in the database.

Due to the semantic uncertainty in the conversion of some cause classes, a number of special codes were introduced for the conversion of historical fire data.

Most of these are variations of the “unknown” category, allowing the fire causes to be distinguished between those cases where an investigation was made and no known cause was found, and those where for some other reason the fire cause (which might be known) could not be properly elaborated.

These codes are detailed in the table below.

<b>Code value</b>	<b>Rationale</b>
1000	No information (cause might have been known but was never given)
1001	No country code, and old EU code 3 – either accident or negligence but no way to determine which
1002	No country code and invalid EU code (not 1-4)
1003	Country code given without description – impossible to tell what the cause was
1004	Country cause code given as “other known reason” (i.e. reason is known but not specified)

It is hoped that these special codes will be rarely used for the future, as the new European codes will be adopted.

## Harmonized classification scheme of fire causes in the EU

### 6.1. Bulgaria

The country cause scheme is a non-hierarchical list of 17 causes. The country codes were mapped to the new scheme and records stored in the European Fire Database (2005-2010) were converted as shown in Table 2.

**Table 2: Mapping of the national fire causes classification scheme of Bulgaria to the new European scheme and conversion of fires in the database 2005-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
18 Unknown	731	100 Unknown	731
17 Other Known Reason	272	1004 Unknown (Reason known but not specified)	272
2 Lightning	39	201 Lightning	39
6 Electric Shock	56	301 Electrical power	56
5 Transport-technological sparks	46	302 Railroads (railways) 303 Vehicles 304 Works 307 Other accident	46 (code 300)
3 Military shooting	15	305 Weapons (firearms, explosives etc.)	15
4 Explosion works	-		
10 Burned Pastures	706	411 Vegetation management	706
14 Workers at Open Air	53	304 Works 411 Vegetation management	- 53
9 Burned stubble/thatches	728	412 Agricultural burnings	728
8 Dunghill	65	413 Waste management	65
12 Tourists	109	414 Recreation	109
7 Cigarette	232	422 Cigarettes	232
11 Deliberate or Arson	147	510 Deliberate: Responsible	147
13 Hunters	4	411 Vegetation management 511 Interest (profit) 512 Conflict (revenge)	- 4 -
15 Pyromaniac/Psychopath	8	521 Mental illness	8
16 Children	30	522 Children	30

#### Notes

- The category "Hunters" is now split into 3 possible new cause categories depending on the motivation of the hunters: 411 if it is to burn the vegetation to facilitate hunting; 511 if for interest and 512 if as a result of conflict. For conversion of the historical data, where motivation is unknown, the cause 511 (Interest) was chosen as the most likely reason. This affects only 4 fires in the database.
- "Transport/technological sparks" could be 302 (Railroads), 303 (Vehicles), 304 (Works) or 307 (Other accident). Since these causes all come under the first level category Accident, the 46 fires in the database with this cause were coded 300 (Accident).
- "Workers at Open Air" could be 304 (Works) or 411 (Vegetation Management). The 53 fires in this category were assigned the code 411, as the most likely cause.
- For all the other fires there was a 1:1 correspondence between the national and new causes.
- "Military shooting" and "Explosion works" are merged into the new category 305 (Weapons). No fires had been assigned to Explosion works in the Bulgarian data.



### 6.2. Croatia

The country cause scheme supplied to the European Fire Database for the period 1996-2007 corresponds to the old EU 4-point code with the addition of the single extra category "By Child".

**Table 3: Mapping of the national fire causes classification scheme of Bulgaria to the new European scheme and conversion of fires in the database 1996-2007**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
Unknown	12929	100 Unknown	12929
<missing>	1	1000 Unknown (No information)	1
Natural	436	200 Natural	436
Accident/negligence	37078	300 Accident 400 Negligence	37078 (code 1001)
Deliberate or Arson	3917	500 Deliberate	3917
By child	502	522 Children	502

#### Notes

- The category "Accident/Negligence" should be split in the future into the two separate cause codes 300 (Accident) and 400 (Negligence). For conversion of the existing data, the special code 1001 had to be used.

## Harmonized classification scheme of fire causes in the EU

### 6.3. Cyprus

Only the 4 EU codes (Unknown, Natural, Accident/Negligence, Deliberate) were supplied up to 2004. From 2005 onwards a 14 point national code was used.

**Table 4: Mapping of the national fire causes classification scheme of Cyprus to the new European scheme and conversion of fires in the database 2000-2004**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
Unknown	286	100 Unknown	286
Natural	44	200 Natural	44
Accident/negligence	92	300 Accident 400 Negligence	92 (code 1001)
Deliberate or Arson	1053	500 Deliberate	1053

**Table 5: Mapping of the national fire causes classification scheme of Cyprus to the new European scheme and conversion of fires in the database 2005-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
0 Unknown	77	100 Unknown	77
1184 Other human activities	7	1001 Accident/Negligence	7
1100 Natural (Lightning)	64	201 Lightning	64
1181 Use of electrical equipment	9	301 Electrical power	25
1183 Short Circuit of high voltage electric power lines	16		
1130 Military activities	29	305 Weapons (firearms, explosives etc.)	29
1160 Residential activities	18	400 Negligence	18
1170 Forestry activities	2	411 Vegetation management	2
1110 Agricultural activities	159	412 Agricultural burnings	159
1120 Burning of rubbish (in rubbish dumps)	14	413 Waste management	14
1150 Picnickers/Travellers	74	414 Recreation	75
1182 Rally	1		
1140 Hunting activities	13	415 Other negligent use of fire	13
1200 Deliberate (Arson)	138	500 Deliberate	138

### Notes

- In the data from 2000-2004 the special code 1001 was used for the fires labelled "Accident/Negligence"
- National codes 1150 (Picnickers/Travellers) and 1182 (Rally) were merged into the single new cause category 414 (Recreation).
- National codes 1181 (Use of electrical equipment) and 1183 (Short Circuit of high voltage electric power lines) were merged into the single new cause code 301 (Electrical Power).
- The national code 1184 (Other human activities) was interpreted as "Accident/Negligence" and the special code 1001 was applied.

**6.4. Czech Republic**

The CZ national fire data uses a detailed 60 point list of fire causes. These were more detailed than the new EU classification, so several categories were merged. Of the 60 national cause codes, 29 were found in the historical fire data. The national cause codes were mapped as shown in Table 6.

**Table 6: Mapping of the national fire causes classification scheme of Czech Republic to the new European scheme and conversion of fires in the database 2004-2008**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
0 Unsolved, still under investigation	839	100 Unknown	951
5 No further investigation	112		
99 Other causes (exceptional)	11	1004 Unknown (Reason known but not specified)	11
93 Natural disasters	2	200 Natural	2
90 Lightning/buildings with lightning conductors	-		
91 Lightning/buildings without lightning conductors	-	201 Lightning	46
92 Lightning - other	46		
56 Sparks from exhaust / brakes	22	303 Vehicles	26
94 Traffic accidents	4		
24 Use of flammable liquids, gases	-		
27 Welding, cutting, defrosting	3		
28 Neglect of safety regulations	25		
29 Negligence, error, incorrect control	134		
50 Technical failures	14		
51 Incorrect installation	-		
52 Incorrect maintenance	-		
53 Glowing materials, products	-		
54 Foreign material in machine	5		
59 Other changes of operational parameters	20		
70 Gas explosion	-		
71 Flammable liquids explosion	-		
72 Dust explosion	-		
74 Explosions of pressure vessels, boilers	-	304 Works	203
80 Flammable subs near spraying machines	-		
81 Flammable subs near pumping devices	-		
82 Flammable subs near steeping bowls	-		
83 Flammable subs near long-distance piping and reservoirs	-		
84 Cementing of flooring materials	-		
85 Production of flammable and explosive materials	-		
86 Handling of flammable and explosive materials, chemical cleaning and producing alcohol	-		
87 Storing and preservation of flammable and explosive materials	-		
89 Other (flammable substances)	2		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
73 Explosion of explosives	1	305 Weapons (firearms, explosives etc.)	1
95 Military exercise, fireworks	2	305 Weapons (firearms, explosives etc.) 421 Fireworks, firecrackers and distress flares	2 -
60 Self-ignition of agricultural products	1	306 Self-ignition (auto combustion)	12
61 Coal self-ignition	-		
62 Oil and grease self-ignition	-		
63 Self-ignition of chemicals	4		
64 Self-ignition of chemical products	-		
69 Other self-ignition (e.g. waste)	7		
22 Incorrect manipulation with heaters	1	307 Other accident	2
23 Flammable material near heaters	-		
40 Technical failure of heaters	-		
41 Bad conditions of heater/smoke-flue	-		
42 Incorrect place/installation of heater	-		
43 Other failures of heaters	-		
55 Discharge of static electricity	-		
57 Friction, overheating	1		
21 Setting fires, grass burning	1102	412 Agricultural burnings	1102
25 Use of naked flame	81	415 Other negligent use of fire	81
20 Smoking	858	422 Cigarettes	858
26 Glowing ashes handling	10	423 Hot ashes	10
30 Improper construction of chimney	-	424 Other use of glowing object	-
31 Walled-up timber in chimney	-		
32 Gaps in chimney	-		
33 Sparks from chimney, soot ignition	-		
10 Arson - offender identified	10	500 Deliberate	186
11 Suicidal intentions	1		
13 Arson - offender unidentified	175		
12 Children up to 15 years	93	522 Children	93

### 6.5. Estonia

No local fire cause codes are supplied with the data; only the 4 EU categories (Unknown, Natural, Accident/Negligence, Deliberate) are supplied. These were assigned new cause codes as shown in Table 7.

**Table 7: Mapping of the national fire causes classification scheme of Estonia to the new European scheme and conversion of fires in the database 2005-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
Unknown	199	100 Unknown	199
Natural	5	200 Natural	5
Accident/negligence	252	300 Accident 400 Negligence	252 (code 1001)
Deliberate or Arson	69	500 Deliberate	69

#### Notes

- The category "Accident/Negligence" should be split in the future into the two separate cause codes 300 (Accident) and 400 (Negligence). For conversion of the existing data, the special code 1001 had to be used.

## Harmonized classification scheme of fire causes in the EU

### 6.6. Finland

The national Finnish fire cause classification scheme consists of 31 causes.

**Table 8: Mapping of the national fire causes classification scheme of Finland to the new European scheme and conversion of fires in the database 2005-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
99 Cannot be determined	3427	100 Unknown	3427
<Missing code>	2	1000 Unknown (No information)	2
98 Other causes	557	1004 Unknown (Reason known but not specified)	557
69 Other natural causes	341	200 Natural	341
61 Lightning	1174	210 Lightning	1174
12 Hot work	58	304 Works	1505
21 False use of machine or device	50		
22 Error or negligence in maintenance of electrical device or its installation	466		
23 Failure or negligence in maintenance of machine or device	41		
41 Production process failure	53		
42 Spark from machine or device	461		
43 Mechanical spark, incendive spark	376		
52 Spontaneous ignition	638	306 Self-ignition (auto-combustion)	638
1 Unsupervised cooking	1	307 Other accident	108
2 Other cooking	13		
32 Chimney fire	6		
34 Damage in fireplace or chimney	1		
35 Insufficient safety distance	5		
51 Frictional heat	19		
53 Explosion	63		
11 Prescribed burning	1269	411 Vegetation management	1269
13 Rubbish burning	2220	413 Waste management	2220
14 Campfire, grill	3323	414 Recreation	3323
18 Candle, tealight	33	415 Other negligent use of fire	33
17 Fireworks, pyrotechnic products	179	421 Fireworks, firecrackers and distress flares	179
15 Match, other fire making device	2700	422 Cigarettes	4754
16 Cigarettes, other tobacco products	2054		
31 Hot or glowing object or ashes	407	423 Hot ashes	407
33 Spark or firebrand from fireplace or flue	65	424 Other use of glowing object	65
3 Sabotage with fire	152	500 Deliberate	152
4 Children handling fire	276	522 Children	276
71 Re-ignition	335	600 Rekindle	335

#### Notes

- Several national codes dealing with details of machine usage (codes 12, 21, 22, 23, 41 and 42) were merged together into the new cause code 304 "Works".
- The new code 307 "other accident" was used to categorise a number of detailed national categories that could not easily be classified anywhere else (codes 1, 2, 32, 34, 35, 51 and 53).

## Harmonized classification scheme of fire causes in the EU

### 6.7. France

From 1985 to 2007 only the 4 original EU classifications (Unknown, Natural, Accident/Negligence, Deliberate) were included in the fire data. However, for some fires from 15 departments in the Mediterranean occurring between 1998 and 2009, detailed cause codes from the Prometheus database were also given. From 2007 a 16 point national code was used to describe all the fires. The translations of these systems into the new EU fire cause codes are shown below in Table 9, Table 10 and Table 11.

**Table 9: Mapping of the national fire causes classification scheme of France to the new European scheme and conversion of fires in the database 1985-2006**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
1 Unknown	58478	100 Unknown	58478
<missing code>	8	1000 Unknown (No information)	8
9 <invalid code>	40	1002 Unknown (Invalid EU code: not 1-4)	40
2 Natural	5115	200 Natural	5115
3 Accident/negligence	18192	1001 Accident/Negligence	18192
4 Deliberate or Arson	5359	500 Deliberate	5359

#### Notes

- The special code 1001 was used for fires labelled "Accident/Negligence"

**Table 10: Mapping of the national fire causes classification scheme of France to the new European scheme and conversion of fires in the database 2007-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
FR_1 Unknown	5132	100 Unknown	5132
FR_3.12 Other accidental	458	1001 Accident/Negligence	458
FR_2 Natural	-	200 Natural	24
FR_2.2 Other natural	24		
FR_2.1 Lightning	393	201 Lightning	393
FR_3 Accidental	-	300 Accident	-
		400 Negligence	-
FR_3.1 Electric line (break, electric arc)	169	301 Electrical power	169
FR_3.2 Rail	88	302 Railroads (Railways)	88
FR_3.3 Vehicle (muffler, brakes, fire)	223	303 Vehicles	223
FR_3.7 Industrial or crafts works (machinery, burning of standing or cut bush)	22	304 Works	22
		411 Vegetation management	-
FR_3.5 Forest works (machinery, burning of standing or cut bush)	216	304 Works	-
		411 Vegetation management	216
FR_3.8 Private works (machinery, burning of standing or cut bush)	1122	304 Works	-
		411 Vegetation management	1122
FR_3.6 Agricultural works (machinery, burning of standing or cut bush, pastoral fire)	472	304 Works	-
		412 Agricultural burnings	472
FR_3.4 Garbage dump (official, illegal)	162	413 Waste management	162
FR_3.9 Leisure activities (children's games, firecrackers, fireworks, barbecue, stove...)	146	414 Recreation	146
		421 Fireworks, firecrackers and distress flares	-
		522 Children	-

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
FR_3.10 Throwing of incandescent objects (butt, warm ashes, distress rocket)	171	421 Fireworks, firecrackers and distress flares 422 Cigarettes 423 Hot ashes 424 Other use of glowing object	171 (code 420)
FR_4 Deliberate FR_4.4 Other deliberate	- 523	500 Deliberate	523
FR_4.2 Interest (land use, hunting, pastoralism)	76	511 Interest (profit)	76
FR_4.1 Conflict (land use, hunting)	38	512 Conflict (revenge)	38
FR_4.3 Pyromania	173	521 Mental illness	173
FR_3.11 Restart of fire	57	600 Rekindle	57

### Notes

- Fires given a code of FR\_3.10 "throwing incandescent objects" could be assigned more than one code depending on the object thrown, so the less precise code 420 (use of glowing object) had to be used.
- The national code FR\_3.9 "leisure activities" could be given more than one code depending on context. In this case 414 (Recreation) was chosen to be the most likely case for the 146 fires concerned.
- Code 412 (Agricultural burnings) was chosen as the most likely cause for the split category FR\_3.6 "agricultural works".
- Code 411 (vegetation management) was chosen as the most likely cause for the two split codes FR\_3.5 "forest works" and FR\_3.8 "private works".
- Code 340 (Works) was assigned to FR\_3.7 "industrial or crafts works".

**Table 11: Mapping of the detailed Mediterranean national fire causes classification scheme of France to the new European scheme and conversion of fires in the database 1998-2009**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
FR_SEc_1 Natural FR_Sec_19 Other natural	56 10	200 Natural	66
FR_SEc_11 Lightning	534	201 Lightning	534
FR_SEc_2 Accidental due to installations	157	300 Accident	157
FR_SEc_21 Electric line FR_SEc_211 Electric line - break FR_SEc_212 Electric line - electric arc	56 115 68	301 Electrical power	239
FR_SEc_22 Rail	64	302 Railroads (Railways)	64
FR_SEc_23 Vehicle FR_SEc_231 Vehicle muffler, brakes, ... FR_SEc_232 Vehicle - fire	26 56 256	303 Vehicles	338
FR_SEc_411 Forest works - machinery FR_SEc_421 Agricultural works - machinery FR_SEc_43 Industrial, public or crafts works FR_SEc_431 Industrial - machinery FR_SEc_511 Private works - machinery	79 119 7 64 123	304 Works	392



## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
FR_SEc_4 Involuntary due to professional works	47	400 Negligence	156
FR_SEc_5 Involuntary due to private works	109		
FR_SEc_41 Forest works	21	411 Vegetation management	2131
FR_SEc_412 Forest works - burning of standing bush	130		
FR_SEc_413 Forest works - burning of cut bush	239		
FR_SEc_424 Agricultural works - pastoral fire	67		
FR_SEc_432 Industrial - burning of standing bush	25		
FR_SEc_433 Industrial - burning of cut bush	61		
FR_SEc_51 Private works	71		
FR_SEc_512 Private works - burning of standing bush	437		
FR_SEc_513 Private works - burning of cut bush	1080		
FR_SEc_42 Agricultural works	58	412 Agricultural burnings	520
FR_SEc_422 Agricultural works - burning of standing bush	237		
FR_SEc_423 Agricultural works - burning of cut bush	225		
FR_SEc_24 Garbage dump	30	413 Waste management	257
FR_SEc_241 Garbage dump - official	136		
FR_SEc_242 Garbage dump - illegal	91		
FR_SEc_52 Leisure activities	31	414 Recreation	164
FR_SEc_523 Barbecue, stove, campfire	133		
FR_SEc_53 Throwing of incandescent objects	67	420	67
FR_SEc_522 Fireworks	55	421 Fireworks, firecrackers and distress flares	64
FR_SEc_533 Distress rocket	9		
FR_SEc_531 Butt from walking smoker	134	422 Cigarettes	308
FR_SEc_532 Butt from vehicle	174		
FR_SEc_534 Warm ashes	52	423	52
FR_SEc_3 Arson - intentional human origin	2321	500	2321
FR_SEc_32 Interest	52	511 Interest (profit)	860
FR_SEc_321 Interest - land use	117		
FR_SEc_322 Interest - hunting	135		
FR_SEc_323 Interest - pastoralism	387		
FR_SEc_31 Conflict	144	512 Conflict (revenge)	448
FR_SEc_311 Conflict - land use	94		
FR_SEc_312 Conflict - hunting	210		
FR_SEc_33 Pyromania	1028	521 Mental illness	1028
FR_SEc_521 Children's games, firecrackers, ...	271	421 Fireworks, firecrackers and distress flares	-
		522 Children	271
FR_SEc_44 Restart of fire	207	600 Rekindle	207

### 6.8. Germany

No local fire cause codes are supplied with the data; only the 4 EU categories (Unknown, Natural, Accident/Negligence, Deliberate) are supplied. For some years an extra category "Other human cause (e.g. Military)" was used. These were assigned new cause codes as shown in Table 12.

**Table 12: Mapping of the national fire causes classification scheme of Germany to the new European scheme and conversion of fires in the database 1994-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
<missing>	3	1000 Unknown (No information)	3
0, 100	2	1002 Unknown (Invalid EU code: not 1-4)	2
Unknown	4725	100 Unknown	4725
Natural	643	200 Natural	643
Accident/negligence	2429	300 Accident 400 Negligence	2429 (code 1001)
Other human cause (e.g. Military)	12	1001 Accident/Negligence	12
Deliberate or Arson	2131	500 Deliberate	2131

#### Notes

- The special code 1001 was used for fires labelled "Accident/Negligence". It was also used for the 12 fires labelled "Other human cause (e.g. Military)" since it is not possible to state the cause more precisely.

**6.9. Greece**

The Greek fire cause system is an 18 point scale (+19: "Unknown") with an additional qualifier indicating whether the cause is known or supposed (i.e. degree of confidence). The country codes were mapped to the new scheme as shown in Table 13.

**Table 13: Mapping of the national fire causes classification scheme of Greece to the new European scheme and conversion of fires in the database 1983-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
19 Unknown	18169	100 Unknown	18169
000 <unspecified code>	9	1003 Unknown (Invalid or unexplained country code)	14
046 <unspecified code>	1		
232 <unspecified code>	3		
234 <unspecified code>	1		
18 Other known	1291	1004 Unknown (Reason known but not specified)	1291
01 Lightning	1492	201 Lightning	1492
05 Electric lines and installations	370	301 Electrical power	370
02 Military Exercise	202	305 Weapons (firearms, explosives etc.)	274
03 Use of explosives (for opening roads etc.)	72		
04 Spark from engines	286	307 Other accident	286
09 Burning of pasture	2444	411 Vegetation management	3252
13 People working in the country side (e.g. foresters)	808		
08 Burning of agricultural fields	2660	412 Agricultural burnings	2660
07 Burning of waste	867	413 Waste management	867
11 Tourist	219	414 Recreation	219
06 Smokers	781	422 Cigarettes	781
10 Arson (voluntary, on purpose)	3520	500 Deliberate	3520
12 Hunters	231	511 Interest (profit)	231
14 Pyromaniac	50	521 Mental illness	191
15 Psycho	93		
17 Mental ill (mentally disabled)	48		
16 Children	39	522 Children	39

**Notes**

- The special code 1003 was used for a small number of unknown country code values.

**6.10. Hungary**

The Hungarian fire cause coding system lists 9 possible fire causes. However, in the historic data, only the 4 European codes were supplied before 2007, and after then only 3 national codes (1, 3, 9) are ever used.

**Table 14: Mapping of the national fire causes classification scheme of Hungary to the new European scheme and conversion of fires in the database 2002-2006**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
1 Unknown	768	100 Unknown	768
2 Natural	61	200 Natural	61
3 Accident/negligence	274	300 Accident 400 Negligence	274 (code 1001)
4 Deliberate or Arson	38	500 Deliberate	38
Code 8	2	1002 Unknown	12
Code 9	10	(Invalid EU code: not 1-4)	

**Notes**

- A small number of invalid national cause codes were given the special code 1002.
- Fires labelled as "Accident/negligence" were assigned the special code 1001.

**Table 15: Mapping of the national fire causes classification scheme of Hungary to the new European scheme and conversion of fires in the database 2007-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
9 Unknown	1082	100 Unknown	1082
8 Other cause	-	1004 Unknown (Reason known but not specified)	-
1 Electricity or lightning	10	201 Lightning	10
5 Technological failure	-	304 Works	-
4 Self-ignition	-	306 Self-ignition (auto-combustion)	-
2 Explosion	-	307 Other accident	-
6 Calorific equipment	-		
3 Naked light (+ EU code 3)	595	415 Other negligent use of fire	595
3 Naked light (+ EU code 4)	135	500 Deliberate	135
7 Smoking	-	422 Cigarettes	-

**Notes**

- The national cause code "Naked light" has been split into 2 new cause codes depending on whether the fire was started deliberately or not: 415 (Other use of fire) for negligent use and 500 (Voluntary) for deliberate use of naked light. The Hungarian data also included the old 4-point EU codes which allowed the fires classified with the national cause code "Naked light" to be split into the two new codes.

**6.11. Italy**

The Italian fire data have a long time-series, and several coding systems have been used in the past to describe fire causes. The current national system is a 40 point scale. From 2002 the fires have been coded according to these cause categories. The mapping of the national codes with the new cause categories is shown in Table 16.

For all the fires occurring before 2002, the different cause schemes were allocated to new cause codes as appropriate.

**Table 16: Mapping of the national fire causes classification scheme of Italy to the new European scheme and conversion of fires in the database 2002-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
5001 unknown	14147	100 Unknown	14147
1001 lightning	802	201 Lightning	802
2003 accidental diverse	58	300 Accident	58
3206 electric lines	104	301 Electrical power	104
2001 volcanic eruption	84	302 Railroads (Railways)	84
3203 machinery	187	304 Works	187
3204 military or firing exercises	19	305 Weapons (firearms, explosives etc.)	19
2002 sparks from train	233	307 Other accident	233
3207 other carelessness	1473	400 Negligence	1473
3103 escaped pastoral burning	417	411 Vegetation management	513
3105 burning of road or railway shoulders	96		
3101 burning of fallow land	835	412 Agricultural burnings	3555
3102 burning of vegetation waste	2283		
3104 Thatches/stubble burning	437		
3205 illegal garbage dump	329	413 Waste management	329
3201 leisure or tourist activities	217	414 Recreation	217
3202 fireworks, firecrackers, explosives	122	421 Fireworks, firecrackers and distress flares	122
		305 Weapons (firearms, explosives etc.)	-
3001 Cigarettes thrown along road	1532	422 Cigarettes	2167
3002 Cigarettes thrown in countryside	218		
3003 Cigarettes thrown in forested area	395		
3004 Cigarettes thrown along railway	22		
4201 other intentional	20817	500 Deliberate	20817
4001 opening or renovating pastures	7111	511 Interest (profit)	9566
4002 vegetation burning to earn agricultural land	574		
4003 vegetation burning for speculation	143		
4004 fire lit in order to take advantage of the situation	805		
4005 fire lit for land use issue	276		
4006 fire lit to destruct badly-executed forest operations	29		
4008 fire lit to harvest products after burning	628		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
4007 hunting conflict	1251	512 Conflict (revenge)	2355
4101 revenge against administration	179		
4102 personal conflict or revenge	586		
4103 protesting against land protection	126		
4105 fire lit to depreciate tourist area	28		
4108 social conflict	185		
4104 fire lit for game or divertissement	360	514 Excitement (incendiary)	360
4009 fire due to organized crime connection factors	58	516 Extremist	85
4106 political conflict	20		
4107 terrorism	7		
4109 psycho or pyromania	1942	521 Mental illness	1942

### Notes

- The national cause code 3202 "fireworks, firecrackers, explosives" has been split into 2 new cause categories: 421 (Fireworks, firecrackers and distress flares) or 305 (Weapons: firearms, explosives etc.). The 122 fires falling into this split class were all assigned to new cause code 421, as the more likely of the 2 causes.

**6.12. Latvia**

Latvia has a 10 point national code. However, in the data sent to the European Fire database only the 4 EU categories (Unknown, Natural, Accident/Negligence, Deliberate) are supplied. These were assigned new cause codes as shown in Table 17.

**Table 17: Mapping of the national fire causes classification scheme of Latvia to the new European scheme and conversion of fires in the database 2005-2010**

<b>Fire causes and number of fires recorded under the national scheme</b>		<b>Fire causes and number of fires recorded under the new European scheme</b>	
<b>Cause</b>	<b>Count</b>	<b>Cause</b>	<b>Count</b>
<no information>	329	1000 Unknown (No information)	329
Unknown	49	100 Unknown	49
Natural	12	200 Natural	12
Accident/negligence	4718	1001 Accident/Negligence	4718
Deliberate or Arson	184	500 Deliberate	184

### 6.13. Lithuania

Lithuania uses a 12 point national code. The country codes were mapped to the new scheme and records stored in the European Fire Database (2004-2010) were converted as shown in Table 18.

**Table 18: Mapping of the national fire causes classification scheme of Lithuania to the new European scheme and conversion of fires in the database 2004-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
12 Unknown causes	238	100 Unknown	238
11 Natural	19	200 Natural	19
8 Electric lines	27	301 Electrical power	27
6 Railway	10	302 Railroads (Railways)	10
7 Motor transport	21	303 Vehicles	21
4 Other industrial activities	2	304 Works	2
10 Other, military exercises	5	305 Weapons (firearms, explosives etc.)	5
		1004 Unknown (Reason known but not specified)	-
5 Means of communication	2	307 Other accident	2
3 Forest activities	19	411 Vegetation management	19
2 Agriculture, burning of grass	838	412 Agricultural burnings	838
9 Campfires	1798	414 Recreation	1798
1 Deliberate	256	500 Deliberate	256

#### Notes

- National cause 10 (Other, military activities) was split depending on whether the cause was "other" or "military activities". The fires already recorded in this split category were all assigned code 350 in the absence of more information. This affected only 5 fires in the database.



**6.14. Poland**

Before 2007, the State Fire Services codes were used to describe fire causes. This is a 37-point code, covering not only forest fires. Many of the detailed cause categories were therefore merged, as they did not relate specifically to forests. From 2007, the data included additional fires that came from the State Forests and National Parks database, which uses a different set of cause codes (13 classes). The translation of these two systems into the new EU cause codes are shown in Table 19 and Table 20.

**Table 19: Mapping of the national fire causes classification scheme of the State Fire Services of Poland to the new European scheme and conversion of fires in the database 1993-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
PSP-37 Unsettled	51190	100 Unknown	51190
PSP-36 Other causes	9818	1004 Unknown (Reason known but not specified)	9818
PSP-30 Thunderbolts	1059	201 Lightning	1059
PSP-11 Defects of electric devices and installations (exc. heating devices)	2578	301 Electrical power	2578
PSP-26 Defects of means of transport	1500	303 Vehicles	1846
PSP-27 Incorrect exploitation of means of transport	346		
PSP-21 Defects of machineries	4702	304 Works	5410
PSP-22 Incorrect exploitation of machineries	708		
PSP-3 Carelessness of adults with use of combustible substances and explosives	72	305 Weapons (firearms, explosives etc.)	72
PSP-28 Biological self-ignition	255	306 Self-ignition (auto-combustion)	262
PSP-29 Chemical self-ignition	7		
PSP-12 Incorrect exploitation of electric devices and installations	129	307 Other accident	917
PSP-13 Defects of electric heating devices (furnaces, heaters etc.)	15		
PSP-14 Incorrect exploitation of electric heating devices	8		
PSP-15 Defects of heating devices for solid fuel	13		
PSP-16 Incorrect exploitation of heating devices for solid fuel	22		
PSP-17 Defects of heating devices for liquid fuel	8		
PSP-18 Incorrect exploitation of heating devices for liquid fuel	13		
PSP-19 Defects of heating devices for gas fuel	4		
PSP-20 Incorrect exploitation of heating devices for gas fuel	6		
PSP-23 Defects of manufacturing processes	4		
PSP-24 Incompliance of technological regimes	8		
PSP-25 Incorrect storing of hazardous substances	4		
PSP-31 Defects of building constructions	4		
PSP-32 Incorrect exploitation of building constructions	479		
PSP-33 Static electricity	200		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
PSP-5 Carelessness of adults with other case	1188	400 Negligence	1188
PSP-2 Carelessness of adults firing of vegetation remnants	28619	411 Vegetation management	28619
PSP-1 Carelessness of adults with use of open fire, incl. cigarettes, matches	166422	414 Recreation 422 Cigarettes	166422 -
PSP-4 Carelessness of adults with fire hazardous works	172	415 Other negligent use of fire	172
PSP-34 Arson (purposely) incl. acts of terror	273713	500 Deliberate	274368
PSP-35 Fires as effects of local threats	655		
PSP-6 Carelessness of adolescents (aged under 16) with use of open fire, incl. cigarettes, matches	11546	522 Children	13767
PSP-7 Carelessness of adolescents (aged under 16) firing of vegetation remnants	2035		
PSP-8 Carelessness of adolescents (aged under 16) with use of combustible substances and explosives	55		
PSP-9 Carelessness of adolescents (aged under 16) with fire hazardous works	3		
PSP-10 Carelessness of adolescents (aged under 16) with other case	128		

**Table 20: Mapping of the national fire causes classification scheme of the State Forests and National Parks database of Poland to the new European scheme and conversion of fires in the database 2007-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
LP-13 Unidentified	1808	100 Unknown	1808
LP-12 Other including military exercises	112	305 Weapons (firearms, explosives etc.)	-
		1004 Unknown (Reason known but not specified)	112
LP-9 Atmospheric discharges	66	201 Lightning	66
LP-6 Failure of power line	80	301 Electrical power	80
LP-8 Rail transport (including fires started by passengers)	84	302 Railroads (Railways)	84
		422 Cigarettes	-
LP-7 Road transport	63	303 Vehicles	63
LP-3 Other carelessness of adults (including work on structures located inside the forest, fireworks...)	1599	304 Works	1599
		421 Fireworks, firecrackers and distress flares	-
LP-2 Economic activity of State Forests (including post-exploitation burning and bonfires lit by forest workers)	12	411 Vegetation management	12
LP-10 Break overs from non-forest land	215	412 Agricultural burnings	215
LP-1 Tourism and picking fruits of the forest (including smokers, bonfires...)	210	414 Recreation	210
		422 Cigarettes	-
LP-11 Arson including mental illness	3207	500 Deliberate	3207

## Harmonized classification scheme of fire causes in the EU

---

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
LP-4 Carelessness of minors (playing with matches, cigarettes, torches, fireworks...)	67	522 Children	89
LP-5 Burning of bonfires by minors	22		

### Notes

- National cause PSP-1 "Carelessness of adults with use of open fire, incl. cigarettes, matches" was split into 2 new cause categories: 414 (Recreation) and 422 (Cigarettes). The category considered most likely (414) was assigned to the historical data.
- Codes PSP-36 (Other Causes) and LP-12 (Other including military exercises) were assigned the special code 1004 (Reason known but not specified).
- The historic fires in split code LP3 "Other carelessness of adults" were assigned to the new cause 304 (Works) as the most likely cause.
- The historic fires in split code LP-1 "Tourism and picking fruits of the forest" were assigned to the new cause 414 (Recreation) as the most likely cause.

## Harmonized classification scheme of fire causes in the EU

### 6.15. Portugal

Since 2001 Portugal has used a 3-level hierarchical system for classifying fire causes. This is translated into the new EU system as shown in Table 21 below. For those fires occurring before 2001 a variety of old coding systems were used. These were examined individually and an appropriate code was assigned.

**Table 21: Mapping of the national fire causes classification scheme of Portugal to the new European scheme and conversion of fires in the database 2001-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
6 unknown	10079	100 Unknown	23112
60 unknown	1907		
610 material evidence missing	4428		
620 personal evidence missing	116		
630 other information missing	6582		
<no code>	208381	1000 Unknown (No information)	208381
5 natural	97	200 Natural	97
51 lightning	459	201 Lightning	459
2 accident	702	300 Accident	728
21 transport and communications	26		
211 electric lines	649	301 Electrical power	649
212 railway	98	302 Railroads (Railways)	98
213 exhaust	25	303 Vehicles	53
214 road accident	28		
22 machinery	86	304 Works	809
221 impact of agricultural metallic tools against rocks	248		
222 agricultural engines	208		
223 forest equipment	34		
224 chainsaws	57		
225 forest engines	30		
226 industrial engines	43		
227 other machinery	103		
231 explosives	10	305 Weapons (firearms, explosives etc.)	49
232 soldering	32		
233 hunter firing	1		
234 military exercise	6		
215 other accident	60	307 Other accident	290
23 other accidental cause	35		
235 glass	54		
236 other accidental cause	141		
1 negligent use of fire	34	400 Negligence	34
12 vegetation burning	369	411 Vegetation management	9633
122 clearing of forest areas	1630		
123 clearing of urban areas	113		
125 renewing pastures	6745		
126 improving access to hunting and fishing areas	179		
127 clearing paths or private areas	313		
128 escaped preventive burning	56		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
129 other vegetation burning	223		
37 forest fires prevention	4		
371 problem during fire prevention or fire fighting activities	1		
121 clearing of agricultural areas	2653	412 Agricultural burnings	4826
124 burning remnants or agricultural waste	2173		
11 garbage burning	328	413 Waste management	561
111 in official garbage dump	8		
112 industrial waste	16		
113 commercial waste	3		
114 waste from clandestine activities / illegal garbage dump	128		
115 waste from permanent private habitation	66		
116 waste from temporary or leisure habitation	12		
14 bonfires	112	414 Recreation	231
141 for leisure activities	24		
142 for cooking	85		
143 for heating	10		
144 for road works	1	415 Other negligent use of fire	130
145 other bonfires	129		
13 fireworks	43	421 Fireworks, firecrackers and distress flares	281
131 with prevention measures	68		
132 clandestine	55		
133 self-ignition	115		
15 smokers	110	422 Cigarettes	698
151 walking smokers	210		
152 cigarette butts or matches thrown from vehicles	378		
16 apiculture	7	424 Other use of glowing object	38
161 fumigation	10		
162 disinfection	3		
17 chimneys	4		
171 industrial chimneys	6		
172 houses chimneys	8		
3 structural	50	500 Deliberate	1718
38 other structural causes	32		
4 incendiary	1636		
31 hunting and wildlife	127	510 Responsible (arson)	1477
33 land use	321		
44 responsible	98		
449 other deliberate	931		
312 preventing from damages caused by wildlife	147	511 Interest (profit)	223
333 changing land use	44		
334 pressure on wood market	16		
335 limiting use or management of land	16		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
311 hunting conflict	288	512 Conflict (revenge)	508
336 conflict in use of fallow lands	11		
445 conflicts between neighbours	93		
446 revenge	116		
448 vandalism	7977	513 Vandalism	7977
444 fire lit in order to admire the fire fighting means	102	514 Excitement (incendiary)	102
441 diversionary manoeuvre	45	515 Crime concealment	45
41 irresponsible	15	520 Irresponsible	67
419 other irresponsible	52		
417 pyromania	117	521 Mental illness	117
412 children games	105	522 Children	166
413 irresponsibility of minors	61		
700 Fire Restart	8467	600 Rekindle	8467

**6.16. Romania**

In Romania, currently there is no classification by codes of presumed forest fire causes. The Fire Department uses nominal lists for presumed fire causes, and a detailed classification of forest fire presumed causes and codes is under construction. The fire causes found in the fire data from 2004-2010 were mapped to the new scheme as shown in Table 22.

**Table 22: Mapping of the national fire causes classification scheme of Romania to the new European scheme and conversion of fires in the database 2004-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
unknown	288	100 Unknown	288
electrical sparks	10	301 Electrical power	11
electrical sparks (power lines)	1		
electrical sparks (railway power line)	1	302 Railroads (Railways)	3
train brake drag sparks	2		
self-ignition	14	306 Self-ignition (auto-combustion)	18
self-ignition (focalised glass effect)	2		
self-ignition coal	2		
gas pipeline explosion	1	307 Other accident	3
litter fire (sunstroke)	2		
self-ignition of the nearby private green crops	1	411 Vegetation management	470
unsupervised fire in areas next to forests (private green crops)	234		
unsupervised fire in areas next to forests (private hayfield)	38		
unsupervised fire in areas next to forests (private orchard)	1		
unsupervised fire in areas next to forests (private pasture)	195		
unsupervised fire in areas next to forests (private vineyard)	1		
unsupervised fire in areas next to forests	71	412 Agricultural burnings	84
unsupervised fire in areas next to forests (agricultural fields)	8		
unsupervised fire in areas next to forests (orchard)	1		
unsupervised fire in areas next to forests (reed)	2		
unsupervised fire in areas next to forests (stubble field)	2		
unattended waste dump	1		
unsupervised fire in areas next to forests (garbage waste)	1		
unsupervised fire in areas next to forests (garbage)	11		
unsupervised fire in areas next to forests (waste dump)	2		
unattended open fire	79	414 Recreation	79
involuntarily started fire in areas next to forests (cigarette butt)	2	422 Cigarettes	44
unextinguished cigarettes carelessly thrown away	42		

## Harmonized classification scheme of fire causes in the EU

---

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
criminal action	14	500 Deliberate	15
criminal action - reed	1		
unattended open fire by children	1	522 Children	1
underground fires	1	600 Rekindle	1



**6.17. Slovakia**

No local fire cause codes are supplied with the data; only the 4 EU categories (Unknown, Natural, Accident/Negligence, Deliberate) are supplied. These were assigned new cause codes as shown in Table 23.

**Table 23: Mapping of the national fire causes classification scheme of Slovakia to the new European scheme and conversion of fires in the database 2004-2010**

<b>Fire causes and number of fires recorded under the national scheme</b>		<b>Fire causes and number of fires recorded under the new European scheme</b>	
<b>Cause</b>	<b>Count</b>	<b>Cause</b>	<b>Count</b>
Unknown	156	100 Unknown	156
Natural	14	200 Natural	14
Accident/negligence	1569	300 Accident 400 Negligence	1569 (code 1001)
Deliberate or Arson	54	500 Deliberate	54

**Notes**

- The special code 1001 was used for fires labelled "Accident/Negligence"

## Harmonized classification scheme of fire causes in the EU

### 6.18. Slovenia

The Slovenian system is a hierarchical scheme with up to 5 levels. In practice, the most detailed levels are not used for the SI forest fires. However, the entire system was translated into the new EU fire cause code scheme, in case any of the codes are used in the future (Table 24).

**Table 24: Mapping of the national fire causes classification scheme of Slovenia to the new European scheme and conversion of fires in the database 2004-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
SI_nfs_2.0 Unknown cause	554	100 Unknown	554
SI_nfs_1.126 Other (army, etc.)	21	1001 Accident/Negligence	21
SI_nfs_1.0 Known cause	-	1004 Unknown (Reason known but not specified)	
SI_nfs_1.1 Man	-		
SI_nfs_1.2 Natural causes	74	200 Natural	74
SI_nfs_1.21 Lightning	42	201 Lightning	42
SI_nfs_1.12 Negligence	50	300 Accident 400 Negligence	50 (code 1001)
SI_nfs_1.1244 Short circuit, electricity distribution	-	301 Electrical power	-
SI_nfs_1.1243 Train sparks	-	302 Railroads (Railways)	-
SI_nfs_1.1241 Traffic accident	-	303 Vehicles	-
SI_nfs_1.1242 Fire on vehicles	-		
SI_nfs_1.123 Industrial activities	3		
SI_nfs_1.1231 Ignition of inflammables and vapours	-	304 Works	3
SI_nfs_1.1232 Explosion	-		
SI_nfs_1.1233 Grinding, welding, friction, overheating	-		
SI_nfs_1.1261 Military activities	-	305 Weapons (firearms, explosives etc.)	-
SI_nfs_1.22 Self-ignition of garbage at landfill	-	306 Self-ignition (auto-combustion)	-
SI_nfs_1.1212 Hay self-ignition	-		
SI_nfs_1.124 Communications (trains, electric lines, etc.)	258	307 Other accident	258
SI_nfs_1.122 Forestry operations	32		
SI_nfs_1.1221 Open fire, making fires in the open air	-	411 Vegetation management	32
SI_nfs_1.121 Agricultural operations	150		
SI_nfs_1.1211 Open fire, making fires in the open air	-	412 Agricultural burnings	150
SI_nfs_1.125 Forest visitors (tourists, children, etc.)	58		
SI_nfs_1.1252 Open fire, making fires in the open air	-	414 Recreation	58
SI_nfs_1.1253 Mass manifestations in natural environment	-		
SI_nfs_1.1262 Construction facility fire	-	415 Other negligent use of fire	-
SI_nfs_1.1251 Careless smoking, thrown away butts	-	422 Cigarettes	-
SI_nfs_1.1263 Depositing of hot ashes or burning materials	-	423 Hot ashes	-
SI_nfs_1.11 Arson	135	500 Deliberate	135
SI_nfs_1.1254 Children's play		522 Children	-

### Notes

- For conversion of the historical data, the special code 1001 was used for code 1.12 ("Negligence") as this category actually contains both accidental and negligence fires (similar to old EU code 3) and the precise cause cannot be determined. For future data the fires should be able to be split into either 300 (accident) or 400 (negligence). The same special code was also used for "Other (army etc)" for the same reason.

**6.19. Spain**

The Spanish codes for fire causes is a hierarchical scheme with 65 causes listed. Like the new EU scheme it is possible to specify more or less information about the cause. However, for the data sent to the European fire database, the deliberately started fires (codes 4nn) are only specified to the first level of detail and the motivation is therefore unknown.

**Table 25: Mapping of the national fire causes classification scheme of Spain to the new European scheme and conversion of fires in the database 1985-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
ES_500 unknown	94612	100 Unknown	94612
ES_100 Lightning	17442	201 Lightning	17442
ES_330 engines and machinery	3338	300 Accident	3338
ES_320 electric lines	3835	301 Electrical power	3835
ES_310 railway	1952	302 Railroads (Railways)	1952
ES_332 Light or heavy weight vehicles	374	303 Vehicles	592
ES_333 Vehicle accident	218		
ES_331 Harvesters	549	304 Works	1290
ES_334 Fixed machinery	52		
ES_335 Other type of machinery	689		
ES_340 army manoeuvres	319	305 Weapons (firearms, explosives etc.)	319
ES_290 Other negligence	11234	400 Negligence	12552
ES_296 Fires due other negligence cause	1318		
ES_220 Pasture regeneration burning	10465	411 Vegetation management	20207
ES_221 Bush Burning	793		
ES_222 Burning of herbaceous	143		
ES_223 Other fires set for pasture regeneration	84		
ES_230 Forest works	5673		
ES_280 Bush Burning	2638		
ES_281 Bush burning near to buildings	43		
ES_282 Bush burning with the purpose of clearing tracks and paths	139		
ES_283 Bush burning to eliminate refuges of harmful fauna	9		
ES_284 Bush burning with other purposes	150		
ES_295 burning of pruning rests from gardens	70		
ES_210 Agricultural burning	15343	412 Agricultural burnings	18095
ES_211 Stubs burning	643		
ES_212 Burning of pruning derbies	949		
ES_213 Fires on the boundaries of farms or plots	527		
ES_214 Fires in the edges of irrigation ditches	392		
ES_215 Other fires set for agricultural purposes	241		
ES_260 Rubbish burning	5262	413 Waste management	6926
ES_270 Escape from a garbage dump	1664		

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
ES_240 Campfires	3786	414 Recreation	3786
ES_293 hot air balloon	10	415 Other negligent use of fire	10
ES_292 fire works	210	421 Fireworks, firecrackers and distress flares	210
ES_250 Smokers	6751	422 Cigarettes	6751
ES_291 apiculture	69	424 Other use of glowing object	69
ES_400 intentional	235424	500 Deliberate	235424
ES_499 Other purposes.	-		
ES_401 Uncontrolled agricultural fires, started by farmers to eliminate bushes and agricultural debris, spread into the forest.	-	511 Interest (profit)	-
ES_402 Fires started by shepherds and livestock farmers to facilitate pasture regeneration and/or pasture growth.	-		
ES_404 Fires started to frighten away animals (wolves, wild boars, etc.) harmful to crops or livestock.	-		
ES_405 Fires caused by hunters to make hunting easier.	-		
ES_409 Fires set to get a job in the fire fighting brigades or in the post-fire restoration works of damaged areas.	-		
ES_411 Fires started to reduce the price of wood.	-		
ES_412 Fires started to force land-use changes.	-		
ES_420 Fires started to facilitate the production of forest products.	-		
ES_403 Fires set for revenge purposes.	-	512 Conflict (revenge)	-
ES_406 Fires started against hunting limitation.	-		
ES_407 Fires started due to dissents or contestations on the public or private ownership of forests.	-		
ES_408 Fires started in retaliation for the reduction of public investment in forests.	-		
ES_414 Fires started due to the rejection towards reforestation works.	-		
ES_416 Fires started due to the rejection of the creation of new Natural Protected Areas or against the existing ones.	-		
ES_421 Fires started with the will to force the resolution of Consortiums or Agreements.	-		
ES_422 Fires started due to resentment against expropriations or compulsory purchases.	-		
ES_423 Fires started as revenge for imposed fines.	-		
ES_419 Fires due to acts of vandalism.	-		
ES_418 Fires started with the aim of contemplating the fire fighting tasks.	-	514 Excitement (incendiary)	-

## Harmonized classification scheme of fire causes in the EU

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
ES_415 Fires started by delinquents or demonstrators to distract the security forces, Civil Guard or Police.	-	515 Crime concealment	-
ES_413 Fires started by political groups to create social unrest. ES_417 Fires started during pseudo-religious or satanic rites.	- -	516 Extremist	-
ES_410 Fires started due to arsonists (mentally ill people).	-	521 Mental illness	-
ES_294 kid games	558	522 Children	558
ES_600 restart of fire	4989	600 Rekindle	4989

## Harmonized classification scheme of fire causes in the EU

### 6.20. Sweden

The country cause scheme is a single level non-hierarchical list of 23 causes. These were mapped to the new system as shown in Table 26.

**Table 26: Mapping of the national fire causes classification scheme of Sweden to the new European scheme and conversion of fires in the database 1996-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
30 Unknown	8888	100 Unknown	8888
0 Not specified	18458	1000 Unknown (No information)	18458
91 Other	4689	1004 Unknown (Reason known but not specified)	4689
8 Lightning	2804	201 Lightning	2804
4 Sparks from train brakes	1335	302 Railroads (Railways)	1335
18 Transport accident	41	303 Vehicles	2116
19 Other sparks (from vehicles)	2075		
10 Careless handyman (replaced by code 21 since 2005)	145	304 Works	205
21 Hot work (with tools that give off heat or sparks: cutting, grinding, welding, LPG blowlamp etc...)	60		
16 Spontaneous combustion	577	306 Self-ignition (auto-combustion)	577
12 Explosion	88	307 Other accident	785
14 Heat transfer	359		
24 Friction (generates heat and can ignite materials)	85		
7 Technical fault (i.e. problem with a machine or a technical system, including electric lines)	253	411 Vegetation management 413 Waste management 415 Other negligent use of fire	2215 - -
22 Fire spread when burning other things than grass (including prescribed fire, garbage burning, residues from agricultural or forest activities)	2215		
20 Fire spread when burning grass	8465		
17 Camp fire (replaced by code 23 since 2005)	3087	414 Recreation	5416
23 Camp fire/grill	2329		
9 Fireworks	1044	421 Fireworks, firecrackers and distress flares	1044
5 Smoking	1106	422 Cigarettes	1106
2 Arson	6531	500 Deliberate	6531
3 Child playing with fire	7405	522 Children	7405
1 Re-ignition	2046	600 Rekindle	2046

#### Notes

- The Swedish code "Fire spread when burning other things than grass" has been split into several possible new cause codes depending on the activity: 411 if primarily to control vegetation; 413 if waste management and 415 (other use of fire) if neither of these. For converting the historical data the code 411 was used, as the most likely possibility. This affects 2215 fires in the database.
- The 4689 fires given the national code "Other" were assigned the special code 1004.

**6.21. Switzerland**

The Swiss nation scheme comprises a 15 point code. Some of the codes (e.g. "forestry") could be mapped to several possibilities in the new scheme. These are split and for the future, the most appropriate classification can be selected according to the detail of the cause as shown in Table 27.

**Table 27: Mapping of the national fire causes classification scheme of Switzerland to the new European scheme and conversion of fires in the database 1980-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
1 Unknown	920	100 Unknown	952
13 Cross-border	32		
<missing>	5	1000 Unknown (No information)	5
15 Other known cause	73	1004 Unknown (Reason known but not specified)	73
2 Lightning	331	201 Lightning	331
11 Electric line	68	301 Electrical power	68
10 Rail	82	302 Railroads (Railways)	82
12 Other technical systems (includes problems on motor vehicles)	-	303 Vehicles	-
		307 Other accident	-
9 Army	49	305 Weapons (firearms, explosives etc.)	49
7 Forestry	63	411 Vegetation management	63
		304 Works	-
8 Agriculture	55	412 Agricultural burnings	55
		304 Works	-
4 Not extinguished campfires	66	414 Recreation	66
5 Private (tourists, hikers, thrown cigarettes, other) (includes all undefined carelessness)	749	422 Cigarettes	749
		414 Recreation	-
		400 Negligence	-
3 Arson	329	500 Deliberate	329
6 Children	38	522 Children	38
14 Fire restarting	1	600 Rekindle	1

**Notes**

- The national code 12 "Other technical systems: includes problems on motor vehicles" was split into new cause codes 303 (Vehicles) for accidents involving vehicles and 307 (other accident) for general accidents. No fires in the historic data were registered under this code.
- The national code 7 "Forestry" was split into 411 (Vegetation management) and the general code 204 (Works). For the historic data, code 411 was used as the most likely cause.
- The national code 8 "Agriculture" was split into 412 (Agricultural burnings) and the general code 204 (Works). For the historic data, code 412 was used as the most likely cause.
- The national code 5 "Private" was split into 422 (Cigarettes), 414 (Recreation) and the general code 400 (Negligence). For the historic data, code 422 was used as the most likely cause.



**6.22. Turkey**

The Turkish system uses a 16 point code. These were converted to the new cause scheme as shown in Table 28.

**Table 28: Mapping of the national fire causes classification scheme of Turkey to the new European scheme and conversion of fires in the database 2005-2010**

Fire causes and number of fires recorded under the national scheme		Fire causes and number of fires recorded under the new European scheme	
Cause	Count	Cause	Count
1 Unknown	1850	100 Unknown	1850
<No information>	2240	1000 Unknown (No information)	2240
19 <no explanation of code>	2	1003 Unknown (Invalid or unexplained country code)	2
9 other (intention-accident)	835	1004 Unknown (Reason known but not specified)	835
2 lighting	1148	201 Lightning	1148
7 energy line	417	301 Electrical power	417
6 locomotive	123	302 Railroads (Railways)	123
8 traffic accident	54	303 Vehicles	54
4 swaddle	223	307 Other accident	259
5 exposure	36		
16 other (negligence)	1806	400 Negligence	1806
10 stubble	257	412 Agricultural burnings	257
11 dump	36	413 Waste management	36
12 hunting	52	414 Recreation	605
13 shepherd fire	326		
15 picnic fire	227		
14 cigarette	730	422 Cigarettes	730
3 terror	97	500 Deliberate	97

**Notes**

- The national code 9 "Other (intention-accident)" had to be coded as 1004 (Reason known but not specified) as there was not enough information to be more precise.
- National codes 4 "Swaddle" and 5 "Exposure" were combined into the new cause category 307 (Other accident).
- National codes 12 "Hunting", 13 "Shepherd fire" and 14 "Picnic fire" were merged into the new cause code 414 (Recreation) after consultation with the Turkish fire experts.
- 2 fires were given a code of 19, for which there is no explanation, and were given the special code 1003.

European Commission  
EUR 25923 – Joint Research Centre – Institute for Environment and Sustainability

Title: Harmonized classification scheme of fire causes in the EU adopted for the European Fire Database of EFFIS

Author(s): Andrea Camia, Tracy Durrant, Jesús San-Miguel-Ayanz

Luxembourg: Publications Office of the European Union

2012 –49 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424

ISBN 978-92-79-29385-6

doi:10.2788/86859

## **Abstract**

The information on the causes of forest fires is of paramount importance to support the environmental and civil protection policies and design appropriate prevention measure. At the European level a simple common scheme with 4 fire causes classes (deliberate, accident/negligence, natural and unknown) has been used to record information on fire causes since 1992. European countries use national schemes which in most cases are much more detailed than the simple 4 common classes, but they are not harmonized and detailed cross country comparisons are difficult. The need for a new EU scheme, more detailed than the 4 basic categories and harmonized across European countries, to be recorded in the Fire Database of the European Forest Fire Information System (EFFIS), has been identified to improve the information level and the common knowledge on the origin of forest fires in Europe. The new scheme has been conceived to be applicable with limited changes to the previous country settings, preserving as much as possible the historical data series of each country and exploiting at the same time as much as possible the level of detail of the information available. This report provides a detailed description of the new scheme, its main features with precise definition of each cause class and the mapping of the historical national systems to the new harmonized system. The scheme is hierarchical and is made of 29 fire cause classes, 8 groups and 6 categories. The explicit statement on the level of certainty in the attribution of the cause to a fire event has been introduced as a key element in the new scheme. This harmonized fire cause classification scheme is expected to be adopted by the countries participating to the EFFIS network in the coming years, and therefore be recorded in the European Fire Database, with a significant added value for the knowledge about the origin of forest fires in Europe.

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new standards, methods and tools, and sharing and transferring its know-how to the Member States and international community.

Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.