

"The way forward for the Eurocodes implementation in the Balkans"

10-11 October 2018, Tirana

JRC activities in support to the Eurocodes implementation

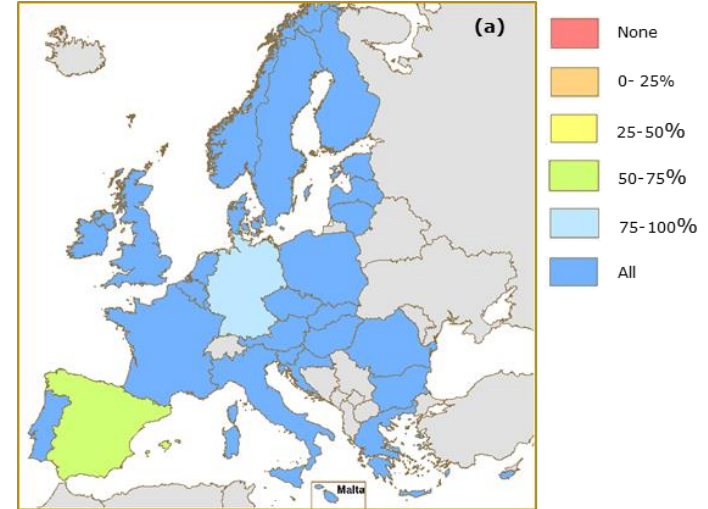
S. Dimova, A. Athanasopoulou, L. Sousa

Safety and Security of Buildings Unit
Directorate for Space, Security and Migration
Directorate-General **Joint Research Centre**
European Commission

Eurocodes implementation in the EU

Some first comments ...

- ✓ The Eurocodes are used in **different regulatory systems** in EU.
- ✓ The Eurocodes contribute to **harmonization** of levels of safety, construction practices and markets.
- ✓ The NDPs offer each country the possibility to **adapt** the standards to local conditions and needs.



Publication of National Standards on the Eurocodes in percentage of all Parts (2015 status)

But why the JRC?

(in support of the Eurocodes implementation ...)

- ❖ Commission Recommendation (2003/887/EC) to the Member States on the **implementation and use of the Eurocodes**
- ✓ Adopt and Implement the Eurocodes
- ✓ ...
- ✓ Support and undertake research to **facilitate the integration into the Eurocodes of the latest developments** in scientific and technological knowledge, [...] in cooperation with the **Joint Research Centre**, thus ensuring an on-going increased level of protection of buildings and civil works, ... "

JRC Support to policies and standards for construction

Work programme for Administrative Arrangements between DG JRC and DG GROW

Task	Subtasks (2018 – 2021)
Eurocodes IT tools	NDPs DB, Eurocodes website, Helpdesk
Implementation and harmonized use	Statistical analysis of NDPs
	Robustness-based design
	Training/dissemination of material
New fields of application	Adaptation to climate change
	Underground structures
Promotion of policies and standards for construction outside EU	Coordination and facilitation

Eurocodes JRC IT tools

The screenshot shows the homepage of the Eurocodes JRC website. At the top, there is a navigation bar with links for Legal notice, Privacy Policy, Cookies, Contact, Sitemap, About this site, Links, and Login. A language selector is set to English (en). Below this is a search bar. The main header features the European Commission logo and the text "JOINT RESEARCH CENTRE EUROCODES". A breadcrumb trail reads "European Commission > JRC > Homepage". A large banner image shows people working on computers with the text "EUROCODES BUILDING THE FUTURE". A left sidebar contains a menu with items like "About the EN Eurocodes", "Parts", "EU Legislation and Standardisation", "Implementation", "Designing with the Eurocodes", "Maintenance", "Further Harmonization", "Development", "Use outside EU-EFTA", "Glossary", "Publications", "Events", "JRC support to implementation and development", and "Media News". The main content area is titled "The EN Eurocodes" and explains that they are a series of 10 European Standards (EN 1990 - EN 1999) providing a common approach for the design of buildings and other civil engineering works. It mentions the Construction Products Regulation and CE Marking. Below this, there is a section "Worldwide interest in the Eurocodes" with a world map showing countries that have expressed interest or adopted the Eurocodes. Another section "What do the world media say about the Eurocodes and other Standards for Construction?" features a map of Europe and mentions the Europe Media Monitor (EMM) for real-time monitoring and analysis of online media.

The Eurocodes Website

- General info
- Events & News
- Archive of all training events
- Publications database
- Examples of structures designed with the Eurocodes

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

[illegible]

- Searchable database with more than 500 publications in 16 languages
- What you can find ...
 - ✓ Reports with worked examples
 - ✓ Lectures/presentations
 - ✓ Promotion material
 - ✓ Background documents
 - ✓ Pre-normative material on 2nd generation Eurocodes

Eurocodes JRC IT tools



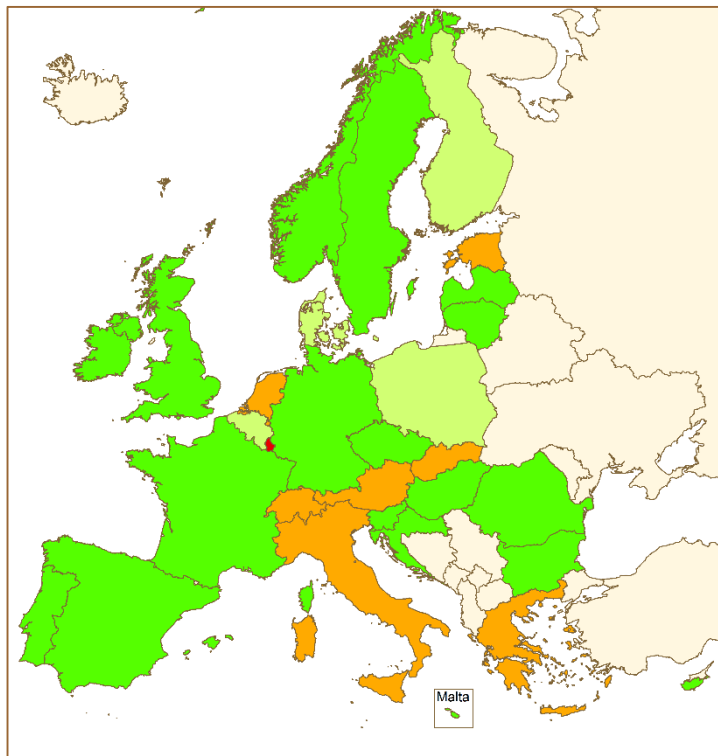
All questions and answers

Id	EN Part	Chap/clause	Type	Created	Submitted/Modified	State	Editor
000002	1991, 1-7	3.3 Accidental design situa...	Interpretation	2015-03-31	2015-03-31	Answer being edited	SC 1
000004	1990	Annex D (informative) Desig...	Interpretation	2015-08-05	2015-08-05	Answer being edited	SC 10
000005	1991, 2	5.1 Field of application	Interpretation	2015-12-08	2015-12-19	Answer being edited	SC 1
000006	1993, 1-8	6.2.2 Shear forces	Interpretation	2015-12-08	2015-12-08	Answer being edited	SC 3
000007	1993, 1-6		Interpretation	2015-12-08	2015-12-08	Answer being edited	SC 3
000008	1991, 1-4		Interpretation	2015-12-08	2015-12-08	Answer being edited	SC 1
000009	1991, 1-1	6.3.1.2 Values of actions	Interpretation	2015-12-08	2015-12-08	Answer being edited	SC 1
000011	1993, 2		Interpretation	2016-04-28	2016-04-28	Answer being edited	SC 3
000013	1998, 1	Annex A (informative) Elast...	Interpretation	2016-11-22	2016-11-22	Answer being edited	SC 8
000015	1995, 1-1	7.1 Joint slip	Other	2017-11-06	2017-11-06	Answer being edited	SC 5
000016	1993, 3-1	5.1 Modelling for determini...	Interpretation	2017-11-07	2017-11-07	Answer being edited	SC 3
000001	1998, 1	3.2.1 Seismic zones	Interpretation	2015-01-14	2015-01-26	Answer issued	SC 8
000003	1992, 1-1	8.7.2 Laps	Interpretation	2015-03-31	2015-04-30	Answer issued	SC 2
000010	1992, 2		Interpretation	2015-12-08	2015-12-18	Answer issued	SC 2
000012	1993, 1-8	3 Connections made with bol...	Interpretation	2016-04-28	2016-06-24	Answer issued	SC 3
000014	1992, 1-2	5.7.1 General	Interpretation	2017-08-01	2017-08-09	Answer issued	SC 2

The Eurocodes Centralised Helpdesk

- Link between users of the Eurocodes, National Standards Bodies and CEN/TC250
- Allows National Contact Points to submit questions received at national level
- Queries are answered by CEN/TC250 and its Subcommittees

Eurocodes JRC IT tools



Status of NDPs uploading for EU and EFTA MS

The Eurocodes NDPs Database

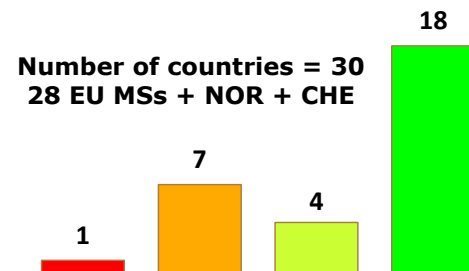
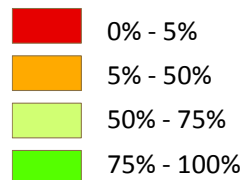
by 19 September 2018

NDPs uploaded: 27529 (70.5%)

18 countries with more than 75% NDPs uploaded

% calculated on published NAs

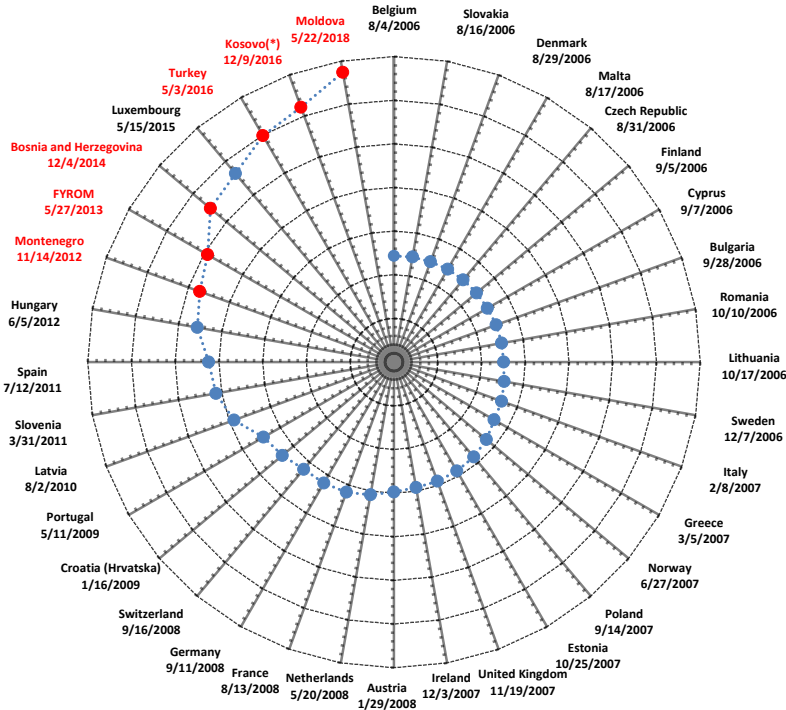
NDP uploading



Eurocodes JRC IT tools

The Eurocodes NDPs Database

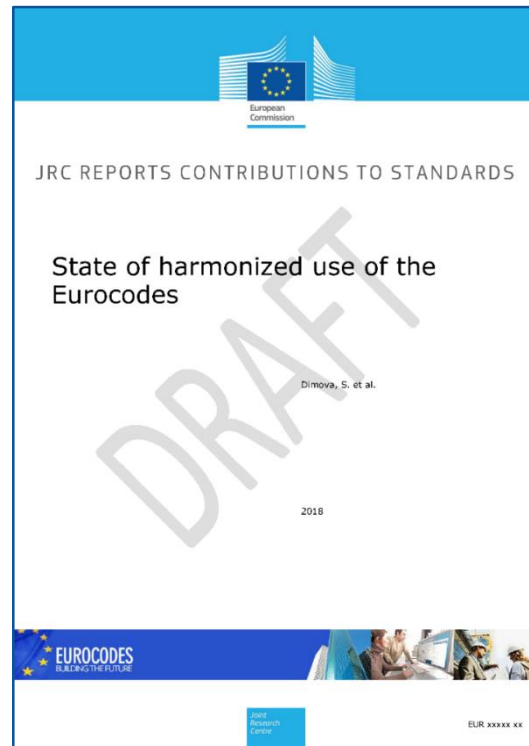
- **Bosnia and Herzegovina** has uploaded 256 NDPs
 - **Turkey** has uploaded 32 NDPs
 - **Albania** & **Serbia** are invited to register!
- *Consider the advantages of open access view*



(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Harmonized use of the Eurocodes

Partnership of JRC with the EU MS on the NDPs Database



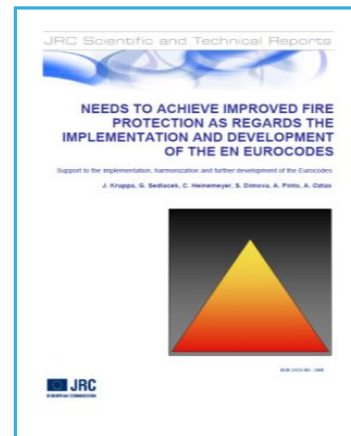
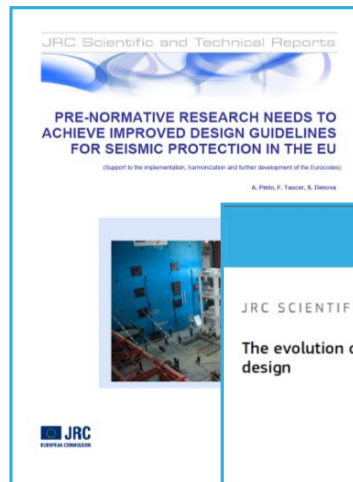
Robustness-based design

- Objective of activities:

*Formulating a **prospect for robustness-based design and repair guidelines** relevant for practicing engineers is of immediate importance for the evolution of the Eurocodes towards more performance-based design for robustness. In parallel needs for national implementation will be analysed.*

- ✓ **2018-2021**: Set-up and coordination of expert group on robustness-based design
- ✓ **2021**: Technical report on the findings

Towards the programme for the 2G Eurocodes



Find all reports at the
JRC Eurocodes website
<http://eurocodes.jrc.ec.europa.eu>

Research and Standardization needs

❖ Bridging the gap between Research and Standardization...

1st documents on the 2G Eurocodes

Download from:

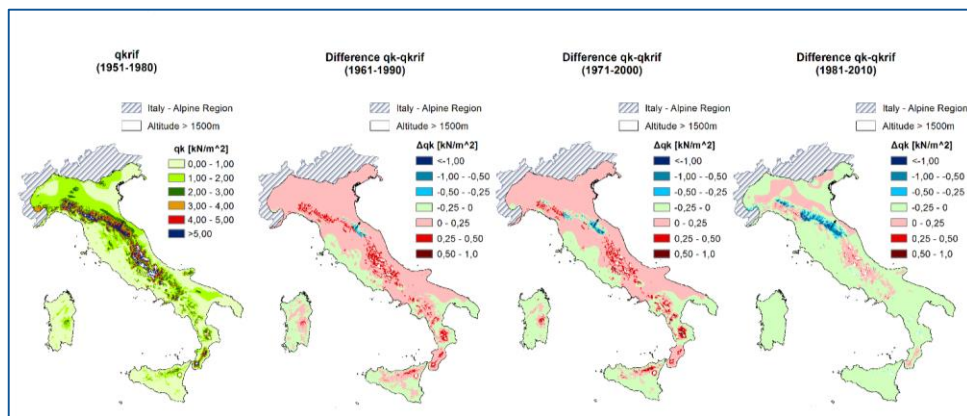
<http://eurocodes.jrc.ec.europa.eu/showpublication.php?id=236>



Adaptation of structural design to climate change

Experts Group:

- pilot studies on the **trends of evolution** of different climatic actions
- **interface between the research, work of CEN** on Mandates M/515 (Eurocodes) and M/526 (important infrastructures), and **relevant policy DGs**.



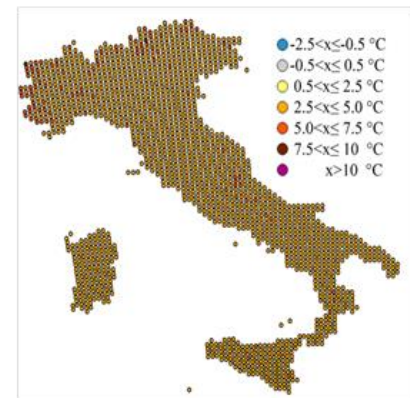
❖ produced a pilot study on the **evolution of the snow load on structures** (example of Italy) and justified the **need of new European snow load design map**.

Adaptation of structural design to climate change

ONGOING WORK:

Climate change and thermal actions on structures

- ✓ **thermal design maps** considering the worst case scenario and a mean scenario of CC (*case study of Italy*)
- ✓ implications of the updated thermal actions and humidity on the **corrosion of structures** (*case of Europe*)



Expected variation in T_{max} characteristic value as provided by ensemble mean of simulations (2056-2085 vs 1971-2000, RCP8.5)

Standardisation needs for design of underground structures

- Partnership of JRC with DG MOVE, International Associations, CEN/TC250, Industry, Research Institutions, National Authorities

First conclusions of the experts group:

- The **Eurocodes are already used** in tunnel design
- Eventual **new standards** for design of tunnels shall be **in consistence with the Eurocodes**, delineating how to complete and/or restrict their use for tunnels



Training and dissemination in the EU

2003

Commission Recommendation on the implementation and use of Eurocodes for construction works

2005

Start of the JRC training on the Eurocodes with pilot events

2007

All Eurocode Parts published by CEN

2008

General training on the use of Eurocodes in EU and awareness raising

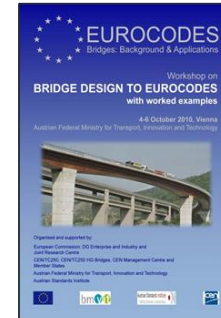
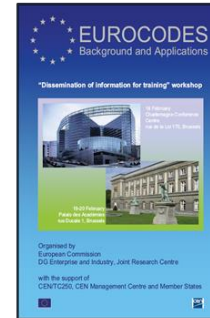
2010 and beyond

Eurocodes training with practical worked examples



Workshop on the use of Eurocodes in the Euro-Mediterranean area

JRC Report: Strategy for training and promotion in EU



Training and promotion in third countries

2005

Start of the JRC – Eurocodes promotion with pilot events

2008

Strategy for Promotion (JRC Report)

2009 – 2011

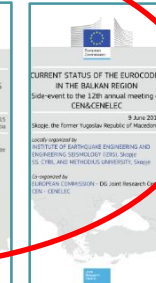
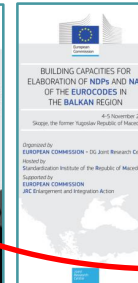
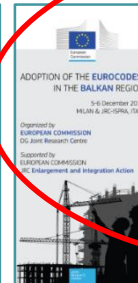
'BSI project'
Promotion in 3rd countries

2014 – 2016 & beyond

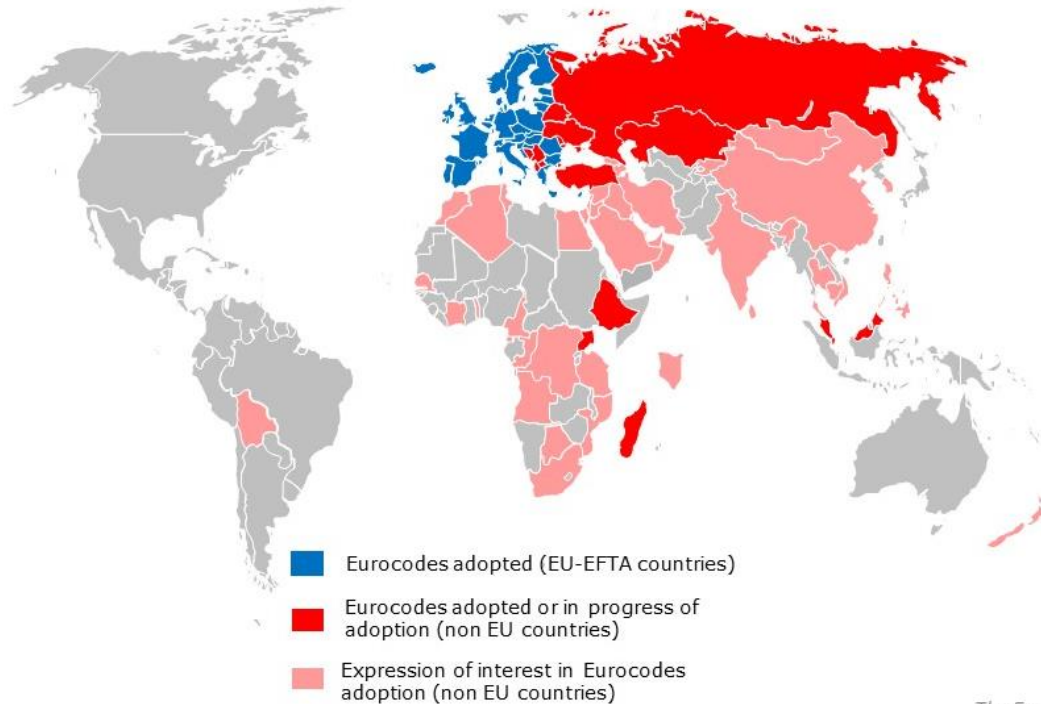
Coordinated promotion of European standards and policies in third countries



2012 -2014 Eurocodes Promotion on the Basis of Political Drivers
(e.g. EU-Russia dialogue and E&I-Balkan Region)



The Eurocodes worldwide



- ❖ The Eurocodes are being introduced in several countries outside EU as an important element for **improving regulatory capacity** and **design of important infrastructure**

*The Eurocodes Map
© European Union, 2018*

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Eurocodes promotion worldwide

Highlights:

Armenia: Armenia Governmental Agency ATD expressed interest in having some training courses on Eurocodes; mainly interested in EN 1998.

Angola: CEN signed a license agreement with the standards body of Angola to adopt all the Eurocodes

Vietnam *(info received from TC250)*

- Plans to **translate Eurocodes into Vietnamese**
- Eurocodes are **one of the options for references** when developing the new design standard system of Vietnam in the future

Kenya: The Eurocodes to become a common reference point for all construction works in Kenya by 2021 *(media news)*

Eurocodes in South East Asia

Project funded by DG DEVCO through E-READI



Objective

- **Disseminate** information about Eurocodes' concept, philosophy and benefits of use to relevant stakeholders (*national authorities, chambers of engineers, construction industry associations, engineers*)
- **Present the experience** of ASEAN countries (Singapore, Malaysia) already using the Eurocodes in design practice
- **Exchange** of common practice

Activities: regional workshop (Singapore?); survey regarding all ASEAN members; national workshops and dialogue in interested ASEAN Member States; establish a **community of practice** in the region

Eurocodes in Central Asia

Exploring with the World Bank



2nd International Scientific and Practical Conference on Earthquake Engineering (Bishkek, Kyrgyz Republic, June 2018)

- ✓ Organized by the International Association of Experts on Earthquake Engineering (IAEEE)
- ✓ Supported by the **World Bank's Global Program for Safer Schools (GPSS)**
- ✓ Special session to discuss **current needs for updating national building regulations** in Central Asia
- ✓ JRC presentation: "International experiences in the update of building regulations and adoption of the Eurocodes"

Eurocodes in Central Asia

Exploring with the World Bank



Possibilities for strengthening the Eurocodes adoption in the region:

- ✓ interest in translating some key **dissemination and training material available in the JRC Eurocodes website**
- ✓ Develop **standards for seismic retrofitting and strengthening** of existing reinforced concrete and masonry buildings is a **priority in the region**
- ✓ Necessary to **strengthen regional cooperation in Central Asia** in the process of updating the building codes and regulatory framework for seismic design
- ✓ **Best way forward: use of common standards** in the region with **strong preference to the Eurocodes**

Training and Promotion in the Balkans



2013



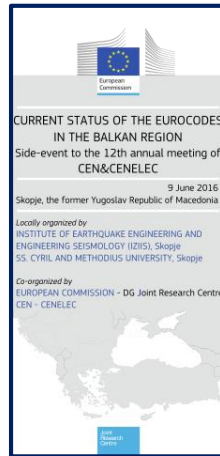
2014



2015



2016

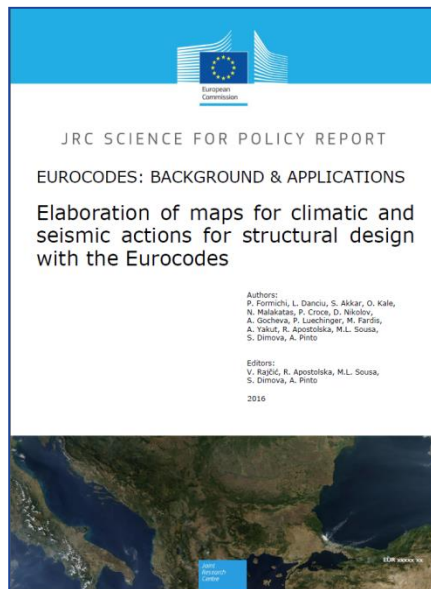


Scope: support to the adoption and implementation of the Eurocodes in the non-EU Balkan countries

Objectives:

- ✓ Assess progress, specific needs and difficulties
- ✓ Boost and facilitate regional collaboration
- ✓ Facilitate transfer of knowledge from EU MS experts
- ✓ Increase awareness of instruments for further activities

Training and Promotion in the Balkans



The report:

- ✓ Contains State-of-the-art material to elaborate maps for seismic and climatic actions for structural design
- ✓ Summarizes and shares the experience of the Balkan countries on elaboration of these maps
- ✓ Provides guidance for countries adopting the Eurocodes

Download the report from:

<https://eurocodes.jrc.ec.europa.eu/showpublication.php?id=548>

Training and Promotion in the Balkans



2018

Summer school

(host country?)

- ✓ train on the use of Eurocodes in the design practice
- ✓ focus on most common design cases (seismic design of concrete buildings)

2019 / 2020

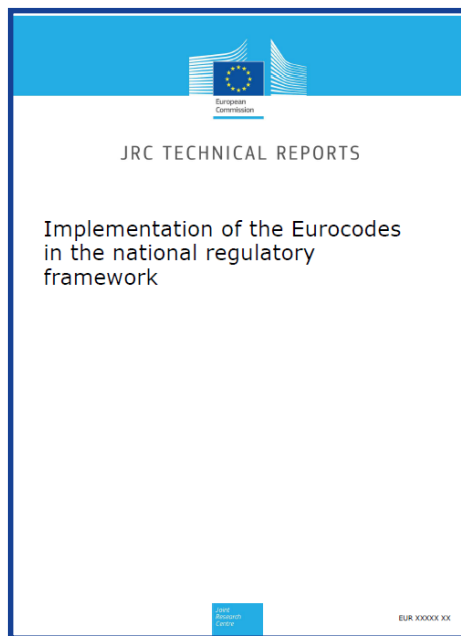
Thematic Seminar

(JRC – Ispra)

- ✓ increase awareness of national stakeholders on the current Eurocodes
- ✓ inform on the Eurocodes 2G

2020 / 2021

Training and Promotion in the Balkans



Workshop follow-up report

- ✓ present the material from the workshop; goal to publish a report with **international focus and use**
- ✓ focus on the EU MS case studies presenting the process of Eurocodes implementation in the national regulatory framework
- ✓ discuss the challenges non-EU Balkan countries are encountering in the process of the Eurocodes implementation
- ✓ share good practices among countries

"The way forward for the Eurocodes implementation in the Balkans"

10-11 October 2018, Tirana

Thank you for your attention!

Stay in touch



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