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Upcoming events
I was delighted to be recently appointed to head the Joint Research Centre (JRC) unit that manages and coordinates the Commission’s Disaster Risk Management Knowledge Centre (DRMKC). To mark the recent occasion of the third anniversary of the DRMKC’s inception, I would like to take this opportunity to share some thoughts on how the DRMKC has matched – and will continue to match – both the Commission’s overall approach to knowledge management for policy support, and the long-term vision of the JRC enshrined in its 2030 Strategy.

Just over two years ago, the European Commission, in its Communication on data, information and knowledge management, set out its new approach aimed at improving knowledge management and collaborative working within the Commission. Underpinning the new approach are the various Knowledge Centres (managed by the JRC) where scientists work together with policymakers to provide an expert holistic overview of the latest scientific evidences, by effectively distilling the plethora of available scientific information into key facts, focussed on issues that fall under the Commission’s policy priorities and anticipating future needs and challenges to be faced.

As the Knowledge Centre that addresses the Science-Policy interface in the field of managing disaster risk (both natural and man-made) across the Commission, EU Member States and beyond, the DRMKC supports key EU policy priorities including humanitarian aid and civil protection, climate action, sustainable development, and the European neighbourhood policy (ENP) among others. None of our future challenges will find a satisfactory answer if we do not overcome the silos within scientific fields and policies. This is why the driving force of the Knowledge Centres is collaboration, and it is through the establishment of a strong and focussed collaboration across the different scientific groups supporting the different policies, that the DRMKC improves coherence and strengthens links across the different policies, resulting in a more effective and efficient implementation, and ultimately, a more resilient future. Key results obtained over the last three years underline the fact that, in terms of the usual metrics used for scientific results, the work in the Science-Policy interface opens up a whole new perspective, yet to be fully discovered.

For example, the first flagship report of the DRMKC, “Science for DRM 2017: knowing better and losing less”, may not be referenced as peer-reviewed, and we may never be able to measure its impact in the policy frame, yet the preparation of this report has had – and continues to have – an incredible impact in the
disaster risk management (DRM) community. More than 270 experts contributed to this state-of-the-art, multi-disciplinary, cross-sectoral book, including policy-makers from eleven different Commission Services. The entire process was completed in eighteen months, the book has been downloaded more than 5,000 times, and its 550 pages physically distributed more than 2,500 times. This book has been endorsed by a growing number of EU universities who have collectively developed a DRM “training week” (as described in an article in this Newsletter) to improve harmonisation of DRM studies across borders. The Commission contributes to these training courses by demonstrating to the next generation of disaster risk managers what are the ongoing activities and policies, and explaining what are the current challenges. While no current metric fully quantifies this success, there is clear recognition of a new paradigm to address DRM, thanks to the contribution of the DRMKC. The new “Science for DRM 2020” report is being prepared, with over 200 authors already involved in the new challenge: assessment of disaster impacts.

The principle of “openness” is one of the core values of the DRMKC (and indeed of the JRC). The DRMKC is “open to the world”, in the sense that it works at the global level. Global problems, such as climate change, environmental degradation, water shortages, energy and food insecurities and population changes can translate into local conflicts. The DRMKC demonstrates how European scientific communities can play their part in addressing these global societal challenges. The DRMKC also embodies “open science”: it is a prime example of the successful transition between the latest research and the sharing of knowledge, in support of EU DRM-related policies, while “open data” is a central component of the DRMKC, which promotes competence in working with data, establishing appropriate infrastructure and creating a supporting culture for openness.

Based on a strong scientific collaboration, the DRMKC has launched its Risk Data Hub, a collaborative platform that is used to bridge between the past (using data from past events) and the future (using projections for future potential losses), to facilitate the link between the local level (where data is available and disaster risk reduction actions materialise) and national, European or global levels (where priorities are established), and to translate scientific inputs into policy support outputs. Harmonisation of information and methodologies may well be another direct consequence, if local and national authorities accept this offer for collaboration to co-design this platform. Austria, and the city of Genoa, have already agreed to help shape the development of the DRMKC Risk Data Hub. Future candidates are always welcome!

In addition, the DRMKC has established, in collaboration with other Commission Services, a database of DRM-related projects: the DRMKC Projects Explorer. This database is a means towards a well-defined end: to identify gaps and needs for the future. Indeed the next feature of the DRMKC - the "Gaps Explorer" - will be online in early 2019.

Given the constant requirement for better, more “joined up” policy-making, to the benefit of EU citizens, and in light of future major societal challenges - such as the likely disastrous global and regional impacts of global warming beyond 1.5°C, as highlighted by the Intergovernmental Panel on Climate Change (IPCC) in its 2018 Special Report - the future important role of the DRMKC is assured. Indeed this DRMKC Newsletter features several examples - such as the new Projects for Policy (P4P) report on forest fires risk management in the EU prepared by DG RTD, the Commission’s Research and Innovation department - that illustrate how the DRMKC will continue to promote the successful translation of scientific research results into the policy-making domain.

Finally, I would like to acknowledge the excellent work of my predecessor (Ian Clark) in overseeing the DRMKC’s successful development, and I am very happy to take over the reins from him and guide the DRMKC into the future, to ensure that it continues to provide a solid scientific support to policy-makers at all levels.

Alessandra Zampieri
In June 2018, the Commission’s Joint Research Centre (JRC), in collaboration with the Directorate-General for Migration and Home Affairs (DG HOME), held a Technical Workshop in Ispra, Italy, at which experts from cities’ administrations, urban planners, academic researchers and representatives from testing centres, came together to collect ideas and technical concepts for the protection of public spaces against vehicle ramming, and to discuss other emerging threats in the urban context. The Workshop took place in the aftermath of the successful EU Mayors’ Conference on “Building Urban Defences against Terrorism: Lessons Learned from Recent Attacks”, which was co-organised by the European Commission and the European Committee of the Regions (CoR), on 8 March 2018.

In recent years the worldwide rise of terrorism has seen a series of attacks that have shifted their focus from critical infrastructures to public spaces, which are characterized by limited protection measures. A recent tendency has appeared to target unprotected places of mass congregation for various purposes (e.g. religious, commercial, recreational, political), by means of low tech methods such as ramming by vehicles, knives, shooting or home-made explosives. It was against this background that the Commission, in October 2017, published its Action Plan to support the protection of public spaces (see web-link below).

At the Workshop in Ispra, which was attended by representatives from fourteen European cities, some of which have suffered terrorist attacks, several key issues were addressed. Specific research topics were identified, including (but not limited to) how to decrease the likelihood of fatal injuries to pedestrians struck by a speeding vehicle, and the impact performance of mobile barriers, such as concrete blocks and “planters”. The certified or assessed protection products available on the market should be collected. Development of new technologies may provide innovative solutions in the fight against terrorism, such as extension of the smart city security concept.

Extending the approach to include other strategies (e.g. citizen awareness, warning systems) to address the problem in a broader manner, was also discussed. The Commission will foster the establishment of common standards for the testing of barriers, thereby further supporting Member States and local and regional authorities in elaborating their concepts for urban security. Participants expressed appreciation of the Commission’s initiative, and highlighted the value of sharing problems, lessons learnt, exchanging experiences on security with design concepts, and developing a network of urban and city security planners for protecting cities against vehicle-ramming attacks.

As was anticipated during the Workshop, the JRC has recently finalized guidelines on selecting proper security barrier solutions for public space protection against vehicle-ramming attacks. The guidelines focus on the design, testing and installation procedures of vehicle barriers, for protection against terrorist and other types of malicious attacks using vehicles. Public spaces, such as open markets, fairs, tourist sites, pedestrian zones and city squares, have been systematically targeted by vehicle attacks (e.g. in Nice, Barcelona, London, Berlin, Stockholm, New York, and Toronto). The JRC guidelines address shortcomings in the design of such security solutions, and aim at simple, self-contained practical guidance enabling security officials to conduct a preliminary study of elements that could stop and / or deter possible terrorist attacks. The JRC guidelines are not accessible online, but can be freely provided, on a need-to-know basis, to all stakeholders dealing with the subject (e.g. Member States, local authorities and security operators of public spaces). Requests for the guidelines should be sent to: JRC-PUBLIC-SPACES@ec.europa.eu.

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For more information:
https://www.youtube.com/watch?v=H80uCbQIM3Y

Number of victims from vehicle-ramming attacks in the last seven years in Europe and world-wide (calculated from the terrorism database maintained at the JRC).

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The 2nd European Drought Observatory (EDO) User Meeting was held on 11-12 October 2018 at the European Commission’s Joint Research Centre (JRC) in Ispra, Italy. At the meeting, experts in drought monitoring, forecasting and management discussed the status and development of EDO and the Global Drought Observatory (GDO). Both systems form part of the EU’s Copernicus Emergency Management Service (EMS), providing information for monitoring droughts in Europe and globally, and complementing the other EMS early warning systems on floods and forest fires. GDO extends EDO to global level, providing information on drought crises to the Commission’s Emergency Response Coordination Centre (ERCC).

Reflecting a shift from crisis management to preparedness and risk management, the meeting focussed on methods of drought risk assessment for four socio-economic sectors, and the feasibility of implementing sectoral drought risk and vulnerability assessments within EDO and GDO. In line with the terminology of the United Nations Office for Disaster Risk Reduction (UNISDR), drought risk (potential damages or losses that could occur to a system, society or community in a specific period) is determined probabilistically as a function of hazard (probability of a drought event of a certain severity), exposure (population and assets in hazard-prone areas), and vulnerability (susceptibility of the community or assets to suffer impacts).

At the meeting, the latest enhancements of EDO and GDO were presented: a new global soil moisture product, based on three different datasets; a new global database of meteorological drought events during 1951-2016, derived from the Standardised Precipitation Index (SPI) and Standardised Precipitation-Evapotranspiration Index (SPEI); GDO drought alerts included in the Global Disaster Alert and Coordination System (GDACS); and forecasting of drought and temperature extremes (heat and cold waves) in EDO.

Most of the meeting comprised detailed discussions of methods and data required for global drought risk assessments in four sectors: public water supply; agriculture; energy production; and waterborne transport. A Global Expert Survey on drought vulnerability indicators for agriculture and water supply was launched, as a joint United Nations University (UNU-EHS) - JRC initiative (see web-link below). Based on the deliberations of three Breakout Groups, detailed lists were produced of the variables representing the components of drought risk, for public water supply, energy production and waterborne transport.

Some key issues were highlighted. The dynamic nature of drought risk, due to a changing hazard (seasonality, climate change), exposure (crop phenology, tourism fluxes) and vulnerability (socio-economic factors), is particularly relevant for monitoring and forecasting risk as a probability of impacts. More efforts are needed to obtain drought impact data from the private sector. Policy-makers and water managers require sector-specific, high-level drought risk indicators, combining hazard, exposure and vulnerability, and showing different alert levels. Two such indicators – the Combined Drought Indicator (CDI) and Risk of Drought Impacts (RDI) – are already implemented for the agricultural sector in EDO and GDO. Drought risk indicators for other sectors are being developed.

The Final Report of the meeting is available at the EDO website (see below). The information on drought risk and vulnerability from the meeting will support the development of drought risk indicators for the discussed sectors, and related recommendations and guidelines. The next EDO User Meeting will be on 21-22 May 2019 in Stresa, Italy, back-to-back with User Meetings of the other Copernicus EMS services on floods, forest fires, and rapid mapping. It will focus on global drought monitoring and forecasting, and aim to support the development of UNISDR’s planned 2020 Special Report on drought.

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For more information:
http://edo.jrc.ec.europa.eu/
http://edo.jrc.ec.europa.eu/gdo
https://www.e-encuesta.com/r/A1VWMTKSB994z-5JOcG8TJQ/
A three-day training course on drought risk assessment, co-organized by the Hungarian Meteorological Service (OMSZ) and the European Commission’s Disaster Risk Management Knowledge Centre (DRMKC), was held on 6-8 November 2018 in Budapest, Hungary.

Against a background of global warming, many regions around the world are experiencing an increase in the frequency, severity and intensity of droughts. Based on projections, in Europe the biggest increases are expected to affect mainly (but not only) Mediterranean areas, where competition between different water users such as agriculture, industry, tourism and households is likely to increase. However, it is clear that current practices to address drought risk assessment across the EU are hardly comparable, and far from standardized, with the main differences relating to the theoretical frameworks as well as the drought management approaches.

In drought terminology, drought severity refers to the accumulated water deficit during a drought event, and is commonly defined as the sum of the differences between indicator values (e.g. Standardised Precipitation Index or Standardised Precipitation-Evapotranspiration Index) and the threshold to define the levels of dryness, while drought intensity refers to the ratio between drought severity and duration.

The main goal of the OMSZ-DRMKC drought risk training course was to enhance the preparedness for droughts in the participating European countries, through improving the knowledge and awareness of drought risk in the region. Although several national efforts have addressed drought risk monitoring and assessment, the applied approaches and methods for evaluating drought risk differ from country to country.

During the training course, lectures and discussions informed participants of the most recent methodological and data-related developments, and experiences on best practices were exchanged. The training course brought together over fifty drought experts from science and research, and public and private stakeholders, from eleven EU and three South-East Europe (SEE) countries, and identified the main challenges in collecting, harmonizing and combining the relevant information for drought risk analysis (including data on drought hazard, exposure, vulnerability, and impacts).

The training course was divided into four sessions: the first addressed drought monitoring, mapping and forecasting; the second focused on methodologies for drought risk assessments; the third concentrated on a description of drought impacts in different socio-economic sectors; and the fourth consisted of a review of current practices in the participating countries.

Throughout the training, many aspects of drought monitoring, seasonal forecasting and risk assessment were presented. On the last day of the training, country representatives summarized their current drought management activities, and their information needs and planned developments. One remarkable feature that was evident at the training, was the increased awareness of drought risk in countries where this natural hazard had previously hardly impacted. The representatives from Belgium and Sweden, for example, described multiple impacts observed during the 2016-2018 drought events in these countries: Belgium has seen a large reduction in potato production, while Sweden has experienced a record outbreak of forest fires (over 75 in 2018), as well as deficits in groundwater and water supply systems.

Details on the content of the OMSZ-DRMKC international training course on drought risk assessment - as well as a news report about the training event, published by the United Nations Convention to Combat Desertification (UNCCD) - are provided at the web-links below.

**For more information:**
https://www.unccd.int/news-events/international-training-course-addresses-relevance-drought-risk-assessment-and
In the framework of its Enlargement and Integration Action, the European Commission’s Joint Research Centre (JRC) organized a Workshop entitled “The way forward for the Eurocodes implementation in the Balkans”, on 10-11 of October 2018 in Tirana, Albania. The Eurocodes, or structural Eurocodes, are a series of 10 European Standards (ENs) which provide a common approach to all aspects of structural design of buildings, bridges and other construction works, and which have been developed on the basis of the best possible scientific advice, under the guidance and coordination of European Committee for Standardization (CEN) Technical Committee (TC) 250. Over the last decade, the Eurocodes have become the primary design standards across Europe and in many other countries around the world.

The two-day Workshop, which was hosted by Albania’s General Directorate of Standardization (DPS), was the first of a new series of Eurocodes dissemination and training activities in the Balkan region, and was the culmination of the JRC’s experience in organizing specialized workshops and providing support to the Balkan countries, for the adoption and implementation of the Eurocodes, during the period 2013-2016. The Workshop was an opportunity to collect and share the experience of European countries in implementation of the Eurocodes in the national regulatory system, through the presentation of case studies. Representatives from the participating Balkan countries presented the status of Eurocodes implementation at national level and reported on challenges faced. The round-table discussion provided an excellent occasion for the exchange of views, expertise, experience and good practices.

The Workshop was attended by about 90 participants, comprising an optimal mix of policy-makers, representatives of national authorities and national standards bodies, academics and practitioners. Lecturers and participants came from twelve EU countries and eight non-EU Balkan countries (i.e. Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Kosovo, Moldova, Montenegro, Serbia and Turkey). Distinguished guests who gave presentations included Ashok Ganesh of CEN - CENELEC (European Committee for Electrotechnical Standardization), Jean-Armand Calgaro, immediate past chairman of CEN/TC 250, and many other CEN/TC 250 experts actively involved in development of the Eurocodes and their second generation. The JRC presented the concept of the Eurocodes Community of Practice (CoP) in the Balkans, which aims to provide continuous support in future actions related to Eurocodes implementation in the Balkans, including regional training and exchange of good practices. The idea was warmly accepted by participants, who expressed a general commitment for involvement.

As a follow-up action, a JRC Report on the process of the Eurocodes implementation in the National Regulatory Framework is under preparation. The JRC report, which will be published in early 2019, is expected to have a global resonance, considering that many countries outside Europe – for example in Central Asia, South-Earth Asia, and Africa - have expressed a strong interest in the Eurocodes. Overall, the enthusiasm of the participants from the Balkan region, as well as the dedication of the lecturers, were pivotal in making the Workshop a great international success, paving the way for the next steps in advancing the Eurocodes implementation in the Balkans.

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For more information:
http://eurocodes.jrc.ec.europa.eu
The 2nd DRMKC Joint Disaster Risk Management Training was held on 12-14 November 2018 at Coventry University in the UK, under the auspices of the university’s courses on disaster management, emergency planning and resilience. The aim of the training was to address the need for collaboration between academics and professionals involved in disaster risk management, in order to enhance community resilience and capacity. The three-day training course was the second in the planned series of training courses, developed by partner universities in the Cooperation Network for Risk, Safety and Security Studies (CONRIS, www.conris.eu), and based on the flagship report of the European Commission’s Disaster Risk Management Knowledge Centre (DRMKC), entitled “Science for Disaster Risk Management 2017: Knowing Better and Losing Less”. The first training course in the series took place on 9-13 April 2018, at Saxion University of Applied Sciences, in Enchede, the Netherlands.

Disasters caused by natural and socio-technological events are a major global issue, with increasing frequency and intensity. It is crucial to understand their causes and the approaches for mitigation, in order to enhance resilience and capacity. The training course at Coventry University highlighted the fact that disaster risks may be mitigated through effective interventions in the physical, technological, social, economic, political arenas. Effective methods and tools were introduced which facilitate professionals and the public to communicate more effectively, to reduce the impact of disaster risks.

The training was hosted by the Simulation Centre at Coventry University, and was delivered by speakers from the DRMKC, the Commission’s Joint Research Centre (JRC), the UK’s Met Office and Environment Agency, and professors from the universities of VIVES (Belgium), Saxion, Udine (Italy), and Coventry. The programme for the training focussed particularly on flooding and earthquake interventions, and hence the presentations ranged from the policy perspective – including the Commission’s disaster risk reduction framework, civil protection mechanism, and risk communication methods and tools – to technical approaches, including the “Eurocodes” (i.e. European standards for construction) and post-disaster impact assessment methods. The training also covered psychological support to the affected population, and challenges for responding to cross-border crises.

The training was developed primarily to train bachelor’s and master’s degree students, who aim to work in the fields of disaster management, emergency planning, humanitarian assistance and community resilience. Participants in the training comprised seventy students, coming from Coventry University, Saxion University of Applied Sciences, and VIVES University of Applied Sciences. The training was characterised by a high interaction between speakers and participants. Positive feedback was received from students. The pedagogy (or teaching approach) used in the training at Coventry University, will be shared with other universities involved in delivering the CONRIS - DRMKC training course.

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For more information:
https://drmkc.jrc.ec.europa.eu/partnership/Scientific-Partnerships/Conris#documents/884/list
A new Community of Practice: the Crisis Management Innovation Network Europe (CMINE)

On 5–6 December 2018, the new Community of Practice (CoP) in Crisis Management – called the Crisis Management Innovation Network Europe (CMINE) - was launched, on the occasion of the Security Research Event (SRE) 2018 in Brussels, co-organised by the European Commission’s Directorate-General for Migration and Home Affairs (DG HOME) and the Austrian Presidency of the Council of the European Union. CMINE is a CoP in Crisis Management which engages policy makers, researchers, practitioners, industry representatives and citizens. The platform acts as an umbrella network whose main purpose is to bring together stakeholders at all levels and enable them to develop more dynamic exchanges of information in the Crisis Management sector. CMINE contributes to creating a united ecosystem in Crisis Management which encourages common practices, the access to similar information and the set-up of mechanisms for exchanges on lessons learned. The main objectives of CMINE are:

➔ To reduce the current fragmentation that exists in the Crisis Management landscape.
➔ To foster synergies between existing and future initiatives.
➔ To facilitate knowledge exchanges at regional, national and European level.
➔ To increase the market uptake of solutions.

This new CoP is supported by both an on-line tool - the CMINE online platform (see web-link below), which is based on the Community Management Tool (CMT) - and by in-person gatherings, in the form of working groups and events. The purpose is to have a complementary approach: the regular in-person meetings of CMINE providing a steady flow of exchanges that are then complemented by interactions within the CMT. At the launch of CMINE, five themes were established that reflect the areas covered by the four trials of the DRIVER+ project (described below): wildfires; volunteer management; floods; earthquakes; and industrial accidents. CMINE plans to be a constantly evolving and dynamic community, with its working groups free to choose the issues which they address, and how long their activities will last. Joining CMINE is very simple, with registrations being done by sending an email to: communications@projectdriver.eu.

CMINE was developed as part of the EU FP7 project DRIVER+ (Driving Innovation in Crisis Management for European Resilience, www.driver-project.eu). The launch of CMINE follows another major step of the DRIVER+ project towards the development of a pan-European Crisis Management culture, and a shared understanding between practitioners, policy-makers, industry and experts.

On 22–26 October 2018, DRIVER+ successfully organised its second Trial, which took place in France at the premises of Entente Valabre (a public Civil Protection support organisation, near Aix-en-Provence). Its main goal was to assess to what extent innovative solutions could improve cooperation and coordination between different organisations and agencies from different countries in a large-scale crisis situation.

Based on the scenario of a large forest fire that threatened nearby towns and an industrial chemical plant, the activities of Trial 2 took place entirely within a virtual environment, where four solutions were assessed focusing on information sharing between agencies of different countries, as well as with managing casualties and obtaining relevant information from social media. Trial 2 was another key milestone in the contribution of DRIVER+ to addressing current and future Crisis Management challenges.

The DRIVER+ Trials serve as tangible demonstrations of the project’s approach towards innovation in Crisis Management, with each Trial feeding the project’s test-bed and thus developing tools that allow all levels of the Crisis Management community to change the way they are assessing new, innovative solutions.

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For more information:
https://www.driver-project.eu/cmine/
A new science-policy report on forest fire risk management in Europe, which critically reviews the results of EU-funded research on forest fires and explores policies adaptation to face the new challenges imposed by the threat of extreme wildfire events, has been published by the European Commission’s Directorate-General for Research and Innovation (DG RTD). The new report, entitled “Forest Fires - Sparking Firesmart Policies in the EU”, is the latest in the Commission’s Projects for Policy (P4P) report series, which aims at using research and innovation project results to shape policy-making in key policy areas.

Forest fires constitute a serious and increasing threat throughout Europe, particularly in Greece, Spain, France, Italy and Portugal. This was underlined, with tragic results, in 2018 in Greece and 2017 in Portugal. Despite a decreasing trend in the number of fires and areas burned, observed in some countries since the 1980s, larger and more damaging fires are challenging the suppression capacities of many wildfire protection programmes across Europe. This trend is the result of unbalanced policies that can be effective in fire suppression in normal weather conditions, but are insufficient to prevent extreme wildfire events.

The EU has been funding research in the field of forest fires over the last two decades, through its Framework Programmes and other funding instruments. About 60 research projects, from large-scale integrated projects to more traditional projects or Marie Skłodowska-Curie individual fellowships, received a total EU contribution of more than EUR 100 million. Based on a critical scientific review of these EU research projects, the new science-policy report identifies the main current policy challenges related to forest fire risk management and governance, which can be further addressed by the relevant EU and national policies.

Based on this review and the conclusions of a multistakeholder workshop, the report proposes a set of policy recommendations, which follows the logical sequence of the Integrated Fire Management (IFM) cycle (see Figure). The key policy recommendations proposed by the P4P report are:

➔ Support cross-sectoral and multilevel governance to leverage the impact of public policies on wildfire risk management.

➔ Reinforce the EU’s disaster response capacity to better protect EU citizens.

➔ Support proactive prevention operations adapted to local socio-economic and environmental contexts.

➔ Integrate fire ecology principles into fire management strategies and policies to support sustainable forest management.

➔ Improve preparedness through FireSmart governance systems empowered by local communities.

The work of DG RTD in forest fire research and innovation has implications for the various Commission policies and initiatives relating to forest fire risk management (see infographic on the next page). In parallel to DG RTD’s science-policy report, the Joint Research Centre (JRC) produces an annual report of forest fires in Europe, providing a detailed analysis of the previous fire season, including country-specific reports, based on data from the European Forest Fire Information System (EFFIS), combined with statistics and information from EU Member States and neighbouring countries. Furthermore, a new pilot web-site, based on the new P4P report, is currently being prepared for the Disaster Risk Management Knowledge Centre (DRMKC), in order to disseminate science-based, targeted and digested information to the different stakeholders involved in forest fire risk management, and to promote the concept of integrated disaster risk management among the disaster risk reduction community. The new web-site is expected to be fully operational in 2019. The new P4P report on forest fires can be downloaded from the web-link below.

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For more information: https://ec.europa.eu/info/files/forest-fires-sparking-firesmart-policies-eu_en
The EU is investing in research for better fire prevention, suppression and integrated management. 

€103 million invested over 20 years in 56 forest fire-related research projects.

EU-funded research stimulates advances in fire knowledge, operational management and decision-support mechanisms while improving cooperation among key actors.

Prevention and mitigation

- **Cohesion Policy**
  - funding for prevention and preparedness, including for buying fire engines and helicopters, infrastructure, training and cross-border coordination.

- **EU forest strategy**
  - actions to support sustainable forest management.

- **Rural development**
  - funding to implement the EU Forest Strategy.

- **European Forest Fire Information System (EFFIS)**
  - fire danger forecasts and monitoring active fires.

- **Disaster Risk Management Knowledge Centre**
  - science-policy advice for risk management, including for forest fires.

- **EU Civil Protection Mechanism**
  - complements national response capacities (rescEU)

- **Emergency Response Coordination Centre (ERCC)**
  - EU assistance to an affected country.

From: https://ec.europa.eu/info/sites/info/files/p4p_forest_fire_infographic.pdf

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A detailed assessment of the potential future impacts of climate change in Europe was published recently by the European Commission’s Joint Research Centre (JRC). The study - the third in the Commission’s series of projects called PESETA (https://ec.europa.eu/jrc/en/peseta-iii) - brought together experts in economics, biology, physics and engineering, to calculate the physical impacts and economic costs of climate change, for eleven impact categories (i.e. coastal floods; river floods; droughts; agriculture; energy; transport; water resources; habitat loss; forest fires; labour productivity; heat-related mortality), under a high greenhouse gas (GHG) emissions scenario (called “RCP8.5”). [See text box].

In the PESETA III study, impacts were quantified and compared for two particular periods: (a) global warming level (GWL) above 3°C (compared with pre-industrial conditions), which will be late century (2071-2100) under RCP8.5; and (b) GWL = 2°C, which will be mid-century (2025-2055) under RCP8.5. Results for the higher warming period reflect future climate impacts if adequate mitigation strategies are not introduced, while results for the 2°C period portray impacts with global warming within the limit set by the 2015 UN Paris Climate Agreement.

The PESETA III study makes several key findings. In some impact areas (e.g. heat-related mortality; water resources; habitat loss; energy demand for cooling; forest fires) countries in southern Europe will be more affected by global warming than in the north, with the Mediterranean area likely to be most impacted. Economic losses related to heat-related mortality represent a very significant share of damages for the higher warming period. Other sectors, in order of importance, are: coastal flooding, labour productivity, agriculture and river flooding. As not all potential impact types are covered, the total economic costs of climate change in Europe are likely to be much higher. The study also estimates how climate change impacts in the rest of the world could affect Europe, for energy, river flooding, labour productivity and agriculture. These impacts were estimated to increase the EU welfare loss by 20% in a high warming scenario, and could be far greater when all potential climate change impacts are considered.

The results of the study - which are described in detail in the PESETA III Final Report (see web-link below) - underline the fact that, if global warming rises more than 2°C above pre-industrial levels and no adequate adaptation measures are implemented, Europe is in danger of being exposed to more frequent and intense extreme weather conditions, which will also have significant economic impacts. Most of these climate damages would be greatly reduced under the 2°C scenario.

As part of its wider efforts to make the EU more climate-resilient, the Commission also published, on the same day as the PESETA III report, its evaluation of the EU Strategy on adaptation to climate change (see web-link below), which includes several key findings of the PESETA III study.

Luc Feyen* and Juan Carlos Ciscar**, on behalf of the PESETA III team, JRC Directorates * “Space, Migration and Security” and ** “Energy, Transport and Climate”

For more information:
Launch of the ARISTOTLE - ENHSP (European Natural Hazard Scientific Partnership) project

The ARISTOTLE - ENHSP (European Natural Hazard Scientific Partnership) project - also known as ARISTOTLE 2 - was launched on 11th October 2018 in Rome. Funded by the European Commission’s Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO), ARISTOTLE 2 aims at consolidating the results obtained during the pilot project ARISTOTLE 1, to promote the creation of a European virtual operating centre for natural disasters (e.g. earthquakes, tsunamis, volcanoes and floods), and to implement the ENHSP, a European network for natural risks. ARISTOTLE 2 is led by Italy’s National Institute of Geophysics and Volcanology (INGV), and features a wide solid partnership composed of thirteen European scientific institutions and two international organizations with expertise in a broad range of hazards, including volcanoes, earthquakes / tsunamis, severe weather, flooding and forest fires.

Disasters caused by natural hazards, many of which are exacerbated by climate change, are increasing in frequency and intensity, and have been affecting many countries over recent years. The exposure of persons and assets in all countries has increased faster than vulnerability has decreased, thus generating new risks and a steady rise in disaster-related losses, with significant impacts in the short, medium and long term. Despite the fact that countries have enhanced their capacities in disaster risk management, it has become more and more evident that there is a need for a modern, multi-hazard, disaster response system, in order to strengthen the national and collective ability to prevent and prepare for emergencies.

The EU’s Civil Protection Mechanism (UCPM) plays a key role in coordinating the response to disasters in Europe and beyond. In November 2017, the European Commission presented a new proposal (COM(2017) 773 final) to strengthen the European response capacities by fostering protection, enhancing preparedness and facilitating rapid and effective response, as well as to improve the knowledge base on disaster risk and facilitate the sharing of knowledge and the results of scientific research. The operational hub of the UCPM is the Emergency Response Coordination Centre (ERCC), which is responsible for the coordination of emergencies associated with natural disasters.

ARISTOTLE 2 aims to speed up this intervention system and to integrate the available information in an optimal manner. It is envisaged as a long-term cooperation plan, building on the expertise, partnership and deliverables of the pilot project ARISTOTLE 1, to deliver to the ERCC and its Analytical Team, world-leading, multi-hazard scientific advice through the implementation of the ENHSP, consisting of a flexible and scalable multi-hazard scientific operational service, complemented by a permanent set of knowledge-based pillars, to support operational activities with science and research, technological innovation, service quality assessment (see Figure). As such, ARISTOTLE 2 represents an important added-value to the UCPM framework, by providing the ERCC with a “24/7” operational service in support of their UCPM operations, translating complex and multiple scientific information into actionable advice. Further details about the ARISTOTLE - ENHSP project (and the pilot project ARISTOTLE 1) are provided at the web-links below.

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For more information:
http://aristotle.ingv.it/
http://pilot.aristotle.ingv.it/
The 2nd Stakeholder Forum and Final Meeting of the EU Horizon2020 project ESPREssO (Enhancing Synergies for Disaster Prevention in the European Union), took place on 18-19 October in Brussels. The aim of the ESPREssO project was to contribute to a new strategic vision for disaster risk reduction (DRR) and climate change adaptation (CCA) in Europe, and to the future roadmap for research and innovation activities within the Horizon Europe Framework Programme, based on the priorities identified by the main international agendas, such as the Sendai Framework for Disaster Risk Reduction (2015-2030), 2030 Agenda for Sustainable Development, and 2015 UN Paris Climate Agreement. To achieve its goal, the ESPREssO project has been structured around three main broad challenges:

➔ Integrating DRR and CCA, to propose ways to create more coherent national and European approaches, and resilience strengthening.

➔ Integrating science and legal / policy issues into DRR and CCA, to enhance risk management capabilities by bridging the gap within these domains at local and national levels.

➔ Improving national regulations to prepare for transboundary crises, to address the issue of efficient management of disasters induced by natural hazards - including cascading effects and “Natech” (natural hazard-triggered technological disasters) events - requiring a coordinated effort from two or more countries in the EU, and / or the support of the EU’s Civil Protection Mechanism (UCPM).

ESPREssO has benefitted from an intense networking activity involving several stakeholders operating in DRR and CCA at European and global levels, including the EU’s 7th Framework Programme / Horizon 2020 research community, and key EU and global institutions - e.g. the European Environment Agency, the Covenant of Mayors for Climate and Energy, the Community of Users (CoU) on Secure, Safe and Resilient Societies, the European Commission’s Disaster Risk Management Knowledge Centre (DRMKC), and the UN Office for Disaster Risk Reduction (UNISDR) scientific and technical advisory group (STAG) platform.

Stakeholder Forums, Think Tanks, an on-line questionnaire survey and the on-line repository developed in the ESPREssO Action Database (http://adb-espresso.brgm.fr) have focussed on the above three key challenges, in order to gather the perspectives and opinions of relevant stakeholders (including academics, government officials, NGO representatives, independent consultants, and others), identifying gaps and needs in DRR / CCA research, policy and legislation, and possible solutions to overcome these. During the three Think Tanks, project members and stakeholders engaged in a “serious game”, based on a table-top scenario exercise / tool called RAMSETE (Risk Assessment Model Simulation for Emergency Training Exercise), which was specifically designed by the ESPREssO team to stimulate discussions.

The final outcomes of project are two documents, which have been developed by the project partners taking advantage of an extensive review process involving the ESPREssO community at large, from the Advisory Board to the members of the Stakeholder Forums and Think Tanks:

➔ The ESPREssO Enhancing Risk Management Capabilities Guidelines is intended to provide local authorities and civil protection bodies with a set of general recommendations and check-lists for optimizing disaster risk governance.

➔ The ESPREssO Vision Paper on future research strategies following the Sendai Framework for DRR 2015-2030, outlines the key missions for natural hazard research over the next ten years in the light of the changing climate and emerging risks.

More details about ESPREssO, and copies of the above documents, are available at the web-links below.

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For more information:

http://www.espressoproject.eu
http://www.espressoproject.eu/images/deliverables/ESPREsso_D5.5.pdf
A new “search and discovery” tool for CCA and DRR: the PLACARD Connectivity Hub

Despite the overwhelming wealth of information available today, there remains a significant gap between research, policy and action. We continue to see many, separate and unlinked activities taking place in parallel and in silos which do not connect with each other, resulting in missed opportunities. Facilitating synergies, dialogue, collaboration and learning is a key aim of the PLACARD Connectivity Hub, a new “search and discovery” tool for climate change adaptation (CCA) and disaster risk reduction (DRR). The PLACARD Connectivity Hub - which has been developed within the framework of the PLACARD (Platform for Climate Adaptation and Risk Reduction) project - visualises the CCA and DRR landscape in order to help users to “search-and-discover” which organisations are working on what issues. It is designed to connect people with the knowledge they need, and to avoid redundancy and replication (e.g. reinventing the wheel and / or wasting resources) which can arise from a lack of awareness of parallel and complementary work.

In October 2018, a prototype of the PLACARD Connectivity Hub was launched, in order to encourage feedback on its potential use, features and functionality for the CCA and DRR communities. A final version of the tool will be launched in May 2019, at the biennial European Climate Change Adaptation conference in Lisbon (www.ecca2019.eu/). To experience what the PLACARD Connectivity Hub can do, watch the trailer at the following web-link: https://youtu.be/bAD-VPCbLHS0

A significant missing element in current climate knowledge platforms, is a standardised, robust method of describing qualitative content. As such, a new PLACARD taxonomy for CCA and DRR will provide powerful search abilities for linking - and thus discovering - new projects, organisations, individuals and key expertise. Taxonomies are the key to linking content in “smart” ways, and creating connections between different types of data and knowledge. The PLACARD taxonomy will also support a glossary function that includes differing definitions of commonly used terms in CCA and DRR, and corresponding examples of use, in order to accelerate learning and to improve the link between research, policy and action. You can see the beginnings of this glossary, if you explore the PLACARD Connectivity Hub (see web-link below).

The PLACARD Connectivity Hub’s design provides a highly visual, interactive and comprehensive overview of the CCA and DRR landscape. Experiment with the beta-version “proof of concept” prototype (at the web-link below), which currently includes a limited dataset shared from a range of European and global CCA and DRR platforms, such as the European Climate Adaptation Platform (Climate-ADAPT; https://climate-adapt.eea.europa.eu/), UNISDR’s knowledge sharing platform on DRR (PreventionWeb; www.prevention-web.net), and the Stockholm Environment Institute’s global climate adaptation platform (weADAPT; www.weadapt.org). PLACARD would love many other platforms to get involved, so please contact me (sukaina.bharwani@sei.org) for more information on this.

Finally, please do provide feedback on the PLACARD Connectivity Hub! (See web-link below).

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For more information:
www.placard-network.eu/our-work/connectivity-hub/
www.placard-network.eu

Snapshot of the PLACARD Connectivity Hub. (From: www.placard-network.eu/connectivity-hub/). © European Commission
On 3-5 December 2018, a Global Technical Meeting to explore further collaborative developments of the Epidemic Intelligence from Open Sources (EIOS) initiative, was organised in Geneva by the EIOS Core Team of the World Health Organization (WHO) Health Emergency Information and Risk Assessment unit. WHO assumed leadership of the EIOS initiative in September 2017 as part of its strategic Health Emergencies Programme, with the goal of building a comprehensive network and system, using open source information, for the early detection, verification, assessment and communication of public health risks. The EIOS initiative is based on a “one health, all hazards” integrated approach – i.e. addressing human, animal and environmental health from a multi-hazard and multi-disciplinary perspective.

Developed by the European Commission's Joint Research Centre (JRC), the first version of the EIOS web platform was adopted by the WHO and several other collaborators in early 2018. Each organisation in EIOS is granted a closed and secure workspace for using the system, while also being able to share information and collaborate with others. To perform their global surveillance work, EIOS users have access to categorised, filtered, publicly available news articles from thousands of media sources, including selected information produced by other public health intelligence tools (see Figure on the next page). In the future, alternative sources of information will likely be integrated for situations in which mass media coverage fails to capture potential signals (e.g. media transcriptions from radio broadcasts in some African countries and publicly available messages on social media).

At the technical meeting in December, in addition to the main stakeholders of the initiative, representatives of academia, government bodies, NGOs, and private sector working on public health intelligence tools presented their solutions and discussed possible contributions to EIOS. The main outcome of the meeting was the identification and prioritisation of existing gaps. Four priority areas (discussed below) were selected for the development of technical solutions within EIOS during the next 1-5 years.

Risk Assessment and Contextual information: A digital library will be integrated into EIOS to provide rapid reference and contextual information (e.g. environmental, vulnerability, demographic, movement, animal and infra-
The library will provide links to the identified information sources, maintained and updated by the user community (specific mechanism to be defined). Further work will explore the feasibility, practicality, development and implementation of the ability to pool, mine, synthesise and present the information as part of the future development of a risk assessment module.

Communication and Information sharing: Standard operating procedures will be developed and implemented where appropriate to improve collaboration among teams within and outside organisations, while maintaining the confidentiality of the information/data. Components of the system will be further developed and enhanced to address the identified communication requirements.

Aberration / anomaly detection: Detecting anomalous patterns in data can help identify potential signals. Efforts will focus on selecting and tuning the most appropriate algorithms for outlier analysis, but also on finding the most effective data visualisation technique for displaying such anomalies to support further investigation in specific scenarios of usage.

Taxonomies for public health: Existing taxonomies for automatic classification in the public health domain do not adapt well to a rapidly changing environment (languages, sources, synonyms), and so an improved, semantically structured taxonomy and ontology would be of great value. Machine learning techniques applied to previously assessed content in EIOS, Global Public Health Intelligence Network (GPHIN), and possibly other systems, will be used to recognise features and help build appropriate classification systems.

At the meeting, preliminary action plans for the four topics were made. Working groups for their implementation will soon be set up, overseen by the EIOS Core Team and with the JRC's technical support.

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For more information:

The EIOS system: how it works and the institutions involved in the partnership under the technical lead of the JRC.

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The European Commission’s Joint Research Centre (JRC) is contributing to two major international studies aimed at analysing the likely future changes in the precipitation characteristics in Africa, and integrating this knowledge into policy- and decision-making.

Africa, the second-largest continent on Earth and with the fastest population growth, is extremely vulnerable to weather and climate variability. Over the last decades of the previous century, West Africa and the Horn of Africa have been affected by severe droughts. South Africa is currently suffering one of the worst multi-year droughts in decades. On the other hand, severe floods have even affected countries located in dry areas, such as Algeria, Tunisia, Egypt and Somalia. Future climate change and low adaptive capacity are likely to lead to even more severe impacts on many vital sectors. However, future precipitation changes simulated by climate models can differ considerably, and over regions such as the Sahel and central Africa it is still uncertain whether future precipitation will increase or decrease.

It was for such reasons that Africa was selected as the first target region for the World Climate Research Programme’s CORDEX (Coordinated Regional Climate Downscaling Experiment; www.cordex.org) initiative, which aims at fostering international collaboration to generate high-resolution climate projections using state-of-the-art regional climate models (RCMs). In a JRC-led study (in collaboration with scientists from Europe and South Africa), for the first time a large number of RCM-based climate change projections has been analyzed in order to identify regions where there is confidence that the precipitation characteristics will change. The main results of the study, which was carried out within the framework of the CORDEX-Africa initiative (see web-link below), are summarized as follows:

➔ Over most of West Africa, models agree in projecting a reduction in precipitation frequency accompanied by longer dry spells. At the same time, however, precipitation intensity is projected to increase. In other words, it will rain less but, when it does, it will be more intense.

➔ Similarly, over Central Africa, both precipitation frequency and wet spell duration are projected to decrease significantly in all seasons, but precipitation intensity is projected to increase especially in the September-October-November period.

➔ Over East Africa, precipitation intensity, frequency and extreme events are projected to increase in winter, but in summer more than 30 per cent of land is projected to face a reduction in precipitation frequency, with a consequent increase in the length of dry spells.

➔ Southern Africa is the region that shows the most consistent trend towards drier future conditions, with up to nearly 80 per cent of land affected by less frequent rain and longer dry spells in July-August.

The next challenge, however, is how to translate these results into meaningful, reliable and useful information, and integrate this knowledge into policy- and decision-making. In order to address this topic, the JRC is participating in an on-going project, funded by the UK’s Natural Environment Research Council, called FRACTAL (Future Resilience for African Cities and Lands), which aims to advance scientific understanding of the African climate and to integrate better this science into medium-term investments, policies and plans. The intention is to foster strong collaboration between researchers, city government officials and other key decision-makers to co-produce relevant knowledge that will support resilient development pathways in selected southern African cities. Further details on both the CORDEX-Africa and FRACTAL studies, are provided at the web-links below.

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For more information:
www.csag.uct.ac.za/cordex-africa/
www.fractal.org.za/
Upcoming events

**4th World Congress on Disaster Management**
29 January-1 February, Mumbai (India)

The WCDM is an initiative of the Disaster Management Initiatives and Convergence Society (DMICS) to bring researchers, policy makers and practitioners from around the world in the same platform to discuss various challenging issues of disaster risk management. The 4th WCDM 2019 would be structured in 9 Plenary Sessions, Multiple Thematic Sessions and 6 Special Feature Events. Besides poster presentations, film shows and exhibitions shall be organised. The Congress would be focused on discussing the formidable challenges in implementation of 2030 Development Agenda.

**AGU Chapman on Scientific Challenges Pertaining to Space Weather Forecasting**
11-15 February, Pasadena (USA)

Recent years have brought significant new developments in modeling, observations, and scientific understanding to research that pertains to space weather, as well as renewed interest in space weather extremes. Despite its being a long-standing goal of the Space Physics and Aeronomy (SPA) community, forecasting space weather remains a grand challenge. This Chapman Conference is to create new community perspectives that will accelerate space weather forecasting as a scientific discipline, and address the barriers that currently exist in its development.

**4th Global Summit of Research Institutes for DRR**
11 March, Kyoto (Japan)

The event provides a platform for researchers, practitioners, policy makers, and other stakeholders in both government and non-governmental institutes involved in disaster risk reduction and resilience to come together to discuss, share and exchange ideas to contribute and be relevant to the priority areas of the Sendai Framework for Disaster Risk Reduction. The 4th Summit aims at exploring opportunities for collaborative and empirical research and at developing a statement of actions for various stakeholders in DRR which could be presented at the Global Platform 2019.

**Geoscience & Society Summit**
18-21 March, Stockholm (Sweden)

The purpose of this conference is to identify opportunities to make connections between scientists, governments, affected peoples, and funding agencies, and to propose concrete actions that will result in more effective cooperation to tackle global and local challenges around sustainability of natural resources and systems, global health, and resilience. The conference will be highly interactive and include breakout groups, panels and facilitated discussions, as well as scientific presentations on case studies of past efforts at all scales.

**World Construction Forum 2019**
8-11 April, Ljubljana (Slovenia)

The World Construction Forum 2019 is dedicated to selected themes that will contribute to the promotion of key role of construction engineers and civil engineers in general in improving life quality and sustainable development. The WCF 2019 will by supporting exchange of knowledge, expertise, practices and visions in construction engineering contribute to achievement of several Sustainable Development Goals (SDGs). The aim of the forum is to address topics such as: energy in the 21st century, advanced construction engineering, disaster risk management and governance for resilient communities and cultural heritage in a digital world.

**2nd International Conference on Earthquake Engineering and Post Disaster Reconstruction Planning**
25 April, Bhaktapur (Nepal)

Earthquake Safety and Post Disaster Reconstruction are challenges for any country in the world. Today, Nepal is facing the same challenges after recent 2015 Gorkha Earthquake. Therefore, researchers, academicians and politicians are working together to find new solutions to face these challenging global issues. The aimed objective of the 2nd International Conference on Earthquake Engineering and Post Disaster Reconstruction Planning is to bring together the international researchers, the academicians and the professionals, who are interested in scientific divulgation from all over the world to present and discuss their research findings and development activities in the field of Earthquake Engineering and Post Disaster Reconstruction Planning.

**Global Platform for Disaster Risk Reduction**
13-17 May, Geneva (Switzerland)

The Global Platform for Disaster Risk Reduction is a biennial multi-stakeholder forum established by the UN General Assembly to review progress, share knowledge and discuss the latest developments and trends in reducing disaster risk. The sixth session of the Global Platform will build on the momentum created in Cancun, amplified by the integration of disaster risk elements in the implementation of the SDGs, so as to take the implementation of the Sendai Framework and the 2030 Agenda to the next level. It will allow the first stock take of the progress made in implementation, according to data submitted by Member States. The sense of urgency in achieving Target E by 2020 will receive much attention at the next Platform.

**European Climate Change Adaptation conference**
28-31 May, Lisbon (Portugal)

The 4th ECCA builds on past conferences that took place in Hamburg (2013), Copenhagen (2015) and Glasgow (2017), and aims to:
- Promote the communication and knowledge exchange between researchers, policymakers and practitioners.
- Find integrated solutions and inspire action.
- Support ongoing efforts to enhance the coherence and synergy between CCA and DRR research, policy and practice.
- Discuss key challenges and solutions in cities.
- Provide a stage for presenting European’s excellence on Research & Innovation for CCA.
- Inform the next European funding framework for Research & Innovation.
