Partnership within The International Network for Multi-Hazard Early Warning Systems (IN-MHEWS): support to UN Member States in Europe for Disaster Risk Reduction

Focus:

- South-East Europe Strategic Alliance for MHEWS (NMHSs UN EC WB WMO UNDRR)
- Supercomputing power and WMO Unified Data Policy serving the societies and their economies

ITU Event: "Digital transformation based on ICT innovations for the development of the digital economy" 15 December from 9:30 to 15:20 CET, in Kiev and virtually "Approaches of the UN System to support digital transformation"



UN Digital Transformation Group for Europe and Central Asia (#DTG4ECA) World Meteorological Organization - Regional Office for Europe

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- Many developing countries have not benefited as much as they could have from advances in the science, technology and governance behind early warning systems.
- The resulting societal benefits of early warning systems have thus been spread unevenly across regions, countries and communities.
- The United Nations Office for Disaster Risk Reduction (UNDRR) and the World Meteorological Organization (WMO), along with other international and national agencies, established the International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) as a major outcome of the Session on Early Warning at the Third United Nations World Conference on Disaster Risk Reduction (WCDRR) in Sendai, Japan, in 2015.



- This multi-stakeholder partnership is set to facilitate the sharing of expertise and good practice on strengthening multi-hazard early warning systems as an integral component of national strategies for disaster risk reduction, climate change adaptation, and building resilience.
- In doing so, it will support the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, especially the achievement of its global target G on multi-hazard early warning systems, and the United Nations Plan of Action on Disaster Risk Reduction for Resilience.
- In addition, IN-MHEWS is envisaged to substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.

On-going collaboration of IN-MHEWS:

- World Meteorological Organization (WMO)
- 18 National Hydrometeorological Services from SEE, and European Meteorological Infrastructure, mainly ECMWF, but also EUMETNET, and EUMETSAT.
- World Bank GFDRR
- European Commission Joint Research Center (JRC)

Excellent start for 18 countries of South-East Europe !

Enhancement of collaboration with other UN agencies and the European Commission needed.

Proposal: Regionalization of the International Network IN-MHEWS to Europe and Central Asia region and integration of SEE MHEWS Strategic Alliance in regionalized IN-MHEWS (example follows of European Commission-Supercomputing and WMO-UNDRR-Center of Excellence and WMO Unified Data Policy)

- The European Commission takes further steps in the Digital Decade agenda to strengthen Europe's digital sovereignty
- The Commission has proposed a *new Regulation* for the *European High Performance Computing Joint Undertaking* to maintain and advance Europe's
 leading role in supercomputing and quantum computing. It will support research
 and innovation activities for new supercomputing technologies, systems and
 products, as well as foster the necessary skills to use the infrastructure and form
 the basis for a world-class ecosystem in Europe. *The proposal would enable an investment of €8 billion in the next generation of supercomputers a substantially larger budget compared to the current one.*

- High-performance computing is an essential digital capacity for Europe. (HEALTH) As we have seen in the fight against the coronavirus pandemic, supercomputers are already assisting in the search of therapies, recognizing and forecasting the infection spread, or supporting decision-making on containment measures. (CLIMATE CHANGE) Data, in combination with artificial intelligence and supercomputers, are also a major asset in detecting patterns of ecosystems, helping us to mitigate changes in climate, and to work on solutions to avoid disasters and fight climate change. (SCIENCE) European Commission proposal today will foster increased investment in supercomputing infrastructure, in view of its enormous potential to improve quality of life, boost industrial competitiveness, and advance science.
- Together with data and connectivity, supercomputing is at the forefront of European digital sovereignty, encompassing
 industrial, technological and scientific challenges. Keeping up in the international technological race is a priority, and
 Europe has both the know-how and the political will to play a leading role. EU objective is to rapidly reach the next
 standard of computing with exascale computers but also and foremost to already integrate quantum accelerators
 to develop hybrid machines and position Europe very early on this disruptive technology.
- The EuroHPC Joint Undertaking will make accessible existing European supercomputing and quantum computing
 resources to all users across Europe, including the public sector and industrial users, in particular small and medium
 businesses (SMEs), no matter where they are located. The new budget is currently under negotiation; it will be
 supported by <u>Horizon Europe</u>, <u>Digital Europe</u> and the <u>Connecting Europe Facility</u>.

- EuroHPC supercomputers under deployment available for projects:
 - Vega HPC, **Slovenia** (rank #120 on TOP500 list)
 - Karolina HPC, Czechia (rank #71 on TOP500 list)
 - MeluXina HPC, Luxembourg (rank #45 on TOP500 list)
 - Discoverer HPC, **Bulgaria** (rank #104 on TOP500 list) *for reference:*
 - ECMWF (Cray XC40) (rank #117 on TOP500 list)
- This supercomputing infrastructure could be used in more than 800 European scientific, industrial and public sector applications.
- Use of these High-Performance-Computers (Supercomputers) for applications in different areas of science, health, climate change, and other may support countries in their digital transformation and building strong science (and data) to policy interfaces.

- This supercomputing infrastructure could be used in more than 800 European scientific, industrial and public sector applications.
- HEALTH: In the health sector, including in the fight against the coronavirus pandemic, supercomputers are already
 assisting in the search for therapies, modelling and forecasting the infection spread, and supporting decision-making on
 containment measures. In June, the EU-funded consortium Exscalate4CoV announced that an already registered
 generic drug used to treat osteoporosis, Raloxifene, could be an effective treatment for COVID-19 patients with mildly
 symptomatic infection. This drug is now ready to enter clinical trials, and the project is continuing to work on other
 promising molecules. Supercomputers will also help European scientists better understand the human metabolism and
 immune system, and will lead to substantial progress in areas like genomics, designing and testing of new drugs, and
 will help to fight major diseases, including cancer and viral infections.
- Destination Earth (DestinE): Furthermore, this supercomputing infrastructure will help achieve the <u>EU's Destination</u> <u>Earth initiative</u>, bringing about significant improvements in weather forecasting, urban and rural planning, waste and water management and oceanographic, marine and frozen environment modelling. This will support the green transition, in line with the goals of the <u>European Green Deal</u>, and assist in preparing for as well as managing major environmental degradation and disasters.

WMO-UNDRR Center of Excellence

- The World Meteorological Organization and the UN Office for Disaster Risk Reduction announced the creation of a Centre of Excellence for Climate and Disaster Resilience. The establishment of the centre cements the long-standing collaboration between the two organizations.
- This new Centre of Excellence for Climate and Disaster Resilience will act as an information hub about the escalating impacts of climate change and extreme weather and how we can manage and mitigate these risks.
- Over the last 50 years there has been a five-fold increase in recorded weather, climate and water-related hazards. Economic losses have soared. The good news is that, thanks to improved early warnings and disaster management, the number of deaths decreased almost three-fold.
- This year's devastating floods in Europe and the deadly heatwave in North America has shown that developed and developing countries alike are exposed. But there is an ever-widening resilience gap between rich and poor nations that lack multi-hazard early warning systems.
- The Centre of Excellence could contribute to alleviate this by strengthening our efforts to transform scientific knowledge and tools into action supporting climate change mitigation and adaptation, with concrete benefits for society.
- The Centre of Excellence will also promote efforts to better understand the importance of improving the collection of loss and damage data especially in developing countries so policymakers can invest scarce resources in the right areas to mitigate and prevent future disaster events and to reduce existing levels of risk. This will help to guide international cooperation to developing countries,
- The Centre of Excellence will convene climate and disaster risk thought leaders and practitioners to advance joint-research, policies, and capacity-building, in a manner that will influence and strengthen existing national adaptation plans in line with the Paris Agreement, and national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction.

WMO-Unified Data Policy

- The 2021 Extraordinary World Meteorological Congress (11-22 October) approved the WMO Unified Data Policy, along with two other sweeping
 initiatives the <u>Global Basic Observing Network</u> (GBON) and the <u>Systematic Observations Financing Facility</u> (SOFF) to dramatically strengthen the
 world's weather and climate services through a systematic increase in much-needed observational data and data products from across the globe.
- The Unified Data Policy, GBON and SOFF have been painstakingly developed through extensive consultation with thousands of experts and other stakeholders around the globe to meet the explosive growth in demand for weather and climate data products and services from all sectors of society.
- Approval of the Unified Data Policy provides a comprehensive update of the policies guiding the international exchange of weather, climate and related Earth system data between the 193 Member states and territories of WMO. The new policy reaffirms the commitment to the free and unrestricted exchange of data, which has been the bedrock of WMO since it was established more than 70 years ago.
- The last decades have seen explosive growth in the demand for weather, climate and water monitoring and prediction data to support essential services needed by all sectors of society, as they face issues such as climate change, increasing frequency and impact of extreme weather, and implications for food security.
- The free and unrestricted exchange of observational data from all parts of the world and of other data products among all WMO Members must be updated and strengthened to accommodate this growing demand. As the responsibilities of the National Meteorological and Hydrological Services (NMHSs) continue to expand, a growing list of application areas beyond the traditional weather, climate and water activities need to be supported by WMO observing, data exchange and modelling systems. WMO data policy must therefore evolve to accommodate areas such as atmospheric composition, oceans, cryosphere and space weather.

What are the benefits of updating WMO data policy?

 The data policy update will help the WMO community strengthen and better sustain monitoring and prediction of all Earth-system components, with massive socioeconomic benefits as a result. It will lead to additional exchange of all types of environmental data, which in turn will enable all WMO Members to deliver better, more accurate and timely weather- and climate-related services to their constituencies.

Main Message

- Regionalize the international network for multi-hazard early warning systems IN-MHEWS - create partnership at the regional level RE-MHEWS
- Make a first practical example of its use and benefit for Members, e.g. in South-East Europe:
 - ✓ Jointly with members of RE-MHEWS such as European Commission, WMO, UNDRR, ECMWF, ITU, JRC, and others, promote digital agenda, use the supercomputer power from *EC HPC Joint Undertaking* and deliver multihazard early warning advisories to all SEE Member States for their use in operational work to support their economy sectors.

WEATHER CLIMATE WATER TEMPS CLIMAT EAU



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Thank you