

## Annex A

## Examples of relevant EU initiatives

Below is a non-exhaustive mapping of already ongoing, soon starting or recently closed EU-wide initiatives that are relevant to the priority topics and will be integrated into the deliverables as feasible as possible. They have been colour coded for ease as follows:

- Complex disasters, multi-hazard, climate extreme etc.
  - Artificial Intelligence/Machine Learning
  - Whole-of-society preparedness and risk communication
  - Open Science & Open Data
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- **European Commission flagship initiative Destination Earth (DestinE)**
    - DestinE will use unprecedented observation and simulation capabilities, powered by Europe's HPC (high performance computing) computers and AI capacity. Thanks to this we will be better prepared to respond to major natural disasters, test pathways for adapting to climate change and predict their socioeconomic impact. Launch of the first release was in June 2024, further enhancement of the system by 2027 and 'full' Digital Twin by 2030
    - ECMWF is tendering pilots to demonstrate the value of DestinE data for the sectors most affected by climate change and weather extremes which are indicatively scheduled to start in early 2025. Demonstrators have already been implemented during Phase 1 ('use cases') (<https://destine.ecmwf.int/destine-uses/>).
  - **DG JRC tools**
    - [European Drought Impacts Database](#) and [European Drought Risk Atlas](#): DG JRC is developing impact-based drought risk assessments. The approach employed combines expert knowledge and machine learning techniques to assess the risks for various sectors and systems within the EU under current conditions and projected climate scenarios of +1.5°C, +2°C, +3°C as compared to the pre-industrial period.
    - OpenAI to analyse impact data from disaster events: Extracted from the ECHO Daily Flashes (held since 2013 and containing standard loss indicators, timelines, and location on administrative division).
    - High value geospatial database: planned in the new JRC Work Programme under the Copernicus Rapid Mapping component: with the objective to establish an integrated geospatial database of high-resolution reference geospatial data to support emergency mapping during crises
      - Collect proactively and store high-resolution "reference" geospatial data from Member States (e.g. DEMs, LiDAR, cadastral data, aerial imagery)
      - Provide immediate access to standardized and ready-to-use data
      - Offer a collaborative platform to enable real-time data analysis and map generations by teams across different locations
    - Risk Data Hub: Centralized repository for EU wide risk and damage and loss data. See Annex B in attachment – list of resources open data final - for DG JRC's open data repositories, such as [Risk Data Hub](#)
    - JRC is planning to advance the development of a multi-hazard and mid-term early warning system framework, employing AI and machine learning to forecast disaster impacts and cascading effects, ensuring data integration with existing tools that already deal with humanitarian crises and disasters such as the [INFORM suite of products](#).
  - **EU Space program, in particular the Copernicus Emergency Management Service and the Copernicus Climate Change Service**
    - The [Copernicus Emergency Management Service](#), also known as CEMS, is one of the six services of Copernicus, the Earth Observation component of the EU Space Programme. CEMS integrates satellite data, in situ observations, models, and aerial data to support

disaster risk management for natural and man-made hazards. Most of the CEMS products and data are free and open. The JRC, who is the main responsible for managing and further evolving CEMS, is increasingly integrating AI and ML methods to further improve CEMS.

- The Copernicus Climate Change Service (C3S) supports society by providing authoritative information about the past, present and future climate in Europe and the rest of the World. The C3S mission is to support adaptation and mitigation policies of the European Union by providing consistent and authoritative information about climate change. C3S offers free and open access to climate data and tools based on the best available science.

- **Knowledge for Action in Prevention & Preparedness (KAPP) projects**

- COVALEX (closing in 2024): Community of Valued Experts in Hydro meteorological and Technological Multi-hazards.
- MEDEA (closing in 2024): Multidimensional seismic risk assessment combining structural damages and psychological consequences using explainable artificial intelligence
- EWED (closing in 2025): Extreme Wildfire Events Data Hub for Improved Decision Making project will set up a testbed and open platform to advance in research and prepare European emergency response systems for extreme wildfires
- BORIS2 (closing in 2025): Cross BOrder RISK assessment for increased prevention and preparedness in Europe: way forward
- EUMA (closing in 2025): Creating a European Higher Education Network for Master's Programmes in Disaster Risk Management.
- SAFE-LAND (closing in 2026): Mitigating the risk of flooding and landslides via artificial intelligence with a view to extreme climate events
- FIREPRIME (closing in 2026): European Program for Wildfire-Prepared Communities
- CRISAFE (closing in 2026): Critical infrastructure early warning system and population awareness for multi hazard cascading events
- VERA (closing in 2026): Vulnerable Elements and Risk Assessment
- RASTOOL-DoS (starting in 2025, TBC): European Ground Motion Risk Assessment Tools - Downstream Service
- Empower-Citizen (starting in 2025, TBC): Empowering Citizens by Considering their Feedback in Preparedness Plans

- **Horizon 2020**

- ENGAGE (closed in 2023): Engage Society for Risk Awareness and Resilience
- CASCADES (closed in 2023): CAScading Climate risks: towards ADaptive and resilient European Societies
- RECEIPT (closed in 2023): REmote Climate Effects and their Impact on European sustainability, Policy and Trade
- RiskPACC (closed in 2024): Integrating Risk Perception and Action to enhance Civil protection-Citizen interaction
- PROVIDE (closed in 2024): Paris Agreement Over-shooting. Reversibility, Climate Impacts and Adaptation Needs
- MYRIAD-EU (closing in 2025): Multi-hazard and sYstemic framework for enhancing Risk-Informed mAnagement and Decision-making in the E.U.

- **Horizon Europe**

- C2IMPRESS (closing in 2025): CO-CREATIVE IMPROVED UNDERSTANDING AND AWARENESS OF MULTI-HAZARD RISKS FOR DISASTER RESILIENT SOCIETY
- B-PREPARED (closing in 2026): Building PREPAREDness with Collaborative Knowledge Platform, Gamification and Serious Game in Virtual Reality
- DIRECTED (closing in 2026): DISaster Resilience for Extreme ClimaTe Events providing interoperable Data, models, communication and governance
- MEDEWSA (closing in 2026): Mediterranean and pan-European forecast and Early Warning System against natural hazards
- PARATUS (closing in 2026): Promoting disaster preparedness and resilience by co-developing stakeholder support tools for managing the systemic risk of compounding disasters

- [The HuT](#) (closing in 2026): The Human-Tech Nexus - Building a Safe Haven to cope with [Climate Extremes](#)
- [RESILIAGE](#) (closing in 2026): Advancing holistic understanding of [community RESILience](#) and heritAGE drivers through community-based methodologies
- [SYNERGIES](#) (closing in 2026): Innovating [Preparedness](#) by Leveraging SYNERGIES and Enhancing Results of DRM Projects
- [TEMA](#) (closing in 2026): [Trusted Extremely Precise Mapping and Prediction](#) for Emergency Management
- [AGILE](#) (closing in 2027): AGnostic risk management for [high Impact Low probability](#) Events
- [GOBEYOND](#) (closing in 2027): GeO and weather [multi-risk](#) impact Based Early warning and response systems supporting rapid deploYment of first respONders in EU and beyond

- **Mission on Adaptation Projects**

- CLIMAAX: [CLIMAtE risk and vulnerability](#) Assessment framework and toolbox
- PRO-CLIMATE: Proactive community adaptation to climate change through social transformation [and behavioural change](#)
- NEUROCLIMA: Developing and assessing novel educational and user-centred actions towards scaling up [behavioural change and climate](#) resilience through [an AI-enhanced](#) solution
- ICARIA: Improving ClimAtE Resilience of crItical Assets
- MIRACA: [Multi-hazard Infrastructure Risk](#) Assessment for Climate Adaptation
- RISKADAPT: [Asset Level Modelling of](#) RISks In the Face of Climate Induced Extreme Events and ADAPTtation
- R4C: [Regions4Climate](#)
- RESIST: Regions for climate change resilience through [Innovation](#), Science and Technology
- AGORA: [A Gathering place to co-design and co-cReate Adaptation](#)
- CLIMAS: CLIMAtE change [citizens engagement](#) toolbox for dealing with Societal resilience
- OCEANIDS: User-driven applications [and tools for Climate-Informed](#) Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue Economy
- VALORADA: Validated Local Risk [Actionable Data for](#) Adaptation
- ClimEmpower User driven [climate applications](#) empowering regional resilience
- FIRELOGUE: Cross-sector dialogue for Wildfire Risk Management
- DISTENDER: DevelopIng STRatEgies by integrating mitigationN, aDaptation and participation to [climate change Risks](#)
- ROC3Risks: Economic and Financial Impacts from Rapid-Onset Compound and [Cascading Climate related Risks](#)
- ACCREU: [Assessing Climate Change Risk](#) in Europe

- **European Space Agency (ESA)**

- [EO4MULTIHAZARDS](#) (closing in 2025): Earth Observation for high-impact [multi-hazards](#)

- **Open Science and Open Data**

- See attached for DG JRC's open data repositories, such as [Risk Data Hub](#)
- [European Open Science Cloud](#) (EOSC)
- DG ECHO [peer review programme](#) and [UCP Knowledge Library](#)
- [LAGO](#) (closing 2025): Horizon Europe project on Lessen Data Access and Governance Obstacles under DG HOME
- EPOS ON (starting in 2025): Horizon Europe project on [European Plate Observing System](#) (a multidisciplinary, distributed research infrastructure that facilitates the integrated use of data, data products, and facilities from the solid Earth science community in Europe)