



# **Union Civil Protection Mechanism (UCPM)**

**Prevention and preparedness in civil protection  
and marine pollution**

**Union Civil Protection Mechanism Exercises**

## **Progress Report**


Version 1.0  
11 July 2018

### **IMPORTANT NOTICE**

#### **What is a progress report?**

Progress reports are deliverables which are sometimes requested at mid-term (or other crucial points in the project) if there is a long time-span without reporting.

The report must be prepared (by all beneficiaries together) in WORD format and uploaded as a PDF document on the PP Grant Management System (PPGMS) Continuous Reporting Deliverables screen. The template to use is available in the [Participant Portal Reference Documents](#).

 Progress report should NOT be confused with periodic reports. Periodic reports are linked to payments, progress reports are not.




# **Union Civil Protection Mechanism (UCPM)**

## **PROGRESS REPORT**

**COVER PAGE**

<b>PROJECT</b>	
<b>Project number:</b>	783208
<b>Title:</b>	Integration of sensing and modelling technologies for early detection and follow-up of hazmat and flood hazards in transitional and coastal waters
<b>Acronym:</b>	HazRunoff
<b>Starting date:</b>	01/01/2018
<b>Duration:</b>	24 months
<b>Coordinator contact:</b>	Ramiro Neves, Instituto Superior Técnico
<b>Project website (if any):</b>	www.hazrunoff.eu
<b>Amendments:</b>	AMD-783208-18

<b>PERIOD COVERED</b>	
 Please note that this is only a progress report. The information in this report must also be included in the next periodic report/final report.	
<b>Period (from last periodic report):</b>	From 01/01/2018 to 31/07/2018

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## 1. DELIVERABLES & MILESTONES (OUTPUTS/OUTCOME)

Deliverables, milestones (outputs/outcomes)	YES/NO
<p>We confirm that we updated the following PPGMS Continuous Reporting screens:</p> <ul style="list-style-type: none"> <li>• Deliverables</li> <li>• Milestones</li> </ul>	YES
<p><b>Work Package 0 - Management and Coordination of the Action:</b></p> <p>D6.1 – Kick off meeting agenda and minutes;</p> <p>D6.2 - Steering Committee and Advisory Board structures Report;</p> <p>D6.3 – 2<sup>nd</sup> coordination meeting agenda and minutes;</p> <p>D6.8 – Project intranet, intranet access throw the project website;</p> <p>D6.12 – Workplan updated (M1; M4; M7).</p> <p><b>Work Package 2 - Modeling:</b></p> <p>D2.1 - Meteorological models implemented in the pilot areas – Portugal, France, and UK.</p> <p><b>Work Package 5 - Dissemination and networking:</b></p> <p>D5.1 - Dissemination Plan V1;</p> <p>D5.3 - Visual Project identity. Includes project logo and templates (doc &amp; pptx);</p> <p>D5.4 - Standard project dissemination materials. Poster and leaflets;</p> <p>D5.5 - 1<sup>st</sup> newsletter informing about project activities;</p> <p>D5.7 - Project Website (<a href="http://www.hazrunoff.eu/">http://www.hazrunoff.eu/</a>) and twitter account (@hazrunoff);</p>	

## 2. OVERVIEW OF THE PROGRESS & ACTIVITIES

Overview of the progress & activities	YES/NO
<p>We confirm that the project activities are progressing as planned and that there are no major issues that would put the project implementation in danger.</p> <p><i>If there are issues, identify them and explain the reasons why.</i></p>	YES
<p><b>WP1 / Activity 1.1 – Remote sensing:</b> A detailed feasibility study for the application of satellite data for the four pilot case studies has been prepared and presented during the project meeting in Seefeld in July 2018. Operational workflows are already on place, e.g. for water extent and turbidity based on optical satellite data, some workflow have to be adapted, e.g. for oil spill to be in line with EMSA format. Bentley has exchange data formats with EOMAP in terms of oil spills. The UNESCO water quality web application (<a href="http://worldwaterquality.org/">http://worldwaterquality.org/</a>) has been used to show the capabilities of satellite derived monitoring in the different regions of interest. A first analysis of number of observations for 2017 has been calculated, strongly depended on cloud coverage and overflight schedules of the satellites.</p> <p><b>WP1 / Activity 1.2.3 - Laboratory Experiments:</b> In order to take advantages of past research programs (HNS-MS and MARPOCS), same criteria were used to select the HNS (Hazardous and Noxious Substances) of interest. A first group of HNS have been selected by taking into account the behaviour classification (SEBC), the traffic volumes, costs, public health damage and environmental consequences. Depending on the experimental plan, i.e. number of environmental parameters which will be studied, a list of 20 substances can be defined. In chemical response strategy, substances (i.e. cargoes) are usually classified according to their main behaviour (e.g. evaporators, dissolvers, sinkers) defined in lab conditions. In order to evaluate the simultaneity of these processes (mainly evaporation and dissolution) and define the overall fate of chemicals at the water surface, laboratory experiments are carried out in Cedre facilities within specific controlled environmental parameters. In total, 3 wind velocities, 2 temperatures and 2 salinities will be tested. An additional condition will be also tested in order to take into account the specificity of estuary environment: a condition with suspended particles in the water column will be defined. The overall fate of these HNS under various controlled environmental conditions is being</p>	

evaluated and processed. All the test results will be presented in the final report on laboratory measurements for behavior of selected chemical substances.

**WP1 / Activity 1.3 - Integration of Unmanned Aerial Vehicles:** Unmanned Aerial Vehicles (UAV's) are of high interest to organize the emergency response after a disaster as, for example, water pollution or floods. In this activity, Cedre will take benefit of a field exercise on the Loire estuary to test the performance of UAV. The main objective is not to evaluate different sensors for detecting a chemical pollution but to define a strategy which will allow transferring in real time data from the UAV to the HazRunOff platform. Contacts have been taken with the professor Christophe Delacourt, Director of the Laboratoire Domaines Océaniques from University of Brest. In this laboratory they have developed several drones to monitor the natural erosion of the shoreline. Discussions are under way to define their involvement in the HazRunoff project, concretely through the field work that will take place in the Loire estuary at the end of 2018. A main concern will be the data transfer protocol between UAV and the HazRunoff platform. A skype conference between the University of Brest, the Cedre and IST will be organized in September. Two other companies will be also contacted to identify what they can provide: AltiView (<https://www.linkedin.com/in/sylvain-wojerz-83b0b4136/>); a UK company based in London (PHE will contact them in order to define their potential collaboration).

**WP1 / Activity 1.4.1. - Gap analysis:** Main activity is the review current state of the art around in-situ pollution monitoring and detection for key hazardous chemical groups by reference to scientific literature and guidance documentation and survey of pollution monitoring agencies in UK. A first review of past incidents for UK /Wales inland, estuarine and coastal waters has been made. The most frequent incidents have been identified for inland and maritime waters as follows: slurry / sewage, oil, BGA, fire/vapour, palm oil/wax and flooding. These have been used to identify key pollutant indicators and work is now ongoing to review detection methods for these indicators. Chemical incidents were also recorded with pesticides and fertilisers, being most common. Several specific industrial compounds were also recorded.

**WP1 / Activity 1.4.2. - Assessment of sentinel and indicators:** Main aim is the selection of sentinel/indicator chemicals to help to develop rapid risk assessment process and guide the development of suitable automatic and rapid environmental sensors and monitors. Currently, an automated excel tool applicable to air and water data sets is under development, which accepts raw data from monitors, presents the analysis in graphical and statistical outputs and displays the data against relevant risk based thresholds/statistics. This is still in the design stage at present involving discussions with sensor manufacturers regarding chemical detection parameters from Activity 1.4.1, data collection and data transfer formats. It is intended to establish a working version of the assessment tool by the end of the year. PHE is in charge of writing guidelines for the selection of specific sentinel which will allow performing a rapid risk assessment. Cedre and CETMAR will contribute to the literature survey by providing scientific papers and/or data. The data collection is ongoing.

**WP2 / Activity 2.1 – Meteorological modelling:** Meteorological models were implemented in the pilot areas of Portugal, France, and UK. Meteorological models for Galicia (Spain) were not developed, since an existing model from Meteogalicia will be used. The entire involved modelling suite in HazRunoff project (urban, watershed and estuary models) needs to be forced with accurate meteorological model results, properly adapted to the scales and processes studied.

**WP2 / Activity 2.2, 2.3 – Watershed and estuarine modelling:** The modelling work is progress as plan. The pilot areas were defined and the data collection for the 4 study areas was performed, with the help of the partners. Cedre contacted the French Group of Interest on Loire estuary (GIP – Loire estuaire; <http://www.loire-estuaire.org/accueil>), they are in charge of collecting environmental data on the river Loire. Cedre has just been granted permission to use GIP data and a collaboration agreement is being put in place to be able to use these data in the HazRunoff platform. PHE contacted the Maritime & Coastguard Agency and a web link was provided, where the information of the Severn estuary is available. For the Spanish case study, CETMAR contacted Augas da Galicia and Meteogalicia: Augas da Galicia provided the information for the watershed model; Meteogalicia have a model implemented for the Arosa ria and IST will contact them to propose a partnership. For the Tagus estuary the estuarine model is already running.

**WP2 / Activity 2.4 - Urban storm water modelling:** Bentley has started the data collection, data validation, urban model configuration and implementation in the Portuguese case study – Sacavém. Developments are progressing as planned, but with some delays, since information about urban drainage network was only provided in mid July. Bentley has exchanged information with partners regarding the information / data needed to properly implement urban stormwater modelling

**WP3 / Activity 3.1, 3.2, 3.3:** in this period Bentley gathering information from all the data sources and from the different Work Packages. The whole system is being implemented over Action Server (which will work as a back-end solution), which during this period is being tested for bugs correction and for future seamless deployment in IST or in other

<p>facilities.</p> <p><b>WP4 / Activity 4.1 – Risk management:</b> the main objective of this activity is to develop a framework for assessment of priority chemical hazards associated with coastal, estuarine or river based activities. This work is ongoing, PHE has already developed a database / screening tool for key coastal pollutants (an excel tool).</p> <p><b>WP4 / Activity 4.2.3. - Analysis of available response equipment:</b> in last years, Cedre organised several in-situ testing (2013, 2015, 2017, 2018) to evaluate the efficiency of equipment in rivers with fast current conditions and these results will be used in this activity. Cedre will test two fast current boom systems and also will have the opportunity to test UAV's at the field work that will take place in the Loire estuary at the end of the year.</p> <p><b>WP4 / Activity 4.3 - Development of training activities:</b> in this period Cedre started to define a 2-day training course. The programme of the training course will take benefit of past projects funded by the DG-ECHO (MARPOCS, HNS-MS and MARINER) and other agencies (ARCOPL).</p> <p><b>WP5. Dissemination and Networking:</b></p> <ul style="list-style-type: none"> <li>- Dissemination Plan V1. A practical document that guides partners through the requirements and methods proposed for project dissemination and set the indicators to measure the reach of the actions taken. It is intended for internal use only and available on project intranet (Folder: WP5). It will be updated throughout the project lifetime recording project communication actions.</li> <li>- Visual Project identity. Project logo and templates for reports and presentations (doc &amp; pptx) were prepared to establish the visual identity of HazRunoff. They are being used in all (public and internal) project communications</li> <li>- Electronic quarterly newsletter. Project 1st newsletter presenting past, present and future activities of HazRunoff was directly disseminated by email to partner networks and project stakeholders. PDF document is also available in the project website (Media section).</li> <li>- Standard project dissemination materials. The leaflet and poster are the project standard dissemination materials presenting the basics of HazRunOff (main objectives, expected results, project partnership, etc.). Both documents can be downloaded directly from the website public part.</li> <li>- Website. It is operational and gives clear information on project activities, partnership, expected results, news generated in the scope of the project or related to the HazRunoff main objectives and contact data for further information. In addition, dissemination materials and newsletters are available for download. An intranet was implemented in the website to facilitate information flow and data exchange among the project partners. Information is available in English.</li> <li>- Social networks. A project twitter account was created and it is fully active. It is linked to HazRunoff website.</li> </ul>	
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Implementation timetable	YES/NO
<p>We confirm that the project activities are on schedule and that there are no significant delays.</p> <p><i>If there are delays, identify them and explain the reasons why.</i></p>	YES
<p>In the project kick-off meeting the partners realized that three changes should be made in the original deliverables proposed:</p> <ul style="list-style-type: none"> <li>- D6.4 and D6.7 - Advisory Board (AB) meetings: The proposal previewed the first AB meeting to be at the kick- off meeting and the second AB meeting at month 12. The consortium decided to change the first AB meeting since it was believed that it wouldn't be very productive for AB to be at a meeting where it's still been discussed the details of the work plan. The partners propose that AB meetings should be on the Vigo and Lisbon meetings (months 13 and 23 of the project).</li> <li>- D4.1 – Report on hazard prioritization framework: deadline extension to September 2018 instead of June 2018, since PHE wanted to wait until the kick off meeting to ensure partners agree with their proposed approach and this delayed the start of the work.</li> <li>- D2.1 – Meteorological models implementation: deadline extension to September 2018 instead of June 2018, since some base data were not yet available.</li> </ul>	

<p>All the above changes are included in the Amendment (AMD-783208-18).</p> <p>D1.2 – Methodology for early-warning pollution indicators and sentinels in continuous monitoring stations: to perform this task it is necessary to have access to data from realtime monitoring stations located in the case studies area. The data collection is still being carried out and will finish in September/October 2018. After, it will be necessary to analyse the data, to select the parameters that will work as pollution indicators and to generate the new methodology for early-warning pollution. We expect this work to take about 6 months, so this deliverable will only be finalized in March 2019 instead of December 2018.</p> <p>D1.3 - A novel modelling approach for estimation of human-controlled river discharges (article): historical data from the case studies area are needed to perform this activity; the data compilation is in progress and is expect to finish in September/October 2018. An algorithm based in artificial intelligence approach has to be developed and the data collected will be used to “teach” the algorithm. The results obtained have to be compared with real data and an article has to be written. To perform all this tasks we estimate that we will need more 9 months, so this deliverable will only be finalized in June 2019 instead of December 2018.</p> <p>D2.4 – Storm water models implemented in 2 pilot cases: some delays can happen regarding SWMM model implementation, due to delays in data collection. Probably it will be finished in October 2018 instead of September 2018.</p> <p>D2.6 – Air water pollutants dispersion model: the deadline should be changed from month T+12 months (December 2018) to T+24months (December 2019), since this activity can only be done after the models have been implemented and tested (deadline of models is February 2019).</p> <p>D4.4 - GIS mapping of the Loire estuary: in this activity a sensitivity mapping of the Loire estuary will be performed and implemented in the model. This deadline should be changed from December 2018 to December 2019, since this activity can only be done after the models have been implemented and tested (deadline of models is February 2019).</p> <p>D4.5 - Characteristics of equipment which can be deployed in estuary environment: since during the project some field campaigns will be performed and the information obtained can be valuable for this activity, there is a need to extend the deadline from December 2018 to December 2019 in order to gather the maximum information.</p> <p>D4.6 - training media adapted to transitional waters: the objective of this activity is to provide practical training and guidance in preparing for response to HNS and oil incidents, taking into consideration the specificities of rivers and estuaries studied in activity 4.2. However, the deadline of A4.2.1 is December 2019 thus it is necessary to extend the deadline of this deliverable also to December 2019.</p>	
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### 3. BUDGET IMPLEMENTATION

Overall budget implementation — Use of resources	YES/NO
<p>We confirm that the overall budget consumption is in line with the advancement of the activities.</p> <p><i>If there are major deviations, identify them and explain the reasons why.</i></p>	YES



## **ANNEXES**

### **LIST OF ANNEXES**

No annexes.