HAZRUNOFF

PROJECT

"Integration of sensing and modelling technologies for early detection and follow-up of hazmat and flood hazards in transitional and coastal waters"

DELIVERABLE 3.3 (Website for on-demand pollutant dispersion system)

Funded by
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Civil Protection
and Humanitarian Aid

WP	3 – Tools for awareness and response
Activity	3.2 – On-demand pollutant dispersion system
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Disclaimer

HazRunOff project aims to provide adequate forecasts for oil and chemical pollutants in air and water. In a context of preparedness & response, these forecasts need to balance different factors, mainly: reliability, accessibility (easy to generate for non-expert users) and speed (fastly generated forecasts).

A good compromise for these forecasts was achieved through a web-based and mobile-friendly simulation tool in http://hazrunoff.actionmodulers.com/spillsimulation/spillsimulation1.shtml (only registered users are allowed).

This tool enables users to easily generate on-the-fly simulations for the areas of study. The online tool is organized in a wizard format where the user has to answer different questions from 3 different menus:

1- What?
   a. Name of the incident
   b. Substance type (oil spill, HNS (water), human body, passive tracer, floating object, Airborne HNS Emission) Depending on the substance type, the end-user has different options:
      i. In case of oil spill, User can select one typical oil class (very light oils, light oils, medium oils and heavy oils), or one product from the NOAA ADIOS 2 database.
      ii. In case of a waterborne HNS spill, the user can select a reference HNS product from a list of 9 HNS behaviour classes, or one product from an HNS product online database – generated in the scope of HNS-MS and MARPOCS project, including information compiled by CEDRE and R-BINS.

iii. In case of a human body, the user is able to specify if the body is supposed to be drowned or not.

iv. In case of a floating object, the user can specify the immersion ratio

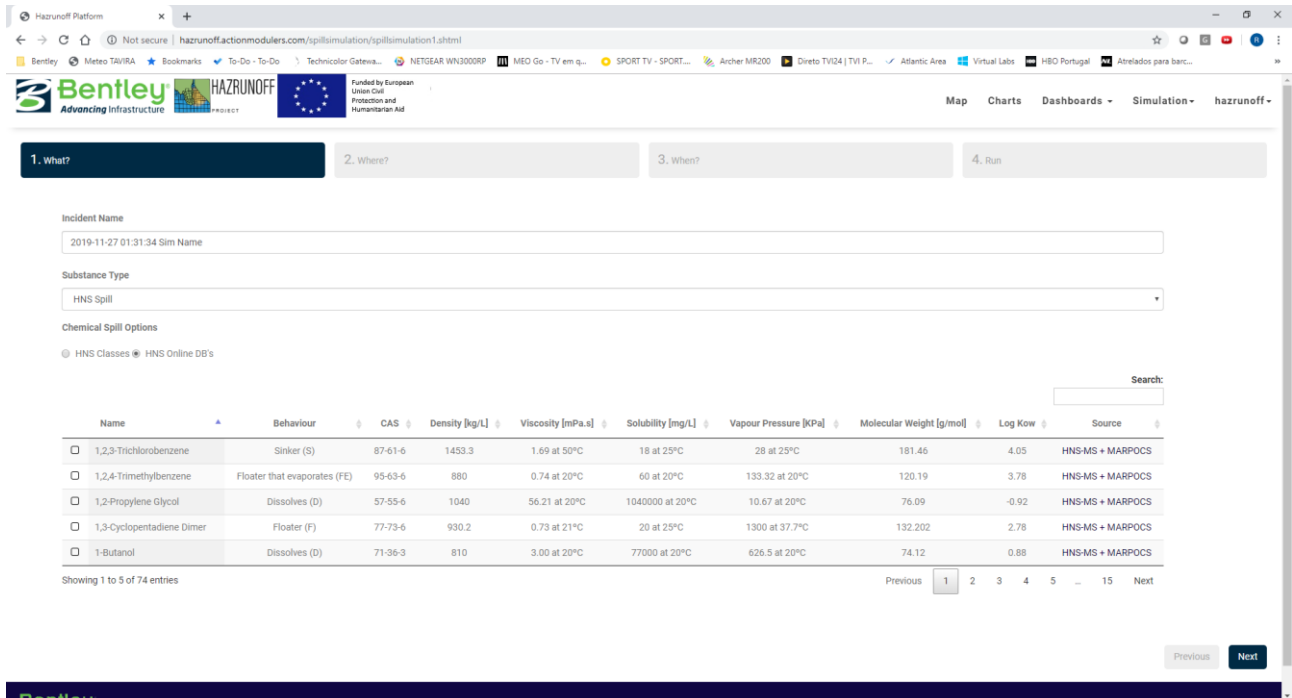v. In case of passive tracer of airborne HNS emission, no specifications are needed.

Figure 1 – HazRunOff online simulator | « What ? » menu

2- Where?

a. Domain (France, Spain, Portugal, UK)

b. Draw the emission point in a map, or write the location in geographical coordinates (degrees, minutes, seconds format)
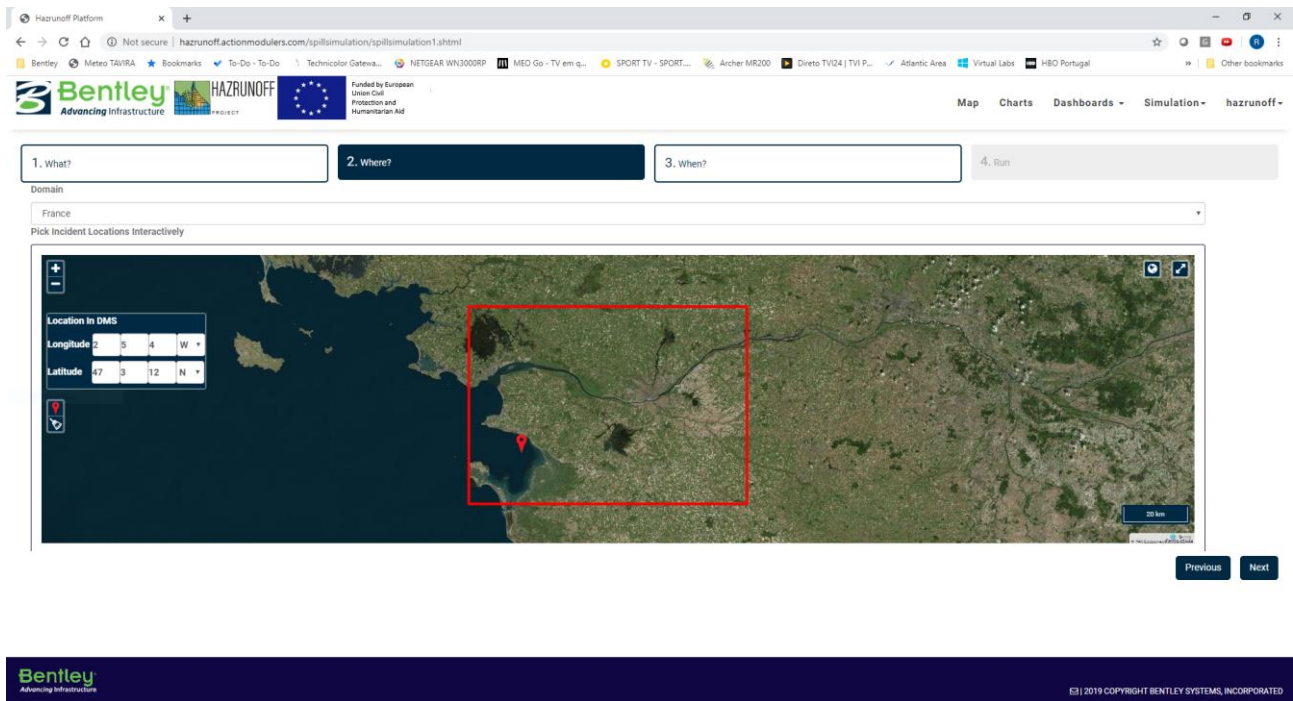
Figure 2 - HazRunOff online simulator | « Where ? » menu

3- When?

    a. Incident type (Continuous or instantaneous emission)

        i. In case of instantaneous, user selects simulation start and end instants, as well as volume.

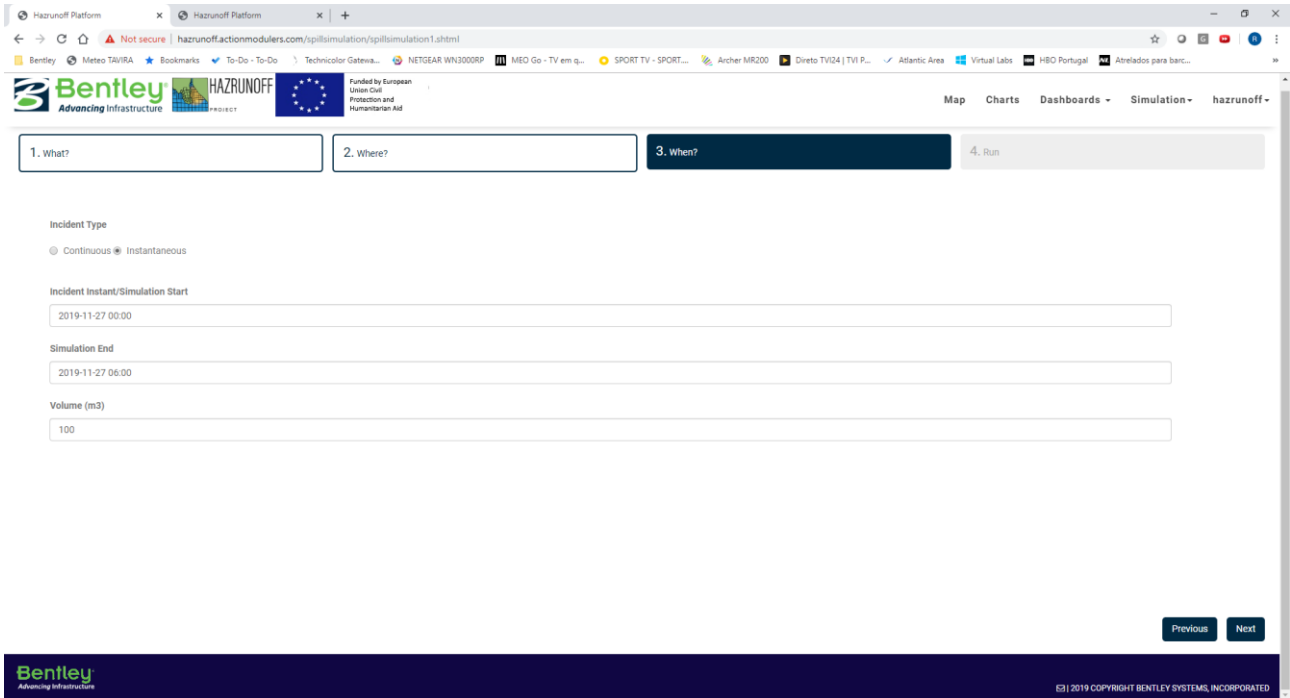   ii. In case of continuous emission, user selects simulation start and flow.

Figure 3 - HazRunOff online simulator | « When ? » menu

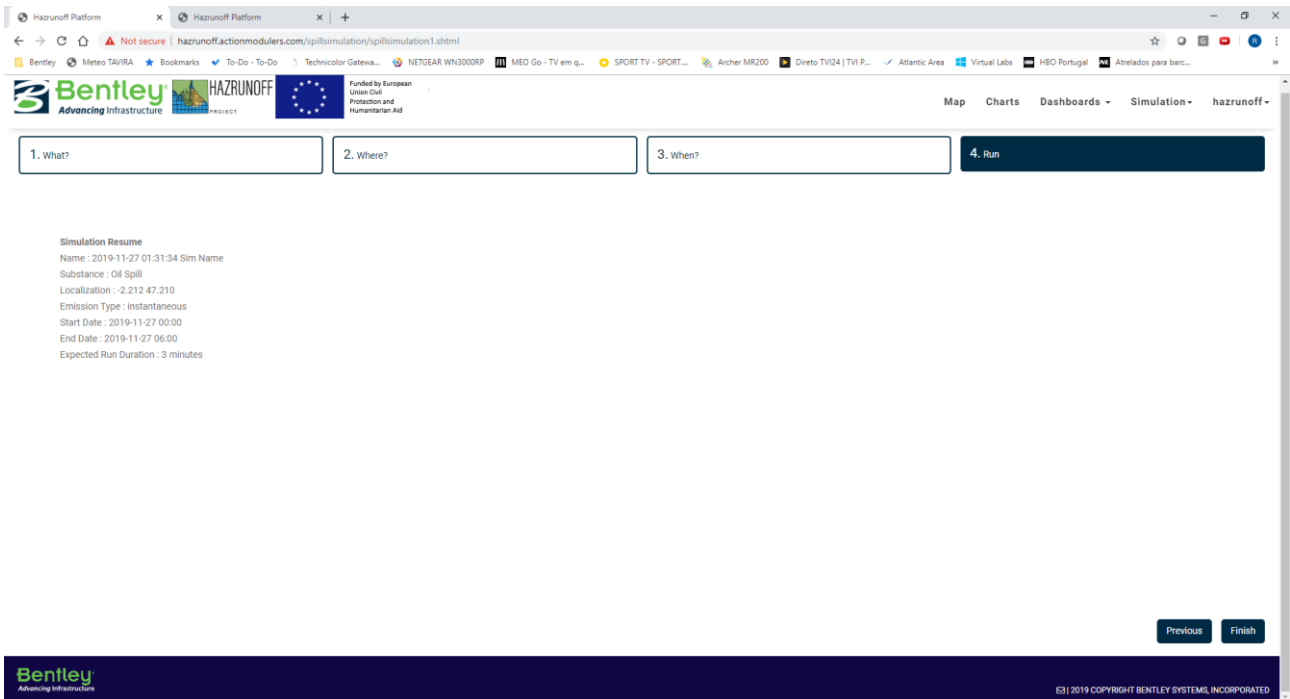After running through these menus, a simulation is set to start.

Figure 4 - HazRunOff online simulator | « Run» menu

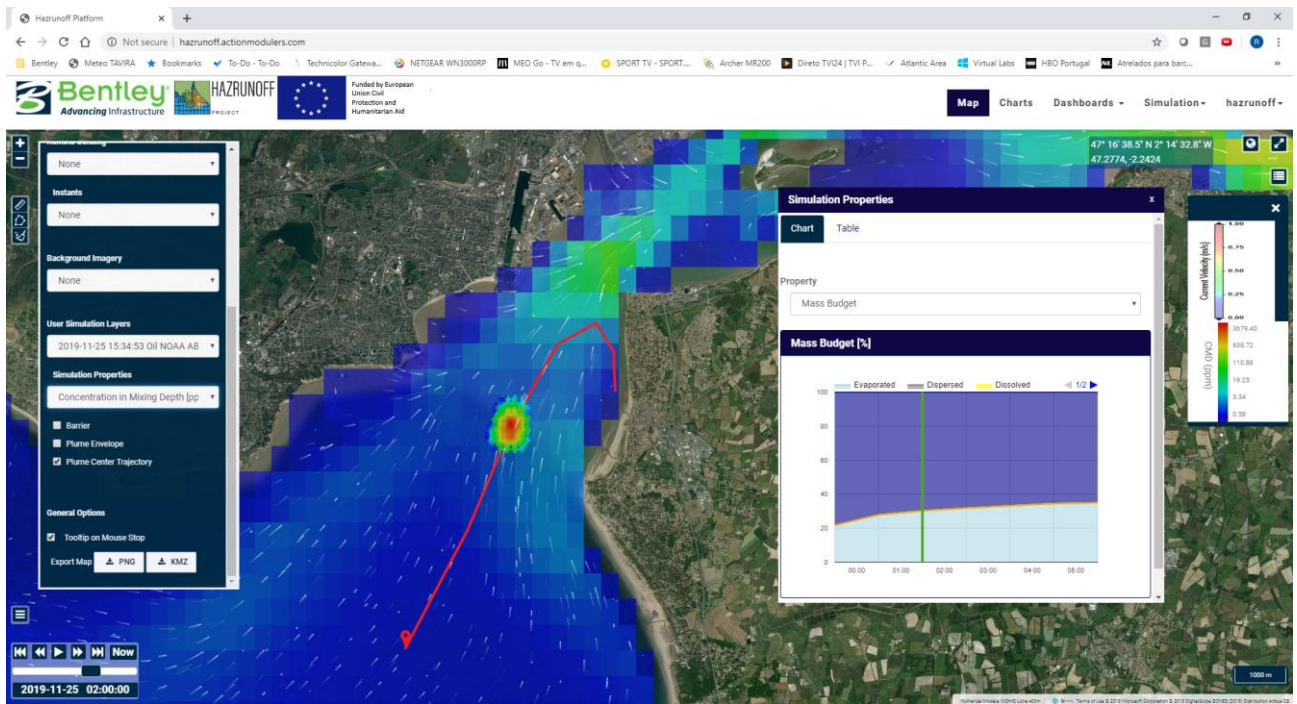Results are then provided in less than 5 minutes.

Figure 5 - HazRunOff online simulator | simultation results shown in map (concentration in mixing depth) and chart formats
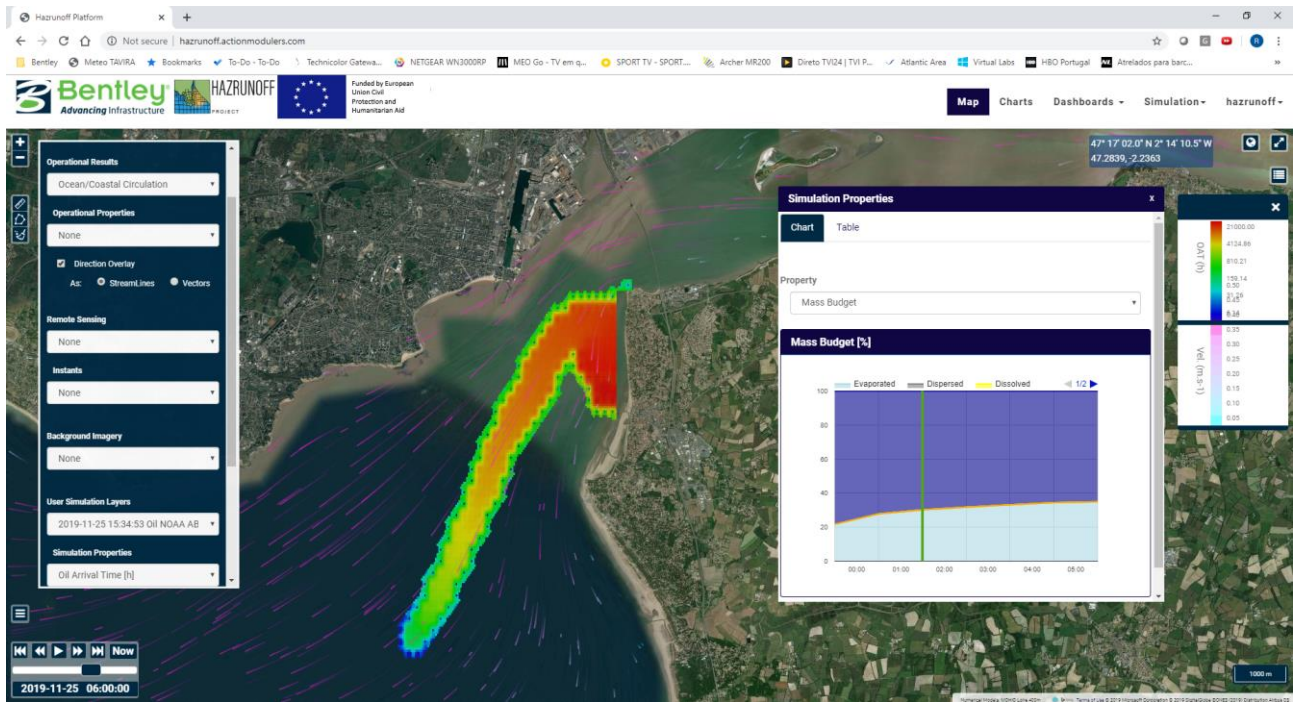

Figure 6 - HazRunOff online simulator | simultation results shown in map (Oil arrival time) and chart formats

In order to compute trajectories and pollutants behaviour in the different pilot areas, the simulation tool makes automatic use of the best available meteorological and hydrodynamic conditions used and generated in the HazRunOff project, which are displayed in HazRunOff web platform - http://hazrunoff.actionmodulers.com/.