
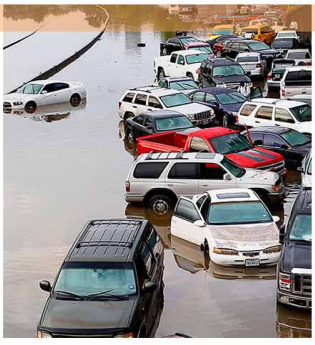


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Flood Pilot Newsletter

Introduction:

After the heatwave pilot organized by the Horizon 2020 beAWARE project last November in Thessaloniki, Greece, the 2nd pilot was organized in Vicenza, Italy on the 7th of March. The exercise aimed to test the functionalities of the 2nd version of the platform and watch the evolution, the capabilities and the holistic approach offered by the beAWARE solutions in the case of extreme weather events related to flood. By following a flood scenario that recaptured the real-time events of the Vicenza floods in 2010, the beAWARE platform was called upon to support the decision makers in the emergency management system.

The activities related to the Flood pilot in Vicenza lastedfrom 25th of February to the 8th of March. The Flood pilot for the 2nd prototype itself took place in Vicenza on the 7th of March 2019 in the 'COC Room' located in the 'AIM palace' (Contrà Pedemuro S. Biagio, 72, 36100 Vicenza VI), where the PSAP was established for the implementation of the pilot. Moreover, the selected room is the actual place where the Municipal Operational Centre (the COC) is established during an emergency that involves the Vicenza Municipality.

The pilot involved about 90 participants, including Volunteers of the Civil Protection and other volunteers groups (Carabinieri, Mountains troopers-Alpini etc), citizens, local and regional Authorities, the beAWARE Consortium and EU Commission delegates.

The actors of the pilot were adequately trained to use the beAWARE technology by AAWA in the previous days. In particular, two different training sessions had been offered: one for the control room operators and decision-makers, who used the PSAP, and the other for the volunteers and citizen who used the mobile application to interact with the beAWARE platform. The training session for the volunteers took place in the evening, after the standard Italian working day.

Objectives of the pilot:

The main objective of the pilot was to highlight that the beAWARE technology implemented in the 2st prototype, is able to furnish a detailed and update outline of the situation (providing a clear operational picture), merging together and analyzing:

- information from incident reports
- various type of multimedia (such as: social media; images; and voice recordings; video recorded by mobile phones, fixed video cameras and drone; etc.)
- physical sensors' measurements
- forecasts and all the other available data.

A further goal wasto show that beAWARE technology offers in every moment a rapid, clear and reliabledirectional channel of communication between authorities & first responders and authorities & citizens. In particular, regarding the communication between authority and first responders, the objective was to present that the beAWARE platform provides advanced tools for the management of the rescue teams and for the assignment of various kinds of tasks.

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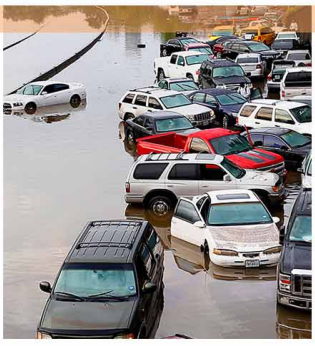


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Regarding the communication between citizens & authorizes, the pilot tested the mobile application of the platform to be intuitive and simple to use in sending incident reports and various kind of multimedia and to see how it can help the rapid diffusion of global alerts to all citizens.

General overview of the pilot

The **story line** had 2 main pillars for the execution of the flood pilot scenario:

1. Legacy Toolsonly (without the beAWARE platform)
2. With the beAWARE platform and app

More specifically, the pilot was divided in 3 sessions, that were performed twice: the first time, the management of the emergency situation relied only on the use of the legacy tools (telephone - stable and mobile lines, VHF, email and press releases); the second time, each session was executed with the beAWARE platform and the end-user tools (PSAP, beAWARE mobile app and Sensor Thing Server).

- Session 1: - **pre-emergency phase**:; this session was divided in:
  - o Session 1a - Without beAWARE: from 8:00 CET to 8:30 CET of the 7TH March 2019
  - o Session 1b - With beAWARE: from 8:30 CET to 9:00 CET of the 7TH March 2019

- Session 2: - **Monitoring the river (threshold exceeding) and triggering of the pre-defined task of the civil protection plan:** divided in:
  - o Session 2a - Without beAWARE: from 9:00 CET to 10:30 CET of the 7TH March 2019
  - o Session 2b - With beAWARE: from 10:30 CET to 12:00 CET of the 7TH March 2019

- Session 3: - **Management of the Emergency:**
  - o Session 2a - Without beAWARE: from 9:00 CET to 10:30 CET of the 7TH March 2019
  - o Session 2b - With beAWARE: from 10:30 CET to 12:00 CET of the 7TH March 2019

The main 'active' roles that were covered during the pilot are:

- **Decision Maker** – Role performed by the delegates of the Vicenza Municipality
- **Members of the COC** (Support of the Decision maker) – Role performed by delegates of various offices of the Municipality, AAWA, AIM, GenioCivile and Water Drainage Consortium (Consorzio di Bonifica Alta PianuraVeneta).
- **Control room operators** (who used the PSAP) – role performed by Vicenza Municipality and AAWA
- **First responders** – role performed by Volunteers, members of Water Drainage Consortium and AAWA. The volunteers were organized in the following 5 teams:
  - o Team 1, Team 2, Team 3 and Team 4 Located in the Vicenza City Centre
  - o Team SA: composed by member of Water Drainage Consortium and located in the S.Agostino district

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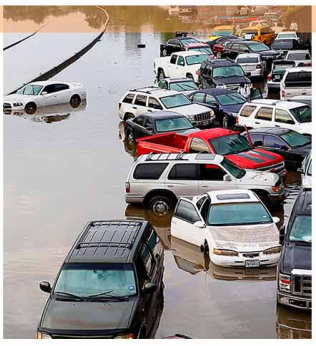


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- **Rescue team's leader** (using the first responder's version of the mobile app): chosen for each team as the member with the greatest experience in civil protection and\or in the use of certain types of technologies.
- **Citizen:** roles performed by volunteers and AAWA (who used the Citizens' version of the mobile app). The citizens were organized in two team.

The pilot involved three different areas of the city Vicenza:

- **Control Room (or COC Room)**:it is the place where the COC is established in case of a crisis that involves the municipality. In this room, for the entire duration of the pilot, the Decision maker was based, together with the COC delegates, the control room operators and the observers. The Room of the COC (Municipal operative command centre) is located at the highest floor of the AIM Palace in Contrà Pedemuro S. Biagio, 72, 36100 Vicenza VI.

- **Vicenza City centre**: First responders and Citizens were divided in teams deployed in the most critical points (in terms of flood risk) along the Bacchiglione River, in order to test the mobile app.

- **The S.Agostino district:** this area is located in the southern part of the Municipality of Vicenza, Crossed by the River Retrone. In this district one of the rescue team was deployed and, after the pilot, took place the autonomous drone flight. The drone's flight was supervised by an authorized drone pilot employed by AAWA, according to the Italian regulation about drones.

Training of participants

The following training sessions took place

- 25th of February - from 20:00 CET to 22:00: First day of Mobile app training for the volunteers, that took place in the headquarters of the civil protection volunteer in the District of Debbia in Vicenza

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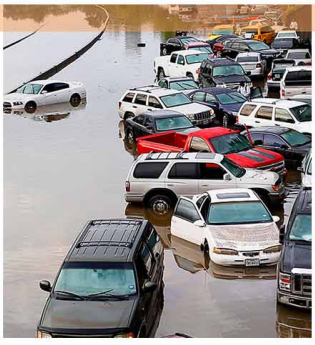


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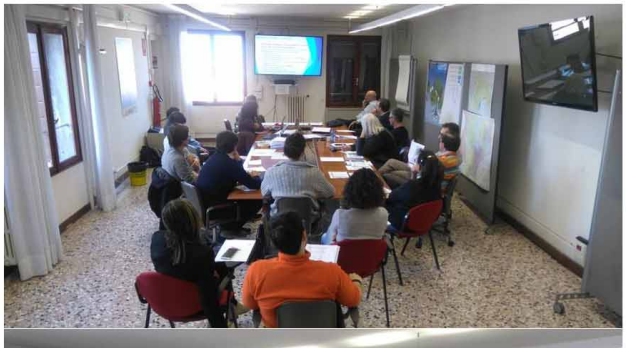
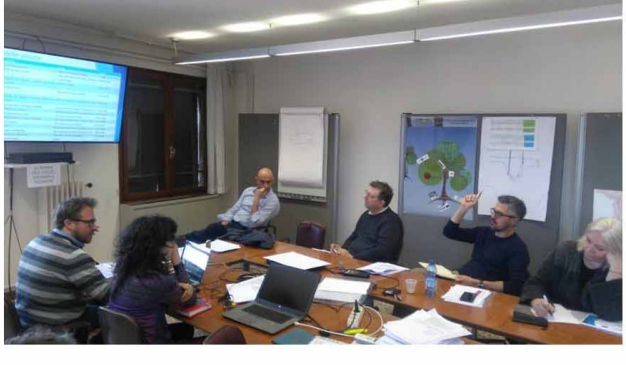
- 26th of February - from 09:00 CET to 12:00: First day of PSAP training for the staff of the Vicenza Municipality; the training took place in a room of the Municipality

- 28th of February – from 13:30 CET to 17:00 in the AAWA headquarters in Venice: training for the AAWA staff who used the mobile app as Citizens.

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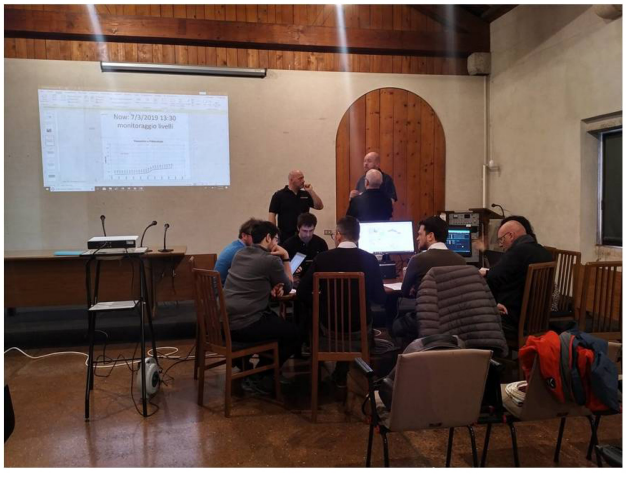
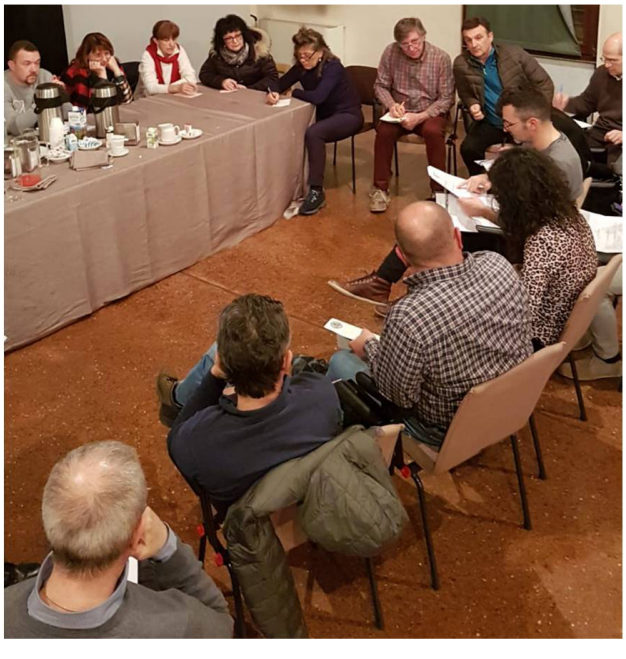
- 5th of March - from 09:00 CET to 13:00: second day of PSAP training for the staff of the Vicenza Municipality, at the presence of the whole beAWARE Consortium; the training took place in the conference room of S.Corona in the Naturalistic and archeological Museum of Vicenza



- 5th of March - from 20:00 CET to 22:00: Second day of Mobile app training for the volunteers, at the presence of the whole beAWARE Consortium; the training took place in the conference room of S.Corona in the Naturalistic and archeological Museum of Vicenza



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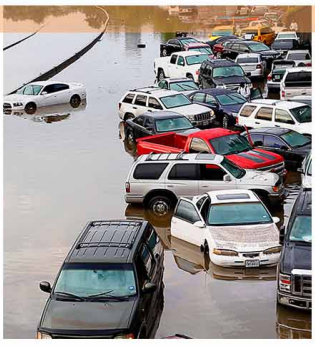


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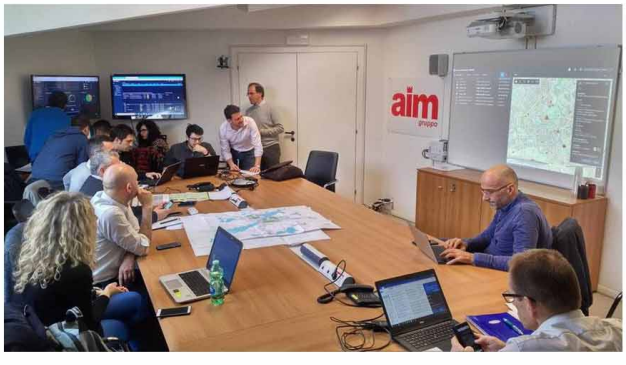
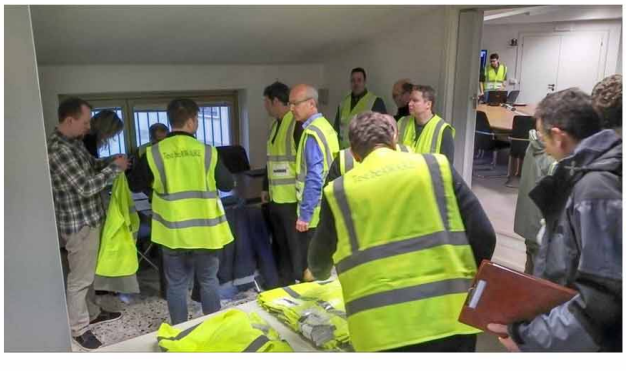
Moreover, the 6th of March, at the presence of the whole beAWARE Consortium, a general test of the pilot with the beAWARE technology was performed from 9:00 CET to 12:00 CET. This general test was similar to the pilot itself, with the difference that during the pilot each planned session was repeated twice: the first time with only the legacy tools, the second with beAWARE.



Pilot Execution

The pilot started at 8.00 in the morning with the assignment of each participant to the dedicated teams and the acquisition of the necessary materials.



Session 1

This session focused on the pre-emergency phase, based on the EWS and forecasting models; the dataset that was used for the forecasting models are the same as the real flood of the 1st November 2010 with an adequate time-scaling to fit the pilot strict timing.

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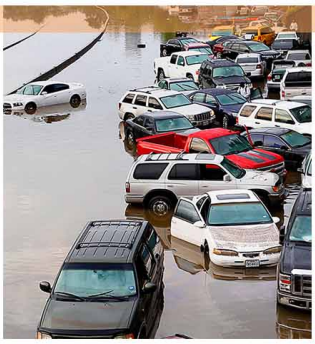
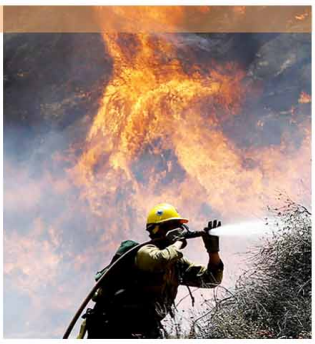

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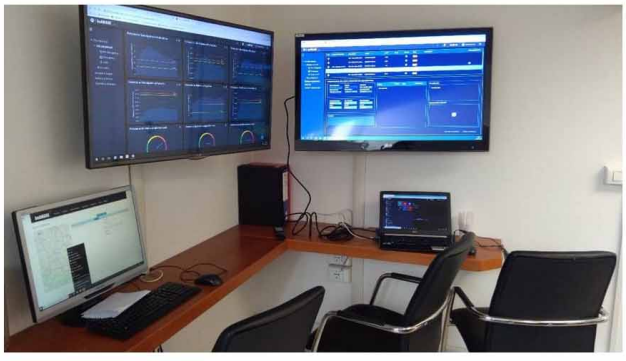
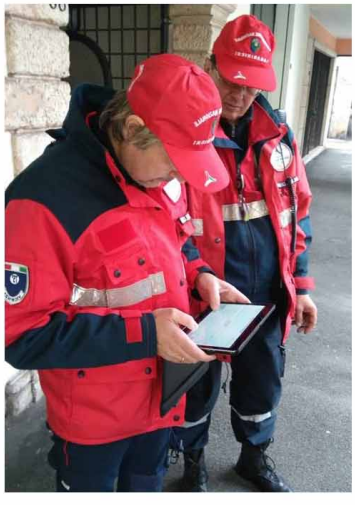


Moreover, in this phase the accreditation of the rescue teams also took place.

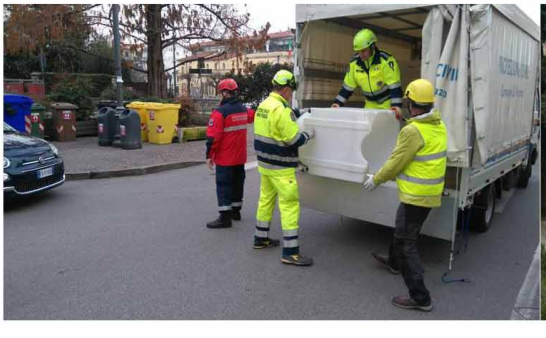
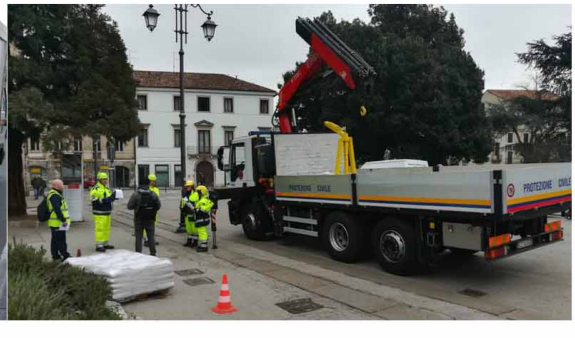


Session 2

Photos and actions taken during this session

The second session covered the first phase of the emergency, when the event forecasting during the pre-emergency phase was occurring and the water level was growing higher, gradually exceeding all the alert thresholds defined in the section of 'Ponte degliAngeli' in the Bacchiglione river basin. Every exceeding of a threshold triggered a pre-defined set of tasks that had to be performed by the volunteers, according to the civil protection plan. **(See the streaming inside the COC here)**

For example, the volunteers' teams prepared the sand packs distribution point in the Matteotti Square and place the Aquadike (hydraulic plastic barriers near the bridge 'Ponte degli Angeli'.

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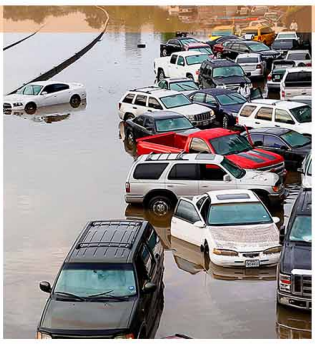
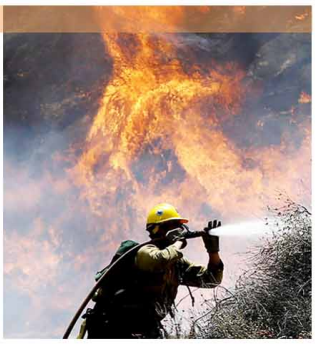

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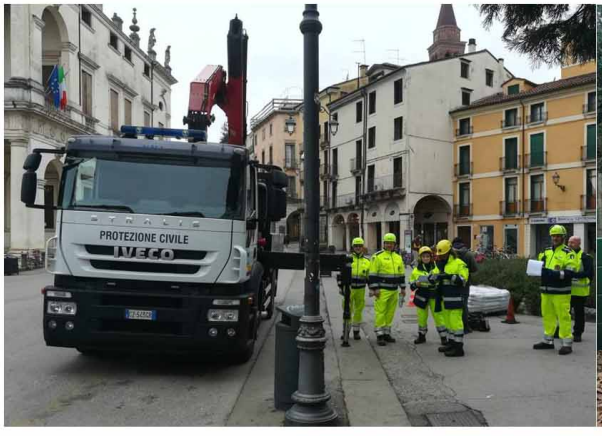

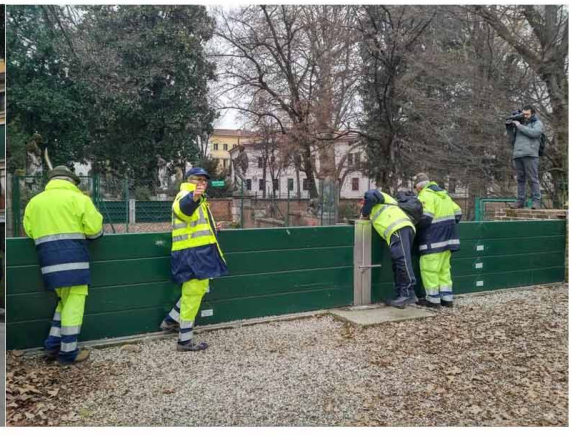
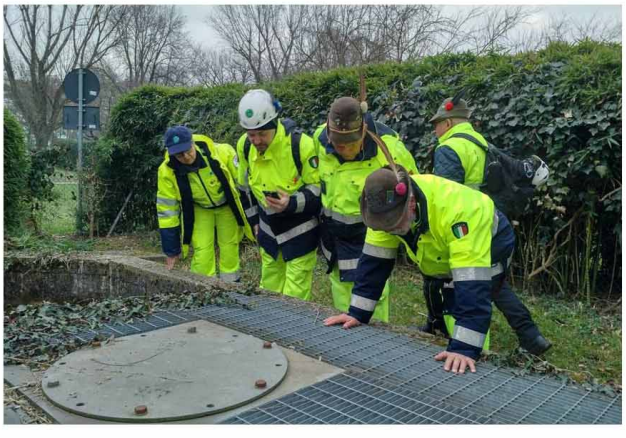

Session 3

Photos and actions taken during this session

This session of the emergency begun when the Bacchiglione River in Vicenza overtopped the embankments and started to flood nearby areas. During the pilot, in order to simulate this phase, volunteers from the municipality of Vicenza and from AAWA acted as Citizens, sending incident reports to inform the authorities that there was flooding in various areas of the city centre; in the meanwhile, the volunteer teams performed some tasks that depended strictly on the ongoing situation and on the flood reports provided inside the city (such as prevent a river breach in a level).

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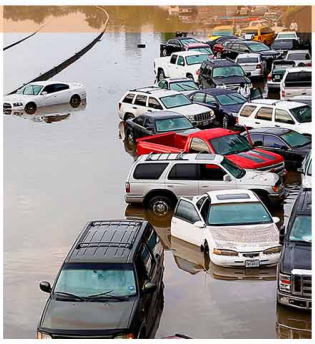
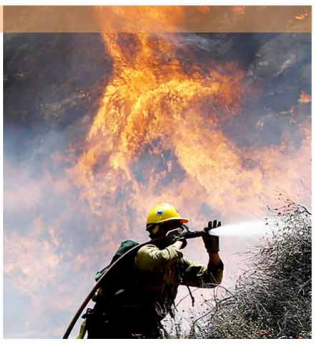

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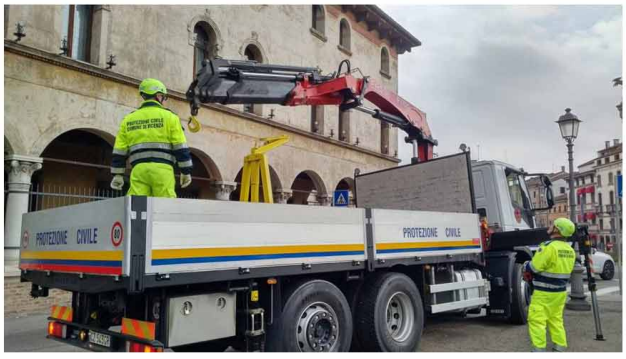

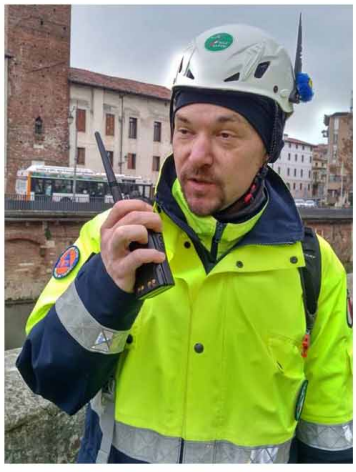
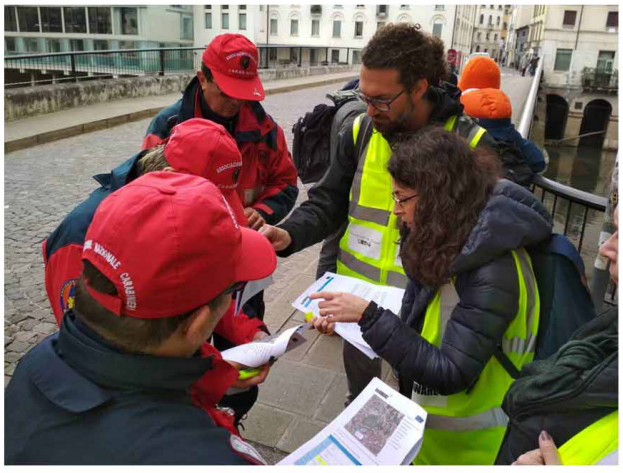
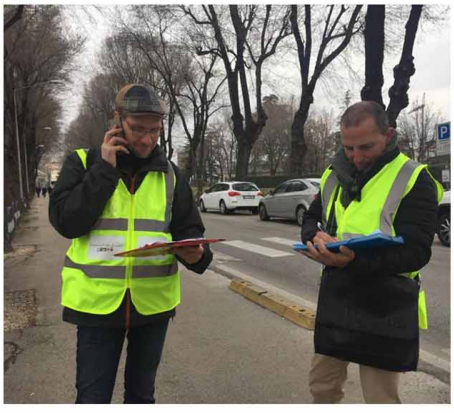
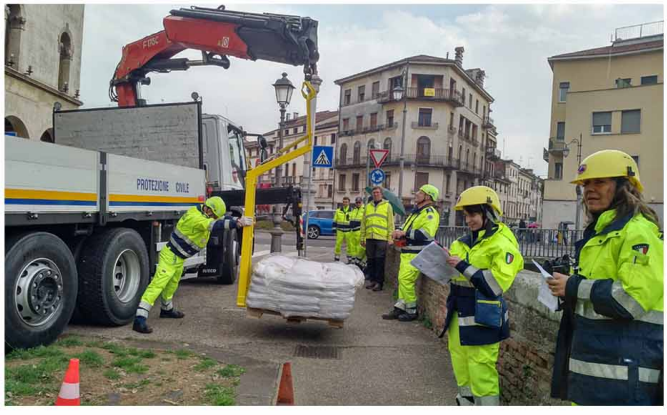

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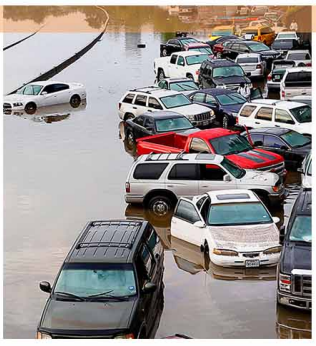


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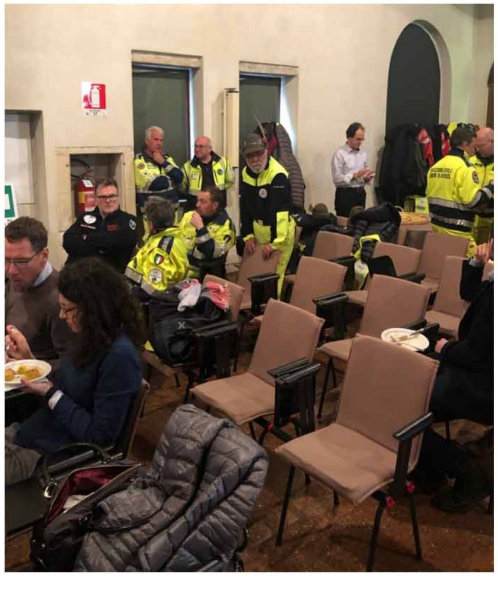
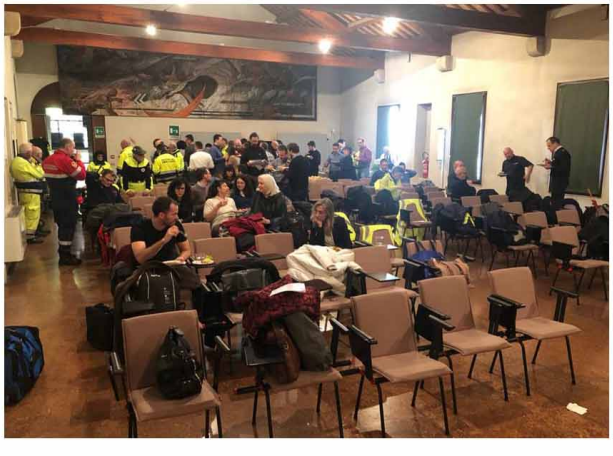
Debriefing

After the pilot execution a debriefing session, led by AAWA, took place in the conference room 'Chiostri di S.Corona' (from 15:00 to 17:00 CET) involving the volunteers and the control room operators. The session was organized (in Italian) where all participants of the pilot provided their feedback and user experience of using the beAWARE technology.

A series of questionnaires were circulated on the difficulties and bugs spotted, suggestions for the future improvements, in order to receive participants impressions, insights or any improvement sought. The session gave the possibility for oral explanations and interactions with the participants. In that occasion, AAWA asked both to observers both to the actors to provide feedbacks (positive and negative aspects) according to their roles during the pilot.

All the end users contribution had been transcribed by AAWA staff in the meanwhile at the presence of the beAWARE Consortium

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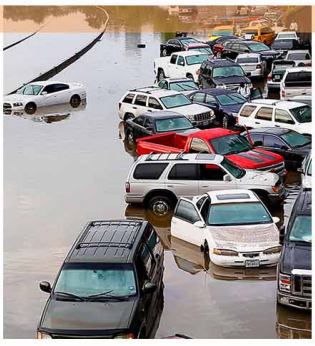


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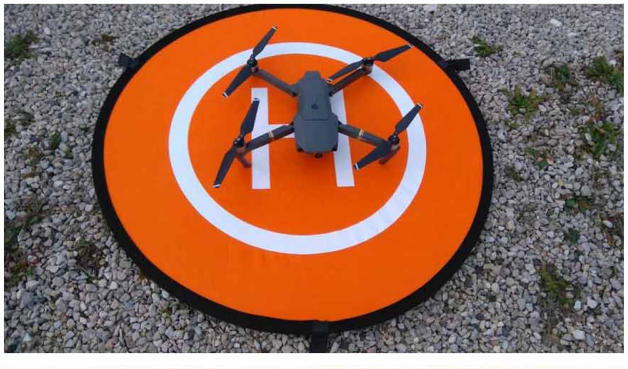
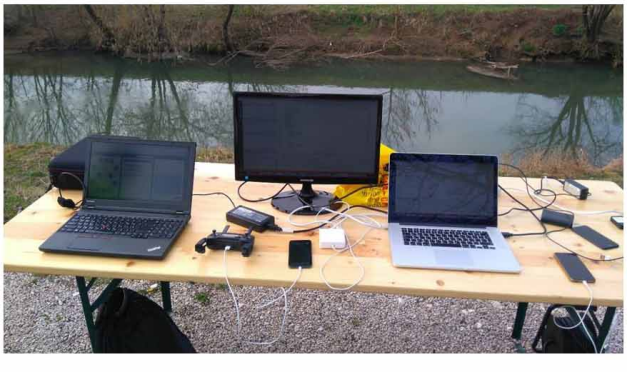
Drones activity

After the pilot, in parallel with the debriefing session, the autonomous drone flight live demonstration took place in the S.Agostino district, located in the southern part of the Municipality of Vicenza, crossed by the River Retrone and about 7km away from the City Centre. Due to the Italian regulation about drones, the areas for the flight test had to be located outside the city centre. For that reason, the cross section between the Retrone River and the Cordano Channel had been chosen. This area is the property of the "Alta Pianura Veneta" Water drainage Consortium, one of the stakeholders in the flood pilot.

During the real time drone's flight demonstration the scenario of detecting people in danger in the Retrone River was simulated, by using a dummy. The drone acquired video of the river area, including the dummy and through the beAWARE's platform infrastructure sent it to the video-analysis module for the identification of the target. In addition, some pre-defined points of interest, such as water pumps and gates, were inspected by the drone, and corresponding imagery was sent to beAWARE.

The autonomous fight that took place on the 7th of March 2019 was the last of a series of activities that took places in the last months. More in detail, flights also took place on the 26th and 27th of November 2019 and on the 4th of March 2019.





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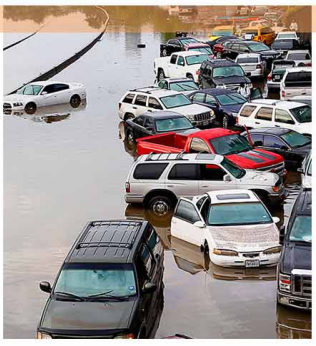


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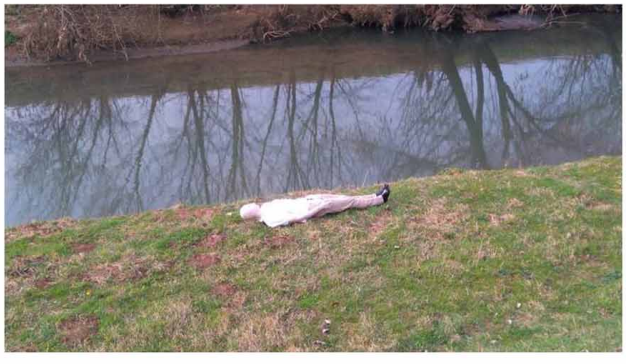

Thanking

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- Veneto Region
- Alta Pianura Veneta Water drainage Consortium
- AIM Vicenza Multi-utility
- Vicenza Municipal group of Civil protection volunteers
- ANA (Italian national society of Alpines)
- ANC (Italian national society of Carabineers)

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Partners of the Consortium

The partners that formulate the consortium of the project are:

- Centre for Research and Technology Hellas (CERTH) - Coordinator
- Motorola Solutions Israel Ltd (MSIL)
- Universitat Pompeu Fabra (UPF)
- Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB)
- Valencia Local Police (PLV)
- Hellenic Rescue Team (HRT)
- Finnish Meteorological Institute (FMI)
- Alto Adriatico Water Authority (AAWA)
- IBM Israel - Science And Technology Ltd (IBM)
- Frederiksborg Fire & Rescue Service (FBBR)

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