

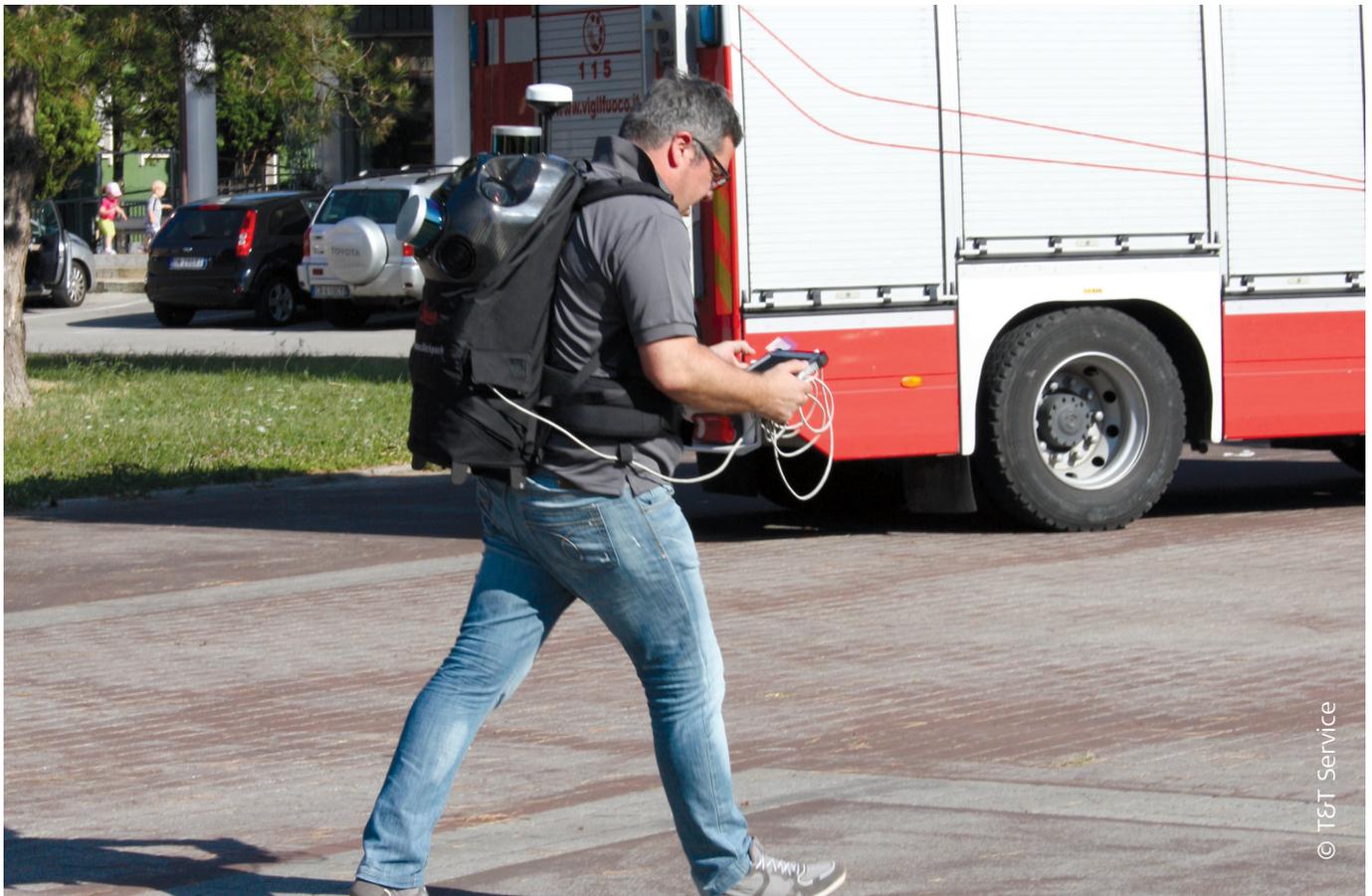
Written by Irene Simonetta

© T&T Service

# MOBILE MAPPING A DISASTER AREA

On July 8, 2015, an Enhanced Fujita Scale (EFS) 4 tornado struck the Brenta River area of northern Italy, around the towns of Pianiga, Dolo and Mira. A famous feature of the area, the Venetian Villas were severely impacted, scattering them along the river region. Built

in the 16th century and designed by the renowned architect Andrea Palladio from Padua, these classical forms draw thousands of tourists from all over the world every year. The area was recognised as a UNESCO World Heritage Site in 1994.



© T&T Service

The natural disaster tragically caused one death and injured 72 people, heavily damaging 250 homes and displacing hundreds. In all, damages accounted to tens of millions of Euros.

#### UNDERSTANDING THROUGH MOBILE MAPPING

The headquarters of T&T Service is located in the region where the tornado struck. With a long experience in topography and High Definition Surveying (HDS), the surveying firm helped local authorities in the first hours of the aftermath and beyond to understand the extent of the damage.

“To see that amount of destruction that close to home was very trying for us, but we wanted to help our community in any way we could,” said Gianpiero Toniato, owner of T&T Service. “As soon as the tornado passed, we set out with our equipment to help the emergency responders and police to document the damage.”

That equipment included the Leica Pegasus:Backpack. As the area was being evacuated for safety reasons, T&T Services needed to quickly get in, document and get out in the midst of the evacuation. Mobile mapping, therefore, was the best solution to acquire data as swiftly as possible while ensuring all necessary information was captured.

Leica Geosystems was immediately available to carry out a pro bono survey to support the local authorities. Since the area wasn't accessible by traditional mobile mapping systems, the Pegasus:Backpack was selected for its advanced mobility to access difficult areas easily.

Taking immediate action with minimal interference to the operations of the rescue workers, Aldo Facchin, Leica Geosystems Mobile Mapping R&D manager, was able to access the area to scan the extent of damage caused by the storm's fury.

“We found excessive damage to home and other structures,” said Facchin. “With the Backpack, we were able to easily pass through areas obstructed by fallen debris.”

Once completed, all data was turned over to T&T Service. Toniato and his team used the detailed point clouds to investigate and measure the damaged areas, providing a valuable perspective on how a natural disaster affects such a historic space.

#### ACCESSING THE INACCESSIBLE

Allowing the surveyors to cross into areas where standard vehicles couldn't and the ability to



quickly collect and analyse data, the Italian public administration of the affected area has been absolutely impressed.

"We depend on various street view tools to understand damage during natural disasters and other accidents like this, but we really appreciate the possibility to use acquired data along days, months, even years to assess how we're recovering," said Dolo Mayor Alberto Polo. "The Backpack makes that possibility a reality. With this Big Data aspect, our technical operators can evaluate damages with an higher accuracy than ever before."

With the Pegasus:Backpack, the public authorities of the municipalities impacted have been able to rely on acquired data and information to measure the progress of cleanup.

#### FUTURE DEVELOPMENTS FOR RECOVERY

Mobile mapping solutions created a real and immediate picture of the damaged areas. Local authorities were

enabled to access areas that were before inaccessible due to damage and effectively coordinate recovery work.

The experience gained by the government in this catastrophe has proven the need to have documented pre- and post-disaster databases to allow for an immediate verification of damaged areas with totally automatic comparisons activities.

"With the technology of the Pegasus:Backpack, authorities can better plan for and react to emergency situations," said Stuart Woods, Leica Geosystems Geospatial Solutions Division vice-president. "By being able to visualise damaged areas in their current and immediate state, from the ground at street and building level, a reality-based effective response to disasters is now possible."

