The earthquake in Abruzzo

and the Firefighters' work

It is for me a great pleasure to present this publication. It is a sort of photo collection witnessing, to a very limited extent, the extraordinary work of the Italian Firefighters in Abruzzo, in the areas hit by the earthquake of April 6th. A work which began from the very first hours after the seismic event.
These pictures were taken during the rescue operations by photographers and camera operators of the Documentation Centres of the Italian National Fire and Rescue Service. They are live shots, taken night and day, even during frantic or painful moments.

When, in my position of Minister of the Interior, I received news of the earthquake, I was also informed that the teams of the "red angels" had already left their fire stations to reach the earthquake-stricken areas. I was immediately impressed by their generosity and efficiency. In fact, in a few hours thousands of Firefighters, without sensation, arrived in L'Aquila and in the neighbouring dozen villages and hamlets hit by the earthquake. Emergency convoys were deployed from all Italian regions. Fire trucks, rescue vehicles of every kind, and many, many firemen and firewomen (engineers, surveyors, drivers, technicians, etc.) from all over the country reached the devastated area.

In a surprisingly short time self-sufficient tent base camps were organized. Hundreds of rescue operations were carried out; three hundred in the first hours after the tremor. More than 120,000 until today and the data are understimeted. Today, the operations keep on going with an average of six hundred a day. Initially, rescue operations were obviously aimed at safeguarding life and property. Next, operations were directed to securing private and public buildings such as hospitals, schools and monuments.

During my visits to the city of L'Aquila, from April 6th up to today, I have always been proud of the great work carried out by the Firefighters of the National Fire and Rescue Service. Also on this occasion, on behalf of the Cabinet and myself, I would like to express to them our appreciation and gratitude.

I read with personal satisfaction the polls reporting the high percentage of the public's confidence in the Fire Service. Over these past few months it has reached the peak of 99%. Everyone has acknowledged the Fire Service efforts and commitment. And I am very proud to present this positive image, especially to the foreign delegations. This is the positive face that Italy offered to itself and to the whole world in such a painful moment.

Roberto Maroni

THE EARTH QUAKE IN ABRUZZO AND THE FIREFIGHTERS' WORK

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**"When not only flexible intelligence
and versatile spirit are needed,
but also firm will, persistence and resistance,
I say to myself loudly: You are from Abruzzo!"**

Benedetto Croce

Time stops

On April the 6th, 2009 at 03:32:39 a.m. local time, a powerful earthquake struck the Province of L'Aquila, in the Abruzzo region.
The earthquake, measuring magnitude of 5.8 on the Richter scale and VIII – IX on the Mercalli scale, was felt all over central Italy.

Event technical data

magnitude	5,8
date/time	April 6th 2009 03:32:39 Italian time
	April 6th 2009 01:32:39 UTC time
coordinates	42.334° N, 13.334°E
depth	8,8 km
seismic district	L'Aquila province area

Province of L'Aquila

municipalities	108
resident population	297.424
male	144.255
female	153.169

Municipality of L'Aquila

resident population	68.503
male	33.113
female	35.390
population density per kmq	146,7

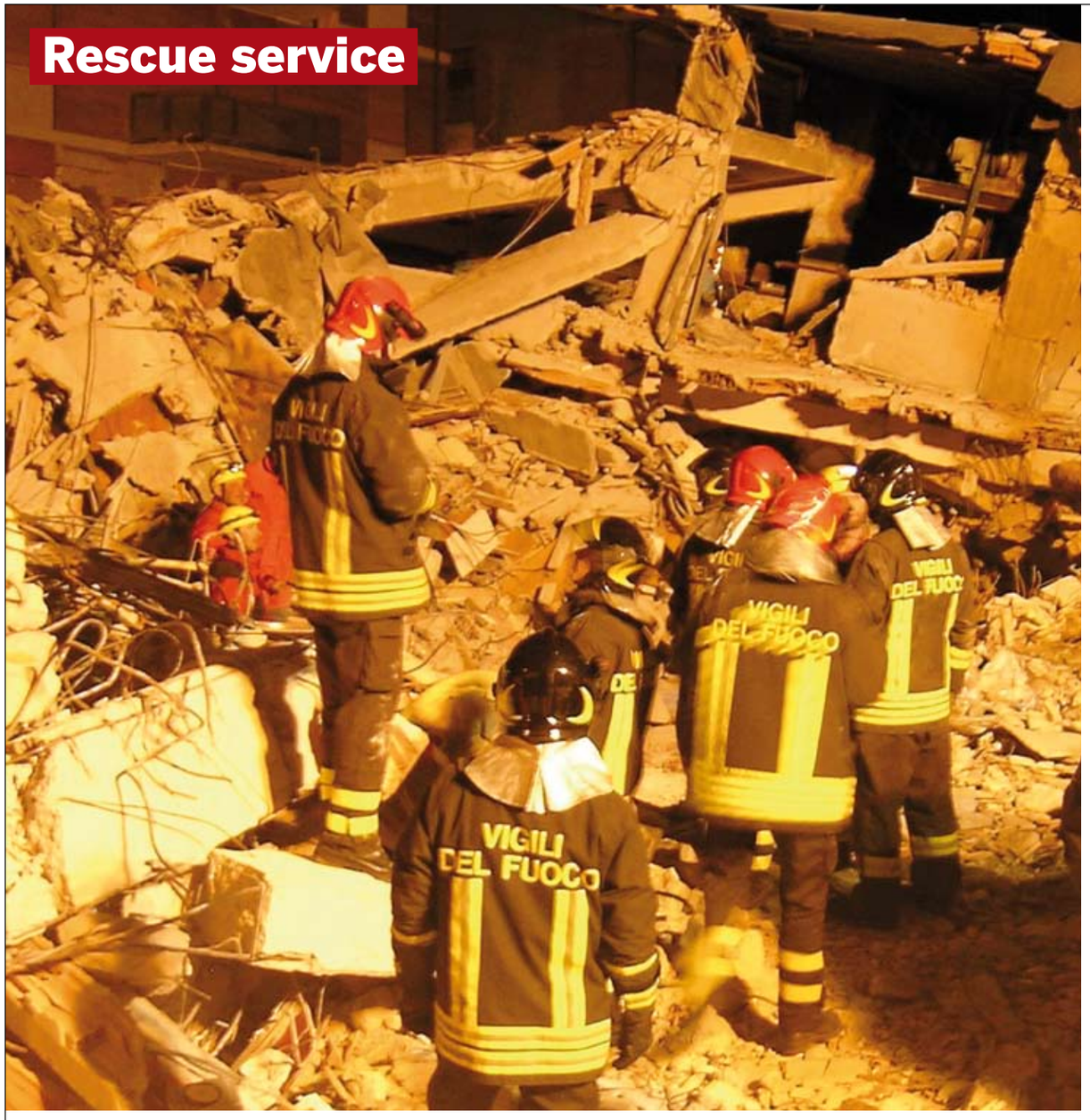
The earthquake, felt all over central Italy, wrought havoc in the Abruzzo region

On April the 6th, 2009 at 03:32:39 a.m. local time, a powerful earthquake struck the Province of L'Aquila, in the Abruzzo Region.

The earthquake, measuring magnitude of 5.8 on the Richter scale and VIII – IX on the Mercalli scale, was felt all over central Italy. Many buildings in the historical centre of the city collapsed and a large number of frightened people poured into the streets.
The epicentre was localized between Collimento hamlet, and Villagrande village hamlets and the northern part of the city.

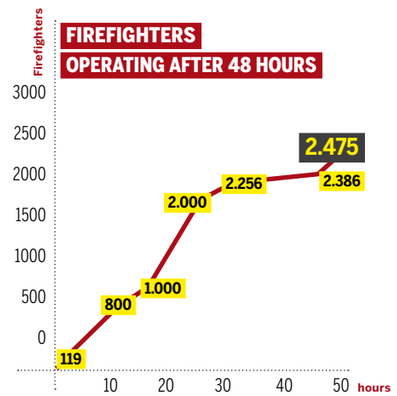
The area had been affected by a frequent seismicity, in the form of a seismic wave, from January 2009, with hundreds minor shocks, to March 30th when a seismic event measuring magnitude of 4.0 on the Richeter scale occurred.

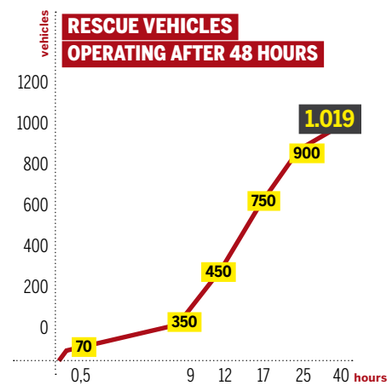
The earthquake has been characterized by an extensional mechanism with NW-SE oriented fault planes and a NE-SW oriented extension (anti-Appenine). In the past, this region was hit by huge earthquakes. In particular, the seismic activity has been recorded among the Northern end of the fault activated by the earthquake of 1703 (an intensity of X degree MCS, equal to a magnitude of about 6.7 on the Richeter scale) and the Northern limits of the fault related, according to the catalogues, to the earthquake of 1349 and of the so-called "Ovindoli – Piani di Pezza" fault.



The earthquake seriously affected the city of L'Aquila and its neighbouring villages and hamlets.

The Provincial Central Fire Station of L'Aquila promptly activated its operational system to provide first rescue. The Regional Fire Service Directorate of Abruzzo and Molise activated all the operational sections of the two regions.
The National Fire Operations Centre at the Ministry of the Interior ordered the immediate dispatch of operational sections to the area hit by the earthquake. These sections came from several Provincial Fire stations within the following regions: Lazio, Campania, Umbria, Tuscany, Emilia Romagna, Veneto, Lombardy, Liguria, Puglia, friuli Venezia Giulia, Basilicata, Calabria and Piedmont. Besides, two complete Regional Rescue and Relief Convoys, coming from Tuscany and Emilia Romagna regions, were deployed to the site. An inter-institutional coordination was implemented by the Department of Civil Protection and, lately, by the DI.COM.AC (the central coordination structure set up on site). The Italian National Fire and Rescue Service also deployed the "Advaced Command Post vans" (PCA) for the operations coordination, and the following special vehicles: turntable ladder trucks, tri-dimensional platforms, breakdown lorries, earth moving lorries cranes and lighting towers enabling rescuers to carry on with operations also at night time. With time, the rescue system set up by the National Fire Operations Centre has been increasing, in short time reaching a deployment of 168 Fire Operational Sections for a total amount of 2700 Firefighters, 190 Firefighter officers, 100 of which specialized in buildings stability assessment, 130 SAF teams (Firefighters trained for mountain, cave and fluvial rescue commonly known as high Angle Rope Rescue) carrying out interventions on damaged buildings, 6 USAR (Urban, Search & Rescue) teams, trained to rescue people trapped under rubble, 48 dog units, 1200 fire vehicles, 4 helicopters.





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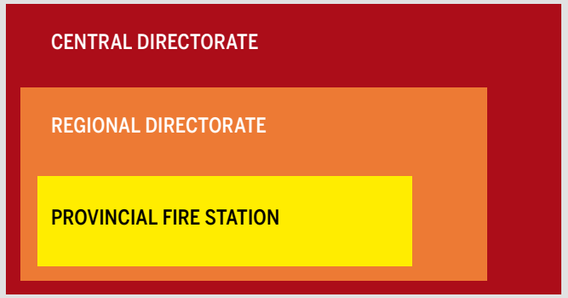
The Fire and Rescue System

In the event of major emergencies the Fire Rescue System is pre-established and consists of a modular rescue system. The base unit, which can be immediately operational, is formed by 9 Firefighters and 4 vehicles differently equipped according to the nature of the emergency (earthquake, flood, etc.). The base unit is called operational section. The aggregation of more operational sections represents a "Colonna Mobile Regionale" (Regional Rescue and Relief Convoy), provided in turn with logistics sections which can support the operational sections for any need in the case of prolonged stays on the emergency sites.



THE FIREFIGHTERS ARE ORGANIZED AT LEVELS
NATIONAL ▸ REGIONAL ▸ PROVINCIAL

The National Fire Operation Center

The National Fire Operations Centre is a structure of the Ministry of the Interior working h.24, 365 days a year.
The personnel are divided into 4 work shifts carrying out the following tasks:

- information gathering about major rescue operations performed by the Fire Teams and its notification to the involved national organizations
- dispatch of fire personnel and vehicles in order to strengthen the rescue system in one or more Italian regions affected by an emergency.

The Fire Service: organization and activities

The Italian National Fire and Rescue Service is a State Civil organization under the Ministry of the Interior.

It guarantees the rescue service all over the national territory through 103 Provincial Central Fire Stations (three of which belong to the autonomous regions), and their respective 508 Operational District Stations and 259 volunteer Fire Stations.

STAFF

Firefighters	**28.134**
Administrative	**3.253**
Total	**32.487**

Interventions per year

About 800,000 annual interventions of the Firefighters including people rescuing, fire extinguishing, inspections, relief operations, hazardous material interventions, road, railway and air accidents, collapses, flooding or emergencies caused by chemical radioactive agents, structural faitral lures, natural disasters such as earthquakes and landslides.

Calls requiring assistance per year

Over 5,000,000 calls per year requiring assistance are handled by the 103 operations rooms located in the 103 Provincial Central Fire Stations in addiction to the National Fire Operations Centre.

Telecommunications

In order to improve the efficiency of local telecommunications systems, the Fire Service immediately activated the National and Regional TLC Centres.

Five new mobile Relay Stations (PRT) and new fixed radio stations were installed in the earthquake-hit region. Thanks to 3 mobile satellite stations (CTR) deployed in the Abruzzo region, videoconference technology ensured a permanent contact with the National Fire Operations Centre at the Ministry of the Interior in Rome.
The National TLC Centre also deployed an Advaced Command Post Vans (PCA), designed to receive images simultaneously from different video sources, using radio transmissions based on WIMAX and/or relay stations.
From the PCA it was possible to provide guidance and instructions to Fire Service personnel who were inside condemned buildings.
The precious Celestine's Code in the historic Archive of the Archdiocese was recovered by Fire Service teams under the supervision of the Archive director using the same remote guidance system.

The day after

FUOCO

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Dogs units and USAR teams

In the first hours after the initial earthquake the Fire Service dog units worked non-stop, carrying out more than 250 search operations and leading to the discovery of many survivors under the rubble.

Search dogs worked in cooperation with USAR (Urban Search and Rescue) teams equipped with specialized equipment such as vibraphones, thermal imaging infrared cameras, reinforced concrete cutting rotary saws and concrete saws.

Togheter with citizens to recover personal belongings

At the end of the search and rescue activities, Fire Service operations were directed to assist the local population in recovering personal belongings in damaged buildings

Giving assistance and hope to people who lost everything

In oder to ensure midterm services to the population, the first Assistance and Logistic Support Centres delivered to the devastated area:

5,434 6 people tents
44.852 complete bed packages
9.851 folding beds
55.000 bed sheets, pillow cases
107.289 blankets
7.663 oil heaters
36 community tents
96 tent-camp electric plants
58 generators
4 lighting towers
216 sanitary containers with toilet and showers

All goods were stored in 1373 containers hauled by 350 trucks.

Securing the town

The Provisional Works Coordination Unit

The Provisional Works Coordination Unit (NCP) is in charge of ensuring a standard execution of the provisional works whilst monitoring their progress.
Every day, the NCP deals with the management of particularly complex work areas, the participation in the Support Technicians Groups (GTS) at the COMs (joint coordination centres) as well as the assessment of provisional works feasibility.

A hard work has been made by the Firefighters for securing the buildings whose stability was continuously at risk because of the seismic swarm.

Shoring and securing works proved to be essential to retrieve personal belongings inside the buildings and to restore road conditions

Securing the National heritage in L'Aquila

The earthquake also exacted a heavy toll on the historic masonry buildings and churches which abound in the Abruzzo region.
In order to preserve the cultural heritage the Italian National Fire and Rescue Service cooperated with the Ministry of Cultural Assets and Activities. From the very first day after the initial earthquake, Firefighters secured old buildings, removed and safely stored movable works of art and implemented several safety measures. For the first time in Italy, all these operations were reported and recorded in real time through the web in order to allow data sharing. highly sophisticated technology was used to immediately protect monument and works of art, ensuring the best conditions for the future restoration work.

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VIGILI
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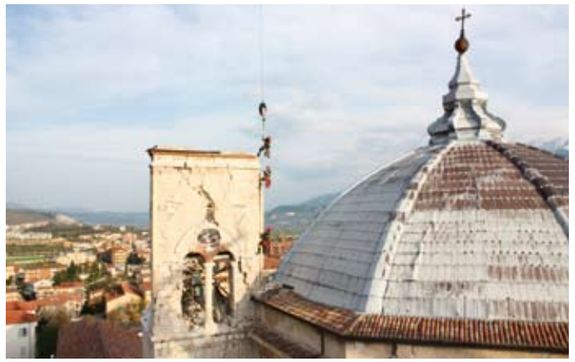
Securing of the church of Santa Maria delle Anime Sante

After binding the church dome and reinforcing the drum windows, the Firefighters's SAF (High Angel Rope Rescue) units installed a metal structure with eight extensible arms, called "the spider", lowering in into the dome by means of a special crane.

4

SAF. In buildings as well as in caves

The SAF personnel (high Angel Rope Rescue Teams also specialized in cave and fluvial rescue) of the Italian National Fire and Rescue Service are composed of fulltime Firefighters. During technical emergency operations they employ speleological, climbing and river equipment and procedures duly adapted and developed to be used in inaccessible places. They allow to increase rescuers' safety and to improve the quality of service given to the population. All Provincial Central Fire Stations have specialized SAF personnel at the four progressive qualification levels. In case of earthquakes, SAF personnel work together with the Cultural heritage and Environment Office to safeguard very important historical works of art and monuments (towers, bell towers, churches, strongholds, etc).

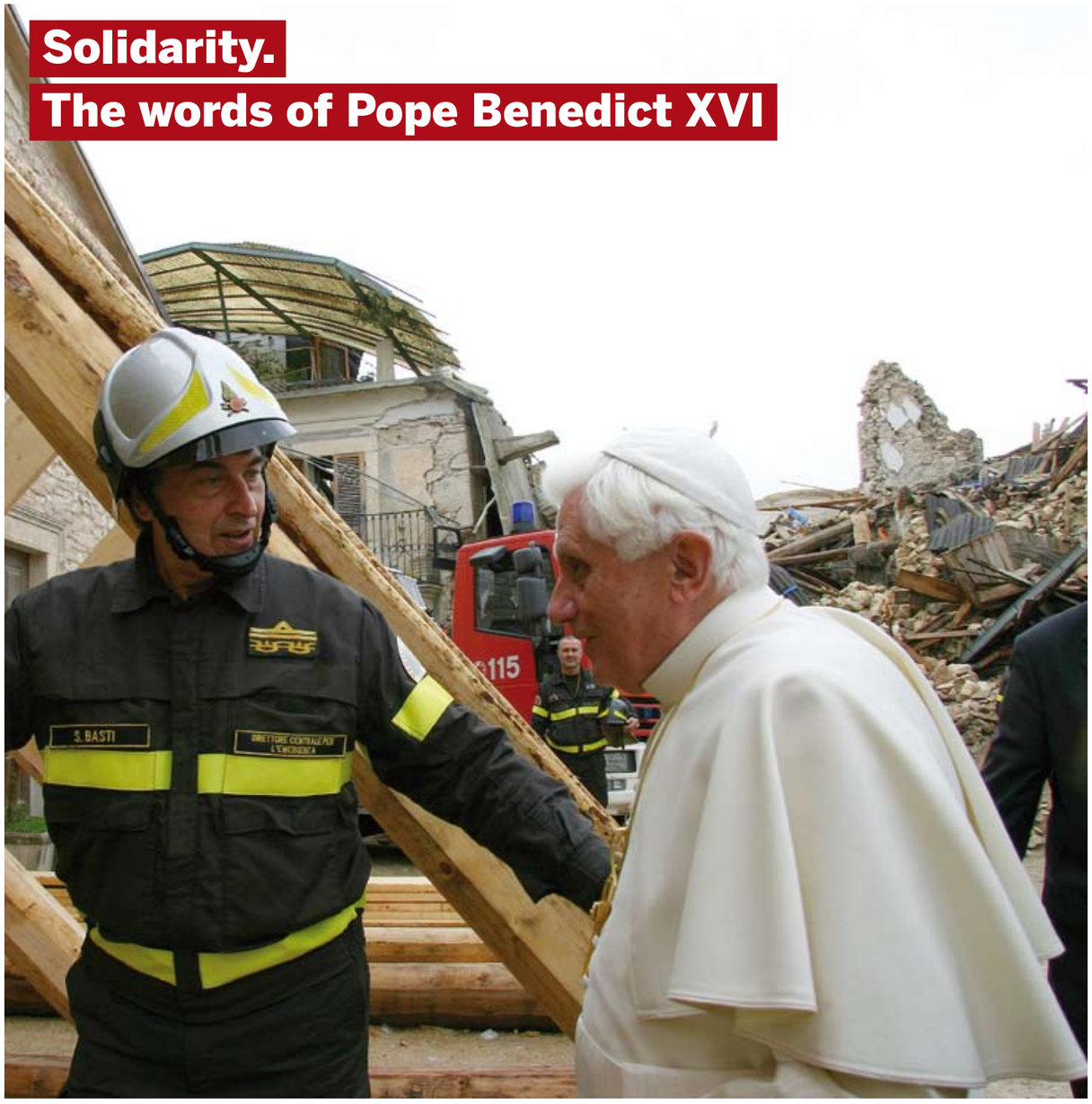


Technologies

Bell tower of San felice Martire church in Poggio Picenze (Aq) Piers of the bell tower made of two withes of dressed rectangular stones with debris of smaller size used as fill ("a sacco" construction). The piers were badly damaged by compression. SAf teams from Tuscany (higth angle rope rescue specialists) applied carbon fibres and bi-component fibre-reinforced mortar (fibreglass) to stop the extrusion movement.

The international community embraces the Abruzzo people with its solidarity

Solidarity.
The words of Pope Benedict XVI



Pope Benedict XVI calls for reconstruction on behalf of the victims, who "*wait from you a witness of courage and hope. They expect to see the rebirth of their land. It is on behalf of these brothers and sisters that we have to commit ourselves to living, using something that does not perish and that the earthquake could not damage: Love*".

Onna. The bell rings again