

# ITALY

## The Earthquake in Emilia Romagna, May 2012

The 5.9 earthquake, which hit the Emilia Romagna region on 20 May 2012 was followed on 29 May 2012 by a 5.8 earthquake with epicentre 15 km northwest of the former event. This earthquake caused further damage to locations hit by the previous earthquake and extended the affected area to the east side of the province of Modena. The earthquake affected an area of former independent municipalities, historic capitals and small states with rich cultural heritage.

According to an approximate balance of the damages caused to cultural goods in the region (see *Süddeutsche Zeitung*, 6 July 2012) about 700 listed secular buildings and groups of buildings were damaged. In addition, there are c. 400 churches, 147 bell and city towers seriously hit. Hundreds of works of art had to be salvaged from partly or completely destroyed churches and museums, among them works by Guido Reni, Guercino and Correggio. 25 municipal archives were damaged; seven of them could be salvaged.

Although immediately after the earthquakes there were calls for a structural reinforcement of historic buildings in the future, monument conservationists pointed out that this is only possible to a limited extent, not least because there are estimates that it would cost 90 billion euros to make all of Italy's historic structures (more) earthquake-safe.

The following is an extract from a Field Observation Report of 21 June 2012 (i. e. only a few weeks after the earthquakes) compiled by University College London, Department of Civil, Environmental and Geomatic Engineering: ([http://www.ucl.ac.uk/~ucestor/research-earthquake/EPICentre\\_Report\\_EPI-FO-290512.pdf](http://www.ucl.ac.uk/~ucestor/research-earthquake/EPICentre_Report_EPI-FO-290512.pdf)):

*With respect to brick masonry churches, the churches of Matildica in Sorbara and of San Lorenzo della Pioppa did not suffer any damage. Slight to moderate damage patterns were noted in a few other churches in the same area. A church in Cento appeared to have suffered slight damage with long but light cracks on the façade and the south wall. Another church in Cento suffered out-of-plane failure of the façade due to loss of connection between the north wall and the façade.*

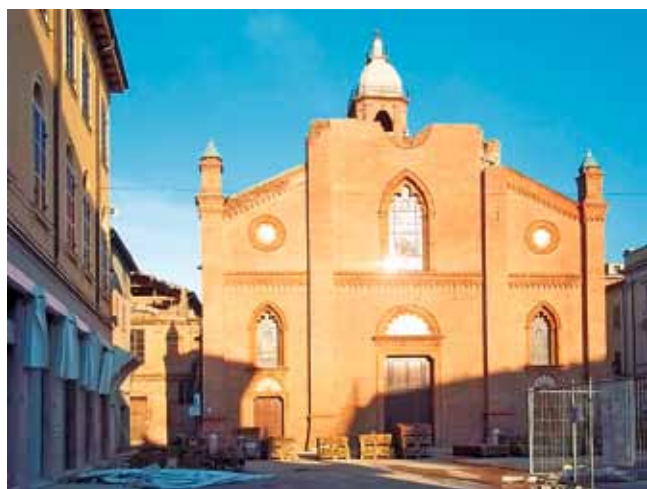
*The church of San Michele in Novi di Modena was surveyed from a distance due to lack of access. Extensive diagonal cracks on the south and east side were noted. The church of Cavezzo suffered moderate damage with extensive cracks on the south wall and a vertical crack on the wall indicating out-of-plane failure of the façade. A dislodged statue was also observed and extensive shear cracks seen on a masonry extension. A vertical crack was noted on the façade of the church of San Lorenzo in Casumaro Finalese. Seven churches were noted to have suffered partial or total collapse of the upper part of their nave. A notable exception is the collapse of the roof over the transept of the church in San*



San Martino in Cavezzo (photo: [www.scoutcavezzo.org](http://www.scoutcavezzo.org))

Church in Disvetro (photo: *Gazzetta di Modena*)





The Cathedral in Mirandola  
(photo: [www.impressioniespressioni.blogspot.de](http://www.impressioniespressioni.blogspot.de))



San Martino in Buonacompra (photo: Nicoletta Vitali)

*Possidonio. A common failure mechanism was the overturning of the upper part of the façade which led in most cases to the collapse of the gable.*

*A complete assessment of the level of damage suffered from the bell towers was not possible in all cases due to the limited access to areas where these towers were located. Overall, the bell towers of the notably damaged churches also appeared to have suffered substantial damage. Partial collapse of the bell tower of the church of Disvetro and San Possidonio was observed. Notably, the collapse of the top end of the bell tower in Biagio caused severe damage to an adjacent building. Apart from partial collapse, severe structural damage expressed by extensive and large shear failure at the lower end of the towers was also observed: i.e. the bell tower of Cavezzo, San Martino, San Lorenzo in Casumaro Finalese and the Cathedral in Mirandola. Dislodged decorations on the spire were also noted.*

*The 20 May 2012 earthquake caused significant levels of damage observed during the second mission in San Martino in Buonacompra, San Biagio as well as in many churches, i.e. Nativita di Maria Santissima in Rivara, San Bartholomew and the church in via degli Estensi in San Felice sul Panaro, San Pavlo in Mira-*

*bello and San Agostino in San Agostino. Most aforementioned churches were not affected by the 29 May 2012 earthquake. Two notable exceptions include the increase in spalling suffered by the base of the masonry bell tower in Rivara and the partial collapse of the top of the façade of the church of DOM in San Felice sul Panaro. The most significant increase in the level of damage caused by the second event was noted at the two gothic churches in Mirandola. San Francesco suffered moderate to severe damage from the first event (Decanini et al, 2012) and partially collapsed during the 29 May 2012 event. The levels of damage caused by each of the earthquake to the other churches remain unclear.*

*With regard to other historical buildings, the Castle in Cento, built in 1378 and enlarged a century later, is a reinforced brick masonry structure. This castle was found to have suffered no damage. By contrast, the Castle in Mirandola (Castello dei Pico) suffered severe structural damage on an external wall as well as dislodged chimneys. Overall, the damage suffered by these two Castles was significantly less than the partial collapse suffered by the Castles in Finale Emilia and San Felice sul Panaro damaged mainly by the 20 May 2012 earthquake. These two Castles did not appear to have been notably damaged by the 29 May 2012 earthquake.*

*With reference to town halls, the town hall in Mirandola is a three storey brick masonry building with porticos. Nonetheless, there is reinforcement provided by the iron rods in the longitudinal direction to the columns. From the extensive stabilisation work undertaken under the porticos it may be concluded that this building suffered some damage from the May 20 event. Nonetheless, very little damage could be observed from the street. By contrast, the town hall in San Agostino suffered severe damage from the 20 May 2012 earthquake.*

*Finally, a severely damaged brick masonry tower was noted in Concordia and two towers in Finale Emilia were revisited. The brick masonry tower, which was lightly damaged by the first event, did not seem to have suffered any additional damage. The partially collapsed bell tower instead had been removed by the fire brigade.*

## L'Aquila, Five Years after the Earthquake

The devastating earthquake that struck L'Aquila in the Abruzzi on 6 April 2009 (see also *Heritage at Risk 2008–2010*, p. 109f.) created a major rupture in the social and cultural history of the city. Since the earthquake, the historic city centre remains a “red zone” and is mostly inaccessible due to strict safety regulations. Many of the local civic, religious, and social structures cannot be used as a lot of historic buildings have not yet been fully repaired. The residents of the historic centre are still living in temporary housing outside of the damaged area.

Without proper repair and restoration of the historic core, the city will lose important cultural heritage (see also <http://www.wmf.org/project/historic-center-l'aquila>). Today, ongoing restorations are accompanied by a lively debate involving specialists from various disciplines. They participate in the discussions on the complex issues of reconstruction, restoration, and preservation that are deciding how to return the city to its citizens and to ensure the survival of its monumental heritage. Ongoing questions are: What techniques and methodologies allow medi-



Ongoing repair work in L'Aquila  
(photos: [www.dorsetdaze.wordpress.com](http://www.dorsetdaze.wordpress.com))

ation between aesthetic and historical values? Is it possible to find a balance between the protection of heritage and the needs of the citizens of L'Aquila; between the desire for change and the impulse to return to the forms of the past? It is very likely that the rebuilding, restoration and revitalisation of L'Aquila's historic centre will require quite a few more years and major efforts.

## Impact of Climate Change on Cultural Heritage: The Snow Event of February 2012

In 2012, ICORP (ICOMOS International Scientific Committee on Risk Preparedness) discussed within the context of global climate change and its consequences for cultural heritage worldwide the example of increasingly severe snow events, as occurred in Italy in February 2012. For instance, in Urbino, in the Marche region of Italy, partial collapses were reported at the convents of San Francesco and San Bernardino, while the roof of the Church of the Capuchins outside the town centre reportedly caved in.

Heritage conservationists will have to find ways how to respond to and minimise the effects of such extreme weather conditions on our cultural heritage.

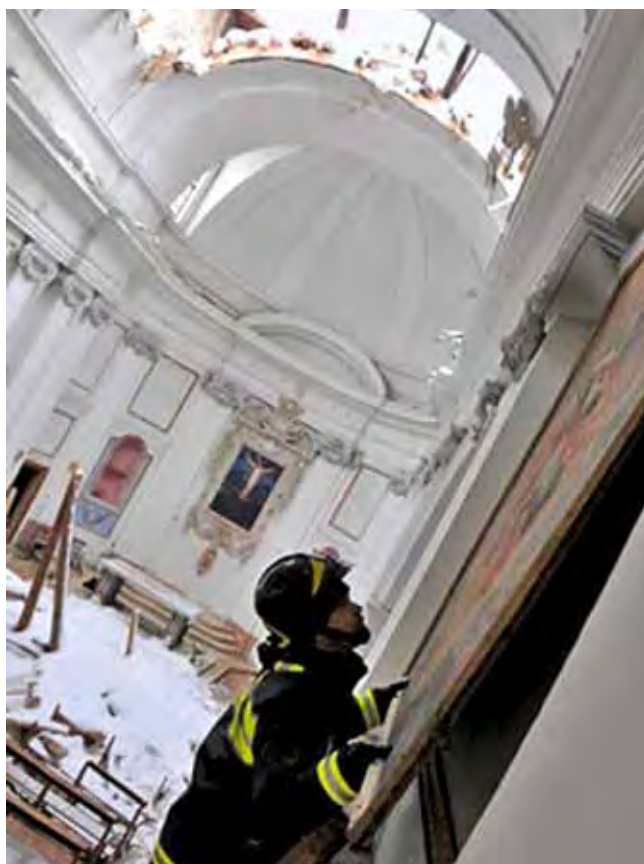


Urbino, Marche, removing snow from the roof of San Bernardino monastery



Urbino, Marche, Capuchin monastery dating from the 16th century: the collapse of the timber roof truss caused the masonry vault underneath to collapse as well.

Urbania, church of SS. Crocifisso, collapsed roof



## Venice Threatened by Cruise Ships and Skyscraper Project

It is a well-known fact that Venice was built on delicate foundations and is gradually sinking into the lagoon – apparently, it has sunk 23 cm in the past 100 years. However, this is not the only danger this outstanding city has to face. In the past years, Venice has been plagued by monstrous cruise ships (650 passing through the city annually) that not only ruin the view for people strolling down Venice’s Giudecca Canal; these ships also unleash huge currents that threaten to undermine the city’s foundations. Furthermore, the No Grandi Navi (No Big Ships) Committee, a local protest group, noted that the giant vessels produce as much pollution in an hour as 15,000 cars. In addition, the fumes contain 15 times as much sulphur as road vehicle emissions. The acid nature of the pollution is thought to be potentially speeding up the erosion of the city’s medieval buildings.

Now, a law passed in April 2014 has put a ban on vessels weighing over 96,000 tonnes. As from November 2014 they will no longer be allowed to pass close to St Mark’s Square. An additional agreement will also see a reduction in the number of cruise liners weighing over 40,000 tonnes that enter Giudecca Canal, and cruise ship operators are committed to not using fuel with more than 0.1 per cent sulphur.

Fortunately, plans by the French fashion tycoon Pierre Cardin to build a 60-storey, three-finned skyscraper, the so-called Palais de Lumière, on the Venetian mainland have been cancelled. The tower in the former industrial area of Porto Marghera was to contain swimming pools, gardens and ponds on the upper decks and a helipad on the roof. The project was finally given up in 2013 due to criticism of how the 245-metre-high building would fit into the Venetian landscape.

As positive as these two recent developments may be, showing that protests against aggressive commercialism can be successful, the plans for the conversion of the 16th-century Fondaco dei Tedeschi into a Benetton megastore proves that the fragile building fabric of Venice continues to be at risk. Star architect Rem Koolhaas wants to add an extra storey by demolishing part of the roof, install escalators and build a floating dock on Canal Grande.

Visualisation of so-called Palais de Lumière, originally planned on the Venetian mainland (© www.designbuild-network.com)



Cruise ships in Venice (photos: Die Welt and www.orf.at)



Aerial view of Venice with the Fondaco dei Tedeschi marked (photo: www.urbanchoreography.net)

Model of the planned conversion of the Fondaco dei Tedeschi by Rem Koolhaas (© www.gizmoweb.org)

