

# Bondeno, Emilia Romagna, ITALY

## Earthquake - 20/05/2012

### Delineation Map - Overview

Production date: 26/05/2012



#### Cartographic Information

1:25000 Full color ISO A1, medium resolution (200 dpi)

0 0.5 1 2 km

Map Coordinate System: WGS 1984 UTM Zone 32N  
Graticule: WGS 84 geographical coordinates

#### Legend

- |                                  |                           |
|----------------------------------|---------------------------|
| <b>Crisis Information</b>        | <b>Transportation</b>     |
| ■ Affected Building              | — Primary Road            |
| ■ Affected Building Blocks       | — Secondary Road          |
| ■ Not Affected                   | — Local / Other Road      |
| ■ Not analyzed due to cloud haze | — Railway                 |
|                                  | <b>Points of Interest</b> |
|                                  | 🚰 Transportation          |
|                                  | 🏥 Medical                 |
|                                  | 🏛 Institutional           |
|                                  | 🎓 Educational             |
|                                  | ✳ Religious               |
|                                  | 🏠 Other                   |

Consequences within the AOI		
Estimated AOI population	18562 Inhabitants	
Affected assets	10 Building blocks	
Residential	10	Educational 0
Industrial	0	Medical 0
Commercial	0	Recreational 0
Institutional	0	Religious 0
Multi-Functional	0	Transportation 0
Other	0	Military 0

**Map Information**  
A strong earthquake has affected large parts of northern Italy, causing at least seven deaths and seriously damaging historic buildings such as churches, bell towers and a medieval castle. The 6.0-magnitude earthquake occurred just after 4:04 a.m. on 20/05/2012, about 35km (22 miles) north-northwest of Bologna (4 kilometers outside Comasoto), at a relatively shallow depth of 10 km. A series of strong aftershocks hit the area, the strongest measuring 5.1-magnitude (Source: BBC).  
The core users of the map are Civil Protection authorities involved in operations in the field. The aim of the map production is to support the emergency response activities.

**Data Sources**  
Airborne imagery © 2012 Courtesy of Blom CGR (acquired 23/05/2012, 0% cloudy, 0.07m resolution).  
WorldView-2 © DigitalGlobe (acquired 25/05/2012, 20% cloudy, 0.5m resolution).  
LandScan © UT BATELLE, LLC, 2010.  
Base vector layers based on Openstreetmap and Wikimapia refined by ITHACA.  
All Data sources are complete and with no gaps.

**Dissemination/Publication**  
No restrictions on the publication of the mapping apply.  
Delivery formats are GeoTIFF, GeoPDF, GeoJPEG and vectors (shapefile and KML formats).

**Framework**  
The products elaborated for this rapid mapping have been realized to the best of our ability, within a very short time frame during a crisis, optimizing the available data and information. All geographic information has limitations due to scale, resolution, date and interpretation of the original data sources. The products are compliant with GIC-EMS RUSH Product Portfolio specifications.

**Map production**  
The present map shows a building damage assessment in the area of Bondeno, ITALY, based on visual interpretation of post-event aerial imagery acquired on May, 23rd 2012 (spatial resolution 0.07m) in the detailed area, and of post-event satellite imagery acquired on May, 25th 2012 (spatial resolution 0.5m) out this area. Damage classes are assigned to building blocks according to the percentage of affected buildings versus the total number of buildings in the building block, specifically: not affected (0-5%), moderately affected (5-50%), highly affected (> 50%).  
Post-event aerial images have been rectified using GCPs collected on the 2012 WorldView-2 satellite orthoimage, itself rectified due to AGEA imagery (0.5m resolution, acquired in 2011). The estimated geometric accuracy of this product is 5m CE90 or better, from native positional accuracy of the background orthoimage.  
The estimated thematic accuracy of this product is 60% or better, as it is based on visual interpretation of recognizable items on very high resolution aerial and satellite imagery.  
Map produced on 26/05/2012 by SIRS under contract 257219 with the European Commission. All products are © of the European Commission.  
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