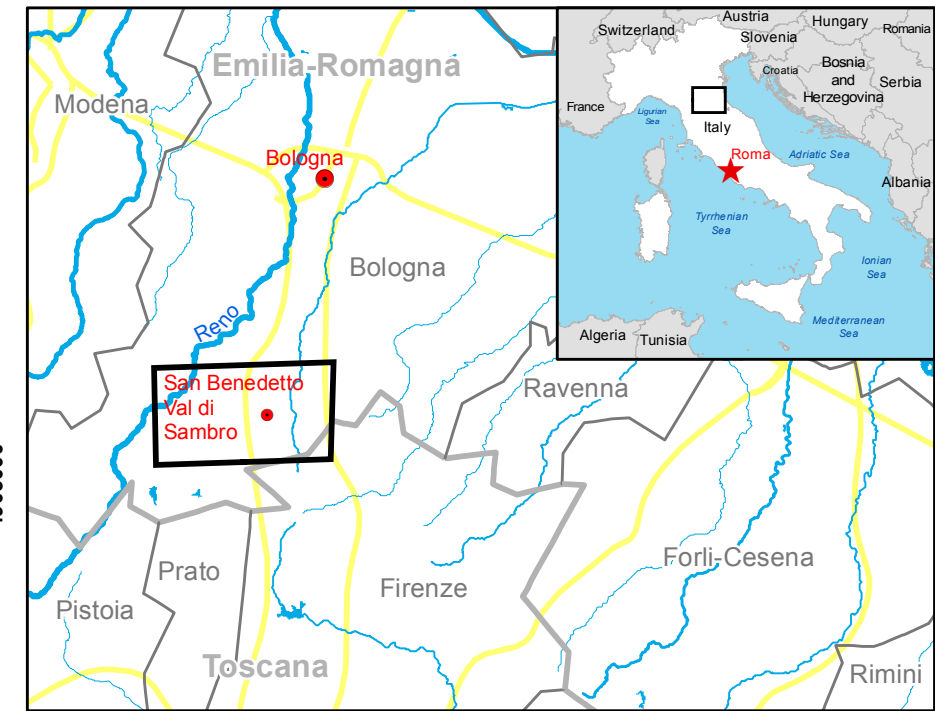


GLIDE number: N/A      Activation ID: EMSR-037  
Product N.: 02SanBenedettoValdiSambro, v1

**San Benedetto Val di Sambro (BO) - ITALY**  
**Landslide - 11/04/2013**  
 Grading Map - Overview  
**RESTRICTED USE**

Production date: 19/04/2013



### Cartographic Information




























1:40000

Full color ISO A1, medium resolution (200 dpi)



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

### Legend

| Crisis Information  | General Information  | Point of Interest  | Transportation  |
|---|--|--|---|
| <p> Landscape (16/04/2013)</p> <p><b>Asset grading</b></p> <p> Completely destroyed</p> <p> Highly affected</p> <p> Moderately affected</p> <p> Completely destroyed</p> <p> Highly affected</p> <p> Moderately affected</p> | <p> Area of Interest</p> <p> WorldView-2 (18/04/2013 10:58)</p> <p> Lower Accuracy (Shadow)</p> <p> <a href="#">Download Data</a></p> <p><b>Hydrology</b></p> <p> River</p> <p> Stream</p> <p> Lake</p> | <p> Institutional</p> <p> Medical</p> <p> Religious</p> <p> Cemetery</p> <p><b>Physiography</b></p> <p> Contour Lines and Elevation (m)</p> | <p> Station</p> <p> Bridge</p> <p> Railway</p> <p> Motorway</p> <p> Primary Road</p> <p> Secondary Road</p> <p> Local Road</p> <p> Tunnel</p> |

|                                       | Consequences within the Overview Area of Interest |
|---------------------------------------|---|
| Potentially Affected Population       | < 5 inhabitants                                   |
| Landside Affected Area                | 76.4 ha   |
| Completely Destroyed Residential Area | 0.08 ha   |
| Highly Affected Residential Area      | 0.87 ha   |
| Moderately Affected Residential Area  | 0.57 ha   |
| Destroyed Secondary Road              | 0.09 km   |
| Damaged Secondary Road                | 0.14 km   |
| Destroyed Local Road                  | 1.04 km   |
| Damaged Local Road                    | 0.56 km   |

### Map Information

Following the extraordinary heavy rains of the last weeks in the Emilia-Romagna region, several landslides occurred. The landslides are spread throughout the region. A synthetic description of the situation is the following:

- 1400 landslide events till now; more are likely to occur;
- 60 people evacuated;
- 100-150 municipalities affected, spread over 11.000 km<sup>2</sup>.

The worst affected areas include the municipalities of Capriglio, Sinalunga and Boschetto (Parma) and Vigna Poma (Ravenna) and the area of Salsomaggiore (Bologna).

The users of the map are Civil Protection authorities involved in field operations. The purpose of the map product is the support of emergency response activities.

## Data Sources

Input maps based on: Administrative boundaries (JRC 2013, GISCO 2010, © EuroGeographics), Hydrology (CCMC 2007 © JRC), Transportation (Natural Earth, © Settlements (OpenStreetMap, 2013)).  
 Data for the 15/04/2013 on 18/04/2013 10:58 UTC, GSD 0.5 m, approx 14% cloud coverage, 27.5 °off-nadir angle.  
 Background imagery © courtesy of Agema (acquired in 2014, GSD 0.8 m, approx cloud coverage).  
 Base vector layers based on: Regione Emilia-Romagna datasets (settlements, hydrology, roads, railways, administrative boundaries) on 15/04/2013, Geoplane Nazionale (transportation and hydrology, <http://wms.pn.minambiente.it/IGN>, approx. 1:15,000, extracted on 17/04/2013), OpenStreetMap and Geonames (approx. 1:110,000, extracted on 15/04/2013), OpenStreetMap and Geonames (approx. 1:110,000, extracted on 15/04/2013).  
 Population estimates based on Landsat 2011 ON UO BATTELLE, LLC.  
 Elevation Data: EU-DEM (25 m post processing).  
 All data sources are complete with no gaps.

### Dissemination/Publication

**RESTRICTED USE.**  
Delivery formats are GeoTIFF, GeoPDF, GeoJPEG and vectors (shapefile and KML formats).

## Framework

The products elaborated in the framework of current mapping in rush mode activation are realized to the best of our ability, within a very short time frame during a crisis, optimising 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 GIO-EMS RUSH Product Portfolio specifications.

### Map Production

The present map shows the delineation of the landslide affecting the area of San Benedetto Val di Sambro (Bologna), derived by means of visual interpretation of post-event WorldView-2 © DigitalGlobe (acquired on 18/04/2013) GSD 0.58 m, approx 2% cloud coverage, 275° off-nadir (small angle). The best topographic features have been derived from public literature, refined by means of visual interpretation. The present aerial orthorectified S-2013 courtesy of AGF (acquired in 2010, GSD 0.5 m, 0% cloud coverage).

Post-event satellite imagery has been radiometrically enhanced and ortho-projected with the UTM approach (using EU-DEM elevation data).

The estimated geometric accuracy of this product is 5 m CENSO or better, from native positional accuracy of the background aerial orthorectified.

The estimated thematic accuracy of this product is 85% or better, as it is based on visual interpretation of recognizable items on very high resolution optical imagery (detecting changes related to the landslide). Areas not included in the map, are zones of lower interpretation accuracy due to the poorer image radiometry.

Map produced on 19/04/2013 by ITACA under contract 257219 by the European Commission. All products are © of the European Commission.

Name of the release inspector (quality control): e-GEOS (ODO)

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