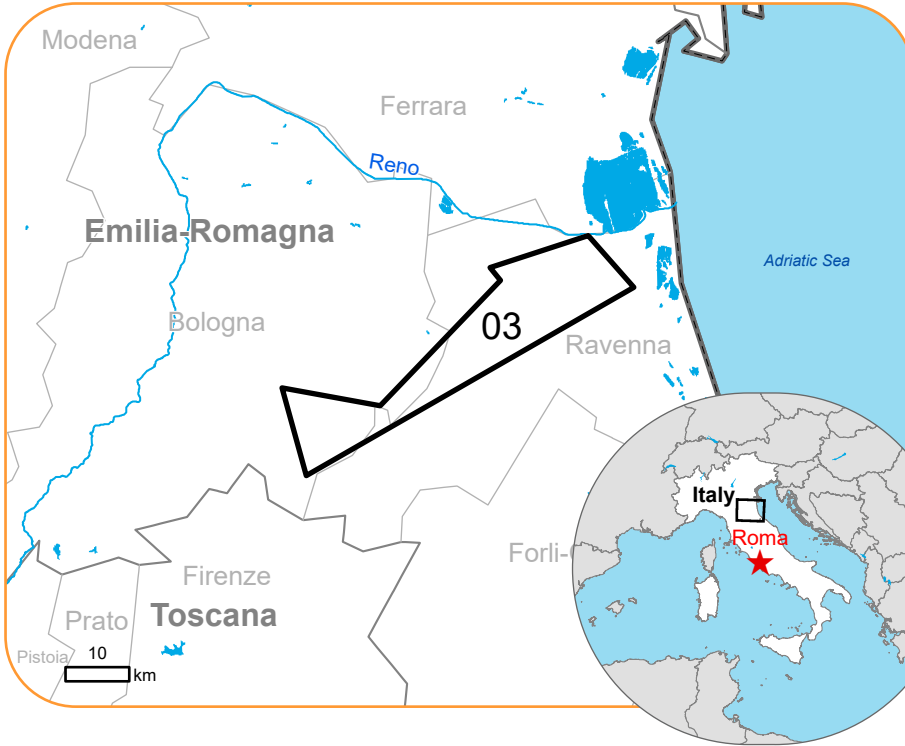




EMSR762 - AOI03  
Flood in Italy  
CASTEL BOLOGNESE

Situation as of 19/09/2024 17:04 UTC

Delineation - Overview map 01



Flooded area  
1,094.0 ha



Potentially affected  
population  
~ 300

Potentially Affected Built-up and Transportations



Road  
23.6 km



Railway  
1.4 km



Built-Up  
0.2 ha

Estimated flood depth (m)

- Below 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 4.00
- 4.00 - 6.00

General Information

Area of Interest

Detail map

Image Footprint

Not Analysed

Administrative Boundaries

Province

Municipality

Placenames

Placename

Built-Up Area

Residential

Non residential

School, university and  
research buildings

Hospital or institutional  
care buildings

Hydrography

Lake, River

Transportation

Airfield

Helipad

**Event** Since the early hours of 18 September, intense rainfall has affected the Emilia-Romagna region in Italy. Heavy rain has already caused the raising of several rivers in the central-southern part of the region (Bologna, Ravenna and Forlì-Cesena provinces), and some of them have already reached the red level (maximum level of alert). Heavy precipitation is expected to continue in the coming hours. In addition, expected winds from the northeast could cause difficulties for river runoff into the sea. Heavy rain could also trigger extensive landslides in the mountains and the fast-rising of rivers in the valley. The national early warning system has issued a red and orange alert for in a large part of the Region.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2024) (acquired on 30/08/2024 at 10:18 UTC, resolution 10 m). This image is used as background image. Post-event image: RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2024) (acquired on 19/09/2024 at 17:04 UTC, resolution 5 m). All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban and forested areas due to inherent limitations of the SAR analysis technique.

The flood depth information is based on the analysis of post-event satellite imagery and on Digital Elevation Model data. The flooded area corresponds to the water observed in the most recent satellite imagery, excluding the permanent water.

Map produced by GAF AG released by SERTIT on the 20/09/2024.

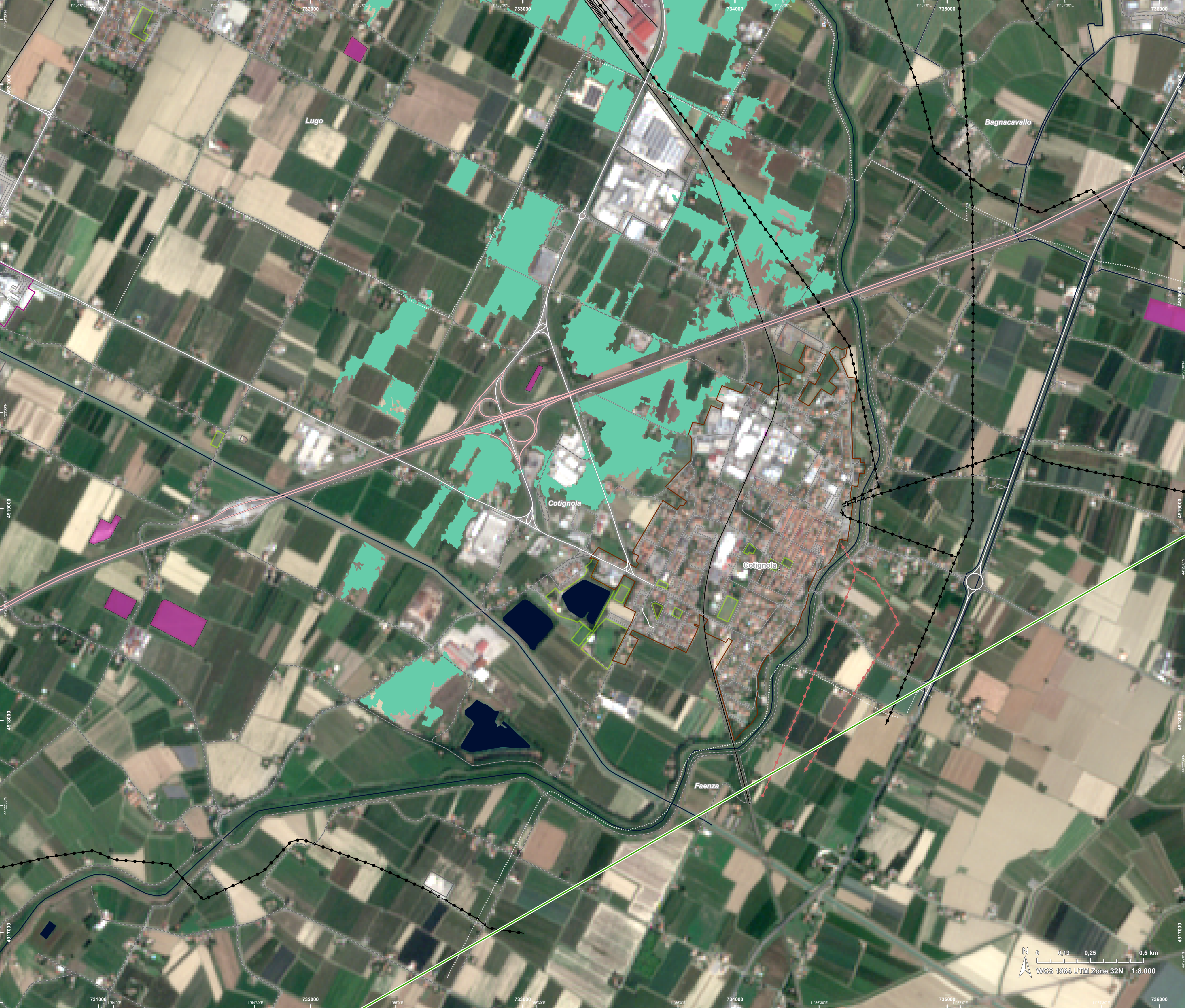
Details on this activation and service conditions available through the QR code or at the link: <https://rapidmapping.emergency.copernicus.eu/EMSR762>



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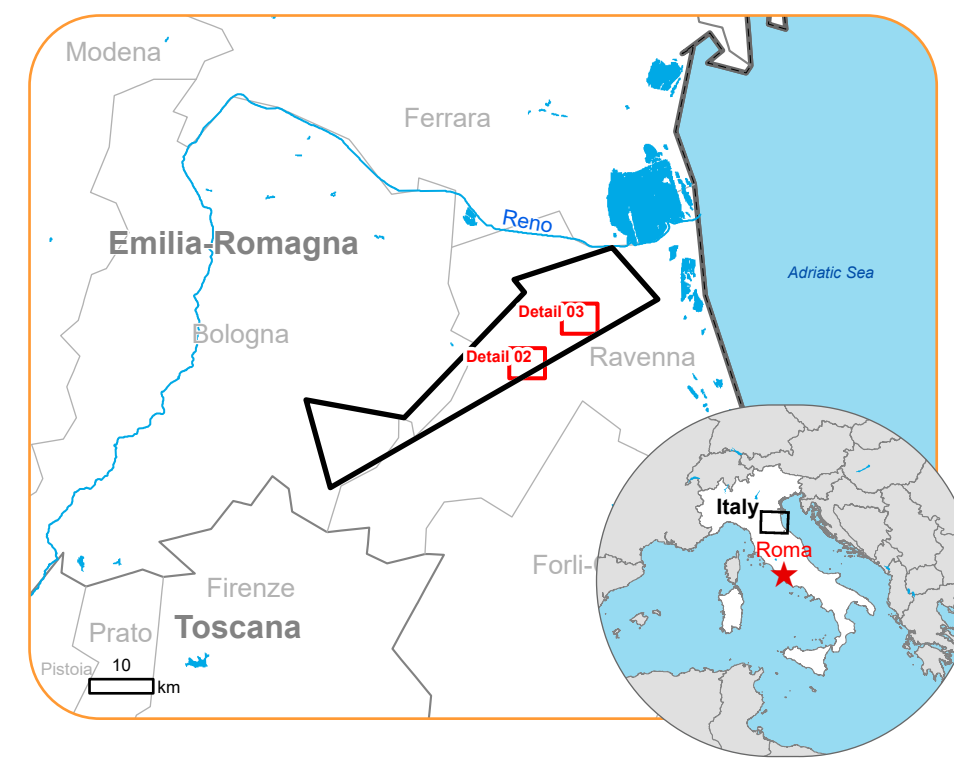
EMSR762 - AOI03

Flood in Italy

CASTEL BOLOGNESE

Situation as of 19/09/2024 17:04 UTC

Delineation - Detail map 02



- Estimated flood depth (m)

Below 0.50

1.00 - 2.00

General Information

Area of Interest

Administrative Boundaries

Municipality

Placenames

Placename

Built-Up Area

Residential
- Non residential

Hospital or institutional care buildings
- Hydrography

Lake, River
- Facilities

Long-distance pipelines or lines

Local pipelines or lines

Power plant

Sport and recreation constructions

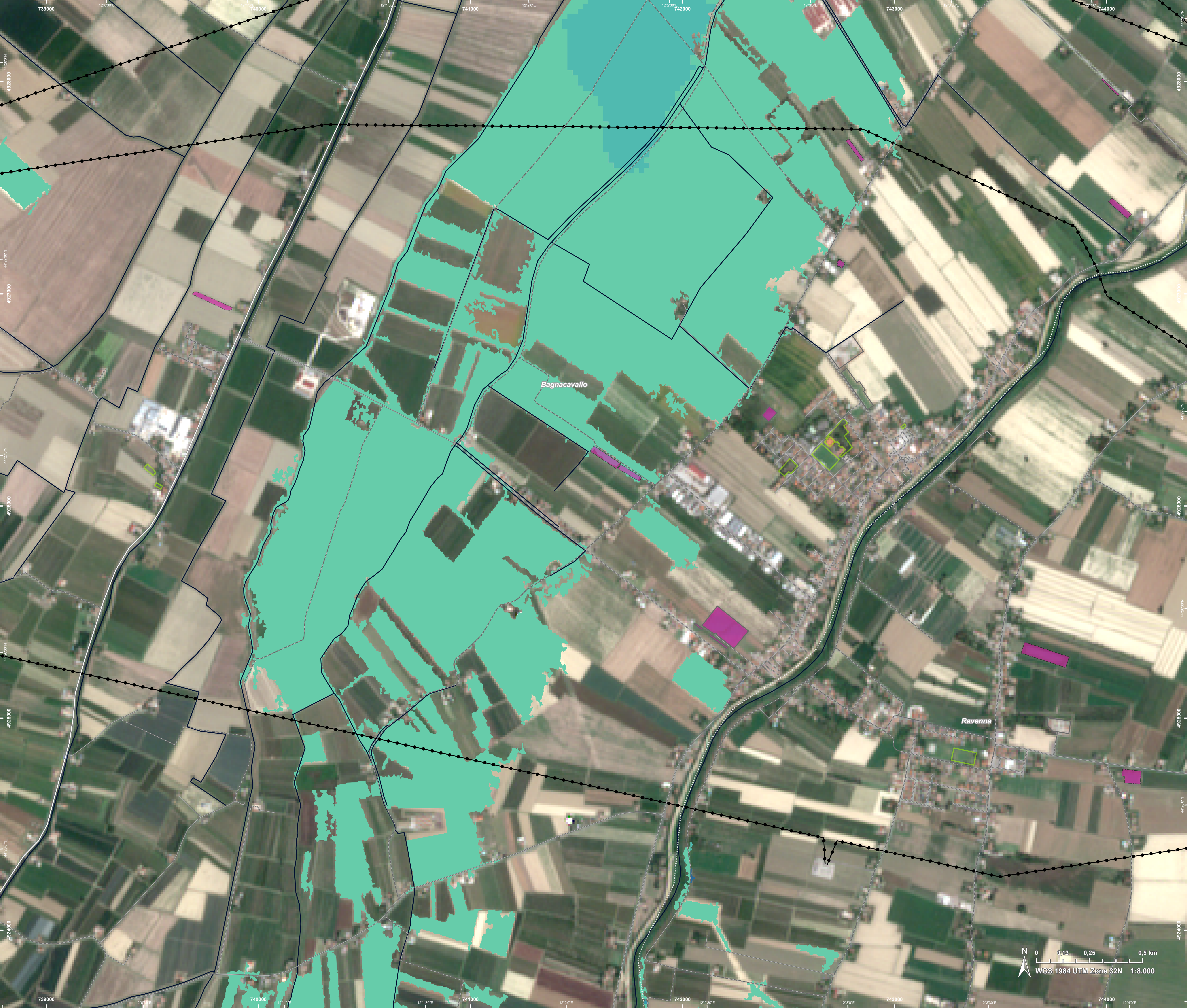
**Event** Since the early hours of 18 September, intense rainfall has affected the Emilia-Romagna region in Italy. Heavy rain has already caused the raising of several rivers in the central-southern part of the region (Bologna, Ravenna and Forlì-Cesena provinces), and some of them have already reached the red level (maximum level of alert). Heavy precipitation is expected to continue in the coming hours. In addition, expected winds from the northeast could cause difficulties for river runoff into the sea. Heavy rain could also trigger extensive landslides in the mountains and the fast-rising of rivers in the valley. The national early warning system has issued a red and orange alert for in a large part of the Region.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2024) (acquired on 30/08/2024 at 10:18 UTC, resolution 10 m). This image is used as background image. Post-event image: RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2024) (acquired on 19/09/2024 at 17:04 UTC, resolution 5 m). All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban and forested areas due to inherent limitations of the SAR analysis technique.

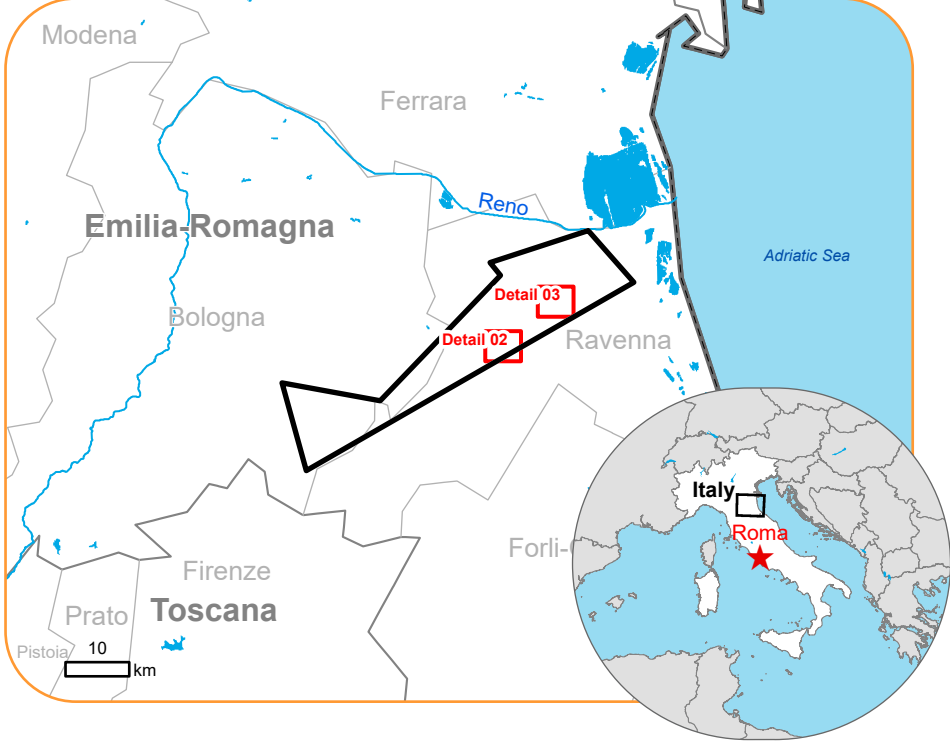
The flood depth information is based on the analysis of post-event satellite imagery and on Digital Elevation Model data. The flooded area corresponds to the water observed in the most recent satellite imagery, excluding the permanent water.





**EMSR762 - AOI03**  
**Flood in Italy**  
**CASTEL BOLOGNESE**

**Situation as of 19/09/2024 17:04 UTC**  
Delineation - Detail map 03



- Estimated flood depth (m)**

  - Below 0.50
  - 0.50 - 1.00
  - 1.00 - 2.00
  - 2.00 - 4.00

**General Information**

  - Area of Interest

**Administrative Boundaries**

  - Municipality

**Built-Up Area**

  - Non residential
- Facilities**

  - Long-distance pipelines or lines
  - Power plant
  - Sport and recreation constructions

**Transportation**

  - Main road
  - Local road
  - Track

**Event** Since the early hours of 18 September, intense rainfall has affected the Emilia-Romagna region in Italy. Heavy rain has already caused the raising of several rivers in the central-southern part of the region (Bologna, Ravenna and Forlì-Cesena provinces), and some of them have already reached the red level (maximum level of alert). Heavy precipitation is expected to continue in the coming hours. In addition, expected winds from the northeast could cause difficulties for river runoff into the sea. Heavy rain could also trigger extensive landslides in the mountains and the fast-rising of rivers in the valley. The national early warning system has issued a red and orange alert for in a large part of the Region.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2024) (acquired on 30/08/2024 at 10:18 UTC, resolution 10 m). This image is used as background image. Post-event image: RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2024) (acquired on 19/09/2024 at 17:04 UTC, resolution 5 m). All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban and forested areas due to inherent limitations of the SAR analysis technique.

The flood depth information is based on the analysis of post-event satellite imagery and on Digital Elevation Model data. The flooded area corresponds to the water observed in the most recent satellite imagery, excluding the permanent water.



Consequences within the AOI				
	Unit of measurement		Affected	Total in AOI
Flooded area	ha			1.094,0
Estimated population	Number of inhabitants		~ 300	~ 100.000
Built-up	Residential Buildings	ha	0,1	1.316,7
	Wholesale and retail trade buildings	ha	0	8,1
	Industrial buildings	ha	0,1	631,6
	School, university and research buildings	ha	0	9,6
	Hospital or institutional care buildings	ha	0	11,2
	Cemetery	ha	0,01	28,2
Transportation	Airfield runways	ha	0	43,0
	Helipad	ha	0	0,04
	Airfield runways	km	0	1,7
	Highways	km	0,1	59,1
	Primary Road	km	0	59,8
	Secondary Road	km	0,5	89,8
	Local Road	km	5,4	726,4
	Cart Track	km	17,6	1.164,3
	Long-distance railways	km	1,4	71,7
Facilities	Settling Basin	ha	0	8,7
	Constructions for mining or extraction	ha	0,5	109,1
	Power plant constructions	ha	0,7	146,9
	Sport and recreation constructions	ha	0	228,6
	Other civil engineering works not elsewhere classified	ha	0	2,0
	Long-distance pipelines, communication and electricity lines	km	6,5	186,3
	Local pipelines and cables	km	0	6,2
Land use	Arable land	ha	722,2	17.710,5
	Heterogeneous agricultural areas	ha	332,2	26.777,0
	Permanent crops	ha	32,7	1.608,4
	Other	ha	7,0	2.833,7
	Forests	ha	0	1.432,0
	Shrub and/or herbaceous vegetation association	ha	0	2.259,1
	Open spaces with little or no vegetation	ha	0	413,4

**Disclaimer:**

Full disclaimer and other helpful information available in the online manual:  
<https://emergency.copernicus.eu/mapping/ems/online-manual-rapid-mapping-products>  
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**Data Access:**

All data displayed on the map(s), as well as the Physiography and Land Use - Land Cover layers, are available in the Crisis Information Package and the Base Layer Package (for reference data). The table above is available in editable format in the Crisis Information Package. All products and data are also available for download on the portal.

Access to the portal

**Estimated Population:**

Estimated population is based on Copernicus Global Human Settlement Layer (GHSL) dataset. Additional population datasets and analysis are available in the summary table.

**Data Sources:**

Base Vector Layers: OpenStreetMap © OpenStreetMap contributors (2024), Wikimapia.org, GeoNames 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 ©EuroGeographics.  
 Inset Maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.  
 Digital Elevation Model: FABDEM (ForestAndBuildingsremovedCopernicusDEM) removes building and tree height biases from the Copernicus GLO 30 Digital Elevation Model (DEM) (Airbus,2020).



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