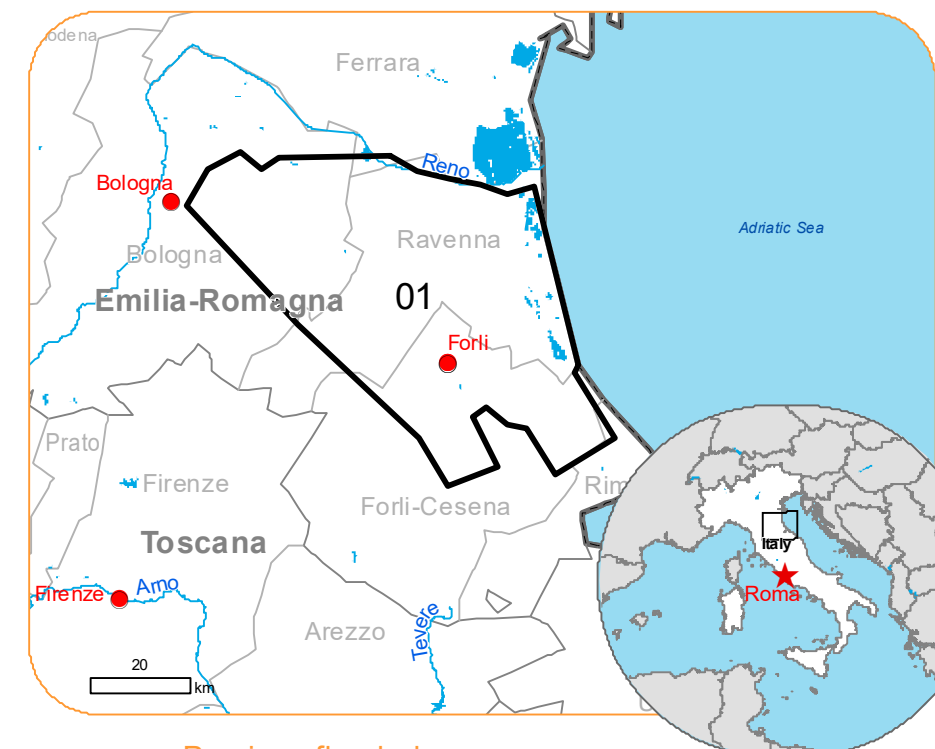




Situation as of 20/05/2023 05:19 UTC  
Delineation MONIT02 - Overview map 01



Previous flooded area  
11,212.4 ha  
Flooded area  
8,773.6

Potentially affected population  
~ 1300

Potentially Affected Built-up and Transportations

Built-Up  
18.4 ha

Road  
106.1 km

Airport  
0.2 km  
1.4 ha

**Crisis Information**

- Flooded Area
- Previous Flooded Area (18/05/2023 16:55 UTC)

**General Information**

- Area of Interest
- Detail map
- Image Footprint
- Not Analysed

**Administrative boundaries**

- Province
- Municipality

**Built-Up Area**

- Residential
- Non residential
- School, university and research buildings
- Hospital or institutional care buildings
- Military

**Hydrography**

- Coastline
- River
- Stream
- Lake
- Land Subject to Inundation
- Reservoir
- River

**Facilities**

- Long-distance pipelines or lines
- Local pipelines or lines
- Water or Aquatic
- Dam
- Mining or extraction site
- Water Well
- Power plant
- Sport and recreation constructions
- Dump Site
- Water or Aquatic
- Dam

**Transportation**

- Highway
- Main road
- Railway
- Airfield
- Helipad
- Water or Aquatic

All data displayed on the map(s), as well as the Land Use - Land Cover layer, is available in the Crisis Information Package and the Base Layer Package (for reference data). All products and data are also available for download on the activation webpage.

**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Volte, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPENICUS by the European Union and ESA, all rights reserved.

Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org, GeoNames 2015, Cover Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.

Population data: GHS Population Grid © European Commission, 2022  
https://ghs.jrc.ec.europa.eu/ghs\_pop2022.php  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

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 areas due to inherent limitations of the SAR analysis technique.

The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq.m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.

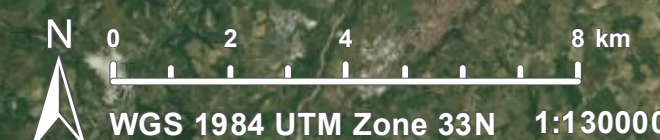
Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMS/R664>



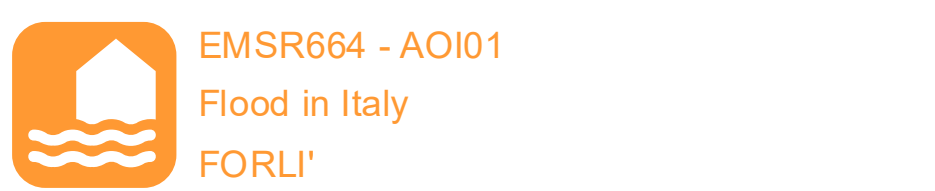
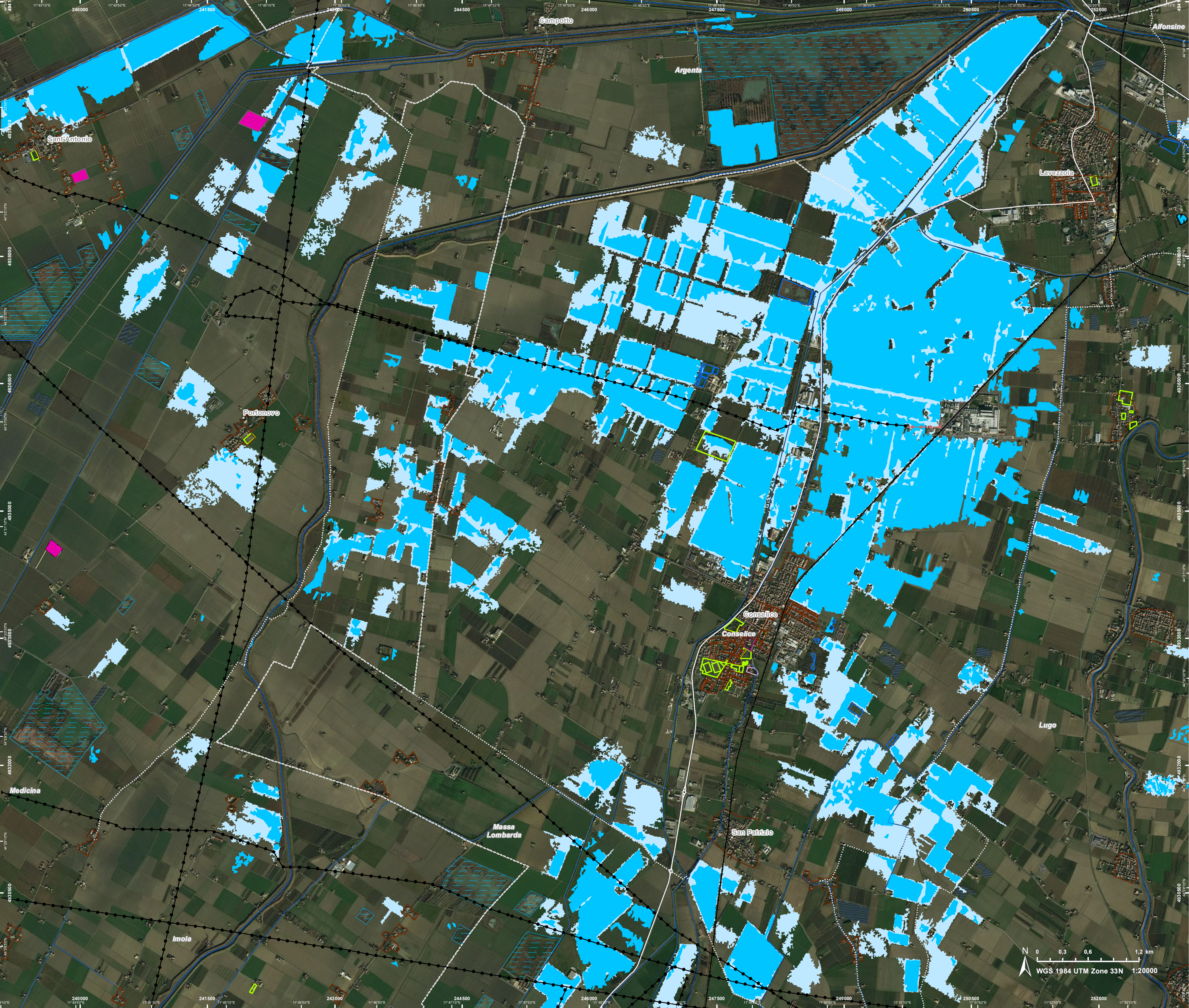
PROGRAMME OF THE  
EUROPEAN UNION



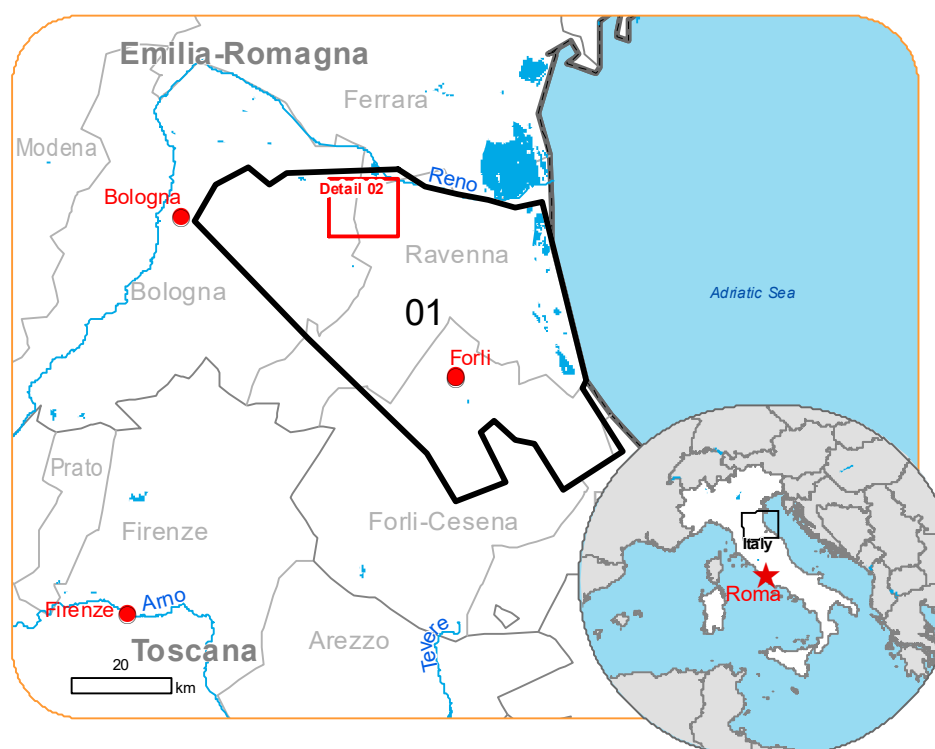
Copernicus  
European eyes on Earth



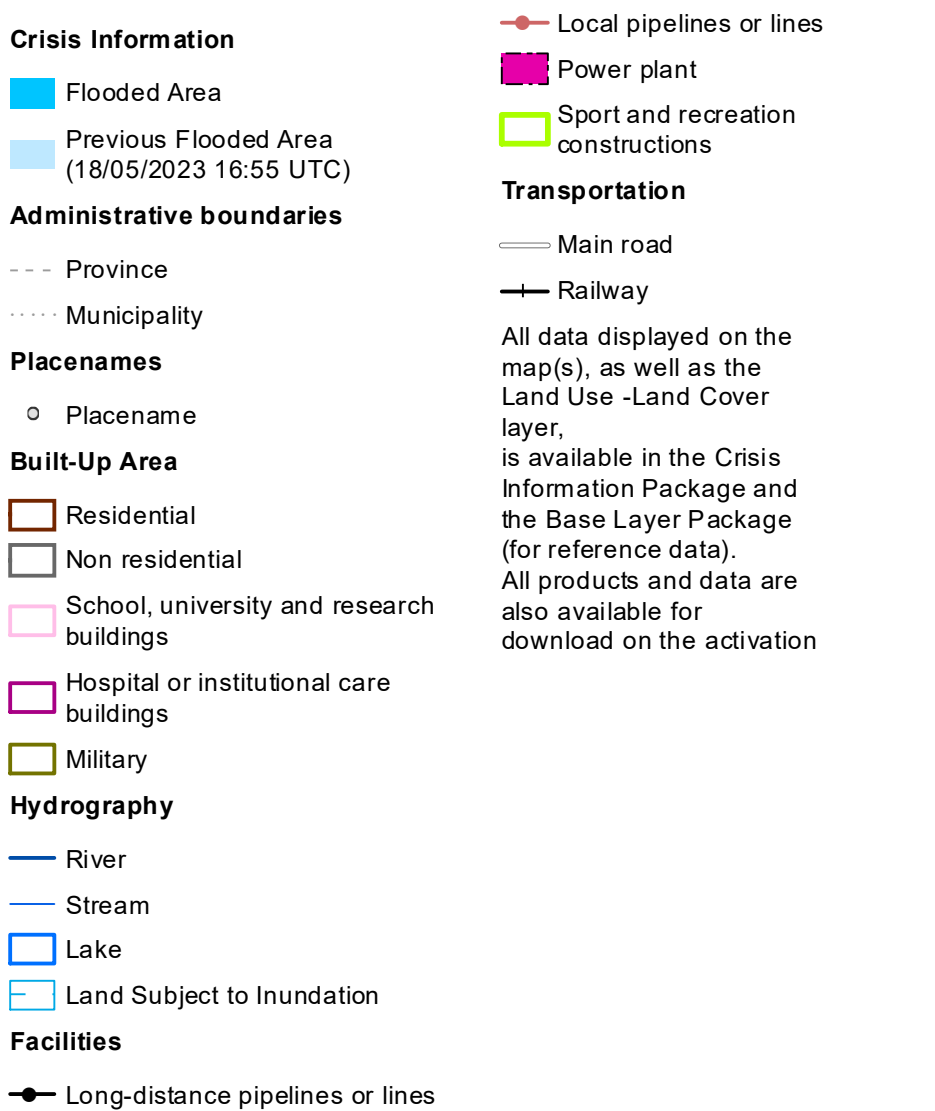




**Situation as of 20/05/2023 05:19 UTC**  
Delineation MONIT02 - Detail map 02



**Potentially Affected Built-up and Transportations**



**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Volte, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT-2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org, GeoNames, 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.

Population data: GHS Population Grid © European Commission, 2022  
[https://ghsl.jrc.ec.europa.eu/ghs\\_pop2022.php](https://ghsl.jrc.ec.europa.eu/ghs_pop2022.php)  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

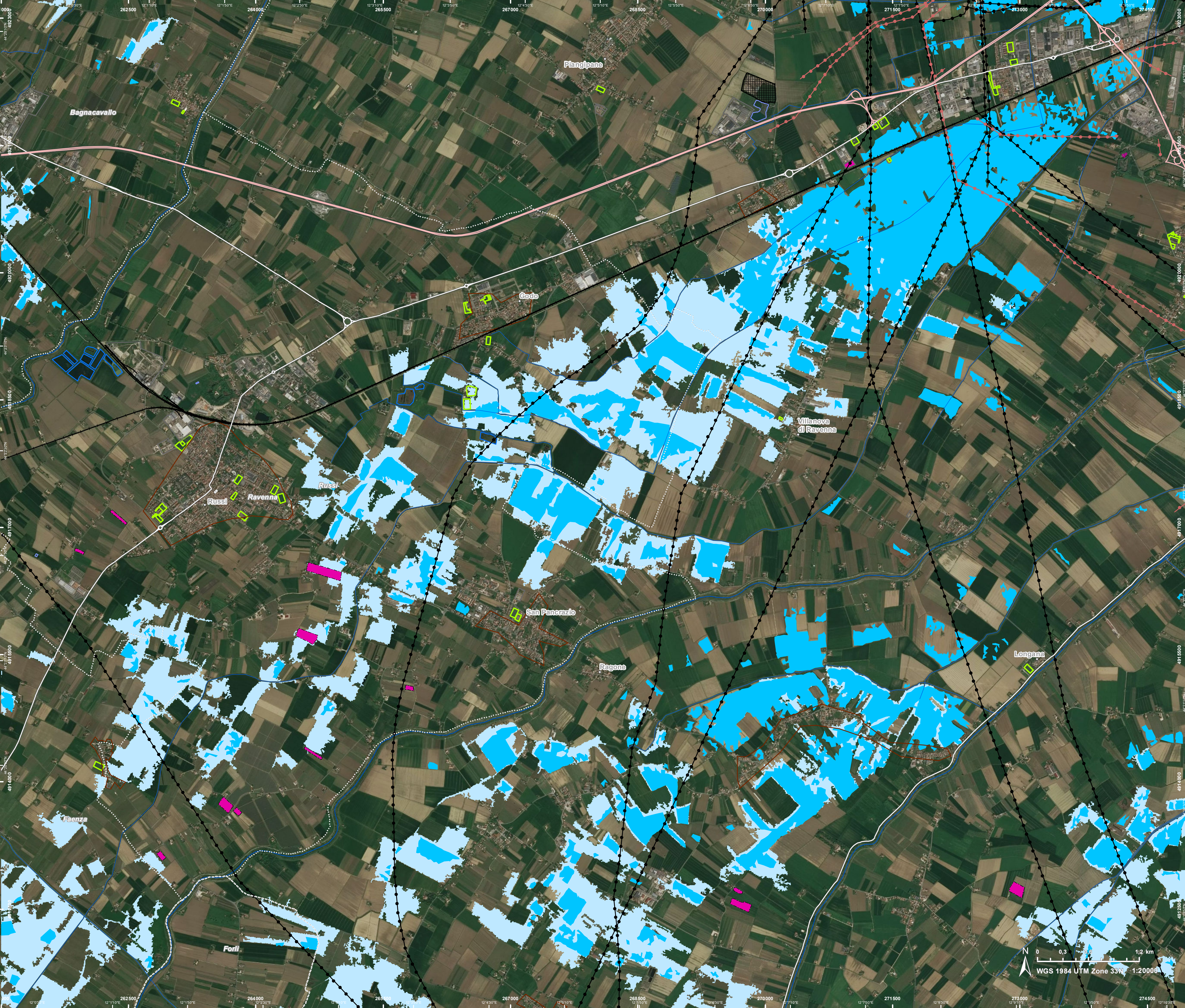
The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban areas due to inherent limitations of the SAR analysis technique).  
The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.

Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMS/R664>



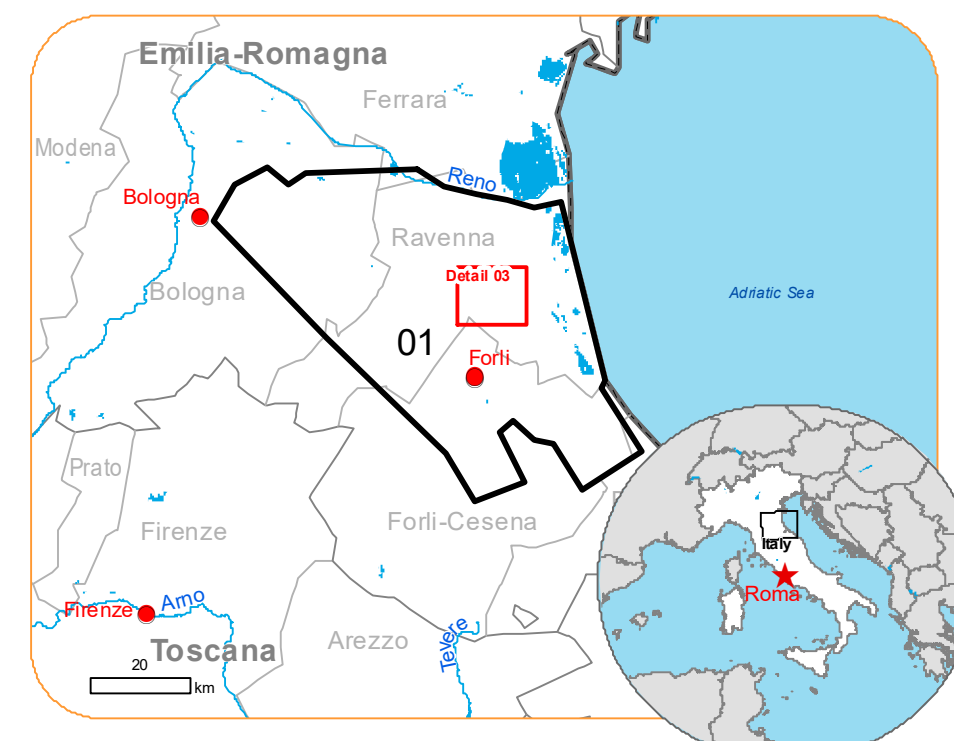






EMSR664 - AOI01  
Flood in Italy  
FORLI'

Situation as of 20/05/2023 05:19 UTC  
Delineation MONIT02 - Detail map 03






Previous flooded area  
2,111.9 ha  
18.8% of total in AOI  
Flooded area  
1,207.3 ha  
13.8% of total in AOI




Potentially affected population  
~ 350  
26.9% of total affected

Potentially Affected Built-up and Transportations



Built-Up  
4.4 ha  
23.9% of total affected



Road  
5.7 km  
5.4 % of total affected

**Crisis Information**

- Flooded Area
- Previous Flooded Area (18/05/2023 16:55 UTC)

**Administrative boundaries**

- Province
- Municipality

**Placenames**

- Placename

**Built-Up Area**

- Residential
- Non residential
- Hospital or institutional care buildings

**Hydrography**

- River
- Stream
- Lake
- Reservoir

**Facilities**

- Long-distance pipelines or lines
- Local pipelines or lines
- Mining or extraction site
- Power plant
- Sport and recreation constructions

**Transportation**

- Highway
- Main road
- Railway

All data displayed on the map(s), as well as the Land Use - Land Cover (CLC) 2018, is available in the Crisis Information Package and the Base Layer Package (for reference data).  
All products and data are also available for download on the activation webpage.

**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Volturno, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT-2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org © GeoNames 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.


Population data: GHS Population Grid © European Commission, 2022  
[https://ghs.jrc.ec.europa.eu/ghs\\_pop2022.php](https://ghs.jrc.ec.europa.eu/ghs_pop2022.php)  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

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 areas due to inherent limitations of the SAR analysis technique).

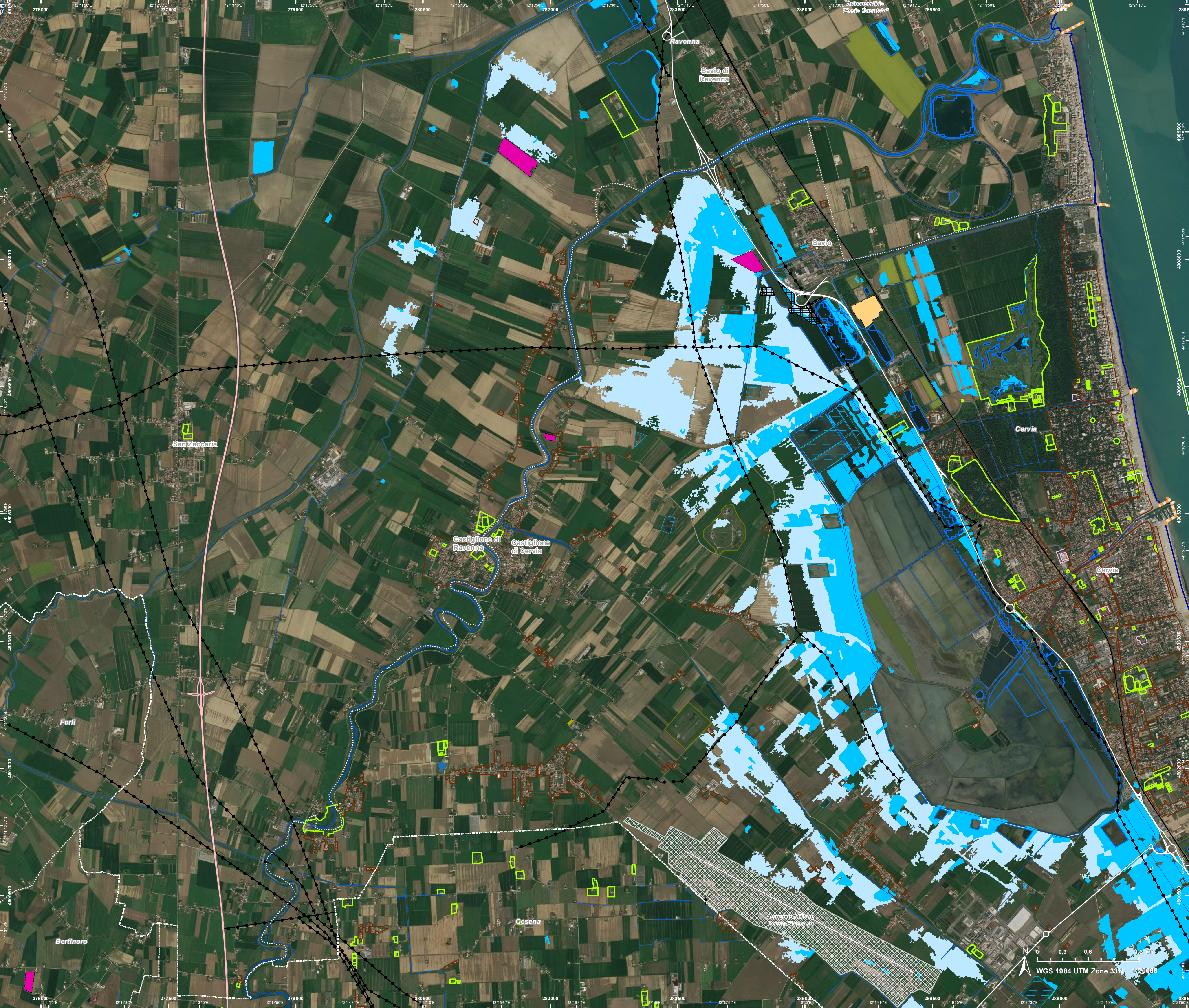
The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq.m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.

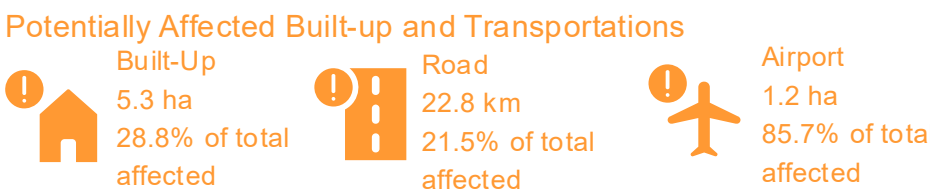
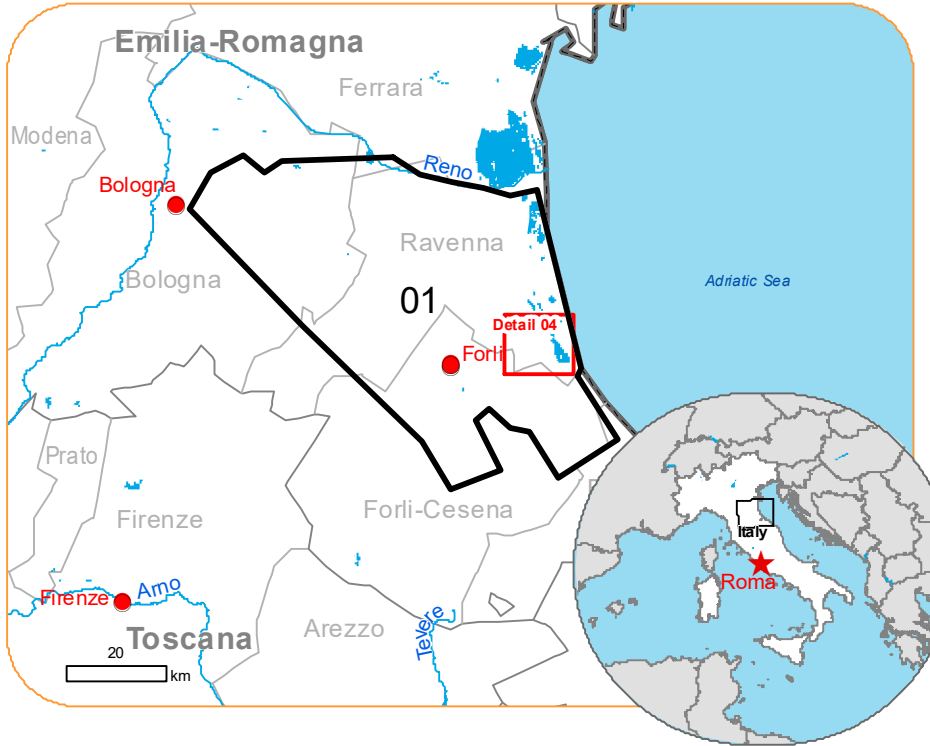
Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMSR664>







Situation as of 20/05/2023 05:19 UTC  
Delineation MONIT02 - Detail map 04



Crisis Information	Facilities
<div><div></div>Flooded Area</div> <div><div></div>Previous Flooded Area (18/05/2023 16:55 UTC)</div> <div><div></div>Area of Interest</div> <div><div></div>Administrative boundaries</div> <div><div></div>Province</div> <div><div></div>Municipality</div> <div><div></div>Placenames</div> <div><div></div>Placename</div> <div><div></div>Built-Up Area</div> <div><div></div>Residential</div> <div><div></div>Non residential</div> <div><div></div>School, university and research buildings</div> <div><div></div>Military</div> <div><div></div>Hydrography</div> <div><div></div>Coastline</div> <div><div></div>River</div> <div><div></div>Stream</div> <div><div></div>Lake</div> <div><div></div>Land Subject to Inundation</div> <div><div></div>Reservoir</div> <div><div></div>River</div>	<div><div></div>Long-distance pipelines or lines</div> <div><div></div>Water or Aquatic infrastructure</div> <div><div></div>Mining or extraction site</div> <div><div></div>Power plant</div> <div><div></div>Sport and recreation constructions</div> <div><div></div>Dump Site</div> <div><div></div>Water or Aquatic infrastructure</div> <div><div></div>Transportation</div> <div><div></div>Highway</div> <div><div></div>Main road</div> <div><div></div>Railway</div> <div><div></div>Airfield</div> <div><div></div>Helipad</div>

**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Voltre, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimaps.org, GeoNames 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.

Population data: GHS Population Grid © European Commission, 2022  
[https://ghsl.jrc.ec.europa.eu/ghs\\_pop2022.php](https://ghsl.jrc.ec.europa.eu/ghs_pop2022.php)  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

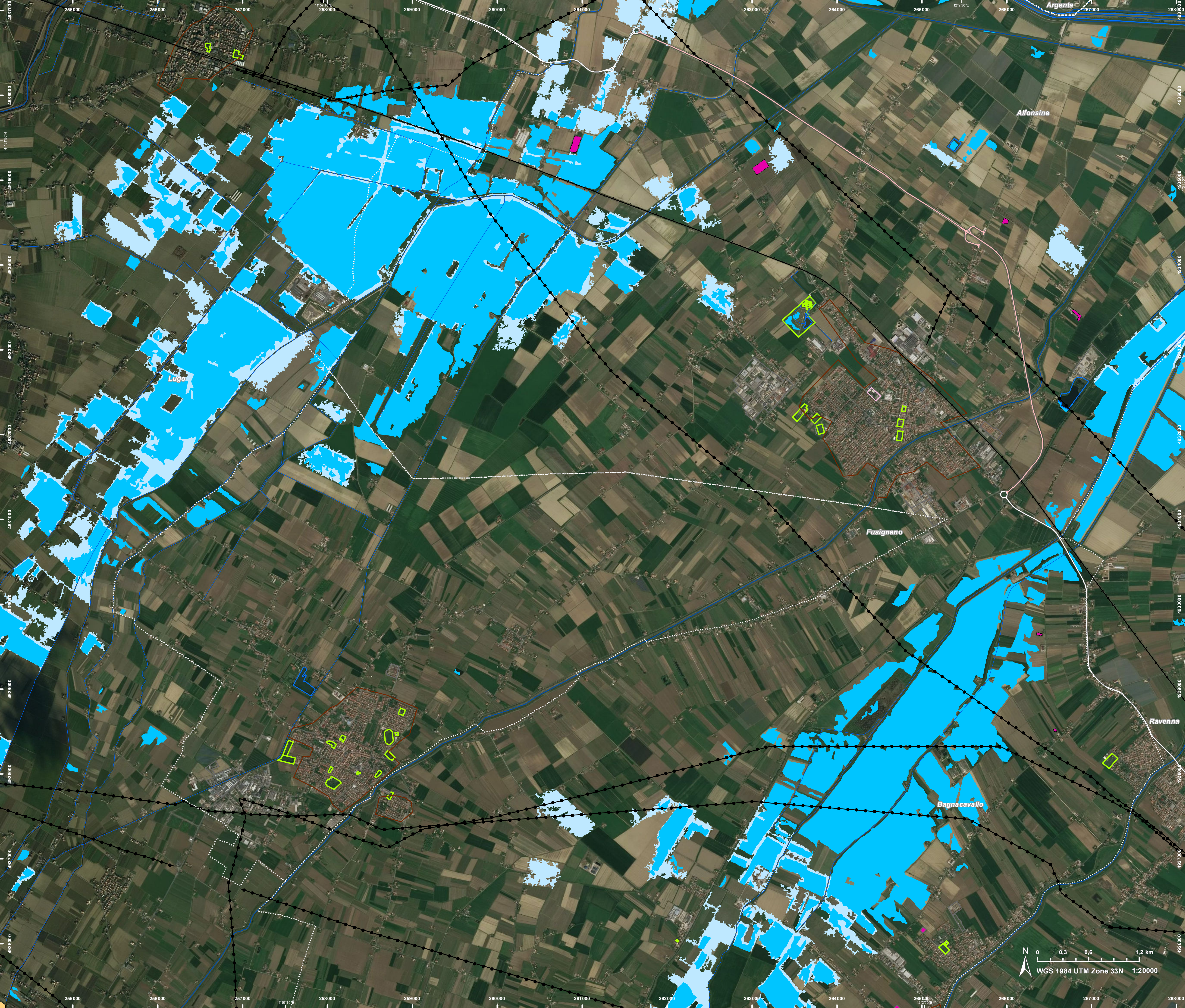
The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban areas due to inherent limitations of the SAR analysis technique).


The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.

Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMS/R664>

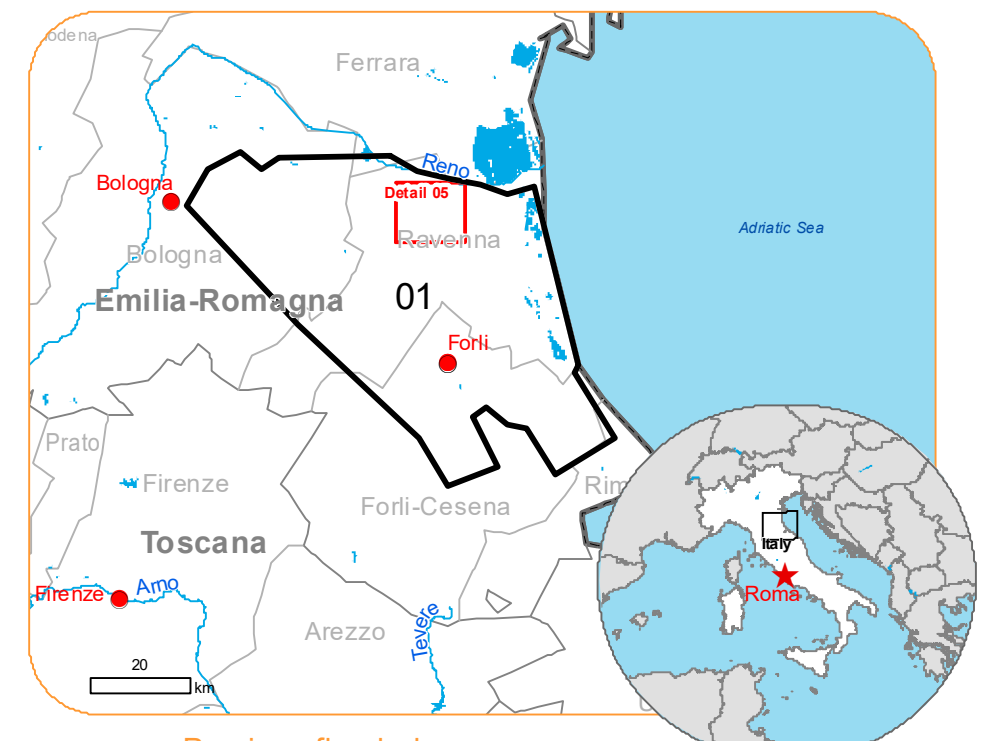






**EMSR664 - AOI01**  
Flood in Italy  
FORLI'

**Situation as of 20/05/2023 05:19 UTC**  
Delineation MONIT02 - Detail map 05






**Previous flooded area**  
1,649.7 ha  
14.6% of total in AOI  
**Flooded area**  
2,014.5 ha  
23.0% of total in AOI



**Potentially affected population**  
~ 200  
15.4% of total affected

**Potentially Affected Built-up and Transportations**



**Road**  
33.7 km  
31.7% of total affected

**Crisis Information**

- Flooded
- Previous Flooded Area (18/05/2023 16:55 UTC)

**Administrative**

- Province
- Municipality

**Built-Up**

- Residential
- Non residential
- School, university and research buildings

**Hydrography**

- River
- Stream
- Lake
- River

**Facilities**

- Long-distance pipelines or
- Power plant
- Sport and recreation
- Water or Aquatic

**Transportation**

- Highway
- Main road
- Railway

All data displayed on the map(s), as well as the Land Use - Land Cover layer, is available in the Crisis Information Package and the Base Layer Package (for reference data).  
All products and data are also available for download on the activation webpage.

**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Volte, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.


Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org, GeoNames 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.

Population data: GHS Population Grid © European Commission, 2022  
https://ghs.jrc.ec.europa.eu/ghs\_pop2022.php  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

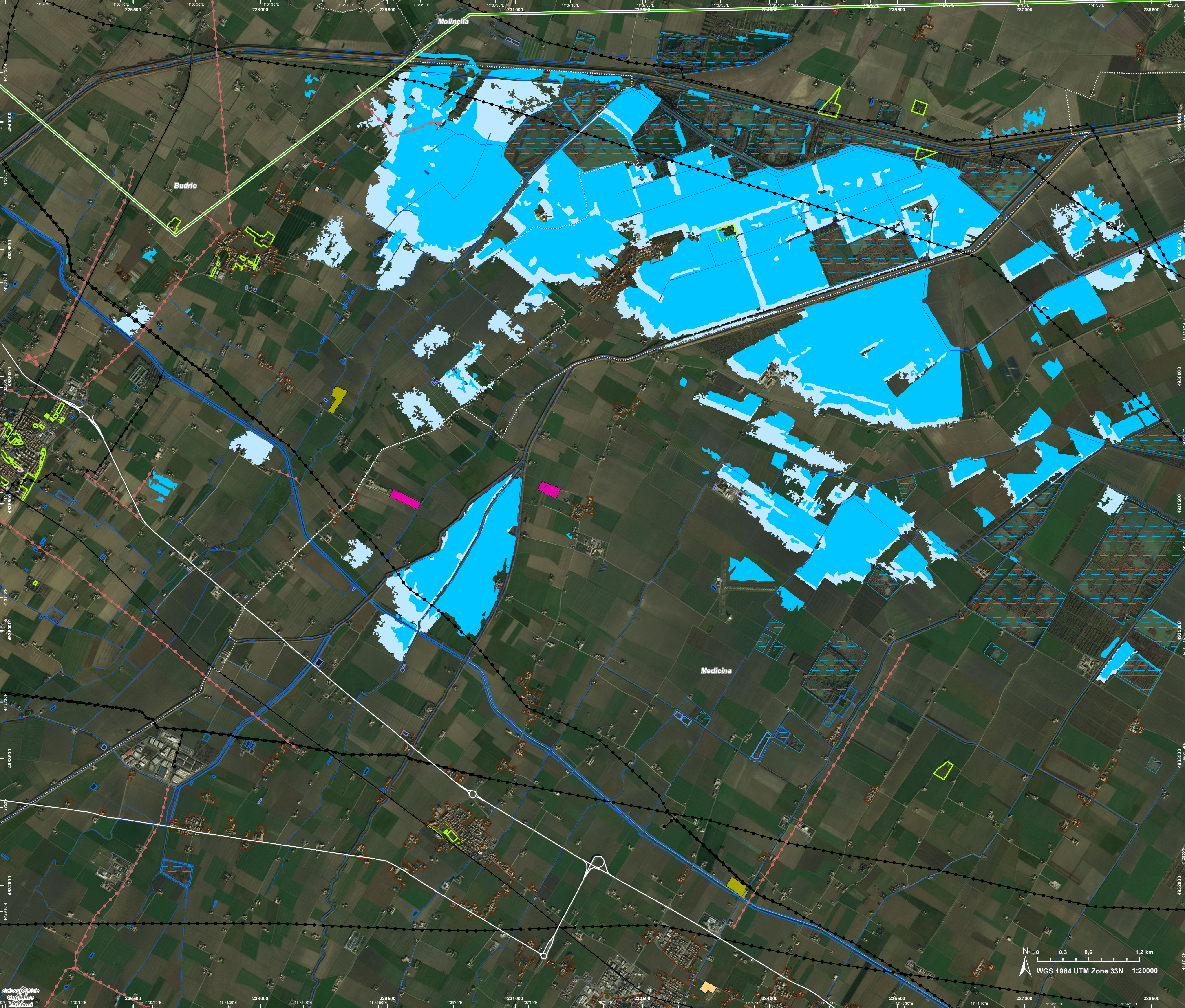
The thematic layer has been derived from post-event satellite image using a semi-automatic approach. Please be aware that the thematic accuracy might be lower in urban areas due to inherent limitations of the SAR analysis technique).

The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.  
Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMSR664>



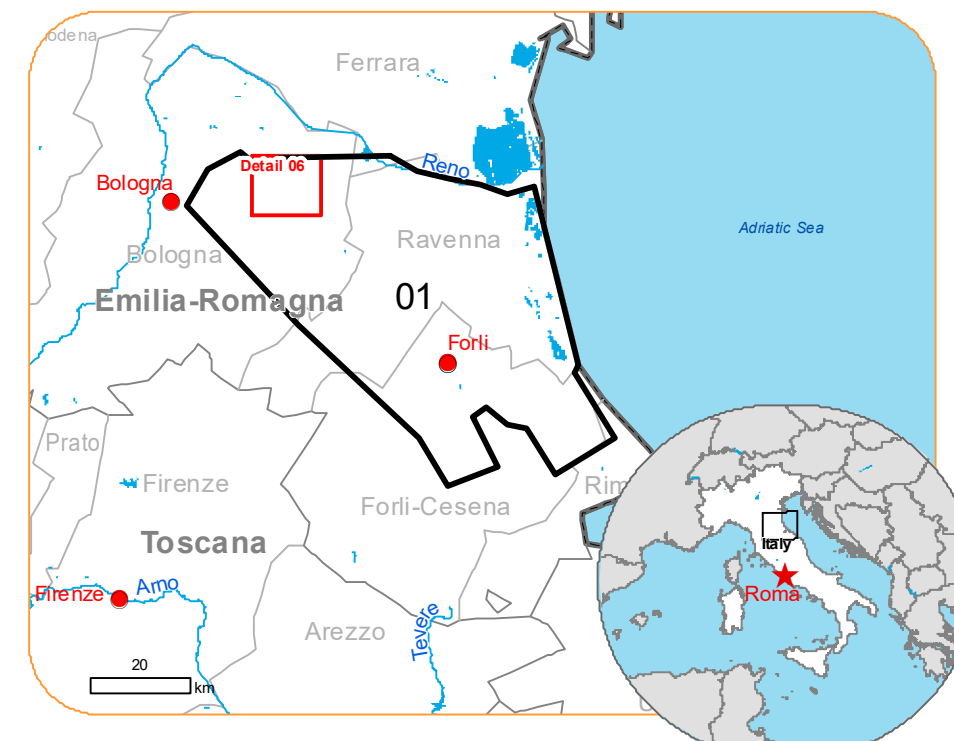






**EMSR664 - AOI01**  
Flood in Italy  
FORLI'

**Situation as of 20/05/2023 05:19 UTC**  
Delineation MONIT02 - Detail map 06







**Previous flooded area**  
1,859.6 ha  
16.6% of total in AOI



**Potentially affected population**  
~ 200  
15.4% of total affected



**Potentially Affected Built-up**  
0.9 ha  
4.9% of total affected



**Transportations**  
Road  
37.0 km  
34.8% of total affected

**Crisis Information**

- Flooded Area
- Previous Flooded Area (18/05/2023 16:55 UTC)

**General Information**

- Area of Interest

**Administrative boundaries**

- Municipality

**Built-Up Area**

- Residential
- Non residential
- School, university and research buildings
- Military

**Hydrography**

- River
- Stream
- Lake
- Land Subject to Inundation
- Reservoir

**Facilities**

- Long-distance pipelines or lines
- Local pipelines or lines
- Power plant
- Sport and recreation constructions
- Dump Site
- Water or Aquatic infrastructure

**Transportation**

- Main road
- Railway
- Airfield

All data displayed on the map(s), as well as the Land Use -Land Cover layer, is available in the Crisis Information Package and the Base Layer Package (for reference data). All products and data are also available for download on the

**Event:**  
A new wave of severe weather has hit again the areas in the south-eastern Emilia-Romagna region in Italy. The same area was faced with floods already on 2 May 2023, which resulted in three deadly victims. These rains also caused landslides in the areas of the middle Apennines, which have left hundred people displaced. On 16 May 2023, a new perturbation has raised river levels again. The hydrometric threshold was reached in the basins of the Idice, Samoggia, Savio, Marzeno, Voltre, Marecchia, Pisciatello, Ausa, and Montone rivers. New floods are expected in the areas as well as possible evacuations. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, flood and landslide extent identification and monitoring.

**Data sources and analysis:** Pre-event image: Sentinel-2A/B (2022) (acquired on 24/11/2022 at 10:13 UTC, resolution 10.0 m). This image is used as background image.  
Post-event image: PAZ satellite image © Hisdesat Servicios Estratégicos S.A., 2022 (acquired on 20/05/2023 at 05:19 UTC, resolution 8.0 m).  
RADARSAT 2 Data and products © MacDonald, Dettwiler and Associates Ltd. (2023) (acquired on 18/05/2023 at 16:55 UTC, resolution 3.0 m).  
All images are provided under COPERNICUS by the European Union and ESA, all rights reserved.

Base vector layers: OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org, GeoNames 2015, Corine Land Cover (CLC) 2018, EuroBoundaryMap 2017 © EuroGeographics, refined by the producer.  
Inset maps: JRC 2013, GISCO 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUJRC2007, GeoNames 2015.


Population data: GHS Population Grid © European Commission, 2022  
[https://ghsl.jrc.ec.europa.eu/ghs\\_pop2022.php](https://ghsl.jrc.ec.europa.eu/ghs_pop2022.php)  
Digital Elevation Model: SRTM (90 m) or (30 m) (NASA/USGS).

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 areas due to inherent limitations of the SAR analysis technique).

The scale of analysis is 1:25000. The estimated geometric accuracy (RMSE) is 16 m or better, from native positional accuracy of the background satellite image. The minimum mapping unit (MMU) is 1600 sq.m.

Map produced by ITHACA released by e-GEOS on the 21/05/2023.

Details on this activation and service conditions available through the QR code or at the link:  
<https://emergency.copernicus.eu/EMSR664>





**EMSR664 AOI: 01 Forli Delineation**

<b>Consequences within the AOI</b>				
		Unit of measurement	Affected	Total in AOI
Previous flooded area		ha		11,212.4
Flooded area		ha		8,773.6
Estimated population	Number of inhabitants		~ 1,300	~ 950,000
Built-up	Residential Buildings	ha	10.7	12,351.6
	Office buildings	ha	1.6	279.1
	Wholesale and retail trade buildings	ha	0.0	75.2
	Industrial buildings	ha	5.0	5,447.6
	School, university and research buildings	ha	0.0	163.3
	Hospital or institutional care buildings	ha	0.0	82.5
	Other non-residential buildings	ha	0.0	139.6
	Military	ha	1.2	356.2
	Cemetery	ha	0.0	202.2
Transportation	Airfield runways	ha	1.4	525.5
	Navigable canals	ha	0.0	7.8
	Helipad	ha	0.0	2.2
	Airfield runways	km	0.2	16.9
	Navigable canals	km	0.0	8.1
	Highways	km	0.1	484.8
	Primary Road	km	8.8	533.7
	Secondary Road	km	1.9	700.6
	Local Road	km	11.5	5,292.0
	Cart Track	km	82.7	6,576.7
	Railway Yard	km	0.0	1.3
	Long-distance railways	km	1.0	700.3
Facilities	Settling Basin	ha	0.0	74.2
	Dams	ha	0.0	0.0
	Constructions for mining or extraction	ha	6.2	394.1
	Power plant constructions	ha	0.7	314.3
	Sport and recreation constructions	ha	14.5	3,608.5
	Other civil engineering works not elsewhere classified	ha	0.0	213.3
	Long-distance pipelines, communication and electricity lines	km	45.6	1,386.4
	Local pipelines and cables	km	4.1	135.2
	Breakwater	km	0.0	2.2
	Dams	km	0.0	0.1
Land use	Arable land	ha	7,837.5	170,541.0
	Heterogeneous agricultural areas	ha	666.0	106,013.3
	Other	ha	89.6	27,297.3
	Inland wetlands	ha	65.0	2,054.9
	Permanent crops	ha	64.3	3,251.1
	Coastal wetlands	ha	42.4	2,400.9
	Forests	ha	8.5	5,798.3
	Shrub and/or herbaceous vegetation association	ha	2.1	2,783.2
	Pastures	ha	0.8	221.2
	Open spaces with little or no vegetation	ha	0.1	636.5

**Disclaimer:**

Full disclaimer and other helpful information available in the online manual:

<https://emergency.copernicus.eu/mapping/ems/online-manual-rapid-mapping-products>

© European Union / Copernicus Emergency Management Service



PROGRAMME OF THE  
EUROPEAN UNION

