

Exercise 1 - Reconstruction of the Pleistocene lower boundary in the Gela area (Sicily, Italy)

Objective:

Reconstruct the bottom of the Pleistocene (Gelasian Stage) in the Gela area (southern Sicily) through the stratigraphic correlation of deep onshore and offshore boreholes.

In the Gela area find and use the information contained in the following boreholes:

MENFI 001;

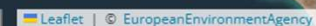
MARINELLA 003;

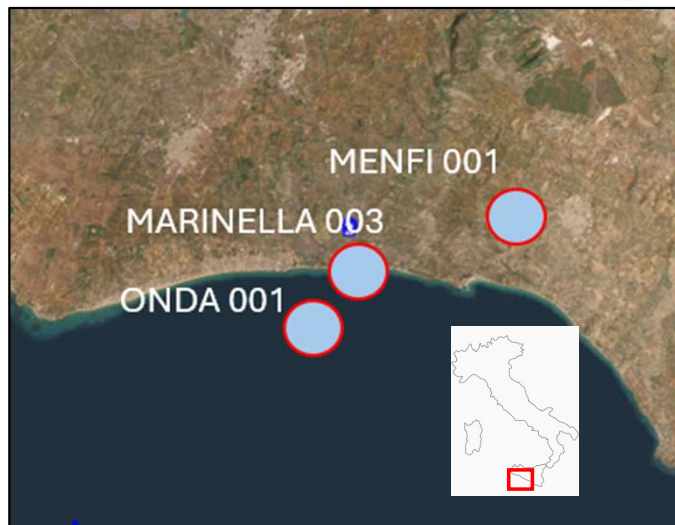
ONDA1



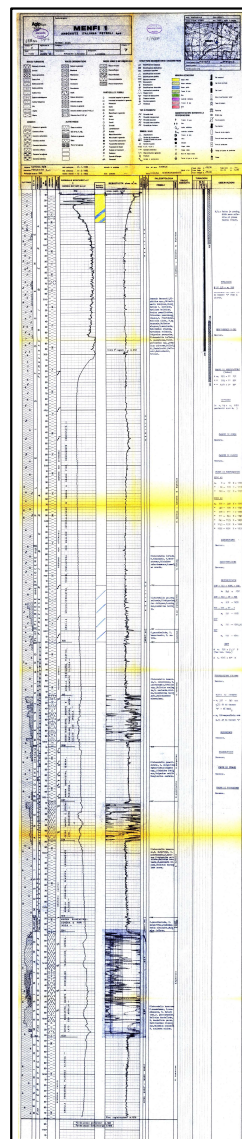
Phanerozoic	Cenozoic	Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
	Quaternary	Holocene	U/L	Meghalayan	present
			M	Northgrippian	0.0042
			L/E	Greenlandian	0.0082
		Pleistocene	U/L	Upper	0.0117
			M	Chibanian	0.129
			L/E	Calabrian	0.774
			L/E	Gelasian	1.80
	Neogene	Pliocene	U/L	Piacenzian	2.58
			L/E	Zanclean	3.600
		Miocene	U/L	Messinian	5.333
			U/L	Tortonian	7.246
			M	Serravallian	11.63
			M	Langhian	13.82
			L/E	Burdigalian	15.98
			L/E	Aquitania	20.45
			L/E	Aquitania	23.04
			L/E	Aquitania	27.30
	Paleogene	Oligocene	L/E	Chattian	33.9
			L/E	Rupelian	37.71
		Eocene	L/E	Priabonian	41.03
			L/E	Bartonian	48.07
			L/E	Lutetian	56.00
		Paleocene	L/E	Ypresian	59.24
			L/E	Thanetian	61.66
			L/E	Selandian	66.00
			L/E	Danian	66.00

The ICS international chronostratigraphic chart this decade. Episodes 2025; <https://doi.org/10.18814/epiugs/2025/025001>

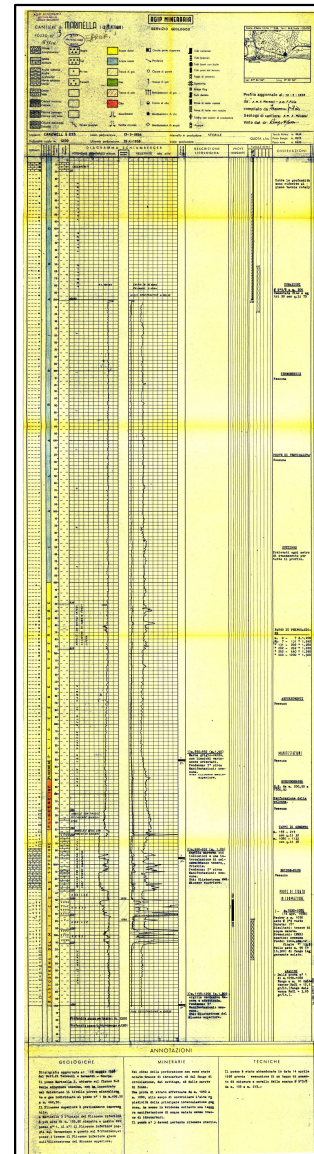




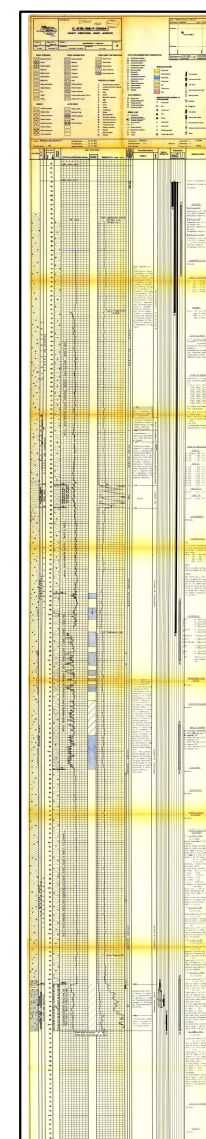
MENFI 001



MARINELLA 003



ONDA 001



	Epoch / Era		Series / Epoch	Stage / Age	GSSP	numerical age (Ma)
	System / Period					
Phanerozoic	Cenozoic	Quaternary	Holocene	UL	Meghalayan	present
				M	Northgalian	0.002
			Pleistocene	UL	Corundonian	0.0117
				UL	Upper	0.129
				M	Chibanian	0.774
				UL	Calabrian	1.80
		Neogene	Pliocene	UL	Gelasian	2.58
				UL	Piacenzian	3.600
				UL	Zanclean	5.333
				UL	Messinian	7.246
			Miocene	M	Tortonian	11.63
				M	Serravallian	13.82
				M	Langhian	15.98
				UL	Burdigalian	20.45
		Paleogene	Oligocene	UL	Aquitainian	23.04
				UL	Chattian	27.30
				UL	Rupelian	33.9
				UL	Priabonian	37.71
			Eocene	UL	Bartonian	41.03
				UL	Lutetian	48.07
				UL	Ypresian	56.00
				UL	Thanetian	59.24
Paleocene	UL		Selandian	61.66		
	UL		Danian	66.00		

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Episodes 2025;
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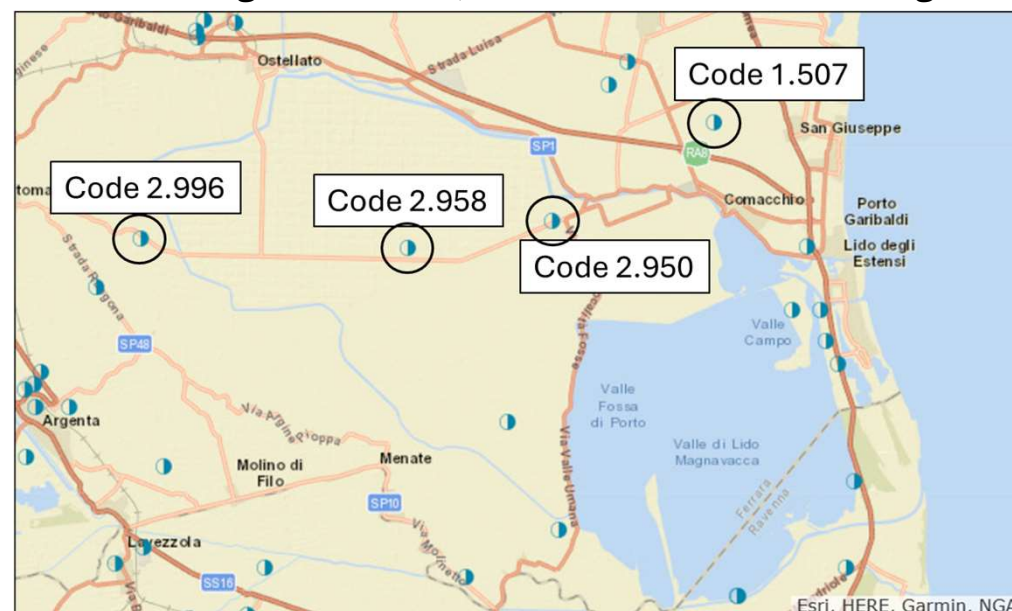
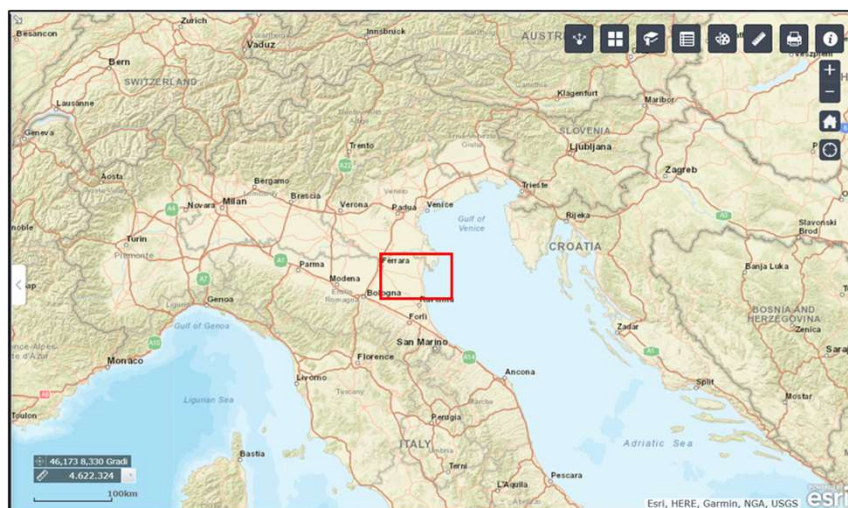
Exercise 2 - Reconstruction of the piezometric surface in the Comacchio area (Po Plane) using Law 464/1984 wells

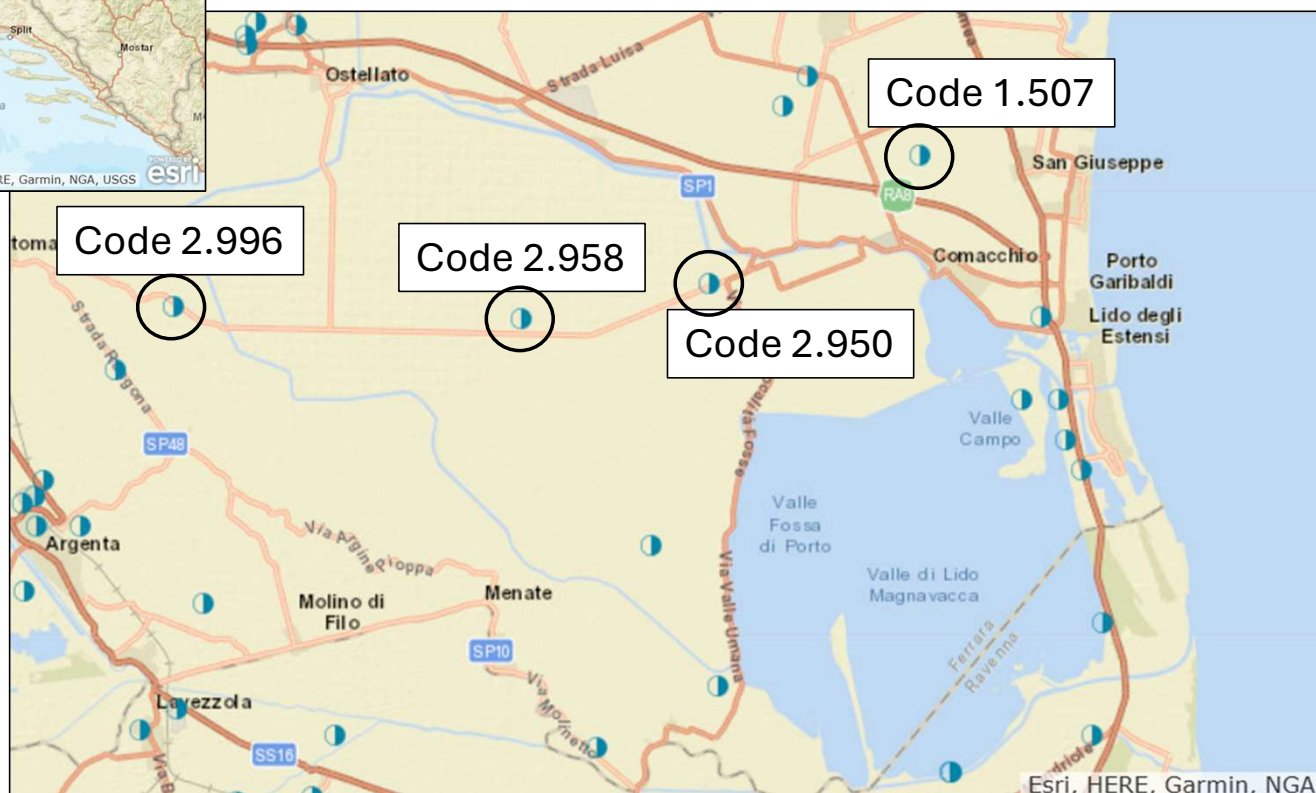
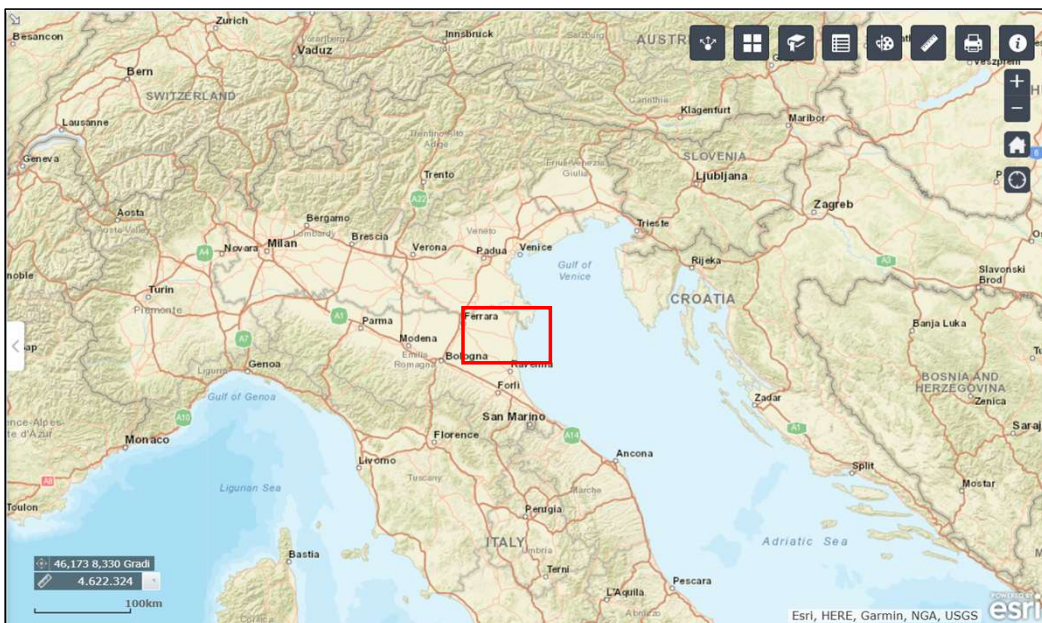
Objective:

Reconstruct the piezometric surface of an aquifer located in the Po Plane using hydrogeological data from wells drilled under Italian Law 464/1984.

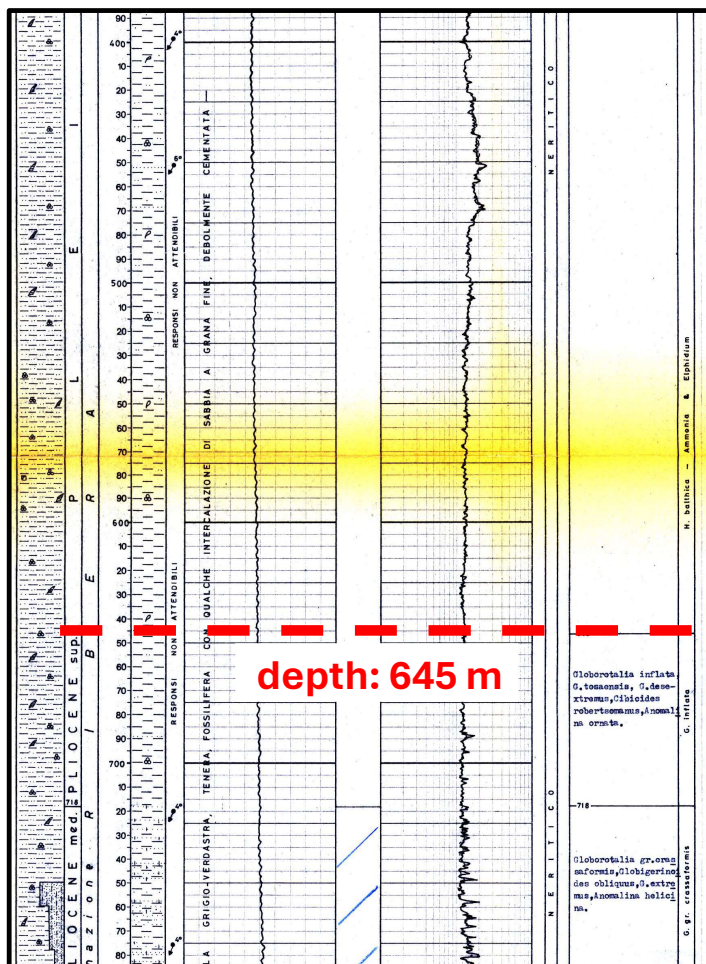
Transmission of Information under Law 464/84:

Under Italian Law No. 464 of August 4, 1984, it is mandatory (art. 1) to report to the Italian Geological Survey (ISPRA) all information related to studies or investigations of the national subsurface, conducted for water research or civil engineering purposes. This information specifically concerns investigations involving excavations, boreholes, and geophysical surveys reaching depths greater than 30 meters below the ground level, and of tunnels with a length greater than 200 meters.

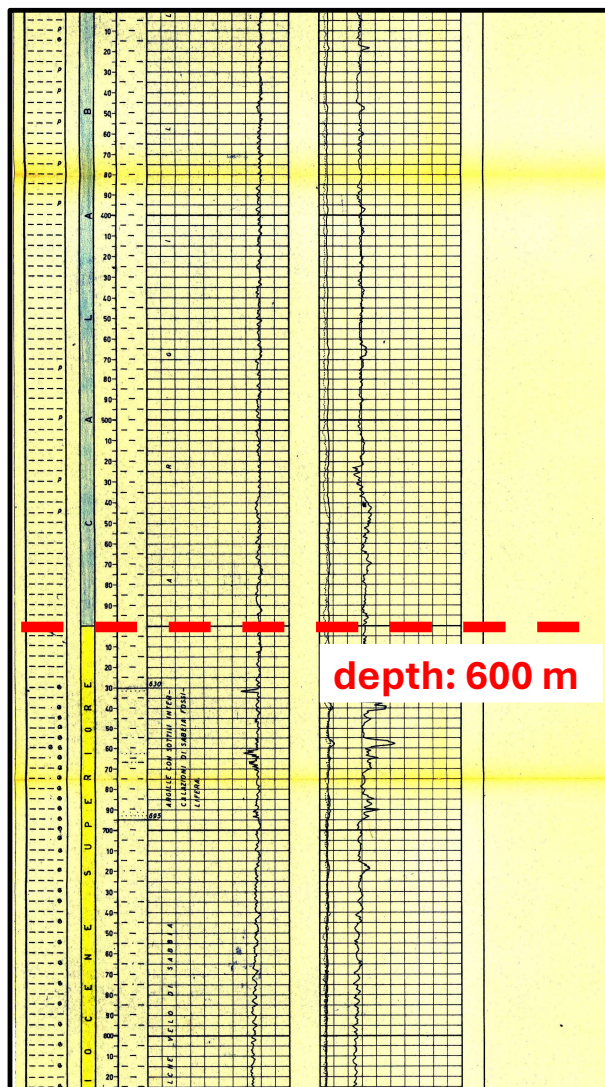




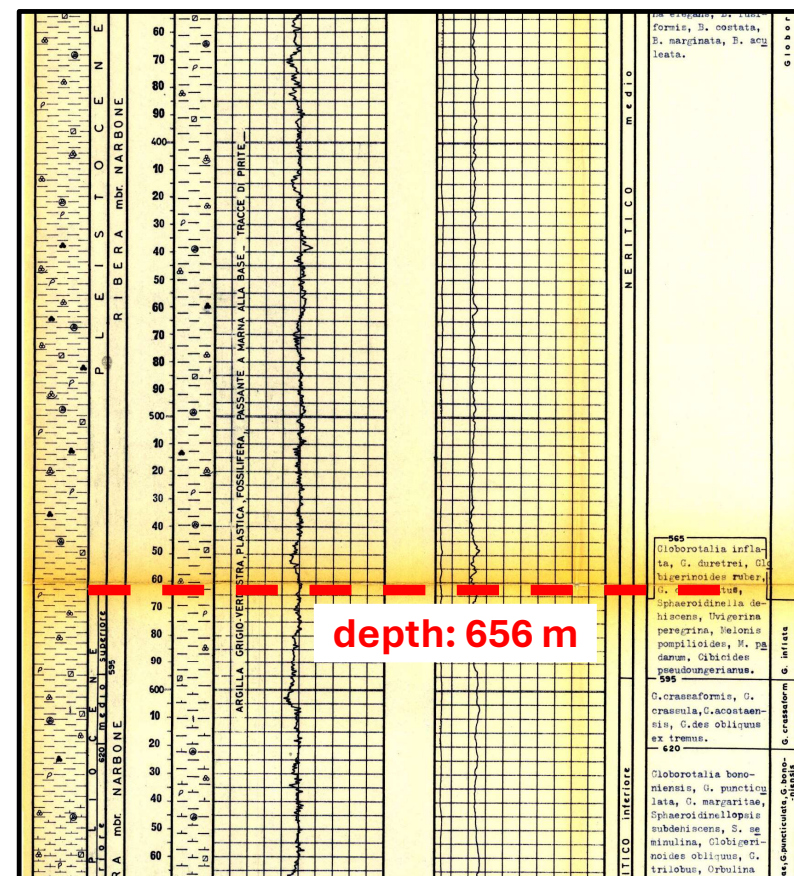
MENFI 001 (95 m a.s.l.)

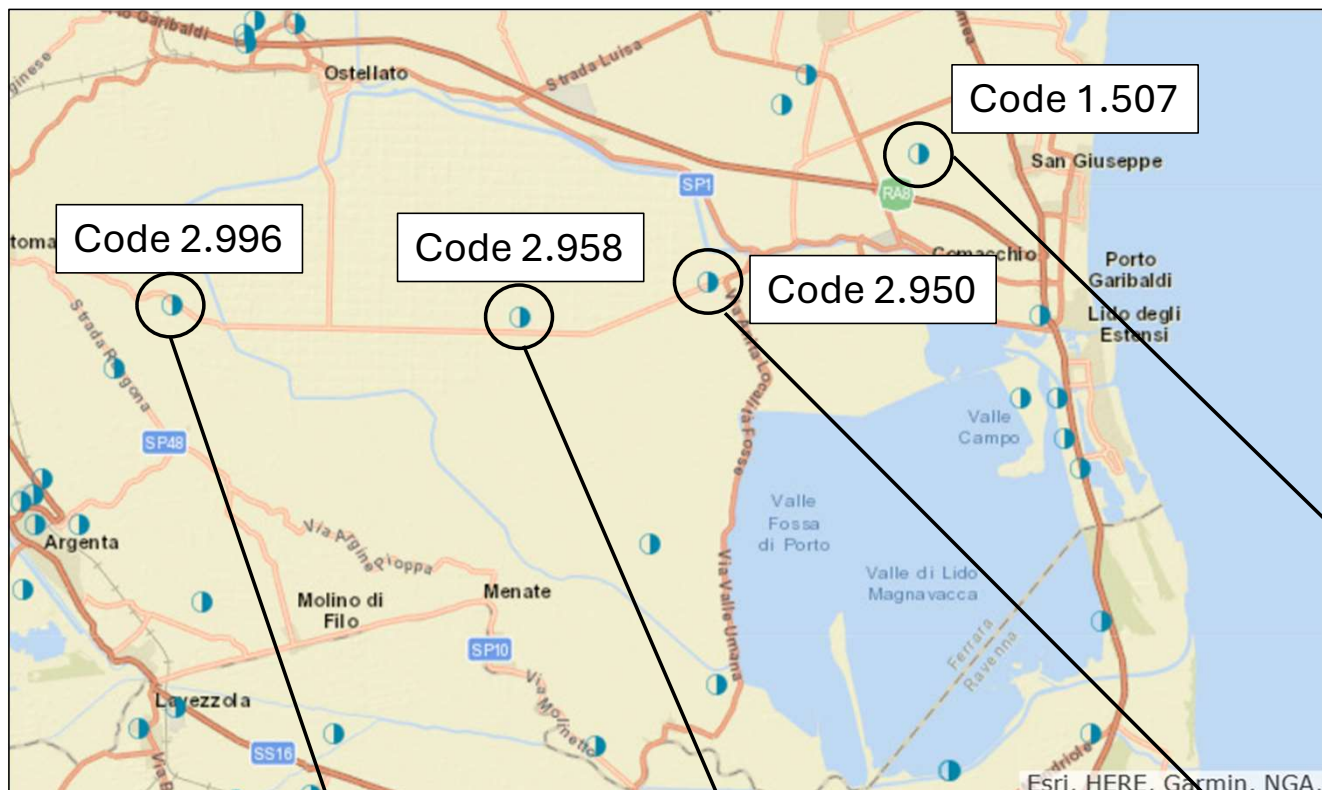


MARINELLA 003 (0 m a.s.l.)



ONDA 001 (-34 m a.s.l.)





FALDE ACQUIFERE		
Progr	Da profondità (m)	A profondità (m)
1	84,00	95,00

FALDE ACQUIFERE		
Progr	Da profondità (m)	A profondità (m)
1	133,00	145,00

FALDE ACQUIFERE		
Progr	Da profondità (m)	A profondità (m)
1	77,00	91,00

FALDE ACQUIFERE		
Progr	Da profondità (m)	A profondità (m)
1	3,00	63,00

Solutions



Exercise 1.

“ONDA 001” is an onland borehole – **FALSE**

Which borehole reaches the greatest depth? – **ONDA 001**

“MENFI 001” has yielded a sterile outcome in terms of hydrocarbon exploration (It = "STERILE") - **TRUE**

Solutions



Exercise 2.

Water is present in all wells - **TRUE**

Moving towards the sea (Comacchio area), the top of the aquifer is generally closer to the surface - **TRUE**

The well with code “2958” has the most detailed stratigraphy - **FALSE**