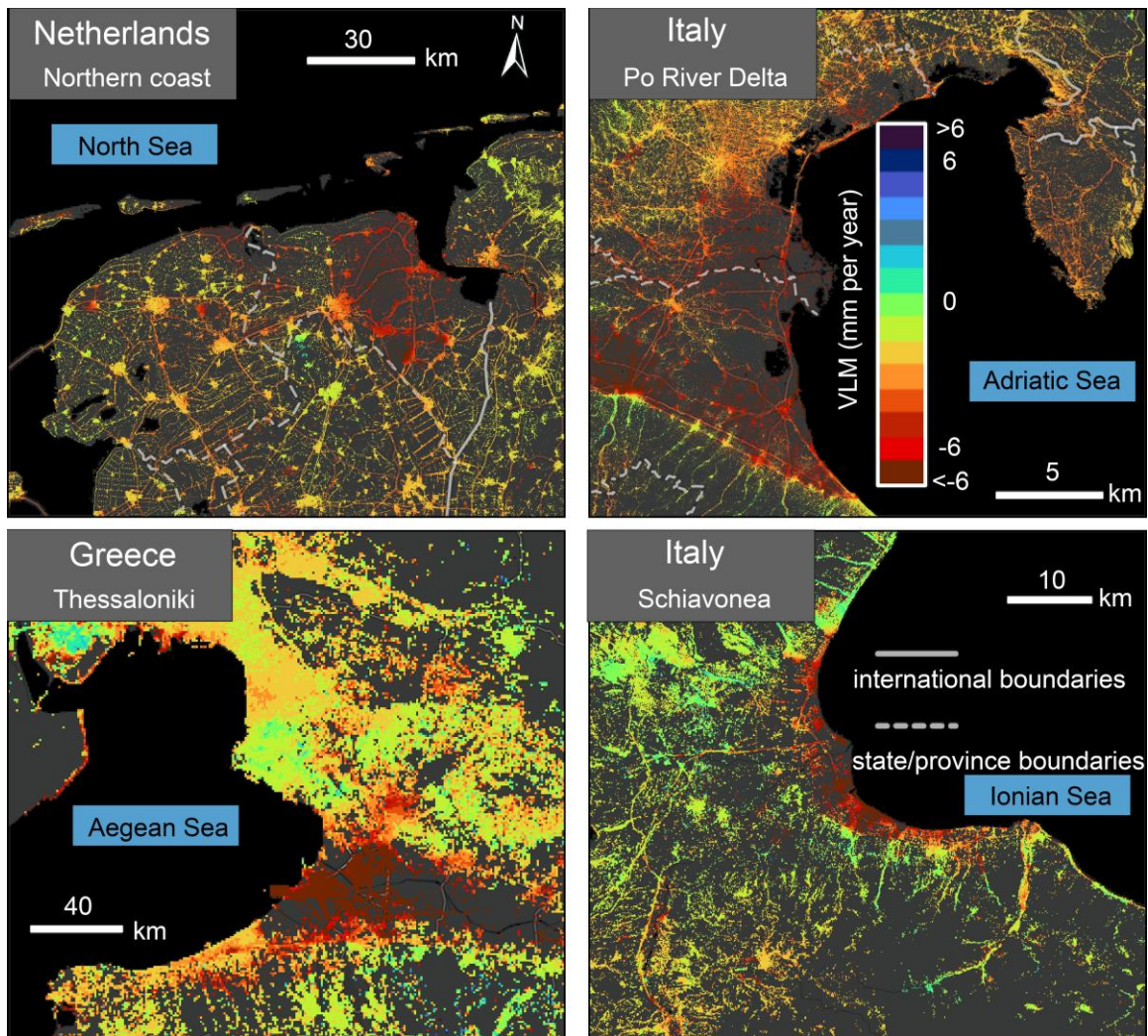
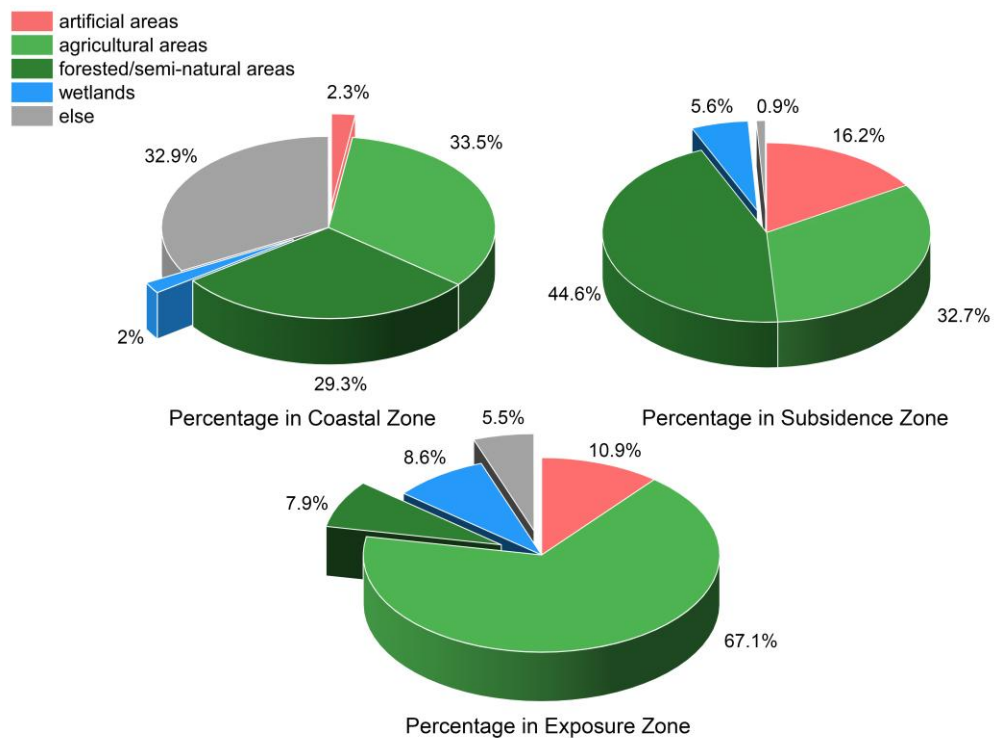




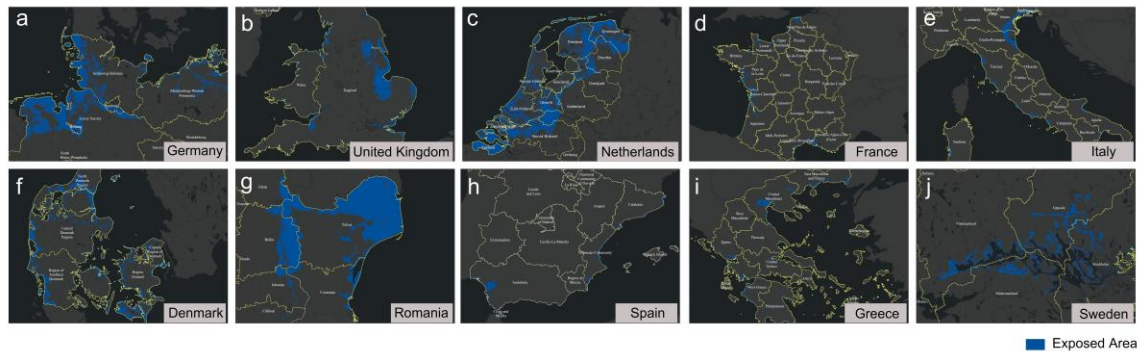
Supplementary Figure 1 | Major subsidence hotspots along the European coastal zone.

The areas shown in the figure are respectively the northern coast of the Netherlands, Thessaloniki in Greece, the Po River Delta in Italy, and Schiavonea in Italy, representing subsidence-prone regions, with the red areas indicating zones of higher subsidence intensity. The first identification of Schiavonea is credited to Thiéblemont et al¹. The map was created using ArcGIS Pro (version 3.1.5) with the Light Gray Canvas Base as the basemap. All elements in this figure were created by the authors.



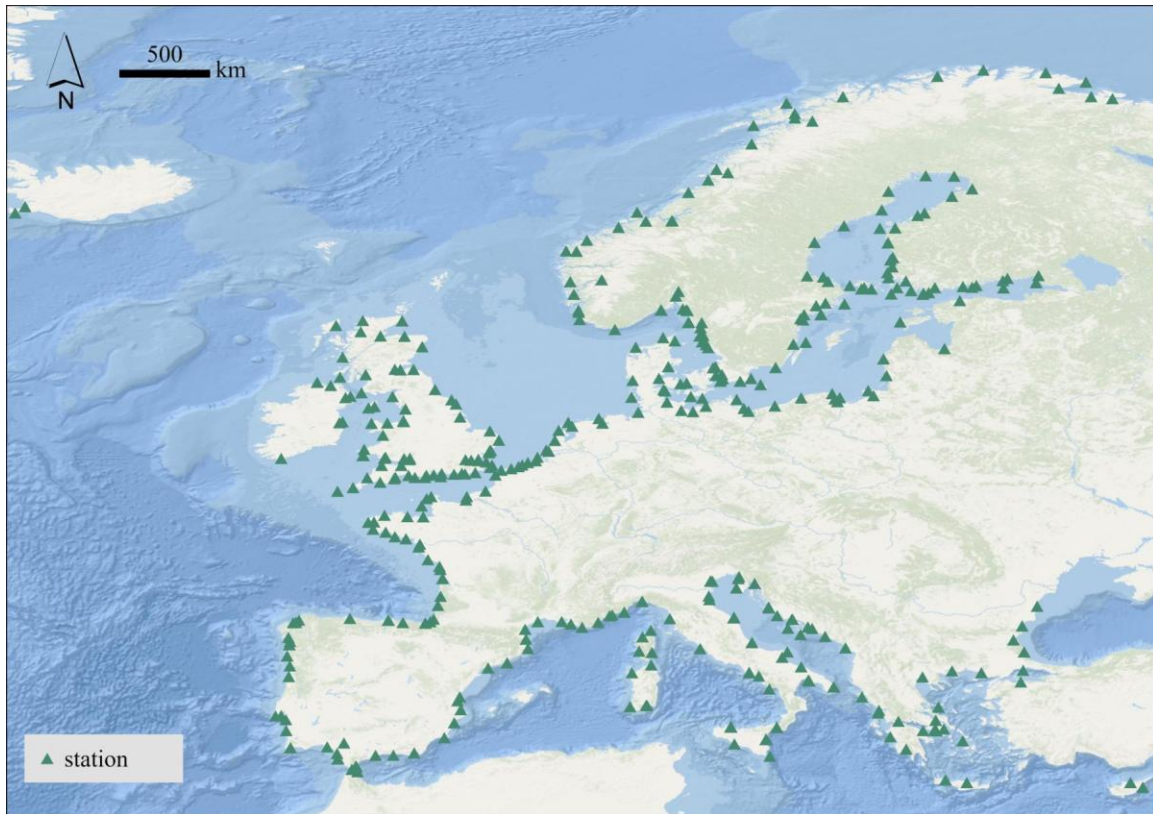
Supplementary Figure 2 | Proportion of Different Land Use Types in European Coastal Zones.

This set of pie charts illustrates the proportion of different land use types—artificial areas, agricultural areas, forested/semi-natural areas, wetlands, and others—across three zones in European coastal regions: the Coastal Zone, the Subsidence Zone, and the Exposure Zone. The chart was created using Origin 2024. All elements in this figure were created by the authors.



Supplementary Figure 3 | Distribution of Exposure Risk Assessment Zones in European Coastal Countries by 2050.

This map illustrates the distribution of exposure areas for the top ten countries with the largest exposed areas by 2050, which are: Germany(a); United Kingdom(b); Netherlands(c); France(d); Italy(e); Denmark(f); Romania(g); Spain(h); Greece(i); Sweden(j). The map was created using ArcGIS Pro (version 3.1.5) with the Light Gray Canvas Base as the basemap. All elements in this figure were created by the authors.



Supplementary Figure 4 | Tidal Station Distribution Map.

Distribution of tidal stations in the European coastal zone, with specific station values available via the Figshare dataset at <https://doi.org/10.6084/m9.figshare.30866342>. The map was created using ArcGIS Pro (version 3.1.5) with the Light Gray Canvas Base as the basemap. All elements in this figure were created by the authors.

Supplementary Table 1 | Changes in vertical land motion rates in European coastal zones

(Unit: mm per year)

Region	>1	-1 ≤ Change ≤ 1	< -1
Atlantic	11%	73%	16%
Med & Black Sea	6%	86%	8%
Europe	9%	78%	13%

Notes: Med & Black Sea refers to the Mediterranean and Black Sea region.

Supplementary Table 2 | Exposure Area and Population Data for European Coastal Zones

Country	Exposed Area (km ²)	Population
Belgium	2803.87	1014509
Bulgaria	263.02	45939
Croatia	302.68	16789
Cyprus	28.74	5205
Denmark	6188.42	486784
Estonia	1243.77	38365
Finland	2494.96	142627
France	9137.16	1445569
Germany	12659.07	1468795
Greece	3275.68	307288
Iceland	2290.95	11351
Ireland	1184.9	225247
Italy	8995.99	2093616
Latvia	1544.75	176112
Lithuania	507.68	17732
Malta	7.08	13481
Netherlands	9384.96	4661671
Norway	1907.92	85913
Poland	2778.53	296553
Portugal	1290.34	260507
Romania	6049.13	106481
Slovenia	15.7	9100
Spain	3668.13	1639281
Sweden	3230.5	402151
United Kingdom	12375.24	2834786

Supplementary Table 3 | Exposure Buildings and Assets Data for European Coastal Zones

Country	Exposed Buildings	Exposed Building Area	House Price	Exposed Assets
	units	m ²	EUR/m ²	EUR, Billion
Belgium	413885	85192228.49	3207	273.21
Bulgaria	12529	3470794.367	1418	4.92
Croatia	79183	11831506.46	2246	26.57
Denmark	447212	74005833.25	2987	221.06
Estonia	54440	6251778.593	2848	17.81
Finland	176746	27980847.17	3300	92.34
France	274639	64257217.53	4538	291.6
Germany	1122330	255319797.8	4700	1,200.00
Iceland	21986	3566176.844	5203	18.55
Ireland	76265	14503293.78	3747	54.34
Italy	501560	129946193.9	2118	275.23
Latvia	144320	21969455.7	1493	32.8
Lithuania	19920	3715977.476	2407	8.94
Malta	1973	1077936.124	2851	3.07
Netherlands	3532199	820036027.8	4266	3,498.27
Norway	206580	29124127.68	4055	118.1
Poland	148226	21308838.92	2219	47.28
Portugal	112364	27690404.81	4175	115.61
Romania	43461	5486456.904	1507	8.27
Slovenia	2735	1450854.053	2610	3.79
Spain	51984	26531518.18	2745	72.83
Sweden	212131	39284988.15	3184	125.08
United Kingdom	714487	184320806.9	3849	709.45

Supplementary Table 4 | Distribution by Autonomous Communities and Provinces of the number of municipalities, neighborhoods/settlements, and housing of the Roma population

Autonomous Communities and Provinces	Neighborhoods/settlements	Housing
Almería	98	7512
Cádiz	81	3243
Córdoba	43	2354
Granada	138	8501
Huelva	46	1529
Jaén	113	3249
Málaga	64	4113
Seville	103	7516
Andalusia	686	38017
Huesca	28	665
Teruel	12	194
Zaragoza	70	1719
Aragon	110	2578
Principality of Asturias	203	2764
Balearic Islands	38	1772
Las Palmas	3	310
Santa Cruz de Tenerife	20	257
Canary Islands	23	567
Cantabria	26	719
Albacete	29	1123
Ciudad Real	39	1185
Cuenca	27	469
Guadalajara	6	74
Toledo	68	1009
Castilla-La Mancha	169	386
Ávila	11	158

Autonomous Communities and Provinces	Neighborhoods/settlements	Housing
Burgos	37	531
León	41	767
Palencia	31	532
Salamanca	33	873
Segovia	13	170
Soria	5	60
Valladolid	56	1872
Zamora	22	329
Castile and León	249	5292
Barcelona	59	7816
Girona	11	1029
Lleida	9	1637
Tarragona	15	126
Catalonia	94	11742
Alicante	103	5515
Castellón	36	1331
Valencia	167	5534
Valencian Community	306	1238
Badajoz	59	16
Cáceres	21	1006
Extremadura	80	2606
A Coruña	47	1093
Lugo	9	210
Ourense	21	400
Pontevedra	51	799
Galicia	128	2502
Community of Madrid	206	8611
Region of Murcia	121	5492

Autonomous Communities and Provinces	Neighborhoods/settlements	Housing
Chartered Community of Navarre	80	1924
Álava	15	439
Gipuzkoa	73	288
Biscay	62	2743
Basque Country	150	347
La Rioja	22	678
Autonomous City of Ceuta	17	216
Autonomous City of Melilla	8	99
Spain	2716	105289

Notes: Bold text denotes autonomous regions, while non-bold text represents provinces, which serve as the subordinate administrative divisions of the autonomous regions.

The data used in this study are derived from the publication *Study-Map on Housing and the Roma Population, 2015*².

Supplementary References

- 1 Thiéblemont, R. *et al.* Assessing Current Coastal Subsidence at Continental Scale: Insights From Europe Using the European Ground Motion Service. *Earths Future* **12** (2024). <https://doi.org/10.1029/2024ef004523>
- 2 Daleph Fundación Secretariado Gitano. Estudio-Mapa sobre Vivienda y Población Gitana, 2015. (Madrid, 2016).