EEA geospatial data catalogue

Water Exploitation Index plus (WEI+) at sub unit level, 2023

This metadata covers the vector dataset of the Water Exploitation Index Plus (WEI+) for European sub unit levels for the years 2000 to 2023, broken down into four quarters each year.

Q1: Jan., Feb., Mar.

Q2: Apr., May, Jun.

Q3: Jul., Aug., Sep.

Q4: Oc., Nov., Dec.

The Water Exploitation Index plus (WEI+) aims to illustrate pressure on renewable water resources of a defined territory (sub units) in a given period (e.g. seasonal, annual) as a consequence of water use for human activities. Values above 20 % indicate that water resources are under stress, and above 40 % indicate severe stress and a clearly unsustainable use of freshwater resources (Raskin et al., 1997).

The downloadable data is provided in two datasets:

- Spatial data in SHP format.

- WEI+ data in Excel format, covering four quarters per year from 2000 to 2023.

The datasets can be linked via a spatial join using SHP.thematicId and Excel.spatialUnitIdentifier, ensuring the data is filtered by year and quarter.

Simple

Identification info

Date (Creation)	2026-01-14
Date (Publication)	2026-01-29
Edition	01.00
Citation identifier	eea_v_3035_250_k_wei-subunit-level_p_2023_v01_r00

Identifier

Code	10.2909/b16bd284-f2ec-4164-90b7-674c1de399ba
Codespace	doi.org
Description	Digital Object Identifier (DOI)

Point of contact

Organisation	Individual	Electronic mail address	Website	Role
European Environment Agency		sdi@eea.europa.eu	http://www.eea.europa.eu	Distributor
European Environment Agency		info@eea.europa.eu		Publisher

Spatial representation type	Vector
Spatial representation type	Text, table

Spatial resolution

Equivalent scale

Denominator	250000

Topic category	• Environment • Climatology, meteorology, atmosphere

Extent

Extent

Extent

71.85	N	24.83	S	70.69	E	-54.84	W

Extent

Temporal extent

Time period	2000-01-01 2023-12-31
Maintenance and update frequency	Not planned
GEMET - INSPIRE themes, version 1.0	• Area management/restriction/regulation zones and reporting units
GEMET	• freshwater • water use • water scarcity • drought • climate change impact • climate change adaptation • climate • water resource
Continents, countries, sea regions of the world.	• Norway • Iceland • Albania • North Macedonia • Türkiye • Montenegro • Switzerland • EU27 (from 2020) • Kosovo (UNSCR 1244/99) • Serbia
Spatial scope	• European
EEA Management Plan	• 2025 EEA/DATA/2025/063
EEA topics	• Climate change impacts, risks and adaptation • Water

Resource constraints

Access constraints	Other restrictions
Other constraints	no limitations to public access

Resource constraints

Use constraints	Other restrictions
Other constraints	License CC-BY 4.0 (https://creativecommons.org/licenses/by/4.0/). Copyright holder: European Environment Agency (EEA).
Language	English

Distribution Information

Distribution format	• SHP • Microsoft Excel (.xls, .xlsx)
OnLine resource	https://sdi.eea.europa.eu/webdav/datastore/public/eea_v_3035_250_k_wei-subunit-level_p_2023_v01_r00
OnLine resource	Direct download
OnLine resource	Water scarcity conditions in Europe EEA Indicator
OnLine resource	Water exploitation index, plus (WEI+) Eurostat Indicator (sdg_06_60)
OnLine resource	Digital Object Identifier (DOI)

Data quality info

Hierarchy level	Dataset

Report

Result

Title	Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
Date (Publication)	2010-12-08
Explanation	See the referenced specification

Resource lineage

Statement	The Water Exploitation Index plus (WEI+) has been calculated as the quarterly average per subunit for the years 2000–2023. The WEI+ - referred to as the seasonal water scarcity - expresses total water consumption as a percentage of the renewable freshwater resources available in European countries. Each season corresponds to a calendar quarter: Q1 (January–March), Q2 (April–June), Q3 (July–September) and Q4 (October–December). WEI+ results for EU Member States, Iceland, Norway, and Switzerland are presented at the subunit level, while for Italy, they are shown at the river basin level. There is no WEI+ result at subunit scale available for Türkiye and the Western Balkan cooperating countries due to the lack of spatial data on subunits. The WEI+ values presented may differ from nationally available figures, particularly for subunit where data availability is limited in the WISE SoE – Water Quantity database (WISE 3) or in the Eurostat water database. Water abstraction data were taken from WISE 3 (Waterbase - Water Quantity: https://www.eea.europa.eu/en/datahub/datahubitem-view/a4324714-784a-4763-b8b9-b8939ead87fe) and the Eurostat water database (Water statistics on national level (env_nwat): https://ec.europa.eu/eurostat/cache/metadata/en/env_nwat_esms.htm), although the time series contain significant gaps. To address this, extensive gap-filling was applied, and proxies were used to disaggregate annual data to quarterly. Data on water use and returns in WISE 3 (Waterbase - Water Quantity: https://www.eea.europa.eu/en/datahub/datahubitem-view/a4324714-784a-4763-b8b9-b8939ead87fe) are also limited. Therefore, return flows were primarily modelled using UWWTP capacities (Waterbase - UWWTD: Treatment Plants: https://www.eea.europa.eu/en/datahub/datahubitem-view/6ffd0af1-64eb-4cce-9970-0028e01ee64e), and the Eurostat population change dataset (Population (national level) (demo_pop): https://ec.europa.eu/eurostat/cache/metadata/en/demo_pop_esms.htm), among others. The EEA calculates the Water Exploitation Index plus (WEI+) for Europe using a consistent approach for Renewable Water Resources (RWR). Data on precipitation, actual evapotranspiration, and outflow were obtained from WISE 3 (Waterbase - Water Quantity: https://www.eea.europa.eu/en/datahub/datahubitem-view/a4324714-784a-4763-b8b9-b8939ead87fe) and the Eurostat water database (([env_wat_res]): https://ec.europa.eu/eurostat/databrowser/view/env_wat_res/default/table?lang=en&category=env.env_wat.env_nwat) Renewable freshwater resources). Reservoir water balance data are available in WISE 3 Waterbase - Water Quantity: https://www.

	eea.europa.eu/en/datahub/datahubitem-view/a4324714-784a-4763-b8b9-b8939ead87fe), but coverage across EIONET member countries is spatially and temporally incomplete. Copernicus CEMS EFAS (https://10.0.95.61/cds.e3458969) and Copernicus Land ERA5 (https://doi.org/10.24381/cds.68d2bb30) data have been used for gap filling in outflow and reservoir water balance, which may result in differences from national estimates. Italy has noted that, due to the approach used by EEA for RWR, the pan-European index does not accurately reflect the detailed water stress conditions in its river basins. The WEI+ for Switzerland and France may involve high uncertainties due to the use of modelled data as the baseline for the computation. The WEI+ values for the following basins from Norway (i.e., NO1107, NO1108, NO1109, NO5107, and NO5109) represent the state of 2022 due to the lack of computed results for 2023.
Hierarchy level	Dataset

Reference System Information

Reference System Information

Code	EPSG:3035

Metadata

Metadata identifier	b16bd284-f2ec-4164-90b7-674c1de399ba
Language	English
Character encoding	UTF8

Contact

Organisation	Individual	Electronic mail address	Website	Role
European Environment Agency		sdi@eea.europa.eu		Point of contact

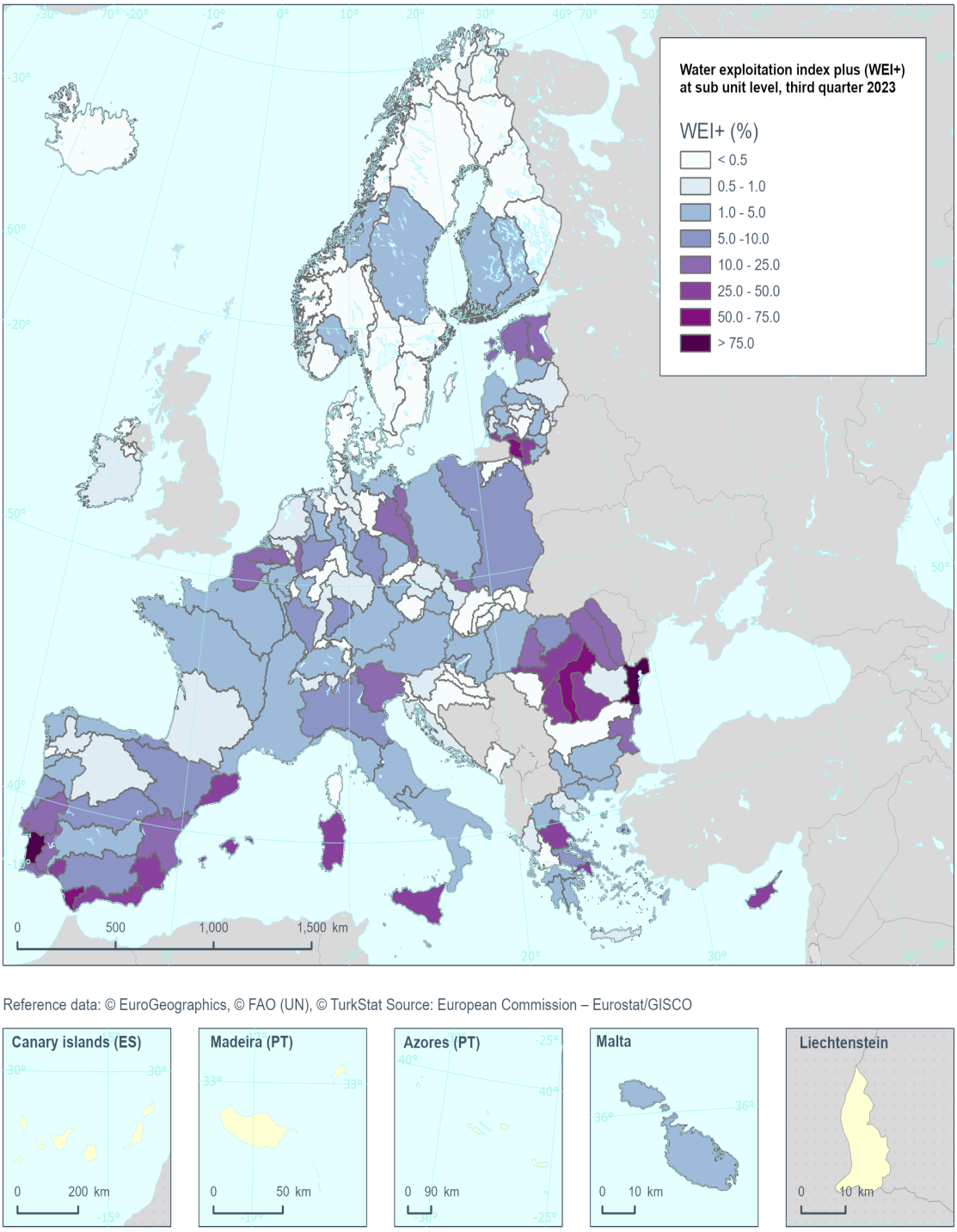
Type of resource

Resource type	Dataset
Metadata linkage	https://doi.org/10.2909/b16bd284-f2ec-4164-90b7-674c1de399ba
Date info (Creation)	2026-01-26T16:02:51.492742Z
Date info (Revision)	2026-01-30T13:22:46.522257Z

Metadata standard

Title	ISO 19115/19139
Edition	1.0

Overviews



Reference data: © EuroGeographics, © FAO (UN), © TurkStat Source: European Commission – Eurostat/GISCO

Provided by

EEA