EEA geospatial data catalogue

# Water Exploitation Index plus (WEI+) at European country scale, 2023

This metadata covers the vector dataset of the Water Exploitation Index Plus (WEI+) for European countries 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 the water consumption pressure on renewable water resources of a defined territory (countries) 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 WEI+ has been estimated as the quarterly average per river basin district, for the years 2000-2023.

Two files are provided for download:

- 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.countryCod and Excel.countryCode, 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-country-scale_p_2023_v01_r00 |

### Identifier

| | |
|---|---|
| **Code** | 10.2909/3c13b52b-36e5-44bc-a07f-8389d43dfd3b |
| **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<br>• 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<br>• drought<br>• water use<br>• water resource<br>• climate change impact<br>• water scarcity<br>• climate<br>• climate change adaptation |
| **Continents, countries, sea regions of the world.** | • Switzerland<br>• Iceland<br>• North Macedonia<br>• Kosovo (UNSCR 1244/99)<br>• Serbia<br>• Türkiye<br>• EU27 (from 2020)<br>• Albania<br>• Montenegro<br>• Norway |
| **Spatial scope** | • European |
| **EEA Management Plan** | • 2025 EEA/DATA/2025/063 |
| **EEA topics** | • Water<br>• Climate change impacts, risks and adaptation |

## 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<br>• Microsoft Excel (.xls, .xlsx) |
| **OnLine resource** | https://sdi.eea.europa.eu/webdav/datastore/public/eea_v_3035_250_k_wei-country-scale_p_2023_v01_r00 |
| **OnLine resource** | Direct download |
| **OnLine resource** | Water scarcity conditions in Europe<br>EEA Indicator |
| **OnLine resource** | Water exploitation index, plus (WEI+)<br>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 country 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).<br><br>The WEI+ values presented may differ from nationally available figures, particularly for countries where data availability is limited in the WISE SoE – Water Quantity database (WISE 3) or in the Eurostat water database.<br><br>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.<br><br>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.<br><br>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. |

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|---|---|
| | The WEI+ for Switzerland and France may involve high uncertainties due to the use of modelled data as the baseline for the computation.<br><br>The WEI+ for Kosovo is highly uncertain because of missing information on reservoir changes and the complex hydrological relationships between inflows and outflows.<br><br>The WEI+ values for Bosnia and Herzegovina 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** | 3c13b52b-36e5-44bc-a07f-8389d43dfd3b |
| **Language** | English |
| **Character encoding** | UTF8 |

**Contact**

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

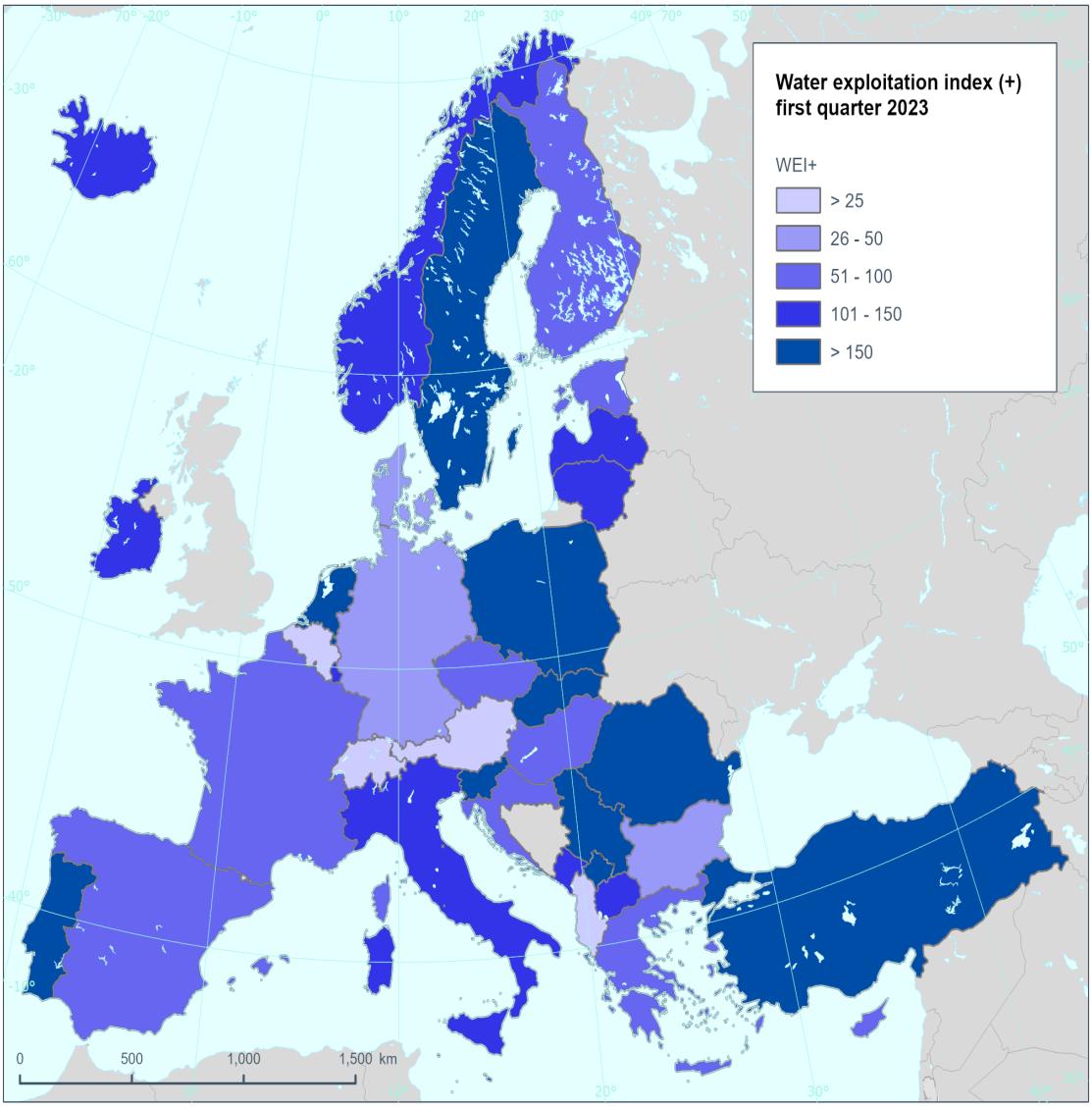
## Type of resource

| | |
|---|---|
| **Resource type** | Dataset |
| **Metadata linkage** | https://doi.org/10.2909/3c13b52b-36e5-44bc-a07f-8389d43dfd3b |
| **Date info (Creation)** | 2026-01-23T11:34:53.152377Z |
| **Date info (Revision)** | 2026-09-25T11:20:18.558723Z |

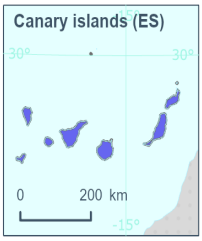
## Metadata standard

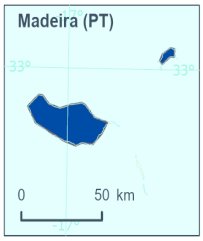
| | |
|---|---|
| **Title** | ISO 19115/19139 |
| **Edition** | 1.0 |

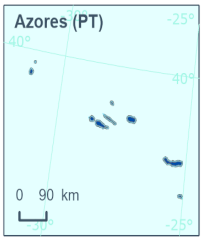
## Overviews

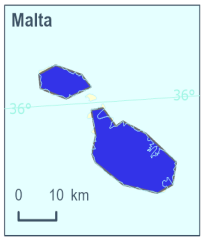


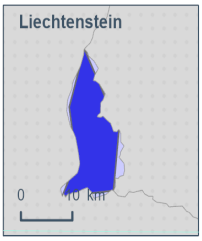

Reference data: © EuroGeographics, © FAO (UN), © TurkStat Source: European Commission – Eurostat/GISCO

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