DATASHEET

Measurements API

Ground-truth weather observations from global station networks

Access real-time and historical weather measurements from more than 250,000 stations worldwide with flexible filtering, full station metadata, built-in quality control, and machine-friendly output formats.

Use cases

Energy asset monitoring, forecast verification, sensor-network enrichment, analytics, operational dashboards, modelling, research workflows, agriculture decision support, transport operations, and urban monitoring.

Key features

- **Advanced station search**
  Find stations by provider, nearest coordinate, geographic area, or administrative boundary
- **Historical and real-time observations**
  Retrieve measurement time series for selected stations or geographic areas
- **Full station metadata**
  Access provider, station ID, station name, coordinates, elevation, and related metadata
- **Built-in quality control**
  Use raw observations, quality-controlled data, and gap-filled variants where available
- **Simplified integration**
  Work with standardised parameter names, UTC epoch timestamps, and multiple output formats depending on endpoint capabilities

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Data delivery

Data is delivered via REST endpoints in multiple formats depending on the requested resource:

- **JSON**
  Supported across all endpoints
- **CSV, XLSX, Protobuf**
  Supported for selected data retrieval endpoints
- **GeoJSON**
  Supported for station-related queries

Supported query features

- List providers
- Discover available fields per provider
- Retrieve station metadata
- Find nearest stations for one provider
- Find nearest stations across all providers
- Retrieve measurement time series
- Combine stations for spatial context
- Select by geographic point
- Select by region / bounding box
- Select by administrative boundary
- Filter by elevation similarity
- Filter by distance
- Filter by coverage / gapless time steps

Data conventions

- Parameter names are standardised across heterogeneous data sources
- Timestamps are delivered as UTC Unix epoch seconds
- Fields may be optional and may evolve over time
- Missing values may be omitted or represented as NaN
- Station metadata may change due to relocation or provider updates
- Measurement conventions (e.g. wind, precipitation intervals) may vary slightly by provider

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Example parameter groups

STATION IDENTIFICATION

- provider
- id

LOCATION METADATA

- lat
- lon
- asl
- distance

OPERATIONAL / NETWORK SPECIFIC

- batteryVoltage
- batteryStatus

CORE WEATHER

- airTemperature
- dewPoint
- relativeHumidity
- pressure
- windSpeed
- windDirection
- precipitation

RADIATION / CLOUD

- globalRadiation
- cloudBaseHeight
- cloudTopHeight

Accounting

ITEM	CREDITS
List providers	100 credits
List fields	100 credits
Nearest station lookup	100 credits
Monthly coverage	100 credits per percent or value
Metadata	100 credits
Raw data	200 credits
QC data	400 credits

Note: You need to have at least 300 credits available to make a request.

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Integration notes

- The API is designed for integration into analytics platforms, dashboards, modelling workflows, and operational systems
- JSON should be used as the default format for automated integrations
- CSV, XLSX, and Protobuf formats support selected export, processing, and integration workflows where availableGeoJSON should be used specifically for station-level geographic applications
- Applications should handle optional fields and missing values gracefully
- Differences between raw, QC, and gap-filled datasets should be considered when building data pipelines

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