



<https://odlinfo.bfs.de>

ODL-Info Data interface

Basics

The Federal Office for Radiation Protection (BfS) provides the data of the ODL measuring network free of charge via a standardised data interface. This is the "Web Feature Service", a standard of the [Open Geospatial Consortium \(OGC\)](#). The geodata services available at BfS are also provided on the [BfS-Geoportal](#).

Terms of use

See <https://www.imis.bfs.de/geoportal/resources/sitepolicy.html>

Data format

The data is output by the interface in GeoJSON format, among others. This is a standardised, open format that represents data with a geographical reference according to the Simple Feature Access specification. ODL Info also retrieves the data in this form.

In addition to the GeoJSON format described below, data retrieval is also possible in other formats (e.g. .GML2, .GML3, .shape-zip, and .csv).

With GeoJSON, the data is always contained in a FeatureCollection. In addition to the coordinates of the respective measuring station, each feature also contains the measuring station identifier, the name of the measuring station, and, of course, the corresponding measured value, including time stamp.

If the request was made without errors, the response always contains a JSON object with the following properties:

features	An array with the "features" (i.e. the actual data sets).
totalFeatures	Total number of data sets found by the query.
numberReturned	Number of data sets returned for the query.
timeStamp	Time stamp of the response.

- Each entry in the *features* array is an object.
- Under the property *properties*, this contains an object with the actual data. The data depends on the respective layer.
- In addition, the coordinates of the respective measuring station are available under the *geometry* property.

Information available

The available information is provided in "layers". Each layer contains different data.

In addition to other (partly optional) parameters, the retrieval URL always contains the layer name.



Basic retrieval URL is:

<https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:<Layername>&outputFormat=application/json>

List of measuring stations, including the last one-hour measured value in each case

Layername: **odlinfo_odl_1h_latest**

Retrieval URL:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_odl_1h_latest&outputFormat=application/json

Properties of the individual features:

id	The international ID of the measuring station.
kenn	The measuring station identifier as also used on ODL Info.
plz	The postal code of the measuring station.
name	The name or locality name of the measuring station.
site_status	The status of the measuring station as a number. (1 = in operation, 2 = defective, 3 = test operation)
site_status_text	The status of the measuring station as text.
kid	ID of the measuring network node to which the measuring station is assigned. (1 = Freiburg, 2 = Berlin, 3 = Munich, 4 = Bonn, 5 = Salzgitter, 6 = Rendsburg)
height_above_sea	Height of the measuring station above sea level.
start_measure	Start time of the measuring period for the given measured value.
end_measure	End time of the measurement period for the given measured value.
value	The measured value.
value_cosmic	Cosmic portion of the measured value.
value_terrestrial	Terrestrial portion of the measured value.
unit	Unit of the measured value.
validated	Test status of the measured value. (1 = tested, 2 = untested)
nuclide	Designation of the variable.
duration	Duration of the measurement period.

Example:

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "id": "odlinfo_odl_1h_latest.fid-67f071dd_17b78091d3a_-1c2f",
      "geometry": {
        "type": "Point",
        "coordinates": [
          9.38,
          54.78
        ]
      }
    }
  ]
}
```



```
    },
    "geometry_name": "geom",
    "properties": {
      "id": "DEZ0001",
      "kenn": "010010001",
      "plz": "24941",
      "name": "Flensburg",
      "site_status": 1,
      "site_status_text": "in Betrieb",
      "kid": 6,
      "height_above_sea": 39,
      "start_measure": "2021-08-24T10:00:00Z",
      "end_measure": "2021-08-24T11:00:00Z",
      "value": 0.075,
      "value_cosmic": 0.043,
      "value_terrestrial": 0.033,
      "unit": "µSv/h",
      "validated": 1,
      "nuclide": "Gamma-ODL-Brutto",
      "duration": "1h"
    }
  },
  {
    "type": "Feature",
    "id": "odlinfo_odl_1h_latest.fid-67f071dd_17b78091d3a_-1c2e",
    "geometry": {
      "type": "Point",
      "coordinates": [
        9.05,
        54.02
      ]
    },
    "geometry_name": "geom",
    "properties": {
      "id": "DEZ0005",
      "kenn": "010510061",
      "plz": "25719",
      "name": "Barlt",
      "site_status": 1,
      "site_status_text": "in Betrieb",
      "kid": 6,
      "height_above_sea": 1,
      "start_measure": "2021-08-24T10:00:00Z",
      "end_measure": "2021-08-24T11:00:00Z",
      "value": 0.08,
      "value_cosmic": 0.042,
      "value_terrestrial": 0.038,
```



```
        "unit": "µSv/h",
        "validated": 1,
        "nuclide": "Gamma-ODL-Brutto",
        "duration": "1h"
    }
},
// [...]
],
"totalFeatures": 1629,
"numberMatched": 1629,
"numberReturned": 1629,
"timeStamp": "2021-08-24T12:12:03.304Z",
"crs": {
  "type": "name",
  "properties": {
    "name": "urn:ogc:def:crs:EPSG::4326"
  }
}
}
```

Time series

When requesting time series data, the nine-digit measuring station identifier must always be specified. In addition, a filter can be used to narrow the time frame.

Time series with one-hour measurement data

Layername: **odlinfo_timeseries_odl_1h**

Retrieval URL:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:<Messstellenkennung>

Properties of the individual features:

id	The international ID (sometimes also referred to as locality_code) of the measuring station.
kenn	The measuring station identifier as also used on ODL Info.
plz	The postal code of the measuring station.
name	The name or locality name of the measuring station.
start_measure	Start time of the measuring period for the given measured value.
end_measure	End time of the measurement period for the given measured value.
value	The measured value.
unit	Unit of the measured value.
validated	Test status of the measured value. (1 = tested, 2 = untested)
nuclide	Designation of the variable.
duration	Duration of the measurement period.



Example:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "id": "odlinfo_timeseries_odl_1h.fid-67f071dd_17b7820a5ac_40fc",
      "geometry": {
        "type": "Point",
        "coordinates": [
          10.33,
          52.15
        ]
      },
      "geometry_name": "geom",
      "properties": {
        "id": "DEZ2799",
        "kenn": "031020004",
        "name": "Salzgitter-Lebenstedt",
        "start_measure": "2021-08-17T12:00:00Z",
        "end_measure": "2021-08-17T13:00:00Z",
        "value": 0.088,
        "unit": "µSv/h",
        "validated": 1,
        "nuclide": "Gamma-ODL-Brutto",
        "duration": "1h"
      }
    },
    {
      "type": "Feature",
      "id": "odlinfo_timeseries_odl_1h.fid-67f071dd_17b7820a5ac_40fd",
      "geometry": {
        "type": "Point",
        "coordinates": [
          10.33,
          52.15
        ]
      },
      "geometry_name": "geom",
      "properties": {
        "id": "DEZ2799",
        "kenn": "031020004",
```



```
    "name": "Salzgitter-Lebenstedt",
    "start_measure": "2021-08-17T13:00:00Z",
    "end_measure": "2021-08-17T14:00:00Z",
    "value": 0.092,
    "unit": "µSv/h",
    "validated": 1,
    "nuclide": "Gamma-ODL-Brutto",
    "duration": "1h"
  }
},
// [...]
],
"totalFeatures": 168,
"numberMatched": 168,
"numberReturned": 168,
"timeStamp": "2021-08-24T12:30:21.262Z",
"crs": {
  "type": "name",
  "properties": {
    "name": "urn:ogc:def:crs:EPSG::4326"
  }
}
}
```

Time series with 24-hour measurement data

Layername: **odlinfo_timeseries_odl_24h**

Retrieval URL:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_24h&outputFormat=application/json&viewparams=kenn:<Messstellenkennung>

Properties of the individual features:

id	The international ID (sometimes also referred to as locality_code) of the measuring station.
kenn	The measuring station identifier as also used on ODL Info.
plz	The postal code of the measuring station.
name	The name or locality name of the measuring station.
start_measure	Start time of the measuring period for the given measured value.
end_measure	End time of the measurement period for the given measured value.
value	The measured value.
unit	Unit of the measured value.
validated	Test status of the measured value. (1 = tested, 2 = untested)
nuclide	Designation of the variable.
duration	Duration of the measurement period.



Example:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata%3Aodlinfo_timeseries_odl_24h&viewparams=kenn%3A031021004&outputFormat=application%2Fjson

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "id": "odlinfo_timeseries_odl_24h.fid-67f071dd_17b784e2b46_-
2dcf",
      "geometry": {
        "type": "Point",
        "coordinates": [
          10.33,
          52.15
        ]
      },
      "geometry_name": "geom",
      "properties": {
        "id": "DEZ2799",
        "kenn": "031020004",
        "name": "Salzgitter-Lebenstedt",
        "start_measure": "2020-08-24T00:00:00Z",
        "end_measure": "2020-08-25T00:00:00Z",
        "value": 0.097,
        "unit": "µSv/h",
        "validated": 1,
        "nuclide": "Gamma-ODL-Brutto",
        "duration": "1d"
      }
    },
    {
      "type": "Feature",
      "id": "odlinfo_timeseries_odl_24h.fid-67f071dd_17b784e2b46_-
2dce",
      "geometry": {
        "type": "Point",
        "coordinates": [
          10.33,
          52.15
        ]
      },
      "geometry_name": "geom",
      "properties": {
```



```
    "id": "DEZ2799",
    "kenn": "031020004",
    "name": "Salzgitter-Lebenstedt",
    "start_measure": "2020-08-25T00:00:00Z",
    "end_measure": "2020-08-26T00:00:00Z",
    "value": 0.099,
    "unit": "µSv/h",
    "validated": 1,
    "nuclide": "Gamma-ODL-Brutto",
    "duration": "1d"
  }
},
// [...]
],
"totalFeatures": 345,
"numberMatched": 345,
"numberReturned": 345,
"timeStamp": "2021-08-24T13:29:20.877Z",
"crs": {
  "type": "name",
  "properties": {
    "name": "urn:ogc:def:crs:EPSG::4326"
  }
}
}
```

Sorting and filtering options

The returned data of a query can be sorted, limited, and filtered directly via the query.

Sorting

The data can be sorted by any feature property contained in the "properties".

For example, sorting by "end_measure" can be useful; the data is output sorted by the end of the measurement period.

Additionally, *+A* can be appended for ascending (default) or *+D* for descending sorting.

Examples:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004&sortBy=end_measure

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004&sortBy=end_measure+D



Limitation of the number of data sets returned

Especially for queries with an expected large number of data sets, it can be useful to limit the number of returned data sets with the parameter *&maxFeatures=...*

In addition, an offset can be specified using *&startIndex=...*, which allows many data sets to be retrieved in smaller parts. When using *&startIndex=...*, sorting is required.

Examples:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004&sortBy=end_measure&maxFeatures=50

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004&sortBy=end_measure&maxFeatures=50&startIndex=50

Temporal delimitation of the data sets

Using a special *&filter=...* parameter, the data sets can be limited in time.

The actual filter is a special XML in URL-encoded form.

Example XML:

```
<Filter xmlns="http://www.opengis.net/ogc" xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml">
  <PropertyIsBetween>
    <PropertyName>end_measure</PropertyName>
    <LowerBoundary><Literal>2021-08-24T00:00:00.000Z</Literal></LowerBoundary>
    <UpperBoundary><Literal>2021-08-24T23:59:59.000Z</Literal></UpperBoundary>
  </PropertyIsBetween>
</Filter>
```

Example URL with the previous XML filter:

https://www.imis.bfs.de/ogc/opendata/ows?service=WFS&version=1.1.0&request=GetFeature&typeName=opendata:odlinfo_timeseries_odl_1h&outputFormat=application/json&viewparams=kenn:031020004&filter=%3CFilter%20xmlns%3D%22http%3A%2F%2Fwww.opengis.net%2Fogc%22%20xmlns%3Aogc%3D%22http%3A%2F%2Fwww.opengis.net%2Fogc%22%20xmlns%3Agml%3D%22http%3A%2F%2Fwww.opengis.net%2Fgml%22%3E%0A%20%20%3CPropertyIsBetween%3E%0A%20%20%20%20%3CPropertyName%3Eend_measure%3C%2FPropertyName%3E%0A%20%20%20%20%3CLowerBoundary%3E%3CLiteral%3E2021-08-24T00%3A00%3A00.000Z%3C%2FLiteral%3E%3C%2FLowerBoundary%3E%0A%20%20%20%20%3CUpperBoundary%3E%3CLiteral%3E2021-08-24T23%3A59%3A59.000Z%3C%2FLiteral%3E%3C%2FUpperBoundary%3E%0A%20%20%3C%2FPropertyIsBetween%3E%0A%3C%2FFilter%3E