Kartverket

Communication protocol

API for water level and tides

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About

Geonorge is the main source for general metadata information about the API for water level and tides and its data set Water level data and information. This document includes some general information but focuses on how to use the API.

Any feedback on this API or its data can be sent to tidevann@kartverket.no. We would also like to hear about how you use this API to create your own services or apps, including user needs for further development of this service.

Terms of use

The API is open for everybody and does not require registration, but the Norwegian Mapping Authority, Hydrographic Service must be credited, since we are licensee of the data.

The use of the data is licensed through Creative Commons Attribution 4.0 international (CC BY 4.0). See also Terms of use at Kartverket.no.

Please be careful not to abuse the API by excessive polling of data. Proper programming practice will be to cache static data locally and limit the number of requests. Remember that you share this resource with all other users.

Users must also accept that the API is evolving, and that new elements or parameters might be added to existing requests.

Notice of changes to the service or downtime

Any changes to the service or the data sets will be issued through Geonorge, see https://register.geonorge.no/register/varsler, generally with 3 months' notice. It is highly recommended that you subscribe to the service notices, see register.geonorge.no/api/varsler.atom?

Information on planned and unplanned downtime of services is published through messages and alerts at https://status.kartverket.no/ and users are recommended to subscribe to these.

Specific downtime or other messages related to this API or the network of tide gauges will be available through this API as described in Service messages. Service messages for individual tide gauges are included when relevant in the responses for requests of *stationdata*, *locationdata* or *locationlevels*.

Available datasets

This is a brief overview of the data available from this service. See kartveket.no and geonorge.no for further information.

Water level data and information

Water level information includes information about levels, tide tables with high and low waters and tidal constituents, and data such as predicted tides, (estimated) observed water level and surge, and water level forecasts.

Using this API, water level information can be requested **from a specific water level station**, typically one of the permanent tide gauges, or **for a particular position**. All requests for water level information for a position are based on a model where the Norwegian coast has been divided into tidal zones. For each valid zone, the **tide tables**, **predictions** and tide related **levels** are calculated based on tidal prediction from an associated station with assigned correction **factor** for height and **delay** for time shift. Most zones return the observed **weather effect** (surge) from the closest permanent station. The

estimated **observations** of water level returned are the sum of the adjusted tidal predictions and the observed weather effects from the most relevant permanent tide gauge. The adjusted tidal predictions and the observed weather effect can be based on different stations.

The different types of **levels** include important reference levels used in maps and other official products, astronomical levels related to the tide, observed extremes and statistical return levels for extreme water levels with different return periods.

Land uplift

Values for annual land uplift based on the official land uplift model NKG2016LU of the Nordic Commission of Geodesy (NKG) for northern Europe, see Vestøl et al, 2019, https://doi.org/10.1007/s00190-019-01280-8. The model was released in 2016 and covers an area from 49° to 75° latitude and 0° to 50° longitude.

Using this API, the value of the nearest grid cell is returned. No interpolation is done.

General information

All **requests** are a URL with parameters which may be listed in any order. The available parameters for each type of request are listed in this document. Some are mandatory, others have default values which will be used if the value is not valid or omitted. The requests are not case sensitive. The following website can be helpful for building requests and exploring the possibility of this API: https://vannstand.kartverket.no/tideapi_en.html or https://vannstand.kartverket.no/tideapi_no.html for Norwegian.

The **response** is usually given as an xml unless otherwise requested. There is no xml-scheme explaining all the elements and attributes. Examples of responses as xml have been included here to show the structure and the most important attributes. Some of the most common attributes used in different elements are:

- **Value**: a float number, the value of the data. The unit is given as an attribute, often of the parent element. The value is most often related to a reference level, which will be given as an attribute.
- **Code**: an identifier (for a station, reference level etc).
- **Name**: the name of the station, level etc.
- **Type**: groups of stations, reference levels etc. Can be used for filtering the response
- **Desc** or **descr**: information as text describing the attribute, can be useful for mouse-over texts. Note that the use of both **desc** and **descr** will be harmonized. There will be an alert through Geonorge about this change several months in advance.

The preferred **language** for any information text included in the response can be specified. A period (.) is used as decimal separator in all numbers, independent of what language is requested.

All **times** are in ISO-8601 format, e.g. 2005-08-15T15:52:01+01. Times will be Norwegian standard time (UTC+1) if no other time zone is requested. The time zone designation will always be present. If no time is specified, the default value of midnight, T00:00:00+01, will be used.

All **coordinates** are geographical latitude and longitude (EUREF89) given in decimal degrees.

In texts the following **symbols** are substituted according to xml standard requirements:

- **&** will be substituted with **&**
- **<** will be substituted with **<**

- **>** will be substituted with **>**
- **'** will be substituted with **'**
- **"** will be substituted with **"**

Error elements containing a text are used if a request has illegal or invalid parameters. This could be `<error>Illegal reference level code</error>` or `<error>Position outside area</error>`.

Changes

Changes:

21. october 2015	Added Ocean Level Change
10.december 2016	Added selection of reference level group. Changes in info of Water level at position. Reference level is not optional any more.
5.may 2017	Added tide zone information
July 2025	Major revision: restructured and updated. New URL. Sea level change data removed (data set no longer part of this API).

Requests for general information

The service provides a set of requests for general information about the service, its data and the models used.

Available languages: tide_request=languages

The request *languages* returns the **lang** and **name** of available languages.

These two letter codes are used to set the parameter **lang** in other requests, defining the language of returned text strings such as a description or a service message.

Parameters

None.

Example

vannstand.kartverket.no/tideapi.php?tide_request=languages

Response example:

```
<tide>
  <languages>
    <lang code="nb" name="Bokmål"/>
    <lang code="nn" name="Nynorsk"/>
    <lang code="en" name="English"/>
  </languages>
</tide>
```

Available file formats: tide_request=fileformats

The request *fileformats* lists **code**, **name** and **desc** of available file formats other than XML for the different types of requests.

Parameters

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?lang=en&tide_request=fileformats

Response example:

```
<tide>
  <meta licenseurl="http://kartverket.no/data/lisens/"/>
  <fileformats type="locationlevels">
    <file name="Adobe PDF" code="PDF" desc="Adobe Portable Document Format"/>
  </fileformats>
  <fileformats type="locationdata">
    <file name="Adobe PDF" code="PDF" desc="Adobe Portable Document Format"/>
    <file name="Text file" code="TXT" desc="Text file. Can be imported into a
    spreadsheet (Excel)"/>
  </fileformats>
  <fileformats type="searise">
    <file name="Adobe PDF" code="PDF" desc="Adobe Portable Document Format"/>
  </fileformats>
</tide>
```

Standard levels: tide_request=standardlevels

The request for *standardlevels* returns the reference levels recommended used for menus etc. If no position is given in the request (or a non-valid one), this request returns the **code**, **name** and **descr** for Chart Datum, NN2000 and Mean sea level.

Note that it is highly recommended to include the position of interest for this request, as Chart Datum and NN2000 are not defined/available everywhere.

Parameters

lat: optional, latitude in decimal degrees.

lon: optional, longitude east of Greenwhich in decimal degrees.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?lat=58.974339&lon=5.730121&lang=en&tide_request=standardlevels

Response example:

```
<tide>
  <meta licenseurl="http://kartverket.no/data/lisens/"/>
  <standardlevels>
    <reflevel code="CD" name="Chart Datum" descr="Reference level for depths
    in navigational charts and heights in tide tables"/>
    <reflevel code="MSL" name="Mean Sea Level (1996-2014)" descr="The average
    height of the surface of the sea for all stages of the tide over a 19-
    year period"/>
    <reflevel code="NN2000" name="NN2000" descr="Norwegian vertical datum of
    2000"/>
  </standardlevels>
</tide>
```

Available levels: tide_request=levels

The request for *levels* returns a list of **name**, **code** and **descr** for all the levels used by this API.

Parameters

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?lang=en&tide_request=levels

Response example (abbr):

```
<tide>
  <levels>
    <reflevel code="CD" name="Chart Datum" descr="Reference level for depths
    in navigational charts and heights in tide tables"/>
    <reflevel code="MSL" name="Mean Sea Level (1996-2014)" descr="The average
    height of the surface of the sea for all stages of the tide over a 19-
    year period"/>
    (..)
  <levels>
</tide>
```

All publicly available stations: tide_request=stationlist

The request for *stationlist* returns a list of publicly available stations with **latitude**, **longitude**, **name** and **code**. The station codes are used for the station-based requests.

Parameters

None.

Example

vannstand.kartverket.no/tideapi.php?tide_request=stationlist

Response example (abbr):

```
<tide>
  <stationinfo>
    <station name="Andenes" code="ANX" latitude="69.326067"
    longitude="16.134848" type="PERM"/>
    <station name="Bergen" code="BGO" latitude="60.398046"
    longitude="5.320487" type="PERM"/>
    <station name="Bodø" code="BOO" latitude="67.28829" longitude="14.390813"
    type="PERM"/>
    (…)
  </stationinfo>
</tide>
```

Information about the tidal zones: tide_request=tidezones

The request *tidezones* returns information about the tidal zones covering the Norwegian waters. Each **zone** contains the relevant information needed to estimate tides and water level for this area. Furthermore, different relevant **levels** for this zone are given, as well as the **polygon** defining it.

If you want tides, water level or forecast for different positions along the coast, see the request for *locationdata* as described under requests for a given position below. This request is based on the tidal zones described here. If you are building a service generating a lot of requests for *locationdata,* or if you need to have tidal predictions available off-line,

please use the information provided by *tidezones* to program your own code for this estimation.

To estimate the tide in a zone, collect the tides given to mean sea level from the station given by **code**, multiply it by the given **factor** and add the number of minutes given as **delay**. To get the estimated water level, add the surge from the station denoted by **obscode**. Then use the **levels** provided for the zone to adjust the estimated data for the zone to the appropriate reference level.

Parameters

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?tide_request=tidezones&lang=en

Response example (abbr):

```
<tide>
<meta licenseurl="http://kartverket.no/data/lisens/"/>
  <tidezones>
    <zone id="522" name="Hammerfest" code="HFT" obsname="Tromsø" obscode="TOS
    " delay="-35" factor="1.02" changed="2021-08-
    17T00:00:00+01:00" usenn="NN2000">
      <levels reflevel="MSL" unit="m">
        <level code="HIGHENDWL" value="2.712" name="High-end water
        level" desc="High-end water level" type="RETURN"/>
        <level code="1000YMAX" value="2.332" name="1000-years high water
        (storm surge)" desc="High water that occurs in average every 1000
        years." type="RETURN"/>
            (…)
      </levels>
      <polygon>
        <point lat="69.977100" lon="20.861000"/>
        <point lat="69.976964" lon="20.955334"/>
            (…)
        <wkt> POLYGON((20.861000 69.977100, 20.955334 69.976964,(…))</wkt>
      </polygon>
    </zone>
    (…)
  </tidezones>
</tide>
```

Service messages: tide_request=service

The request *service* returns common service messages. These can be concerning this API and its data, or general service information about the network of permanent tide gauges. Service messages for a single tide gauge are only included in the relevant calls for data based on this station, see *locationdata* or *stationdata*. If there is no current service message, the empty-element tag <service/> is returned.

Parameters

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?&tide_request=service&lang=en

Response example:

```
<tide>
  <service cominfo="Example message of a general, common service message "/>
</tide>
```

Ping the service for its status: tide_request=ping

The request *ping* returns either ok or an error message.

Parameters

None.

Example

vannstand.kartverket.no/tideapi.php?&tide_request=ping

Response example:

```
<tide>OK</tide>
```

Request for data for a given position

Position-based data requests are available for water level data and information, and land uplift.

The different datatypes have different coverage and spatial resolutions, as they are based on different models. Water level data and information are modeled using the tidal zones covering the Norwegian coast. Land uplift is a gridded model covering most of Scandinavia.

All position-based requests include a location-element with information of the parameters used in the model for water level data and information:

- **name** and **code** refer to the water level station used for the tidal prediction (or tide related levels).
- **factor** and **delay** give the amplitude correction and time shift applied to the tidal prediction to best represent the given locations (the zone).
- **obsname** and **obscode** refer to the permanent tide gauge where the weather effect (surge) is taken from.

The location-element also includes the land uplift as mm pr year, the position the request was done for and the same text for place as given in the request.

If the model does not provide data for the requested position, a text explaining why will be given as **nodata info**.

All parameters for the position-based requests are listed and explained below. Position is required for all these requests, while the other parameters can be required, optional or not applicable depending on the request

Table 1: Lists all available parameters for the position-based requests and whether it is required (x), not applicable (n/a) or optional (opt) with any default settings noted in parentheses.

	standardlevels	*locationlevels*	*locationdata*	*tidetable*	*landlift*
lat	X	X	X	X	X
lon	X	X	X	X	X
refcode	n/a	X (cd)	X (cd)	Pre set	n/a
fromtime, totime	n/a	n/a	X (yesterday, today)	n/a	n/a
year	n/a	n/a	n/a	x	n/a
datatype	n/a	n/a	opt (all)	n/a	n/a
interval	n/a	n/a	opt (60)	n/a	n/a
dst	n/a	n/a	opt (0)	n/a	n/a
tzone	n/a	n/a	opt (0)	n/a	n/a
flag	n/a	opt	opt	n/a	n/a
place	n/a	opt	opt	opt	n/a
file	n/a	opt	opt	Pre set	n/a
lang	n/a	opt (nn)	opt (nn)	opt (nn)	opt (nn)

Standard levels: tide_request=standardlevels

See the description under requests for general information.

Levels at position: tide_request=locationlevels

The request for *locationlevels* returns all levels defined at the given position. The **flag** parameter can be used to request only certain types of levels, but some reference levels will always be returned.

Location includes information on how the levels have been estimated. Astronomical levels are obtained from tidal predictions from the station given by **name** and **code**, scaled by **factor**, as described above. Statistical return levels are calculated using tidal predictions along with weather effect from the station given by **obsname**/**obscode**.

Parameters

lat: latitude in decimal degrees.

lon: longitude east of Greenwhich in decimal degrees.

refcode: {cd, msl, nn2000} default: cd.
Reference level to use for data. **cd** = chart datum, **msl** = mean sea level, **nn2000** = NN2000.

flag: {obs, astro, astroref, return, adm}, optional, default: no flag.
Use comma to separate flags.
obs returns maximum and minimum observed water level.
astro returns the astronomical levels, that is, levels related to the tide.
astroref returns the astronomical levels used as reference level for some official product or publication. These are the highest astronomical tide (HAT) and mean high water level (MHW).
return are statistical return levels for extreme high and low waters with different return periods.
adm returns administrative levels defined in construction regulations (currently not available).

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

file: {xml, txt, pdf} optional, default: xml.
Filetype used for response.

place: optional.
This text is only used in files as title/in the header. It does not influence the data and can therefore be any text determined by the user.

Example

vannstand.kartverket.no/tideapi.php?tide_request=locationlevels&lang=en&lat=63.9&lon=9.4&place=HeaderTitle&refcode=cd&file=&flag=astro,return

Example response (abbr):

```
<tide>
  <locationlevel unit="cm" reflevel="CD">
    <location name="Mausund" code="MSU" latitude="63.900000" longitude="9.400
    000" delay="5" factor="1.05" place="HeaderTitle" obsname="Mausund" obscod
    e="MSU" landlift="0.27"/>
    <reflevel code="1000YMAX" value="363.4" name="1000-years high water
    (storm surge)" descr="High water that occurs in average every 1000
    years." type="RETURN"/>
    (…)
    <reflevel code="HAT" value="297.7" name="Highest Astronomical
    Tide" descr="The highest tidal level which can be predicted to occur
    under average meteorological conditions and under any combination of
    astronomical conditions." type="ASTROREF"/>
    (…)
    <reflevel code="NN2000" value="158.3" name="NN 2000" descr="Norwegian
    vertical datum of 2000" type="REF"/>
    (…)
    <reflevel code="CD" value="0.0" name="Chart Datum" descr="Reference level
    for depths in navigational charts and heights in tide
    tables" type="REF"/>
    <reflevel code="LAT" value="0.0" name="Lowest Astronomical
    Tide" descr="The lowest tide level which can be predicted to occur under
    average meteorological conditions and under any combination of
    astronomical conditions." type="ASTRO"/>
    (…)
    <reflevel code="20YMIN" value="-26.0" name="20-years low
    water" descr="Low water that occurs in average every 20
    years." type="RETURN"/>
  </locationlevel>
</tide>
```

Water level data in position: tide_request=locationdata

The request for *locationdata* returns water level data (observations, modelled data, predictions and/or forecasts) based on position. It can also return only the predicted high and low waters.

The returned water level data are observations only for the positions with a permanent tide gauge, for other positions all data are modelled. The response includes the parameters used to model the data and a quality assessment of the modelled data.

Currently you can **only ask for up to 366 days of data, or 1000 days for high/low water times.** Any request for longer time periods will be truncated at the limit. E.g., if you ask for two years of observations, only the first 366 days is returned.

Parameters

lat: latitude in decimal degrees.

lon: longitude east of Greenwhich in decimal degrees.

refcode: {cd, msl, nn2000} default: cd.
Reference level to use for data. **cd** = chart datum, **msl** = mean sea level, **nn2000** = NN2000.

fromtime: Start of interval (yyyy-mm-ddTHH:HH), default: previous day at current time.

totime: End of interval (yyyy-mm-ddTHH:HH), default: current date and time.

datatype: {obs, pre, all, tab} optional, default: all.
Which data to return. **obs** = observed/estimated water level, **pre** = tidal predictions, **all** = obs + pre + forecast if available, **tab** = tide table (high/low tides only).

interval: {10, 60} optional, default: 60.
Interval between data points in minutes. Irrelevant if datatype equals **tab** and will then be ignored.

dst: {0,1} optional, default: 0.
Whether to apply daylight saving for timestamps. Only valid if **tzone** is 1. Note that the requested **fromtime** and **totime** will not be adjusted for daylight saving time.

tzone: optional, default: 1.
Time zone in whole hours.

flag: optional, default: no flag.
If **flag** = **nosa**, the annual tidal constituent SA is removed from the tidal predictions.

uncertainty: {0,1} optional, default: 0.
If set to 1, the water level forecast will include uncertainty values.

file: {xml, txt, pdf} optional, default: xml.
Filetype used for response.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

place: optional.
This text is only used in files as title/in the header. It does not influence the data and can therefore be any text determined by the user.

Example

vannstand.kartverket.no/tideapi.php?lat=58.9&lon=5.8&fromtime=2024-06-05T00:00&totime=2024-06-06T00:00&datatype=obs&refcode=cd&place=AnyHeaderText&file=&lang=nn&interval=10&dst=0&tzone=1&tide_request=locationdata

Example response (abbr):

```
<tide>
  <locationdata>
    <location name="Stavanger" code="SVG" latitude="58.970000" longitude="5.7
    50000" delay="0" factor="1.00" obsname="Stavanger" obscode="SVG" place="A
    nyHeaderText" descr="Tidvatn og observert vasstand frå Stavanger"/>
    <reflevelcode>CD</reflevelcode>
    <data type="observation" unit="cm" qualityFlag="1" qualityClass="Quality
    High" qualityDescription="Data av høg kvalitet: Det er verifisert mot
    målingar at data stemmer med fysiske forhold.">
      <waterlevel value="72.4" time="2024-06-05T00:00:00+01:00" flag="obs"/>
      <waterlevel value="71.4" time="2024-06-05T00:10:00+01:00" flag="obs"/>
        (…)
      <waterlevel value="85.6" time="2024-06-06T00:00:00+01:00" flag="obs"/>
    </data>
  </locationdata>
</tide>
```

Tide table for one year as pdf-file: tide_request=tidetable

The request *tidetable* returns a tide table for the requested location and year as a PDF-file. In addition to the tide table for one year, the file includes general information about the product and specific information about the data used to estimate the tide at this given location. The file also includes the reference levels for this location.

Parameters

lat: latitude in decimal degrees.

lon: longitude east of Greenwhich in decimal degrees.

year: as a string 'yyyy' default: current year.

refcode: {cd, msl, nn2000} default: cd.
Reference level to use for data. **cd** = chart datum, **msl** = mean sea level, **nn2000** = NN2000.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

place: optional.
This text is only used in files as title/in the header. It does not influence the data and can therefore be any text determined by the user.

Example

https://vannstand.kartverket.no/tideapi.php?lat=58.974339&lon=5.730121&lang=en&year=2025&place=AnyHeadingText&tide_request=tidetable

Example response not included

PDF-file only, therefore no example response included here.

Land lift information: tide_request=landlift

The request for *landlift* is included in the API for water level information because it is important when one want to go from observed relative sea level changes to absolute sea level changes. Even though other water level information is only available along the coast, the request for land lift will give you a response for inland positions as well.

Parameters

lat: latitude in decimal degrees.

lon: longitude east of Greenwhich in decimal degrees.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?lat=58.974339&lon=5.730121&tide_request=landlift

Example response

```
<tide>
  <landlift latitude="58.974339" longitude="5.730121" unit="cm" yearly="0.133
  "/>
</tide>
```

Requests for data or information for a given station

These requests provided data directly from the given water level station, most often one or several of the permanent tide gauges.

Observation interval for a station: tide_request=obstime

The request *obstime* returns the times of the first and last available observation from this station.

Due to a bug, the last observation time is not updated continuously. Most available stations have observations up to the current date and time.

Parameters

stationcode: A three letter station code. Use *stationlist* to find the available codes.

Example

vannstand.kartverket.no/tideapi.php?stationcode=TRD&tide_request=obstime

Example response

```
<tide>
  <obstime code="TRD" first="1989-12-08T18:10:00+01:00" last="2023-10-
  17T12:10:00+01:00"/>
</tide>
```

Interval for statistics from a station: tide_request=stattime

The request *stattime* returns the first and last year with available statistics from the station in terms of yearly and monthly maximums, minimums and means. These statistics might be available also for years where the observations themselves are not (yet) available through this API.

Parameters

stationcode: A three letter station code. Use *stationlist* to find the available codes.

Example

vannstand.kartverket.no/tideapi.php?stationcode=TRD&tide_request=stattime

Example response

```
<tide>
  <stattime code="TRD" first="1989" last="2024"/>
</tide>
```

Observations and predictions from permanent tide gauges: tide_request=stationdata

The request for *stationdata* can be used to get observations and/or predictions from one, several or all permanent water level stations.

Parameters

stationcode: Comma separated list of three letter station codes. Use *stationlist* to find the available codes. If empty or not given, data from all public stations is returned.

refcode: {cd, msl, nn2000} default: cd.
Reference level to use for data. **cd** = chart datum, **msl** = mean sea level, **nn2000** = NN2000.

fromtime: Start of interval (yyyy-mm-ddTHH:HH), default: previous day at current time.

totime: End of interval (yyyy-mm-ddTHH:HH), default: current date and time.

datatype: {obs, pre, all, tab} optional, default: all.
Which data to return. **obs** = observed/estimated water level, **pre** = tidal predictions, **all** = obs + pre + forecast if available, **tab** = tide table (high/low tides only).

interval: {10, 60} optional, default: 60.
Interval between data points in minutes. Irrelevant if datatype equals **tab** and will then be ignored.

dst: {0,1,2} optional, default: 0.
Change how to give the timestamps: Use **dst** = 1 to apply daylight saving for timestamps (only valid if **tzone** is 1), use **dst =** 2 for time to be given as seconds after the **reftime** given in the data-element.

tzone: optional, default: 1.
Time zone in whole hours.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?fromtime=2025-06-02T00%3A00&totime=2025-06-02T03%3A00&datatype=obs&interval=60&tide_request=stationdata&stationcode=SVG,TRG

Example response

```
<tide>
  <stationdata>
    <location name="Stavanger" code="SVG" latitude="58.974339"
    longitude="5.730121">
    <data type="observation" unit="cm" reflevelcode="CD">
     <waterlevel value="83.3" time="2025-06-02T00:00:00+01:00" flag="obs"/>
     <waterlevel value="90.3" time="2025-06-02T01:00:00+01:00" flag="obs"/>
     <waterlevel value="98.4" time="2025-06-02T02:00:00+01:00" flag="obs"/>
     <waterlevel value="99.9" time="2025-06-02T03:00:00+01:00" flag="obs"/>
    </data>
    </location>
    <location name="Tregde" code="TRG" latitude="58.006377"
    longitude="7.554759">
    <data type="observation" unit="cm" reflevelcode="CD">
     <waterlevel value="67.7" time="2025-06-02T00:00:00+01:00" flag="obs"/>
     <waterlevel value="62.4" time="2025-06-02T01:00:00+01:00" flag="obs"/>
     <waterlevel value="57.8" time="2025-06-02T02:00:00+01:00" flag="obs"/>
     <waterlevel value="54.2" time="2025-06-02T03:00:00+01:00" flag="obs"/>
    </data>
    </location>
  </stationdata>
</tide>
```

Levels at a station: tide_request=stationlevels

The *stationlevels* request returns all levels in the position of the station specified by `stationcode`. It is equivalent to using *locationlevels* for the position of the station.

Parameters

stationcode: A three letter station code. Use *stationlist* to find the available codes.

refcode: {cd, msl, nn2000} default: cd.
Reference level to use for data. **cd** = Chart Datum, **msl** = mean sea level, **nn2000** = NN2000.

file: {xml, pdf} optional, default: xml.
Filetype used for response.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?stationcode=TRD&refcode=NN2000&lang=en&file=&tide_request=stationlevels

Example response (abbr)

```
<tide>
  <locationlevel unit="cm" reflevel="NN2000">
    <location name="Trondheim" code="TRD" latitude="63.436484" longitude="10.
    391669" delay="0" factor="1.00" place="Trondheim" obsname="Trondheim" obs
    code="TRD" landlift="0.42"/>
    <reflevel code="HIGHENDWL" value="335.0" name="High-end water
    level" descr="High-end water level" type="RETURN"/>
    <reflevel code="HOWL" value="259.5" name="Highest Observed Water
    Level" descr="The highest observed water level for this tide
    station." info="2.11.1971" type="OBS"/>
    <reflevel code="1000YMAX" value="242.0" name="1000-years high water
    (storm surge)" descr="High water that occurs in average every 1000
    years." type="RETURN"/>
    <reflevel code="200YMAX" value="231.7" name="200-years high water (storm
    surge)" descr="High water that occurs in average every 200
    years." type="RETURN"/>
    (…)
    <reflevel code="HAT" value="171.4" name="Highest Astronomical
    Tide" descr="The highest tidal level which can be predicted to occur
    under average meteorological conditions and under any combination of
    astronomical conditions." type="ASTROREF"/>
    (…)
    <reflevel code="NN2000" value="0.0" name="NN 2000" descr="Norwegian
    vertical datum of 2000" type="REF"/>
    <reflevel code="MSL" value="-6.1" epoch="1996-2014" name="Mean Sea Level
    (1996-2014)" descr="The average height of the surface of the sea for all
    stages of the tide over a 19-year period" type="REF"/>
    (…)
    <reflevel code="CD" value="-174.1" name="Chart Datum" descr="Reference
    level for depths in navigational charts and heights in tide
    tables" type="REF"/>
    <reflevel code="LAT" value="-174.1" name="Lowest Astronomical
    Tide" descr="The lowest tide level which can be predicted to occur under
    average meteorological conditions and under any combination of
    astronomical conditions." type="ASTRO"/>
    (…)
    <reflevel code="20YMIN" value="-204.5" name="20-years low
    water" descr="Low water that occurs in average every 20
    years." type="RETURN"/>
  </locationlevel>
</tide>
```

Monthly and yearly means, maximum and minimum: tide_request=monthmean

The request *monthmean* returns the mean, minimum and maximum for each month numbered from 1 to 12 for the requested years. The yearly mean, minimum, and maximum are given as **month** = “0”.

The values are given as cm above the requested reference level and for the minimums and maximums the date and time of the observation is included.

If data is missing for 15 days in a month, the response will not include monthly mean, minimum or maximum for that month. The yearly mean, minimum and maximum will not be included if one or more monthly means are missing, including if it is the current year.

Parameters

stationcode: A three letter station code. Use *stationlist* to find the available codes

refcode: {cd, msl, nn2000} default: cd
Reference level to use for data. **cd** = chart datum, **msl** = mean sea level, **nn2000** = NN2000.

fromtime: year as a string 'yyyy', default: last year.
Data from this year onwards, must be smaller than totime.

totime: year as string 'yyyy': default: current year.
Data up till and including this year, must be larger than fromtime.

lang: {nb, nn, en} optional, default: nn.
Language. **nb** = Norwegian bokmål, **nn** = Norwegian nynorsk, **en** = English.

Example

vannstand.kartverket.no/tideapi.php?stationcode=TRD&fromtime=2010&totime=2011&refcode=cd&tide_request=monthmean

Example response (abbr.)

```
<tide>
  <monthmean reflevel="CD" unit="cm" year="2010">
    <location name="Trondheim" code="TRD"/>
    <mean month="0" value="159.56" days="365" min="-
    15.07" max="338.21" timemin="2010-09-10T06:30:00+01:00" timemax="2010-11-
    06T11:10:00+01:00"/>
    <mean month="1" value="149.38" days="31" min="3.37" max="322.87" timemin=
    "2010-01-31T18:40:00+01:00" timemax="2010-01-31T12:10:00+01:00"/>
    (…)
    <mean month="12" value="160.99" days="31" min="21.13" max="325.49" timemi
    n="2010-12-23T19:10:00+01:00" timemax="2010-12-06T11:40:00+01:00"/>
  </monthmean>
  <monthmean reflevel="CD" unit="cm" year="2011">
    <location name="Trondheim" code="TRD"/>
    <mean month="0" value="171.61" days="365" min="-
    11.18" max="403.68" timemin="2011-02-19T18:40:00+01:00" timemax="2011-11-
    25T23:40:00+01:00"/>
    <mean month="1" value="168.12" days="31" min="0.79" max="315.96" timemin=
    "2011-01-22T19:30:00+01:00" timemax="2011-01-21T12:30:00+01:00"/>
    (…)
    <mean month="12" value="200.58" days="31" min="62.86" max="384.81" timemi
    n="2011-12-27T19:50:00+01:00" timemax="2011-12-26T00:50:00+01:00"/>
  </monthmean>
</tide>
```

Tidal constituents for a station: tide_request=constituents

The request for *constituents* returns the best available set of harmonic constants for the given station. Note that most often the **unit** is cm and the times/phases relate to UTC+1 as indicated by **utcoffset**. The metadata also includes the **start** and **end** time of the observed

time series the harmonic analysis have been done for. Note that SA is based on a longer analysis, that long harmonic constants might be from a nearby (permanent) station and that some constants might be related from a nearby station.

Parameters

stationcode: A three letter station code. Use *stationlist* to find the available codes.

The code "MODEL" can be used to get constituents for locations at sea which is obtained from harmonic analysis of water level data from a hydrodynamic ROMS-model. This requires additional parameters of **lat** and **lon** in decimal degrees. The model is not valid in the coastal zone and not verified for the whole domain.

IMPORTANT: The possibility to use constituents with **stationcode***=model will be removed from the API within the next year. If you use the constituents based on model data, or wish to use them, please contact us for discussions about a new request for this. For further notice of these changes, follow the alerts for this service on Geonorge.*

Example

vannstand.kartverket.no/tideapi.php?stationcode=TOS&tide_request=constituents

Example respons (abbr.)

```
<tide>
   <constituents unit="cm" utcoffset="+01:00">
   <location name="Tromsø" code="TOS" longitude="18.954790" latitude="69.64611
   0"/>
   <provider name="Statens kartverk sjø (Norwegian Hydrographic
   Service)" web="www.kartverket.no" email="tidevann@kartverket.no"/>
   <observations start="2006-01-01T00:00:00+01:00" end="2020-12-
   31T23:00:00+01:00"/>
   <constituent name="SA" amplitude="12.86" phaseangle="330.24" speed="0.04106
   668" doodson="ZZAZZYZ"/>
   <constituent name="SSA" amplitude="2.06" phaseangle="159.06" speed="0.08213
   728" doodson="ZZBZZZZ"/>
   <constituent name="MM" amplitude="2.63" phaseangle="184.38" speed="0.544374
   65" doodson="ZAZYZZZ"/>
   (..)
   <constituent name="M2" amplitude="84.25" phaseangle="29.55" speed="28.98410
   425" doodson="BZZZZZZ"/>
   <constituent name="H2" amplitude="0.26" phaseangle="294.72" speed="29.02517
   093" doodson="BZAZZYZ"/>
   <constituent name="LDA2" amplitude="0.99" phaseangle="23.63" speed="29.4556
   2534" doodson="BAXAZZB"/>
   <constituent name="L2" amplitude="2.70" phaseangle="41.60" speed="29.528478
   90" doodson="BAZYZZB"/>
   <constituent name="T2" amplitude="1.38" phaseangle="62.67" speed="29.958933
   31" doodson="BBWZZAZ"/>
   <constituent name="S2" amplitude="27.54" phaseangle="73.32" speed="29.99999
   999" doodson="BBXZZZZ"/>
   (…)
   </constituents>
</tide>
```

Requests for time series

The intention of this API is to provide all time series of water level data available. The API therefore has a placeholder for a tide_request=*seriesdata* not yet operational. Currently, only the filtered 10 minute data from the permanent tide gauges are available through *stationdata* or *locationdata* (using the relevant positions).