

Description of JSON API response parameters

The data for a specific gauge station can be accessed under the following address:

<https://gdi.bsh.de/ldproxy/rest/services/WaterLevelForecast/collections/waterlevelforecastdata/items/{ID}?f=json>

where **{ID}** is the identifier for the station.

The general response to the JSON API request has the following structure:

type	['Feature']	
geometry	type	['Point']
	coordinates	[longitude, latitude]
properties	[list of parameters (Tab. 1)]	
	high_water_low_water	[list of parameters (Tab. 2)]
	curve	[list of parameters (Tab. 4)]
links	[list of additional links]	
id	[Unique identifier of the gauge station]	

Meta information on the respective gauge station and forecast data can be accessed under the **properties** key.

Please note that not all categories and parameters are available for every station. The information provided via the API may be incorrect or out of date, and should not be relied upon instead of the officially published forecasts on the website (www.bsh.de).

Parameters under **properties**

Tab. 1 Description of general parameters

parameter	Unit	Description
gauge_label	-	Name of the gauge station
official_warning_level_region	-	Official warning level for the North Sea or Baltic Sea (see Tab. 5)
forecast_text	-	Text with the official forecast as published on the website
forecast_text_additional	-	Text with preliminary information on the development of water levels
information	-	Informational notice on the operational status, e.g. technical disruptions
licence	-	Licence terms under which the data and information may be used
copyright	-	Copyright on the information and data
gaugezero_relative_to_nhn	cm	The height of gauge zero relative to Normalhöhennull (NHN)
chartdatum_relative_to_gaugezero	cm	The height of chart datum relative to the local gauge zero
area	-	Coastal area to which the gauge station is assigned
state	-	The federal state in which the gauge stations is located
region	-	Whether the gauge station is located in the North Sea or the Baltic Sea
mean_high_water	cm	Height of the mean high water level relative to gauge zero
mean_low_water	cm	Height of the mean low water level relative to gauge zero
latitude	degrees north	Latitude of the gauge station
longitude	degrees east	Longitude of the gauge station
automated_gauge_warning	-	Automatically generated warning level for this gauge station
bsh_url_waterlevel	-	Web address with forecasts for the gauge station
measurement_url	-	Web address of the operator with measurements for the gauge station
operator_gauge_id	-	Official gauge ID of the operator
forecast_timestamp	datetime string with explicit UTC offset	Timestamp indicating when the official forecast was updated
automated_curveforecast_timestamp	datetime string with explicit UTC offset	Timestamp indicating when the automated curve forecast was updated

Parameters of high and low water

The **high_water_low_water** category includes water level forecasts for upcoming high water and low water events. For selected gauge stations in the North Sea, additional model forecasts (MOS) are available.

Tab. 2 Description of high_water_low_water parameters

high_water_low_water / parameter	Unit	Description
event_timestamp	datetime string with explicit UTC offset	Timestamp of the high water or low water event
event	-	If the forecasted event is a high water ("HW") or a low water ("NW")
tidal_prediction_value	cm	Official tidal prediction of the event relative to gauge zero
forecast_value	cm	Official forecasted height of the event relative to gauge zero
forecast_uncertainty	cm	Uncertainty regarding the official forecasted height of the event
forecast_deviation	m	Deviation of the official forecasted height of the event from mean high water / mean low water
forecast_automated_event_warning	-	Automated warning level of the event
forecast_event_forecast_timestamp	datetime string with explicit UTC offset	Timestamp indicating when the official forecast of this event was updated
mos_forecast_[r0 ... r5]_value	cm	Automatically forecasted height of the event by MOS relative to gauge zero (see Tab. 3)
mos_forecast_[r0 ... r5]_deviation	m	Deviation of the automatically forecasted event height from mean high water / mean low water (see Tab. 3)
mos_forecast_event_forecast_timestamp	datetime string with explicit UTC offset	Timestamp indicating when the automated MOS forecast of this event was updated

Tab. 3 Description of mos_forecast fallback parameters

MOS parameter	Description
r0	MOS main forecast system. If r0 does not generate any forecasts because input data is missing, fallback systems r1 to r5 can be used
r1	Fallback forecast system, if gauge measurements of the gauge itself are missing
r2	Fallback forecast system, if gauge measurements of the upstream gauge are missing
r3	Fallback forecast system without the additional included weather forecast model GFS as input data
r4	Fallback forecast system, if the numerical water level model is not available
r5	Fallback forecast system, if more than one data input is missing, using only the numerical water level model and no gauge measurements

Curve parameters

The **curve** category includes time series of the latest measurements, model forecasts for the coming days and tidal predictions.

Tab. 4 Description of curve parameters

curve / parameter	Unit	Description
timestamp	datetime string with explicit UTC offset	Timestamp of the data
tidal_prediction	cm	Tidal prediction relative to gauge zero
automated_curve_forecast	cm	Automatically generated forecast of the temporal development of the water level at the gauge station relative to gauge zero
measurement	cm	Time series of current water level measurements at the gauge station relative to gauge zero

Official warning level categories

Depending on the current or expected water level on the German North Sea and Baltic Sea coasts, official information or warnings are published. The threshold water levels differ between the North Sea and the Baltic Sea. The respective category is given in the **official_warning_level_region** parameter (see Tab. 1). Please note that the warning level does not apply specifically to a particular gauge station.

Tab. 5 Overview of the official warning level categories

warning level categories	North Sea relative to MHW	Baltic Sea relative to NHN
"Wasserstandsvorhersage"	Default	Default
"Erhoehter Wasserstand"		+0.75 m
"Sturmflut"	+1.5 m	+1.0 m
"Schwere Sturmflut"	+2.5 m	+1.5 m
"Sehr schwere Sturmflut"	+3.5 m	+2.0 m
"Niedriger Wasserstand"		-0.75 m
"Niedrigwasser"		-1.0 m
"Schweres Niedrigwasser"		-1.5 m
"Sehr schweres Niedrigwasser"		-2.0 m