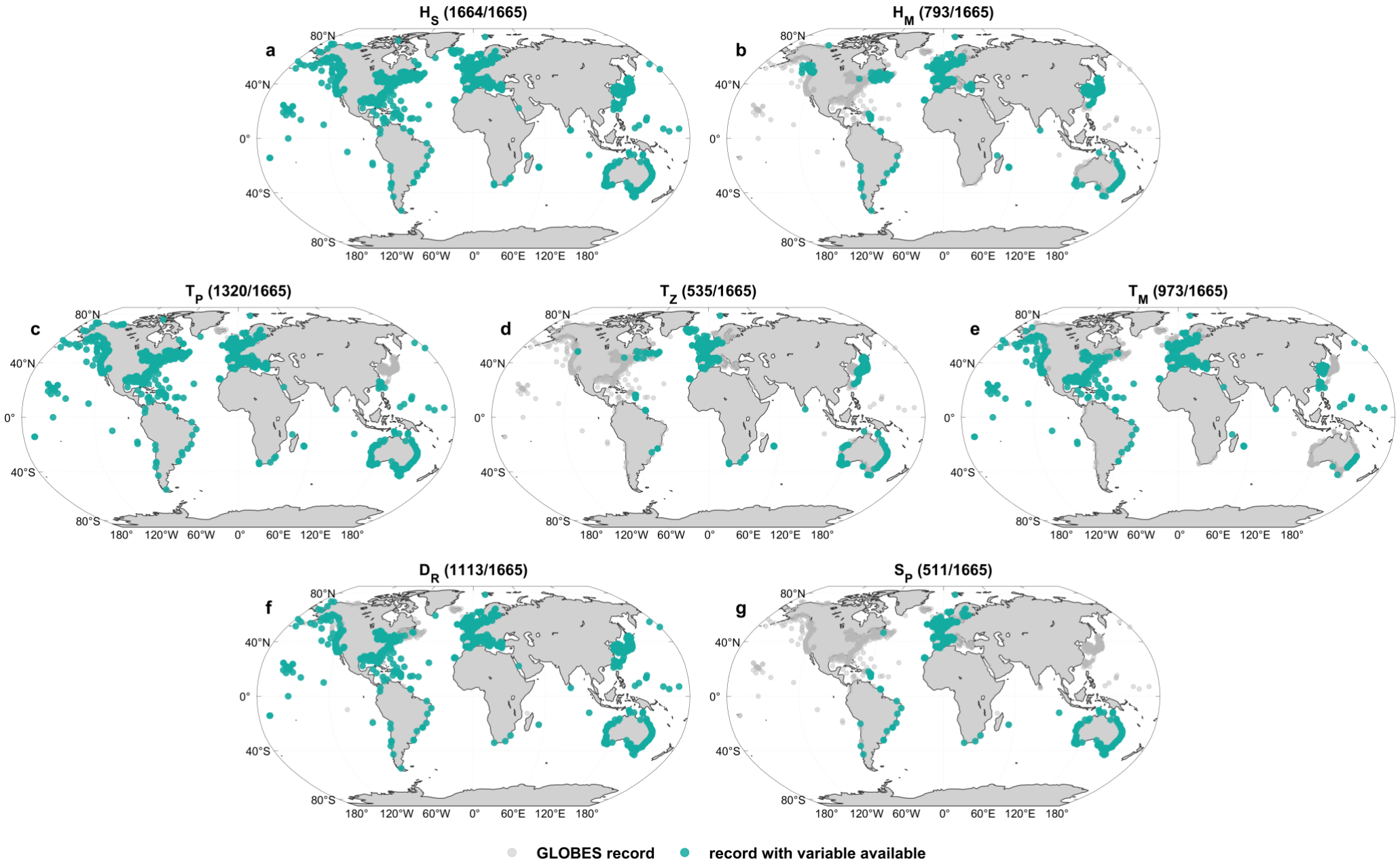


Figure S1. Global distribution of GLOBES records with available observations of (a) significant wave height (H_S), (b) maximum wave height (H_M), (c) peak wave period (T_P), (d) zero-crossing wave period (T_Z), (e) mean wave period (T_M), (f) wave direction (D_R), and (g) directional spread (S_P). Teal markers indicate records containing at least one valid observation of the corresponding variable, while gray markers indicate all GLOBES records. The number of records with each variable available is indicated above each panel.

Table S1. Provider-specific mapping of source variables to standardized GLOBES wave variables.

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
CCO	ALL	Date/Time (GMT)	HS	Hs (Hm0)(m)	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
CCO	ALL	Date/Time (GMT)	HM	Hmax (m)	Maximum individual wave height in the measurement burst, derived using zero-upcrossing analysis	None
CCO	ALL	Date/Time (GMT)	TP	Tp (s)	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CCO	ALL	Date/Time (GMT)	TZ	Unavailable	Unavailable	None
CCO	ALL	Date/Time (GMT)	TM	Tz (Tm)(s)	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
CCO	ALL	Date/Time (GMT)	DR	Dirp (degrees)	Wave direction at the spectral peak; coming from, clockwise from magnetic north	None
CCO	ALL	Date/Time (GMT)	SP	Spread (deg)	Directional spread at the spectral peak	None
CEFAS	ALL	Time (GMT)	HS	Hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	Yes - Hs (time-domain)
CEFAS	ALL	Time (GMT)	HM	Maximum wave height (m)	Maximum individual wave height	None
CEFAS	ALL	Time (GMT)	TP	Dominant (peak) wave period (s)	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CEFAS	ALL	Time (GMT)	TZ	Average (zero crossing) wave period (s)	Mean zero-crossing wave period	None
CEFAS	ALL	Time (GMT)	TM	Unavailable	Unavailable	None
CEFAS	ALL	Time (GMT)	DR	Dominant (peak) wave direction (degrees)	Wave direction at the spectral peak	Yes - Average (mean) wave direction (degrees)
CEFAS	ALL	Time (GMT)	SP	Wave spread (degrees)	Directional spread	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	HS	WVHT	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	HM	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
NOAA NDBC	Standard NDBC buoys	UTC date fields	TP	DPD	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	TZ	Unavailable	Unavailable	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	TM	APD	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	DR	MWD	Mean wave direction at the dominant spectral period; from, clockwise from true north	None
NOAA NDBC	Standard NDBC buoys	UTC date fields	SP	Unavailable	Unavailable	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	HS	WVHT	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	HM	Unavailable	Unavailable	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	TP	DPD	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	TZ	Unavailable	Unavailable	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	TM	APD	Spectral mean wave period (Tm01); spectral mean period based on the zeroth and first spectral moments	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	DR	MWD	Mean wave direction at the dominant spectral period; from, clockwise from true north	None
NOAA NDBC	Scripps/CDIP buoys	UTC date fields	SP	Unavailable	Unavailable	None
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	HS	Hsig	Significant wave height; underlying method not documented	Yes - HM0 (spectral)
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	HM	Hmax	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	TP	Tp/TP	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	TZ	Tz	Spectral period; underlying method not documented	None
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	TM	Tavg/TAvg	Mean wave period; underlying method not documented	None
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	DR	Avg_Wv_Dir_N	Mean wave direction relative to true north; directional convention not documented	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
SiMCosta	ALL	YEAR,MONTH,DAY,HOUR,MINUTE,SECOND (UTC)	SP	Avg_Wv_Spread_N	Mean directional spread; estimator not documented	None
MVB	A2B	Timestamp	HS	GHA	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
MVB	A2B	Timestamp	HM	Unavailable	Unavailable	None
MVB	A2B	Timestamp	TP	Unavailable	Unavailable	None
MVB	A2B	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	A2B	Timestamp	TM	Unavailable	Unavailable	None
MVB	A2B	Timestamp	DR	Unavailable	Unavailable	None
MVB	A2B	Timestamp	SP	Unavailable	Unavailable	None
MVB	AKZ 1982/12–2012/06	Timestamp	HS	GHA	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
MVB	AKZ 1982/12–2012/06	Timestamp	HM	Unavailable	Unavailable	None
MVB	AKZ 1982/12–2012/06	Timestamp	TP	Unavailable	Unavailable	None
MVB	AKZ 1982/12–2012/06	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	AKZ 1982/12–2012/06	Timestamp	TM	Unavailable	Unavailable	None
MVB	AKZ 1982/12–2012/06	Timestamp	DR	Unavailable	Unavailable	None
MVB	AKZ 1982/12–2012/06	Timestamp	SP	Unavailable	Unavailable	None
MVB	AKZ 2012/07 onward	Timestamp	HS	GHA	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
MVB	AKZ 2012/07 onward	Timestamp	HM	Unavailable	Unavailable	None
MVB	AKZ 2012/07 onward	Timestamp	TP	Unavailable	Unavailable	None
MVB	AKZ 2012/07 onward	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	AKZ 2012/07 onward	Timestamp	TM	Unavailable	Unavailable	None
MVB	AKZ 2012/07 onward	Timestamp	DR	Unavailable	Unavailable	None
MVB	AKZ 2012/07 onward	Timestamp	SP	Unavailable	Unavailable	None
MVB	BVH	Timestamp	HS	GHA	Significant wave height; historical source includes time-domain and spectral-domain definitions depending on sensor	None
MVB	BVH	Timestamp	HM	Unavailable	Unavailable	None
MVB	BVH	Timestamp	TP	Unavailable	Unavailable	None
MVB	BVH	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	BVH	Timestamp	TM	Unavailable	Unavailable	None
MVB	BVH	Timestamp	DR	Unavailable	Unavailable	None
MVB	BVH	Timestamp	SP	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
MVB	WHI	Timestamp	HS	GHA	Significant wave height; historical source includes time-domain and spectral-domain definitions depending on sensor	None
MVB	WHI	Timestamp	HM	Unavailable	Unavailable	None
MVB	WHI	Timestamp	TP	Unavailable	Unavailable	None
MVB	WHI	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	WHI	Timestamp	TM	Unavailable	Unavailable	None
MVB	WHI	Timestamp	DR	Unavailable	Unavailable	None
MVB	WHI	Timestamp	SP	Unavailable	Unavailable	None
MVB	Other MVB buoys	Timestamp	HS	GHA	Significant wave height; underlying method not documented	None
MVB	Other MVB buoys	Timestamp	HM	Unavailable	Unavailable	None
MVB	Other MVB buoys	Timestamp	TP	Unavailable	Unavailable	None
MVB	Other MVB buoys	Timestamp	TZ	GTZ	Mean zero-crossing wave period based on upward zero-crossings	None
MVB	Other MVB buoys	Timestamp	TM	Unavailable	Unavailable	None
MVB	Other MVB buoys	Timestamp	DR	Unavailable	Unavailable	None
MVB	Other MVB buoys	Timestamp	SP	Unavailable	Unavailable	None
CANDHIS	ALL	DateHeure	HS	H13D	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	Yes - HM0 (spectral)
CANDHIS	ALL	DateHeure	HM	HMAXD	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
CANDHIS	ALL	DateHeure	TP	TP	Spectral peak wave period (Tp), calculated using the Delft method	None
CANDHIS	ALL	DateHeure	TZ	TAVGD	Mean zero-crossing wave period based on downward zero-crossings	None
CANDHIS	ALL	DateHeure	TM	T02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
CANDHIS	ALL	DateHeure	DR	THETAM	Mean wave direction; from, clockwise from geographic north	None
CANDHIS	ALL	DateHeure	SP	SIGMAM	Spectrum-averaged directional spread	None
ISPRA	ALL	UTC	HS	Hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
ISPRA	ALL	UTC	HM	Unavailable	Unavailable	None
ISPRA	ALL	UTC	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
ISPRA	ALL	UTC	TZ	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
ISPRA	ALL	UTC	TM	Tm	Spectral mean wave period; spectral moment convention not documented	None
ISPRA	ALL	UTC	DR	Dir	Mean wave direction of provenance relative to north	None
ISPRA	ALL	UTC	SP	Unavailable	Unavailable	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	HS	有義波・波高; H1/3;	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	HM	最高波・波高; Hmax	Maximum individual wave height	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	TP	Unavailable	Unavailable	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	TZ	平均波・周期	Mean zero-crossing wave period based on upward zero-crossings	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	TM	Unavailable	Unavailable	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	DR	波向	Wave direction; clockwise from true north; method varies by instrument	None
NOWPHAS	ALL	年月日時 / 年月日時分 — date and time	SP	Unavailable	Unavailable	None
POSEIDON	ALL	TIME	HS	VHM0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
POSEIDON	ALL	TIME	HM	VZMX	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
POSEIDON	ALL	TIME	TP	VTPK	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
POSEIDON	ALL	TIME	TZ	Unavailable	Unavailable	None
POSEIDON	ALL	TIME	TM	VTM02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
POSEIDON	ALL	TIME	DR	VMDR	Mean wave direction; from, relative to true north	None
POSEIDON	ALL	TIME	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	HS	Hmo	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	HM	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	TM	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	DR	DMO	Mean wave direction	None
CENDHOC/SHOA	Iquique 2004-2008	Tiempo (UTC) + Hora	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	Hm0
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	DR	Dirm	Mean wave direction	None
CENDHOC/SHOA	Iquique 2018-2020	yyyy + mm + dd + HH + MM + ss	SP	Dm	Mean directional spread; directional dispersion/spread estimator not further documented	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	TP	TP - Range 0	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	DR	Mean Direction - Range 0	Mean wave direction	None
CENDHOC/SHOA	Iquique 2022-2024	DataTimeStamp	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	HS	Hs	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	HM	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	DR	DIRECCIÓN	Wave direction; directional estimator and angular convention not specified in the supplied CENDHOC file	None
CENDHOC/SHOA	Valparaiso 2000-2003	DIA-MES-AÑO + HORA (UTC)	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	HS	Hmo	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	HM	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	DR	DIRECCIÓN	Wave direction; directional estimator and angular convention not specified in the supplied CENDHOC file	None
CENDHOC/SHOA	Valparaiso 2006-2016	DIA-MES-AÑO + HORA (UTC)	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	HS	Hs	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	DR	Dirm	Mean wave direction	None
CENDHOC/SHOA	Valparaiso 2018-2020	Año + Mes + Dia + Hora + Min + Seg	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	HS	Hs	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	DR	Dm	Mean wave direction	None
CENDHOC/SHOA	Talcahuano 2017-2019	Año + Mes + Dia + Hora + Min	SP	Spr Deg	Directional spread	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	DR	Dirm	Mean wave direction	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
CENDHOC/SHOA	Talcahuano 2019-2021	Año + Mes + Dia + Hora + Min	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	TP	TP - Range 0	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	DR	Mean Direction - Range 0	Mean wave direction	None
CENDHOC/SHOA	Talcahuano 2020-2024	DataTimeStamp	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	TP	TP - Range 0	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	DR	Mean Direction - Range 0	Mean wave direction	None
CENDHOC/SHOA	Antofagasta 2024	DataTimeStamp	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	TP	TP - Range 0	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	DR	Mean Direction - Range 0	Mean wave direction	None
CENDHOC/SHOA	ConCon 2023-2024	DataTimeStamp	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	HS	Hsig	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	HM	Hmax	Maximum individual wave height	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	TP	TP Periodo Peak	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	TZ	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	DR	Dirección Media	Mean wave direction	None
CENDHOC/SHOA	Punta Arenas 2022-2025	MES + DIA + AÑO + HORA	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	HS	Hsig - Significant Wave Height	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	HM	Hmax - Maximum Wave Height	Maximum individual wave height	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	TP	TP - Range 0	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	DR	Mean Direction - Range 0	Mean wave direction	None
CENDHOC/SHOA	San Antonio 2023-2025	DataTimeStamp	SP	Unavailable	Unavailable	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	HS	Hsig - Significant Wave Height	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	HM	Hmax - Maximum Wave Height	Maximum individual wave height	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	TP	TP - Peak Period	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	TZ	Unavailable	Unavailable	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	TM	Unavailable	Unavailable	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	DR	Mean Wave Direction	Mean wave direction	None
CENDHOC/SHOA	Islas Desertores 2022-2024	DataTimeStamp	SP	Mean Spread	Mean directional spread	None
SADCO	ALL	date_time	HS	hs	Significant wave height; underlying method not documented	hmo - method also not documented
SADCO	ALL	date_time	HM	hmax	Maximum individual wave height; underlying method not documented	None
SADCO	ALL	date_time	TP	tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
SADCO	ALL	date_time	TZ	tz	Mean zero-crossing wave period based on downward zero-crossings	None
SADCO	ALL	date_time	TM	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
SADCO	ALL	date_time	DR	ave_direction	Mean wave direction; underlying method and directional convention not documented	None
SADCO	ALL	date_time	SP	ave_spreading	Mean directional spread; estimator not documented	None
IRCA	ALL	Dagsetning / Dagstetning / Date	HS	Hrms	Significant wave height; underlying method not documented	None
IRCA	ALL	Dagsetning / Dagstetning / Date	HM	Unavailable	Unavailable	None
IRCA	ALL	Dagsetning / Dagstetning / Date	TP	Unavailable	Unavailable	None
IRCA	ALL	Dagsetning / Dagstetning / Date	TZ	Tz	Wave period; underlying calculation/method not documented	None
IRCA	ALL	Dagsetning / Dagstetning / Date	TM	Unavailable	Unavailable	None
IRCA	ALL	Dagsetning / Dagstetning / Date	DR	Unavailable	Unavailable	None
IRCA	ALL	Dagsetning / Dagstetning / Date	SP	Unavailable	Unavailable	None
IMDBON	ALL	time	HS	WaveHeight	Significant wave height from zero-crossing analysis; provider reports calculation as four times RMS over a 175-min record	None
IMDBON	ALL	time	HM	Hmax	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
IMDBON	ALL	time	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
IMDBON	ALL	time	TZ	WavePeriod	Mean zero-crossing wave period based on upward zero-crossings over a 175-min record	None
IMDBON	ALL	time	TM	Unavailable	Unavailable	None
IMDBON	ALL	time	DR	MeanWaveDirection	Mean wave direction; from, degrees true	None
IMDBON	ALL	time	SP	SprTp	Directional spread at the spectral peak	None
IWBN	ALL	time	HS	SignificantWaveHeight	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
IWBN	ALL	time	HM	Hmax	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
IWBN	ALL	time	TP	PeakPeriod	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
IWBN	ALL	time	TZ	UpcrossPeriod	Mean zero-crossing wave period based on upward zero-crossings	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
IWBN	ALL	time	TM	Tavg	Mean wave period from time-domain zero-crossing analysis; crossing direction not documented	None
IWBN	ALL	time	DR	PeakDirection	Wave direction at the spectral peak; directional convention inconsistent across provider metadata	None
IWBN	ALL	time	SP	PeakSpread	Directional spread at the spectral peak	None
FMI	ALL	TS	HS	WaveHs	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
FMI	ALL	TS	HM	Unavailable	Unavailable	None
FMI	ALL	TS	TP	WTP	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
FMI	ALL	TS	TZ	Unavailable	Unavailable	None
FMI	ALL	TS	TM	Unavailable	Unavailable	None
FMI	ALL	TS	DR	ModalWDi	Wave direction at the spectral peak/modal period; from, degrees true	None
FMI	ALL	TS	SP	WHDD	Directional spread at the spectral peak/modal period	None
MEDS	ALL	DATE	HS	VCAR before 2020-04-02; VWH$ from 2020-04-02 onward	Composite significant wave height mapping: VCAR is spectral-domain and recomputed by MEDS; VWH$ is buoy-reported and its calculation method is not specified by MEDS	VWH$ before 2020-04-02 when VCAR = 10000
MEDS	ALL	DATE	HM	VCMX	Maximum individual wave height derived from zero-crossing analysis; reported by the buoy	None
MEDS	ALL	DATE	TP	VTPK before 2020-04-02; VTP$ from 2020-04-02 onward	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
MEDS	ALL	DATE	TZ	VTZA	Mean zero-crossing wave period	None
MEDS	ALL	DATE	TM	Unavailable	Unavailable	None
MEDS	ALL	DATE	DR	VPED	Wave direction at the spectral peak	None
MEDS	ALL	DATE	SP	VSPR	Directional spread derived from cross spectra	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	HS	유의파고(m) (WH_SIG)	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	HM	최대파고(m) (WH_MAX)	Maximum wave height	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	TP	Unavailable	Unavailable	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	TZ	Unavailable	Unavailable	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	TM	파주기(sec) (WP)	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	DR	파향(deg) (WO)	Wave direction in degrees; preserve KMA values as provided	None
KMA	Marine Meteorological Buoy	일시 (KST; API: TM)	SP	Unavailable	Unavailable	None
KMA	Wave Buoy	일시 (KST; API: TM)	HS	유의파고(m) (WH_SIG)	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
KMA	Wave Buoy	일시 (KST; API: TM)	HM	최대파고(m) (WH_MAX)	Maximum wave height	None
KMA	Wave Buoy	일시 (KST; API: TM)	TP	Unavailable	Unavailable	None
KMA	Wave Buoy	일시 (KST; API: TM)	TZ	Unavailable	Unavailable	None
KMA	Wave Buoy	일시 (KST; API: TM)	TM	파주기(sec) (WP)	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
KMA	Wave Buoy	일시 (KST; API: TM)	DR	Unavailable	Unavailable	None
KMA	Wave Buoy	일시 (KST; API: TM)	SP	Unavailable	Unavailable	None
PdE	REDCOS	Fecha (GMT)	HS	Altura Signif del Oleaje	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
PdE	REDCOS	Fecha (GMT)	HM	Altura Máxima del Oleaje	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
PdE	REDCOS	Fecha (GMT)	TP	Periodo de Pico	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
PdE	REDCOS	Fecha (GMT)	TZ	Periodo Medio	Mean zero-crossing wave period	None
PdE	REDCOS	Fecha (GMT)	TM	Periodo Medio Tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
PdE	REDCOS	Fecha (GMT)	DR	Direcc Media de Proced	Mean wave direction; from	None
PdE	REDCOS	Fecha (GMT)	SP	Dispersión angular en el pico de energía espectral	Directional spread at the spectral peak	None
PdE	REDEXT	Fecha (GMT)	HS	Altura Signif del Oleaje	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
PdE	REDEXT	Fecha (GMT)	HM	Altura Máxima del Oleaje	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
PdE	REDEXT	Fecha (GMT)	TP	Periodo de Pico	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
PdE	REDEXT	Fecha (GMT)	TZ	Unavailable	Unavailable	None
PdE	REDEXT	Fecha (GMT)	TM	Periodo Medio Tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
PdE	REDEXT	Fecha (GMT)	DR	Direcc Media de Proced	Mean wave direction; from	None
PdE	REDEXT	Fecha (GMT)	SP	Dispersión angular en el pico de energía espectral	Directional spread at the spectral peak	None
BSH	SEASTATE DWR NetCDF	TIME	HS	VHM0DWR	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
BSH	SEASTATE DWR NetCDF	TIME	HM	VZMXDWR	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
BSH	SEASTATE DWR NetCDF	TIME	TP	VTPKDWR	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
BSH	SEASTATE DWR NetCDF	TIME	TZ	VTZADWR	Mean zero-crossing wave period	None
BSH	SEASTATE DWR NetCDF	TIME	TM	VTM02DWR	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
BSH	SEASTATE DWR NetCDF	TIME	DR	VPEDDWR	Wave direction at the spectral peak; from	None
BSH	SEASTATE DWR NetCDF	TIME	SP	VPSPDWR	Directional spread at the spectral peak	None
BSH	INSITU - HörnumTief1	TIME	HS	VHM0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
BSH	INSITU - HörnumTief1	TIME	HM	Unavailable	Unavailable	None
BSH	INSITU - HörnumTief1	TIME	TP	Unavailable	Unavailable	None
BSH	INSITU - HörnumTief1	TIME	TZ	Unavailable	Unavailable	None
BSH	INSITU - HörnumTief1	TIME	TM	VTM02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
BSH	INSITU - HörnumTief1	TIME	DR	VPED	Wave direction at the spectral peak; from	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
BSH	INSITU - HörnumTief1	TIME	SP	Unavailable	Unavailable	None
BSH	PINTA - DWR legacy	Time	HS	H_m0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
BSH	PINTA - DWR legacy	Time	HM	H_max	Maximum individual wave height derived using zero-upcrossing analysis	None
BSH	PINTA - DWR legacy	Time	TP	T_p	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
BSH	PINTA - DWR legacy	Time	TZ	Tav	Mean zero-crossing wave period based on upward zero-crossings	None
BSH	PINTA - DWR legacy	Time	TM	T_z	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
BSH	PINTA - DWR legacy	Time	DR	Dir_p	Wave direction at the spectral peak; from	None
BSH	PINTA - DWR legacy	Time	SP	Spr_p	Directional spread at the spectral peak	None
BSH	PINTA - DWR modern	Time	HS	VHM0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
BSH	PINTA - DWR modern	Time	HM	VZMX	Maximum individual wave height derived using zero-upcrossing analysis	None
BSH	PINTA - DWR modern	Time	TP	VTPK	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
BSH	PINTA - DWR modern	Time	TZ	VTZA	Mean zero-crossing wave period based on upward zero-crossings	None
BSH	PINTA - DWR modern	Time	TM	VTM02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
BSH	PINTA - DWR modern	Time	DR	VPED	Wave direction at the spectral peak; from	None
BSH	PINTA - DWR modern	Time	SP	VPSP	Directional spread at the spectral peak	None
SMHI	ALL	Not specified	HS	ID 1/Våghöjd, signifikant 30 min	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
SMHI	ALL	Not specified	HM	Code ID 11/Våghöjd, maximal 30 min	Maximum wave height observed during a 30-minute measurement window (time-domain)	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
SMHI	ALL	Not specified	TP	Code ID 9/VTPK/Vågperiod, peakvärde 30 min	Spectral peak wave period (Tp); period corresponding to maximum wave energy during a 30-minute measurement window	None
SMHI	ALL	Not specified	TZ	Unavailable	Unavailable	None
SMHI	ALL	Not specified	TM	Code ID 10/Vågperiod, medelvärde 30 min/VTZA	Time-domain mean wave period; mean of individual crest-to-crest wave periods during a 30-minute measurement window	None
SMHI	ALL	Not specified	DR	Code ID 8/VPED/Vågriktning vid Tp (energimax 30 min)	Wave direction at the spectral peak; from; 30-minute measurement window	Yes – Code ID 7/Vågriktning, medelvärde 30 min/VDIR; mean direction from which the waves come, averaged over 30 minutes
SMHI	ALL	Not specified	SP	Unavailable	Unavailable	None
Rijkswaterstaat	Waterinfo	Tijdstip	HS	Hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	Yes - H1/3 (time-domain)
Rijkswaterstaat	Waterinfo	Tijdstip	HM	Hmax	Maximum individual wave height (time domain); zero-crossing method unconfirmed	None
Rijkswaterstaat	Waterinfo	Tijdstip	TP	Tp = 1/Fp - derived variable	Spectral peak wave period (Tp); derived as 1/Fp from the provider frequency of maximum spectral density	None
Rijkswaterstaat	Waterinfo	Tijdstip	TZ	GGT	Mean time-domain wave period; equivalence to zero-crossing period unconfirmed	None
Rijkswaterstaat	Waterinfo	Tijdstip	TM	Tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
Rijkswaterstaat	Waterinfo	Tijdstip	DR	Th0	Mean spectral wave direction; angular convention unconfirmed	None
Rijkswaterstaat	Waterinfo	Tijdstip	SP	S0BH	Mean spectral directional spread	None
Rijkswaterstaat	IVO	measureDate	HS	golfhoogte	Wave height; identification as significant wave height unconfirmed	None
Rijkswaterstaat	IVO	measureDate	HM	Unavailable	Unavailable	None
Rijkswaterstaat	IVO	measureDate	TP	Unavailable	Unavailable	None
Rijkswaterstaat	IVO	measureDate	TZ	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
Rijkswaterstaat	IVO	measureDate	TM	Unavailable	Unavailable	None
Rijkswaterstaat	IVO	measureDate	DR	golfrichting	Wave direction; definition, angular convention and scale unconfirmed	None
Rijkswaterstaat	IVO	measureDate	SP	Unavailable	Unavailable	None
Rijkswaterstaat	KG2	time	HS	hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
Rijkswaterstaat	KG2	time	HM	Unavailable	Unavailable	None
Rijkswaterstaat	KG2	time	TP	Unavailable	Unavailable	None
Rijkswaterstaat	KG2	time	TZ	Unavailable	Unavailable	None
Rijkswaterstaat	KG2	time	TM	tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
Rijkswaterstaat	KG2	time	DR	th0	Mean wave direction; angular convention unconfirmed	None
Rijkswaterstaat	KG2	time	SP	Unavailable	Unavailable	None
MET Norway	E39	time	HS	Hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
MET Norway	E39	time	HM	hmax	Maximum individual wave height derived from zero-crossing analysis; crossing direction not specified	None
MET Norway	E39	time	TP	tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
MET Norway	E39	time	TZ	Unavailable	Unavailable	None
MET Norway	E39	time	TM	Tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
MET Norway	E39	time	DR	Mdir	Energy-weighted mean wave-from direction calculated from the directional spectrum	None
MET Norway	E39	time	SP	SprTp	Directional spread at the spectral peak of the wave/heave variance spectrum	None
MET Norway	ISFJORDEN	time	HS	significant_wave_height_hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
MET Norway	ISFJORDEN	time	HM	wave_height_hmax	Maximum individual crest-to-trough wave height within the time-series record	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
MET Norway	ISFJORDEN	time	TP	wave_peak_period	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
MET Norway	ISFJORDEN	time	TZ	wave_period_tz	Mean period of individual waves in the time-series record (Tz/T1/1); crossing direction not documented	None
MET Norway	ISFJORDEN	time	TM	wave_mean_period_tm02	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
MET Norway	ISFJORDEN	time	DR	wave_mean_direction	Energy-weighted mean wave direction over all frequency bins	None
MET Norway	ISFJORDEN	time	SP	first_order_spread	Directional spread at the spectral peak, calculated from first-order Fourier coefficients	None
EUSKOOS	Donostia	time	HS	hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
EUSKOOS	Donostia	time	HM	hmax	Maximum individual wave height	None
EUSKOOS	Donostia	time	TP	tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
EUSKOOS	Donostia	time	TZ	Unavailable	Unavailable	None
EUSKOOS	Donostia	time	TM	tm02	Spectral mean wave period; spectral moment convention not documented	None
EUSKOOS	Donostia	time	DR	mdir	Mean wave direction	None
EUSKOOS	Donostia	time	SP	Unavailable	Unavailable	None
EUSKOOS	Pasaia	time	HS	altura_ola	Significant wave height; underlying method not documented	None
EUSKOOS	Pasaia	time	HM	altura_max_ola	Maximum individual wave height	None
EUSKOOS	Pasaia	time	TP	periodo_ola	Wave period mapped to TP; exact peak-period estimator is not specified in public EuskOOS metadata	None
EUSKOOS	Pasaia	time	TZ	Unavailable	Unavailable	None
EUSKOOS	Pasaia	time	TM	ola_per_tm2	Spectral mean wave period; spectral moment convention not documented	None
EUSKOOS	Pasaia	time	DR	wave_dir	Wave direction; exact directional estimator is not specified in public EuskOOS metadata	None
EUSKOOS	Pasaia	time	SP	Unavailable	Unavailable	None
EUSKOOS	Bilbao	time	HS	altura_ola	Significant wave height; underlying method not documented	None
EUSKOOS	Bilbao	time	HM	altura_max_ola	Maximum individual wave height	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
EUSKOOS	Bilbao	time	TP	periodo_ola	Wave period mapped to TP; exact peak-period estimator is not specified in public EuskOOS metadata	None
EUSKOOS	Bilbao	time	TZ	Unavailable	Unavailable	None
EUSKOOS	Bilbao	time	TM	periodo_med	Mean wave period; exact estimator/moment convention is not specified in public EuskOOS metadata	None
EUSKOOS	Bilbao	time	DR	Unavailable	Unavailable	None
EUSKOOS	Bilbao	time	SP	Unavailable	Unavailable	None
EUSKOOS	Mutriku & Sopelana	time	HS	hm0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
EUSKOOS	Mutriku & Sopelana	time	HM	hmax	Maximum individual wave height	None
EUSKOOS	Mutriku & Sopelana	time	TP	tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
EUSKOOS	Mutriku & Sopelana	time	TZ	tz	Mean zero-crossing wave period	None
EUSKOOS	Mutriku & Sopelana	time	TM	t02	Spectral mean wave period; spectral moment convention not documented	None
EUSKOOS	Mutriku & Sopelana	time	DR	dirtp	Wave direction at the spectral peak	None
EUSKOOS	Mutriku & Sopelana	time	SP	spread	Directional spread; estimator not documented	None
AODN	ALL	TIME	HS	WSSH	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	Yes - WHTH (time domain Hs)
AODN	ALL	TIME	HM	WMXH	Maximum individual wave height	None
AODN	ALL	TIME	TP	WPPE	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
AODN	ALL	TIME	TZ	WPMH	Mean zero-crossing wave period based on upward zero-crossings	None
AODN	ALL	TIME	TM	WPSM	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
AODN	ALL	TIME	DR	WPDI	Wave direction at the spectral peak	Yes - SSWMD; mean direction
AODN	ALL	TIME	SP	WPDS	Directional spread at the spectral peak	Yes - WMDS; mean directional spread

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
KDI	ALL	dato	HS	H_s/H_M0	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	Yes - H_1_3 (time-domain significant wave height)
KDI	ALL	dato	HM	H_max/H_MAX_SHAF	Maximum individual wave height	None
KDI	ALL	dato	TP	T_P	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
KDI	ALL	dato	TZ	T_avg	Mean zero-crossing wave period	None
KDI	ALL	dato	TM	T_z	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
KDI	ALL	dato	DR	Dir/DIR	Wave direction at the spectral peak	None
KDI	ALL	dato	SP	SPRED_P	Directional spread at the spectral peak	None
CWA	ALL	yyyymmddhhmi	HS	H	Spectral significant wave height (Hm0); significant wave height derived from the zeroth spectral moment	None
CWA	ALL	yyyymmddhhmi	HM	Unavailable	Unavailable	None
CWA	ALL	yyyymmddhhmi	TP	T	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
CWA	ALL	yyyymmddhhmi	TZ	Unavailable	Unavailable	None
CWA	ALL	yyyymmddhhmi	TM	Tmean	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
CWA	ALL	yyyymmddhhmi	DR	D	Wave direction at the spectral peak; coming from, 0° = north, clockwise	None
CWA	ALL	yyyymmddhhmi	SP	Unavailable	Unavailable	None
MATARA	Buoy 1	Date	HS	Hs	Time-domain significant wave height (H1/3); mean height of the highest one-third of individual waves	None
MATARA	Buoy 1	Date	HM	Hmax	Maximum individual wave height derived from zero-crossing analysis; crossing direction not documented	None
MATARA	Buoy 1	Date	TP	Unavailable	Unavailable	None
MATARA	Buoy 1	Date	TZ	Tavg	Mean wave period derived from zero-crossing analysis; crossing direction not documented	None
MATARA	Buoy 1	Date	TM	Unavailable	Unavailable	None
MATARA	Buoy 1	Date	DR	Unavailable	Unavailable	None
MATARA	Buoy 1	Date	SP	Unavailable	Unavailable	None
MATARA	Buoy 2	Date	HS	Hs	Spectral significant wave height	None
MATARA	Buoy 2	Date	HM	Unavailable	Unavailable	None

Provider	Station/product/group	Time variable/convention	GLOBES variable	Provider source variable	Standardized physical definition	Fallback provider variable
MATARA	Buoy 2	Date	TP	Tp	Spectral peak wave period (Tp); period corresponding to the spectral peak (maximum spectral energy or variance density)	None
MATARA	Buoy 2	Date	TZ	Unavailable	Unavailable	None
MATARA	Buoy 2	Date	TM	Tz	Spectral mean wave period (Tm02); spectral mean period based on the zeroth and second spectral moments	None
MATARA	Buoy 2	Date	DR	pdir	Wave direction at the spectral peak; angular convention unconfirmed	None
MATARA	Buoy 2	Date	SP	Unavailable	Unavailable	None

Original provider variable names are retained as distributed by the source data provider, with GLOBES harmonizing wave variables into the following HS = significant wave height; HM = maximum wave height; TP = peak wave period; TZ = zero-crossing wave period; TM = mean wave period; DR = wave direction; SP = directional spread. “Unavailable” indicates that no source variable was mapped to the corresponding GLOBES field. “None” indicates that a given variable does not have a fallback.