// NetCDF TEMPLATE FOR RAW DISPLACEMENT OF SURFACE ELEVATION IN DELAYED MODE - EXAMPLE FOR SPOTTER BUOY FROM NSW

netcdf NCEI\_TimeSeries\_Orthogonal {

dimensions:

TIME= 1; //.................................................... REQUIRED - Number of time steps in the time series for measured wave variables

TIME\_LOCATION= 1; //.............................. REQUIRED - Number of time steps in the time series for location (latitude and longitude)

TimeSeries = 1; //............................................ REQUIRED - Number of time series (=1 for single time series)

variables:

int timeSeries(timeSeries); //............................................................................................ REQUIRED - If using the attribute below: cf\_role. Data type can be whatever is appropriate for the unique feature type.  
 timeSeries:long\_name = "Unique identifier for each feature instance"; //................ REQUIRED  
 timeSeries:cf\_role = "timeseries\_id"; //..................................................................... REQUIRED

double **TIME(TIME)** ;//................................................................... The data type for time should be double (IMOS).

TIME:long\_name = "**time**" ; //.................................................. REQUIRED (IMOS) - Provide a descriptive, long name for this variable.

TIME:standard\_name = "**time**" ; //............................................ REQUIRED (CF) - Do not change

TIME:units = "**days since 1950-01-01 00:00:00 UTC**" ; //...... REQUIRED (CF and IMOS) - Use approved CF convention with approved UDUNITS.

TIME:calendar = "**gregorian**" ; //.............................................. REQUIRED - If the calendar is not default calendar, which is "gregorian".

TIME:axis = "**T**" ; //................................................................... REQUIRED (CF) - Do not change.

TIME:comment = "**additional information about time**" ; //................ RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

double **TIME\_LOCATION(TIME\_LOCATION)** ;//................... The data type for time should be double (IMOS).

TIME\_LOCATION:long\_name = "**location measurement time**" ; //............ REQUIRED (IMOS) - Provide a descriptive, long name for this variable.

TIME\_LOCATION:standard\_name = "**time**" ; //............................................ REQUIRED (CF) - Do not change

TIME\_LOCATION:units = "**days since 1950-01-01 00:00:00 UTC**" ; //...... REQUIRED (CF and IMOS) - Use approved CF convention with approved UDUNITS.

TIME\_LOCATION:calendar = "**gregorian**" ; //.............................................. REQUIRED - If the calendar is not default calendar, which is "gregorian".

TIME\_LOCATION:axis = "**T**" ; //................................................................... REQUIRED (CF) - Do not change.

TIME\_LOCATION:comment = "**This is the time at which location information is sampled**" ; //...RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

double **LATITUDE(TIME\_LOCATION)** ;//.......................................................................................................... The data type for latitude should be double (IMOS).

LATITUDE:long\_name = "**latitude**" ; //.................................................. REQUIRED (IMOS) - Provide a descriptive, long name for this variable.

LATITUDE:standard\_name = "**latitude**" ; //.............................................................................. REQUIRED (IMOS) - This is fixed, do not change.

LATITUDE:units = "**degrees\_north**" ; //................................................................................... REQUIRED - CF recommends degrees\_north, but at least must use UDUNITS.

LATITUDE:axis = "**Y**" ; //.......................................................................................................... REQUIRED - Do not change.

LATITUDE:valid\_min = **-90.0** ; //.............................................................................................. RECOMMENDED - The minimum value for this variable.

LATITUDE:valid\_max = **90.0** ; //.............................................................................................. RECOMMENDED - The maximum value for this variable.

LATITUDE:\_FillValue = **-9999.0** ;//.......................................................................................... REQUIRED - If there could be missing values in the data.

LATITUDE:reference\_datum = "**WGS84 coordinate reference system; EPSG:4326**" ; // ... REQUIRED IN IMOS CONVENTION, BUT NON-CF.

LATITUDE:comment = " **additional information about latitude**" ; //.................. RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

double **LONGITUDE(TIME\_LOCATION)** ; //....................................................................................................... The data type for longitude should be double (IMOS).

LONGITUDE:long\_name = "**longitude**" ; //............................................. REQUIRED (IMOS) - Provide a descriptive, long name for this variable.

LONGITUDE:standard\_name = "**longitude**" ; //......................................................................... REQUIRED (IMOS) - This is fixed, do not change.

LONGITUDE:units = "**degrees\_east**" ; //.................................................................................... REQUIRED - CF recommends degrees\_east, but at least use UDUNITS.

LONGITUDE:axis = "**X**" ; //........................................................................................................ REQUIRED - Do not change.

LONGITUDE:valid\_min = **-180.0** ; //.......................................................................................... RECOMMENDED - The minimum value for this variable.

LONGITUDE:valid\_max = **180.0** ; //........................................................................................... RECOMMENDED - The maximum value for this variable.

LONGITUDE:\_FillValue = **-9999.0** ;//........................................................................................ REQUIRED - If there could be missing values in the data.

LONGITUDE:reference\_datum = "**WGS84 coordinate reference system; EPSG:4326**" ; //... REQUIRED IN IMOS CONVENTION, BUT NON-CF.

LONGITUDE:comment = "**additional information about longitude**" ; //.........RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

float **XDIS(TIME)** ; //........................................................................ REQUIRED - This is **X** displacement and is a **CORE** variable for the wave parameters of raw displacement of surface elevation (IMOS).

XDIS:long\_name = "**sea surface east displacement**" ; //.......... REQUIRED - Provide a descriptive, long name for this variable.

XDIS:valid\_min = **-50.f** ; //......................................................... RECOMMENDED - Pre-defined conservative value limit for this variable.

XDIS:valid\_max = **50.f** ; //.......................................................... RECOMMENDED - Pre-defined conservative value limit for this variable.

XDIS:\_FillValue = **-999.** ; //........................................................ REQUIRED - If there could be missing values in the data.

XDIS:coordinates = "**TIME**" ; //................................................. REQUIRED - A blank-separated list of the names of the relevant variables that include spatio-temporal coordinate information.

XDIS:units = "**m**" ; //.................................................................... REQUIRED - Use UDUNITS.

XDIS:comment = "**additional information about the X raw displacement.**" ; //... RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

float **YDIS(TIME)** ; //........................................................................... REQUIRED - This is **Y** displacement and is a **CORE** variable for the wave parameters of raw displacement of surface elevation (IMOS).

YDIS:long\_name = "**sea surface north displacement**"; //............ REQUIRED - Provide a descriptive, long name for this variable.

YDIS:valid\_min = **-50.f** ; //............................................................ RECOMMENDED - Pre-defined conservative value limit for this variable.

YDIS:valid\_max = **50.f** ; //............................................................. RECOMMENDED - Pre-defined conservative value limit for this variable.

YDIS:\_FillValue = **-999.** ; //............................................................ REQUIRED - If there could be missing values in the data.

YDIS:coordinates = "**TIME**" ; //.................................................... REQUIRED - A blank-separated list of the names of the relevant variables that include spatio-temporal coordinate information.

YDIS:units = "**m**" ; //....................................................................... REQUIRED - Use UDUNITS.

YDIS:comment = "**additional information about the Y raw displacement.**" ; //... RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

float **ZDIS(TIME)** ; //.......................................................................... REQUIRED - This is **Z** displacement and is a **CORE** variable for the wave parameters of raw displacement of surface elevation (IMOS).

ZDIS:long\_name = "**sea surface vertical displacement**" ; //....... REQUIRED - Provide a descriptive, long name for this variable.

ZDIS:valid\_min = **-50.f** ; //........................................................... RECOMMENDED - Pre-defined conservative value limit for this variable.

ZDIS:valid\_max = **50.f** ; //............................................................ RECOMMENDED - Pre-defined conservative value limit for this variable.

ZDIS:\_FillValue = **-999.** ; //........................................................... REQUIRED - If there could be missing values in the data.

ZDIS:coordinates = "**TIME**" ; //................................................... REQUIRED - A blank-separated list of the names of the relevant variables that include spatio-temporal coordinate information.

ZDIS:units = "**m**" ; //....................................................................... REQUIRED - Use UDUNITS.

ZDIS:comment = " **additional information about the Z raw displacement** " ; //... RECOMMENDED - Add useful, additional information here like miscellaneous information about the data, not captured elsewhere.

// global attributes: (in yellow - content can be found in the [global\_attributes](https://universitytasmania.sharepoint.com/:x:/r/sites/ARDCNationalInfrastructureforin-situwaveobservations/Shared%20Documents/General/Work_Package_2/Data_Metadata_Standards/global_attributes_partners_PLEASE_FILL_IN.xlsx?d=w76c7d5a70a6740a783ebe6ff45af5982&csf=1&web=1&e=LGjzhq) spreadsheet)

:abstract = " " ; // CHECK SPREADSHEET; //.......REQUIRED - A paragraph describing the dataset: type of data contained in the dataset, how the data was created, the creator of the dataset, the project for which the data was created, the geospatial coverage of the data, the temporal coverage of the data. (IMOS)

:acknowledgement = " " ; // CHECK SPREADSHEET; //.......REQUIRED - Information about how to acknowledge the source of the material. For data produced under the IMOS project, the field must be filled as shown in the example. If relevant, also credit other organisations involved in collection of this particular data stream. (IMOS)

:author = " " ; // CHECK SPREADSHEET; //...................REQUIRED - Name of the person responsible for the creation of the dataset. Convention is last name and then first name separated by a comma. (IMOS)

:buoy\_specification\_url = "[link to the buoy specification document online] " ; //.................RECOMMENDED - Point to a manual online that provides complete buoy specifications.

:cdm\_data\_type = "**Station**"; //................REQUIRED - The data type, as derived from Unidata's Common Data Model Scientific Data types and understood by THREDDS. (ACDD)

:citation = " " ; // CHECK SPREADSHEET; //...................REQUIRED - The citation to be used in publications using the dataset should follow the format: “IMOS. [year-of-datadownload], [Title], [Data access URL], accessed [dateof-access]”. (IMOS)

:Conventions = "**CF-1.6**" ; //....................REQUIRED - Name of the format convention used by the dataset. (IMOS)

:data\_centre = "**Australian Ocean Data Network (AODN)**" ; //..................................REQUIRED - Data centre in charge of the data management or party who distributed the resource. (IMOS)

:data\_centre\_email = "**info@aodn.org.au**" ; //..................................REQUIRED - Data Centre contact e-mail address. (IMOS)

:date\_created = "**2021-12-06T13:30:00Z**" ; //..................................REQUIRED - The date in UTC on which the file was created. (IMOS)

:disclaimer = " " ; // CHECK SPREADSHEET; //..............REQUIRED - Statement limiting the liability of the data provider. (IMOS)

:firmware\_version = "**5555**" ;//........................RECOMMENDED - The version of the software used inside the buoy to do the processing of the data.

:geospatial\_lat\_min = **-32.90296** ; //.......................................... REQUIRED - Describes a simple lower latitude limit. (ACDD)

:geospatial\_lat\_max = **-32.90156** ; //......................................... REQUIRED - Describes a simple upper latitude limit. (ACDD)

:geospatial\_lon\_min = **151.79807** ; //......................................... REQUIRED - Describes a simple lower longitude limit. (ACDD)

:geospatial\_lon\_max = **151.79918** ; //........................................ REQUIRED - Describes a simple upper longitude limit. (ACDD)

:geospatial\_lat\_units = "**degrees\_north**" ; //.................. REQUIRED - Units for the latitude axis described in "geospatial\_lat\_min" and "geospatial\_lat\_max" attributes. Use UDUNITS compatible units. (ACDD)

:geospatial\_lon\_units = "**degrees\_east**"; //..................... REQUIRED - Units for the longitude axis described in "geospatial\_lon\_min" and "geospatial\_lon\_max" attributes. Use UDUNITS compatible units. (ACDD)

:hull\_serial\_number = "**98765**" ; //............REQUIRED - The serial number of the hull. Spotter and Triaxys have only one serial number for both hull and eletronic\_box. In this case, repeat number in both attributes. (CDIP)

:institution = " " ; // CHECK SPREADSHEET; //........................REQUIRED - Name of the institute or facility where the original data was produced. (IMOS)

:instrument = "**SOFAR Spotter-V2**" ; //........................REQUIRED - The make and model of the instruments from which the data has been collected (IMOS). Options are (and in this format): "**SOFAR Spotter-V1**", "**SOFAR Spotter-V2**", "**Datawell DWR MkIII**", "**Datawell DWR-G4**", "**Datawell DWR4**"

:instrument\_burst\_duration = **1800** ; //....................... REQUIRED - The recording duration in seconds. (IMOS)

:instrument\_burst\_interval = **3600** ; //....................... REQUIRED - The recording interval in seconds. (IMOS)

:instrument\_burst\_unit = "**s**" ; //....................... REQUIRED - Do not change; The unit for instrument burst duration and interval which is seconds. (IMOS)

:instrument\_sampling\_interval = **0.4** ; //....................... REQUIRED - The sampling interval in seconds. (IMOS)

:license = "**http://creativecommons.org/licenses/by/4.0/**" ; //........................REQUIRED - Describe the restrictions to data access and distribution. (IMOS)

:platform = "**moored surface buoy**" ; // OR SHOULD IT BE MOORING?....... REQUIRED - The platform that contains the instrument, platform description. They are listed in Reference Table 3 of the File Naming Convention document. (IMOS)

:principal\_investigator = " " ; // CHECK SPREADSHEET; //.............REQUIRED - Name of the principal investigator in charge of the platform. Convention is last name and then first name separated by a comma. (IMOS)

:principal\_investigator\_email = " " ; // CHECK SPREADSHEET; //....REQUIRED - Email of the principal investigator in charge of the platform. Convention is last name and then first name separated by a comma. (IMOS)

:project = " " ; // CHECK SPREADSHEET; //........................ REQUIRED - The scientific project that produced the data. (IMOS)

:source = "**Raw displacement of surface elevation measured by Sofar buoys using GPS information.**" ;//......RECOMMENDED - General description of how the buoy works or the method of production of the original data. If it is observational, source should characterize it. This attribute is defined in the CF Conventions. (ACDD)

:standard\_name\_vocabulary = "**NetCDF Climate and Forecast (CF) Metadata Convention CF standard name table v78**" ; //............ REQUIRED - Table number used for CF standard names. (IMOS)

:site\_name = "**Stockton**" ; //........................REQUIRED - The name of the station where the buoy is deployed.

:time\_coverage\_duration = "**P1Y4M6DT12H30M5S**" ; //.................................. RECOMMENDED- Describes the duration of the data set. Use ISO 8601:2004 for date and time. (ACDD)

:time\_coverage\_end = "**2021-04-09T09:00:00Z**" ; //.......................... REQUIRED - Describes the time in UTC of the last data point in the data set. Use ISO 8601:2004 for date and time. (ACDD)

:time\_coverage\_start = "**2019-12-06T10:30:00Z**" ; //......................... REQUIRED - Describes the time in UTC of the first data point in the data set. Use ISO 8601:2004 for date and time. (ACDD)

:title = " " ; // CHECK SPREADSHEET; //................... REQUIRED - Short description of the dataset. (IMOS)

:watch\_circle = **10** ; //........................ RECOMMENDED - The radius in meter around the mooring which can be a range of the buoy location . (DBCP)

:water\_depth = **12.0** ; //........................REQUIRED - The depth in meters of the location where the buoy is deployed. (IMOS)

:water\_depth\_reference = "**The Australian Height Datum (AHD)**" ; //........................RECOMMENDED - The reference datum.

:water\_depth\_source = "**chart**" ; //........................RECOMMENDED - How the water depth measurement is made. The options are: "**chart**", "**GPS**", "**echosounder**".

:water\_depth\_units = "**m**" ; //........................RECOMMENDED - The units for the depth of the location where the buoy is deployed. (IMOS)

:wave\_buoy\_type = "**directional**" ; //........................REQUIRED - The type of the buoy, options are either ‘**directional**’ or ‘**non-directional**’.

:wave\_motion\_sensor\_type = "**GPS**" ; //........................REQUIRED - The sensor type used to measure waves/surface displacement, options are either ‘**GPS**’ or ‘**accelerometer**’.

:wave\_sensor\_serial\_number = "**123ABC**" ;//........……............... REQUIRED - The serial number for the wave sensor. (DBCP)

}