ODF Format Description (MLI)

ODF FORMAT DESCRIPTION

ODF (Ocean Data Format) is an ASCII text format used for the primary storage of physical, biological, and chemical data series from the Bedford Oceanographic Institute (BIO). The data management section of the Maurice Lamontagne Institute (MLI) adopted the ODF format in 1999. It consists of a set of header blocks preceded by the header name and containing a number of fields that are of the form keyword=value. Header fields may be strings or numeric. All data records are numeric with the exception of time (code SYTM), which is a character string of the form 'dd-mon-yyyy hh:mm:ss.ss'. A number of Matlab scripts (from BIO and MLI) are available to support the ODF format.

The primary item in an ODF file is an EVENT, which is a single data series. Examples of an EVENT are a current meter time series, a CTD profile, a BOTL file—any data series that can be defined by its space/time coordinates and having a number of observations. ODF uses a file naming convention (called an Event_specification) based on the event type. There are fields within ODF that support these file naming conventions and, while not compulsory, their use is encouraged as a mean of managing a large number of ODF files. See the file Evenement_ODF_en.doc for specific details.

All data parameters in an ODF file must have a valid parameter code. These codes were initially based on the GF3 code list (four first letters) but have been extended to include other data types specific to BIO and/or MLI. See the glossary of the SGDE application for more details. Data units are by default attached to codes. For example, PRES (pressure) is always expressed in decibars and the SYTM time variable is always in GMT (Greenwich Mean Time).

HEADER BLOCK DESCRIPTION

A description of the ODF header block follows. Note that some header blocks are compulsory (e.g., EVENT_HEADER, PARAMETER_HEADER), others are optional (e.g., METEO_HEADER, POLYNOMIAL_CAL_HEADER). If a specific header block is present, all fields within the block are mandatory; however, the field may be left blank if it is a string or be set to -99.0 if numeric or -999.9 in case of longitude. An example is provided in Exemple_ODF_en.doc.

BLOCKS

ODF_HEADER
Identifies the data file as being in ODF ASCII format.
(obligatory: 1 block/file)

Field	Type	Description
FILE_SPECIFICATION	string	describes the full event specification (filename)

CRUISE_HEADER
Defines cruise or experiment common to one or more events.
(obligatory: 1 block/file)

Field	Type	Description
COUNTRY_INSTITUTE_CODE	number	1830 or CaIML (MLI), 1810 (BIO), CaMONC (Moncton)
CRUISE NUMBER	string	cruise number: YYYYnnn
ORGANIZATION	string	division and/or section
CHIEF_SCIENTIST	string	chief scientist or data producer
START_DATE	string (SYTM)	start date of cruise
END_DATE	string (SYTM)	end date of cruise
PLATFORM	string	ship name or platform type (e.g. helicopter)
CRUISE_NAME	string	cruise name
CRUISE_DESCRIPTION	string	cruise description

EVENT_HEADER
Contains event or station-specific information
(obligatory: 1 block/file)

Field	Type	Description
DATA_TYPE	string	data type (see list in Evenement_en.doc)
EVENT_NUMBER	string	event number (see list in Evenement_ODF_en.doc)
EVENT_QUALIFIER1	string	qualifier 1 (see list in Evenement_ODF_en.doc)
EVENT_QUALIFIER2	string	qualifier 2 (see list in Evenement_ODF_en.doc)
CREATION_DATE	string (SYTM)	file creation date
ORIG_CREATION_DATE	string (SYTM)	creation date of source file
START_DATE_TIME	string (SYTM)	event start time [GMT]
END_DATE_TIME	string (SYTM)	event end time [GMT] (null value ='17-NOV-1858 00:00:00.00')
INITIAL_LATITUDE	number	event initial latitude [positive north]
INITIAL_LONGITUDE	number	event initial longitude [positive east]
END_LATITUDE	number	event final latitude [positive north] (null value=-99.0)
END_LONGITUDE	number	event final longitude [positive east] (null value=-999.9)
MIN_DEPTH	number	minimum sample depth [m]
MAX_DEPTH	number	maximum sample depth [m]
SAMPLING_INTERVAL	number	sampling interval [sec] (null value=-99.0)
SOUNDING	number	seafloor depth [m] (null value=-99.0)
DEPTH_OFF_BOTTOM	number	sounding - max_depth [m] (null value=-99.0)
EVENT_COMMENTS	string	event comments (repeat field if necessary)

PLANKTON_HEADER
Planktonic metadata
(optional : 1 block/file)

Field	Type	Description
WATER_VOLUME	number	zooplankton: volume of water filtered through net [m³]; phytoplankton: -99.0
VOLUME_METHOD	string	method used to obtain the volume of water filtered
LRG_PLANKTON_REMOVED	string	large plankton removed or not (value : Yes, No)
COLLECTION_METHOD	string	sampling method (tow type or collection)
MESH_SIZE	number	mesh size [micron]
PHASE_OF_DAYLIGHT	string	sampling phase of the day (value : day, night, twilight, unknown, unassigned)
COLLECTOR_DPLMT_ID	string	original label as provided by the data collector
COLLECTOR_SAMPLE_ID	string	individual sample label
PROCEDURE	string	representativeness of organism identification within the sample
PRESERVATION	string	sample preservation method
STORAGE	string	sample storage method
METERS_SQD_FLAG	string	abundance calculation permitted or not (value : Y, N)
PLANKTON_COMMENTS	string	additional details (repeat field if necessary)

BUOY_HEADER
Moored meteo-oceanographic buoy
(optional : 1 block/file)

Field	Type	Description
NAME	string	name
TYPE	string	type
MODEL	string	model
HEIGHT	string	total height
DIAMETER	string	utmost diameter
WEIGHT	string	nominal weight
DESCRIPTION	string	more features

BUOY_INSTRUMENT_HEADER
Description of instruments attached to the moored meteo-oceanographic buoy
(optional : multiple blocks/file)

Champ	Type	Description
NAME	string	instrument name
TYPE	string	instrument type
MODEL	string	instrument model
SERAIL_NUMBER	string	instrument serial number
DESCRIPTION	string	instrument description
INST_START_DATE_TIME	string (SYTM)	instrument recording start time [GMT]
INST_END_DATE_TIME	string (SYTM)	instrument recording end time [GMT]
BUOY_INTRUMENT_COMMENTS	string	comments
SENSORS	string	additional details (repeat field if necessary)

METEO_HEADER
Meteorological conditions during the event
(optional: 1 block/file)

Field	Type	Description
AIR_TEMPEMPERATURE	number	air temperature [°C]
ATMOSPHERIC_PRESSURE	number	atmospheric pressure [hpa]
WIND_SPEED	number	wind speed [m/s]
WIND_DIRECTION	number	wind direction [true north degrees]
SEA_STATE	number	sea state (0->9, code WMO, table 3700)
CLOUD_COVER	number	cloud cover (0->9, code WMO, table 2700)
ICE_THICKNESS	number	ice thickness [m]
METEO_COMMENTS	string	meteo comments (repeat field if necessary)

INSTRUMENT_HEADER
Describes the instrument used to collect the data.
(optional: 1 block/file)

Field	Type	Description
INST_TYPE	string	instrument name
MODEL	string	instrument model
SERIAL_NUMBER	string	instrument serial number
DESCRIPTION	string	description: names of source files

QUALITY_HEADER
List of test performed and comments on data quality
(optional: 1 block/file)

Field	Type	Description
QUALITY_DATE	string	quality control date
QUALITY_TESTS	string	tests name (repeat field if necessary)
QUALITY_COMMENTS	string	comments on data quality (repeat field if necessary)

GENERAL_CAL_HEADER
A calibration block is added any time a raw channel is converted into a real parameter using a calibration equation. One parameter can have more than one calibration header.
(optional: multiple blocks/file)

Field	Type	Description
PARAMETER_CODE	string	parameter code (see Code_Parametre_ODF_en.doc)
CALIBRATION_TYPE	string	calibration type (see Etalonnage_ODF_en.doc)
CALIBRATION_DATE	string (SYTM)	sensor calibration date
APPLICATION_DATE	string (SYTM)	calibration application date
NUMBER_COEFFICIENTS	number	number of coefficients
COEFFICIENTS	number	list of coefficients
CALIBRATION_EQUATION	string	calibration equation
CALIBRATION_COMMENTS	string	calibration comments

POLYNOMIAL_CAL_HEADER

A calibration block is added any time a raw channel is converted into a real parameter using a polynomial equation of order NUMBER_COEFFICIENTS-1. One parameter can have more than one calibration header.
(optional: multiple blocks/file)

Field	Type	Description
PARAMETER_CODE	string	parameter code (see Code_Parametre_ODF_en.doc)
CALIBRATION_DATE	string (SYTM)	sensor calibration date
APPLICATION_DATE	string (SYTM)	calibration application date
NUMBER_COEFFICIENTS	number	number of coefficients
COEFFICIENTS	number	list of coefficients starting with the zero order

COMPASS_CAL_HEADER

A compass calibration header is included when corrections are applied to a direction parameter.
(optional: multiple blocks/file)

Field	Type	Description
PARAMETER_CODE	string	parameter code (see Code_Parametre_ODF_en.doc)
CALIBRATION_DATE	string (SYTM)	sensor calibration date
APPLICATION_DATE	string (SYTM)	calibration application date
DIRECTIONS	number	4 values/line, calibration reference directions
CORRECTIONS	number	4 values/line, corrections corresponding to direction list

HISTORY_HEADER

Any treatment done to the data set is described in a history header.
(optional: multiple blocs/files)

Field	Type	Description
CREATION_DATE	string (SYTM)	treatment date
PROCESS	string	treatment description (repeat field if necessary)

PARAMETER_HEADER
Description of the parameters of the data set. The data records appear in the same order as the parameter headers.
(obligatory: 1 block/parameter)

Field	Type	Description
TYPE	string	number precision (SING or DOUB)
NAME	string	parameter name
UNITS	string	parameter units
CODE	string	parameter code (see Code_Parametre_ODF_en.doc)
NULL_VALUE	number	null (missing) value (usually –99.0)
PRINT_FIELD_WIDTH	number	total field width for the parameter
PRINT_DECIMAL_PLACES	number	number of decimal places for the parameter
ANGLE_OF_SECTION	number	angle of section for current components [º]. An angle of section of 0 means the V component is positive north, and the U component is positive east.
MAGNETIC_VARIATION	number	correction applied to magnetic direction to convert to true degrees
DEPTH	number	parameter sample depth [m] (0 in profile mode)
MINIMUM_VALUE	number	minimum value in data series
MAXIMUM_VALUE	number	maximum value in data series
NUMBER_VALID	number	number of valid observations in data series
NUMBER_NULL	number	number of null values in data series

RECORD_HEADER
Counts of the multiple header blocks and data cycles
(obligatory: 1 block/file)

Field	Type	Description
NUM_CALIBRATION	number	number of calibration blocks (GENERAL and POLYNOMIAL) in file
NUM_SWING	number	number of compass swing blocks in file
NUM_HISTORY	number	number of history blocks in file
NUM_CYCLE	number	number of data records in file
NUM_PARAM	number	number of parameter blocks in file

--DATA--

The data records are preceded by a -- DATA -- line to indicate that the data cycles follow.The data records appear in the same order as the parameter headers.
(obligatory: 1 block/file)

Field	Type	Description
no field	number	numeric value for each parameter except for time
no field	string (SYTM)	only for the time channel: 'dd-mon-yyyy hh:mm:ss.ss'