

BIF (BADM Interchangeable Format)

File description

The BIF (BADM Interchange Format) is an international standard developed in a collaboration between ICOS ETC, the European Database and AmeriFlux to distribute sporadic or non-continuous measurements. The BIF consists of five columns, comma separated: SITE_ID, GROUP_ID, VARIABLE_GROUP, VARIABLE, and DATAVALUE. A VARIABLE_GROUP is a set of variables (VARIABLE) that are reported together (e.g. a quantity, the date when it was measured, and the method used to collect it etc., all in the DATAVALUE field). Multiple instances of the same variable group can be reported, for example because measured in different dates, or in a different location or also with a different method. The GROUP_ID uniquely identifies the data belonging to the same instance of a reported variable group. For example if a given variable is measured with two methods one date and with one method in another day, the three measurements are related parameters will have different GROUP_ID values. The variable names and data value provide the details of the reported data within a variable group. For additional information about the BIF format and examples check also the Table SM8 of the Supplementary Material of the Pastorello et al. 2020 paper available at:

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There is a large group of variables that are provided using the BIF format that for this reason are divided in different files:

- **SITEINFO** that contains all the general information about the station, including the team members and details, location, UTC offset, climate classes, ecosystem type and all the info to understand the general characteristics. The description of the variables is available here: <https://hdl.handle.net/11676/6PI6oDDXJtHQESQcaN2PXSRL>. Some variables have a controlled vocabulary (identified by LIST in the units) and the options are available here: https://hdl.handle.net/11676/6yJgj5X0hkj_wYr7I3fyn5LP
- **VARINFO**, it is produced one BIF file for each data file, where there is a basic description of the variables provided, including their height/depth and the type of sensor used for the measurement. For variables calculated as average/sum using multiple sensors this information is also reported. The description of the variables is available here: https://hdl.handle.net/11676/F4niR0vSsBMA1Yld_fv1a4d7. Some variables have a controlled vocabulary (identified by LIST in the units) and the options are available here: https://hdl.handle.net/11676/6yJgj5X0hkj_wYr7I3fyn5LP
- **INST**, that reports the information related to each sensor used at the station and involved in the data collection, including the information about disturbances and

calibrations. The description of the variables is available here: <https://hdl.handle.net/11676/Cb5Ru541EZlbXZN2nMqZWreT>. Some variables have a controlled vocabulary (identified by LIST in the units) and the options are available here: https://hdl.handle.net/11676/6yjgj5X0hkj_wYr7l3fyn5LP. In the INST_COMMENT variable is reported also a code identifying the exact model that can be checked in the list available here: https://docs.google.com/spreadsheets/d/1-QZ_i--hLO7QfEkCxzxj9l8GHS9FykpqJKs8UPPtRPI.

- **ANCILLARY** that contains all the ancillary measurements collected at the station, such species, biomass, LAI, tree diameters, foliar nutrient content, soil characteristics etc. The description of the variables is available here: <https://hdl.handle.net/11676/ORTfUb0CRBGRUtFzlyv0GH1u>. Some variables have a controlled vocabulary (identified by LIST in the units) and the options are available here: https://hdl.handle.net/11676/6yjgj5X0hkj_wYr7l3fyn5LP.

More information and details about the BADM system can be found in the following document: Papale, D., Canfora, E., & Polidori, D. (2017). ICOS Ecosystem Instructions for Use the ICOS BADM (Version 20171013). ICOS Ecosystem Thematic Centre. <https://doi.org/10.18160/6m8s-fy7m>