

The meta data tool “xforms”

1. Introduction

The meta data tool “xforms” is used to generate xml-files, that describe the data in the WDC¹ data base CERA². This meta data description is needed in the exact format and structure given by the output of the “xforms”-tool. The data deliverer is responsible for the structural correctness and completeness of the information in the xml-file that he/she generates with this tool. M&D³, who is the operator of the CERA data base, checks the incoming xml-files on structural correctness and completeness.

Any incomplete or non correct xml-files will be rejected and has to be corrected by the data deliverer. The corresponding data will only be archived in the CERA data base when the meta data description is complete and structurally correct.

For the preparation of the data base, M&D needs the meta data information well before the start of the data upload.

The WDC-data base is organized in three hierarchical categories. In the nomenclature of the data base, these categories are called ‘**projects**’, ‘**experiments**’ and ‘**data sets**’. The names for each meta data entry on each hierarchical level are unique throughout the whole WDC-data base. The meta data tool provides these names via pull down lists. To archive your data, meta data information on all three levels is required.

In certain cases an additional level called ‘data set group’ may be necessary. This will be decided on demand and the relevant contact persons will be informed.

The ‘project’ level will be described by the project coordinators. See chapter 3.1 for more details. **The PI’s (data deliverer) will have to describe:**

- GOP and D-PHASE: ‘experiment’ and ‘data sets’ descriptions are needed.
- COPS:
 - a) instrument PI’s deliver ‘data sets’ descriptions
 - b) ‘experiment’ descriptions are provided only by PI’s of Supersites, Aircrafts, Networks...The upload persons in COPS will be especially informed if we expect him/her to deliver an ‘experiment’ description or an ‘data set group’ description as well.

To deliver the required meta data information to her/his data, the data deliverer is asked:

- To download the “xforms”-tool from the website (see chapter 2.1 below)
- To generate the corresponding xml-files via the “xforms”-tool and name the files accordingly (see chapter 3 below).
- To send the resulting xml-files to cops@zmaw.de (please tar or zip the xml-files together)

¹ WDC = World Data Center for Climate

² CERA = Climate and Environmental Retrieving and Archiving

³ M&D=Model and Data group at Max Planck Institute for Meteorology in Hamburg.

2. Technical information

2.1. Download the “xforms”-tarfile:

You will find the meta data tool for download at <http://cops.wdc-climate.de> . Save the tarfile in your local directory. When you unpack the tarfile, a directory ‘xforms/’ with four subdirectories will expand.

2.2. System requirements:

The meta data tool “xforms” runs on UNIX/Linux as well as MS WINDOWS systems. For proper usage you need a Java Runtime Environment version 1.4, 1.5 or higher. Find your actual version with the unix command “java -version”. A text similar to the following should appear:

```
java version "1.5.0_07"  
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_07-b03)  
Java HotSpot(TM) Client VM (build 1.5.0_07-b03, mixed mode, sharing)
```

Please note, that the “xforms”-tool is not running with a java version from the Kaffe.org project. Find out with “java -version”. If you get a text referring to

Kaffe Virtual Machine

you need to install a different Java Runtime Environment. Download at <http://java.sun.com/javase/downloads/index.jsp>. Please follow the installation instructions given there.

2.3. First steps:

The tool consists of two subtools, that are used to generate the corresponding xml-files for the description of experiments (EXP) and data sets (DS).

Each application is started in the corresponding subdirectory “EXP/” or “DS/” . Change to one of these directories and start the xforms-tool with the following commands:

- On UNIX/Linux systems: type “java XFormApplet “ on the command line. The main window will open. (See fig. 1-3)
- On windows systems: First you need to edit the file , “xf_exp.bat” or/and “xf_ds.bat” . Enter the appropriate path for the java run time environment and the path where you installed the xforms-tool. This will look like:

```
set JAVA_HOME=C:\Programme\Java\jre1.5.0_03  
set HOME=C:\xforms\EXP
```

- Save the ‘xf*.bat’ file and start it in the actual directory. The main window will open. (See fig. 1-3)

Figure 1: Example for Main window for EXPERIMENT description with “xforms”.

Not filled for hydro-modells or COPS-observations

Figure 3: Example for Main window for DATA SET description with "xforms".

3. Which xml-files do you have to generate?

The data providers have to generate meta data description files for one or two of the three possible hierarchical levels. Find out here which xml-files are needed for your data.

3.1. Projects

For each of the three partner activities COPS, GOP and D-PHASE a **data base project** has been defined. The meta data description on the project level will be done by the project coordinators (which are A. Behrendt, S. Crewell and M. Arpagaus) and consists of a free text with a maximum of 2000 characters. There is no xforms-tool on this level.

3.2. Experiments (EXP)

The data provider who is uploading the data is responsible for the meta data description of the ‘experiment’ and the ‘data sets’, respectively.

Data base experiments are defined as follows:

3.2.1. GOP: The experiments are defined according to the networks of instrumental data: gop1, gop2, ..., gop9. This results in exp-xml-files like exp_gop1.xml, exp_gop2.xml, ..., exp_gop9.xml

3.2.2. D-PHASE: The experiments are defined according to the atmospheric or hydrological model. **Each data provider generates one experiment-xml-file for his/her model.** This results in one exp-xml-file for each model like exp_dphase_aladat.xml, exp_dphase_arome.xml, exp_dphase_cleps.xml, exp_dphase_prevah.xml, exp_dphase_hbv.xml

If you run your **model with two different resolutions**, then this is regarded as **two different experiments**, like:

exp_dphase_cosmoch2.xml,
exp_dphase_cosmoch7.xml,
exp_dphase_cmcgemh.xml,
exp_dphase_cmcgeml.xml

You will find the appropriate experiment names in the drop down lists of the xforms tool.

3.2.3. COPS : The experiments are defined according to the location of the instruments. This results in one exp-xml-file for each ‘location type’ like exp_cops_suph.xml (for **super** site **Hornigsgrinde**)
exp_cops_sups.xml (for **super** site **Stuttgart**)
exp_cops_radk.xml (for **radar** **Karlsruhe**)
exp_cops_nsm.xml (for **network** **soil** **moisture**)
exp_cops_nmet.xml (for **network** **mesonet**)

exp_cops_adlr.xml (for airplane **DLR** Falcon)
exp_cops_azep.xml (for airplane **Zeppelin**)

These experiment-xml's have to be generated by the corresponding contact person of the super site, the network coordinator or the contact person for the airborne measurements and a few other PI's , respectively. See table Table 1 for a list of experiments and the dedicated contact persons, which are asked to deliver experiment-xmIs for COPS.

3.3. Data set groups (DSG)

Data set groups are defined exclusively for a subset of instrument data in the project COPS. **Participants of D-PHASE and GOP do not need to generate any data set group-xml-files.**

- 3.3.1. COPS: The data providers fill in a data set group-xml only if they are explicitly informed to do so. The data set group xml's are used to describe the instrument (that delivers several measurement parameters as different 'data sets') in more detail.

3.4. Data sets (DS)

- 3.4.1. GOP: The data sets are defined according to the location of the instruments. This results in ds-xml-files like:

ds_gop1_rai_berl.xml
ds_gop1_rai_dwd1.xml
ds_gop2_rad_ralh.xml
ds_gop2_rad_xbhh.xml

- 3.4.2. D-PHASE: For each model (in the respective resolution) the data sets are defined according to the DOMAIN and TYPE-definition in the naming convention of the upload files. For each DOMAIN /TYPE of the upload files, an explicit ds-xml-file is needed. This results for example in ds-xml-files like:

ds_dop_ddom_aladfr_alrt.xml
ds_dop_ddom_aladfr_fix.xml
ds_dop_ddom_aladfr_pics.xml
ds_dop_ddom_aladfr_surf.xml
ds_dop_ddom_aladfr_tpt2.xml
ds_dop_cdom_aladfr_pics.xml

ds_dop_cdom_cosmoch2_mclo.xml
 ds_dop_cdom_cosmoch2_mrari.xml
 ds_dop_cdom_cosmoch2_mptq.xml
 ds_dop_cdom_cosmoch2_muvvw.xml
 ds_dop_cdom_cosmoch2_pics.xml
 ds_dop_cdom_cosmoch2_plev.xml
 ds_dop_cdom_cosmoch2_surf.xml
 ds_dop_cdom_cosmoch2_tpt2.xml
 ds_dop_cdom_cosmoch2_fix.xml

And note the different data sets for the two different experiments, if you run your model with two resolutions, like:

ds_dop_ddom_cmcgemh_pics.xml,...
 ds_dop_ddom_cmcgeml_pics.xml,...

ds_dop_cdom_cmcgemh_pics.xml,...
 ds_dop_cdom_cmcgeml_pics.xml,...

ds_dop_ddom_cosmoch2_alrt.xml
 ds_dop_ddom_cosmoch2_mptq.xml
 ds_dop_ddom_cosmoch2_muvvw.xml
 ds_dop_ddom_cosmoch2_pics.xml
 ds_dop_ddom_cosmoch2_plev.xml
 ds_dop_ddom_cosmoch2_surf.xml
 ds_dop_ddom_cosmoch2_tpt2.xml
 ds_dop_ddom_cosmoch2_fix.xml

For hydrological model this results for example in:

ds_dop_prevah_cleps.xml
 ds_dop_prevah_cleps_alrt.xml
 ds_dop_prevah_cleps_pics.xml
 ds_dop_prevah_cosmoch2.xml
 ds_dop_prevah_cosmoch2_alrt.xml
 ds_dop_prevah_cosmoch2_pics.xml

In case of ensemble model runs, the data deliverer needs to generate xml-files for each TYPE-definition in the data sets of the ensemble mean “e00/” and - as the content of the ensemble member files differ from the content of the ensemble mean files – one xml-file for each TYPE-definition in the data sets of the first ensemble member “e01/”.

Case a) Under the assumption, that **all ensemble members deliver the same output**, M&D then duplicates the xml-files of “e01” for all the other ensemble member-files.

Case b) If for your model, the **content of the ensemble member files differs between the various members**, then you will have to generate xml-

files for all data sets and all ensemble members and describe the differences between the members in the xml-files.

So please let us know (cops@zmaw.de) whether your ensemble model data is case a) or case b).

3.4.3. COPS

For instrumental data in COPS, the **data sets** are defined either as single parameter files or as multi-parameter files (if your upload netCDF-file contains several parameters). In both cases, you will fill in one ds-xml-file per upload file type. In case of multi-parameter upload files, use the ‘parameter’ button in the ds-xforms-tool to describe the various parameters in the file (generate different subrecords in the same subform for the different parameters, see below).

The naming convention for data files as given in the ‘general_info_data_archive’-pdf-file (see there and Table 1 and Table 2 for more details and suggested list for the placeholders exp(4), instru(6) and para(6)) is:

<INIDATE (10)>_<EXP(4)>_<INSTRU (6)>_<PARA(6)>_<FLAG(1)>

and holds for the naming of ds-xml files as well, while here the suffix ds_cops is replacing the inidate(10) placeholder.

This results for example in ds-xml-files like:

ds_cops_adlr_wvdial_wvnpro.xml (single parameter)

ds_cops_adlr_wvdial_backsc.xml (single parameter)

ds_cops_adlr_wvdial_pics.xml

ds_cops_supm_rsonde_temp.xml (multi-parameter)

ds_cops_supm_rsonde_pics.xml

Find here some examples for <SINGLE_PARA(6)> and <MULTI_PARA(6)> as far as they have been declared by now. The different instrument groups should agree on the naming of the parameters in their upload files.

Examples <SINGLE_PARA(6)>

- WVM02M (water vapour mixing ratio, 2m)
- WVM10M (water vapour mixing ratio, 10m)
- WVMPRO (water vapour mixing ratio, profile)
- WVN02M (water vapour number density, 2m)
- WVN10M (water vapour number density, 10 m)
- WVNPRO (water vapour number density, profile)
- WVR02M (relative humidity, 2m)
- WVR10M (relative humidity, 10m)
- WVRPRO (relative humidity, profile)

- T02M (temperature 2m)
- T10M (temperature 10m)
- TPRO (temperature profile)
- LOSVEL (line-of-sight velocity)
- U (for single wind components)
- V (for single wind components)
- W (for single wind components)
- BACKSC (backscatter signal)
- DEPOL (depolarization signal)
- PRECIP (precipitation)
- *To be extended in agreement with COPS coordinator*

Examples <MULTI_PARA(6)>

- TEMP (T,RH,U,V,W of radio soundings, drop sondes)
- WIND (u,v,w; if all components are measured)
- HUMID (all humidity parameters)
- *To be extended in agreement with COPS coordinator*

4. How to use the meta data tool “xforms”

In the “xforms/” directory go to the appropriate EXP/ or DS/ directory and start the tool as described in chapter 2.3 .The main window will open.

4.1. The main window

The main window consists of 4 parts:

- a pull down menu line (form, data, help)
- a top window called 'additional information': Read the information that is displayed here. It gives an introduction or short notice on the subform. If you click on the grey fields of the main window below, more information on the specific field is displayed here (clicking in the top window again brings you back to the introduction).
- a row with several buttons to open the subforms (they differ in case of EXP and DS. The color of the buttons indicates whether no entries have been done yet in the subform (grey), the information in the subform has been changed and not saved yet (red), the information has been saved (green).
- a main window with several fields to fill in. The fields are either pull down menus or free text fields. **Most of the fields are obligatory to be filled in.** You will be prompted to fill in the required information if you try to save the form (see below). **Only a few fields are optional.**

Besides the relevant fields that have to be filled in the main window, the main form is used

- to set the name for the output xml-file (see 4.3 below)
- to save the entries, including all changes that have been made in all the subforms (see 4.2 and 4.3 below)
- to load a template xml-file (see 4.4 below)

4.2. The subforms

If you generate a certain type of xml (EXP or DS), **all subforms in the given main form have to be filled by every data deliverer.** In case of the ‘data set’ description (DS), there is one exception: the subform ‘grid_desc’ has to be filled in by atmospheric model data providers only. Hydrological modelers leave the subform ‘grid_desc’ unfilled. In case of COPS observations the subform ‘grid_desc’ is omitted.

- **Open a subform:** Click on the respective buttons for the subform and a new window will open. Fill in every field in the subform.
- **Help on the subform entries:** a top window called 'additional information' gives an introduction or short notice on the subform. If you click on the grey fields of the subform window below, more information on the specific field is displayed here (clicking in the top window again brings you back to the introduction).

- **Check the contents:** Before you close a subform, check if you filled in every necessary item by: pull down menu -> 'data/check form contents'. A window will open to state how many entries are wrong/missing. Correct the missing items.
- **Generating a new record in an existing subform:**
 - In case of the subforms '*Contact*', several contact persons with different 'contact types' are needed. For exp-xml's the type 'investigator' is obligatory, for ds-xml's the type 'originator' is obligatory. Choose at least the obligatory contact type and declare the corresponding person from the list (or add new person). Define a new record with the pull down menu: data-> new subrecord -> new record and choose the supplementary contact types like 'meta data provider'.
 - In the subform 'parameter' several records will be necessary in the case of multi-parameter-data sets: For each parameter in the upload data file a new record has to be filled where the parameter is described. Define a new record with the pull down menu: data-> new subrecord -> new record.
- **Saving the contents of a subform:** the changes in the subforms will be saved in the main form. No explicit saving in the subform is needed.
- **Closing the subform:** The subform may be closed by click on 'form -> close frame' in the upper left corner. The subform window closes and the respective button in the main form turns red to indicate, that you still need to save the changes (in the main form). The number on the respective button gives the number of records generated in the subform. This should be '1' for all buttons but the '*Contact*' button (where several contact records are needed) or in case of multi parameter files for instrumental data and for hydrological data. For hydrological data the 'grid_desc' remains on '0', as it does not need to be filled.

4.3. Saving your entries

All changes that have been made in the main form and all the subforms **are saved via the main form.** The name of the xml-outputfile is generated automatically according to the acronym of the 'experiment' or 'data set' with the corresponding prefix (exp_, ds_). The acronym is set via a pulldown list in the main form (in case of COPS data, the list shows templates for acronyms, which have to be completed by the data provider following the given naming convention) .

To save the information of the xforms-tool in an xml-outputfile do the following:

- choose the pull down menu "data->**save** as new record"
- you are prompted if there are any mistakes
- correct the mistakes and choose "data->**save** as new record" again
- you will get a new window with a suggestion of the filename.
- We strongly recommend to keep the filename, as it contains the experiment and data set information and distinguishes one xml-file from another. We expect to collect about 2000 different xml-files in the frame of the COPS/GOP/D-PHASE projects.

- in case you want to produce a template (see below), you may change the filename for the template file and make sure to use the correct name for the actual xml-file, when expanding the template to the valid description xml-file later.

4.4. Using a template

If you need to generate different xml-files which are very similar in the contents of several subforms (which may be the case of ds-xml-files), you may create a template xml-file that you save locally and load it in the “xforms”-tool again.

- Start the “xforms”-tool in the corresponding directory.
- Fill in all information in the main form and in the subforms, that will not differ (like contact type, grid information, time information and so on) for all xml-files that you want to generate later.
- **Choose a filename for the template file** by using the pull down menu “data-> output target” and type in a <filename>.xml for your template.
- Save the template file by using the pull down menu “data-> save as new record” .
- You may proceed to generate the first relevant output-xml-file by providing the specific information, that differs from one meta data description file to another and save it with the correct name according to the entry acronym (given in the pull down list in the main form).
- If you want to load your template again, use the pull down menu “data-> load XML record -> select local file”. Make sure to change all items, that are specific in the description of the actual meta data entry.

4.5. How to provide more information of your data

4.5.1. More information on your data available?

Sometimes you may have some relevant information on your data, that is very useful for the user of the data base, who is not familiar with your data. The first place to put it, is in the free text ‘summary’ field in the main form. As this field is limited to 2000 characters, this may even not be enough. In this case, please contact cops@zmaw.de and we will find a solution. In the free text ‘summary’ you may refer to a webpage describing the data as well.

If you want to provide some more information (that is not captured in the information given in the xforms-xml-files) in a documentation on the model or instrument, you might send this information as a pdf-document and we will attach it to your data sets in the data base. Please note, that this special attachment files do not substitute the meta data xml-files that are obligatory for the storage of your data in the data base.

4.5.2. More entries in pull down lists needed?

If you don't find the right item in one of the pull down lists, please contact cops@zmaw.de immediately. We will make an update of the lists according to your needs. It is very important, that you do not edit your xml-file without the use of the xforms-tools. Any information that is meant to be filled in via a pull down list and is deliberately changed by yourself in the xml-file without using the tool, is definitely lost in the data base. Our filling routines will not recognize it as authorized information.

- For DPHASE: the data set acronyms, authorized contact persons, keywords and parameters are fixed and provided by pull down lists. If you need to announce another contact person or need another keyword/parameter to describe your data (especially hydro-models), please contact cops@zmaw.de immediately. For the announcement of contact persons and their corresponding institute details, please fill in **by hand** the small xml-templates: **person_v.xml** and **institute_v.xml**, that you find in the 'xforms/' directory. Send the new details to cops@zmaw.de.
- For COPS: The data set acronyms, contact persons and parameters are not entirely fixed yet. Thus the 'xforms tool' contains subforms to announce new values like 'Add_New_Contact' and 'Add_New_Parameter'.

EXAMPLES COPS:

EXP(4)	PI
	aircrafts
ADLR	Gerhard Ehret
ASAF	Cyrille Flamant
AATR	Yann Dufournet
ADO	Ulrich Corsmeier
ABAE	Alan Blyth
ALEA	Horst Fischer
AZEP	Frank Holland
AULI	Wolfgang Junkermann
ADIM	Bruno Neiningner
APAR	Christine Brandau
	Supersites
SUPH	Andreas Wieser
SUPS	Manfred Dorninger
SUPM	Volker Wulfmeyer
SUPV	Cyrille Flamant
SUPR	Paolo Di Girolamo
	Networks
NGPS	Galina Dick
NEB	Thomas Foken
NSOD	Thomas Foken
NTB	Norbert Kalthoff
NMET	Manfred Dorninger
NSM	Christian Hauck
NRG	Martin Hagen
NMRR	Gerhard Peters
	Other
MAST	Helmut Mayer
RSDU	Norbert Kalthoff
RADK	Jan Handwerker
POLD	Martin Hagen
DOWS	Tammy Weckwerth

Table 1: List of COPS- experiments and corresponding contact person. These persons are requested to fill out an experiment xmlfile. In the data base the data sets will be grouped under these experiments.

EXAMPLES COPS:

Facility	Location	EXP(4)	INSTRU(6)	PI
Aircrafts				
DLR Falcon		ADLR	WVDIAL	Gerhard Ehret
		ADLR	DLIDAR	Gerhard Ehret
		ADLR	DSONDE	Gerhard Ehret
SAFIRE Falcon		ASAF	WVDIAL	Cyrille Flamant
		ASAF	DSONDE	Cyrille Flamant
SAFIRE ATR42		AATR	?	Yann Dufournet
U. Braunschweig/IMK DO128		ADO	?	Ulrich Corsmeier
FAAM BAe146		ABAE	?	Alan Blyth
MPIC Learjet 35A		ALEA	?	Horst Fischer
FZJ Zeppelin NT		AZEP	AIRLIF	Frank Holland
FZK Enduro		AULI	?	Wolfgang Junkermann
MetAir Dimona		ADIM	?	Bruno Neiningner
Enviscope Partenavia P86B		APAR	?	Christine Brandau
Lidar				
UHOH Water Vapor DIAL	Supersite H	SUPH	WVDIAL	Volker Wulfmeyer
UHOH Rotational Raman Lidar	Supersite H	SUPH	RRLID	Andreas Behrendt
IMK Windtracer	Supersite H	SUPH	DLIDAR	Andreas Wieser
Ift Wind Lidar (WiLi)	Supersite M	SUPM	DLIDAR	Ronny Engelmann
Ift Multi-Wavelength Lidar	Supersite M	SUPM	MWLLID	Dietrich Althausen
CNRS TRESS Aerosol Raman lidar	Supersite V	SUPV	ARLID	Cyrille Flamant
CNRS Raman Lidar	Supersite V	SUPV	RLIDAR	Cyrille Flamant
U. Salford Doppler Lidar	Supersite R	SUPR	DLIDAR	Chris Collier
UNIBAS Raman Lidar	Supersite R	SUPR	RLIDAR	Paolo Di Girolamo
Radiometer				
U. Cologne HATPRO+IR Radiometer	Supersite M	SUPM	HPIRRA	Susanne Crewell
U. Bonn ADMIRARI	Supersite H?	SUPH	ADMIRA	Clemens Simmer
CNRS TRESS Sun Photometer	Supersite V	SUPV	SPHOT	Cyrille Flamant
CNRS TRESS IR Radiometer	Supersite V	SUPV	IRPHOT	Cyrille Flamant
U. Salford 14 Channel Microwave Radiometer	Supersite R	SUPR	MWRAD	Chris Collier
CNR-IMAA Microwave Radiometer	Supersite H	SUPH	MWRAD	Gelsomina Pappalardo
U. Cologne Dual Polarization Radiometer	Supersite M	SUPM	DPRAD	Susanne Crewell
U. Bonn MICCY	Supersite S	SUPS	MICCY	Alessandro Battaglia
Radar				
DLR POLDIRAD	Waltenheim sur Zorn	POLD	PDRAD	Martin Hagen
IMK C-Band Radar	FZK	RADK	CBRAD	Jan Handwerker
UHOH X-Band Radar	Supersite H	SUPH	XBRAD	Andrea Riede
IMK Cloud Radar	Supersite H	SUPH	CRADAR	Jan Handwerker
UHH Cloud Radar	Supersite R	SUPR	CRADAR	Gerhard Peters
U. Hamburg Micro Rain Radars	All Supersites	NMRR	MRRUHH	Gerhard Peters
CNRS X-Band Radar (scanning)	Supersite V	SUPV	XBRAD	Joel Van Baelen
CNRS K-band Radar (vertical)	Supersite V	SUPV	KBRAD	Joel Van Baelen
U. Vienna Micro Rain Radar	Supersite S	NMRR	MRRUV	Manfred Dorninger
TU Delft TARA	Supersite H	SUPH	TARA	Herman Russchenberg
CSWR Doppler On Wheels 1	mobile	DOWS	DOW1	Tammy Weckwerth
CSWR Doppler On Wheels 2	mobile	DOWS	DOW2	Tammy Weckwerth

Facility	Location	EXP(4)	INSTRU(6)	PI
GPS Integrated Water Vapour				
GFZ Potsdam GPS Network		NGPS	GEGPS	Gerd Gendt
CNRS GPS Network		NGPS	FRGPS	Cedric Champollion
WTR/Sodar/RASS				
IMK Sodar	Igelsberg	NSOD	GESOD1	Heinz Zimmermann
IMK Sodar 2	Gaggenau	NSOD	GESOD2	Norbert Kalthoff
IMK Wind Temperature Radar	Supersite S	SUPS	WTRAD	Siegfried Vogt
U. Bayreuth Sodar-RASS		NSOD	SORASS	Thomas Foken
U. Freiburg Flat Array Sodar	Oberkirch	NSOD	FASOD	Helmut Mayer
Meteo France/CNRS UHF Wind Profiler	Supersite V	SUPV	WPROFI	Francois Bouttier
Meteo France/CNRS Sodar	Supersite V	NSOD	FRSOD	Francois Bouttier
U. Manchester Radio Wind Profiler	Supersite R	SUPR	WPROFI	Geraint Vaughan
UK Sodar 1	Supersite R	NSOD	UKSOD1	Stephen Mobbs
UK Sodar 2	Murg valley	NSOD	UKSOD2	Stephen Mobbs
UK Sodar 3	Enzkloesterle?	NSOD	UKSOD3	Stephen Mobbs
Surface In-Situ				
IMK Energy Balance Station 1	Hornisgrinde	NEB	IMKEB1	Norbert Kalthoff
IMK Energy Balance Station 2	Linkenheim	NEB	IMKEB2	Norbert Kalthoff
IMK Energy Balance Station 3	Linkenheim	NEB	IMKEB3	Heinz Zimmermann
IMK Turbulence Tower Network (5)		NTB	IMKTT	Norbert Kalthoff
IMK Soil Moisture Network		NSM	IMKSM	Christian Hauck
U. Bayreuth Energy Balance Station 1	Fußbach	NEB	UBAEB1	Thomas Foken
U. Bayreuth Energy Balance Station 2	Ortenberg	NEB	UBAEB2	Thomas Foken
U. Bayreuth Energy Balance Station 3	Fischerbach	NEB	UBAEB3	Thomas Foken
U. Bayreuth Energy Balance Station 4	Hausach	NEB	UBAEB4	Thomas Foken
U. Munich Surface Station Mesonet (12)		NMET	UMSSM	Roger Smith
Meteo France Surface Flux Stations (3)			MFSF	Francois Bouttier
Meteo France Soil Moisture Stations (2)		NSM	MFSM	Francois Bouttier
UK Aerosol Container	Supersite H	SUPH	UKAERO	Hugh Coe
U. Vienna Surface Energy Balance System	Supersite S	NEB	UVSEBS	Manfred Dorninger
U. Vienna HOBO Temperature Network (~15)	Mesonet (Supersite S)	NMET	UVHOBT	Manfred Dorninger
U. Vienna Sonic Anemometers (4)	Teinach Valley		UVSOAN	Manfred Dorninger
U. Leeds 10 Autom. Weather Station Network	Murg Valley??	NMET	ULAWS	Stephen Mobbs
U. Vienna HOBO Autom. Weather Stations (100)	Mesonet (Supersite S)	NMET	UVHOBW	Manfred Dorninger
U. Vienna MAWS Autom. Weather Stations (3)	Teinach Valley	NMET	UVMAW	Manfred Dorninger
U. Bonn Turbulence Tower	Supersite S	NTB	UBNTT	Dirk Schüttemeyer
U. Bonn Scintillometer	Supersite S	SUPS	UBNSC	Dirk Schüttemeyer
U. Bonn Energy Balance Station	Supersite S	NEB	UBNEB	Dirk Schüttemeyer
U. Innsbruck Aut. Weather Stations (10)		NMET	UIAWS	Felix Schüller
Masts				
U. Bayreuth 12 m Mast		MAST	MABAY	Thomas Foken
U. Freiburg Forestmeteorological Research Site	Hartheim	MAST	MAFOR1	Helmut Mayer
U. Freiburg Forestmeteorol. Research Sites (2)	Tuttlingen	MAST	MAFOR2	Helmut Mayer

Facility	Location	EXP(4)	INSTRU(6)	PI
In-Situ Vertical Sounding				
IMK Radiosonde Station 1	FZK	RSDU	FZK	Martin Kohler
IMK Radiosonde Station 2	Burnhaupt le Bas	RSDU	BURN	Martin Kohler
IMK Dropup-Team 1 (incl. Micro. Met. Mast)	mobile	RSDU	IMKDU1	Ulrich Corsmeier
IMK Dropup-Team 2 (incl. Micro. Met. Mast)	mobile	RSDU	IMKDU2	Ulrich Corsmeier
IMK Dropup-Team 3 (incl. Micro. Met. Mast)	mobile	RSDU	IMKDU3	Ulrich Corsmeier
IMK Dropup-Team 4 (incl. Micro. Met. Mast)	mobile	RSDU	IMKDU4	Ulrich Corsmeier
IMK Dropup-Team 5	mobile	RSDU	IMKDU5	Ulrich Corsmeier
Meteo France/CNRS Radiosonde Station	Supersite V	RSDU	RSV	Francois Bouttier
UK Radiosonde Station 1	Supersite R	RSDU	RSR	Alan Blyth
UK Radiosonde Station 2	Supersite H	RSDU	RSH	Alan Blyth
U. Vienna Radiosonde Station (nr of ballons ?)	Supersite S	RSDU	RSS	Manfred Dorninger
U. Vienna Tethersonde System	Supersite S	RSDU	UVTS	Manfred Dorninger
U. Freiburg Tethersonde System	Freiburg	RSDU	UFTS	Helmut Mayer
Precipitation Stations				
10 High-precision Precipitation Meas. Systems	Mesonet (Supersite S)	NRG	UFMPMS	Bodo Ahrens
U. Vienna Disdrometer	Supersite S	NRG	UVDIS	Manfred Dorninger
1 High-precision Precipitation Meas. System	Supersite S	NRG	UVPMS	Manfred Dorninger
U. Innsbruck Thies Distrometer 1 (H)		NRG	UITD1	Felix Schüller
U. Innsbruck Thies Distrometer 2 (?)		NRG	UITD2	Felix Schüller
U. Innsbruck Ott Pluvio Rain gauge (?)		NRG	UIOPRG	Felix Schüller
U. Innsbruck Davis Rain Collectors (6)		NRG	UIDRC	Felix Schüller
Cameras				
CNRS Full Sky Camera	Supersite V	SUPV	CCAM	Cyrille Flamant
IMK Full Sky Camera	Supersite H	SUPH	CCAM	Andreas Wieser

Table 2: List of COPS experiment and instrument abbreviations as have been already fixed by COPS- coordinator and M&D. Use EXP(4) and INSTRU(6) from this table according to the naming convention. If you were running different/additional instruments, please find an appropriate abbreviation INSTRU(6) for the naming of your files and announce it to cops@zmaw.de