User guide for NCLscripts 2.0

General

Four NCLscripts can be run to get plots of the netCDF data produced by PALM.

- ***cross_sections.ncl*** draws contour, isoline or vector plots (of a 2-dimensional vector) from 2D- or 3D-netCDF data; instantaneous or time-averaged xy-, xz-, yz- or 3D-data can be used
- ***profiles.ncl*** draws profile line plots from profiles-netCDF or 3D-netCDF data
- ***spectra.ncl*** draws NCL spectra plots from spectra-netCDF data
- ***timeseries.ncl*** draws line plots from timeseries-netCDF data

Prompt to run the scripts:

- *ncl path_to_the_script/script_name.ncl*

Several steering parameters exist to change the output plots. They can be either written in the prompt or modified within the spript ***ncl_preferences.ncl*** (it should be copied into the $home directory).

Prompt to run the scripts with parameters:

- *ncl path_to_the_script/script_name.ncl parameter=value 'parameter="string"'*

Some parameters have to be changed (marked with a REQUIRED) but most of them are allocated with a suitable default value. An overview of the parameters is given in the following but you can also find an explanation and the default values for every steering parameter in ***ncl_preferences.ncl***.

If one of the program aborts and there is no comment, check **ncl_prefences.ncl** - the scripts should not abort with the defalut values. Be sure to use the right data type (e.g.: integer = **2**; float = **2.0**; dfloat = **2.0d**; string = **"name"**).

Parameter list for cross_sections.ncl:

'file_1'	REQUIRED	string	input file; “path/name”
xyc, xzc, yzc	REQUIRED	integer	[=0] or [=1]; XY- or XZ- or YZ section
'format_out'	OPTIONAL	string	“x11”, “pdf”, “ps”, “eps”, “epsi”, “ncgm”
'file_out'	OPTIONAL	string	output file; “path/name”
no_columns	OPTIONAL	integer	number of plots in one row
no_lines	OPTIONAL	integer	number of plots in one column
'sort'	OPTIONAL	string	“layer” or “time”
'var'	OPTIONAL	string	by default all variables otherwise: e.g.: “,u,v,” for output of u and v (one comma before and after each variable!)
start_time_step	OPTIONAL	double	first time step in [hour]
end_time_step	OPTIONAL	double	last time step in [hour]
xs	OPTIONAL	double	first value of x range in [meter]
xe	OPTIONAL	double	last value of x range in [meter]
ys	OPTIONAL	double	first value of y range in [meter]
ye	OPTIONAL	double	last value of y range in [meter]
zs	OPTIONAL	integer	first indice of z-range
ze	OPTIONAL	integer	last indice of z-range
'mode'	OPTIONAL	string	“Fill” for contour plot , “Line” for isolines, “Both” for both
'fill_mode'	OPTIONAL	string	type of filling the contour plot: “AreaFill”, “RasterFill” or “CellFill”
shape	OPTIONAL	integer	aspect ratio will be kept [=1] or not [=0]

vector	OPTIONAL	integer	output of a vector plot [=1] or not [=0]
'vec1'	REQUIRED if vector=1	string	first component of vector (e.g.: “,u,”)
'vec2'	REQUIRED if vector=1	string	second component of vector(e.g.: “,v,”)
'plotvec'	OPTIONAL	string	variable where the vectorplot can overlay if desired (e.g.: “,u,”)
ref_mag	OPTIONAL	float	length of the vector

Parameter list for profiles.ncl:

'file_1'	REQUIRED	string	input file; “path/name”
prof3d	REQUIRED	integer	[=1] for 3D data or [=0] for profile data
'format_out'	OPTIONAL	string	“x11”, “pdf”, “ps”, “eps”, “epsi”, “ncgm”
'file_out'	OPTIONAL	string	output file; “path/name”
no_columns	OPTIONAL	integer	number of plots in one row
no_lines	OPTIONAL	integer	number of plots in one column
'var'	OPTIONAL	string	by default all variables otherwise: e.g.: “,u,v,” for output of u and v (one comma before and after each variable!)
no_files	OPTIONAL	integer	up to 12 differnt input files with identical variables and dimensions can be used
'file_2'	REQUIRED if no_files>1	string	2nd input file; “path/name”
'file_3'	REQUIRED if no_files>2	string	3rd input file; “path/name”
...			
'name_legend_1'	OPTIONAL if no_files>1	string	legend item 1 can be labelled
'name_legend_2'	OPTIONAL if no_files>1	string	legend item 2 can be labelled
'name_legend_3'	OPTIONAL if no_files>2	string	legend item 3 can be labelled
...			
start_time_step	OPTIONAL	double	first time step in [hour]
end_time_step	OPTIONAL	double	last time step in [hour]
xs	OPTIONAL	float	first value of x axis

xe	OPTIONAL	float	last value of x axis
min_z	OPTIONAL	double	first value of z-axis in [meter]
max_z	OPTIONAL	double	last value of z-axis in [meter]
logy	OPTIONAL	integer	[=1] if logarithmic scale for y otherwise [=0]
norm	OPTIONAL	float	value for normalising the y-axis
over	OPTIONAL	integer	[=1] for predefinded overlaying of special variables otherwise [=0]
combine	OPTIONAL	integer	[=1] for combining of 2 or 3 variables otherwise [=0]
number_comb	REQUIRED if combine=1	integer	[=2] or [=3]
'c_var'	REQUIRED if combine=1	string	variables for combining, e.g.: “,u,v,w,”
black	OPTIONAL	integer	[=1] for black or [=0] for coloured lines
dash	OPTIONAL	integer	[=1] for dashed or [=0] for continuous lines

Parameter list for spectra.ncl:

'file_1'	REQUIRED	string	input file; “path/name”
'format_out'	OPTIONAL	string	“x11”, “pdf”, “ps”, “eps”, “epsi”, “ncgm”
'file_out'	OPTIONAL	string	output file; “path/name”
no_columns	OPTIONAL	integer	number of plots in one row
no_lines	OPTIONAL	integer	number of plots in one column
'var'	OPTIONAL	string	by default all variables otherwise: e.g.: “,u,v,” for output of u and v (one comma before and after each variable!)
height_level	OPTIONAL	array integer	indicating which height levels from the input file shall be output; e.g: (/1,2,7/) for level 1,2 and 7; by default all levels
'sort'	OPTIONAL	string	“height” for all heights in one plot or “time” for all time steps in one plot
start_time_step	OPTIONAL	double	first time step in [hour]
end_time_step	OPTIONAL	double	last time step in [hour]
black	OPTIONAL	integer	[=1] for black or [=0] for coloured lines
dash	OPTIONAL	integer	[=1] for dashed or [=0] for continuous lines
logy	OPTIONAL	integer	[=1] if logarithmic scale for x and y otherwise [=0]
normx	OPTIONAL	float	value for normalising the x-axis
normy	OPTIONAL	float	value for normalising the y-axis

Parameter list for timeseries.ncl:

'file_1'	REQUIRED	string	input file; “path/name”
'format_out'	OPTIONAL	string	“x11”, “pdf”, “ps”, “eps”, “epsi”, “ncgm”
'file_out'	OPTIONAL	string	output file; “path/name”
no_columns	OPTIONAL	integer	number of plots in one row
no_lines	OPTIONAL	integer	number of plots in one column
'var'	OPTIONAL	string	by default all variables otherwise: e.g.: “,u,v,” for output of u and v (one comma before and after each variable!)
start_time_step	OPTIONAL	double	first time step in [hour]
end_time_step	OPTIONAL	double	last time step in [hour]
over	OPTIONAL	integer	[=1] for predefinded overlaying of special variables otherwise [=0]