MetgraF^2

Overview

MetgraF is a software package for graphical presentation of meteorological fields and observations. The package has been developed at SMHI s section for meteorological research and development, initially as an aid within the work for a new analysis- and forecast system (HIRLAM). MetgraF was adopted as SMHI-standard in March 1992.

The reason for developing another meteorological graphical package, despite several similar existing packages, was the desire for larger flexibility and the possibility for easy further development as new needs occur.

MetgraF is flexible with respect to geographical projections for the maps. By separating two geometries, the one that the grid point field is given in and the one required without co-ordinate transformation needed first. This is achieved by calculating the field of the grid point coordinates into the maps projection first once and for all. Besides saving time this leads to very large flexibility in choosing geometries.

Get the manual as postsrcipt file: manual.ps

What can MetgraF_2 do?

Maps

Maps are produced by short batch scripts that accesses libraries of map- and field- layout characteristics. The resulting maps are in postscript format and can be viewed on the workstation or sent to the printer. After conversion to the gif-format, the maps can easily be distributed to other media and users such as the intranet or the internet. An interactive version of MetgraF_2 will be available later.

All information that is unique to a certain map, i.e. the 'experiment' name, the location of the files, the date and time and the forecast length, are set in one new namelist, called 'namfil'. The map-layout is, as before, set in 'namgeo', while the field selection and drawing instructions are given in 'namsel', also as it used to. A new namelist, called 'namlog', is used to define the destination of error- and diagnostic messages, necessary when MetgraF_2 is used in the RiPP environment.

The namelist variables in 'namsel' controls the output field. Separate 'namsel' is used for each field. For multi field maps one just adds another 'namsel' after the previous.
A namelist called 'namval' is used to define symbols and texts that are to be written on the map, an example is 'dots' and names for cities and towns.

Observations can, at present, only be plotted from observation files in the internal SMHI format. A facility to plot them from BUFR-files will be added as soon as time allows us to implement it. The obs-plotting requires many options and selections, and there are many, many parameters in the obs namelist 'namobs'. Most of them are however preset by default. Details of how to change the defaults can be obtained from Bo Lindgren at SMHI.

A novel feature is that the final namelist input to a plot job is assembled from several small files which can be kept on-line in MetgraF_2 directories. This allows for easily repeated plots with frozen characteristics from different experiments and times, but it also allows for easy addition of new layouts

and contents. The emphasis has been on flexibility and ease-of-use at the same time.

The order of the namelist components is basically free. Each component is processed as it appears in the final input to MetgraF_2. This allows for great flexibility in the design of maps and clusters of maps.

Name list-name Control

- Namlog
  Log print names and units

- Namfil
  Log print names and units
  Date and time
  File names
  Forecast length

- Namgeo
  Types of coast lines
  Latitude and longitudes
  Scales and colors
  Map projection and area
  Physical dimensions

- Namsel
  Selection of fields
  Field attributes
  Interval between contours
  Field identities

- Namval
  Plotting of values or text or drawing polygons

- Namobs
  selection of observations
  levels
  colors

- Namsec
  Namelist for cross section,
  can not be used together with the other ones

Now you can make a file containing these namelists (as many as you want) and you are ready to run MetgraF_2 with:

metgraf_b namelistfile L a4

where L means Landscape plot (P=Portrait) and a4 is the paper size.
See also the example

GRIB access

The previous MetgraF GRIB access routines (GROPENC, GREADC and GRCLOSC) have been replaced by similar routines, (called 'grib_open_read') which are based on the ECMWF EMOSlib package. Since EMOSlib, which also supports BUFR, is maintained by ECMWF, this choice relieves us at SMHI from maintaining our own GRIB- and BUFR- access software outside ROAD.

The present interface to ROAD is via GRIB-files generated by ROAD, but since all GRIB-access in MetgraF_2 takes place within two simple subroutines, alternative versions of these that accesses ROAD directly can alternatively be added. The EMOSlib based access routines are robust and very fast, a cross-section that requires the reading and unpacking of 94 GRIB-fields does this in less than two seconds on the smallest Sun-Sparc stations.

The basic principle of 'grib_open_read' is unchanged from the earlier access routines. As before, complete GRIB-files are used with the help of tables of keys and pointers, which are kept in an ASCII 'key'-file. With the help of the key and the associated pointer, the file is positioned directly at the requested field where after the GRIB field is read and unpacked. Since the keys are in character format they provide a quick list of contents of the file. The keys are determined when opening and can be reused in order to save time next time the same GRIB file is needed. The key-files have the same names as the GRIB-file with the extension .key

N.B.! It is important to remember that the .key-file is uniquely connected to the GRIB-file. If the contents of a GRIB-file is changed (e.g. by rerunning an experiment), the key-file pointers may be wrong. So, whenever a GRIB-file is recreated with the identical name, the corresponding .key-file MUST be deleted before using it. This is NOT done automatically!

The so-called A's and the B's that define the vertical coordinate system in the HIRLAM and ECMWF models are automatically extracted when opening the file. They are provided in a common block. A general principle in MetgraF_2 is otherwise to try to reduce the excessive use of common-blocks in MetgraF since common-blocks make the code less easy to understand and are prone to introduce errors.

An irritating problem in MetgraF has been the use of different parameter codes ("table 2" in GRIB) at SMHI and ECMWF. The earlier access programs, GREADC and GETFD, both tried to convert non-standard code figures to the WMO standard. With the arrival of several alternative tables, MetgraF_2 abandons this approach and the user has to provide also the GRIB table version number when requesting a field, which is then defined by the original code-figure.

Since the GRIB filenames are provided as namelist input to MetgraF_2 rather than being constructed internally, there are no rules whatsoever for the naming of files, they may be called 'Putte' if you so wish.

Using grib_open_read

The user interface consists of two fortran subroutines, grib_open and grib_read, which in turn make use of a couple of c-routines from the ECMWF emoslib library.

Since grib_read by definition reads grib-fields, the WMO Manual on Codes FM92-X GRIB is a very useful document to have available on your desk.

```
subroutine grib_open(lunit,gribfile,keyfile,keys,
                     pointers,nkeys,nrec,grib,ngrib,iret,print,lulog)
-------------------------------------------------------------------------
lunit    is a 'unit-number' which is set by grib_open and used by grib_read
gribfile is the full filename of your gribfile,
         i.e. (in unix-speak:) ${directory}/${filename}
keyfile  is the full filename of the keyfile
         this name is generated by grib_open and will be 'gribfile.key'
         grib_open will try to find an existing
         keyfile before it creates a new one
keys     is a character*24 array of length nkeys
pointers is an integer array, also of length nkeys
nkeys    is the dimension of keys. keys has to
         be as long as the number of fields in your file
nrec     is the actual number of fields found in the file
         (if nrec turns out to be > nkeys
         the program fails and tells you so)
grib     is an integer array, large enough for one packed gribfield
ngrib    is the dimension of grib
iret     is a retun error code
print    is a logical that you can switch on to get some diagnostics
lulog    is the unit number where the diagnostics is printed


subroutine grib_read(lunit,tab2,type,par,lev,year,month,day,
                     hour,fclen,keys,pointers,nkeys,field,work,
                     nxny,grib,ngrib,iret,print,lulog)
-----------------------------------------------------------------------
lunit    is a 'unit-number' which is set by grib_open and used by grib_read
tab2     is the Version No.  of GRIB table 2.
         (e.g. 1 for HIRLAM, 128 for ECMWF)
type     is the level type. see GRIB table 3
par      is the parameter code according to GRIB table 2
lev      is the level.
year     is the four-digit year
month    is the month
day      is the day
hour     is the hour
fclen    is the forecast length (see the WMO Manual on Codes for details)
keys     is the character*24 key-array created by grib_open
```

```
pointers is the integer array created by grib_open
nkeys    is the dimension of keys and pointers
field    is the real 1-dimensional array where you get
         the field you've asked for
work     is a work-array, only used when wrapping-around
         ECMWF global fields.
nxny     is the actual number of unpacked gridpoints in your field
grib     is an  integer array, large enough for one packed gribfield
ngrib    is the dimension of grib
iret   )
print  ) are for diagnstics, see grib_open
lulog  )
```

Grib_read inserts all necessary information from the GRIB-headers into a fortran common block called 'comdef'. If you have used MetgraF before, you will recognize most of its parameters. If not, the variable names are hopefully self-explanatory. Here follows the structure of 'comdef'

```
C     COMMON BLOCK TO TRANSFER FIELD INFORMATION TO METGRAF

      CHARACTER*4   ARAKAWA,CENTRE,GENPROC,LEDIGT

      INTEGER       IDCREA,IHCREA,
     +              ICENTRE,IGENPROC,
     +              ICODTAB,IPAR,ITYP,ILEV,
     +              IYR,IMO,IDA,IHO,IMI,ILN,ILNB,ILNE,
     +              IREP,ISCM,NLON,NLAT,
     +              NGAUSS,JSGAUS,NMLEV,ITYPML

      REAL          ALATS,ALONW,ALATN,ALONE,
     +              DLAMDA,DTHETA,ALATSP,ALONSP,
     +              GAULAT(320),
     +              XPOL,YPOL,FIG,ANG,DS,
     +              ALEV(50),BLEV(50)

      COMMON/COMDEF/
     +              ARAKAWA,CENTRE,GENPROC,LEDIGT,
     +              ICENTRE,IGENPROC,
     +              ICODTAB,IPAR,ITYP,ILEV,
     +              IYR,IMO,IDA,IHO,IMI,ILN,ILNB,ILNE,
     +              IREP,ISCM,NLON,NLAT,
     +              ALATS,ALONW,ALATN,ALONE,
     +              DLAMDA,DTHETA,ALATSP,ALONSP,
     +              NGAUSS,JSGAUS,GAULAT,
     +              XPOL,YPOL,FIG,ANG,DS,
     +              NMLEV,ITYPML,ALEV,BLEV,
     +              IDCREA,IHCREA
```

GRIB TABLES:

Level type of primary fields

100 = Pressure level

102 = Mean sea level
105 = Surface
109 = Model level

In addition there are other level types

Table 001: Parameters according to WMO list - used by HIRLAM

Number	Description
1	Press.
2	Mean Sea Level Pressure.
6 .or. par.eq.7	Geo.Pot.
11	Temp.
13	Pot.Temp
14	EqP.Temp
17	Dewp.
33	Hor.Wind
34	V-comp.
39	VertVel.
41	A.Vort.
43	R.Vort.
44	Div.
49	Current
51	Sp.Hum.
52	Rel.Hum.
53	Mix.Rat.
61	Tot.Prec
62	Str.Prec
63	Con.Prec
64	SnowFall
66	SnowCov.
71	TotCloud
72	ConCloud
73	LowCloud
74	MidCloud
75	HigCloud
76	CloudWat
81	Fr. Land
83	Rough.
84	Albedo
85	SoilTemp
86	SoilWet.
87	Veg.
91	Fr. Ice
92	IceThick
93	IceDrift

94	IceSpeed
100	WaveSwell
101	WaveDir.
102	WaveHgt.
103	WavePer.
104	SwellDir
105	SwellHgt
106	SwellPer
111	Turb.KE
117	GlobRad.
121	Lat.Heat
122	Sensheat
128	Momentum
200	3h Tend.
201	Thickn.
202	ThickTmp
203	Dry Stab
204	Moi.Stab
210	WindTemp
211	Geostr.W
212	A-Geos.W
213	PV
214	Q-vector
221	modCloud
222	ProbSnow
231	Tot.Prec
252	RH.der

Table 128: ECMWF grib

Number	**Description**
151 .or. par.eq.152	Press.
129	Geo.Pot.
130	Temp.
168	Dewp.
131 .or. par.eq.165	U-comp.
132 .or. par.eq.166	V-comp.
135	VertVel.
138	R.Vort.
155	Div.
133	Sp.Hum.
157	Rel.Hum.
228	Tot.Prec
142	Str.Prec
143	Con.Prec
144	SnowFall
141	SnowCov.
164	TotCloud
186	LowCloud
187	MidCloud

188		HigCloud
176		SW.Rad.
177		LW.Rad.
147		Lat.Heat
146		Sensheat
180	.or. par.eq.181	Momentum
13		Pot.Temp
14		EqP.Temp
76		CloudWat
201		Thickns
202		ThicTemp

Table 129: MESAN products

Number	Description
001	Press.
11	Temp.
12	Tiw
15	Max temp
16	MIN temp
20	Visibil.
32	Gusts
33	Hor.Wind
34	V-comp.
52	Rel.Hum.
71	TotCloud
73	LowCloud
77	FrqSigCl
78	Cld Base
79	CloudTop
161	Prec 06h
162	Prec 12h
163	Prec 18h
164	Prec 24h
165	Prec 01h
166	Prec 02h
167	Prec 03h
168	Prec 09h
169	Prec 15h
171	Snow 06h
172	Snow 12h
173	Snow 18h
174	Snow 24h
175	Snow 01h
176	Snow 02h
177	Snow 03h
178	Snow 09h
179	Snow 15h
201	Press.
202	Temp.

203	Prec.
204	Clouds

Table 129: RiPP PMP

Number	Description
001	Press.
11	Temp.
20	Visibil.
33	Hor.Wind
34	V-comp.
52	Rel.Hum.
60	Prob Th.
71	TotCloud
73	LowCloud
74	MidCloud
75	HighCld
130	MaxWind
131	Gusts
135	Cld Base
136	Cld Top
140	PrecRate
141	SnowRate
145	PrecType
146	PrecPha

Table 130 ECMWF Wave products

Number	Description
229	SWH
230	MWD
231	PP1D
232	MWP
233	CDWW
234	SHWW
235	MDWW
236	MPWW
237	SHPS
238	MDPS
239	MPPS
100	Swell
250	2DSP

$Namlog

This namelist is used for log prints. It might be useful to save the log file whenever MetgraF_2 doesn't work.

Parameter	Default	Description
log_print	.false.	Switch for extra log print
log_unit	6	Unit for log output
log_file	None	Output log file
msg_unit	-	Unit for message outputi (RIPP)
msg_file	None	Message file (RIPP)

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$Namfil

The namelist namfil is used to control log output, input other namelists,files and date.

Parameter	Default	Description
lfield	'.true.'	Switch for plotting fields
lobs	'.false.'	Switch for plotting observations
lingua	'English'	Language for parameter text
filtext	None	Bottom text in plot
top_text(1:2)	'None'	Top text in plot. Two lines available
bot_text(1:2)	'None'	Bottom text in plot
top_hgt	0.2	Top text height
bot_hgt	0.2	Bottom text height
top_font	10	Top text font
bot_font	10	Bottom text font
gribdir_1	./	Name of directory for file 1
gribdir_2	./	Name of directory for file 2
gribfile_1	none	Name of input file 1
gribfile_2	none	Name of input file 2
iyr1	none	Input year for file 1
imo1	none	Input of month for file 1
ida1	none	Input of day for file 1
iho1	none	Input of hour for file1
iln1	none	Input of forecast length for file 1
iyr2	iyr2	Input year for file 2
imo2	imo2	Input of month for file 2
iday2	iday1	Input of day for file 2
iho2	iho1	Input of hour for file 2
iln2	0	Input of forecast length for file 2

$END

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$Namgeo

NamGeo defines the output map geometry and layout. From NamGeo you can choose map scale and projection, coastline accuracy, longitude- and latitude values and colours, shadowing of land etc. The map area coverage is defined by the midpoint, the map scale and the physical dimension of the map. You will probably only use some of the parameters listed here.

Parameter	Default	Description

LLATLON	.true.	Switch for longitude latitude
ILATCOL	1	Latitude/longitude colour
ILATTHI	1	Latitude/Longitude thickness
IDLAT	15	Latitude increment
IDLON	15	Longitude increment
LCOAST	.true.	Switch for coastlines
LLOGO	.false.	Switch for Metgraf logotype
hgtlegtxt	none	Heigth of text in legend
hgtleg	none	Heigth of legend
leghor	.false.	Switch for horizontal or vertical legends
LINCR	-	-
LFRAME	.false.	Switch for frame around the field
LTOTAL	.false.	Shows the total model area
LTOP	.false.	Switch for text at top of plot
LBOTTOM	.false.	Switch for text at top of plot
LPPREF	-	-
LCLOCK	.false.	Switch for plotting of clock
LSMHI	.true.	Switch for SMHI logo
LSMHI1	.false.	-
LIDENT	.true.	-
ICOATHI	3	Coastline thickness
IFRATHI	2	Frame thickness
ILABTHI	2	Label thickness
ILOGTHI	2	Logotype thickness
ICOACOL	3	Coastline colour
IFRACOL	1	Frame colour
ILABCOL	1	Label colour
ILOGCOL	9	Logotype colour
ICLOCOL	1	Clock colour
MAPREP	None	**Map projection of output map** 0 = Regular latitude longitude 1 = Mercator projection 5 = Polar stereographic projection 10 = Rotated latitude/longitude projection 30 = Global ("Satellite view") 98 = "Rikets koordinater" (Swedish form)
SCALE	None	Map scale in millionths e.g. 5=1:5000000
HGTLOG	1.0	Height of logotype in cm
SPTXT	0.5	Horizontal margin of top and bottom text
HGTXT	0.25	Size of text in cm
PROLAT	60.0	Projection latitude for polar stereographic
PROLON	0.0	Projection longitude for polar stereographic
LATMID	90.0	Latitude of map midpoint
LONMID	0.0	Longitude of map midpoint
DXMAP	20	Horizontal map size in cm
DYMAP	20	Vertical map size in cm
XORIGO	2.0	Horizontal position of lower left corner on paper
YORIGO	2.0	Vertical position of lower left corner on paper
LATMIN	30	Southernmost latitude to be drawn
LATMAX	75	Northernmost latitude to be drawn

LONMIN	-90	Westernmost longitude to be drawn
LONMAX	90	Easternmost longitude to be drawn
CLBASE	'n'	**Coastline resolution** 'g' = Global cover, low resolution 'n' = Nordic countries, medium resolution 's' = Sweden only, high resolution
DRIVER	-	-
DEVICE	-	-
STRCH	-1	Stretching factor for global maps
BGCOL	0	Background colour 2=network of gridpoints
LATLONLAB	.false.	Labels on lat lon lines
LAKES	.false.	Gives Vänern, Vättern, Mälaren and Ladoga
LAKES2	.false.	Gives: Hjälmaren, Siljan, Storön, Hornava and Torneträsk
LAKESCOL	1	No raser
LAKESTHI	2	Thickness of lake contouring
LAKESLTP	1	Line type of lake
COUNTIES	.false.	Counties in Sweden Does not include boder to Norway
COUNTIESCOL	1	Line colour
COUNTIESTHI	1	Line thickness
COUNTIESLTP	3	Line type
CITIES	.false.	**City-symbols or other symbols.** Use fortran unit 19, fort.19, and arbitrary filename containing text with 7 fields (last one is option) citytype size lat long name type name short long 1 15 59280 18640 Su T Sundsvall citytype = 1 for city (symbol square) citytype = 2 for city (symbol castle) citytype = 3 for airport (symbol airplane)
CITIESCOL	1	City colour
CITIESTHI	1	City thickness
CITIESLTP	1	City line type
FIR	.false.	Fligth information regions
FIRCOL	1	Fir line colour
FIRTHI	2	Fir line thickness
FIRLTP	2	Fir line type
BORDER	.true.	Border to Norway
BORDERCOL	1	Border colour
BORDERTHI	1	Border thickness
BORDERLTP	1	Border linetype
EXTRABORDERS	.false	Borders in Europe incl. Norway
EXTRABCOL	1	Extraborder colour
EXTRABTHI	2	Extraborder thickness
EXTRABLTP	1	Extraborder line type
TOPOALT	None	Altitudes for topography (10)
TOPOLINETHI	1	Thickness of topography line (10)
TOPOLINECOL	1	Topography line colour (10)
TOPOLINETYPE	1	Topography line type (10)
TOPOFILLCOL	1	Topography fill colour (10)
TOPOFILLTYPE	1	Topographys fill type (10)

LTOPOLINE	.false.	Switch for topography lines
LTOPOFILL	.false.	Switch for topography fill
LTOPO	.false.	Switch for topography
NTOPOALTS	None	Number of topography lines (10)
LCOASTFILL	.false.	Switch for shadowing land
COASTFILLCOL	1	Shadowing colour
LFILLAFTER	.false.	Switch for fill after ploting fields
RIVERS	.false.	Switch for rivers
RIVERSCOL	1	River colour
RIVERSTHI	1	River thickness
RIVERSLTP	1	River line type
LANDREPORT	.false.	Switch fort Swedish land report
LANDREPORTCOL	1	Land report colour
LANTREPORTTHI	1	Land report thickness
LANTREPORTLTP	1	Land report line type
SEAREPORT	.false.	Switch for Swedish sea report
SEAREPORTCOL	1	Sea report colour
SEAREPORTTHI	1	Sea report thickness
SEAREPORTLTP	1	Sea report line type
AIRPORTS	.false.	Switch for Airports
AIRPORTSCOL	1	Airport colour
AIRPORTSTHI	1	Airport thickness
AIRPORTSLTP	1	Airport line type

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$NamSel

The selection of fields and field attributes is done here. Field data are read from a primary data file and, in case of difference also from a secondary file.

Namelist parameters for primary and secondary fields are indicated by "1" or "2" as the last character in the variable name. Difference maps are obtained by giving both the primary and secondary fields, and setting Ldiff .True.

Parameter	Default	Description
Itab1	001	**Selection for grib code table** 001 = SMHI 128 = ECMWF 129 = MESAN 130 = PMP
ITyp1	None	**Level type of primary fields** 100 = Pressure level 102 = Mean sea level 105 = Surface 109 = Model level In addition there are other level types
IPar1	None	Parameter code
llegend	.false.	Switch for parameter legend
ILev1	None	Level
Itab2	itab1	

Ityp2	ityp1	
Ipar2	ipar1	
Ilev2	ilev1	
LDIFF	.false.	Differences between fields
SCA	1.0	Scaling factors
SUB	0.0	Substraction factors e.g. to get temperature in Celcius
NSMUT	0	Smoothing of contour line
NCONT	0	Numbers of contours for irregular contouring
CONTINT	-1	Interval between contours. -1 Gives gridpoint values
CONLIS	None	List of irregular contours
CONMIN	-1e6	Minimum contour to be drawn
CONMAX	1e6	Maximum contoru to be drawn
ICONCOL	1	Contour colour
ICONSHP	1	**Contour shape** 1= Full, 2 = Dash, 3 = Dots, 4 = Full/Dash +/- = Positive or negative values 5 = No zero line
ICONTHI	1	Contour line thickness
MRKFRQ	1	Frequency of contour marking
MRKDEC	0	Decimals on contour marking
HGTMRK	0.2	Hiegth of contour marking in cm
FMIN	-9999.	Lowest value to be plotted as number
NDIGINC	1	Number of spacing of gridpoint numbers
NDIGIT	0	Number of digits for gridpoint values
HGTDIG	0.125	Heigt of gridpoint numbers in cm
NSHAD	0	**Number of shades for the field** > 0 = for interpolated values in gridpoints < 0 = for squares in gridpoints
ISHCOL	1	Shadow colour
ISHAD	None	Shadow pattern
SHLIS	None	Shadow list
NSCAN	5	Scanning radius for search of extremes
IGRID	0	**Frame around map** 0 = None 1 = Boundaries of gridpoint area 2 = Grid net (gridpoints at point of intersection) 3 = Grid net (gridpoints in the middle of a square)
LEXTR	.false.	Switch for plot of extreme values
NCHEX	1	Number of characters in extreme text
ITHIEX	2	Thickness of extreme text
CHMIN	'L'	Extreme text for minimum
CHMAX	'H'	Extreme text for maximum
NDIGEX	0	Number of digits for value at extreme
NDECEX	0	Decimal places for value at extreme
LARROW	.true.	Wind arrows
LWMO	.true.	Winds as WMO arrows
ARRLEN	0.5	Length in cm of wind arrows

ARRLFF	-1.0	-
IARRSPC	1	Wind arrow spacing
LVALUE	.false.	-
LPPREF	-	-
SELTEXT	-	Parameter text
SELFONT	10	Seltext font size
LEGTEXT	None	Legend text
DO_RMS	.false.	Takes RMS in connections with differences
NBDPTS	8	Number of boundary points not used when RMS

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$Namval

Two options are possible. `Polygon=.t.` plots value or text. `Polygon=.f.` plots polygons. `val_file` refers to an ASCII-file which should contain rows with at least 3 values :

`lat (grad) long (grad)`
`text (value)`

2. The file should contain rows with 2 values :

lat (grad) long (grad) If several polygons should be drawn set :

`0 0`
between each polygon.

Parameter	Default	Description
val_file	None	File with values
val_hgt	0.2	Size of value
val_col	1	Colour of values
val_thi	1	Thickness of values
point_hgt	0.2	Size of circle at spot
polygon	.false.	Switch for plotting polygons

$END

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$NamObs
Ask Bo Lindgren

$END

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$Namsec

This is the namelist for cross sections. Here all handles are in one single namelist. These namelist can not be used together with the other ones. For more info go to the examples.

Parameter	Default	Description
lulog	6	Log print unit

logfile	'cross.log'	Log print file
print	.false.	Switch for extra log messages
printio	.false.	Switch for printing of grib file messages
label	none	Label on top of plot
mlevfile_1	none	Name of input model level file 1
mlevfile_2	none	Name of input model level file 2
plevfile_1	none	Name of input pressure level file 1
plevfile_2	none	Name of input pressure level file 2
year_1	none	Input year for file 1
month_1	none	Input month for file 1
day_1	none	Input day for file 1
hour_1	none	Input hour for file 1
fclen_1	none	Input forecast length for file 1
year_2	none	Input year for file 2
month_2	none	Input month for file 2
day_2	none	Input day for file 2
hour_2	none	Input hour for file 2
fclen_2	none	Input forecast length for file 2
tab	001	Selection for grib code table 001 = SMHI 128 = ECMWF 129 = MESAN 130 = PMP
par	None	Parameter code
typ	None	**Level type of primary fields** 100 = Pressure level 109 = Model level
diff	.false.	Differences between files
scale	1.0	Scaling factors
sub	0.0	Substraction factors e.g. to get temperature in Celcius
pmin	10.	Top pressure
pmax	1040.	Bottom pressure
icao	.false.	-
mountains	.true.	Switch for mountains at the bottom, e.g. surface pressure
rlono	0.	North longitude endpoint
rlano	0.	North latitude endpoint
rloso	0.	South longitude endpoint
rlaso	0.	South latitude endpoint
dxplot	18	Horizontal map size in cm
dyplot	26	Vertical map size in cm
mrkfrq	2	Frequency of contour marking
mrkdec	2	Decimals on contour marking
hgtmrk	0.15	Heigth of contour marking in cm
modlev	.true.	Switch for model levels marking
hgttxt	0.25	Height of text in cm
hgtmrk	0.15	Heigth of contour marking in cm
contours	.false.	Switch for contour plot
con_int	1.0	Interval between contours
con_thi	1	Contour line thickness
con_col	1	Contour line colour

con_lin	1	**Contour shape** 1= Full, 2 = Dash, 3 = Dots, 4 = Full/Dash +/- = Positive or negative values 5 = No zero line
nsmut	0	Smoothing of contour line
shading	.false.	Switch for shading
shading	.false.	Switch for shading
nshad	2	Number of shades for the field > 0 = for interpolated values in gridpoints < 0 = for squares in gridpoints
sha_pat	None	Shadow pattern
sha_lis	None	Shadow list
sha_col	1	Shadow colour
arrows	.false.	Switch for wind arrows
arr_spc	1	Wind arrow spacing
arr_thi	1	Wind arrow thickness
arr_col	1	Wind arrow colour
arr_len	0.2	Length in cm of wind arrows

$END

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