CDO Reference Card

Climate Data Operators Version 1.7.0 October 2015

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https://code.zmaw.de/projects/cdo

Syntax

cdo [O	[ptions] (Operator1	-Operator2	[$-$ OperatorN		
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Options

-a	Generate an absolute time axis
-b < nbits >	Set the number of bits for the output precision
	(I8/I16/I32/F32/F64 for nc,nc2,nc4,nc4c;
	F32/F64 for grb2,srv,ext,ieg; 1-24 for grb,grb2)
	Add L or B for Little or Big endian byteorder
$-\mathbf{f} < format >$	Outputformat: grb,grb2,nc,nc2,nc4,nc4c,srv,ext,ieg
-g < grid >	Grid or file name
	Grid names: r <nx>x<ny>, n<n>, gme<ni></ni></n></ny></nx>
-h	Help information for the operators
-M	Indicate that the I/O streams have missing values
-m < missval >	Set the default missing value (default: -9e+33)
-O	Overwrite existing output file, if checked
-R	Convert GRIB1 data from reduced to regular grid
-r	Generate a relative time axis
-s	Silent mode
$-\mathbf{t} $	Set the parameter table name or file
	Predefined tables: echam4 echam5 mpiom1
-V	Print the version number
-v	Print extra details for some operators
-z szip	SZIP compression of GRIB1 records

showyear

showmon

showdate

showtime

<operator> ifile

Operators		
Information		
info	Dataset information listed by parameter identifier	
infon	Dataset information listed by parameter name	
map	Dataset information and simple map	
<pre><operator> ifi</operator></pre>	les	
sinfo	Short information listed by parameter identifier	
sinfon	Short information listed by parameter name	
<pre><operator> ifi</operator></pre>	les	
diff	Compare two datasets listed by parameter id	
diffn	Compare two datasets listed by parameter name	
<pre><operator> ifi</operator></pre>	le1 ifile2	
npar	Number of parameters	
nlevel	Number of levels	
nyear	Number of years	
nmon	Number of months	
ndate	Number of dates	
ntime	Number of timesteps	
<pre><operator> ifile</operator></pre>		
showformat	Show file format	
showcode	Show code numbers	
showname	Show variable names	
showstdname	Show standard names	
showstdname showlevel	Show standard names Show levels	

Show years

showtimestam Show timestamp

Show months

Show date information

Show time information

File operations

pardes

griddes

vct

zaxisdes

< operator > ifile

Parameter description

Vertical coordinate table

Grid description

Z-axis description

cat Concatenate datasets <pre><operator> ifiles ofile replace Replace variables replace ifile1 ifile2 ofile duplicate Duplicates a dataset duplicate[,ndup] ifile ofile mergegrid Merge grid mergegrid ifile1 ifile2 ofile merge Merge datasets with different fields mergetime Merge datasets sorted by date and time <operator> ifiles ofile splitcode split code numbers splitparam Split parameter identifiers splitparam Split parameter identifiers splitgrid Split grids splitgrid Split grids splittgrid Split grids splittabnum Split parameter table numbers <operator> [,params] ifile obase splithour splitday Split days splittyear splityear Split seasons splityear Split years splityear Split in years and months <operator> ifile obase splitmon Split months splitmon Split months splitmon[,format] ifile obase splitsel,nsets[,noffset[,nskip]] ifile obase distgrid Distribute horizontal grid distgrid,nx[,ny] ifile obase collgrid Collect horizontal grid collgrid[,names] ifiles ofile</operator></operator></operator></operator></pre>	copy	Copy datasets
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distgrid,nx[,ny] ifile obase collgrid Collect horizontal grid	splitsel,nsets[,ne	offset[,nskip]] ifile obase
distgrid,nx[,ny] ifile obase collgrid Collect horizontal grid	distgrid	Distribute horizontal grid
collgrid Collect horizontal grid		
congrati,names, iiiies oiiie	congrid[,names]	lilles oille

Selection

select	Select fields	
delete	Delete fields	
<pre><operator>,params ifiles ofile</operator></pre>		

selparam	Select parameters by identifier	
delparam	Delete parameters by identifier	
	rams ifile ofile	
selcode	Select parameters by code number	
delcode	Delete parameters by code number	
< operator >, coo	des ifile ofile	
selname	Select parameters by name	
delname	Delete parameters by name	
<pre>< operator > ,na</pre>	mes ifile ofile	
selstdname	Select parameters by standard name	1
	names ifile ofile	
sellevel	Select levels	
sellevel, levels i		
sellevidx	Select levels by index	
sellevidx,levidx		
selgrid	Select grids	
selgrid,grids if	ile ofile	
selzaxis	Select z-axes	
selzaxis,zaxes i		
selzaxisname	Select z-axes by name	
selzaxisname,z	axisnames ifile ofile	
selltype	Select GRIB level types	
selltype, ltypes	ifile ofile	
seltabnum	Select parameter table numbers	
seltabnum,tabi	nums ifile ofile	
seltimestep	Select timesteps	
seltimestep,tin	nesteps ifile ofile	
seltime	Select times	
seltime, times i	file ofile	
selhour	Select hours	
selhour, hours i	file ofile	
selday	Select days	
selday,days ifi	le ofile	
selmon	Select months	
selmon, months	ifile ofile	
selyear	Select years	
selyear, years if	file ofile	
selseas	Select seasons	
selseas,seasons	ifile ofile	
seldate	Select dates	
seldate,date1[,c	late2] ifile ofile	
selsmon	Select single month	
selsmon, month	[,nts1[,nts2]] ifile ofile	
sellonlatbox	Select a longitude/latitude box	
sellonlatbox,lo	n1,lon2,lat1,lat2 ifile ofile	
selindexbox	Select an index box	
selindexbox,id.	x1,idx2,idy1,idy2 ifile ofile	

${\bf Conditional\ selection}$

ifthen	If then	
ifnotthen	If not then	
<pre>< operator > if:</pre>	<pre><operator> ifile1 ifile2 ofile</operator></pre>	
ifthenelse	If then else	
ifthenelse ifile1 ifile2 ifile3 ofile		
ifthenc	If then constant	
ifnotthenc	If not then constant	
<operator>,c ifile ofile</operator>		

${\bf Comparison}$

eq	Equal
ne	Not equal
le	Less equal
lt	Less than
ge	Greater equal
gt	Greater than
<pre><operator> ifile1 ifile2 ofile</operator></pre>	

	eqc	Equal constant
	nec	Not equal constant
	lec	Less equal constant
ĺ	ltc	Less than constant
ı	gec	Greater equal constant
	gtc	Greater than constant
ĺ	<operator>,c i</operator>	file ofile

Modification

setpartabp	Set parameter table
	Set parameter table
< operator >, tab	ole[,convert] ifile ofile
setpartab	Set parameter table
setpartab, table	ifile ofile
setcode	Set code number
setcode, code if	ile ofile
setparam	Set parameter identifier
setparam,paran	m ifile ofile
setname	Set variable name
setname,name	ifile ofile
setunit	Set variable unit
setunit, unit ifi	le ofile
setlevel	Set level
setlevel, level if	ile ofile
	Set GRIB level type
setltype, ltype ifile ofile	
setdate	Set date

	setdate	Set date	
4	setdate, date if	ile ofile	
	settime	Set time of the day	
4	settime, time if	ile ofile	
	setday	Set day	
-	setday,day ifil	le ofile	
	setmon	Set month	
4	setmon, month:		
	setyear	Set year	
4	setyear, year ifile ofile		
	settunits	Set time units	
-	settunits,units ifile ofile		
	settaxis	Set time axis	
-	settaxis,date,time[,inc] ifile ofile		
		Set reference time	
╝	setreftime, date	time[,units] ifile ofile	
	setcalendar	Set calendar	
	setcalendar,cal	endar ifile ofile	
	shifttime	Shift timesteps	
	shifttime,sval ifile ofile		
	ala a a Ala	Classical and a second and	

,,-,- , , , , , , ,		
	601	
chcode		
chcode, oldcode,	newcode[,] ifile ofile	
chparam	Change parameter identifier	
chparam,oldpar	ram,newparam, ifile ofile	
chname	Change variable name	
chname,oldnam	e,newname, ifile ofile	
chunit	Change variable unit	
chunit, oldunit, newunit, ifile ofile		
chlevel	Change level	
chlevel,oldlev,n	ewlev, ifile ofile	
chlevelc	Change level of one code	
	dlev,newlev ifile ofile	
chlevelv	Change level of one variable	
chlevelv,name,oldlev,newlev ifile ofile		
seterid	Set grid	
Sereria	Ser and	

chiever, indine, ordiev, incovier 11110 01110			
setgrid	Set grid		
setgrid, grid ifile ofile			
setgridtype	Set grid type		
setgridtype,gridtype ifile ofile			
setgridarea	Set grid cell area		
setgridarea, gridarea ifile ofile			

í			
	setzaxis	Set z-axis	
setzaxis,zaxis ifile ofile genlevelbound: Generate level bounds		file ofile	
		Generate level bounds	
ı	genlevelbounds[,zbot[,ztop]] ifile ofile		

		add	Add two fields
setgatt	Set global attribute	sub	Subtract two fields
setgatt.attname	e,attstring ifile ofile	mul	Multiply two fields
setgatts	Set global attributes	div	Divide two fields
setgatts,attfile		min	Minimum of two fie
invertlat	Invert latitudes	max	Maximum of two fie
invertlat		atan2	Arc tangent of two:
invertiat iiile	OIILE	<pre>< operator > ifi</pre>	ile1 ifile2 ofile
invertlev	Invert levels	monadd	Add monthly time s
invertlev ifile	ofile	monsub	Subtract monthly ti
maskregion	Mask regions	monmul	Multiply monthly ti
	cions ifile ofile	mondiv	Divide monthly time
		<pre>< operator > ifi</pre>	ile1 ifile2 ofile
	Mask a longitude/latitude box	yhouradd	Add multi-year hou
	,lon1,lon2,lat1,lat2 ifile ofile	yhoursub	Subtract multi-year nou
	Mask an index box	vhourmul	Multiply multi-year
maskindexbox	idx1,idx2,idy1,idy2 ifile ofile	yhourdiv	Divide multi-year he
setclonlatbox	Set a longitude/latitude box to constant	· ·	ile1 ifile2 ofile
setclonlatbox,	c,lon1,lon2,lat1,lat2 ifile ofile		
setcindexbox	Set an index box to constant	ydayadd	Add multi-year dail
setcindexbox,	idx1,idx2,idy1,idy2 ifile ofile	ydaysub	Subtract multi-year
enlarge	Enlarge fields	ydaymul	Multiply multi-year
enlarge,grid if		ydaydiv	Divide multi-year d
0 /2		<pre>< operator > ifi</pre>	ile1 ifile2 ofile
setmissval	Set a new missing value	ymonadd	Add multi-year mor
	miss ifile ofile	ymonsub	Subtract multi-year
setctomiss	Set constant to missing value	ymonmul	Multiply multi-year
setmisstoc	Set missing value to constant	ymondiv	Divide multi-year m
<pre><operator>,c i</operator></pre>	file ofile	<pre>< operator > ifi</pre>	ile1 ifile2 ofile
setrtomiss	Set range to missing value	vseasadd	Add multi-year seas
setvrange	Set valid range	vseassub	Subtract multi-year seas
	in,rmax ifile ofile	yseassub	Multiply multi-year
setmisstonn	Set missing value to nearest neightbour	vseasdiv	Divide multi-year se
setmisstonn if	ile ofile	J	ile1 ifile2 ofile
		1	
		muldpm	Multiply with days

add	Add two fields	
sub	Subtract two fields	
mul	Multiply two fields	
div	Divide two fields	
min	Minimum of two fields	
max	Maximum of two fields	
atan2	Arc tangent of two fields	
< operator > if	ile1 ifile2 ofile	
monadd	Add monthly time series	
monsub	Subtract monthly time series	
monmul	Multiply monthly time series	
mondiv	Divide monthly time series	
<pre><operator> ifile1 ifile2 ofile</operator></pre>		
yhouradd	Add multi-year hourly time series	
yhoursub	Subtract multi-year hourly time series	
yhourmul	Multiply multi-year hourly time series	
yhourdiv	Divide multi-year hourly time series	
<pre><operator> ifile1 ifile2 ofile</operator></pre>		
ydayadd	Add multi-year daily time series	
ydaysub	Subtract multi-year daily time series	
ydaymul	Multiply multi-year daily time series	
ydaydiv	Divide multi-year daily time series	
<pre><operator> if:</operator></pre>	ile1 ifile2 ofile	
ymonadd	Add multi-year monthly time series	
ymonsub	Subtract multi-year monthly time series	
ymonmul	Multiply multi-year monthly time series	
ymondiv	Divide multi-year monthly time series	
<pre><operator> if:</operator></pre>	ile1 ifile2 ofile	
yseasadd	Add multi-year seasonal time series	
yseassub	Subtract multi-year seasonal time series	
yseasmul	Multiply multi-year seasonal time series	
reconcidire	Distillance letter and a second state of the second	

Divide multi-year seasonal time series

Multiply with days per month Divide by days per month

Multiply with days per year

Divide by days per year

Arithmetic

Everage diprobiolic			
expr,instr ifile ofile			
exprf	Evaluate expressions script		
exprf, filename ifile ofile			
aexpr	Evaluate expressions and append results		
aexpr,instr ifil			
aexprf	Evaluate expression script and append results		
aexprf,filename	ifile ofile		
abs	Absolute value		
int	Integer value		
nint	Nearest integer value		
pow	Power		
sqr	Square		
sqrt	Square root		
exp	Exponential		
ln	Natural logarithm		
log10	Base 10 logarithm		
sin	Sine		
cos	Cosine		
tan	Tangent		
asin	Arc sine		
acos	Arc cosine		
reci	Reciprocal value		
< operator > ifile ofile			
addc	Add a constant		
subc	Subtract a constant		
mulc	Multiply with a constant		
divc	Divide by a constant		
<pre><operator>,c i:</operator></pre>	file ofile		

Evaluate expressions

Statistical values

<operator> ifile ofile

divdpm muldpy

divdpy

	Avail	able statistical functions	< stat >	
	minimum		min	
	maximum		max	
	sum		sum	
	mean		mean	
	average		avg	
	variance		var, var1	
	standard deviation		std, std1	
		G ti E:		
ect	cts Consecutive Timesteps			
rat	rator > ifile ofile			

consects	Consecutive Timesteps	
<pre><operator> ifile ofile</operator></pre>		
ens < stat >	Statistical values over an ensemble	
<pre><operator> ifiles ofile</operator></pre>		
enspctl	Ensemble percentiles	
enspctl,p ifile	s ofile	
ensrkhistspace	Ranked Histogram averaged over time	
ensrkhisttime	Ranked Histogram averaged over space	
ensroc	Ensemble Receiver Operating characteristics	
<pre><operator> obsfile ensfiles ofile</operator></pre>		
enscrps	Ensemble CRPS and decomposition	
enscrps rfile	ifiles ofilebase	
ensbrs	Ensemble Brier score	
ensbrs,x rfile ifiles ofilebase		
fld < stat >	Statistical values over a field	
<operator> ifi</operator>	le ofile	
fldpctl	Field percentiles	
fldpctl,p ifile	ofile	

$\mathbf{zon} < stat >$			
	Zonal statistical values	ydrun < stat >	
<pre><operator> ifi zonpctl</operator></pre>	Zonal percentiles	<pre>< operator >,nts</pre>	ifile ofile
$zonpetl_p$ ifile			Multi-year
mer < stat >	Meridional statistical values	ydrunpctl,p,nt	sifile1 ifi
<pre>< operator > ifi</pre>			
	Meridional percentiles	Correlation a	nd co.
merpctl, p ifile	e ofile	fldcor	Correlation
gridbox < stat >	Statistical values over grid boxes	fldcor ifile1 i	
< operator >, nx,	ny ifile ofile	timcor	Correlation
$\mathbf{vert} < stat >$	Vertical statistical values	timcor ifile1	
< operator > ifi	le ofile	fldcovar	Covariance
	Time range statistical values	fldcovar ifile1	
<pre><operator>,nse</operator></pre>	tts[,noffset[,nskip]] ifile ofile	timcovar	Covariance
_	Time range percentiles	timcovar ifile	1 ifile2 of
timselpctl, p, nset	ets[,noffset[,nskip]] ifile1 ifile2 ifile3 ofile		
run < stat >	Running statistical values		
<pre><operator>,nts</operator></pre>	ifile ofile	Regression	
runpetl	Running percentiles	regres	Regression
runpctl,p,nts if	ile ofile	regres ifile of	file
tim < stat >	Statistical values over all timesteps	detrend	Detrend
<pre><operator> ifi</operator></pre>		detrend ifile	
	Time percentiles	trend	Trend
	el ifile2 ifile3 ofile	trend ifile of	
	Hourly statistical values	subtrend	Subtract tr
<pre><operator> ifi</operator></pre>		subtrend ifile	er 1111e2 if
$\begin{array}{c} \text{hourpetl} \\ \text{hourpetl} \\ \text{n ifil} \end{array}$	Hourly percentiles le1 ifile2 ifile3 ofile		
		EOFs	
day < stat > < operator > ifi	Daily statistical values	eof	Calculate F
•		eoftime	Calculate E
daypetl	Daily percentiles at ifile2 ifile3 ofile	eofspatial	Calculate E
* * * *		eof3d <operator>,neo</operator>	Calculate 3
mon <stat> <operator> ifi</operator></stat>	Monthly statistical values		
		eofcoeff eofcoeff ifile1	Calculate p
monpetl n ifil	Monthly percentiles .e1 ifile2 ifile3 ofile		
		J]	
yearmonmean yearmonmean	Yearly mean from monthly data	Interpolation	
vear< stat >		remapbil	
year <stat> <operator> ifi</operator></stat>	Yearly statistical values	remapbic	Bicubic inte
<pre>< operator > ifi</pre>	Yearly statistical values ile ofile	remapbic remapdis	Bicubic inte Distance-we
< operator > ifi	Yearly statistical values tle ofile Yearly percentiles	remapbic remapdis remapnn	Bicubic inte Distance-we Nearest nei
<pre>c <operator> ifi yearpctl yearpctl,p ifil</operator></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile	remapbic remapdis	Bicubic inte Distance-we Nearest nei First order
<pre>< operator > ifi yearpctl yearpctl,p ifil seas < stat ></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values	remapbic remapdis remapnn remapcon remapcon2 remaplaf	Bicubic into Distance-we Nearest nei First order Second orde Largest are
<pre>coperator > ifi yearpctl yearpctl,p ifil seas < stat > <pre>coperator > ifi</pre></pre>	Yearly statistical values the ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values the ofile	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,gri</operator>	Bicubic interpretation Distance-we Nearest nei First order Second order Largest are
<pre>< operator > ifi yearpctl yearpctl,p ifil seas< stat > < operator > ifi seaspctl</pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,gri</operator>	Bicubic interpretation Distance-we Nearest nei First order Second order Largest are diffile ofil Generate be
<pre></pre> <pre></pre> <pre></pre> <pre><pre><pre><pre><pre><pre><pre><</pre></pre></pre></pre></pre></pre></pre>	Yearly statistical values the offile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values the offile Seasonal percentiles e1 ifile2 ifile3 ofile	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,grid genbil genbic</operator>	Bicubic interpretation Distance-we Nearest nei First order Second order Largest are difile ofil Generate be Generate be
<pre><pre></pre><pre><pre><pre><pre><pre><pre><pre><</pre></pre></pre></pre></pre></pre></pre></pre>	Yearly statistical values le ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values ile ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis</operator>	Bicubic into Distance-we Nearest nei First order Second ord Largest are difile ofil Generate b Generate b Generate d
<pre>< operator > ifi yearpctl yearpctl,p ifil seas< stat > < operator > ifi seaspctl seaspctl,p ifile yhour< stat > < operator > ifi yhour< stat ></pre>	Yearly statistical values the offile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values the ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values the ofile	remaphic remapdis remapnn remapcon remapcon2 remaplaf <operator>,grid genbic genbic gendis gennn gencon</operator>	Bicubic into Distance-we Nearest nei First order Second ord- Largest are difile ofil Generate b Generate b Generate a Generate n Generate a
<pre>coperator> ifi yearpctl yearpctl,p ifil seas</pre> <pre>stat> <operator> ifi seaspctl seaspctl,p ifile yhour</operator></pre> <pre>stat> <operator> ifi yday</operator></pre> <pre>stat></pre>	Yearly statistical values le ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values le ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values le ofile Multi-year daily statistical values	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,gri genbil genbic gendis gennn gencon gencon2</operator>	Bicubic into Distance-wo Nearest nei First order Second ord Largest are difile ofil Generate b Generate b Generate a Generate 1: Generate 2: Generate 2: Generate 2:
<pre><pre></pre> <pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile	remapbic remapdis remapnn remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon gencon2 genlaf</operator>	Bicubic into Distance-we Nearest nei First order Second ord Largest are diffile offil Generate b Generate b Generate n Generate n Generate 2 Generate 2 Generate 2
<pre>coperator> ifit yearpctl yearpctl,p ifil seas< stat> coperator> ifit seaspctl seaspctl,p ifili yearpctl,p ifili yearpctl</pre>	Yearly statistical values le ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values le ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values le ofile Multi-year daily statistical values	remapbic remapdis remapnn remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon gencon2 genlaf <operator>,grid</operator></operator>	Bicubic into Distance-we Nearest nei First order Second ord Largest are diffile offil Generate b Generate b Generate n Generate n Generate 2 Generate 2 Generate 2
<pre>coperator> ifi yearpctl yearpctl,p ifil seas</pre> <pre>stat></pre> <pre>coperator> ifi seaspctl seaspctl,p ifile yhour</pre> <pre>stat></pre> <pre>coperator> ifi yday</pre> <pre>stat></pre> <pre>coperator> ifi yday</pre> <pre>stat></pre> <pre>coperator> ifi yday</pre> <pre>stat></pre> <pre>coperator</pre> ifi yday <pre>fi yday</pre> <pre>fi yday</pre> <pre>fi yday</pre> <pre>fi yday</pre> <pre>fi j</pre> <pre>ifi j</pre> <pre>fi yday</pre> <pre>fi j</pre> <pre>j</pre> <pre>j</pre> <pre>fi j</pre> <pre>j</pre> <pre>j<td>Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile</td><th>remapbic remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon gencon2 genlaf <operator>,grid remap</operator></operator></th><td>Bicubic into Distance-we Nearest nei First order Second ord Largest are diffile offil Generate be Generate de Generate de Generate de Generate de Generate la Generate la Generate la Generate la Generate la diffile offil SCRIP grice</td></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile	remapbic remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon gencon2 genlaf <operator>,grid remap</operator></operator>	Bicubic into Distance-we Nearest nei First order Second ord Largest are diffile offil Generate be Generate de Generate de Generate de Generate de Generate la Generate la Generate la Generate la Generate la diffile offil SCRIP grice
<pre><pre></pre> <pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile	remapbic remapdis remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis genon gencon2 genlaf <operator>,grid remap remap,grid,weig</operator></operator>	Bicubic into Distance-we Nearest nei First order Second ord Largest are diffile offil Generate be Generate de Generate de Generate de Generate de Generate de Generate de Generate la Generate la Generate la Generate la diffile offil SCRIP grickhts ifile of
<pre>coperator> ifit yearpctl yearpctl,p ifil seas<stat> <pre>coperator> ifit seaspctl seaspctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl ifit yearpctl yearpct</pre></stat></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile Multi-year monthly statistical values tle ofile	remapbic remapdis remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon2 genlaf <operator>,grid remap remap,grid,weig remapeta</operator></operator>	Bicubic into Distance-we Nearest nei First order Second ord-Largest are diffile ofil Generate b. Generate di Generate di Generate di Generate di Generate di Generate la Generate la Generate la diffile ofil SCRIP gricchts ifile of
<pre>coperator> ifit yearpctl yearpctl,p ifil seas< stat> <operator> ifit seaspctl,p ifil seaspctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl yearpctl</operator></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile	remapbic remapdis remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon2 genlaf <operator>,grid remap remap,grid,weig remapeta remapeta,vct[,c]</operator></operator>	Bicubic into Distance-we Nearest nei First order Second ord- Largest are difile ofil Generate be Generate de Generate de Generate le difile ofil SCRIP gric ghts ifile of Remap vertoroj ifile of
<pre>< operator > ifit yearpctl yearpctl,p ifil seas< stat > < operator > ifit seaspctl,p ifil seaspctl,p ifil yearpctl,p ifil yearpctl yearpctor > ifit yday < stat > < operator > ifit yday ctl ydaypctl ydaypctl,p ifit ymon< stat > < operator > ifit ymon< stat > < operator > ifit ymonpctl</pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles le1 ifile2 ifile3 ofile Multi-year monthly statistical values tle ofile Multi-year monthly statistical values tle ofile Multi-year monthly percentiles tle1 ifile2 ifile3 ofile	remapbic remapdis remapdis remapon remapcon2 remaplaf <operator>,grid genbil genbil genbic gendis gennn gencon2 gencon2 genlaf <operator>,grid remap remap,grid,weig remapeta remapeta,vet[,c ml2pl</operator></operator>	Bicubic into Distance-we Nearest nei First order Second orde Largest are difile ofil Generate bi Generate di Generate di Generate di Generate di Generate la Generate la difile ofil SCRIP grid ghts ifile of Remap vert orol ifile of
<pre>coperator> ifit yearpctl yearpctl,p ifil seas<stat> <operator> ifit seaspctl seaspctl,p ifil seaspctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl y</operator></stat></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles te1 ifile2 ifile3 ofile Multi-year monthly statistical values tle ofile Multi-year monthly percentiles tle ofile Multi-year monthly percentiles tle ofile Multi-year monthly percentiles tle ofile Multi-year seasonal statistical values	remapbic remapdis remapdis remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon2 genlaf <operator>,grid remap remap,grid,weig remapeta remapeta,vct[,c]</operator></operator>	Bicubic interpretation of the properties of the
<pre>< operator > ifit yearpctl yearpctl,p ifil seas< stat > < operator > ifit seaspctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl,p ifil yearpctl,p ifil yday stat > < operator > ifit ydaypctl ydaypctl,p ifil ymon< stat > < operator > ifit ymonpctl,p ifit ymonpctl,p ifit ymonpctl,p ifit ymonpctl,p ifit yeas< stat > < operator > ifit yeas< stat > < operator > ifit yeas< stat > < operator > ifit</pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ifile2 ifile3 ofile Multi-year daily percentiles tle ifile2 ifile3 ofile Multi-year monthly statistical values tle ofile Multi-year monthly percentiles tle ifile2 ifile3 ofile Multi-year monthly percentiles tle ifile2 ifile3 ofile Multi-year seasonal statistical values tle ofile	remapbic remapdis remapnn remapcon remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon2 genlaf <operator>,grid remap,grid,weig remapeta,vct[,c ml2pl ml2pl,plevels if</operator></operator>	Bicubic into Distance-we Nearest nei First order Second orde Largest are diffile ofil Generate bi Generate bi Generate a Generate a Generate la difile ofil SCRIP grid ghts ifile of Remap vert orol ifile of Model to pu ide of the
<pre>coperator> ifit yearpctl yearpctl,p ifil seas<stat> <operator> ifit seaspctl seaspctl,p ifil seaspctl,p ifil seaspctl,p ifil yeaperator> ifit yday<stat> <operator> ifit ydaypctl ydaypctl,p ifil ymon<stat> <operator> ifit ymonetl ymonpctl,p ifil ymonpctl,p ifit ymonpctl ymonpctl ifit yseas<stat> <operator> ifit yseas<stat> <operator> ifit yseas<stat> <operator> ifit yseas<stat><operator> ifit yseasc<stat><operator> ifit yseas</operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></operator></stat></pre>	Yearly statistical values tle ofile Yearly percentiles e1 ifile2 ifile3 ofile Seasonal statistical values tle ofile Seasonal percentiles e1 ifile2 ifile3 ofile Multi-year hourly statistical values tle ofile Multi-year daily statistical values tle ofile Multi-year daily percentiles te1 ifile2 ifile3 ofile Multi-year monthly statistical values tle ofile Multi-year monthly percentiles tle ofile Multi-year monthly percentiles tle ofile Multi-year monthly percentiles tle ofile Multi-year seasonal statistical values	remapbic remapdis remapdis remapnn remapcon2 remaplaf <operator>,grid genbil genbic gendis gennn gencon2 genlaf <operator>,grid remap remap,grid,weig remapeta remapeta,vct/, ml2pl ml2pl,plevels if ml2bl</operator></operator>	Generate bi Generate di Generate di Generate al Generate 1s Generate 2s Genera

ydrun < stat >	Multi-year daily running statistical values	
<pre><operator>,nts ifile ofile</operator></pre>		
Multi man della manaia a manatila		
ydrunpctl	Multi-year daily running percentiles	
ydrunpctl,p,nts ifile1 ifile2 ifile3 ofile		

ion and co.

	Correlation and co.		
_	fldcor	Correlation in grid space	
fldcor ifile1 ifile2 ofile			
_	timcor	Correlation over time	
timcor ifile1 ifile2 ofile			
_	fldcovar	Covariance in grid space	
fldcovar ifile1 ifile2 ofile		ifile2 ofile	
	timcovar	Covariance over time	
	timcovar ifile1 ifile2 ofile		

on

regres	Regression		
regres ifile ofile			
detrend	Detrend		
detrend ifile ofile			
trond	Trend		

trend		Tre	end
trend	ifile	ofile1	ofile2

subtrend		Subtract	trend	
subtrend	ifile1	ifile2	ifile3	ofile

eof	Calculate EOFs in spatial or time space
eoftime	Calculate EOFs in time space
eofspatial	Calculate EOFs in spatial space
eof3d	Calculate 3-Dimensional EOFs in time space
<pre><operator>,neof ifile ofile1 ofile2</operator></pre>	

eofcoeff	Calculate principal coefficients of EOFs
eofcoeff ifile1	ifile2 obase

ation

remapbil	Bilinear interpolation
remapbic	Bicubic interpolation
remapdis	Distance-weighted average remapping
remapnn	Nearest neighbor remapping
remapcon	First order conservative remapping
remapcon2	Second order conservative remapping
remaplaf	Largest area fraction remapping
<pre>< operator > ,grie</pre>	difile ofile

genbil	Generate bilinear interpolation weights
genbic	Generate bicubic interpolation weights
gendis	Generate distance-weighted average remap weight
gennn	Generate nearest neighbor remap weights
gencon	Generate 1st order conservative remap weights
gencon2	Generate 2nd order conservative remap weights
genlaf	Generate largest area fraction remap weights
<pre>< operator > .gric</pre>	difile ofile

remap	SCRIP grid remapping
roman grid weig	rhts ifile ofile

	remapeta	Remap vertical hybrid level	
	remapeta,vct[,oro] ifile ofile		
ı			
	ml2pl	Model to pressure level interpolation	
	ml2pl,plevels ifile ofile		
	ml2hl	Model to height level interpolation	

ml2hl	Model to height level interpolation
ml2hl,hlevels if	ile ofile
intlovol	Linear level interpolation

intlevel3d intlevelx3d	Linear level interpolation onto a 3d vertical coordi- like intlevel3d but with extrapolation	setvals Set list of old values to new values setvals,oldval,newval[] ifile ofile	eca_cwfi Cold-spell days index wrt 10th percentile of reference period eca_cwfi/nday ifile1 ifile2 ofile
	ordinate ifile1 ifile2 ofile	setrtoc Set range to constant	
inttime	Interpolation between timesteps	setrtoc,rmin,rmax,c ifile ofile	eca_etr Intra-period extreme temperature range eca_etr ifile1 ifile2 ofile
	ne[,inc] ifile ofile	setrtoc2 Set range to constant others to constant2	
intntime	Interpolation between timesteps	setrtoc2,rmin,rmax,c,c2 ifile ofile	eca_fd Frost days index per time period eca_fd ifile ofile
intntime, n ifil	e ofile	timsort Sort over the time	
intyear	Interpolation between two years	timsort ifile ofile	eca_gsl Growing season length index
intyear, years if:	ile1 ifile2 obase	const Create a constant field	eca_gsl[,nday[,T[,fland]]] ifile1 ifile2 ofile
		const,const,grid ofile	eca_hd Heating degree days per time period eca_hd/,T1[,T2] ifile ofile
Transformatio	n	random Create a field with random numbers random,grid[.seed] ofile	67 67 22
sp2gp	Spectral to gridpoint	for Create a time series	eca_hwdi Heat wave duration index wrt mean of reference period eca_hwdi[,nday[,T]] ifile1 ifile2 ofile
sp2gpl	Spectral to gridpoint (linear)	for,start,end[,inc] ofile	27 - 72
gp2sp	Gridpoint to spectral	stdatm Create values for pressure and temperature for hydro	eca_hwfi Warm spell days index wrt 90th percentile of reference period
gp2spl	Gridpoint to spectral (linear)	stdatm,levels ofile	eca_hwfi[,nday] ifile1 ifile2 ofile
<pre><operator> ifi an 2an</operator></pre>	le ofile Spectral to spectral	rotuvb Backward rotation	eca_id Ice days index per time period
sp2sp sp2sp,trunc ifil		rotuvb,u,v, ifile ofile	eca_id ifile ofile
dv2uv	Divergence and vorticity to U and V wind	mastrfu Mass stream function	eca_r75p Moderate wet days wrt 75th percentile of reference period
dv2uvl	Divergence and vorticity to U and V wind Divergence and vorticity to U and V wind (linear)	mastrfu ifile ofile	eca_r75p ifile1 ifile2 ofile
uv2dv	U and V wind to divergence and vorticity	sealevelpressur Sea level pressure	eca_r75ptot Precipitation percent due to R75p days
uv2dvl	U and V wind to divergence and vorticity (linear)	sealevelpressure ifile ofile	eca_r75ptot ifile1 ifile2 ofile
dv2ps <operator> ifi</operator>	D and V to velocity potential and stream function le ofile	adisit Potential temperature to in-situ temperature adisit[,pressure] ifile ofile	eca_r90p Wet days wrt 90th percentile of reference period eca_r90p ifile1 ifile2 ofile
		adipot In-situ temperature to potential temperature adipot ifile ofile	eca_r90ptot Precipitation percent due to R90p days eca_r90ptot ifile1 ifile2 ofile
Import/Expo	rt	rhopot Calculates potential density	-
	Import binary data sets	rhopot[,pressure] ifile ofile	eca_r95p Very wet days wrt 95th percentile of reference period eca_r95p ifile1 ifile2 ofile
$import_binary$	ifile ofile	histcount Histogram count	•
	Import CM-SAF HDF5 files	histsum Histogram sum	eca_r95ptot Precipitation percent due to R95p days eca_r95ptot ifile1 ifile2 ofile
import_cmsaf i	file ofile	histmean Histogram mean	
-	Import AMSR binary files	histfreq Histogram frequency	eca_r99p Extremely wet days wrt 99th percentile of reference period eca_r99p ifile1 ifile2 ofile
import_amsr if	file ofile	<pre></pre>	eca_r99ptot Precipitation percent due to R99p days
input	ASCII input	sethalo Set the left and right bounds of a field sethalo, Ihalo, rhalo ifile ofile	eca_r99ptot Frecipitation percent due to R99p days eca_r99ptot ifile1 ifile2 ofile
input,grid ofile	SERVICE ASCII input		eca_pd Precipitation days index per time period
inputext	EXTRA ASCII input	wct Windchill temperature wct ifile1 ifile2 ofile	eca_pd,x ifile ofile
< operator > ofi	-	fdns Frost days where no snow index per time period	eca_r10mm Heavy precipitation days index per time period
output	ASCII output	fdns ifile1 ifile2 ofile	eca_r20mm Very heavy precipitation days index per time period
output ifiles		strwin Strong wind days index per time period	<pre><operator> ifile ofile</operator></pre>
outputf	Formatted output	strwin[,v] ifile ofile	eca_rr1 Wet days index per time period
outputf,format[,	nelem/ ifiles Integer output	strbre Strong breeze days index per time period	eca_rr1[,R] ifile ofile
outputsry	SERVICE ASCII output	strbre ifile ofile	eca_rx1day Highest one day precipitation amount per time period
outputext	EXTRA ASCII output		eca_rx1day[,mode] ifile ofile
< operator > ifi	les	strgal Strong gale days index per time period strgal ifile ofile	eca_rx5day Highest five-day precipitation amount per time period
outputtab	Table output	hurr Hurricane days index per time period	eca_rx5day[,x] ifile ofile
outputtab,parai	ms ifiles ofile	hurr ifile ofile	eca_sdii Simple daily intensity index per time period
			eca_sdii[,R] ifile ofile
Miscellaneous		fillmiss Fill missing values fillmiss ifile ofile	eca_su Summer days index per time period
gradsdes	GrADS data descriptor file	fillmiss2 Fill missing values	eca_su[,T] ifile ofile
gradsdes/,mapve	F	fillmiss2[,maxiter] ifile ofile	eca_tg10p Cold days percent wrt 10th percentile of reference period
			eca_tg10p ifile1 ifile2 ofile
after after ifiles of:	ECHAM standard post processor	Climate indices	eca_tg90p Warm days percent wrt 90th percentile of reference period
			eca.tg90p ifile1 ifile2 ofile
bandpass bandpass fmin f	Bandpass filtering	eca_cdd Consecutive dry days index per time period eca_cdd[,R] ifile ofile	eca_tn10p Cold nights percent wrt 10th percentile of reference period
lowpass	Lowpass filtering		eca_tn10p ifile1 ifile2 ofile
lowpass,fmax if		eca_cfd Consecutive frost days index per time period eca_cfd ifile ofile	eca_tn90p Warm nights percent wrt 90th percentile of reference period
highpass	Highpass filtering		eca_tn90p ifile1 ifile2 ofile
highpass,fmin i	,	eca_csu Consecutive summer days index per time period eca_csu[,T] ifile ofile	eca_tr Tropical nights index per time period
gridarea	Grid cell area		eca_tr[,T] ifile ofile
~		eca_cwd Consecutive wet days index per time period	eca_tx10p Very cold days percent wrt 10th percentile of reference period
gridweights	Grid cell weights		eca_tx10p very cold days percent wrt 10th percentile of reference period
<pre><operator> ifi</operator></pre>	le ofile	eca_cwd[,R] ifile ofile	eca_tx10p ifile1 ifile2 ofile
	le ofile 9 point smoothing		eca_tx10p ifile1 ifile2 ofile