

# CDO Reference Card

Climate Data Operators

Version 1.3.0

January 2009

Uwe Schulzweida

Max-Planck-Institute for Meteorology

http://www.mpimet.mpg.de/cdo

## Syntax

cdo	[Options]	Operator1 [ −Operator2 [ −OperatorN ] ]
-----	-----------	---

## Options

-a	Convert from a relative to an absolute time axis
-b <nbits>	Set the number of bits for output precision (32/64 for nc,nc2,nc4,srv,ext,ieg; 1 - 32 for grb)
-f <format>	Output file format (grb,nc,nc2,nc4,srv,ext,ieg)
-g <grid>	Grid name or file Available grids: t<RES>grid, r<NX>x<NY>
-h	Help information for the operators
-m <missval>	Set the default missing value (default: -9e+33)
-R	Convert GRIB data from reduced to regular grid
-r	Convert from an absolute to a relative time axis
-s	Silent mode
-t <table>	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	Compress GRIB records with szip

## Operators

### Information

info infov map	Dataset information listed by code number Dataset information listed by variable name Dataset information and simple map
Syntax	<operator> ifiles
sinfo sinfov	Short dataset information listed by code number Short dataset information listed by variable name
Syntax	<operator> ifiles
diff diffv	Compare two datasets listed by code number Compare two datasets listed by variable name
Syntax	<operator> ifile1 ifile2
npar nlevel nyear nmon ndate ntime	Number of parameters Number of levels Number of years Number of months Number of dates Number of time steps
Syntax	<operator> ifile
showformat showcode showname showstdname showlevel showtype showyear showmon showdate showtime	Show file format Show code numbers Show variable names Show standard names Show levels Show GRIB level types Show years Show months Show dates Show time steps
Syntax	<operator> ifile

pardes griddes zaxisdes vct	Parameter description Grid description Z-axis description Vertical coordinate table
Syntax	<operator> ifile

### File operations

copy cat	Copy datasets Concatenate datasets
Syntax	<operator> ifiles ofile
replace	Replace variables
Syntax	replace ifile1 ifile2 ofile
merge mergetime	Merge datasets with different fields Merge datasets sorted by date and time
Syntax	<operator> ifiles ofile
splitcode splitname splitlevel splitgrid splitzaxis	Split code numbers Split variable names Split levels Split grids Split z-axes
Syntax	<operator> ifile oprefix
splithour splitday splitmon splitseas splityear	Split hours Split days Split months Split seasons Split years
Syntax	<operator> ifile oprefix
splitsel	Split time selection
Syntax	splitsel,nsets[,noffset[,nskip]] ifile oprefix

### Selection

selcode delcode	Select variables by code number Delete variables by code number
Syntax	<operator>,codes ifile ofile
selname delname	Select variables by name Delete variables by name
Syntax	<operator>,varnames ifile ofile
selstdname	Select variables by standard name
Syntax	selstdname,stdnames ifile ofile
sellevel	Select levels
Syntax	sellevel,levels ifile ofile
sellevidx	Select levels by index
Syntax	sellevidx,levidx ifile ofile
selgrid	Select grids
Syntax	selgrid,grids ifile ofile
selgridname	Select grids by name
Syntax	selgridname,gridnames ifile ofile
selzaxis	Select z-axes
Syntax	selzaxis,zaxes ifile ofile
selzaxisname	Select z-axes by name
Syntax	selzaxisname,zaxisnames ifile ofile
selltype	Select GRIB level types
Syntax	selltype,types ifile ofile
seltabnum	Select parameter table numbers
Syntax	seltabnum,tabnums ifile ofile

seltimestep	Select time steps
Syntax	seltimestep,timesteps ifile ofile
seltime	Select times
Syntax	seltime,times ifile ofile
selhour	Select hours
Syntax	selhour,hours ifile ofile
selday	Select days
Syntax	selday,days ifile ofile
selmon	Select months
Syntax	selmon,months ifile ofile
selyear	Select years
Syntax	selyear,years ifile ofile
selseas	Select seasons
Syntax	selseas,seasons ifile ofile
seldate	Select dates
Syntax	seldate,date1[,date2] ifile ofile
selsmon	Select single month
Syntax	selsmon,month[,nts1[,nts2]] ifile ofile

sellonlatbox	Select a longitude/latitude box
Syntax	sellonlatbox,lon1,lon2,lat1,lat2 ifile ofile
selindexbox	Select an index box
Syntax	selindexbox,idx1,idx2,idy1,idy2 ifile ofile

### Conditional selection

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

### Comparison

eq ne le lt ge gt	Equal Not equal Less equal Less than Greater equal Greater than
Syntax	<operator> ifile1 ifile2 ofile
eqc nec lec ltc gec gtc	Equal constant Not equal constant Less equal constant Less than constant Greater equal constant Greater than constant
Syntax	<operator>,c ifile ofile

### Modification

setpartab	Set parameter table
Syntax	setpartab,table ifile ofile
setcode	Set code number
Syntax	setcode,code ifile ofile
setname	Set variable name
Syntax	setname,name ifile ofile
setlevel	Set level
Syntax	setlevel,level ifile ofile
setltype	Set GRIB level type
Syntax	setltype,ltype ifile ofile

setdate	Set date
Syntax	setdate,date ifile ofile
settime	Set time of the day
Syntax	settime,time ifile ofile
setday	Set day
Syntax	setday,day ifile ofile
setmon	Set month
Syntax	setmon,month ifile ofile
setyear	Set year
Syntax	setyear,year ifile ofile
settunits	Set time units
Syntax	settunits,units ifile ofile
settaxis	Set time axis
Syntax	settaxis,date,time[,inc] ifile ofile
setreftime	Set reference time
Syntax	setreftime,date,time ifile ofile
setcalendar	Set calendar
Syntax	setcalendar,calendar ifile ofile
shifttime	Shift time steps
Syntax	shifttime,sval ifile ofile

chcode	Change code number
Syntax	chcode,oldcode,newcode[,...] ifile ofile
chname	Change variable name
Syntax	chname,oldname,newname,... ifile ofile
chlevel	Change level
Syntax	chlevel,oldlev,newlev,... ifile ofile
chlevelc	Change level of one code
Syntax	chlevelc,code,oldlev,newlev ifile ofile
chlevelv	Change level of one variable
Syntax	chlevelv,name,oldlev,newlev ifile ofile

setgrid	Set grid
Syntax	setgrid,grid ifile ofile
setgridtype	Set grid type
Syntax	setgridtype,gridtype ifile ofile

setzaxis	Set z-axis
Syntax	setzaxis,zaxis ifile ofile

setgatt	Set global attribute
Syntax	setgatt,attname,attstring ifile ofile
setgatts	Set global attributes
Syntax	setgatts,attfile ifile ofile

invertlat	Invert latitudes
Syntax	invertlat ifile ofile

invertlev	Invert levels
Syntax	invertlev ifile ofile

maskregion	Mask regions
Syntax	maskregion,regions ifile ofile

masklonlatbox	Mask a longitude/latitude box
Syntax	masklonlatbox,lon1,lon2,lat1,lat2 ifile ofile
maskindexbox	Mask an index box
Syntax	maskindexbox,idx1,idx2,idy1,idy2 ifile ofile

setclonlatbox	Set a longitude/latitude box to constant
Syntax	setclonlatbox,c,lon1,lon2,lat1,lat2 ifile ofile
setcindexbox	Set an index box to constant
Syntax	setcindexbox,c,idx1,idx2,idy1,idy2 ifile ofile

enlarge	Enlarge fields
Syntax	enlarge,grid ifile ofile

setmissval	Set a new missing value
Syntax	setmissval,newmiss ifile ofile
setctomiss	Set constant to missing value
setmisstoc	Set missing value to constant
Syntax	<operator>,c ifile ofile
setrtomiss	Set range to missing value
Syntax	setrtomiss,rmin,rmax ifile ofile

Arithmetic

<b>expr</b>	Evaluate expressions
Syntax	<b>expr</b> , <i>instr</i> ifile ofile
<b>exprf</b>	Evaluate expressions from script file
Syntax	<b>exprf</b> , <i>filename</i> ifile ofile
<b>abs</b>	Absolute value
<b>int</b>	Integer value
<b>nint</b>	Nearest integer value
<b>pow</b>	Power
<b>sqr</b>	Square
<b>sqrt</b>	Square root
<b>exp</b>	Exponential
<b>ln</b>	Natural logarithm
<b>log10</b>	Base 10 logarithm
<b>sin</b>	Sine
<b>cos</b>	Cosine
<b>tan</b>	Tangent
<b>asin</b>	Arc sine
<b>acos</b>	Arc cosine
<b>atan</b>	Arc tangent
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>addc</b>	Add a constant
<b>subc</b>	Subtract a constant
<b>mulc</b>	Multiply with a constant
<b>divc</b>	Divide by a constant
Syntax	<b>&lt;operator&gt;</b> , <i>c</i> ifile ofile
<b>add</b>	Add two fields
<b>sub</b>	Subtract two fields
<b>mul</b>	Multiply two fields
<b>div</b>	Divide two fields
<b>min</b>	Minimum of two fields
<b>max</b>	Maximum of two fields
<b>atan2</b>	Arc tangent of two fields
Syntax	<b>&lt;operator&gt;</b> ifile1 ifile2 ofile
<b>monadd</b>	Add monthly time series
<b>monsub</b>	Subtract monthly time series
<b>monmul</b>	Multiply monthly time series
<b>mondiv</b>	Divide monthly time series
Syntax	<b>&lt;operator&gt;</b> ifile1 ifile2 ofile
<b>ymonadd</b>	Add multi-year monthly time series
<b>ymonsub</b>	Subtract multi-year monthly time series
<b>ymonmul</b>	Multiply multi-year monthly time series
<b>ymondiv</b>	Divide multi-year monthly time series
Syntax	<b>&lt;operator&gt;</b> ifile1 ifile2 ofile
<b>muldpm</b>	Multiply with days per month
<b>divdpm</b>	Divide by days per month
<b>mulpy</b>	Multiply with days per year
<b>divpy</b>	Divide by days per year
Syntax	<b>&lt;operator&gt;</b> ifile ofile

Statistical values

Available statistical functions		<STAT>
minimum		min
maximum		max
sum		sum
mean		mean
average		avg
variance		var
standard deviation		std

ens<STAT>	Statistical values over an ensemble
Syntax	<operator> ifiles ofile
enspctl	Ensemble percentiles
Syntax	enspctl,p ifiles ofile

fld<STAT>	Statistical values over a field
Syntax	<operator> ifile ofile
fldpctl	Field percentiles
Syntax	fldpctl,p ifile ofile

<b>zon&lt;STAT&gt;</b>	Zonal statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>zonpctl</b>	Zonal percentiles
Syntax	<b>zonpctl</b> , <i>p</i> ifile ofile
<b>mer&lt;STAT&gt;</b>	Meridional statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>merpctl</b>	Meridional percentiles
Syntax	<b>merpctl</b> , <i>p</i> ifile ofile
<b>vert&lt;STAT&gt;</b>	Vertical statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>timsel&lt;STAT&gt;</b>	Time range statistical values
Syntax	<b>&lt;operator&gt;</b> , <i>nsets</i> [, <i>noffset</i> ][, <i>nskip</i> ] ifile ofile
<b>timselfpctl</b>	Time range percentiles
Syntax	<b>timselfpctl</b> , <i>p</i> , <i>nsets</i> [, <i>noffset</i> ][, <i>nskip</i> ] ifile1 ifile2 ofile
<b>run&lt;STAT&gt;</b>	Running statistical values
Syntax	<b>&lt;operator&gt;</b> , <i>nts</i> ifile ofile
<b>runpctl</b>	Running percentiles
Syntax	<b>runpctl</b> , <i>p</i> , <i>nts</i> ifile1 ofile
<b>tim&lt;STAT&gt;</b>	Statistical values over all time steps
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>timpctl</b>	Time percentiles
Syntax	<b>timpctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>hour&lt;STAT&gt;</b>	Hourly statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>hourpctl</b>	Hourly percentiles
Syntax	<b>hourpctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>day&lt;STAT&gt;</b>	Daily statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>daypctl</b>	Daily percentiles
Syntax	<b>daypctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>mon&lt;STAT&gt;</b>	Monthly statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>monpctl</b>	Monthly percentiles
Syntax	<b>monpctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>year&lt;STAT&gt;</b>	Yearly statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>yearpctl</b>	Yearly percentiles
Syntax	<b>yearpctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>seas&lt;STAT&gt;</b>	Seasonal statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>seaspctl</b>	Seasonal percentiles
Syntax	<b>seaspctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>yhour&lt;STAT&gt;</b>	Multi-year hourly statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>yday&lt;STAT&gt;</b>	Multi-year daily statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>ydaypctl</b>	Multi-year daily percentiles
Syntax	<b>ydaypctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>ymon&lt;STAT&gt;</b>	Multi-year monthly statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>ymonpctl</b>	Multi-year monthly percentiles
Syntax	<b>ymonpctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>yseas&lt;STAT&gt;</b>	Multi-year seasonal statistical values
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>yseaspctl</b>	Multi-year seasonal percentiles
Syntax	<b>yseaspctl</b> , <i>p</i> ifile1 ifile2 ifile3 ofile
<b>ydrun&lt;STAT&gt;</b>	Multi-year daily running statistical values
Syntax	<b>&lt;operator&gt;</b> , <i>nts</i> ifile ofile
<b>ydrunpctl</b>	Multi-year daily running percentiles
Syntax	<b>ydrunpctl</b> , <i>p</i> , <i>nts</i> ifile1 ifile2 ifile3 ofile

Regression

<b>regres</b>	Regression
Syntax	<b>regres</b> ifile ofile
<b>detrend</b>	Detrend
Syntax	<b>detrend</b> ifile ofile
<b>trend</b>	Trend
Syntax	<b>trend</b> ifile ofile1 ofile2
<b>subtrend</b>	Subtract trend
Syntax	<b>subtrend</b> ifile1 ifile2 ifile3 ofile

Interpolation

<b>remapbil</b>	Bilinear interpolation
<b>remapbic</b>	Bicubic interpolation
<b>remapcon</b>	Conservative remapping
<b>remapdis</b>	Distance-weighted average remapping
Syntax	<b>&lt;operator&gt;</b> , <i>grid</i> ifile ofile
<b>genbil</b>	Generate bilinear interpolation weights
<b>genbic</b>	Generate bicubic interpolation weights
<b>gencon</b>	Generate conservative interpolation weights
<b>gendis</b>	Generate distance-weighted average remap weights
Syntax	<b>&lt;operator&gt;</b> , <i>grid</i> ifile ofile
<b>remap</b>	SCRIP grid remapping
Syntax	<b>remap</b> , <i>grid</i> , <i>weights</i> ifile ofile
<b>interpolate</b>	PINGO grid interpolation
<b>intgridbil</b>	Bilinear grid interpolation
Syntax	<b>&lt;operator&gt;</b> , <i>grid</i> ifile ofile
<b>remapeta</b>	Remap vertical hybrid level
Syntax	<b>remapeta</b> , <i>vct</i> [, <i>oro</i> ] ifile ofile
<b>ml2pl</b>	Model to pressure level interpolation
Syntax	<b>ml2pl</b> , <i>plevels</i> ifile ofile
<b>ml2hl</b>	Model to height level interpolation
Syntax	<b>ml2hl</b> , <i>hlevels</i> ifile ofile
<b>intlevel</b>	Linear level interpolation
Syntax	<b>intlevel</b> , <i>levels</i> ifile ofile
<b>inttime</b>	Time interpolation
Syntax	<b>inttime</b> , <i>date</i> , <i>time</i> [, <i>inc</i> ] ifile ofile
<b>intntime</b>	Time interpolation
Syntax	<b>intntime</b> , <i>n</i> ifile ofile
<b>intyear</b>	Year interpolation
Syntax	<b>intyear</b> , <i>years</i> ifile1 ifile2 oprefix

Transformation

<b>sp2gp</b>	Spectral to gridpoint
<b>sp2gpl</b>	Spectral to gridpoint (linear)
<b>gp2sp</b>	Gridpoint to spectral
<b>gp2spl</b>	Gridpoint to spectral (linear)
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>sp2sp</b>	Spectral to spectral
Syntax	<b>sp2sp</b> , <i>trunc</i> ifile ofile
<b>spcut</b>	Cut spectral wave number
Syntax	<b>spcut</b> , <i>wnums</i> ifile ofile
<b>dv2uv</b>	Divergence and vorticity to U and V wind
<b>dv2uvl</b>	Divergence and vorticity to U and V wind (linear)
<b>uv2dv</b>	U and V wind to divergence and vorticity
<b>uv2dvl</b>	U and V wind to divergence and vorticity (linear)
Syntax	<b>&lt;operator&gt;</b> ifile ofile

Formatted I/O

<b>input</b>	ASCII input
Syntax	<b>input</b> , <i>grid</i> ofile
<b>inputsrv</b>	SERVICE ASCII input
<b>inputext</b>	EXTRA ASCII input
Syntax	<b>&lt;operator&gt;</b> ofile

<b>output</b>	ASCII output
Syntax	<b>output</b> ifiles
<b>outputf</b>	Formatted output
Syntax	<b>outputf</b> , <i>format</i> , <i>nelem</i> ifiles
<b>outputint</b>	Integer output
<b>outputsrv</b>	SERVICE ASCII output
<b>outputtext</b>	EXTRA ASCII output
Syntax	<b>&lt;operator&gt;</b> ifiles

Miscellaneous

<b>gridarea</b>	Grid cell area
<b>gridweights</b>	Grid cell weights
Syntax	<b>&lt;operator&gt;</b> ifile ofile
<b>gradsdes1</b>	GrADS data descriptor file (version 1 GRIB map)
<b>gradsdes2</b>	GrADS data descriptor file (version 2 GRIB map)
Syntax	<b>&lt;operator&gt;</b> ifile
<b>smooth9</b>	9 point smoothing
Syntax	<b>smooth9</b> ifile ofile
<b>setrtoc</b>	Set range to constant
Syntax	<b>setrtoc</b> , <i>rmin</i> , <i>rmax</i> , <i>c</i> ifile ofile
<b>setrtoc2</b>	Set range to constant others to constant2
Syntax	<b>setrtoc2</b> , <i>rmin</i> , <i>rmax</i> , <i>c</i> , <i>c2</i> ifile ofile
<b>timsort</b>	Sort over the time
Syntax	<b>timsort</b> ifile ofile
<b>const</b>	Create a constant field
Syntax	<b>const</b> , <i>const</i> , <i>grid</i> ofile
<b>random</b>	Create a field with random values
Syntax	<b>random</b> , <i>grid</i> ofile
<b>rotuvb</b>	Backward rotation
Syntax	<b>rotuvb</b> , <i>u</i> , <i>v</i> ,... ifile ofile
<b>mastrfu</b>	Mass stream function
Syntax	<b>mastrfu</b> ifile ofile
<b>histcount</b>	Histogram count
<b>histsum</b>	Histogram sum
<b>histmean</b>	Histogram mean
<b>histfreq</b>	Histogram frequency
Syntax	<b>&lt;operator&gt;</b> , <i>bounds</i> ifile ofile
<b>wct</b>	Windchill temperature
Syntax	<b>wct</b> ifile1 ifile2 ofile
<b>fdns</b>	Frost days where no snow index per time period
Syntax	<b>fdns</b> ifile1 ifile2 ofile
<b>strwin</b>	Strong wind days index per time period
Syntax	<b>strwin</b> [, <i>v</i> ] ifile ofile
<b>strbre</b>	Strong breeze days index per time period
Syntax	<b>strbre</b> ifile ofile
<b>strgal</b>	Strong gale days index per time period
Syntax	<b>strgal</b> ifile ofile
<b>hurr</b>	Hurricane days index per time period
Syntax	<b>hurr</b> ifile ofile
<b>import_amsr</b>	Import AMSR binary files
Syntax	<b>import_amsr</b> ifile ofile
<b>import_cmsaf</b>	Import CM-SAF files
Syntax	<b>import.cmsaf</b> ifile ofile

Climate indices

<b>eca_cdd</b>	Consecutive dry days index per time period
Syntax	<b>eca_cdd</b> ifile ofile
<b>eca_cfd</b>	Consecutive frost days index per time period
Syntax	<b>eca_cfd</b> ifile ofile
<b>eca_csu</b>	Consecutive summer days index per time period
Syntax	<b>eca_csu</b> [, <i>T</i> ] ifile ofile
<b>eca_cwd</b>	Consecutive wet days index per time period
Syntax	<b>eca_cwd</b> ifile ofile

<b>eca_cwdi</b>	Cold wave duration index wrt mean of reference period
Syntax	<b>eca_cwdi</b> <i>[,nday[,T]] ifile1 ifile2 ofile</i>
<b>eca_cwfi</b>	Cold-spell days index wrt 10th percentile of reference period
Syntax	<b>eca_cwfi</b> <i>[,nday] ifile1 ifile2 ofile</i>
<b>eca_etr</b>	Intra-period extreme temperature range
Syntax	<b>eca_etr</b> <i>ifile1 ifile2 ofile</i>
<b>eca_fd</b>	Frost days index per time period
Syntax	<b>eca_fd</b> <i>ifile ofile</i>
<b>eca_gsl</b>	Growing season length index
Syntax	<b>eca_gsl</b> <i>[,nday[,T[,fland]]] ifile1 ifile2 ofile</i>
<b>eca_hd</b>	Heating degree days per time period
Syntax	<b>eca_hd</b> <i>[,T1[,T2]] ifile ofile</i>
<b>eca_hwdi</b>	Heat wave duration index wrt mean of reference period
Syntax	<b>eca_hwdi</b> <i>[,nday[,T]] ifile1 ifile2 ofile</i>
<b>eca_hwfi</b>	Warm spell days index wrt 90th percentile of reference period
Syntax	<b>eca_hwfi</b> <i>[,nday] ifile1 ifile2 ofile</i>
<b>eca_id</b>	Ice days index per time period
Syntax	<b>eca_id</b> <i>ifile ofile</i>
<b>eca_r10mm</b>	Heavy precipitation days index per time period
Syntax	<b>eca_r10mm</b> <i>ifile ofile</i>
<b>eca_r20mm</b>	Very heavy precipitation days index per time period
Syntax	<b>eca_r20mm</b> <i>ifile ofile</i>
<b>eca_r75p</b>	Moderate wet days wrt 75th percentile of reference period
Syntax	<b>eca_r75p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r75ptot</b>	Precipitation percent due to R75p days
Syntax	<b>eca_r75ptot</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r90p</b>	Wet days wrt 90th percentile of reference period
Syntax	<b>eca_r90p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r90ptot</b>	Precipitation percent due to R90p days
Syntax	<b>eca_r90ptot</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r95p</b>	Very wet days wrt 95th percentile of reference period
Syntax	<b>eca_r95p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r95ptot</b>	Precipitation percent due to R95p days
Syntax	<b>eca_r95ptot</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r99p</b>	Extremely wet days wrt 99th percentile of reference period
Syntax	<b>eca_r99p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_r99ptot</b>	Precipitation percent due to R99p days
Syntax	<b>eca_r99ptot</b> <i>ifile1 ifile2 ofile</i>
<b>eca_rr1</b>	Wet days index per time period
Syntax	<b>eca_rr1</b> <i>ifile ofile</i>
<b>eca_rx1day</b>	Highest one day precipitation amount per time period
Syntax	<b>eca_rx1day</b> <i>[,mode] ifile ofile</i>
<b>eca_rx5day</b>	Highest five-day precipitation amount per time period
Syntax	<b>eca_rx5day</b> <i>[,x] ifile ofile</i>
<b>eca_sdii</b>	Simple daily intensity index per time period
Syntax	<b>eca_sdii</b> <i>ifile ofile</i>
<b>eca_su</b>	Summer days index per time period
Syntax	<b>eca_su</b> <i>[,T] ifile ofile</i>
<b>eca_tg10p</b>	Cold days percent wrt 10th percentile of reference period
Syntax	<b>eca_tg10p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_tg90p</b>	Warm days percent wrt 90th percentile of reference period
Syntax	<b>eca_tg90p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_tn10p</b>	Cold nights percent wrt 10th percentile of reference period
Syntax	<b>eca_tn10p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_tn90p</b>	Warm nights percent wrt 90th percentile of reference period
Syntax	<b>eca_tn90p</b> <i>ifile1 ifile2 ofile</i>
<b>eca_tr</b>	Tropical nights index per time period
Syntax	<b>eca.tr</b> <i>[,T] ifile ofile</i>