CDO Reference Ca	\mathbf{rd}
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Climate Data Operators Version 1.0.6 December 2006

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Syntax

cdo [Options] Operators

Options

-	
-a	Convert from a relative to an absolute time axis
-b < nbits >	Set the number of bits for the output precision
	(32/64 for nc, nc2, srv, ext, ieg; 1 - 32 for grb)
$-\mathbf{f} < format >$	Output file format (grb, nc, nc2, srv, ext, ieg)
-g < grid>	Grid name or file
	Available grids: t <res>grid, r<nx>x<ny></ny></nx></res>
-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
-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

Operators

Information

nmon

showyear

showmon

info		Dataset information listed by code number
infov		Dataset information listed by variable name
map		Dataset information and simple map
	Syntax	<pre><operator> ifiles</operator></pre>
sinfo		Short dataset information listed by code number
sinfov		Short dataset information listed by variable name
	Syntax	< operator > ifile
diff		Compare two datasets listed by code number
diff diffv		Compare two datasets listed by code number Compare two datasets listed by variable name
	Syntax	
	Syntax	Compare two datasets listed by variable name
diffv	Syntax	Compare two datasets listed by variable name <pre><operator> ifile1 ifile2</operator></pre>
diffv	Syntax	Compare two datasets listed by variable name <pre><operator> ifile1 ifile2</operator></pre> Number of codes
ncode nvar	Syntax	Compare two datasets listed by variable name <pre><operator> ifile1 ifile2</operator></pre> Number of codes Number of variables

Number of months

ndateNumber of dates ntimeNumber of time steps Syntax < operator > ifileShow file format showformat showcode Show codes showvar Show variable names Show standard names showstdname showlevel Show levels

Show years

Show months

showdate	Show dates
showtime	Show time steps
Syntax	< operator > ifile
vardes	Variable description
griddes	Grid description
vct	Vertical coordinate table
Syntax	< operator > ifile

splitvar

splitlevel

splitgrid

File operations		
copy	Copy datasets	
cat	Concatenate datasets	
Syntax	<pre><operator> ifiles ofile</operator></pre>	
	D l l - l	
replace	Replace variables	
Syntax	replace ifile1 ifile2 ofile	
	11 11 11 11 11 11 11 11 11 11 11 11 11	
merge	Merge datasets with different fields	
mergetime	Merge datasets sorted by date and time	
Syntax	< operator > ifiles ofile	
splitcode	Split codes	

Split variables

Split levels

Split grids

Select codes

Delete codes

Select variables

splitzaxis	Split zaxis
splitrec	Split records
Syntax	< operator > ifile oprefix
splithour	Split hours
splitday	Split days
splitmon	Split months
splitseas	Split seasons
splityear	Split years
Syntax	<pre>< operator > ifile oprefix</pre>

 $<\!operator\!>\!,\!codes$ ifile ofile

Selection selcode delcode

selvar

selindexbox

Syntax

	delvar	Delete variables
	Syntax	<pre><operator>,vars ifile ofile</operator></pre>
	selstdname	Select standard names
	Syntax	selstdname,stdnames ifile ofile
	sellevel	Select levels
_	Syntax	sellevel, levels ifile ofile
	selgrid	Select grids
	Syntax	selgrid,grids ifile ofile
	selgridname	Select grids by name
	Syntax	selgridname,gridnames ifile ofile
r	selzaxis	Select zaxes
1e	Syntax	selzaxis,zaxes ifile ofile
	selzaxisname	Select zaxes by name
	Syntax	selzaxisname,zaxisnames ifile ofile
	seltabnum	Select parameter table numbers
	Syntax	seltabnum,tabnums ifile ofile
	selrec	Select records
	Syntax	selrec, records ifile ofile
	seltimestep	Select time steps
	seltimestep Syntax	Select time steps seltimestep, timesteps ifile ofile
	•	
	Syntax	seltimestep, timesteps ifile ofile
	Syntax seltime	seltimestep,timesteps ifile ofile Select times
	Syntax seltime Syntax	seltimestep, timesteps ifile ofile Select times seltime, times ifile ofile
	Syntax seltime Syntax selhour	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours
	Syntax seltime Syntax selhour Syntax selday Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile
	Syntax seltime Syntax selhour Syntax selday Syntax selmon	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months
	Syntax seltime Syntax selhour Syntax selday Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile
	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years
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	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear Syntax selseas Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years selyear,years ifile ofile Select seasons selseas,seasons ifile ofile
	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear Syntax selseas Syntax selseas Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years selyear,years ifile ofile Select seasons selseas,seasons ifile ofile Select dates
	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear Syntax selseas Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years selyear,years ifile ofile Select seasons selseas,seasons ifile ofile
	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear Syntax selseas Syntax selseas Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years selyear,years ifile ofile Select seasons selseas,seasons ifile ofile Select dates seldate,date1[date2] ifile ofile
	Syntax seltime Syntax selhour Syntax selday Syntax selmon Syntax selyear Syntax selseas Syntax seldate Syntax	seltimestep,timesteps ifile ofile Select times seltime,times ifile ofile Select hours selhour,hours ifile ofile Select days selday,days ifile ofile Select months selmon,months ifile ofile Select years selyear,years ifile ofile Select seasons selseas,seasons ifile ofile Select dates

Select an index box

Syntax selindexbox,idx1,idx2,idy1,idy2 ifile ofile

Conditional selection

ifthen	If then
ifnotthen	If not then
Syntax	$<\!operator\!>$ ifile1 ifile2 ofile
ifthenelse	If then else
Syntax	ifthenelse ifile1 ifile2 ifile3 ofile
ifthenc	If then constant
ifnotthenc	If not then constant
Syntax	<pre>< operator > .c ifile ofile</pre>

Comparison

eq ne le	Equal Not equal Less equal	invertlatdata invertlondata Syntax	Invert latitude data Invert longitude data <pre></pre> <pre></pre> <pre></pre> <pre>operator > ifile ofile</pre>
lt ge gt Syntax	Less than Greater equal Greater than <pre>operator> ifile1 ifile2 ofile</pre>	masklonlatbox Syntax maskindexbox Syntax	masklonlatbox,lon1,lon2,lat
eqc nec lec ltc gec	Equal constant Not equal constant Less equal constant Less then constant Greater equal constant	setclonlatbox Syntax setcindexbox Syntax	Set a longitude/latitude box t setclonlatbox,c,lon1,lon2,lat Set an index box to constant setcindexbox,c,idx1,idx2,idy

Greater then constant

Syntax < operator >,c ifile ofile

Set parameter table

Syntax setpartab, table ifile ofile

Modification

setpartab

chlevelv

Syntax

gtc

Dynoux	Setpartas, vasie 11110 01110
setcode	Set code number
Syntax	setcode,code ifile ofile
setvar	Set variable name
Syntax	setvar, name ifile ofile
setlevel	Set level
Syntax	setlevel, level ifile ofile
setdate	Set date
Syntax	setdate, date ifile ofile
settime	Set time
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
chvar	Change variable name
Syntax	chvar,ovar,nvar, ifile ofile
chlevel	Change level
Syntax	chlevel, oldlev, newlev, ifile ofile
chlevelc	Change level of one code
Syntax	chlevelc,code,oldlev,newlev ifile ofile
	T and the second

Change level of one variable

chlevelv,var,oldlev,newlev ifile ofile

	setgrid	Set grid
_	Syntax	setgrid, grid ifile ofile
	setgridtype	Set grid type
	Syntax	setgridtype,gridtype ifile ofile
\equiv	setzaxis	Set zaxis
	Syntax	setzaxis,zaxis ifile ofile

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

III v CI titat	Invert latitude
invertion	Invert longitude
invertlatdes	Invert latitude description
invertiondes	Invert longitude description
invertlatdata	Invert latitude data
invertlondata	Invert longitude data
Syntax	<pre><operator> ifile ofile</operator></pre>

П	Dyntax	<pre><pre>operator > fifte office</pre></pre>
l	masklonlatbox	Mask a longitude/latitude box
ı	Syntax	masklonlatbox,lon1,lon2,lat1,lat2 ifile ofile
ı	maskindexbox	Mask an index box
_	Syntax	maskindexbox,idx1,idx2,idy1,idy2 ifile ofile
l	setclonlatbox	Set a longitude/latitude box to constant
ı	Syntax	setclonlatbox,c,lon1,lon2,lat1,lat2 ifile ofile

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,miss ifile ofile
setctomiss	Set constant to missing value
setmisstoc	Set missing value to constant
Syntax	< operator >, c ifile ofile

Set range to missing value

setrtomiss,rmin,rmax ifile ofile

Arithmetic

setrtomiss

expr		Evaluate expressions
	Syntax	expr,instr ifile ofile
exprf		Evaluate expressions from script file
	Syntax	exprf, filename ifile ofile
abs		Absolute value
int		Integer value
nint		Nearest integer value
sqr		Square
\mathbf{sqrt}		Square root
exp		Exponential
ln		Natural logarithm
log10		Base 10 logarithm
\sin		Sine
cos		Cosine
tan		Tangent
asin		Arc sine
acos		Arc cosine
atan		Arc tangent

	Syntax	<pre><operator> ifile ofile</operator></pre>
addc subc mulc divc		Add a constant Subtract a constant Multiply with a constant Divide by a constant
dive	Syntax	<pre><pre>coperator>,c ifile ofile</pre></pre>

-			
ı	add		Add two fields
ı	\mathbf{sub}		Subtract two fields
1	mul		Multiply two fields
	div		Divide two fields
1	min		Minimum of two fields
ı	max		Maximum of two fields
1	atan2		Arc tangent of two fields
ı		Syntax	<pre><operator> ifile1 ifile2 ofile</operator></pre>
-			

		n				1	
ymonadd	Add multi-year monthly time average			seasmin	Seasonal minimum	genbil	Generate bilinear interpolation weights
ymonsub	Subtract multi-year monthly time average	runmin	Running minimum	seasmax	Seasonal maximum	genbic	Generate bicubic interpolation weights
ymonmul	Multiply multi-year monthly time average	runmax	Running maximum	seassum	Seasonal sum	gencon	Generate conservative interpolation weights
ymondiv	Divide multi-year monthly time average	runsum	Running sum	seasmean	Seasonal mean	gendis	Generate distance-weighted averaging weights
Syntax	<pre><operator> ifile1 ifile2 ofile</operator></pre>	runmean	Running mean	seasavg	Seasonal average	Syntax	<pre><operator>,grid ifile ofile</operator></pre>
muldom	Multiply with days per month	runavg	Running average	seasvar	Seasonal variance	remap	SCRIP grid remapping
muldpm	Divide by days per month	runvar	Running variance	seasstd	Seasonal standard deviation		remap,grid,weights ifile ofile
divdpm		runstd	Running standard deviation	Syntax	<pre><operator> ifile ofile</operator></pre>	Syntax	remap,grid,weights fiffe offie
muldpy	Multiply with days per year	Syntax	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>		*	interpolate	PINGO grid interpolation
divdpy	Divide by days per year	Symax	<pre><operator>,nts lille ollle</operator></pre>	seaspctl	Seasonal percentiles	intgridbil	Bilinear grid interpolation
Syntax	< operator > ifile ofile	runpctl	Running percentiles	Syntax	$\mathbf{seaspctl}_{,p}$ ifile1 ifile2 ifile3 ofile	Syntax	<pre>< operator > ,grid ifile ofile</pre>
		Syntax	runpctl,p,nts ifile1 ofile	ydaymin	Multi-year daily minimum		
		4:	m:ii	ydaymax	Multi-year daily maximum	ml2pl	Model to pressure level interpolation
Statistical val	ues	timmin	Time minimum	ydaysum	Multi-year daily sum	Syntax	ml2pl,plevels ifile ofile
ensmin	Ensemble minimum	timmax	Time maximum	ydaymean	Multi-year daily mean	ml2hl	Model to height level interpolation
ensmax	Ensemble maximum	timsum	Time sum	ydayavg	Multi-year daily average	Syntax	ml2hl,hlevels ifile ofile
enssum	Ensemble sum	timmean	Time mean			inttime	Time interpolation
ensmean	Ensemble mean	timavg	Time average	ydayvar	Multi-year daily variance	Syntax	
ensavg	Ensemble average	timvar	Time variance	ydaystd	Multi-year daily standard deviation	intntime	Time interpolation
ensvar	Ensemble variance	timstd	Time standard deviation	Syntax	< operator > ifile ofile		•
	Ensemble standard deviation	Syntax	<pre><operator> ifile ofile</operator></pre>	ydaypctl	Multi-year daily percentiles	Syntax	intntime,n ifile ofile
ensstd		timmetl	Time nementiles	Syntax	ydaypctl,p ifile1 ifile2 ifile3 ofile	intyear	Year interpolation
	<pre><pre>< operator > ifiles ofile</pre></pre>	timpetl	Time percentiles		* * * * * * * * * * * * * * * * * * * *	Syntax	intyear, years ifile1 ifile2 oprefix
enspctl	Ensemble percentiles	Syntax	timpctl,p ifile1 ifile2 ifile3 ofile	ymonmin	Multi-year monthly minimum		
Syntax	$\mathbf{enspctl}, p$ ifiles ofile	hourmin	Hourly minimum	ymonmax	Multi-year monthly maximum		
fldmin	Field minimum	hourmax	Hourly maximum	ymonsum	Multi-year monthly sum	Thomas	on
fldmax	Field maximum	hoursum	Hourly sum	ymonmean	Multi-year monthly mean	Transformation	DII
fldsum	Field sum	hourmean	Hourly mean	ymonavg	Multi-year monthly average	sp2gp	Spectral to gridpoint
fldmean	Field mean	houravg	Hourly average	ymonvar	Multi-year monthly variance	sp2gpl	Spectral to gridpoint linear
fldavg	Field mean Field average	hourvar	Hourly variance	ymonstd	Multi-year monthly standard deviation	gp2sp	Gridpoint to spectral
_	S S	hourstd	Hourly standard deviation		<pre><operator> ifile ofile</operator></pre>	gp2spl	Gridpoint to spectral linear
fldvar	Field variance	l l				Syntax	<pre>< operator > ifile ofile</pre>
fldstd	Field standard deviation	Syntax	<pre><operator> ifile ofile</operator></pre>	ymonpctl	Multi-year monthly percentiles	sp2sp	Spectral to spectral
	<pre><operator> ifile ofile</operator></pre>	hourpctl	Hourly percentiles	Syntax	$\mathbf{ymonpctl}, p$ ifile1 ifile2 ifile3 ofile	Syntax	
fldpctl	Field percentiles	Syntax	hourpctl,p ifile1 ifile2 ifile3 ofile	yseasmin	Multi-year seasonal minimum		/
Syntax	fldpctl,p ifile ofile		- '	yseasmax	Multi-year seasonal maximum	uv2dv	U and V wind to divergence and vorticity
	71	daymin	Daily minimum	-		dv2uv	Divergence and vorticity to U and V wind
zonmin	Zonal minimum	daymax	Daily maximum	yseassum	Multi-year seasonal sum	Syntax	<pre><operator> ifile ofile</operator></pre>
zonmax	Zonal maximum	daysum	Daily sum	yseasmean	Multi-year seasonal mean	Syntax	<pre><operator> ifile ofile</operator></pre>
zonmax zonsum	Zonal maximum Zonal sum			yseasmean yseasavg	Multi-year seasonal mean Multi-year seasonal average	Syntax	<pre><operator> ifile ofile</operator></pre>
zonmax zonsum zonmean	Zonal maximum Zonal sum Zonal mean	daysum	Daily sum	yseasmean yseasavg yseasvar	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance		
zonmax zonsum zonmean zonavg	Zonal maximum Zonal sum Zonal mean Zonal average	daysum daymean	Daily sum Daily mean	yseasmean yseasavg yseasvar yseasstd	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation	Syntax Formatted I/	
zonmax zonsum zonmean zonavg zonvar	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance	daysum daymean dayavg	Daily sum Daily mean Daily average	yseasmean yseasavg yseasvar	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance		
zonmax zonsum zonmean zonavg zonvar zonstd	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation	daysum daymean dayavg dayvar	Daily sum Daily mean Daily average Daily variance	yseasmean yseasavg yseasvar yseasstd Syntax	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation < operator > ifile ofile	Formatted I/	O ASCII input
zonmax zonsum zonmean zonavg zonvar	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation < operator > ifile ofile	daysum daymean dayavg dayvar daystd Syntax	Daily sum Daily mean Daily average Daily variance Daily standard deviation < operator > ifile offile	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles</operator>	Formatted I/ input Syntax	O ASCII input input,grid ofile
zonmax zonsum zonmean zonavg zonvar zonstd	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation < operator > ifile ofile Zonal percentiles	daysum daymean dayavg dayvar daystd Syntax	Daily sum Daily mean Daily average Daily variance Daily standard deviation <operator> ifile ofile Daily percentiles</operator>	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation < operator > ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile	Formatted I/ input Syntax inputsrv	ASCII input input,grid ofile SERVICE input
zonmax zonsum zonmean zonavg zonvar zonstd	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation < operator > ifile ofile	daysum daymean dayavg dayvar daystd Syntax	Daily sum Daily mean Daily average Daily variance Daily standard deviation < operator > ifile offile	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax ydrunmin	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile Multi-year daily running minimum</operator>	Formatted I/ input Syntax inputsrv inputext	ASCII input input,grid ofile SERVICE input EXTRA input
zonmax zonsum zonmean zonavg zonvar zonstd Syntax zonpctl Syntax	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation <operator> ifile ofile Zonal percentiles zonpctl,p ifile ofile</operator>	daysum daymean dayavg dayvar daystd Syntax	Daily sum Daily mean Daily average Daily variance Daily standard deviation <operator> ifile ofile Daily percentiles</operator>	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile Multi-year daily running minimum Multi-year daily running maximum</operator>	Formatted I/ input Syntax inputsrv inputext Syntax	ASCII input input,grid ofile SERVICE input EXTRA input <operator> ofile</operator>
zonsum zonsum zonmean zonavg zonvar zonstd Syntax zonpctl Syntax mermin	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation <operator> ifile ofile Zonal percentiles zonpctl,p ifile ofile Meridional minimum</operator>	daysum daymean dayavg dayvar daystd Syntax daypctl Syntax	Daily sum Daily mean Daily mean Daily average Daily variance Daily standard deviation <operator> ifile ofile Daily percentiles daypctl,p ifile1 ifile2 ifile3 ofile</operator>	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax ydrunmin	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile Multi-year daily running minimum Multi-year daily running maximum Multi-year daily running sum</operator>	Formatted I/ input Syntax inputsrv inputext Syntax output	ASCII input input,grid ofile SERVICE input EXTRA input <operator> ofile ASCII output</operator>
zonmax zonsum zonmean zonavg zonvar zonstd Syntax zonpctl Syntax mermin mermax	Zonal maximum Zonal sum Zonal mean Zonal average Zonal variance Zonal standard deviation <operator> ifile ofile Zonal percentiles zonpctl,p ifile ofile Meridional minimum Meridional maximum</operator>	daysum daymean dayavg dayvar daystd Syntax daypctl Syntax monmin	Daily sum Daily mean Daily average Daily variance Daily standard deviation <operator> ifile ofile Daily percentiles daypctl,p ifile1 ifile2 ifile3 ofile Monthly minimum</operator>	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax ydrunmin ydrunmax	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile Multi-year daily running minimum Multi-year daily running maximum</operator>	Formatted I/ input Syntax inputsrv inputext Syntax output Syntax	ASCII input input,grid ofile SERVICE input EXTRA input <operator> ofile ASCII output output ifiles</operator>
zonmax zonsum zonmean zonavg zonvar zonstd Syntax zonpctl Syntax mermin mermax mersum	Zonal maximum Zonal sum Zonal sum Zonal average Zonal variance Zonal standard deviation < operator > ifile ofile Zonal percentiles zonpctl,p ifile ofile Meridional minimum Meridional maximum Meridional sum	daysum daymean dayavg dayvar daystd Syntax daypetl Syntax monmin monmax	Daily sum Daily mean Daily mean Daily average Daily variance Daily standard deviation <operator> ifile ofile Daily percentiles daypctl,p ifile1 ifile2 ifile3 ofile Monthly minimum Monthly maximum</operator>	yseasmean yseasavg yseasvar yseasstd Syntax yseaspctl Syntax ydrunmin ydrunmax ydrunsum	Multi-year seasonal mean Multi-year seasonal average Multi-year seasonal variance Multi-year seasonal standard deviation <operator> ifile ofile Multi-year seasonal percentiles yseaspctl,p ifile1 ifile2 ifile3 ofile Multi-year daily running minimum Multi-year daily running maximum Multi-year daily running sum</operator>	Formatted I/ input Syntax inputsrv inputext Syntax Output Syntax Output	ASCII input input,grid ofile SERVICE input EXTRA input <operator> ofile ASCII output output ifiles Formatted output</operator>
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mastrfu	Mass stream function	
Syntax	mastrfu ifile ofile	eca_rx5
hi	Humidity index	
Syntax	hi ifile1 ifile2 ifile3 ofile	eca_sdii
tchill	Windchill temperature	
Syntax	tchill ifile1 ifile2 ofile	eca_strv
ECA indices		eca_su
	Company time days days	
eca_cdd Syntax	Consecutive dry days eca_cdd ifile ofile	eca_tg1
eca_cfd Syntax	Consecutive frost days eca_cfd ifile ofile	eca_tg9
eca_csu Syntax	Consecutive summer days eca_csu[,T] ifile ofile	eca_tn1
	t, y	
eca_cwd Syntax	Consecutive wet days eca_cwd ifile ofile	eca_tn9
eca_cwdi	Cold wave duration index	eca_tr
Syntax	eca_cwdi[,nday[,T]] ifile1 ifile2 ofile	
eca_cwfi	Cold-spell days	eca_tx1
Syntax	eca_cwfi[,nday] ifile1 ifile2 ofile	
eca_etr	Intra-period extreme temperature range	eca_tx9
Syntax	eca_etr ifile1 ifile2 ofile	
eca_fd	Frost days	
Syntax	eca_fd ifile ofile	
eca_fdns	Frost days where no snow	
Syntax	eca_fdns ifile1 ifile2 ofile	
eca_gsl	Growing season length	
Syntax	eca_gsl[,nday[,T]] ifile ofile	
eca_hd	Heating degree days	
Syntax	eca_hd[,T1[,T2]] ifile ofile	
eca_hwdi	Heat wave duration index	
Syntax	eca_hwdi[,nday[,T]] ifile1 ifile2 ofile	
eca_hwfi	Warm-spell days	
Syntax	eca_hwfi[,nday] ifile1 ifile2 ofile	
eca_id	Ice days	
Syntax	eca_id ifile ofile	
eca_r10mm	Heavy precipitation days	
Syntax	eca_r10mm ifile ofile	
eca_r20mm	Very heavy precipitation days	
Syntax	eca_r20mm ifile ofile	
eca_r75p	Moderate wet days wrt 75th percentile of reference	period
Syntax	eca_r75p ifile1 ifile2 ofile	
eca_r75ptot	Precipitation fraction due to R75p days	
Syntax	eca_r75ptot ifile1 ifile2 ofile	
eca_r90p	Very wet days wrt 90th percentile of reference peri	od
Syntax	eca_r90p ifile1 ifile2 ofile	
eca_r90ptot	Precipitation fraction due to R90p days	
Syntax	eca_r90ptot ifile1 ifile2 ofile	
eca_r95p	Very wet days wrt 95th percentile of reference peri	od
Syntax	eca_r95p ifile1 ifile2 ofile	
eca_r95ptot	Precipitation fraction due to R95p days	
Syntax	eca_r95ptot ifile1 ifile2 ofile	
eca_r99p	Extremely wet days wrt 99th percentile of reference	e period
Syntax	eca_r99p ifile1 ifile2 ofile	
eca_r99ptot	Precipitation fraction due to R99p days	
Syntax	eca_r99ptot ifile1 ifile2 ofile	
eca_rr1	Wet days	
Syntax	eca_rr1 ifile ofile	
eca_rx1day	Highest one-day precipitation amount	
Syntax	eca_rx1day[,mode] ifile ofile	

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eca_rx5day Syntax	Highest five-day precipitation amount eca_rx5day[,x] ifile ofile
eca_sdii	Simple daily intensity index eca_sdii ifile ofile
Syntax eca_strwind	Strong wind days
Syntax eca_su	eca_strwind[,bnum] ifile ofile Summer days
Syntax eca_tg10p	eca_su[,T] ifile ofile Cold days wrt 10th percentile of reference period
Syntax eca_tg90p	eca_tg10p ifile1 ifile2 ofile Warm days wrt 90th percentile of reference period
Syntax	eca_tg90p ifile1 ifile2 ofile
eca_tn10p Syntax	Cold nights wrt 10th percentile of reference period eca_tn10p ifile1 ifile2 ofile
eca_tn90p Syntax	Warm nights wrt 90th percentile of reference periodeca_tn90p ifile1 ifile2 ofile
eca_tr Syntax	Tropical nights eca_tr[,T] ifile ofile
eca_tx10p Syntax	Cold days wrt 10th percentile of reference period eca_tx10p ifile1 ifile2 ofile
eca_tx90p Syntax	Warm days wrt 90th percentile of reference period eca_tx90p ifile1 ifile2 ofile
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