CDO Reference Card

Climate Data Operators Version 1.4.4 April 2010

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

pardes

griddes

 \mathbf{vct}

zaxisdes

	File	operation

Options

Syntax

_		
-a	Generate an absolute time axis	
-b < nbits >	Set the number of bits for the output precision	
	(32/64 for nc,nc2,nc4,srv,ext,ieg; 1 - 32 for grb)	
	Add L or B for Little or Big endian byteorder	
$-\mathbf{f} < format >$	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></ny></nx></res>	
-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)	
-R	Convert GRIB data from reduced to regular grid	
-r	Generate a relative time axis	
-s	Silent mode	
-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	Compress GRIB records with szip	

Dataset information listed by code number

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

Operators

Information

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

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

Parameter description

Vertical coordinate table

Grid description Z-axis description

<operator> ifile

Selection

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

seltimestep	Select time steps	s
Syntax	seltimestep, timesteps ifile ofile	
seltime	Select times	s
Syntax	seltime, times ifile ofile	
selhour	Select hours	s
Syntax	selhour, hours ifile ofile	
selday	Select days	s
Syntax	selday,days ifile ofile	
selmon	Select months	s
Syntax	selmon, months ifile ofile	
selyear	Select years	s
Syntax	selyear, years ifile ofile	
selseas	Select seasons	s
Syntax	selseas,seasons ifile ofile	
seldate	Select dates	s
Syntax	seldate,date1[,date2] ifile ofile	
selsmon	Select single month	s
Syntax	selsmon,month[,nts1[,nts2]] ifile ofile	
sellonlatbox	Select a longitude/latitude box	s
Syntax	sellonlatbox,lon1,lon2,lat1,lat2 ifile ofile	
selindexbox	Select an index box	C
Syntax	selindexbox,idx1,idx2,idy1,idy2 ifile ofile	
		C

Conditional selection

ifthen	If then
ifnotthen If not then	
Syntax	< operator > ifile1 ifile2 ofile
ifthenelse	If then else
ittieneise ii then eise	
Syntax	ifthenelse ifile1 ifile2 ifile3 ofile
ifthenc	If then constant
ifnotthenc	If not then constant
Syntax	<pre>< operator > .c ifile ofile</pre>

Comparison

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

Modification

Set parameter table
setpartab, table ifile ofile
Set code number
setcode, code ifile ofile
Set variable name
setname, name ifile ofile
Set level
setlevel, level ifile ofile
Set GRIB level type
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[, units] ifile ofile
setcalendar	Set calendar
Syntax	setcalendar,calendar ifile ofile
shifttime	Shift time steps
Syntax	shifttime,sval ifile ofile
chcode	Change code number
Syntax	${f chcode}, oldcode, newcode[,]$ 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	<pre>chlevelc,code,oldlev,newlev ifile ofile</pre>
chlevelv	Change level of one variable
Syntax	chlevelv,name,oldlev,newlev ifile ofile
setgrid	Set grid

setzaxis	Set z-axis
Syntax	setgridtype,gridtype ifile ofile
setgridtype	Set grid type
Syntax	setgrid, grid ifile ofile
setgria	Set grid

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

Syntax setzaxis, zaxis ifile ofile

invertlat	Invert latitudes
Syntax	invertlat ifile ofile
inventley	Invert levels

Syntax	invertlev ifile ofile				
maskregion	Mask regions				
Syntax	maskregion, regions ifile ofile				

masklonlatbox	Mask a longitude/latitude box
Syntax	${f mask lonlatbox}, lon1, lon2, lat1, lat2 \ {f ifile}$ of ile
maskindexbox	Mask an index box
Syntax	${f maskindexbox}, idx1, idx2, idy1, idy2 \ {\tt ifile} \ {\tt ofile}$
setclonlatbox	Set a longitude/latitude box to constant
Syntax	${f setclonlatbox}, c, lon1, lon2, lat1, lat2 \ {f ifile}$ of ile
setcindexbox	Set an index box to constant
Syntax	setcindexbox cidy1 idy2 idy1 idy2 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,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				
setvrange	Set valid range				
Syntax	<pre><operator>,rmin,rmax ifile ofile</operator></pre>				

Arithmetic			zon < STAT >	Zonal statistical values	ydrunpctl	Multi-year daily running percentiles	dv2uv	Divergence and vorticity to U and V wind
	I D 1 /		Syntax	$<\!operator\!>$ ifile ofile	Syntax	ydrunpctl,p,nts ifile1 ifile2 ifile3 ofile	dv2uvl	Divergence and vorticity to U and V wind (linear)
expr Syntax	Evaluate expressions expr,instr ifile ofile		zonpctl	Zonal percentiles			uv2dv	U and V wind to divergence and vorticity
exprf	Evaluate expressions from	a script file	Syntax	zonpctl,p ifile ofile	C		uv2dvl	U and V wind to divergence and vorticity (linear)
Syntax	exprf, filename ifile of:		mer < STAT >	Meridional statistical values	Correlation		Syntax	<pre><operator> ifile ofile</operator></pre>
abs	Absolute value		Syntax	<pre><operator> ifile ofile</operator></pre>	fldcor	Correlation in grid space		
int	Integer value		merpctl	Meridional percentiles	Syntax	fldcor ifile1 ifile2 ofile	Formatted I/	0
nint	Nearest integer value		Syntax	merpctl,p ifile ofile	timcor	Correlation in time		
pow	Power			'Statistical values over grid boxes	Syntax	timcor ifile1 ifile2 ofile	input	ASCII input
sqr	Square		Syntax	<pre><operator>,nx,,ny ifile ofile</operator></pre>			Syntax	input,grid ofile
sqrt	Square root		vert < STAT >	Vertical statistical values	Regression		inputsrv	SERVICE ASCII input EXTRA ASCII input
exp	Exponential		Syntax	<pre><operator> ifile ofile</operator></pre>			inputext	<pre><pre>< operator > ofile</pre></pre>
ln low10	Natural logarithm Base 10 logarithm		timsel <stat< td=""><td>Time range statistical values</td><td>regres</td><td>Regression</td><td>· · · · · · · · · · · · · · · · · · ·</td><td></td></stat<>	Time range statistical values	regres	Regression	· · · · · · · · · · · · · · · · · · ·	
log10 sin	Sine		Syntax	<pre>< operator > ,nsets[,noffset[,nskip]] ifile ofile</pre>	Syntax	regres ifile ofile	output Syntax	ASCII output output ifiles
cos	Cosine		timselpctl	Time range percentiles	detrend	Detrend	outputf	Formatted output
tan	Tangent		Syntax	timselpctl,p,nsets[,noffset[,nskip]] ifile1 ifile2 i	Syntax	detrend ifile ofile	Syntax	outputf, format, nelem ifiles
asin	Arc sine		run < STAT >	Running statistical values	trend	Trend	outputint	Integer output
acos	Arc cosine		Syntax	<pre></pre> <pre><operator>,nts ifile ofile</operator></pre>	Syntax	trend ifile ofile1 ofile2	outputsrv	SERVICE ASCII output
reci	Reciprocal value			* *	subtrend	Subtract trend	outputext	EXTRA ASCII output
Syntax	<pre><operator> ifile ofil</operator></pre>	e	runpctl	Running percentiles runpctl,p,nts ifile1 ofile	Syntax	subtrend ifile1 ifile2 ifile3 ofile	Syntax	<pre><operator> ifiles</operator></pre>
addc	Add a constant		Syntax	- 10.1				
subc	Subtract a constant		tim <stat></stat>	Statistical values over all time steps	T 1		Miscellaneous	2
mulc divc	Multiply with a constant Divide by a constant		Syntax	<pre><operator> ifile ofile</operator></pre>	Interpolation			
Syntax	<pre>constant coperator>,c ifile ofile</pre>	ile	timpctl	Time percentiles	remapbil	Bilinear interpolation	gridarea gridweights	Grid cell area
	Add two fields		Syntax	timpctl,p ifile1 ifile2 ifile3 ofile	remapbic	Bicubic interpolation	Syntax	Grid cell weights <pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>
add sub	Subtract two fields		$ \mathbf{hour} < STAT > $	Hourly statistical values	remapdis	Distance-weighted average remapping	· ·	*
mul	Multiply two fields		Syntax	<pre><operator> ifile ofile</operator></pre>	remapnn	Nearest neighbor remapping First order conservative remapping	gradsdes1	Grads data descriptor file (version 1 GRIB map)
div	Divide two fields		hourpctl	Hourly percentiles	remapcon remapcon2	Second order conservative remapping	gradsdes2 Syntax	GrADS data descriptor file (version 2 GRIB map) <pre> <pre> <pre> <pre> </pre> </pre></pre></pre>
min	Minimum of two fields		Syntax	hourpctl,p ifile1 ifile2 ifile3 ofile	remaplaf	Largest area fraction remapping		
max	Maximum of two fields		day< STAT>	Daily statistical values	Syntax	<pre>< operator > ,grid ifile ofile</pre>	smooth9	9 point smoothing smooth9 ifile ofile
atan2	Arc tangent of two fields		Syntax	<pre><pre><operator> ifile ofile</operator></pre></pre>	genbil	Generate bilinear interpolation weights	Syntax	
Syntax	<pre><operator> ifile1 ifi</operator></pre>	le2 ofile		Daily percentiles	genbic	Generate bicubic interpolation weights	setrtoc	Set range to constant
monadd	Add monthly time series		daypctl	daypctl,p ifile1 ifile2 ifile3 ofile	gendis	Generate distance-weighted average remap weights	Syntax	setrtoc,rmin,rmax,c ifile ofile
monsub	Subtract monthly time se		Syntax	V = -/2	gennn	Generate nearest neighbor remap weights	setrtoc2 Syntax	Set range to constant others to constant2 setrtoc2,rmin,rmax,c,c2 ifile ofile
monmul	Multiply monthly time se		mon <stat></stat>	Monthly statistical values	gencon	Generate 1st order conservative remap weights	Ţ.	
mondiv Syntax	Divide monthly time serie <pre><pre>operator > ifile1 ifi</pre></pre>		Syntax	<pre><operator> ifile ofile</operator></pre>	gencon2	Generate 2nd order conservative remap weights	timsort	Sort over the time
			monpctl	Monthly percentiles	genlaf	Generate largest area fraction remap weights <pre><operator>,grid ifile ofile</operator></pre>	Syntax	timsort ifile ofile
ymonadd ymonsub	Add multi-year monthly subtract multi-year mont		Syntax	monpctl,p ifile1 ifile2 ifile3 ofile	Syntax		const	Create a constant field
ymonmul	Multiply multi-year mont		year < STAT >	Yearly statistical values	remap	SCRIP grid remapping	Syntax	const,const,grid ofile
ymondiv	Divide multi-year monthly time series		Syntax	<pre><operator> ifile ofile</operator></pre>	Syntax	remap,grid,weights ifile ofile	random Syntax	Create a field with random numbers random,grid[.seed] ofile
Syntax	<pre>< operator > ifile1 ifi</pre>		yearpctl	Yearly percentiles	remapeta	Remap vertical hybrid level	U U	70 5 7
muldpm	Multiply with days per m	onth		yearpctl,p ifile1 ifile2 ifile3 ofile	Syntax	remapeta, vct[,oro] ifile ofile	rotuvb	Backward rotation
divdpm	Divide by days per month		seas <stat></stat>	Seasonal statistical values	ml2pl	Model to pressure level interpolation	Syntax	rotuvb,u,v, ifile ofile
muldpy	Multiply with days per ye	ear	Syntax	<pre><operator> ifile ofile</operator></pre>	Syntax	ml2pl,plevels ifile ofile	mastrfu	Mass stream function
divdpy	Divide by days per year		seaspctl	Seasonal percentiles	ml2hl	Model to height level interpolation	Syntax	mastrfu ifile ofile
Syntax	<pre>< operator > ifile ofile</pre>	е	Syntax	seaspctl,p ifile1 ifile2 ifile3 ofile	Syntax	ml2hl,hlevels ifile ofile	histcount	Histogram count
			* '4	intlevel	Linear level interpolation	histsum	Histogram sum	
			Syntax	- Multi-year hourly statistical values <pre><operator> ifile ofile</operator></pre>	Syntax	intlevel, levels ifile ofile	histmean	Histogram mean
Statistical va	al values			^	inttime	Interpolation between time steps	histfreq Syntax	Histogram frequency <pre><operator>,bounds ifile ofile</operator></pre>
Avoil	lable statistical functions	$\langle STAT \rangle$	yday <stat></stat>	Multi-year daily statistical values	Syntax	inttime,date,time[,inc] ifile ofile	v	
minim		min		<pre><operator> ifile ofile</operator></pre>	intntime	Interpolation between time steps intntime,n ifile ofile	sethalo	Set the left and right bounds of a field sethalo, lhalo, rhalo ifile ofile
maxim	num	max	ydaypctl	Multi-year daily percentiles				
sum		sum	Syntax	ydaypctl,p ifile1 ifile2 ifile3 ofile	intyear	Interpolation between two years	import_amsr	Import AMSR binary files
mean		mean	ymon < STAT >	Multi-year monthly statistical values	Syntax	intyear, years ifile1 ifile2 oprefix	Syntax	
averag	·	avg	Syntax	< operator > ifile ofile				Import CM-SAF HDF5 files
variand		var	ymonpctl	Multi-year monthly percentiles	Transformati	on	Syntax	import_cmsaf ifile ofile
	ard deviation	std	Syntax	ymonpctl,p ifile1 ifile2 ifile3 ofile	sp2gp	Spectral to gridpoint		Import binary data sets
ens < STAT >	Statistical values over an		yseas <stat></stat>	Multi-year seasonal statistical values	sp2gpl	Spectral to gridpoint Spectral to gridpoint (linear)	Syntax	import_binary ifile ofile
Syntax	<pre>< operator > ifiles ofi</pre>	le	Syntax	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>	gp2sp	Gridpoint to spectral	wct	Windchill temperature
enspctl	Ensemble percentiles		yseaspctl	Multi-year seasonal percentiles	gp2spl	Gridpoint to spectral (linear)	Syntax	wct ifile1 ifile2 ofile
Syntax	enspctl,p ifiles ofile		Syntax		Syntax	<pre><operator> ifile ofile</operator></pre>	fdns	Frost days where no snow index per time period
fld < STAT >	yntax <operator> ifile ofile</operator>			* * *	sp2sp	Spectral to spectral	Syntax	fdns ifile1 ifile2 ofile
Syntax				Multi-year daily running statistical values < operator >,nts ifile ofile	Syntax	sp2sp,trunc ifile ofile Cut spectral wave number	strwin	Strong wind days index per time period
fldpctl	Field percentiles fldpctl,p ifile ofile		Symax	Coperator >,nes illie office	Syntax	cut spectral wave number spcut, wnums ifile ofile		strwin[,v] ifile ofile
Sylloan	post,p lille office		_		Symuax	-F, "	~ 7 34	U