

CDO Reference Card

Climate Data Operators
Version 1.4.1
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<http://www.mpimet.mpg.de/cdo>

Syntax

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

Options

-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,iwg; 1 - 32 for grb) Add L or B for Little or Big endian byteorder
-f <format>	Output file format (grb,nc,nc2,nc4,srv,ext,iwg)
-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	Generate 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	Dataset information listed by code number
infov	Dataset information listed by variable name
map	Dataset information and simple map <operator> ifiles

sinfo	Short dataset information listed by code number
sinfov	Short dataset information listed by variable name <operator> ifiles

diff	Compare two datasets listed by code number
diffv	Compare two datasets listed by variable name <operator> ifile1 ifile2

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

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
showtimestamp	Show timestamp

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

File operations

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

Selection

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

sel timestep	Select time steps
Syntax	sel timestep,timesteps ifile ofile
sel time	Select times
Syntax	sel time,times ifile ofile
sel hour	Select hours
Syntax	sel hour,hours ifile ofile
sel day	Select days
Syntax	sel day,days ifile ofile
sel mon	Select months
Syntax	sel mon,months ifile ofile
sel year	Select years
Syntax	sel year,years ifile ofile
sel seas	Select seasons
Syntax	sel seas,seasons ifile ofile
sel date	Select dates
Syntax	sel date,date1[,date2] ifile ofile
sel mon	Select single month
Syntax	sel mon,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	If then
ifnotthen	If not then Syntax
ifthenelse	If then else Syntax
ifthenelse	ifthenelse ifile1 ifile2 ifile3 ofile
ifthenc	If then constant
ifnotthenc	If not then constant Syntax

Comparison

eq	Equal
ne	Not equal
le	Less equal
lt	Less than
ge	Greater equal
gt	Greater than Syntax
eqc	Equal constant
neq	Not equal constant
lec	Less equal constant
ltc	Less than constant
gec	Greater equal constant
gtc	Greater than constant Syntax

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[,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	chcode,oldcode,newcode[,...] ifile ofile
chname	Change variable name
Syntax	chname,oldname,newname,... ifile ofile
chlevel	Change level
Syntax	chlevel,oldlev,newlev... ifile ofile
chlevlc	Change level of one code
Syntax	chlevlc,code,oldlev,newlev ifile ofile
chlevlv	Change level of one variable
Syntax	chlevlv,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
Syntax	setctomiss Set missing value to constant
setmisstoc	Set missing value to constant
Syntax	<operator>,c ifile ofile
setrtomiss	Set range to missing value
Syntax	setrtomiss Set valid range
setvrangle	Set valid range
Syntax	<operator>,rmin,rmax ifile ofile

Arithmetic

expr	Evaluate expressions
Syntax	expr,instr ifile ofile
exprf	Evaluate expressions from script file

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
Syntax	<operator> ifile ofile

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

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
Syntax	<operator> ifile1 ifile2 ofile

monadd	Add monthly time series
monsub	Subtract monthly time series
monmul	Multiply monthly time series
mondiv	Divide monthly time series
Syntax	<operator> ifile1 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
Syntax	<operator> ifile1 ifile2 ofile

muldpm	Multiply with days per month
divdpm	Divide by days per month
muldpy	Multiply with days per year
divdpy	Divide by days per year
Syntax	<operator> ifile ofile

Statistical values

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

ens	Statistical values over an ensemble
Syntax	<operator> ifiles ofile
enspcl	Ensemble percentiles
Syntax	enspcl,p ifiles ofile
fld	Statistical values over a field
Syntax	<operator> ifile ofile
fldpcl	Field percentiles
Syntax	fldpcl,p ifile ofile

zon	Zonal statistical values
Syntax	<operator> ifile ofile
zonpcl	Zonal percentiles
Syntax	zonpcl,p ifile ofile
mer	Meridional statistical values
Syntax	<operator> ifile ofile
merpcl	Meridional percentiles
Syntax	merpcl,p ifile ofile
vert	Vertical statistical values
Syntax	<operator> ifile ofile
timsel	Time range statistical values
Syntax	<operator>,nsets[,noffset[,nskip]] ifile ofile
timseptcl	Time range percentiles
Syntax	timseptcl,p,nsets[,noffset[,nskip]] ifile1 ifile2 i

run	Running statistical values
Syntax	<operator>,nts ifile ofile

runpcl	Running percentiles
Syntax	runpcl,p,nts ifile1 ofile

tim	Statistical values over all time steps
Syntax	<operator> ifile ofile

tmpctcl	Time percentiles
Syntax	tmpctcl,p ifile1 ifile2 ifile3 ofile

hour	Hourly statistical values
Syntax	<operator> ifile ofile

hourpcl	Hourly percentiles
Syntax	hourpcl,p ifile1 ifile2 ifile3 ofile

day	Daily statistical values
Syntax	<operator> ifile ofile

daypcl	Daily percentiles
Syntax	daypcl,p ifile1 ifile2 ifile3 ofile

mon	Monthly statistical values
Syntax	<operator> ifile ofile

monpcl	Monthly percentiles
Syntax	monpcl,p ifile1 ifile2 ifile3 ofile

year	Yearly statistical values
Syntax	<operator> ifile ofile

yearpcl	Yearly percentiles
Syntax	yearpcl,p ifile1 ifile2 ifile3 ofile

seas	Seasonal statistical values
Syntax	<operator> ifile ofile

seaspctcl	Seasonal percentiles
Syntax	seaspctcl,p ifile1 ifile2 ifile3 ofile

yhour	Multi-year hourly statistical values
Syntax	<operator> ifile ofile

yday	Multi-year daily statistical values
Syntax	<operator> ifile ofile

ydaypcl	Multi-year daily percentiles
Syntax	ydaypcl,p ifile1 ifile2 ifile3 ofile

yseas	Multi-year seasonal statistical values
Syntax	<operator> ifile ofile

yseaspctcl	Multi-year seasonal percentiles
Syntax	yseaspctcl,p ifile1 ifile2 ifile3 ofile

ydrun	Multi-year daily running statistical values
Syntax	<operator>,nts ifile ofile

ydrunpcl	Multi-year daily running percentiles
Syntax	ydrunpcl,p,nts ifile1 ifile2 ifile3 ofile

Regression

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

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
remaplap	Largest area fraction remapping
Syntax	<operator>,grid ifile ofile

genbil	Generate bilinear interpolation weights
genbic	Generate bicubic interpolation weights
gendis	Generate distance-weighted average remap weights
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
Syntax	<operator>,grid ifile ofile

remap	SCRIP grid remapping
Syntax	remap,grid,weights ifile ofile

interpolate	PINGO grid interpolation
Syntax	interpolate,grid ifile ofile

remapeta	Remap vertical hybrid level
Syntax	remapeta,vct[,oro] ifile ofile

ml2pl	Model to pressure level interpolation
Syntax	ml2pl,levels ifile ofile

ml2hl	Model to height level interpolation
Syntax	ml2hl,heights ifile ofile

intlevel	Linear level interpolation
Syntax	intlevel,levels ifile ofile

inttime	Interpolation between time steps