

CDO Reference Card

Climate Data Operators
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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	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 <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
Syntax	<operator> ifiles
sinfo	Short dataset information listed by code number
sinfov	Short dataset information listed by variable name
Syntax	<operator> ifiles
diff	Compare two datasets listed by code number
diffv	Compare two datasets listed by variable name
Syntax	<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
Syntax	<operator> ifiles

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
Syntax	<operator> ifile

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

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

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
setftime	Set reference time
Syntax	setftime,date,time[,units] ifile ofile
setcalendar	Set calendar
Syntax	setcalendar,calendar ifile ofile
shifttime	Shift time steps
Syntax	shifttime,sv1 ifile ofile

File operations

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	<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
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,nets[,noffset[,nskip]] ifile oprefix

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	<operator>,c ifile ofile

Comparison

eq	Equal
ne	Not equal
le	Less equal
lt	Less than
ge	Greater equal
gt	Greater than
Syntax	<operator> ifile1 ifile2 ofile
eqc	Equal constant
neq	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

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
seltabnum	Select parameter table numbers
Syntax	seltabnum,tabnums 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 ifile ofile
setmisstoc	Set missing value to constant
Syntax	setmisstoc,<operator>,c ifile ofile

setrtomiss	Set range to missing value
Syntax	setrtomiss ifile ofile
setvrangle	Set valid range
Syntax	setvrangle,<operator>,rmin,rmax ifile ofile

Arithmetic

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
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
addc	Add a constant
subc	Subtract a constant
mulec	Multiply with a constant
divc	Divide by a constant
	Syntax
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
monadd	Add monthly time series
monsun	Subtract monthly time series
monmul	Multiply monthly time series
mondiv	Divide monthly time series
	Syntax
ymonadd	Add multi-year monthly time series
ymonsun	Subtract multi-year monthly time series
ymonmul	Multiply multi-year monthly time series
ymondiv	Divide multi-year monthly time series
	Syntax
muldpdm	Multiply with days per month
divdpdm	Divide by days per month
muldpyp	Multiply with days per year
divdpyp	Divide by days per year
	Syntax
	<operator> ifile1 ifile2 ofile
	<STAT>
	Available statistical functions
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<STAT> Zonal statistical values
Syntax
<operator> ifile ofile

zonpcl Zonal percentiles
Syntax
zonpcl,p ifile ofile

mer<STAT> Meridional statistical values
Syntax
<operator> ifile ofile

merpcl Meridional percentiles
Syntax
merpcl,p ifile ofile

gridbox<STAT> Statistical values over grid boxes
Syntax
<operator>,nx,,ny ifile ofile

vert<STAT> Vertical statistical values
Syntax
<operator> ifile ofile

timsel<STAT> Time range statistical values
Syntax
<operator>,nsets[,noffset[,nskip]] ifile ofile

timselpcl Time range percentiles
Syntax
timselpcl,p,nsets[,noffset[,nskip]] ifile1 ifile2 ifile3 ofile

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

runpcl Running percentiles
Syntax
runpcl,p,nts ifile1 ofile

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

timpcl Time percentiles
Syntax
timpcl,p ifile1 ifile2 ifile3 ofile

hour<STAT> Hourly statistical values
Syntax
<operator> ifile ofile

hourpcl Hourly percentiles
Syntax
hourpcl,p ifile1 ifile2 ifile3 ofile

day<STAT> Daily statistical values
Syntax
<operator> ifile ofile

daypcl Daily percentiles
Syntax
daypcl,p ifile1 ifile2 ifile3 ofile

mon<STAT> Monthly statistical values
Syntax
<operator> ifile ofile

monpcl Monthly percentiles
Syntax
monpcl,p ifile1 ifile2 ifile3 ofile

year<STAT> Yearly statistical values
Syntax
<operator> ifile ofile

yearpcl Yearly percentiles
Syntax
yearpcl,p ifile1 ifile2 ifile3 ofile

seas<STAT> Seasonal statistical values
Syntax
<operator> ifile ofile

seaspcl Seasonal percentiles
Syntax
seaspcl,p ifile1 ifile2 ifile3 ofile

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

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

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

ymon<STAT> Multi-year monthly statistical values
Syntax
<operator> ifile ofile

ymonpcl Multi-year monthly percentiles
Syntax
ymonpcl,p ifile1 ifile2 ifile3 ofile

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

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

ydrun<STAT> 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