CDO Ref	erence Card	File operation	
		copy	Copy datasets
	Climate Data Operators	cat Syntax	Concatenate datasets <pre><operator> ifiles ofile</operator></pre>
	Version 1.0.2		•
	September 2006	replace Syntax	Replace variables replace ifile1 ifile2 ofile
September 2000			
Jwe Schulzweida		merge mergetime	Merge datasets with different fields Merge datasets sorted by date and time
Aax-Planck-Insti	tute for Meteorology	Syntax	<pre><pre>< operator > ifiles ofile</pre></pre>
		splitcode	Split codes
		splitvar	Split variables
		splitlevel	Split levels
Syntax		splitgrid	Split grids
cdo [Options]	Operators	splitzaxis	Split zaxis
edo [Options]	Operators	splitrec Syntax	Split records <pre><operator> ifile oprefix</operator></pre>
			-
Options		splithour splitday	Split hours Split days
-a	Convert from a relative to an absolute time axis	splitmon	Split months
-b < nbits >	Set the number of bits for the output precision	splitseas	Split seasons
	(32/64 for nc, nc2, srv, ext, ieg; 1 - 32 for grb)	splityear	Split years
$-\mathbf{f} < format >$	Output file format (grb, nc, nc2, srv, ext, ieg)	Syntax	< operator > ifile oprefix
-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 > -R	Set the default missing value (default: -9e+33) Convert GRIB data from reduced to regular grid	Selection	
-n -r	Convert from an absolute to a relative time axis	selcode	Select codes
-t	Set the parameter table name or file	delcode	Delete codes
	Predefined tables: echam4 echam5 mpiom1	Syntax	$<\!operator\!>\!,codes$ ifile ofile
-V	Print the version number	selvar	Select variables
-v	Print extra details for some operators	delvar Syntax	Delete variables <pre><operator>,vars ifile ofile</operator></pre>
		selstdname	Select standard names
Operators		Syntax	selstdname,stdnames ifile ofile
perators		sellevel	Select levels
nformation		Syntax	sellevel, levels ifile ofile
info	Dataset information listed by code number	selgrid	Select grids
infov	Dataset information listed by variable name	Syntax selgridname	selgrid, grids ifile ofile
map	Dataset information and simple map	Syntax	Select grids by name selgridname, gridnames ifile ofile
Syntax	<pre><operator> ifiles</operator></pre>	selzaxis	Select zaxes
sinfo	Short dataset information listed by code number	Syntax	selzaxis,zaxes ifile ofile
sinfov	Short dataset information listed by variable name	selzaxisname	Select zaxes by name
Syntax	<pre><operator> ifile</operator></pre>	Syntax	selzaxisname,zaxisnames ifile ofile
diff diffv	Compare two datasets listed by code number	seltabnum	Select parameter table numbers
Syntax	Compare two datasets listed by variable name <pre><operator> ifile1 ifile2</operator></pre>	Syntax	seltabnum,tabnums ifile ofile Select records
		Syntax	selrec, records ifile ofile
ncode nvar	Number of codes Number of variables	seltimestep	Select time steps
nlevel	Number of variables Number of levels	Syntax	seltimestep, timesteps ifile ofile
nyear	Number of years	seltime	Select times
nmon	Number of months	Syntax	seltime, times ifile ofile
ndate	Number of dates	selhour	Select hours
ntime	Number of time steps	Syntax	selhour, hours ifile ofile
Syntax	<pre><operator> ifile</operator></pre>	selday	Select days
showcode	Show codes	Syntax	selday,days ifile ofile
showetdness	Show standard names	selmon Syntax	Select months selmon,months ifile ofile
showstdname showlevel	Show standard names Show levels	selyear	Select years
showyear	Show years	Syntax	selyear, years ifile ofile
showmon	Show months	selseas	Select seasons
showdata	Show dates	Cumtou	colcons concons ifile ofile

Syntax

Syntax

seldate

sellonlatbox Syntax

selindexbox

showdate

 $\mathbf{showtime}$

vardes griddes vct

Syntax

Show dates

Syntax < operator > ifile

Show time steps

<operator> ifile

Variable description Grid description Vertical coordinate table selseas, seasons ifile ofile

seldate,date1[,date2] ifile ofile

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

Select a longitude/latitude box sellonlatbox,lon1,lon2,lat1,lat2 ifile ofile

Select dates

Select an index box

Conditional s		setgrid	G : 11	
:fthom	Conditional selection		Set grid setgrid,grid ifile ofile	
iitnen	If then	Syntax	Set grid type	
ifnotthen	If not then	Syntax	setgridtype.gridtype ifile ofile	
Syntax	<pre><operator> ifile1 ifile2 ofile</operator></pre>		0 01 /0 //	
ifthenelse	If then else	setzaxis	Set zaxis	
Syntax	ifthenelse ifile1 ifile2 ifile3 ofile	Syntax	setzaxis,zaxis ifile ofile	
		setgatt	Set global attribute	
ifthenc	If then constant	Syntax	setgatt, attname, attstring ifile ofile	
ifnotthenc	If not then constant	setgatts	Set global attributes	
Syntax	< operator >, c ifile ofile	Syntax	setgatts,attfile ifile ofile	
		invertlat	Invert latitude	
		invertion	Invert longitude	
Comparison		invertlatdes	Invert latitude description	
Comparison		invertiondes	Invert longitude description	
eq	Equal	invertlatdata	Invert latitude data	
ne	Not equal	invertlondata	Invert longitude data	
le	Less equal	Syntax	<pre><operator> ifile ofile</operator></pre>	
lt	Less than		-	
ge	Greater equal	masklonlatbox Syntax	Mask a longitude/latitude box masklonlatbox.lon1.lon2.lat1.lat2 ifile ofile	
gt	Greater than	V	Mask an index box	
Syntax	<pre><operator> ifile1 ifile2 ofile</operator></pre>	maskindexbox		
eqc	Equal constant	Syntax	maskindexbox,idx1,idx2,idy1,idy2 ifile ofile	
nec	Not equal constant	setclonlatbox	Set a longitude/latitude box to constant	
lec	Less equal constant	Syntax	${\bf setclonlatbox}, c, lon1, lon2, lat1, lat2 \ {\tt ifile} \ {\tt ofile}$	
ltc	Less then constant	setcindexbox	Set an index box to constant	
gec	Greater equal constant	Syntax	<pre>setcindexbox,c,idx1,idx2,idy1,idy2 ifile ofile</pre>	
gtc	Greater then constant	enlarge	Enlarge fields	
Syntax	<pre>< operator >, c ifile ofile</pre>	Syntax	enlarge,grid ifile ofile	
Syntax	<pre><pre>coperator > ;e fiffe office</pre></pre>			
		setmissval	Set a new missing value	
		Syntax	setmissval,miss ifile ofile	
Modification		setctomiss	Set constant to missing value	
		setmisstoc	Set missing value to constant	
setpartab	Set parameter table	Syntax	<pre><operator>,c ifile ofile</operator></pre>	
Syntax	setpartab,table ifile ofile	setrtomiss	Set range to missing value	
setcode	Set code number	Syntax	setrtomiss,rmin,rmax ifile ofile	
Syntax	setcode,code ifile ofile			
setvar	Set variable name	Arithmetic		
Syntax	setvar,name ifile ofile			
setlevel	Set level	expr	Evaluate expressions	
Syntax	setlevel, level ifile ofile	Syntax	expr,instr ifile ofile	
setdate	Set date	exprf	Evaluate expressions from script file	
Syntax	setdate, date ifile ofile	Syntax	exprf, filename ifile ofile	
settime	Set time	abs	Absolute value	
Syntax	settime, time ifile ofile	int	Integer value	
setday	Set day	nint	Nearest integer value	
Syntax	setday,day ifile ofile	sqr	Square	
setmon	Set month	1.1		
		sqrt	Square root	
Syntax	setmon, month ifile ofile	exp	Exponential	
setyear	Set year	exp ln	Exponential Natural logarithm	
setyear Syntax	Set year setyear, year ifile ofile	exp ln log10	Exponential Natural logarithm Base 10 logarithm	
setyear Syntax settunits	Set year setyear, year ifile ofile Set time units	exp ln log10 sin	Exponential Natural logarithm Base 10 logarithm Sine	
setyear Syntax settunits Syntax	Set year setyear, year ifile ofile Set time units settunits, units ifile ofile	exp ln log10 sin cos	Exponential Natural logarithm Base 10 logarithm Sine Cosine	
setyear Syntax settunits Syntax settaxis	Set year setyear,year ifile ofile Set time units settunits,units ifile ofile Set time axis	exp In log10 sin cos tan	Exponential Natural logarithm Base 10 logarithm Sine Cosine Tangent	
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ymonadd ymonsub Add multi-year monthly time average ymonsub subtract multi-year monthly time average ymondiv timmin Time maximum timmax ymondiv Divide multi-year monthly time average ymondiv Divide multi-year monthly time average Syntax < operator > ifile1 ifile2 ofile muldpm divdpm Multiply with days per month Divide by days per month Syntax < operator > ifile ofile Multiply with days per year Multiply with days per year Mourman Hourly maximum hourman Syntax < operator > ifile ofile Syntax < operator > ifile ofile Statistical values Ensemble minimum ensmax Ensemble minimum daymax Daily minimum daymax ensmin ensmax Ensemble maximum dayymax Daily maximum daymax ensman ensway Ensemble mean Ensemble mean Daily standard deviation enswar Ensemble standard deviation Ensemble standard deviation monmin monsum Monthly maximum ensvar Ensemble standard deviation monneman Monthly maximum ensvar Ensemble standard deviation monneman Monthly maximum fldmin Field minimum fldmin Field minimum monavy Monthly standard deviation monavy Monthly standard deviation	ile tion ile
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Divide by days per year Syntax Coperator > ifile ofile Syntax Coperator > ifile ofile Syntax Syntax Syntax Coperator > ifile ofile Syntax Synta	ile on
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hourmean houravg Hourly mean Hourly mean houravg hourstd Hourly standard devia Syntax coperator> ifile of daymin daymax Daily maximum daymax Daily sum daymean Daily mean dayavg Daily sverage daystd Daily standard deviation ensmean Ensemble mean Syntax coperator> ifile of monmin Monthly minimum monsvar Ensemble variance monsvar Ensemble variance monsum Monthly sum monsum Monthly sum monsvary Monthly mean Monthly mean monavg Monthly average monstd Monthly standard deviation monavg Monthly standard deviation monavg Monthly standard deviation monavg Monthly sum monavg Monthly standard deviation monavg Monthly stand	ile on
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Syntax <operator> ifiles ofile monmean Monthly mean monavg Monthly average monstd Monthly standard devi</operator>	
fildmin Field minimum monavg Monthly average fildmax Field maximum monstd Monthly standard devi	
fidmax Field minimum monstd monthly standard devi	
numax Field maximum	ation
Company (company) if ile	
ndsum Field sum	
fidmean Field mean yearmin Yearly minimum	
fldavg Field average yearmax Yearly maximum	
fldstd Field standard deviation yearsum Yearly sum	
fldvar Field variance yearmean Yearly mean	
Syntax < operator > ifile ofile yearavg Yearly average	
zonmin Zonal minimum yearstd Yearly standard deviate	
zonmax Zonal maximum Syntax < operator > ifile of	ile
zonsum Zonal sum seasmin Seasonally minimum	
zonmean Zonal mean seasmax Seasonally maximum	
zonavg Zonal average seassum Seasonally sum	
zonstd Zonal standard deviation seasmean Seasonally mean	
zonvar Zonal variance seasavg Seasonally average	
Syntax < operator > ifile ofile seasstd Seasonally standard de	eviation
mermin Meridional minimum Syntax < operator > ifile of	ile
mermax Meridional maximum ydaymin Multi-year daily minin	nim
mersum Meridional sum ydaymax Multi-year daily maxir	
mermean Meridional mean ydaysum Multi-year daily sum	
meravg Meridional average ydaymean Multi-year daily mean	
merstd Meridional standard deviation ydayavg Multi-year daily average ydayavg Multi-year daily average was supported by the standard deviation ydayavg Multi-year daily average ydayavg ydayavg Multi-year daily average was supported by the standard deviation ydayavg was s	re
mervar Meridional variance ydaystd Multi-year daily stand	
Syntax < operator > ifile ofile Syntax < operator > ifile of	
vertmin Vertical minimum ymonmin Multi-year monthly mi	
vertmax Vertical maximum ymonmax Multi-year monthly m vertsum Vertical sum ymonsum Multi-year monthly su	
Jillotto your monethy bu	
vertmean Vertical mean ymonmean Multi-year monthly me	
vertavg Vertical average ymonavg Multi-year monthly av	~
vertstd Vertical standard deviation ymonstd Multi-year monthly sta	
Syntax < operator > ifile ofile Syntax < operator > ifile of	
selmin Time range minimum yseasmin Multi-year seasonally n	
selmax Time range maximum yseasmax Multi-year seasonally i	
selsum Time range sum yseassum Multi-year seasonally s	
selmean Time range mean yseasmean Multi-year seasonally n	
selavg Time range average yseasavg Multi-year seasonally a	
selstd Time range standard deviation yseasstd Multi-year seasonally s	
Syntax <operator>,nsets[,noffset[,nskip]] ifile ofile Syntax <operator> ifile of</operator></operator>	ile
runmin Running minimum	
runmax Running maximum	
runsum Running sum Regression	
runmean Running mean detrend Detrend	
runavg Running average Syntax detrend ifile ofile	
runstd Running standard deviation	
Syntax < operator > .nts ifile ofile trend Trend	
Syntax Syntax trend ifile ofile1	

		vardup	Duplicate variables
subtrend	Subtract trend	Syntax	vardup ifile ofile
Syntax	subtrend ifile1 ifile2 ifile3 ofile	varmul	Multiply variables
V		Syntax	varmul,nmul ifile ofile
		gradsdes1	Grads data descriptor file (version 1 Grib map)
Interpolation		gradsdes2	Grads data descriptor file (version 2 Grib map)
remapbil	Bilinear interpolation	Syntax	<pre><operator> ifile</operator></pre>
remaphic	Bicubic interpolation	rotuvb	Backward rotation
remapcon	Conservative remapping	Syntax	rotuvb,u,v, ifile ofile
remapdis	Distance-weighted averaging	mastrfu	Mass stream function
Syntax	$< operator >, grid \; {\tt ifile} \; {\tt ofile}$	Syntax	mastrfu ifile ofile

Transformation

genbil

genbic

gencon gendis

remap

ml2pl

ml2hl

inttime

intyear

interpolate

Syntax

Syntax

intgridbil

sp2gp	Spectral to gridpoint
sp2gpl	Spectral to gridpoint linear
gp2sp	Gridpoint to spectral
gp2spl	Gridpoint to spectral linear
Syntax	<pre><operator> ifile ofile</operator></pre>
sp2sp	Spectral to spectral
Syntax	${f sp2sp}, trunc$ ifile ofile
uv2dv	U and V wind to divergence and vorticity
dv2uv	Divergence and vorticity to U and V wind
Syntax	<pre>< operator > ifile ofile</pre>

Generate bilinear interpolation weights

Generate bicubic interpolation weights Generate conservative interpolation weights

remap,grid,weights ifile ofile

Model to pressure level interpolation

Model to height level interpolation

inttime, date, time[,inc] ifile ofile

Syntax < operator >, grid ifile ofile

| SCRIP grid remapping

Syntax ml2pl,plevels ifile ofile

Syntax ml2hl,hlevels ifile ofile
Time interpolation

Year interpolation
Syntax intyear, years ifile1 ifile2 oprefix

PINGO grid interpolation Bilinear grid interpolation <operator>,grid ifile ofile

Generate distance-weighted averaging weights

Formatted I/O

input	ASCII input
Syntax	input,grid ofile
inputsrv	SERVICE input
inputext	EXTRA input
Syntax	< operator > ofile
output	ASCII output
Syntax	output ifiles
outputf	Formatted output
Syntax	outputf, format, nelem ifiles
outputint	Integer output
outputsrv	SERVICE output
outputext	EXTRA output
	<pre><operator> ifiles</operator></pre>

Miscellaneous

timsort	Sort over the time
Syntax	timsort ifile ofile
const	Create a constant field
Syntax	const,const,grid ofile
random	Create a field with random values
Syntax	random.grid ofile