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
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
$-\mathbf{g} < grid >$	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) 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	<pre><operator>,codes ifile ofile</operator></pre>
-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
chowdata	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	
:fthan	Conditional selection		Set grid setgrid,grid ifile ofile	
ınıen	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 01	
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	masklonlatbox	-	
ge	Greater equal		Mask a longitude/latitude box masklonlatbox.lon1.lon2.lat1.lat2 ifile ofile	
gt	Greater than	Syntax	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	${f setclonlatbox}, c, lon1, lon2, lat1, lat2 \ {f ifile}$ of ile	
ltc	Less then constant	setcindexbox	Set an index box to constant	
gec	Greater equal constant	Syntax	$\mathbf{setcindexbox}, c, idx1, idx2, idy1, idy2 \ \mathtt{ifile} \ \mathtt{ofile}$	
gtc	Greater equal constant Greater then constant	enlarge	Enlarge fields	
Syntax	<pre><pre>coperator >, c ifile ofile</pre></pre>	Syntax	enlarge,grid ifile ofile	
Syntax	Coperator > ,e IIIIe offic			
		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	sqrt	Square root	
α .	setmon, month ifile ofile		1	
Syntax		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	
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ymonadd ymonad				
Symondiv Multiply multi-year monthly time average Private monthly time average Coperator > 1f11e 1f11e2 of11e	ymonadd	Add multi-year monthly time average	timmin	Time minimum
Syntax Coperator > 111le of 112e Commin Coperator > 111le of 112e Coperator	ymonsub	Subtract multi-year monthly time average	timmax	Time maximum
Multiply with days per month widying multiply with days per year Divide by days per year Divide	ymonmul	Multiply multi-year monthly time average	timsum	Time sum
Multiply with days per month Working Wor	ymondiv	Divide multi-year monthly time average	timmean	Time mean
Syntax S	Syntax	< operator > ifile1 ifile2 ofile	timavg	Time average
Syntax S	muldpm	Multiply with days per month		
Multipy with days per year Divide by days per year Syntax Coperator > ifile ofile			Syntax	<pre><operator> ifile ofile</operator></pre>
Syntax Coperator > ifile of ile Noursum Nourmean Nourmea			hourmin	Hourly minimum
Statistical values ensmin Ensemble minimum Ensemble minimum Ensemble mean Ensemble me	divdpy	Divide by days per year	hourmax	Hourly maximum
Statistical value	Syntax	<pre><operator> ifile ofile</operator></pre>	hoursum	Hourly sum
Scatistical value Sca			hourmean	Hourly mean
Statistical values ensmin Ensemble minimum Canymin			houravg	Hourly average
daymin Daily minimum Daily maximum Maximum Monthly maximum Month				
ensmin Ensemble minimum ensmax Ensemble maximum ensmax Ensemble maximum ensmax Ensemble maximum ensman Ensemble sum ensmat Ensemble standard deviation ensvar Ensemble standard deviation ensvar Ensemble standard deviation Syntax < operator> ifile ofile monmin Monthly minimum monmax Monthly maximum monmum Monthly sum monmum Monthly sum monmum Monthly warage monstd Field maximum fldmax Field standard deviation fldwar Field standard deviation fldwar Field standard deviation gonmax coperator> ifile ofile zonmin Zonal minimum zonsum Zonal minimum zonsum Zonal warage zonmax Zonal warage yearst Conal standard deviation zonwar Zonal variance Syntax < operator> ifile ofile zonmax (operator> ifile ofile zonwar (operator> ifile ofile wertmin Meridonal minimum merman Meridonal minimum merman Meridonal maximum merman Meridonal awarage merava Meridonal awarage merava Meridonal awarage wertstd Wertical maximum wortmax Vertical maximum vertmax Vertical minimum vertmax Vertical maximum vertmax Vertical maximum vertmax Vertical maximum mermen Meridonal awarage wertstd Vertical minimum vertmax Vertical maximum vertmax Vertical standard deviation mervar Meridonal avariance Syntax < operator> ifile ofile vertstd Vertical minimum vertmax Vertical maximum vertmax Vertical standard deviation mervar minimum wertmax Vertical maximum vertmax Vertical maximum mermen Meridonal wariance Syntax < operator> ifile ofile vertstd Vertical minimum vertmax Vertical sum vertmen Vertical maximum mermen Minimum vertmax Vertical maximum vertmax Vertical maximum mermax Meridonal promap warage ymonstd Wulti-year daily maximum ydaymax ydaysty ydaysty ydaysty ydaysty ydaysty yound ydaysty yo			Syntax	<pre><operator> ifile ofile</operator></pre>
ensmin Ensemble minimum Ensemble minimum Ensemble maximum Ensemble mean Ensemble mean Ensemble mean Ensemble mean Ensemble warage Ensemble variance			daymin	Daily minimum
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cussmax Ensemble sum Ensemble average Ensemble average Ensemble variance Syntax operator > fitle ofile monmax monsum Monthly sum Syntax operator > file ofile yearnin yearnay yearsum yearly surage yearnay Syntax operator > file ofile samm was monsum Monthly sum monsum Monthly sum Monthly sum Monthly sum Monthly sum Monthly sum Monthly sum Syntax operator > file ofile yearnin yearnay Monthly sum Seasonally maximum seasum Merdional maximum Monthly samay Seasonally sandard deviation Syntax operator > file ofile yearnay seasonal Multi-year daily average yearnay wertum Wertical maximum Wertical maximum Wertical maximum Wertical maximum Wertical maximum Wertical maximum Monthly seasonally maximum Multi-year monthly mean Multi-year monthly maximum Multi-y	otatisticai va	ucs	daysum	Daily sum
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fidavg Field standard deviation Field variance Fi			vearmin	Yearly minimum
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Zonalmin	Syntax	<pre><operator> ifile ofile</operator></pre>		
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Interpolation

remapbil	Bilinear interpolation
remapbic	Bicubic interpolation
remapcon	Conservative remapping
remapdis	Distance-weighted averaging
Syntax	$< operator >, grid \; {\tt ifile} \; {\tt ofile}$
genbil	Generate bilinear interpolation weights
genbic	Generate bicubic interpolation weights
gencon	Generate conservative interpolation weights
gendis	Generate distance-weighted averaging weights
Syntax	<pre><operator>,grid ifile ofile</operator></pre>
remap	SCRIP grid remapping
Syntax	remap,grid,weights ifile ofile
interpolate	PINGO grid interpolation
intgridbil	Bilinear grid interpolation
Syntax	$< operator >, grid \ \ $ ifile ofile
ml2pl	Model to pressure level interpolation
Syntax	ml2pl,plevels ifile ofile
ml2hl	Model to height level interpolation
Syntax	ml2hl, hlevels ifile ofile
inttime	Time interpolation
Syntax	<pre>inttime,date,time[,inc] ifile ofile</pre>
intyear	Year interpolation
Svntax	intyear, years ifile1 ifile2 oprefix

gradsdes1 GrADS data descriptor file (version 1 GRIB map) GrADS data descriptor file (version 2 GRIB map) gradsdes2 Syntax | < operator > ifile

-	
rotuvb	Backward rotation
Syntax	rotuvb,u,v, ifile ofile

mastrfu	Mass stream function
Syntax	mastrfu ifile ofile

Transformation

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

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
Syntax	<pre>< operator > ifiles</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
vardup	Duplicate variables
Syntax	vardup ifile ofile
varmul	Multiply variables
Syntax	varmul,nmul ifile ofile