

CDO Reference Card

Climate Data Operator
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https://code.mpimet.mpg.de/projects/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 (18/116/132/F32/F64 for nc1,nc2,nc4,nc4c; F32/F64 for grb2,srv,ext,ieg; 1-24 for grb1,grb2) |
| -f <format> | Add L or B for Little or Big endian byteorder |
| -g <grid> | Outputformat: grb1,grb2,nc1,nc2,nc4,nc4c,srv,ext,ieg Grid or file name Grid names: r<NX>x<NY>, n<N>, gme<NI> |
| -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) |
| -O | Overwrite existing output file, if checked |
| -R | Convert GRIB1 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 zip | SZIP compression of GRIB1 records |

Operators

Information

| | |
|-------------|--|
| info | Dataset information listed by parameter identifier |
| infon | Dataset information listed by parameter name |
| map | Dataset information and simple map |
| <operator> | infiles |
| sinfo | Short information listed by parameter identifier |
| sinfon | Short information listed by parameter name |
| <operator> | infiles |
| diff | Compare two datasets listed by parameter id |
| diffn | Compare two datasets listed by parameter name |
| <operator> | [,options] infile1 infile2 |
| npar | Number of parameters |
| nlevel | Number of levels |
| nyear | Number of years |
| nmon | Number of months |
| ndate | Number of dates |
| ntime | Number of timesteps |
| ngridpoints | Number of gridpoints |
| ngrids | Number of horizontal grids |
| <operator> | infile |

| | |
|-------------------------|---|
| showformat | Show file format |
| showcode | Show code numbers |
| showname | Show variable names |
| showstdname | Show standard names |
| showatts | Show all attributes |
| showattsglob | Show all global attributes |
| 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 |
| <operator> | infile |
| showattribute | Show a global attribute or a variable attribute |
| showattribute,attribute | infile |
| showattsvar | Show all variable attributes. |
| showattsvar[,var_nm] | infile |
| partab | Parameter table |
| codetab | Parameter code table |
| griddes | Grid description |
| zaxisdes | Z-axis description |
| vct | Vertical coordinate table |
| <operator> | infile |

File operations

| | |
|----------------------------------|--|
| copy | Copy datasets |
| cat | Concatenate datasets |
| <operator> | infiles outfile |
| tee | Duplicate a data stream |
| tee,outfile2 | infile outfile1 |
| replace | Replace variables |
| replace | infile1 infile2 outfile |
| duplicate | Duplicates a dataset |
| duplicate[,ndup] | infile outfile |
| mergegrid | Merge grid |
| mergegrid | infile1 infile2 outfile |
| merge | Merge datasets with different fields |
| mergetime | Merge datasets sorted by date and time |
| <operator> | infiles outfile |
| splitcode | Split code numbers |
| splitparam | Split parameter identifiers |
| splitname | Split variable names |
| splitlevel | Split levels |
| splitgrid | Split grids |
| splitzaxis | Split z-axes |
| splittabnum | Split parameter table numbers |
| <operator> | [,params] infile obase |
| splitlhour | Split hours |
| splitday | Split days |
| splitseas | Split seasons |
| splityear | Split years |
| splityearmon | Split in years and months |
| <operator> | infile obase |
| splitmon | Split months |
| splitmon[,format] | infile obase |
| splitsel | Split time selection |
| splitsel,nsets[,noffset[,nskip]] | infile obase |
| distgrid | Distribute horizontal grid |
| distgrid,nx[,ny] | infile obase |
| collgrid | Collect horizontal grid |
| collgrid[,nx[,names]] | infiles outfile |

Selection

| | |
|-----------------------------|--|
| select | Select fields |
| delete | Delete fields |
| <operator> | ,params infile outfile |
| selmulti | Select multiple fields |
| delmulti | Delete multiple fields |
| changemulti | Change identification of multiple fields |
| <operator> | ,selection-specification infile outfile |
| selparam | Select parameters by identifier |
| delparam | Delete parameters by identifier |
| <operator> | ,params infile outfile |
| selcode | Select parameters by code number |
| delcode | Delete parameters by code number |
| <operator> | ,codes infile outfile |
| selname | Select parameters by name |
| delname | Delete parameters by name |
| <operator> | ,names infile outfile |
| selstdname | Select parameters by standard name |
| selstdname,stdnames | infile outfile |
| sellevel | Select levels |
| sellevel,levels | infile outfile |
| sellevidx | Select levels by index |
| sellevidx,levidx | infile outfile |
| selgrid | Select grids |
| selgrid,grids | infile outfile |
| selzaxis | Select z-axes |
| selzaxis,zaxes | infile outfile |
| selzaxisname | Select z-axes by name |
| selzaxisname,zaxisnames | infile outfile |
| selltype | Select GRIB level types |
| selltype,ltypes | infile outfile |
| seltabnum | Select parameter table numbers |
| seltabnum,tabnums | infile outfile |
| sel timestep | Select timesteps |
| sel timestep,timesteps | infile outfile |
| seltime | Select times |
| seltime,times | infile outfile |
| selhour | Select hours |
| selhour,hours | infile outfile |
| selday | Select days |
| selday,days | infile outfile |
| selmonth | Select months |
| selmonth,months | infile outfile |
| selyear | Select years |
| selyear,years | infile outfile |
| selseason | Select seasons |
| selseason,seasons | infile outfile |
| seldate | Select dates |
| seldate,startdate[,enddate] | infile outfile |
| selsmon | Select single month |
| selsmon,month[,nts1[,nts2]] | infile outfile |

| | |
|-----------------------------------|---------------------------------|
| sel lonlatbox | Select a longitude/latitude box |
| sel lonlatbox,lon1,lon2,lat1,lat2 | infile outfile |
| sel indexbox | Select an index box |
| sel indexbox,idx1,idx2,idy1,idy2 | infile outfile |

| | |
|--------------|-------------------------|
| sel gridcell | Select grid cells |
| del gridcell | Delete grid cells |
| <operator> | ,indexes infile outfile |

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|-------------------|----------------|
| samplegrid | Resample grid |
| samplegrid,factor | infile outfile |

Conditional selection

| | |
|------------|---------------------------------|
| ifthen | If then |
| ifnotthen | If not then |
| <operator> | infile1 infile2 outfile |
| ifthenelse | If then else |
| ifthenelse | infile1 infile2 infile3 outfile |

| | |
|-------------------------------------|--|
| ifthen | If then constant |
| ifnotthen | If not then constant |
| <operator> | ,c infile outfile |
| reducegrid | Reduce input file variables to locations, where mask |
| reducegrid,mask[,limitCoordsOutput] | infile outfile |

Comparison

| | |
|------------|-------------------------|
| eq | Equal |
| ne | Not equal |
| le | Less equal |
| lt | Less than |
| ge | Greater equal |
| gt | Greater than |
| <operator> | infile1 infile2 outfile |
| eqc | Equal constant |
| ne | Not equal constant |
| lec | Less equal constant |
| ltc | Less than constant |
| gec | Greater equal constant |
| gtc | Greater than constant |
| <operator> | ,c infile outfile |

Modification

| | |
|------------------------------|---------------------------------|
| setattribute | Set attributes |
| setattribute,attributes | infile outfile |
| setpartabp | Set parameter table |
| setpartabn | Set parameter table |
| <operator> | ,table[,convert] infile outfile |
| setcodetab | Set parameter code table |
| setcodetab,table | infile outfile |
| setcode | Set code number |
| setcode,code | infile outfile |
| setparam | Set parameter identifier |
| setparam,param | infile outfile |
| setname | Set variable name |
| setname,name | infile outfile |
| setunit | Set variable unit |
| setunit,unit | infile outfile |
| setlevel | Set level |
| setlevel,level | infile outfile |
| setltype | Set GRIB level type |
| setltype,ltype | infile outfile |
| setdate | Set date |
| setdate,date | infile outfile |
| settime | Set time of the day |
| settime,time | infile outfile |
| setday | Set day |
| setday,day | infile outfile |
| setmon | Set month |
| setmon,month | infile outfile |
| setyear | Set year |
| setyear,year | infile outfile |
| setunits | Set time units |
| setunits,units | infile outfile |
| settaxis | Set time axis |
| settaxis,date,time[,inc] | infile outfile |
| settbounds | Set time bounds |
| settbounds,frequency | infile outfile |
| setreftime | Set reference time |
| setreftime,date,time[,units] | infile outfile |
| setcalendar | Set calendar |
| setcalendar,calendar | infile outfile |
| shifttime | Shift timesteps |
| shifttime,sval | infile outfile |

| | |
|--------------------------------------|------------------------------------|
| chcode | Change code number |
| chcode,oldcode,newcode[,...] | infile outfile |
| chparam | Change parameter identifier |
| chparam,oldparam,newparam,... | infile outfile |
| chname | Change variable or coordinate name |
| chname,oldname,newname,... | infile outfile |
| chunit | Change variable unit |
| chunit,oldunit,newunit,... | infile outfile |
| chlevel | Change level |
| chlevel,oldlev,newlev,... | infile outfile |
| chlevelc | Change level of one code |
| chlevelc,code,oldlev,newlev | infile outfile |
| chlevelv | Change level of one variable |
| chlevelv,name,oldlev,newlev | infile outfile |

| | |
|-----------------------------|-----------------------|
| setgrid | Set grid |
| setgrid,grid | infile outfile |
| setgridtype | Set grid type |
| setgridtype,gridtype | infile outfile |
| setgridarea | Set grid cell area |
| setgridarea,gridarea | infile outfile |
| setgridmask | Set grid mask |
| setgridmask,gridmask | infile outfile |

| | |
|-------------------------------------|-----------------------|
| setzaxis | Set z-axis |
| setzaxis,zaxis | infile outfile |
| genlevelbound | Generate level bounds |
| genlevelbounds[,zbot[,ztop]] | infile outfile |

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|------------------|-----------------------|
| invertlat | Invert latitudes |
| invertlat | infile outfile |

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|------------------|-----------------------|
| invertlev | Invert levels |
| invertlev | infile outfile |

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|---|-----------------------|
| shiftx | Shift x |
| shifty | Shift y |
| < operator > ,<i>n</i>shift<i>i</i> ,<i>j</i>cyclic<i>i</i> ,<i>j</i>coord<i>i</i> | infile outfile |

| | |
|---------------------------|-----------------------|
| maskregion | Mask regions |
| maskregion,regions | infile outfile |

| | |
|--|-------------------------------|
| masklonlatbox | Mask a longitude/latitude box |
| masklonlatbox,lon1,lon2,lat1,lat2 | infile outfile |
| maskindexbox | Mask an index box |
| maskindexbox,idx1,idx2,idy1,idy2 | infile outfile |

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|--|--|
| setclonlatbox | Set a longitude/latitude box to constant |
| setclonlatbox,c,lon1,lon2,lat1,lat2 | infile outfile |
| setcindexbox | Set an index box to constant |
| setcindexbox,c,idx1,idx2,idy1,idy2 | infile outfile |

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|---------------------|-----------------------|
| enlarge | Enlarge fields |
| enlarge,grid | infile outfile |

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|--|--|
| setmissval | Set a new missing value |
| setmissval,newmiss | infile outfile |
| setctomiss | Set constant to missing value |
| setmisstoc | Set missing value to constant |
| < operator > ,<i>c</i> | infile outfile |
| setrtomiss | Set range to missing value |
| setvrange | Set valid range |
| < operator > ,<i>rmin</i>,<i>rmax</i> | infile outfile |
| setmisstonn | Set missing value to nearest neighbor |
| setmisstonn | infile outfile |
| setmisstodis | Set missing value to distance-weighted average |
| setmisstodis[,neighbors] | infile outfile |

Arithmetic

| | |
|------------------------|---|
| expr | Evaluate expressions |
| expr,instr | infile outfile |
| exprf | Evaluate expressions script |
| exprf,filename | infile outfile |
| aexpr | Evaluate expressions and append results |
| aexpr,instr | infile outfile |
| aexprf | Evaluate expression script and append results |
| aexprf,filename | infile outfile |

| | |
|---------------------------|-----------------------|
| 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 |
| atan | Arc tangent |
| reci | Reciprocal value |
| not | Logical NOT |
| < operator > | infile outfile |

| | |
|-------------------------------------|-----------------------------------|
| addc | Add a constant |
| subc | Subtract a constant |
| mulc | Multiply with a constant |
| divc | Divide by a constant |
| minc | Minimum of a field and a constant |
| maxc | Maximum of a field and a constant |
| < operator > ,<i>c</i> | infile outfile |

| | |
|---------------------------|--------------------------------|
| 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 |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|--------------------------------|
| monadd | Add monthly time series |
| monsub | Subtract monthly time series |
| monmul | Multiply monthly time series |
| mondiv | Divide monthly time series |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|--|
| yhouradd | Add multi-year hourly time series |
| yhoursub | Subtract multi-year hourly time series |
| yhourmul | Multiply multi-year hourly time series |
| yhourdiv | Divide multi-year hourly time series |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|---------------------------------------|
| ydayadd | Add multi-year daily time series |
| ydaysub | Subtract multi-year daily time series |
| ydaymul | Multiply multi-year daily time series |
| ydaydiv | Divide multi-year daily time series |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|---|
| 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 |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|--|
| yseasadd | Add multi-year seasonal time series |
| yseassub | Subtract multi-year seasonal time series |
| yseasmul | Multiply multi-year seasonal time series |
| yseasdiv | Divide multi-year seasonal time series |
| < operator > | infile1 infile2 outfile |

| | |
|---------------------------|------------------------------|
| muldpm | Multiply with days per month |
| divdpm | Divide by days per month |
| muldpy | Multiply with days per year |
| divdpy | Divide by days per year |
| < operator > | infile outfile |

Statistical values

| | |
|--|-----------------------|
| Available statistical functions | < stat > |
| minimum | min |
| maximum | max |
| range | range |
| sum | sum |
| mean | mean |
| average | avg |
| variance | var, var1 |
| standard deviation | std, std1 |

| | |
|------------------|-----------------------------------|
| timcumsum | Cumulative sum over all timesteps |
| timcumsum | infile outfile |

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|---------------------------|-----------------------|
| consects | Consecutive Timesteps |
| < operator > | infile outfile |

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|---------------------------|---------------------------------------|
| vars< stat > | Statistical values over all variables |
| < operator > | infile outfile |

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|---------------------------|-------------------------------------|
| ens< stat > | Statistical values over an ensemble |
| < operator > | infiles outfile |
| enspctl | Ensemble percentiles |
| enspctl,p | infiles outfile |

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|---------------------------|---|
| ensrkhistspace | Ranked Histogram averaged over time |
| ensrkhisttime | Ranked Histogram averaged over space |
| ensroc | Ensemble Receiver Operating characteristics |
| < operator > | obsfile ensfiles outfile |

| | |
|-----------------------|---------------------------------|
| enscrps | Ensemble CRPS and decomposition |
| enscrps rfile | infiles outfilebase |
| ensbrs | Ensemble Brier score |
| ensbrs,x rfile | infiles outfilebase |

| | |
|---|---------------------------------|
| fld< stat > | Statistical values over a field |
| < operator > ,<i>weights</i> | infile outfile |
| fldpctl | Field percentiles |
| fldpctl,p | infile outfile |

| | |
|---------------------------|--------------------------|
| zon< stat > | Zonal statistical values |
| < operator > | infile outfile |
| zonpctl | Zonal percentiles |
| zonpctl,p | infile outfile |

| | |
|---------------------------|-------------------------------|
| mer< stat > | Meridional statistical values |
| < operator > | infile outfile |
| merpctl | Meridional percentiles |
| merpctl,p | infile outfile |

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|--|------------------------------------|
| gridbox< stat > | Statistical values over grid boxes |
| < operator > ,<i>nx</i>,<i>ny</i> | infile outfile |

| | |
|---|-----------------------------|
| vert< stat > | Vertical statistical values |
| < operator > ,<i>weights</i> | infile outfile |

| | |
|---|-------------------------------|
| timsel< stat > | Time range statistical values |
| < operator > ,<i>nsets</i> [,<i>noffset</i> [,<i>nskip</i>]] | infile outfile |

| | |
|--|--|
| timselfpctl | Time range percentiles |
| timselfpctl,p,nsets [,noffset [,nskip]] | infile1 infile2 infile3 outfile |

| | |
|---------------------------------------|----------------------------|
| run< stat > | Running statistical values |
| < operator > ,<i>nts</i> | infile outfile |

| | |
|----------------------|-----------------------|
| runpctl | Running percentiles |
| runpctl,p,nts | infile outfile |

| | |
|---------------------------|---------------------------------------|
| tim< stat > | Statistical values over all timesteps |
| < operator > | infile outfile |

| | |
|------------------|--|
| timpctl | Time percentiles |
| timpctl,p | infile1 infile2 infile3 outfile |

| | |
|---------------------------|---------------------------|
| hour< stat > | Hourly statistical values |
| < operator > | infile outfile |

| | |
|-------------------|--|
| hourpctl | Hourly percentiles |
| hourpctl,p | infile1 infile2 infile3 outfile |

| | |
|---------------------------|--------------------------|
| day< stat > | Daily statistical values |
| < operator > | infile outfile |

| | |
|------------------|--|
| daypctl | Daily percentiles |
| daypctl,p | infile1 infile2 infile3 outfile |

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|---------------------------|----------------------------|
| mon< stat > | Monthly statistical values |
| < operator > | infile outfile |

| | |
|------------------|--|
| monpctl | Monthly percentiles |
| monpctl,p | infile1 infile2 infile3 outfile |

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|--------------------|-------------------------------|
| yearmonmean | Yearly mean from monthly data |
| yearmonmean | infile outfile |

| | |
|---------------------------|---------------------------|
| year< stat > | Yearly statistical values |
| yearminidx | Yearly minimum indices |
| yearmaxidx | Yearly maximum indices |
| < operator > | infile outfile |

| | |
|-------------------|--|
| yearpctl | Yearly percentiles |
| yearpctl,p | infile1 infile2 infile3 outfile |

| | |
|---------------------------|-----------------------------|
| seas< stat > | Seasonal statistical values |
| < operator > | infile outfile |

| | |
|-------------------|--|
| seaspctl | Seasonal percentiles |
| seaspctl,p | infile1 infile2 infile3 outfile |

| | |
|----------------------------|--------------------------------------|
| yhour< stat > | Multi-year hourly statistical values |
| < operator > | infile outfile |

| | |
|----------------------------|-------------------------------------|
| dhour< stat > | Multi-day hourly statistical values |
| < operator > | infile outfile |

| | |
|---------------------------|-------------------------------------|
| yday< stat > | Multi-year daily statistical values |
| < operator > | infile outfile |

| | |
|-------------------|--|
| ydaypctl | Multi-year daily percentiles |
| ydaypctl,p | infile1 infile2 infile3 outfile |

| | |
|---------------------------|---------------------------------------|
| ymon< stat > | Multi-year monthly statistical values |
| < operator > | infile outfile |

| | |
|-------------------|--|
| ymonpctl | Multi-year monthly percentiles |
| ymonpctl,p | infile1 infile2 infile3 outfile |

| | |
|----------------------------|--|
| yseas< stat > | Multi-year seasonal statistical values |
| < operator > | infile outfile |

| | |
|--------------------|--|
| yseaspctl | Multi-year seasonal percentiles |
| yseaspctl,p | infile1 infile2 infile3 outfile |

| | |
|---------------------------------------|---|
| ydrun< stat > | Multi-year daily running statistical values |
| < operator > ,<i>nts</i> | infile outfile |

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|------------------------|--|
| ydrunpctl | Multi-year daily running percentiles |
| ydrunpctl,p,nts | infile1 infile2 infile3 outfile |

Correlation and co.

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|---------------|--------------------------------|
| fldcor | Correlation in grid space |
| fldcor | infile1 infile2 outfile |

| | |
|---------------|--------------------------------|
| timcor | Correlation over time |
| timcor | infile1 infile2 outfile |

| | |
|-----------------|--------------------------------|
| fldcovar | Covariance in grid space |
| fldcovar | infile1 infile2 outfile |

| | |
|-----------------|--------------------------------|
| timcovar | Covariance over time |
| timcovar | infile1 infile2 outfile |

Regression

| | |
|---------------|-----------------------|
| regres | Regression |
| regres | infile outfile |

| | |
|----------------|-----------------------|
| detrend | Detrend |
| detrend | infile outfile |

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|--------------|---------------------------------|
| trend | Trend |
| trend | infile outfile1 outfile2 |

| | |
|-----------------|--|
| subtrend | Subtract trend |
| subtrend | infile1 infile2 infile3 outfile |

EOFs

| | |
|---|--|
| eof | Calculate EOFs in spatial or time space |
| eoftime | Calculate EOFs in time space |
| eofspatial | Calculate EOFs in spatial space |
| eof3d | Calculate 3-Dimensional EOFs in time space |
| < operator > ,neof infile outfile1 outfile2 | |
| eofcoeff | Calculate principal coefficients of EOFs |
| eofcoeff infile1 infile2 obase | |

Interpolation

| | |
|--|--|
| remapbil | Bilinear interpolation |
| genbil | Generate bilinear interpolation weights |
| < operator > ,grid infile outfile | |
| remapbic | Bicubic interpolation |
| genbic | Generate bicubic interpolation weights |
| < operator > ,grid infile outfile | |
| remapnn | Nearest neighbor remapping |
| gennn | Generate nearest neighbor remap weights |
| < operator > ,grid infile outfile | |
| remapdis | Distance-weighted average remapping |
| remapdis,grid[,neighbors] | infile outfile |
| gendis | Generate distance-weighted average remap weights |
| gendis,grid infile outfile | |
| remapcon | First order conservative remapping |
| gencon | Generate 1st order conservative remap weights |
| < operator > ,grid infile outfile | |
| remapcon2 | Second order conservative remapping |
| gencon2 | Generate 2nd order conservative remap weights |
| < operator > ,grid infile outfile | |
| remaplaf | Largest area fraction remapping |
| genlaf | Generate largest area fraction remap weights |
| < operator > ,grid infile outfile | |
| remap | Grid remapping |
| remap,grid,weights infile outfile | |
| remapeta | Remap vertical hybrid level |
| remapeta,vct[,oro] infile outfile | |

| | |
|-------------------------------------|--|
| ml2pl | Model to pressure level interpolation |
| ml2pl,plevels infile outfile | |
| ml2hl | Model to height level interpolation |
| ml2hl,hlevels infile outfile | |
| ap2pl | Air pressure to pressure level interpolation |
| ap2pl,plevels infile outfile | |
| ap2hl | Air pressure to height level interpolation |
| ap2hl,hlevels infile outfile | |

| | |
|---------------------------------------|----------------------------|
| intlevel | Linear level interpolation |
| intlevel,levels infile outfile | |

| | |
|---|--|
| intlevel3d | Linear level interpolation onto a 3d vertical coordinate |
| intlevelx3d | like intlevel3d but with extrapolation |
| < operator > ,icoordinate infile1 infile2 outfile | |

| | |
|---|---------------------------------|
| inttime | Interpolation between timesteps |
| inttime,date,time[,inc] infile outfile | |
| intntime | Interpolation between timesteps |
| intntime,n infile outfile | |

| | |
|--|---------------------------------|
| intyear | Interpolation between two years |
| intyear,years infile1 infile2 obase | |

Transformation

| | |
|---|-----------------------|
| sp2gp | Spectral to gridpoint |
| gp2sp | Gridpoint to spectral |
| < operator > [,gridtype] infile outfile | |

| | |
|-----------------------------------|----------------------|
| sp2sp | Spectral to spectral |
| sp2sp,trunc infile outfile | |

| | |
|-----------------------------|---|
| dv2ps | D and V to velocity potential and stream function |
| dv2ps infile outfile | |

| | |
|---|--|
| dv2uv | Divergence and vorticity to U and V wind |
| uv2dv | U and V wind to divergence and vorticity |
| < operator > [,gridtype] infile outfile | |

| | |
|---------------------------------------|------------------------|
| fourier | Fourier transformation |
| fourier,epsilon infile outfile | |

Import/Export

| | |
|-------------------------------------|-------------------------|
| import_binary | Import binary data sets |
| import_binary infile outfile | |

| | |
|------------------------------------|--------------------------|
| import_cmsaf | Import CM-SAF HDF5 files |
| import_cmsaf infile outfile | |

| | |
|-----------------------------------|--------------------------|
| import_amsr | Import AMSR binary files |
| import_amsr infile outfile | |

| | |
|-----------------------------------|---------------------|
| input | ASCII input |
| input,grid[,zaxis] outfile | |
| inputsrv | SERVICE ASCII input |
| inputext | EXTRA ASCII input |
| < operator > outfile | |

| | |
|---------------------------------------|----------------------|
| output | ASCII output |
| output infiles | |
| outputf | Formatted output |
| outputf,format[,nelem] infiles | |
| outputint | Integer output |
| outputsrv | SERVICE ASCII output |
| outputext | EXTRA ASCII output |
| < operator > infiles | |

| | |
|---|--------------|
| outputtab | Table output |
| outputtab,params infiles outfile | |

| | |
|---------------------|-----------------------------|
| gmtxyz | GMT xyz format |
| gmtcells | GMT multiple segment format |
| < operator > infile | |

Miscellaneous

| | |
|-------------------------------------|----------------------------|
| gradsdes | GrADS data descriptor file |
| gradsdes[,mapversion] infile | |

| | |
|------------------------------------|-------------------------------|
| after | ECHAM standard post processor |
| after[,vct] infiles outfile | |

| | |
|--|--------------------|
| bandpass | Bandpass filtering |
| bandpass,fmin,fmax infile outfile | |
| lowpass | Lowpass filtering |
| lowpass,fmax infile outfile | |
| highpass | Highpass filtering |
| highpass,fmin infile outfile | |

| | |
|-----------------------------|-------------------|
| gridarea | Grid cell area |
| gridweights | Grid cell weights |
| < operator > infile outfile | |

| | |
|--|--------------------|
| smooth | Smooth grid points |
| smooth[,options] infile outfile | |
| smooth9 | 9 point smoothing |
| smooth9 infile outfile | |

| | |
|---|---|
| setvals | Set list of old values to new values |
| setvals,oldval,newval[,...] infile outfile | |
| setrtoc | Set range to constant |
| setrtoc,rmin,rmax,c infile outfile | |
| setrtoc2 | Set range to constant others to constant2 |
| setrtoc2,rmin,rmax,c,c2 infile outfile | |

| | |
|-------------------------------|--------------------|
| timsort | Sort over the time |
| timsort infile outfile | |

| | |
|------------------------------------|---|
| const | Create a constant field |
| const,const,grid outfile | |
| random | Create a field with random numbers |
| random,grid[,seed] outfile | |
| topo | Create a field with topography |
| topo[,grid] outfile | |
| seq | Create a time series |
| seq,start,end[,inc] outfile | |
| stdatm | Create values for pressure and temperature for hydrostatic atmosphere |
| stdatm,levels outfile | |

| | |
|--|-------------------------------------|
| uvDestag | Destaggering of u/v wind components |
| uvDestag,u,v[,./+0.5[,./+0.5]] infile outfile | |
| rotuvNorth | Rotate u/v wind to North pole. |
| projuvLatLon | Cylindrical Equidistant projection |
| < operator > ,u,v infile outfile | |

| | |
|--------------------------------------|-------------------|
| rotuvb | Backward rotation |
| rotuvb,u,v,... infile outfile | |

| | |
|-------------------------------|----------------------|
| mastrfu | Mass stream function |
| mastrfu infile outfile | |

| | |
|--|--------------------|
| sealevelpressu | Sea level pressure |
| sealevelpressure infile outfile | |

| | |
|---|--|
| adisit | Potential temperature to in-situ temperature |
| adisit[,pressure] infile outfile | |
| adipot | In-situ temperature to potential temperature |
| adipot infile outfile | |

| | |
|---|------------------------------|
| rhopot | Calculates potential density |
| rhopot[,pressure] infile outfile | |

| | |
|-------------------------------------|---------------------|
| histcount | Histogram count |
| histsum | Histogram sum |
| histmean | Histogram mean |
| histfreq | Histogram frequency |
| < operator > ,bounds infile outfile | |

| | |
|---|--|
| sethalo | Set the left and right bounds of a field |
| sethalo,lhalo,rhalo infile outfile | |

| | |
|------------------------------------|-----------------------|
| wct | Windchill temperature |
| wct infile1 infile2 outfile | |

| | |
|-------------------------------------|--|
| fdns | Frost days where no snow index per time period |
| fdns infile1 infile2 outfile | |

| | |
|----------------------------------|--|
| strwin | Strong wind days index per time period |
| strwin[,v] infile outfile | |

| | |
|------------------------------|--|
| strbre | Strong breeze days index per time period |
| strbre infile outfile | |

| | |
|------------------------------|--|
| strgal | Strong gale days index per time period |
| strgal infile outfile | |

| | |
|----------------------------|--------------------------------------|
| hurr | Hurricane days index per time period |
| hurr infile outfile | |

| | |
|--|-----------|
| cmorlite | CMOR lite |
| cmorlite,table[,convert] infile outfile | |

NCL

| | |
|---|------------------------------------|
| uv2vr.cfd | U and V wind to relative vorticity |
| uv2dv.cfd | U and V wind to divergence |
| < operator > [,u,v,boundOpt,outMode] infile outfile | |