

NAME

makepar – helper application auto-generates custom C-shell script run.csh for data and Green's function processing and MT inversion.

SYNOPSIS

```
makepar date="YYYY-MM-ddTHH24:mm:ss.sss" com="New Region Comment" lf=(float) hf=(float) min-
snr=(float) ctol=(float) maxshift=(float) [no]gmt5 [no]fullmt DataDir=(string) RespDir=(string) [no]oracle
[no]mysql [no]sqlite [no]verbose *.glib
```

DESCRIPTION

This helper application auto-generates custom C-shell scripts **run.csh** and **run2.csh** that contain commands and workflow for data and Green's function processing and MT inversion. Another helper application at the end of run.csh called mtbestfit auto-generates custom C-shell script run2.csh because the one created here is just a template. The run.csh file should be further customized manually through iteration using the workflow (see manual).

NOTE! Due to possible extensive customization of the file run.csh by the user, makepar will not overwrite any existing run.csh and run2.csh scripts. The user must delete or rename any pre-existing run.csh manually for safety and rerun makepar.

REQUIRED PARAMETERS

glib={string}

Green's function library file (*.glib)

date={string}

Origin Time in exact format: YYYY/MM/dd,HH24:mm:ss.sss or YYYY-MM-ddTHH24:mm:ss.sss

OPTIONAL PARAMETERS

com={string}

A short comment that goes in the CM tag [default "New Region"]

lf=(float)

Low frequency corner of the filter [default 0.01 Hz] applies to all stations

hf=(float)

High frequency corner of the filter [default 0.1 Hz] applies to all stations

minsnr=(float)

Minimum SNR allowed Peak-to-Peak amplitude in filtered band [default 3.0]. If minsnr is not achieved then the station is automatically turned off "masking chans" for inversion (see mtinv). Radiation pattern of Love and Rayleigh waves is taken into account. For example, a mask is not applied to low SNR on the transverse channel as long as the Z,R channels are above minsnr. If the SNR for the transverse component along the transverse component is above minsnr, then the mask is only applied if SNR for Z,R is below minsnr. The user can override in mtinv by nouse_snr flag or lowering the minsnr to 1 or lower.

ctol=(float)

Minimum Cross-Correlation needed to shift the waveforms [default 0.85]. Only the channel (Z,R,T) with the maximum cross-correlation is used as time shift (see mtinv). Only the lag-time in sec is labeled on the output plot after inversion. To take the lag-time into effect (in mtinv or

misfit/variance reduction metrics) the user must enter this lag-time as a time shift into the mtinv.par file (see glib2inv, sacdata2inv, or mtinv for format).

maxshift=(float)

Maximum lag-time shift allowed when above ctol [default 10.0 sec]. If the lag-time for the channel with cross-correlation higher than ctol is greater than maxshift, then the lag is reported as 0 sec.

[no]gmt5

Make C-shell scripts compatible with GMT 5+ and GMT 6+ for plotting [default on]. Otherwise the scripts will be in GMT4+ format. WARNING! as of version mtinv4 gmt4 is no longer supported but will remain in the code base.

[no]fullmt

Do full moment tensor instead of deviatoric [default off]. The user can modify the Csh env variable MTDEGFREE=(integer) later in run.csh to do isotropic=1, deviatoric=5, or full-MT=6 inversions (also see mtinv mtdegfree=(integer)).

DataDir=(string)

Directory where the *.SAC files are [default ../Data]

RespDir=(string)

Directory where the SAC_PZs_* files are [default ../Resp]

[no]verbose

Verbose output for debugging is *verbose* and for no verbose output is *noverbose* [default off].

evid=(long)

EventID upto 10 digits [default -1 none]

Example

```
makepar com="New Madrid, MO" date="2021-11-18T02:53:04.00" DataDir=../Data
RespDir=../Resp gmt5 nooracle nomysql sqlite maxsta=8 maxdist=800 lf=0.075 hf=0.15 min-
snr=3.0 ctol=0.85 maxshift=10 realtime nlocal *.glib
```

SEE ALSO

glib2inv(1), *sacdata2inv(1)*, *mtinv(1)*