

GMT SCRIPT EXAMPLES

The following examples are working scripts that support the GMT version 5.2 and has been tested on Linux Ubuntu 18.04.1 LTS 64 bit version.

The scripts are basic recipes that the user may use as they are or modify to fit specific needs. The input files, position of seismic stations, epi-centers etc. must follow the format as shown in the examples unless the user modify the scripts.

EX01 Map of Japan with epi-centers.

Input file: quakes.ngdc

Historical Tsunami Earthquakes from the NGDC Database

Year	Mo	Da	Lat+N	Long+E	Dep	Mag
1987	01	04	49.77	149.29	489	4.1
1987	01	09	39.90	141.68	067	6.8
1987	01	09	39.82	141.64	084	4.0
1987	01	14	42.56	142.85	102	6.5
1987	01	16	42.79	145.10	054	5.1
1987	01	17	39.82	141.67	083	4.0
1987	01	20	38.63	141.97	066	4.0
1987	01	22	43.16	146.48	065	4.6
1987	01	27	41.96	142.65	068	4.1
1987	01	27	35.48	140.82	061	4.1
1987	02	06	36.99	141.79	035	6.1

Input file: quakes.cpt (depth color model)

# color palette for seismicity								
#z0	red	green	blue	z1	red	green	blue	
0	255	0	0	100	255	0	0	
100	0	255	0	300	0	255	0	
300	0	0	255	100000	0	0	255	

The bash script:

```
#!/bin/bash

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Japan
xmin=130
xmax=150
ymin=35
ymax=50

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd
```

```

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

# Create map with top title
gmt psbasemap $B -B+t"Japan" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

# Add text on a longitude/latitude on map
gmt pstext -R -J -N -K -O -V -F+f25,1,blue+j << EOF >> $file
141.0 49.0 BR Some Earthquakes
EOF

# Add text on a longitude/latitude as sub-title outside map
gmt pstext -R -J -N -K -O -V -F+f15,1,black+j << EOF >> $file
143.0 33.0 BR Japanese Earthquakes
EOF

# Mark all event locations, magnitude and depths (according to input files quakes.ngdc and
quakes.cpt
gmt psxy -R -J -O quakes.ngdc -Wfaint -i4,3,5,6s0.1 -h3 -Sc -Cquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

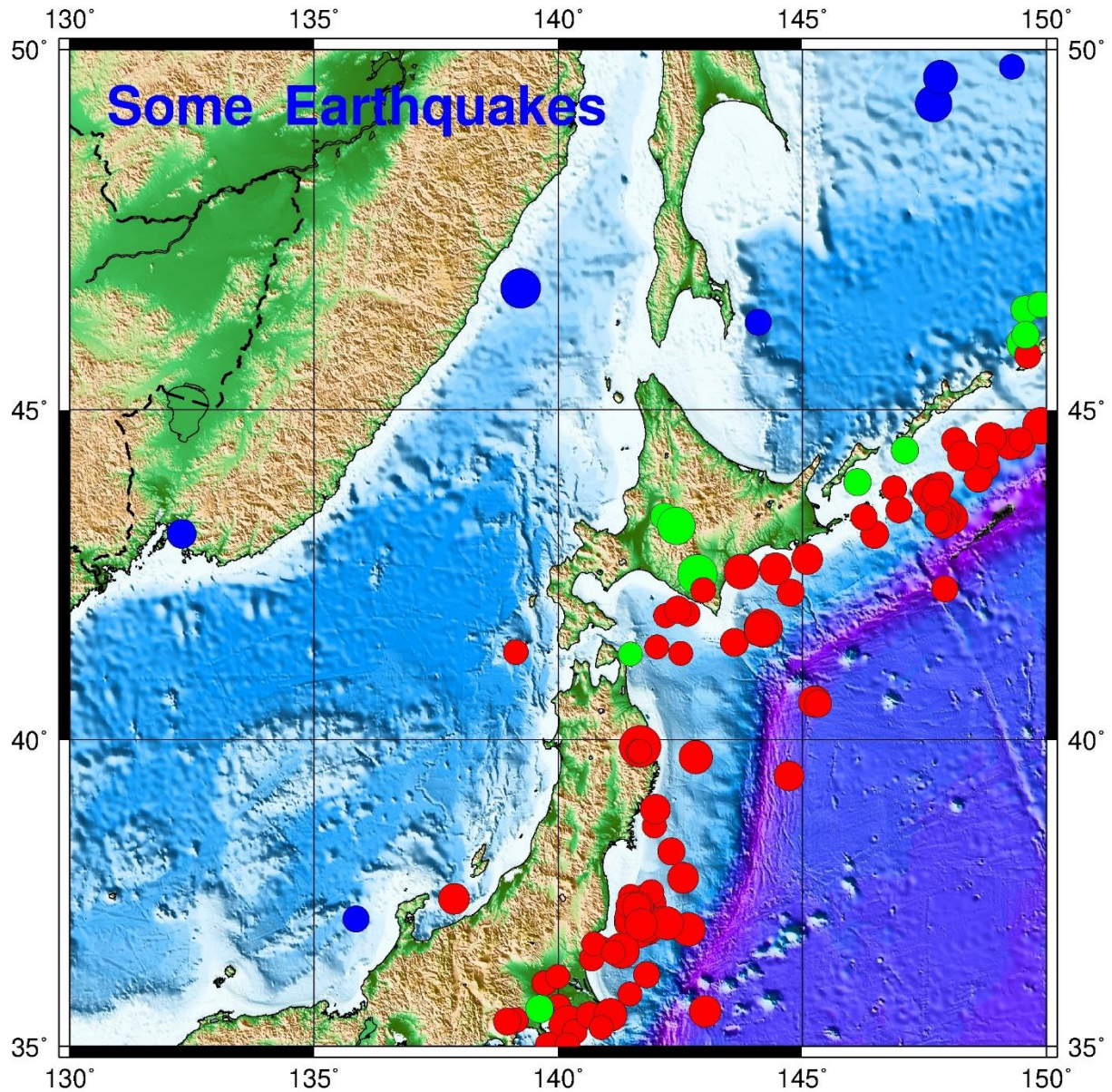
eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```

Japan



Japanese Earthquakes

EX02 Map of southern Norway

Input file quakes.ex

Examples events Southern Norway to show magnitude and depth

Year	Mo	Da	Lat+N	Long+E	Dep	Mag
1987	01	04	60.00	8.00	030	4.0
1987	01	09	59.50	7.50	150	5.0
1987	01	09	59.00	7.00	350	6.0
1987	01	14	58.50	6.50	500	7.0

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0      red  green  blue      z1      red  green  blue
   0      255    0      0        100    255    0      0
 100      0     255    0        300     0    255    0
 300      0      0     255   100000     0      0    255
```

The bash script:

```
#!/bin/bash

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# South Norway

xmin=4.5
xmax=10
ymin=58
ymax=62

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
B="-B1a1flg1"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap $B -B+t"Southern Norway" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

#deep_point=760

#gmt makecpt -Crainbow -T0./$deep_point/10 -I -Z > cptfile.cpt

gmt psxy -R -J -O quakes.ex -Wfaint -i4,3,5,6s0.2 -h3 -Sc -Cquakes.cpt >> $file

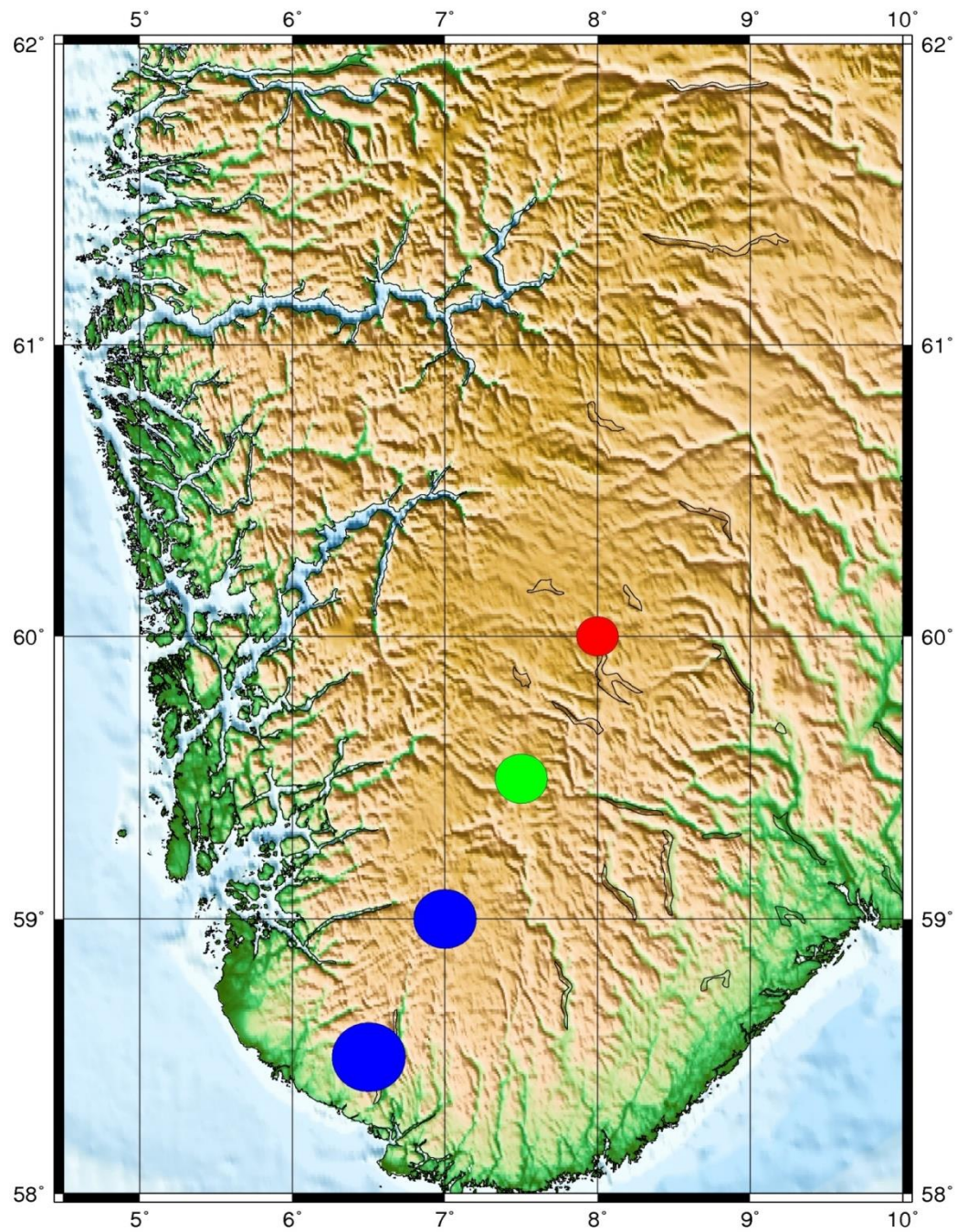
outepts=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file
```


Southern Norway



EX03 Map of Turkey with some demo events and depths

Input file: turkey.demo

Some demo events in Turkey

Year	Mo	Da	Lat+N	Long+E	Dep	Mag
1987	01	04	40.00	30.00	489	4.1
1987	01	09	41.00	29.00	030	6.8
1987	01	09	39.00	28.00	034	7.5

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0      red  green  blue      z1      red  green  blue
  0      255    0      0        100    255    0      0
100      0      255    0        300      0    255    0
300      0      0      255    100000    0      0    255
```

The bash script:

```
#!/bin/bash

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Turkey map
xmin=20
xmax=40
ymin=34
ymax=43

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

# Create map with top title
gmt psbasemap $B -B+t"Turkey" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy -R -J -O turkey.demo -Wfaint -i4,3,5,6s0.1 -h3 -Sc -Cquakes.cpt >> $file

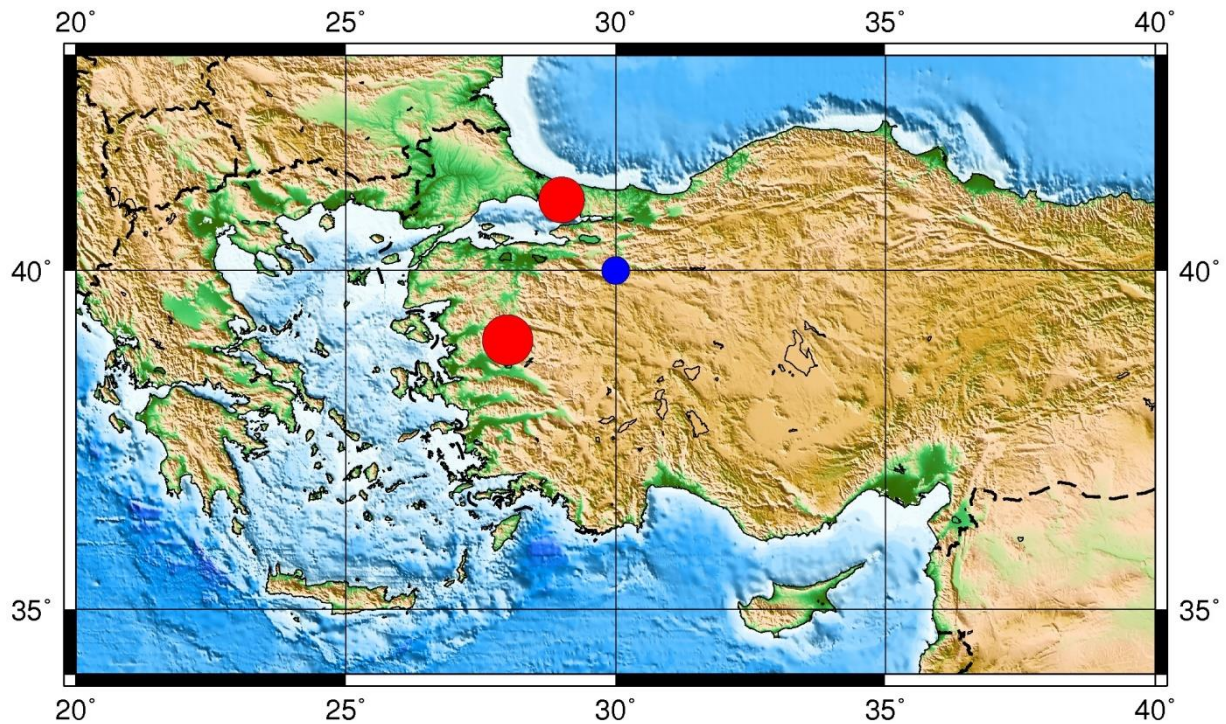
outeps=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

gv $file
```

Turkey



EX04 World Map with locations.

Inputfile: gmtxy.out (all with same depth -> same color on map and different format !!)

```

Latitude Longitude Depth  M
-83.650  10.130  150  0.05400
158.040  52.360  150  0.05600
71.150  36.740  150  0.05300
78.710  22.770  150  0.05500
145.610  18.780  150  0.05600
40.170  39.300  150  0.03000
30.560  39.830  150  0.02000
80.740  29.930  150  0.05700
28.910  36.340  150  0.02500
23.580  39.020  150  0.03200
53.830  -35.270  150  0.05300

```

Input file: quakes.cpt (depth color model)

```

# color palette for seismicity
#z0  red  green  blue  z1  red  green  blue
0    255    0    0    100  255    0    0
100  0    255    0    300  0    255    0
300  0    0    255  100000  0    0    255

```

The bash script:

```

#!/bin/bash

file=Map.ps

rm -f $file

grdfile=../DATA/ETOPO10_Bed_c_gdal.grd

```



```

R="-R0/360/-90/90"
J="-JKs0/9i"
B="-B30g30"

gmt makecpt -Cglobe -T-10000/10000/200 -Z > cptfile2.cpt

gmt psbasemap $B -B+t"World Wide" $J $R -K > $file

gmt grdgradient $grdfile -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J -R-180/180/-90/90 $grdfile -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt psxy $R $J $B -O gmtxy.out -Wfaint -i0,1,2,3s5.1 -hl -Sc -Cquakes.cpt >> $file

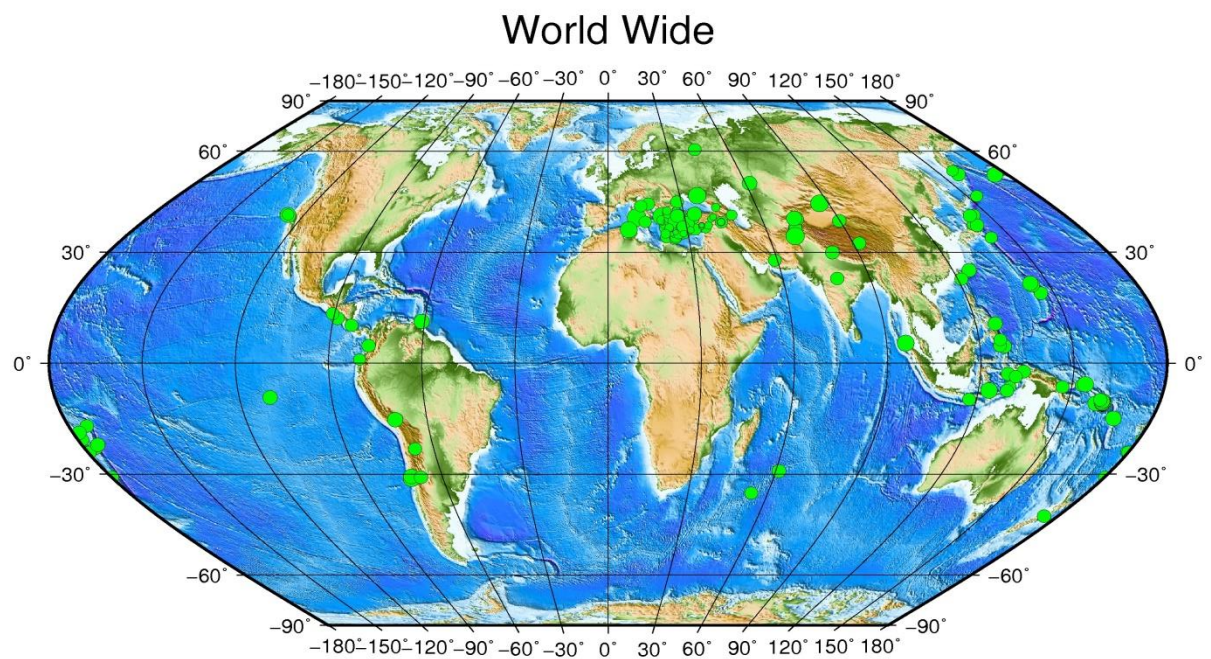
outeps=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

gv $outeps

```



EX05 Dominican Republic with locations and stations

Input file: stations

```
-71.0591 18.1555 t cyan 4 LOBA1
-71.4209 18.4826 t cyan 4 LONE1
-71.7462 18.0328 t cyan 4 LOPE1
-67.1112 18.4675 t cyan 4 AGPR
-70.3582 18.3923 t cyan 4 BANI
-67.1398 18.2117 t cyan 4 MPR
-69.9170 18.4672 t cyan 4 SDD
-71.2878 18.9822 t cyan 4 SDDR
-69.8561 19.3541 t cyan 4 NADR
-70.7243 19.8053 t cyan 4 PPDR
-70.4000 18.9400 t cyan 4 BON1
-70.7277 19.4272 t cyan 4 SC01
-71.2189 18.8030 t cyan 4 SJM1
-72.6058 18.5110 t cyan 4 LGNH
-68.7169 18.5920 t cyan 4 HIGY1
-75.1108 19.9268 t cyan 4 GTBY
```

Inputfile: seismicity.dr

```
2012 11 03 06 04 32.60 -70.523 18.689 20 2.5
2012 11 03 10 03 31.40 -71.461 19.885 20 2.5
2012 11 03 13 22 42.80 -70.296 20.385 20 2.5
2012 11 04 05 47 52.70 -70.935 18.521 20 2.5
2012 11 05 07 25 48.30 -69.716 17.959 20 2.5
2012 11 06 03 06 59.90 -69.775 18.195 20 2.5
2012 11 07 16 35 41.60 -99.316 15.761 20 2.5
2012 11 07 19 07 07.80 -70.694 18.966 20 2.5
2012 11 11 20 36 29.60 -70.879 18.612 20 2.5
2012 11 15 00 20 25.80 -70.756 18.664 20 2.5
2012 11 19 06 55 16.40 -71.165 19.909 20 2.5
2012 11 25 01 27 14.10 -71.252 17.990 20 2.5
2012 11 25 11 06 08.90 -68.702 17.635 20 2.5
2012 11 28 00 20 49.30 -68.635 18.722 20 2.5
2012 12 02 00 31 06.30 -68.785 18.617 20 2.5
2012 12 02 07 53 50.90 -68.834 20.779 20 2.5
2012 12 06 15 11 58.30 -70.761 18.777 20 2.5
2012 12 07 00 13 31.70 -69.251 17.791 20 2.5
2012 12 07 10 00 48.40 -70.016 17.685 20 2.5
2012 12 08 22 59 37.90 -69.296 17.921 20 2.5
```

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0    red    green    blue    z1    red    green    blue
0      255    0        0      100   255    0        0
100    0      255     0      300    0      255    0
300    0      0        255  100000  0      0      255
```

The bash script:

```
#!/bin/bash
file=Map.ps
rm -f *.grd

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Rep. Dom.
xmin=-75
xmax=-66
ymin=16
ymax=22

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
```



```

midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
B="-B1a1flg1"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

# Create map with top title
gmt psbasemap $B -B+t"Dominican Republic" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2

# Variable used inside loop to adjust position of text-label
adjust=-0.5

while read line
do
lon=`echo $line | gawk '{print $1}'` `
lat=`echo $line | gawk '{print $2}'` `
sym=`echo $line | gawk '{print $3}'` `
col=`echo $line | gawk '{print $4}'` `
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'` `
stn=`echo $line | gawk '{print $6}'` `
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file

# Compute new longitude for text-label
lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-Bold+jRB -K >> $file

done < "stations"

gmt psxy $R $J $B -O seismicity.dr -Wfaint -i6,7,8,9s0.1 -h1 -ScC -Cquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

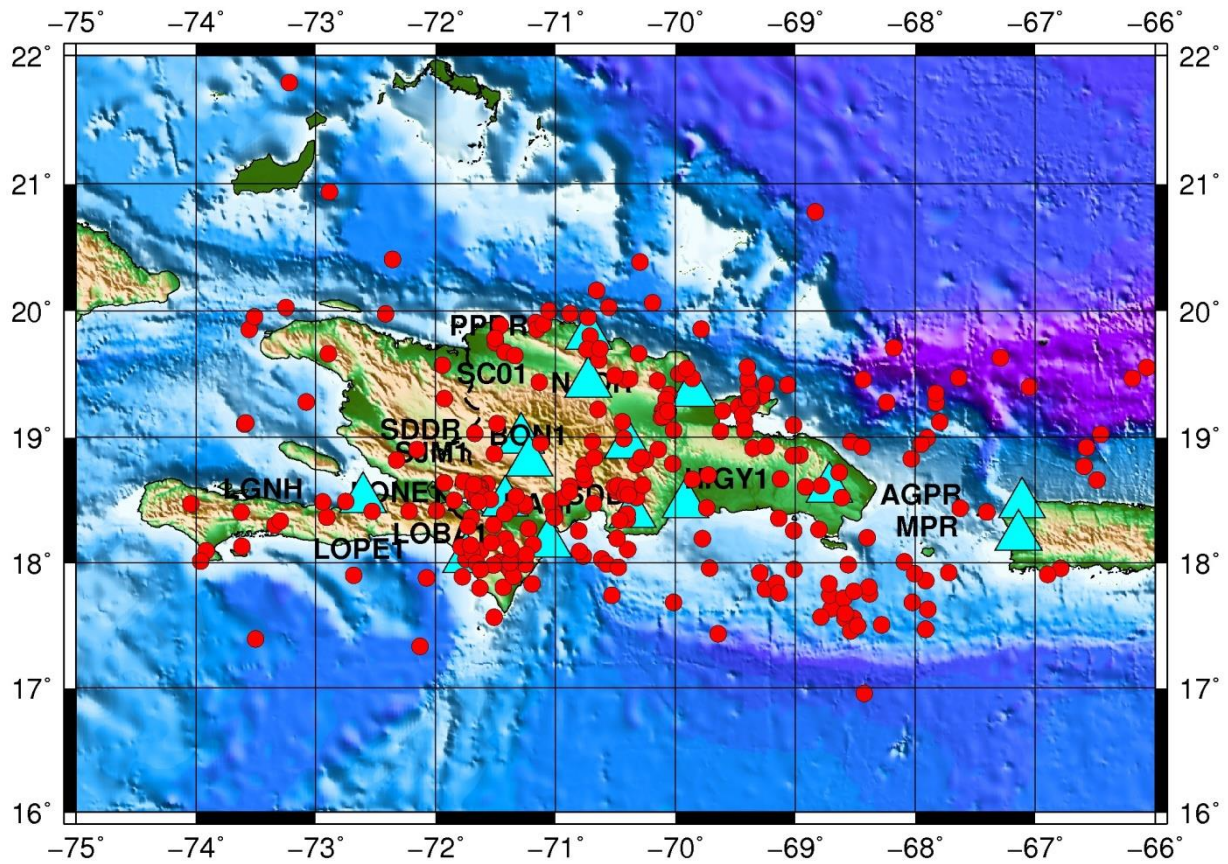
eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```

Dominican Republic



EX06 Turkey: a) all same depth, shallow. b) all same depth, deep. c) different depths

gmtxy_a.out

Latitude	Longitude	Depth	M
-83.650	10.130	020	0.05400
158.040	52.360	020	0.05600
71.150	36.740	020	0.05300
78.710	22.770	020	0.05500
145.610	18.780	020	0.05600
40.170	39.300	020	0.03000
30.560	39.830	020	0.02000
80.740	29.930	020	0.05700
28.910	36.340	020	0.02500
23.580	39.020	020	0.03200
53.830	-35.270	020	0.05300
-70.530	-15.220	020	0.06300
33.860	36.310	020	0.03300

ex06a.sh

```
#!/bin/bash
file=Map.ps
rm -f *.grd

grdfile=$HOME/GEBCO/newbathy.grd
#grdfile=$HOME/GEBCO/Bathymetry_GEBCO_30s_world.grd

# Turkey
xmin=20
xmax=40
ymin=33
ymax=45

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

#gmt psbasemap -B1a1f1g1 $J $R -K -P > $file
#gmt psbasemap -B5g5 $J $R -K -P > $file

# Create map with top title
gmt psbasemap $B -B+t"Turkey - all events same depth, shallow" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy -R -J -O gmtxy_a.out -Wfaint -i0,1,2,3s10.1 -h1 -Sc -Cquakes.cpt >> $file

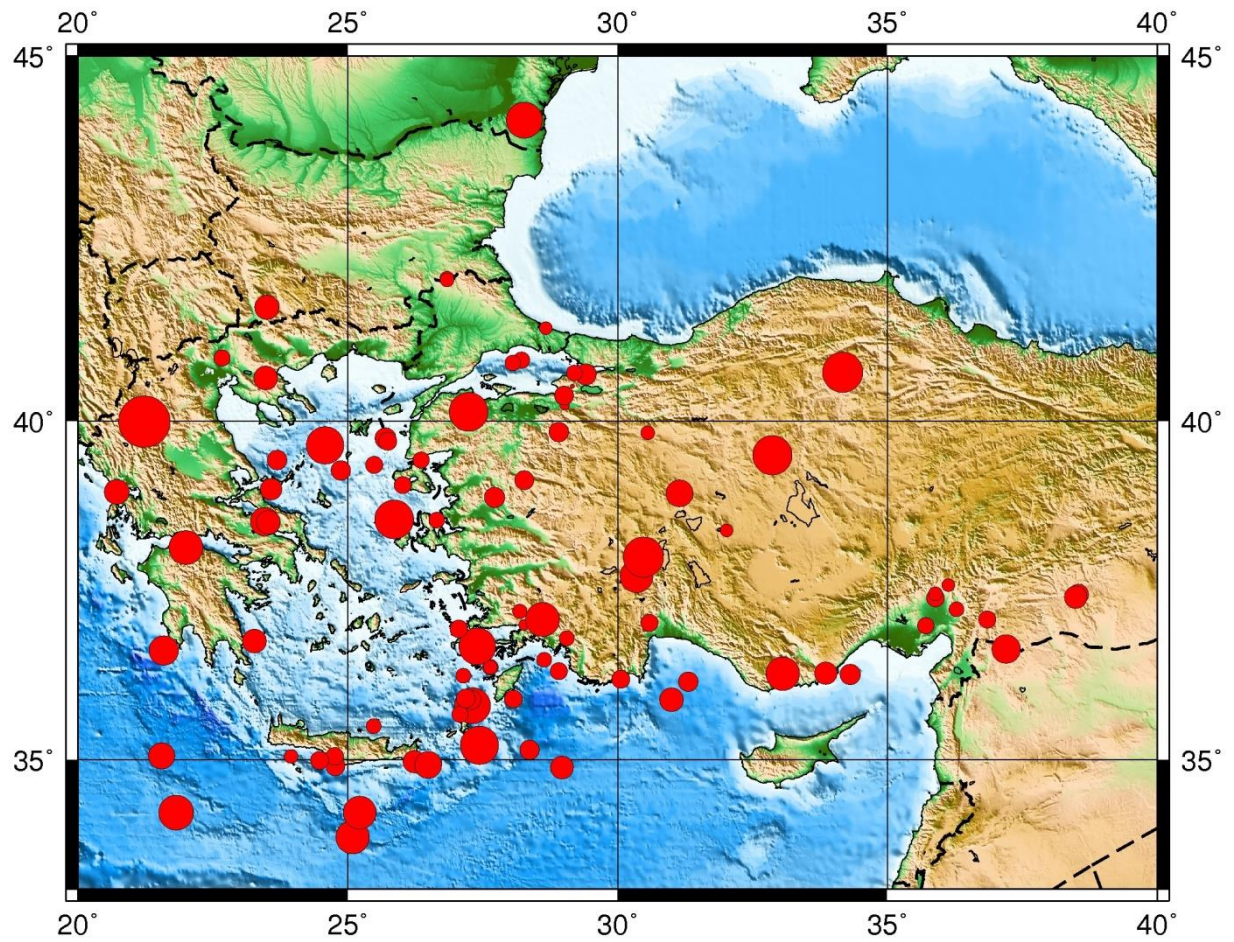
gv $file

outepts=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outepts

gmt psconvert $outepts -Tj -P
```

Turkey – all events same depth, shallow



gmtxy_b.out

```
Latitude Longitude Depth  M
-83.650  10.130  200  0.05400
158.040  52.360  200  0.05600
 71.150  36.740  200  0.05300
 78.710  22.770  200  0.05500
145.610  18.780  200  0.05600
 40.170  39.300  200  0.03000
 30.560  39.830  200  0.02000
 80.740  29.930  200  0.05700
 28.910  36.340  200  0.02500
 23.580  39.020  200  0.03200
 53.830 -35.270  200  0.05300
-70.530 -15.220  200  0.06300
 33.860  36.310  200  0.03300
```

ex06b.sh

```
#!/bin/bash
file=Map.ps
rm -f *.grd

grdfile=$HOME/GEBCO/newbathy.grd
#grdfile=$HOME/GEBCO/Bathymetry_GEBCO_30s_world.grd

# Turkey
xmin=20
xmax=40
ymin=33
ymax=45
```



```

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

#gmt psbasemap -B1a1f1g1 $J $R -K -P > $file
#gmt psbasemap -B5g5 $J $R -K -P > $file

# Create map with top title
gmt psbasemap $B -B+t"Turkey - all events same depth, deep" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy -R -J -O gmtxy_b.out -Wfaint -i0,1,2,3s10.1 -h1 -Sc -Cquakes.cpt >> $file

gv $file

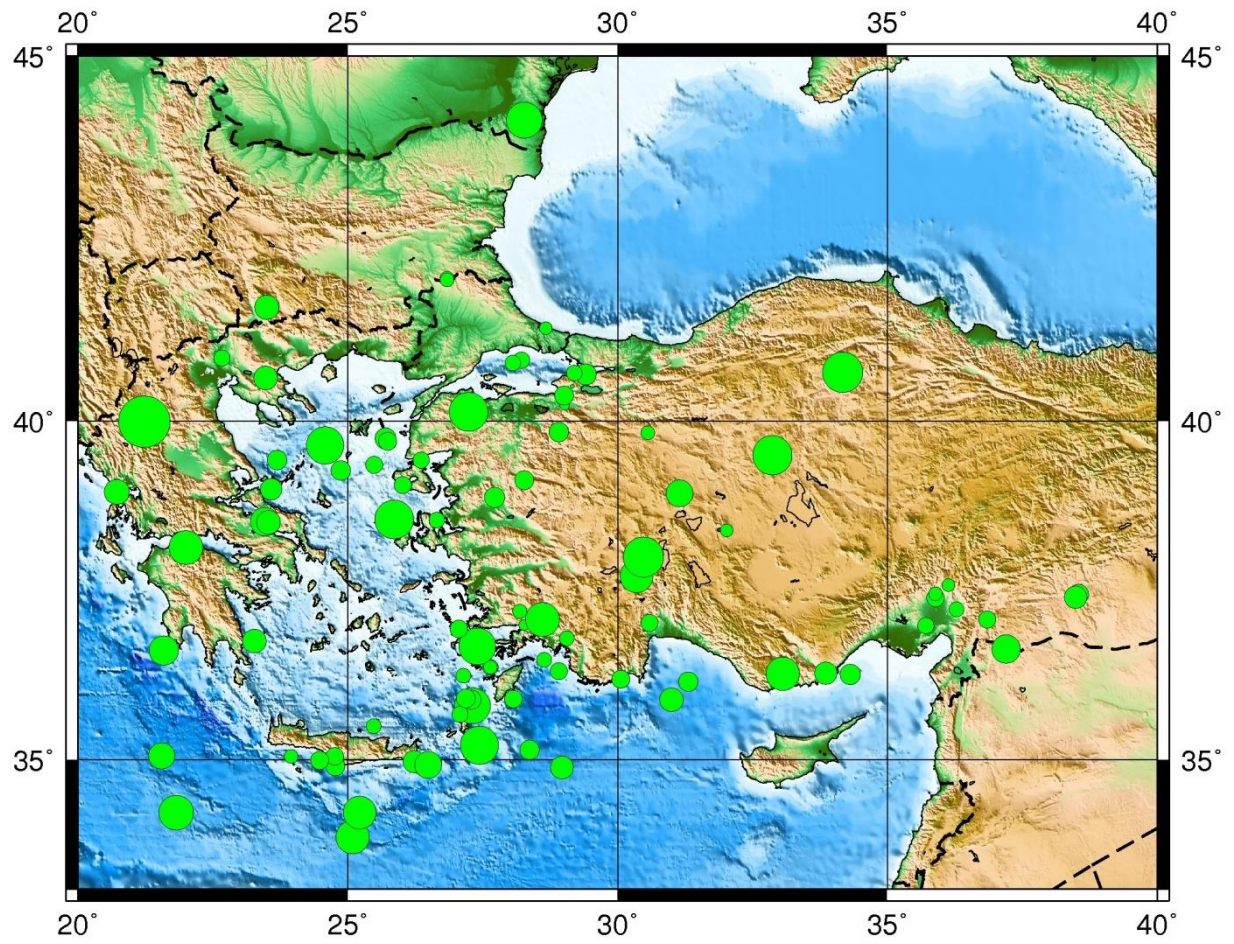
outepts=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

```

Turkey – all events same depth, deep



gmtxyz_c.out

Latitude	Longitude	Depth	M
-83.650	10.130	-010.0	0.05400
158.040	52.360	-228.0	0.05600
71.150	36.740	-527.0	0.05300
78.710	22.770	-010.0	0.05500
145.610	18.780	-010.0	0.05600
40.170	39.300	-254.0	0.03000
30.560	39.830	-086.0	0.02000
80.740	29.930	-010.0	0.05700
28.910	36.340	-010.0	0.02500
23.580	39.020	-153.0	0.03200
53.830	-35.270	-200.0	0.05300
-70.530	-15.220	-030.0	0.06300
33.860	36.310	-005.0	0.03300
-178.560	-20.670	-065.0	0.05400
30.060	36.220	-135.0	0.02700
29.410	40.660	-090.0	0.03100

ex06c.sh

```
#!/bin/bash
file=Map.ps
rm -f *.grd
```

```

grdfile=$HOME/GEBCO/newbathy.grd
#grdfile=$HOME/GEBCO/Bathymetry_GEBCO_30s_world.grd

# Turkey
xmin=20
xmax=40
ymin=33
ymax=45

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

# Create map with top title
gmt psbasemap $B -B+t"Turkey - different depths" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy -R -J -O gmtxyz_c.out -Wfaint -i0,1,2s-1,3s10.1 -h1 -Scc -Cquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

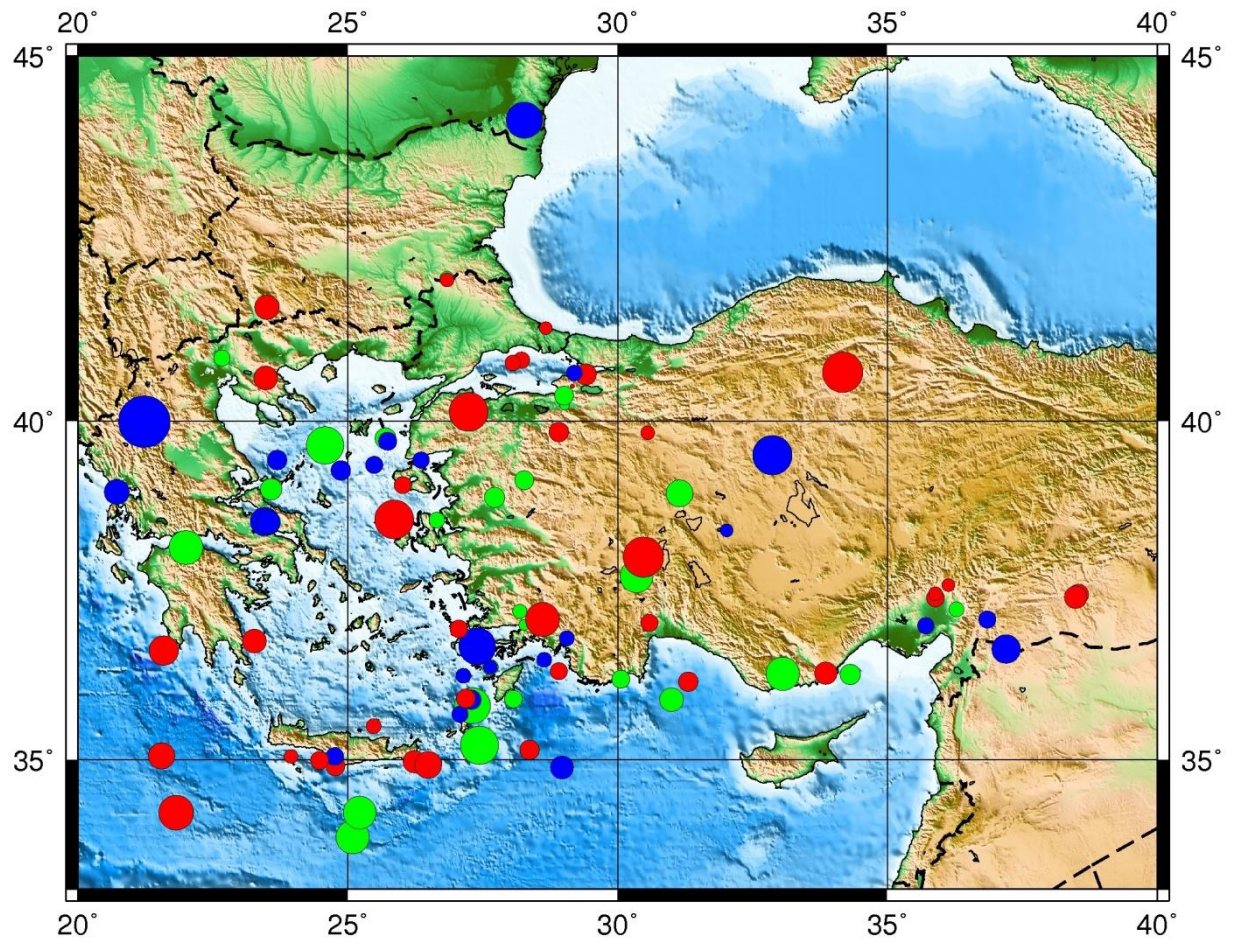
eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```


Turkey – different depths



EX07 Nicaragua: events same depth, different magnitudes, stations with two different color and size

Input file: stations

```
-85.17 11.97 t cyan 4 ACON
-83.77 12.01 t cyan 4 BLUN
-86.70 12.50 t cyan 4 CNGN
-87.03 12.70 t cyan 4 CRIN
-87.56 12.98 t cyan 4 CSGN
-84.30 12.20 t cyan 4 ESPN
-86.37 13.10 t cyan 4 ESTN
-86.01 12.00 t cyan 4 MASN
-85.93 12.93 t cyan 4 MATN
-86.25 12.15 t cyan 4 MGAN
-86.16 13.48 t cyan 4 RCON
-86.83 12.60 t cyan 4 HERN
-86.59 12.18 t orange 2 COPN
-86.30 11.99 t orange 2 CRUN
-86.27 12.14 t orange 2 DECN
-86.82 12.59 t orange 2 HOYN
-85.64 11.54 t orange 2 MORN
-86.76 12.58 t orange 2 PLRN
-86.21 13.53 t orange 2 RCFN
-84.77 13.71 t orange 2 SIUN
-86.84 12.57 t orange 2 TEL3
-86.26 12.14 t orange 2 TISN
```



```

-86.35 12.23 t orange 2 APYN
-86.34 12.16 t orange 2 BRAN
-85.62 11.56 t orange 2 CONN
-85.67 11.52 t orange 2 JAPN
-86.54 12.40 t orange 2 MOMN
-86.03 11.74 t orange 2 NADN
-86.81 12.64 t orange 2 POLN
-86.51 13.50 t orange 2 SOMN
-86.83 12.60 t orange 2 TELN
-86.32 12.14 t orange 2 XAVN
-87.65 13.28 t orange 2 AMPH
-88.03 14.15 t orange 2 MCAH
-86.35 16.39 t orange 2 ROTH
-87.12 15.12 t orange 2 YORH
-89.28 13.73 t orange 2 BOQ6
-88.21 13.77 t orange 2 CAHU
-87.83 13.27 t orange 2 CNCH
-89.62 13.83 t orange 2 SBLS
-88.83 13.61 t orange 2 SNVI
-88.27 13.44 t orange 2 VSM

```

Input file: seismicity.nic

```

2013 6 18 04 46 21 -88.95 12.86 20 3.5
2013 6 18 15 41 11 -89.04 12.83 20 3.3
2013 6 18 19 09 16 -86.52 11.69 20 3.3
2013 6 19 03 14 35 -87.12 11.60 20 2.4
2013 6 19 12 13 53 -87.02 11.68 20 3.2
2013 6 19 14 25 31 -84.14 14.27 20 3.3
2013 6 20 10 16 14 -87.37 15.81 20 4.7
2013 6 20 12 23 43 -86.94 15.77 20 4.0
2013 6 20 17 05 01 -87.78 16.42 20 4.6
2013 6 20 19 25 28 -86.59 12.02 20 3.1
2013 6 20 21 26 10 -87.56 11.78 20 3.5
2013 6 20 23 17 48 -87.07 12.07 20 3.0
2013 6 21 00 17 24 -87.08 11.76 20 2.9
2013 6 21 02 48 38 -87.88 15.67 20 3.0
2013 6 21 04 46 41 -88.94 12.87 20 3.9
2013 6 21 12 36 39 -85.56 11.60 20 1.4

```

Input file: quakes.cpt (depth color model)

```

# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255

```

The bash script:

ex07.sh

```

#!/bin/bash

file=Map.ps

rm -f *.grd

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Nicaragua map
xmin=-89
xmax=-83
ymin=9
ymax=15

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

```

```

R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap -B1g1 -B+t"Nicaragua" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2

# Variable used inside loop to adjust position of text-label
adjust=-0.2

while read line
do
lon=`echo $line | gawk '{print $1}'` \
lat=`echo $line | gawk '{print $2}'` \
sym=`echo $line | gawk '{print $3}'` \
col=`echo $line | gawk '{print $4}'` \
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'` \
stn=`echo $line | gawk '{print $6}'` \
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file

# Compute new longitude for text-label
lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-Bold+jRB -K >> $file

done < "stations"

gmt psxy $R $J $B -O seismicity.nic -Wfaint -i6,7,8,9s0.1 -h1 -Sc -Cquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```

A map of the Gulf of Mexico and Caribbean Sea region, showing station locations and bathymetry. The map includes a grid with latitude from 9°N to 15°N and longitude from 89°W to 83°W. Bathymetry is indicated by color, with blue representing deep water and green/brown representing shallower areas. Station locations are marked with symbols: orange triangles for stations with data from 1993-1995, and cyan triangles for stations with data from 1996-1998. Red circles represent other data points. Labeled stations include MCAH, CAHU, VSM, CNO, MPH, CSGN, CRIN, CRIG, MOMN, COB, ARYN, CRIMAS, NADN, SOM, PCN, ESTN, MATN, SIUN, ESPN, BLUN, ACON, and BCON. A dashed line indicates the boundary between the Gulf of Mexico and the Caribbean Sea.

Input file: stations

11.9173	78.9168	t	cyan	4	KBS
15.5333	77.0019	t	cyan	4	HSPB
25.0108	76.5083	t	cyan	4	HOPEN
18.9988	74.5023	t	cyan	4	BJO1
-8.4281	71.0286	t	cyan	4	JNW
-8.2968	70.9898	t	cyan	4	JNE
-8.7308	70.9283	t	cyan	4	JMI
23.6843	70.6423	t	cyan	4	HAMF
18.9076	69.6345	t	cyan	4	TRO
23.2371	69.0116	t	cyan	4	KTK1
13.5410	68.1325	t	cyan	4	LOF

Input file: seismicity.nat1

```
2013 6 17 12 40 50 -8.021 71.223 20 4.0
2013 6 21 03 00 49 18.337 77.115 20 4.0
2013 6 22 02 09 03 31.684 69.443 20 4.0
2013 6 22 10 48 1 31.289 67.484 20 4.0
2013 6 22 10 51 39 7.752 75.936 20 4.0
2013 6 22 17 34 47 18.882 76.961 20 4.0
2013 6 23 08 43 19 7.260 77.651 20 4.0
2013 6 23 10 58 6 13.908 78.817 20 4.0
2013 6 23 17 50 58 20.673 67.166 20 4.0
2013 6 25 00 11 35 20.356 67.785 20 4.0
2013 6 25 05 30 34 5.519 79.733 20 4.0
2013 6 25 21 18 9 18.750 77.018 20 4.0
2013 6 25 23 31 5 3.255 79.760 20 4.0
2013 6 26 00 18 8 20.464 67.946 20 4.0
2013 6 26 15 05 13 14.790 78.102 20 4.0
2013 6 28 08 06 30 7.270 78.207 20 4.0
2013 6 28 10 35 16 33.876 67.639 20 4.0
2013 7 2 13 54 33 21.205 77.851 20 4.0
2013 7 2 16 18 9 30.591 69.834 20 4.0
2013 7 2 20 42 13 1.137 81.939 20 4.0
2013 7 5 09 23 17 33.761 67.581 20 4.0
2013 7 6 13 38 46 20.389 67.838 20 4.0
2013 7 6 16 47 43 18.066 77.284 20 4.0
2013 7 6 17 14 11 20.598 67.590 20 4.0
2013 7 7 19 39 57 7.600 77.003 20 4.0
2013 7 8 03 16 45 17.020 78.050 20 4.0
2013 7 8 17 48 13 19.085 76.963 20 4.0
```

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255
```

The bash script:

ex08.sh

```
#!/bin/bash

rm -f .gmtdefaults* .gmtcommands* *_tmp.grd output.eps Plot_stn.ps cptfile

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

xmin=-30
xmax=30
ymin=68
ymax=82

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax "

J="-JM$midlon/$midlat/16c"

B="-B30g10/5g5"

J="-Js0/90/30c/60"

gmt grdcut $grdfile -Gtmpf.grd $R -V

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap $B $J $R -K > $file
```



```

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -K -O -Ccptfile2.cpt >> $file

gmt pscoast $J -B+t"Map Title" $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2
adjust=-3.0

while read line
do
lon=`echo $line | gawk '{print $1}'` `
lat=`echo $line | gawk '{print $2}'` `
sym=`echo $line | gawk '{print $3}'` `
col=`echo $line | gawk '{print $4}'` `
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'` `
stn=`echo $line | gawk '{print $6}'` `
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file

lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-Bold+jRB -K >> $file

done < "stations"

gmt psxy $R $J $B -O seismicity.nat1 -Wfaint -i6,7,8,9s0.1 -h1 -Sc -Cquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

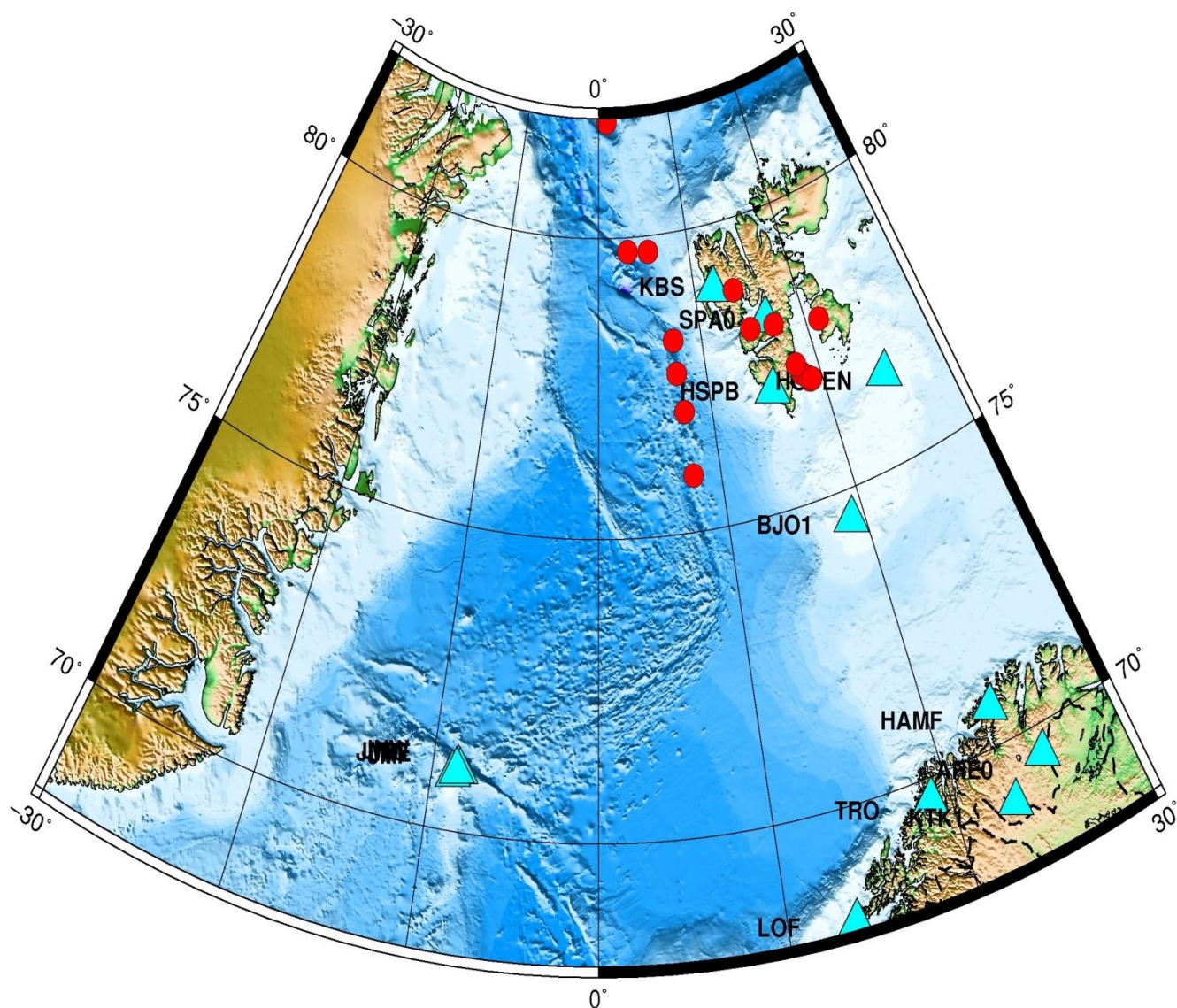
eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```

Map Title



EX09 Artic Conic projection, events and stations and some text labels

Input file: stations

```

11.9173 78.9168 t cyan 4 KBS
15.5333 77.0019 t cyan 4 HSPB
25.0108 76.5083 t cyan 4 HOPEN
18.9988 74.5023 t cyan 4 BJO1
-8.4281 71.0286 t cyan 4 JNW
-8.2968 70.9898 t cyan 4 JNE
-8.7308 70.9283 t cyan 4 JMI
23.6843 70.6423 t cyan 4 HAMF
18.9076 69.6345 t cyan 4 TRO
23.2371 69.0116 t cyan 4 KTK1
13.5410 68.1325 t cyan 4 LOF
    
```

Input file: seismicity.natl

```
2013 6 17 12 40 50 -8.021 71.223 20 4.0
2013 6 21 03 00 49 18.337 77.115 20 4.0
2013 6 22 02 09 03 31.684 69.443 20 4.0
2013 6 22 10 48 1 31.289 67.484 20 4.0
2013 6 22 10 51 39 7.752 75.936 20 4.0
2013 6 22 17 34 47 18.882 76.961 20 4.0
2013 6 23 08 43 19 7.260 77.651 20 4.0
2013 6 23 10 58 6 13.908 78.817 20 4.0
2013 6 23 17 50 58 20.673 67.166 20 4.0
2013 6 25 00 11 35 20.356 67.785 20 4.0
2013 6 25 05 30 34 5.519 79.733 20 4.0
2013 6 25 21 18 9 18.750 77.018 20 4.0
2013 6 25 23 31 5 3.255 79.760 20 4.0
2013 6 26 00 18 8 20.464 67.946 20 4.0
2013 6 26 15 05 13 14.790 78.102 20 4.0
2013 6 28 08 06 30 7.270 78.207 20 4.0
2013 6 28 10 35 16 33.876 67.639 20 4.0
2013 7 2 13 54 33 21.205 77.851 20 4.0
2013 7 2 16 18 9 30.591 69.834 20 4.0
2013 7 2 20 42 13 1.137 81.939 20 4.0
2013 7 5 09 23 17 33.761 67.581 20 4.0
2013 7 6 13 38 46 20.389 67.838 20 4.0
2013 7 6 16 47 43 18.066 77.284 20 4.0
2013 7 6 17 14 11 20.598 67.590 20 4.0
2013 7 7 19 39 57 7.600 77.003 20 4.0
2013 7 8 03 16 45 17.020 78.050 20 4.0
2013 7 8 17 48 13 19.085 76.963 20 4.0
```

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255
```

Input file: strings.txt

```
-15.0 76.0 LB 1 BERGEN
-15.0 76.5 LB 2 BERGEN
-15.0 77.0 LB 3 BERGEN
-15.0 77.5 LB 4 BERGEN
-15.0 78.0 LB 5 BERGEN
-15.0 78.5 LB 6 BERGEN
```

The bash script:

ex09.sh

```
#!/bin/bash

rm -f .gmtdefaults* .gmtcommands* *_tmp.grd output.eps Plot_stn.ps cptfile

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

xmin=-30
xmax=30
ymin=68
ymax=82

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
```

```

midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
R="-R$xmin/$xmax/$ymin/$ymax "
J="-JM$midlon/$midlat/16c"
B="-B30g10/5g5"
J="-Js0/90/30c/60"

gmt grdcut $grdfile -Gtmpf.grd $R -V
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt
gmt psbasemap $B $J $R -K > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -K -O -Ccptfile2.cpt >> $file
gmt pscoast $J -B+t"Map Title" $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2
adjust=-3.0

while read line
do
lon=`echo $line | gawk '{print $1}'`
lat=`echo $line | gawk '{print $2}'`
sym=`echo $line | gawk '{print $3}'`
col=`echo $line | gawk '{print $4}'`
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'`
stn=`echo $line | gawk '{print $6}'`
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file

lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-Bold+jRB -K >> $file

done < "stations"

# Add text on a longitude/latitude
gmt pstext -R -J -N -K -O -V -F+f15,1,black+j << EOF >> $file
-5.0 75.0 BR BERGEN
EOF

# Add a number of lines with text on longitude/latitude
gmt pstext strings.txt -R -J -N -K -O -V -F+f12,1,darkblue+j >> $file

gmt psxy $R $J $B -O seismicity.nat1 -Wfaint -i6,7,8,9s0.1 -h1 -Sc -Ccquakes.cpt >> $file

outepts=`echo $file | sed 's/ps/eps/g'`

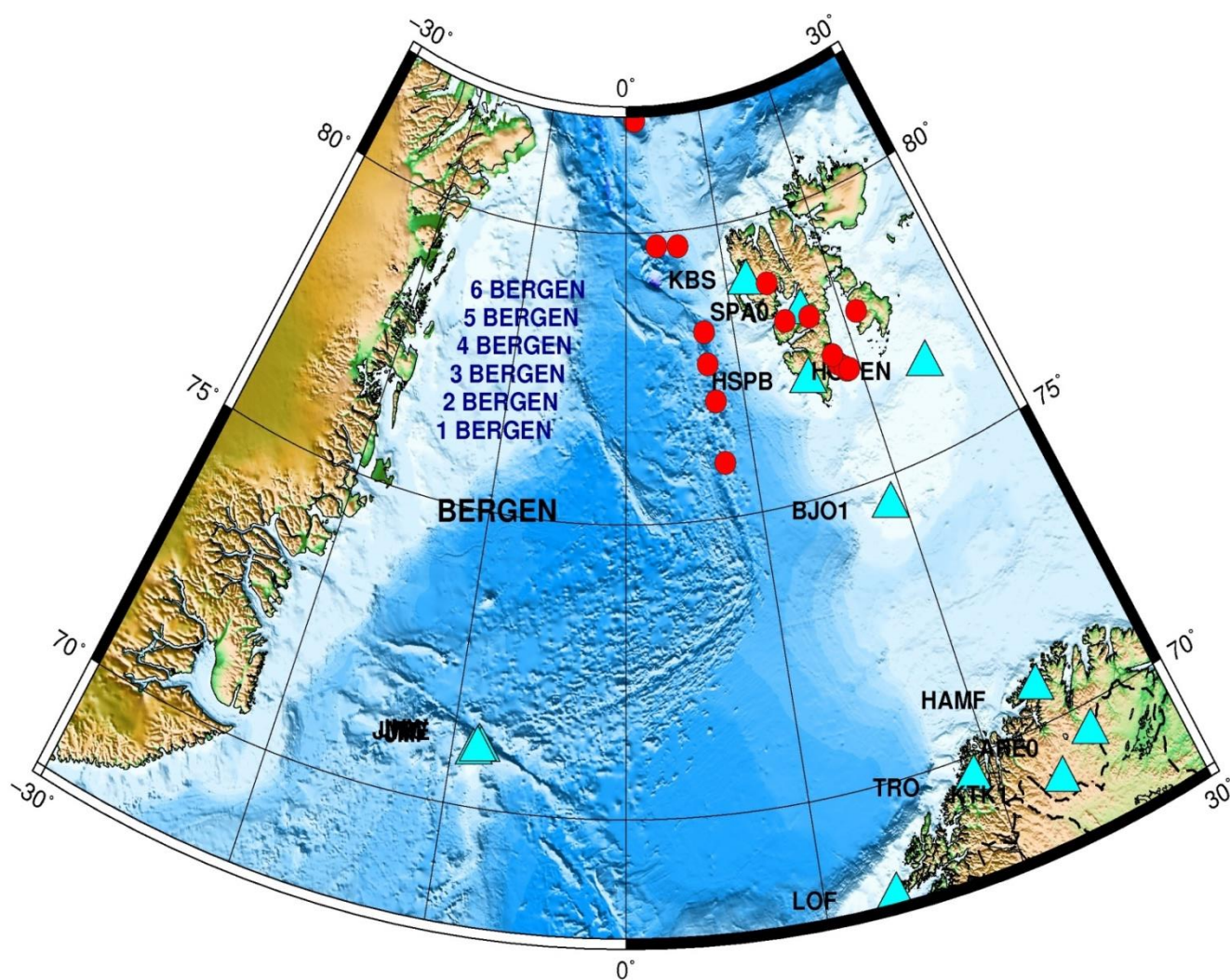
eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```


Map Title



EX10 Northern Chile. Created by RTQUAKE

Input file: stations

-69.48740	-21.04323	t	cyan	4	PB01
-69.89603	-21.31973	t	cyan	4	PB02
-69.75310	-22.04847	t	cyan	4	PB03
-70.14918	-22.33369	t	cyan	4	PB04
-70.20235	-22.85283	t	cyan	4	PB05
-69.57188	-22.70580	t	cyan	4	PB06
-69.88618	-21.72667	t	cyan	4	PB07
-69.15340	-20.14112	t	cyan	4	PB08
-69.24192	-21.79638	t	cyan	4	PB09
-70.55408	-23.51343	t	cyan	4	PB10
-69.65582	-19.76096	t	cyan	4	PB11
-70.32808	-18.61406	t	cyan	4	PB12

Input file: GMT EPI0.txt

```
Tamarugal, I Región de Tarapacá, Chile
2017 4 10 13 48 14 -69.08 -20.777 14 2.2 67.1 Provincia del Tamarugal, I Región de
Tarapacá, Chile
2017 4 10 14 37 45 -68.84 -20.908 12 2.0 190.7 Provincia del Tamarugal, I Región de
Tarapacá, Chile
2017 4 10 14 52 25 -69.90 -20.344 8 1.6 0.0 Provincia del Tamarugal, I Región de
Tarapacá, Chile
2017 4 10 14 53 44 -69.91 -20.342 6 1.9 0.0 Provincia del Tamarugal, I Región de
Tarapacá, Chile
2017 4 10 14 53 44 29.54 40.86 6 5.0 50.0 Gebze, Kocaeli, Marmara Bölgesi, Türkiye
2017 4 10 17 37 38 -69.50 -20.917 8 2.4 54.3 Provincia del Tamarugal, I Región de
Tarapacá, Chile
2017 4 10 17 57 8 -69.14 -22.752 15 1.7 74.9 Provincia de El Loa, II Región de
Antofagasta, Chile
2017 4 10 18 46 55 -69.14 -22.250 8 4.7 0.0 Provincia de Tocopilla, II Región de
Antofagasta, Chile
```

Input file: GMT LAST LOC.txt

```
2017 4 10 18 46 55 -69.14 -22.250 8 4.7 -1.0 Provincia de Tocopilla, II Región de
Antofagasta, Chile
```

Input file: quakes.cpt (depth color model)

```
# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255
```

The bash script:

ex10.sh

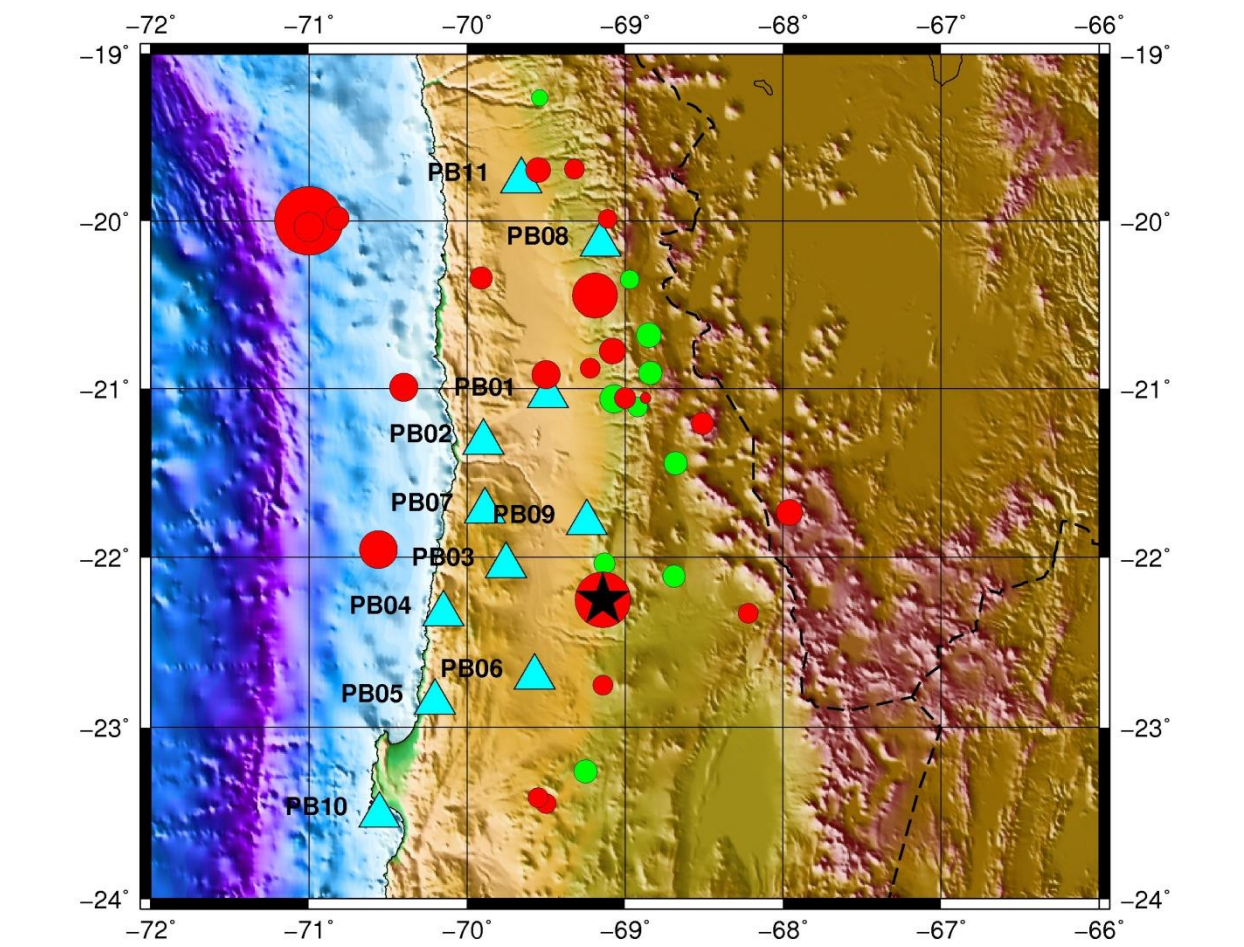
```
#!/bin/bash
file=Map.ps
rm -f *.grd
grdfile=../DATA/newbathy.grd
xmin=-72
xmax=-66
ymax=-19
ymin=-24
midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"
gmt grdcut $grdfile $R -Gtmpf.grd
gmt grdinfo tmpf.grd
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt
top2=`echo echo "Provincia de Tocopilla, II Región de Antofagasta, Chile" | iconv -f utf-8 -t
ascii//TRANSLIT`
gmt psbasemap -Bgl -B+t"Provincia de Tocopilla, II Region de Antofagasta, Chile
" $J $R -K -P > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file
sizecoef=.2
adjust=-0.2
while read line
do
lon=`echo $line | gawk '{print $1}'`
lat=`echo $line | gawk '{print $2}'`
sym=`echo $line | gawk '{print $3}'`
col=`echo $line | gawk '{print $4}'`
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'`
stn=`echo $line | gawk '{print $6}'`
echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file
```

```

lon2=$(echo "$lon + $adjust"|bc)
echo $lon2 $lat $stn | gmt pstext $J $R -O -F+fl2p,Helvetica-Bold+jRB -K >> $file
done < "stations"
gmt psxy $R $J $B -O GMT_EPI0.txt -Wfaint -i6,7,10,9s0.2 -h0 -Scc -Cquakes.cpt -K >> $file
gmt psxy $R $J $B -O GMT_LAST_LOC.txt -Wfaint -i6,7,10,9s0.2 -h0 -Sac -Cquakes.cpt >> $file
outeps=`echo $file | sed 's/ps/eps/g'`
eps2eps $file $outeps
gmt psconvert $outeps -Tj -P
gv $file

```

Provincia de Tocopilla, II Region de Antofagasta, Chile



EX11 Draw lines on map from coordinate input-files

Input file example:

SRN.txt

```

5.019516362346828 65.41524425083982
4.947228430378107 65.36720829328469
4.904097682893287 65.32593417232923
4.878556714672504 65.2882138240668
4.824380699372535 65.24377260252297

```

```

4.802761822768773 65.21406810388999
4.801667151659414 65.17773497820853
4.806838219002398 65.12105305535525
4.857731668335463 65.0746558367135
4.897946139060285 65.022550557919
4.88855675205145 64.9729910326444
4.874769688515119 64.91806349464032
4.84394794203488 64.85966707280778
4.819971288828322 64.7991155992818
4.773194646819137 64.73476423445504
4.683304119093872 64.65517215172954
4.586144560610769 64.56229679381194
4.445520451400739 64.47715607995305
4.314051383649639 64.3847102477789
4.160120469418656 64.27280398481616
4.014047774086604 64.1586144509522
3.872250685916772 64.07014749366894
3.710033791764791 63.9750257310155

```

The bash script:

ex11.sh

```

#!/bin/bash

file=Map.ps
grdfile=../DATA/newbathy.grd

xmin=-3.0
xmax=11.0
ymin=61.0
ymax=69.0

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

# Make a 1-degree grid
B="-Blalflgl"
gmt grdcut $grdfile $R -Gtmpf.grd
gmt grdinfo tmpf.grd
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt
gmt psbasemap $B -B+t"Draw lines on map from coordinate input-files" $J $R -K -P > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy SRN.txt -R -JM -W2,black -O -K >> $file
gmt psxy VG.txt -R -JM -W2,black -O -K >> $file
gmt psxy OL.txt -R -JM -W2,black -O -K >> $file
gmt psxy SRS.txt -R -JM -W2,black -O -K >> $file
gmt psxy KFC.txt -R -JM -W2,black -O -K >> $file
gmt psxy MTG.txt -R -JM -W2,black -O -K >> $file
gmt psxy GGG.txt -R -JM -W2,black -O -K >> $file
gmt psxy MO.txt -R -JM -W2,black -O -K >> $file
gmt psxy JMFZS.txt -R -JM -W2,black -O -K >> $file
gmt psxy JMFZN.txt -R -JM -W2,black -O -K >> $file
gmt psxy FFC.txt -R -JM -W2,black -O -K >> $file
gmt psxy FSE.txt -R -JM -W2,black -O -K >> $file
gmt psxy MG.txt -R -JM -W2,black -O -K >> $file
gmt psxy MMH.txt -R -JM -W2,black -O -K >> $file

# For colors, check with man gmtcolors
gmt psxy TheStoreggaSlide.txt -R -JM -W2,cyan -O -K >> $file
gmt psxy InitiationDeeperSlideLowerHW.txt -R -JM -W2,yellow -O >> $file

outeps=`echo $file | sed 's/ps/eps/g'`

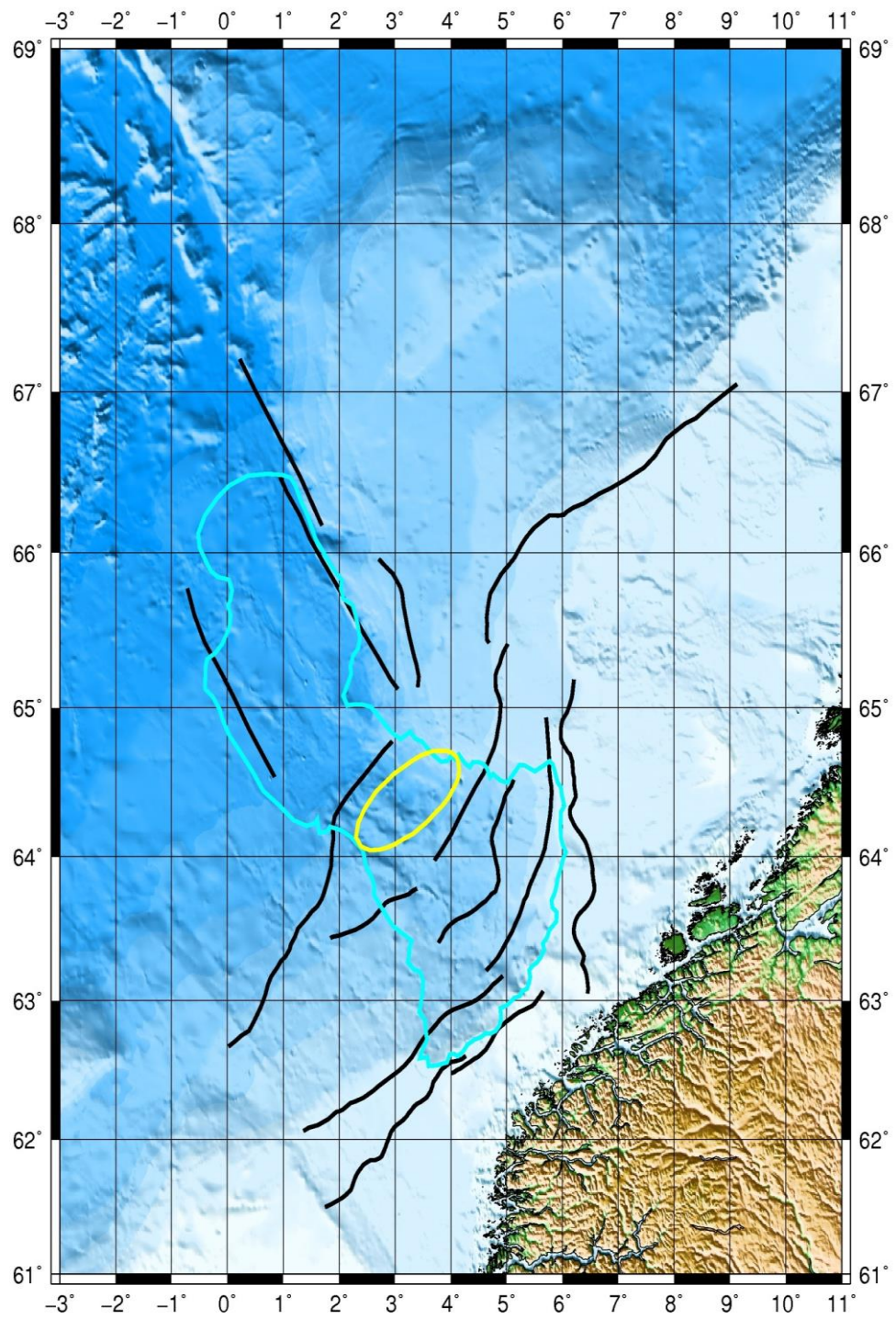
eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

```


gv \$file

Draw lines on map from coordinate input-files



EX12 Plot events from input-file

Input file example:

areanew.out:

2013	6	18	04	46	21	3.000	61.800	20	0.04300
2013	6	18	04	46	21	5.000	61.600	20	0.04500
2013	6	18	04	46	21	10.500	64.700	20	0.04400
2013	6	18	04	46	21	5.000	61.600	20	0.03100
2013	6	18	04	46	21	5.100	61.500	20	0.04500
2013	6	18	04	46	21	6.000	61.900	20	0.04100
2013	6	18	04	46	21	9.500	66.600	20	0.05000
2013	6	18	04	46	21	8.600	66.200	20	0.05300
2013	6	18	04	46	21	4.600	61.400	20	0.03600
2013	6	18	04	46	21	4.600	61.400	20	0.03300
2013	6	18	04	46	21	4.500	61.700	20	0.03300
2013	6	18	04	46	21	5.300	61.800	20	0.03700
2013	6	18	04	46	21	7.300	61.300	20	0.03200
2013	6	18	04	46	21	5.200	61.000	20	0.03600
2013	6	18	04	46	21	4.700	61.600	20	0.03300
2013	6	18	04	46	21	6.300	64.300	20	0.05000
2013	6	18	04	46	21	5.200	61.300	20	0.05200
2013	6	18	04	46	21	6.500	62.100	20	0.03000
2013	6	18	04	46	21	5.000	61.400	20	0.03400
2013	6	18	04	46	21	5.100	61.600	20	0.03900
2013	6	18	04	46	21	5.900	61.500	20	0.04800
2013	6	18	04	46	21	5.300	61.500	20	0.03600
.									
.									
.									
.									

The bash script:

ex12.sh

```
#!/bin/bash

file=Map.ps

rm -f *.grd

grdfile=../DATA/newbathy.grd

# Norway map
xmin=-3
xmax=12
ymin=60
ymax=68

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap -B1g1 -B+t" " $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

# Norway

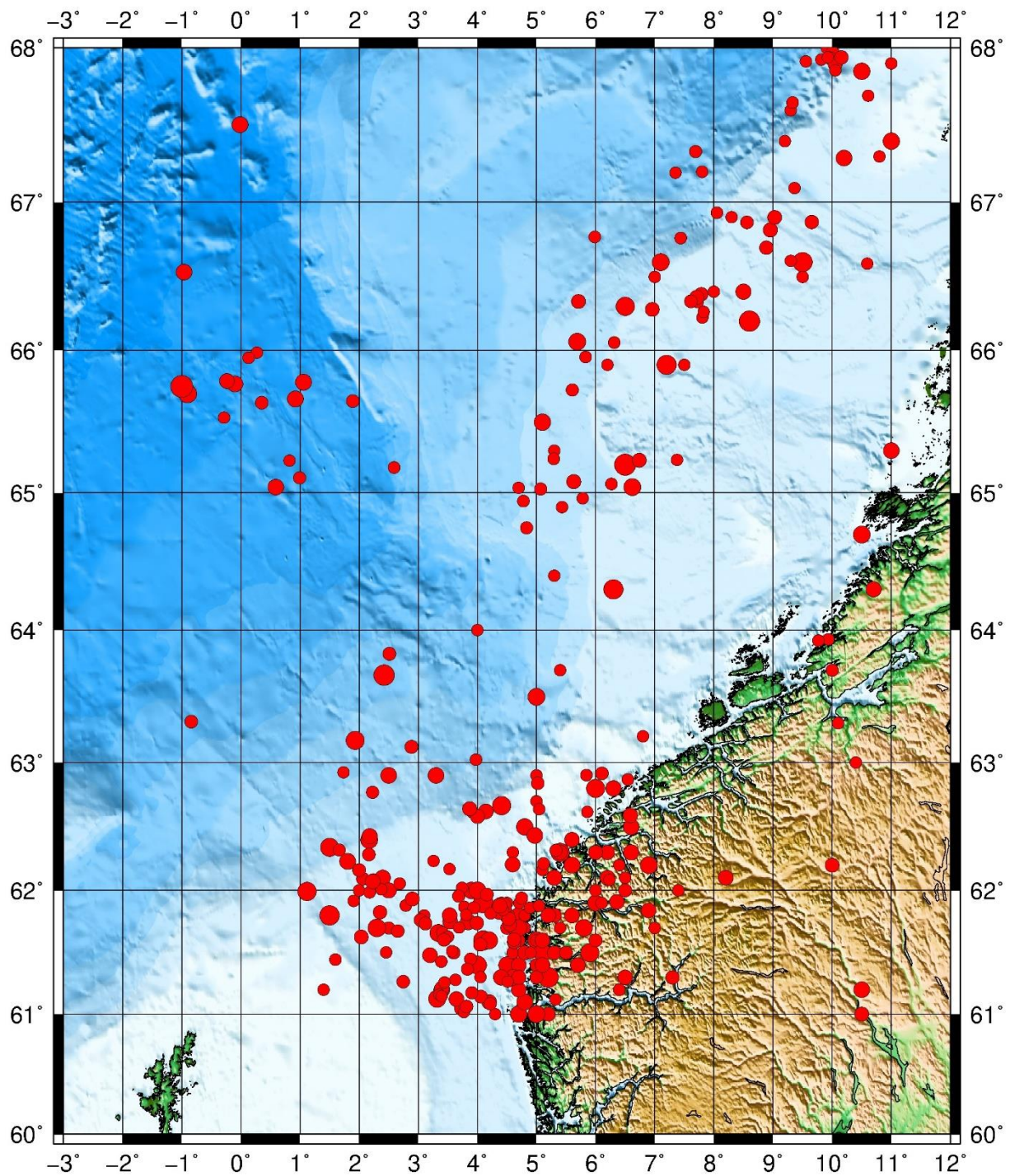
gmt psxy $R $J $B -O areanew.out -Wfaint -i6,7,8,9s7.0 -h1 -Sc -Cquakes.cpt >> $file

outeps=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outeps

gmt psconvert $outeps -Tj -P
```


gv \$file



EX13 Plot events from input-file and a depth-scale

Input file example:

seismicity.nsn:

```

2018 5 1 02 59 36 71.946 37.390 20 4.0
2018 5 1 03 14 53 85.730 44.069 20 4.0
2018 5 1 06 16 0 -5.586 55.872 20 4.0
2018 5 1 06 17 7 7.345 77.454 20 4.0
2018 5 1 06 38 2 18.295 76.908 20 4.0
2018 5 1 10 45 23 8.724 77.910 20 4.0
2018 5 1 15 09 41 4.699 61.850 20 4.0
2018 5 1 19 47 33 -178.6544 17.862- 20 4.0
2018 5 1 22 07 29 8.729 77.984 20 4.0
2018 5 1 23 47 2 122.678 23.833 20 4.0
2018 5 2 03 30 49 -1.436 82.328 20 4.0
2018 5 2 04 08 28 50.534 32.442 20 4.0
2018 5 2 07 56 58 -2.993 80.759 20 4.0
2018 5 2 08 33 38 7.690 78.397 20 4.0
2018 5 2 10 10 16 -52.671 36.200 20 4.0
2018 5 2 11 47 44 5.552 60.702 20 4.0
2018 5 2 14 06 42 13.342 78.084 20 4.0
2018 5 2 14 48 21 7.349 78.505 20 4.0
2018 5 2 15 42 25 20.485 67.579 20 4.0
2018 5 2 16 54 24 13.465 66.673 20 4.0
2018 5 2 18 33 22 6.084 60.040 20 4.0
2018 5 2 21 16 16 27.719 36.798 20 4.0
2018 5 2 22 24 31 17.390 75.489 20 4.0
2018 5 2 22 56 9 71.524 36.940 20 4.0
2018 5 2 22 59 11 -5.227 56.235 20 4.0
2018 5 2 23 15 36 10.552 73.700 20 5.0
2018 5 2 23 17 35 10.678 73.900 200 6.0
2018 5 2 23 22 52 10.647 74.600 400 6.6
2018 5 2 23 41 57 10.000 74.800 600 7.0
2018 5 2 23 59 18 14.642 66.369 20 4.0
2018 5 3 00 14 36 -1.465 80.158 20 4.0
2018 5 3 01 12 35 7.549 62.258 20 4.0
2018 5 3 04 32 40 10.658 60.515 20 4.0
2018 5 3 05 30 34 6.895 62.282 20 4.0
.
.
.

```

depth.cpt:

```

# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 500 0 0 255
500 255 255 0 800 255 255 0

```

The bash script:

ex13.sh

```

#!/bin/bash

rm -f .gmtdefaults* .gmtcommands* *_tmp.grd output.eps Plot_stn.ps cptfile

file=Map.ps

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

xmin=-30
xmax=30
ymin=68
ymax=82

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

```



```

R="-R$xmin/$xmax/$ymin/$ymax "
J="-JM$midlon/$midlat/16c"
B="-B30g10/5g5"
J="-Js0/90/30c/60"

gmt grdcut $grdfile -Gtmpf.grd $R -V

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap $B $J $R -K > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -K -O -Ccptfile2.cpt >> $file

gmt pscoast $J -B+t"Map Title" $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2
adjust=-3.0

while read line
do
lon=`echo $line | gawk '{print $1}'` `
lat=`echo $line | gawk '{print $2}'` `
sym=`echo $line | gawk '{print $3}'` `
col=`echo $line | gawk '{print $4}'` `
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}'` `
stn=`echo $line | gawk '{print $6}'` `
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >> $file

lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-Bold+jRB -K >> $file

done < "stations"

gmt psxy $R $J $B -O seismicity.nnsn -Wfaint -i6,7,8,9s0.1 -h1 -Sc -Cdepth.cpt >> $file

gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.1i+h -By+1km -K -P >> $file

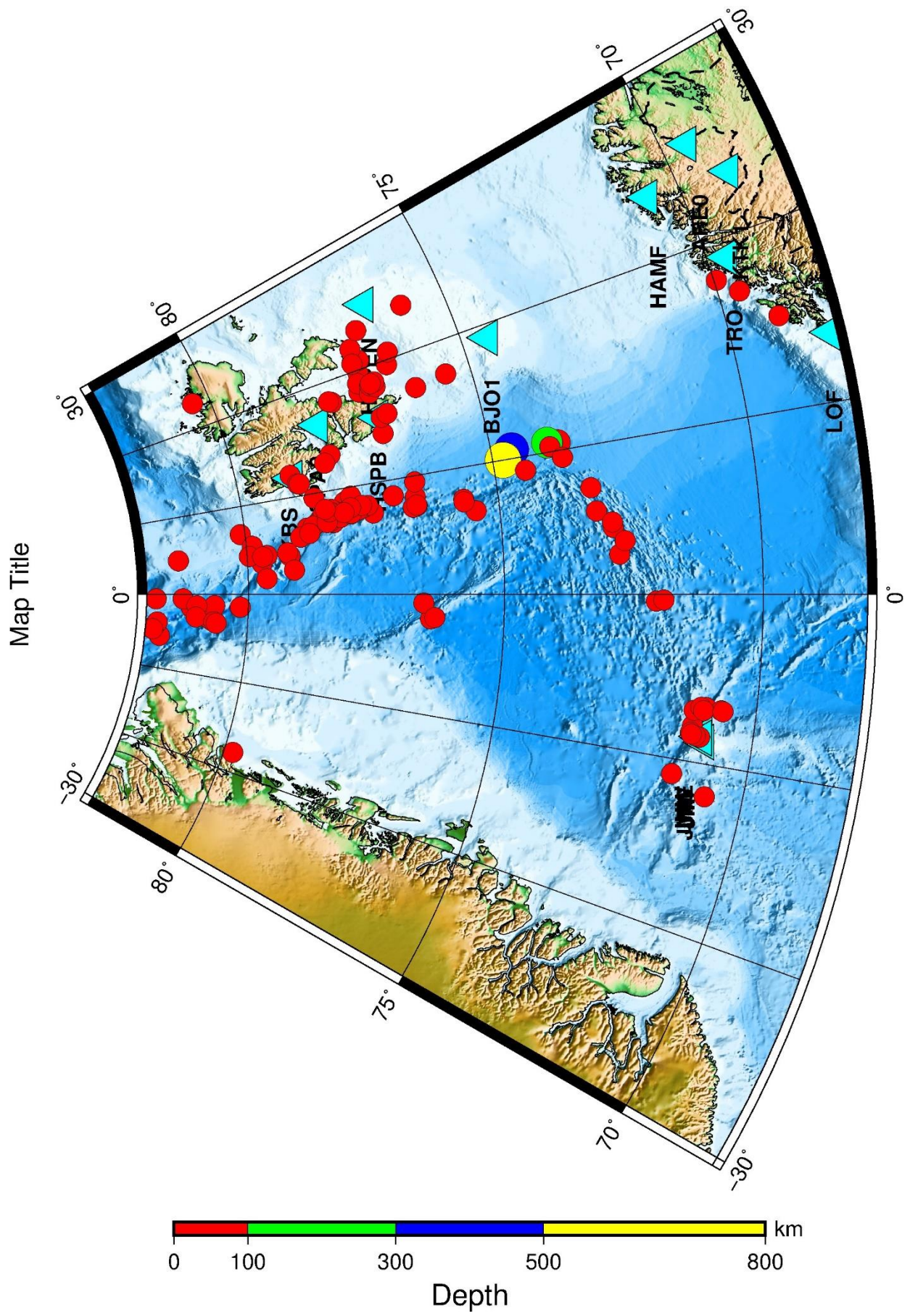
outepts=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outepts

gmt psconvert $outepts -Tj -P

gv $file

```



EX14 Plot events and focal mechanisms and a depth-scale

Input file example:

seismicity.natl

```
2013  6 22 10 48  1 2.0 62.0 500 7.0
2013  6 22 10 48  1 2.457 63.659 50 3.6
2013  6 22 10 48  1 4.741 62.532 110 4.0
2013  6 22 10 48  1 4.427 61.906 50 5.0
2013  6 22 10 48  1 3.888 61.598 150 6.0
2013  6 22 10 48  1 2.634 61.306 50 8.0
```

depth.cpt

```
# color palette for seismicity
#z0  red  green  blue    z1  red  green  blue
0    255   0     0      100 255   0     0
100  0    255   0      300 0    255   0
300  0    0    255     500 0    0    255
500  255  255   0      800 255  255   0
```

psmecha.out

```
2.83  60.56  10.00  319.60  84.40  -7.10  2.80  2.83  60.56  20000505
5.33  59.75  18.00  191.90  57.00  114.00  4.50  5.33  59.75  20000812
5.47  60.04  11.00  115.70  36.00  31.20  2.70  5.47  60.04  20001126
6.98  59.85  15.00  159.80  86.50  -7.80  2.70  6.98  59.85  20001129
5.55  60.06  7.00  340.30  44.00  22.10  2.80  5.55  60.06  20001129
4.79  60.13  4.00  112.10  62.20  -48.60  3.80  4.79  60.13  20001208
3.18  56.56  6.00  356.00  85.00  -95.00  4.90  3.18  56.56  20010507
7.35  60.10  15.00  309.70  80.80  -3.60  2.80  7.35  60.10  20010622
-2.09  52.45  15.00  8.00  81.00  -12.00  5.00  -2.09  52.45  20020922
2.05  60.38  12.00  326.91  56.17  -22.76  2.70  2.05  60.38  20030407
-6.53  71.10  10.00  42.86  42.27  -67.37  3.70  -6.53  71.10  20030512
15.80  72.03  7.00  0.00  0.00  0.00  3.60  15.80  72.03  20030618
23.87  76.49  10.00  276.00  46.00  -104.00  5.10  23.87  76.49  20030704
5.69  66.06  15.00  0.00  0.00  0.00  4.40  5.69  66.06  20030804
2.65  61.67  10.00  333.50  68.53  -13.12  3.30  2.65  61.67  20031215
5.13  60.22  14.50  116.32  80.34  -2.61  2.40  5.13  60.22  20040112
-7.47  71.09  10.50  22.00  82.00  -174.00  6.30  -7.47  71.09  20040414
4.91  60.54  12.00  125.00  90.00  30.00  2.80  4.91  60.54  20041101
7.11  57.54  15.00  140.95  30.06  86.00  1.80  7.11  57.54  20050523
13.46  66.48  5.00  200.93  18.36  -39.82  3.50  13.46  66.48  20050624
13.36  66.41  7.10  15.52  37.16  -22.23  2.30  13.36  66.41  20061231
13.30  66.23  4.80  218.00  16.00  63.00  2.40  13.30  66.23  20070115
13.56  66.58  4.00  338.71  44.91  -51.61  2.00  13.56  66.58  20070616
13.38  66.32  6.00  17.00  65.00  -165.00  2.20  13.38  66.32  20080107
13.37  66.32  6.00  297.76  80.73  -67.69  2.20  13.37  66.32  20080107
-0.08  53.90  19.80  91.00  66.00  150.00  5.20  -0.08  53.90  20080227
13.15  66.35  10.10  136.95  18.11  6.13  1.60  13.15  66.35  20080320
12.99  66.23  7.30  218.14  29.03  14.67  2.00  12.99  66.23  20081102
13.33  66.49  6.30  279.16  16.48  13.67  1.50  13.33  66.49  20100328
```

The bash script:

ex14.sh

```
#!/bin/bash
```

```

file=Map.ps

rm -f *.grd

grdfile=/home/seismo/GMTEXAMPLES/DATA/newbathy.grd

# area map
xmin=-3
xmax=12
ymin=56
ymax=67

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap -B1g1 -B+t"Southern Norway" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >>
$file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy $R $J $B -O seismicity.natl -Wfaint -i6,7,8,9s0.1 -h1 -Scc
-Cdepth.cpt >> $file

gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.1i+h -By+1km
-K -P >> $file

gmt psmea psmea.out -R -J -V -G0/0/255 -Sa1.0/-1 -P -O >> $file

outeps=`echo $file | sed 's/ps/eps/g'`

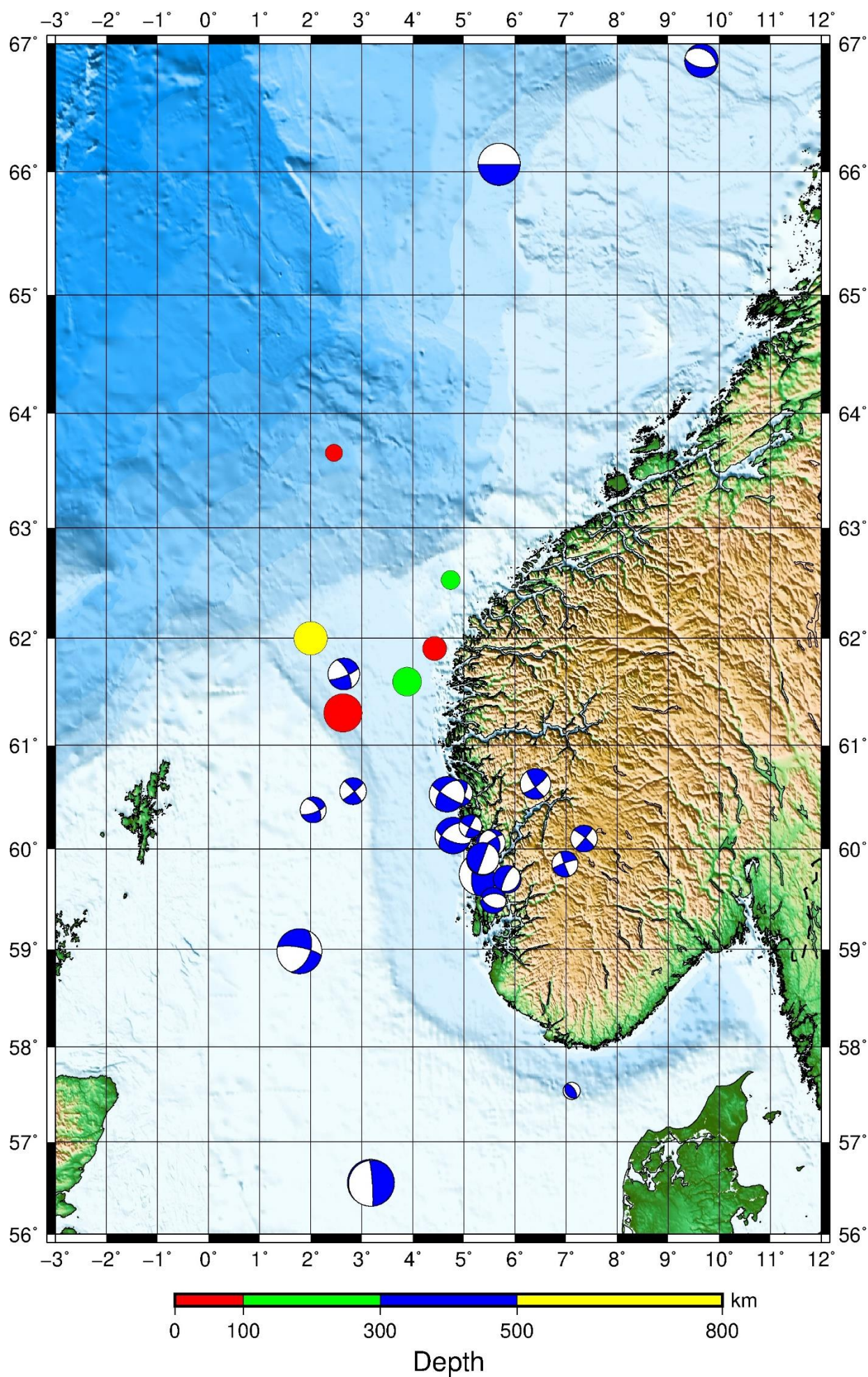
eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

gv $file

```


Southern Norway



EX15 Plot events, stations and a depth-scale

Input file example:

stations

-85.17	11.97	t	cyan	4	ACON
-83.77	12.01	t	cyan	4	BLUN
-86.70	12.50	t	cyan	4	CNGN
-87.03	12.70	t	cyan	4	CRIN
-87.56	12.98	t	cyan	4	CSGN
-84.30	12.20	t	cyan	4	ESPN
-86.37	13.10	t	cyan	4	ESTN
-86.01	12.00	t	cyan	4	MASN
-85.93	12.93	t	cyan	4	MATN
-86.25	12.15	t	cyan	4	MGAN
-86.16	13.48	t	cyan	4	RCON
-86.83	12.60	t	cyan	4	HERN
-86.59	12.18	t	orange	2	COPN
-86.30	11.99	t	orange	2	CRUN
-86.27	12.14	t	orange	2	DECN
-86.82	12.59	t	orange	2	HOYN
-85.64	11.54	t	orange	2	MORN
-86.76	12.58	t	orange	2	PLRN
-86.21	13.53	t	orange	2	RCFN
-84.77	13.71	t	orange	2	SIUN
-86.84	12.57	t	orange	2	TEL3
-86.26	12.14	t	orange	2	TISN
-86.35	12.23	t	orange	2	APYN
-86.34	12.16	t	orange	2	BRAN
-85.62	11.56	t	orange	2	CONN
-85.67	11.52	t	orange	2	JAPN
-86.54	12.40	t	orange	2	MOMN
-86.03	11.74	t	orange	2	NADN
-86.81	12.64	t	orange	2	POLN
-86.51	13.50	t	orange	2	SOMN
-86.83	12.60	t	orange	2	TELN
-86.32	12.14	t	orange	2	XAVN
-87.65	13.28	t	orange	2	AMPH
-88.03	14.15	t	orange	2	MCAH
-86.35	16.39	t	orange	2	ROTH
-87.12	15.12	t	orange	2	YORH
-89.28	13.73	t	orange	2	BOQ6
-88.21	13.77	t	orange	2	CAHU
-87.83	13.27	t	orange	2	CNCH
-89.62	13.83	t	orange	2	SBLS
-88.83	13.61	t	orange	2	SNVI
-88.27	13.44	t	orange	2	VSM

seismicity.nic

2013	6	18	04	46	21	-88.95	12.86	20	3.5
2013	6	18	15	41	11	-89.04	12.83	20	3.3
2013	6	18	19	09	16	-86.52	11.69	20	3.3
2013	6	19	03	14	35	-87.12	11.60	20	2.4
2013	6	19	12	13	53	-87.02	11.68	20	3.2

2013	6	19	14	25	31	-84.14	14.27	20	3.3
2013	6	20	10	16	14	-87.37	15.81	20	4.7
2013	6	20	12	23	43	-86.94	15.77	20	4.0
2013	6	20	17	05	01	-87.78	16.42	20	4.6
2013	6	20	19	25	28	-86.59	12.02	20	3.1
2013	6	20	21	26	10	-87.56	11.78	20	3.5
2013	6	20	23	17	48	-87.07	12.07	20	3.0
2013	6	21	00	17	24	-87.08	11.76	20	2.9
2013	6	21	02	48	38	-87.88	15.67	20	3.0
2013	6	21	04	46	41	-88.94	12.87	20	3.9
2013	6	21	12	36	39	-85.56	11.60	150	1.4
2013	6	22	19	56	32	-87.38	12.16	250	2.6
2013	6	22	21	03	31	-88.39	12.62	300	2.5
2013	6	22	21	23	30	-87.25	12.16	20	3.2
2013	6	22	22	41	25	-87.35	12.38	20	2.4
2013	6	22	01	29	55	-83.20	12.95	20	3.3
2013	6	22	11	35	31	-90.10	14.26	20	4.9
2013	6	23	19	16	41	-87.39	12.14	20	2.9
2013	6	23	14	00	32	-85.64	9.62	20	5.1
2013	6	24	18	01	45	-87.75	15.98	20	3.5
2013	6	24	18	10	35	-87.62	15.95	20	3.3
2013	6	24	23	32	39	-85.53	11.62	20	2.5
2013	6	24	00	24	48	-85.94	11.55	20	2.6
2013	6	24	09	43	07	-84.18	10.17	20	3.3
2013	6	24	12	41	12	-87.13	11.50	20	2.9
2013	6	25	23	15	48	-86.86	12.11	20	2.8
2013	6	25	01	32	29	-86.72	11.48	20	2.7
2013	6	26	20	29	37	-87.54	12.27	20	5.1
2013	6	26	21	37	07	-89.03	12.79	20	3.9
2013	6	26	21	58	22	-88.56	12.81	20	3.3
2013	6	26	03	32	01	-87.05	11.58	20	3.9
2013	6	26	03	43	21	-86.96	12.51	20	3.0
2013	6	26	09	04	03	-86.28	11.00	20	2.7
2013	6	26	09	11	31	-87.27	12.16	20	4.5
2013	6	26	09	33	47	-87.01	11.63	20	3.6
2013	6	27	23	14	21	-87.89	12.43	20	3.0
2013	6	27	03	42	45	-87.57	12.28	20	2.0
2013	6	28	00	53	07	-86.62	12.70	20	1.8
2013	6	28	08	10	15	-87.08	12.18	20	2.5
2013	6	29	06	39	09	-86.49	12.39	20	2.2
2013	6	30	22	37	44	-87.52	12.24	20	2.7
2013	6	30	04	24	23	-86.97	13.16	20	2.2
2013	6	30	14	09	38	-88.38	11.92	20	2.8
2013	7	01	20	05	20	-87.77	12.52	20	3.3
2013	7	01	21	22	54	-87.98	12.74	20	3.2
2013	7	01	00	17	58	-86.50	12.39	20	1.5
2013	7	01	00	54	53	-86.54	12.37	20	2.2
2013	7	01	02	15	42	-86.52	12.38	20	2.4
2013	7	02	18	18	43	-86.94	11.65	20	2.7
2013	7	02	19	21	20	-86.92	11.65	20	2.1
2013	7	02	21	34	26	-87.31	16.00	20	3.3
2013	7	02	23	55	05	-88.62	12.49	20	3.0
2013	7	02	00	30	18	-87.48	15.75	20	2.7
2013	7	02	04	29	07	-86.50	12.39	20	3.2
2013	7	02	04	30	22	-86.51	12.40	20	2.9
2013	7	02	04	33	17	-86.50	12.39	20	2.2
2013	7	02	05	53	39	-85.56	11.26	20	2.8

depth.cpt

```
# color palette for seismicity
#z0  red  green blue      z1  red  green blue
0    255  0    0        100  255  0    0
100  0    255  0        300  0    255  0
300  0    0    255      500  0    0    255
500  255  255  0        800  255  255  0

#!/bin/bash

file=Map.ps

rm -f *.grd

grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Nicaragua map
xmin=-89
xmax=-83
ymin=9
ymax=15

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`

R="-R$xmin/$xmax/$ymin/$ymax"

J="-JM$midlon/$midlat/16c"

gmt grdcut  $grdfile  $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap -Blg1 -B+t"Nicaragua" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >>
$file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

sizecoef=.2

# Variable used inside loop to adjust position of text-label
adjust=-0.2

while read line
do
lon=`echo $line | gawk '{print $1}'` `
lat=`echo $line | gawk '{print $2}'` `
sym=`echo $line | gawk '{print $3}'` `
```



```

col=`echo $line | gawk '{print $4}' `
cof=`echo $line | gawk -v var=$sizecoef '{print $5*var}' `
stn=`echo $line | gawk '{print $6}' `
#echo $lon $lat $sym $col $cof

echo $lon $lat $sym$cof | gmt psxy $J $R -O -K -S -W -G$col >>
$file

# Compute new longitude for text-label
lon2=$(echo "$lon + $adjust"|bc)

echo $lon2 $lat $stn | gmt pstext $J $R -O -F+f12p,Helvetica-
Bold+jRB -K >> $file

done < "stations"

gmt psxy $R $J $B -O seismicity.nic -Wfaint -i6,7,8,9s0.1 -h1 -Scc -
Cdepth.cpt >> $file

gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.1i+h -By+lkm
-K -P >> $file

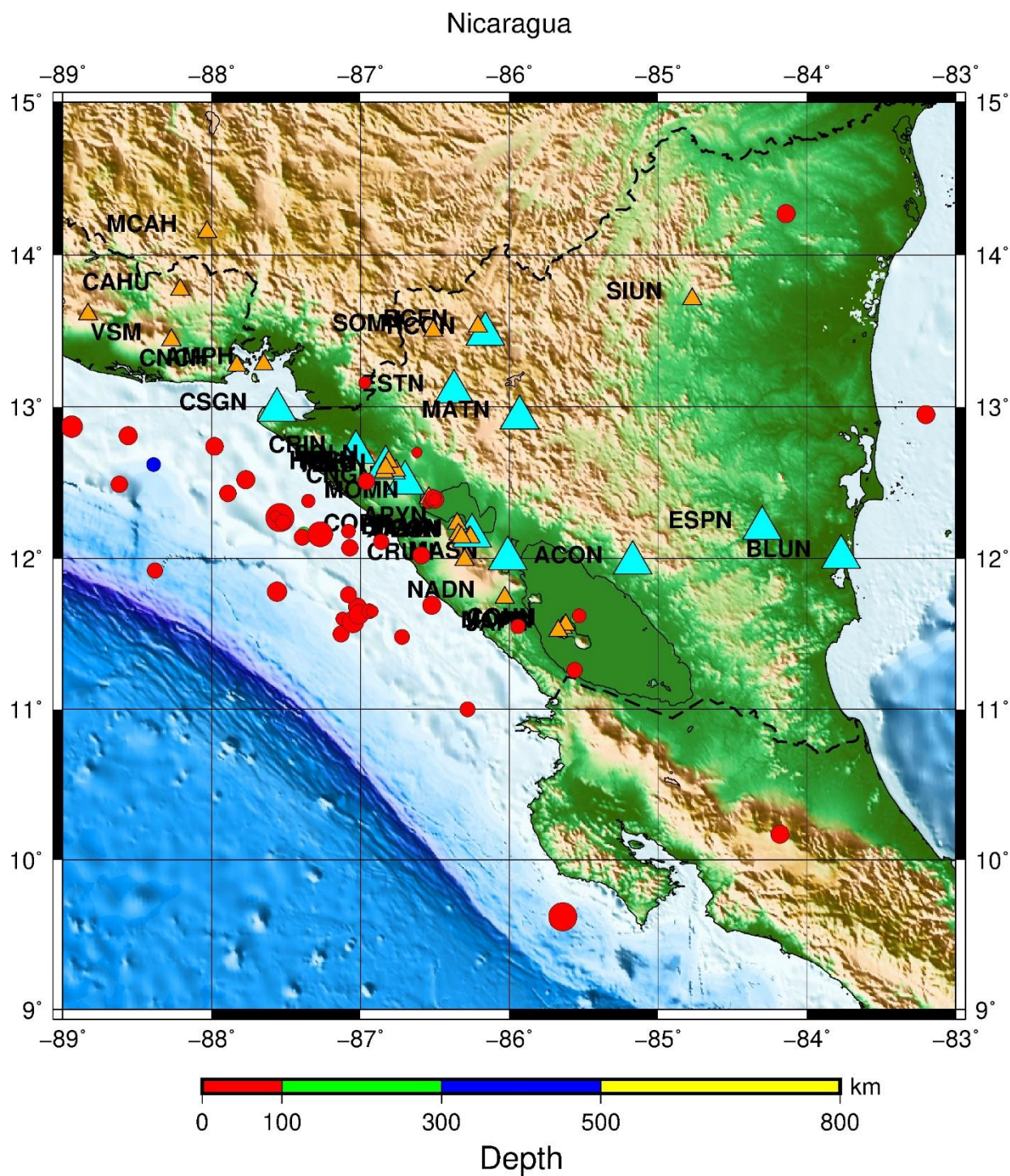
outeps=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

gv $file

```



EX16 Plot events and focal mechanisms and a depth-scale

Input file example:

seismicity.natl

```

2013  6 17 12 40 50 -11.114 71.96  2 3.3
2013  6 21 03 00 49 -11.699 71.78  1 4.1
2013  6 22 02 09 03 -11.171 71.671 600 6.3
2013  6 22 10 48  1 -10.872 71.628  0 3.7
2013  6 17 12 40 50 -10.314 71.86  101 4.3

```

```

2013  6 21 03 00 49 -10.599 71.68    200 5.1
2013  6 22 02 09 03 -9.771  71.471  305 7.3
2013  6 22 10 48  1 -9.672  71.328  510 4.7
2013  6 22 02 09 03 -10.754 71.525  10 2.9
2013  6 22 02 09 03 -10.706 71.561  10 3.6
2013  6 22 02 09 03 -9.232 71.325 101 4.6

```

depth.cpt

```

# color palette for seismicity
#z0  red  green blue    z1  red  green blue
0    255   0    0      100 255   0    0
100  0    255   0      300 0    255   0
300  0    0    255     500 0    0    255
500  255  255   0      800 255  255   0

```

psmeca.out

```

-8.30  71.15  12.00   8.30  41.00  74.70   2.20  -8.30  71.15 19960607
-9.00  71.30  12.00   8.30  41.00  74.70   2.20  -9.00  71.30 19960607
-7.50  71.00  12.00   8.30  41.00  74.70   2.20  -7.50  71.00 19960607

```

```
#!/bin/bash
```

```
file=Map.ps
```

```
rm -f *.grd
```

```
grdfile=/home/seismo/GMTEXAMPLES/DATA/newbathy.grd
```

```
# Norway map
```

```
xmin=-14
```

```
xmax=-4
```

```
ymin=70
```

```
ymax=73
```

```
midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
```

```
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
```

```
R="-R$xmin/$xmax/$ymin/$ymax"
```

```
J="-JM$midlon/$midlat/16c"
```

```
gmt grdcut $grdfile $R -Gtmpf.grd
```

```
gmt grdinfo tmpf.grd
```

```
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt
```

```
gmt psbasemap -Blg1 -B+t"Jan Mayen" $J $R -K -P > $file
```

```
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
```

```
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >>
$file
```

```
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file
```

```
gmt psxy $R $J $B -O seismicity.natl -Wfaint -i6,7,8,9s0.1 -h1 -Scc
-Cdepth.cpt >> $file
```

```
gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.1i+h -By+lkm
-K -P >> $file
```

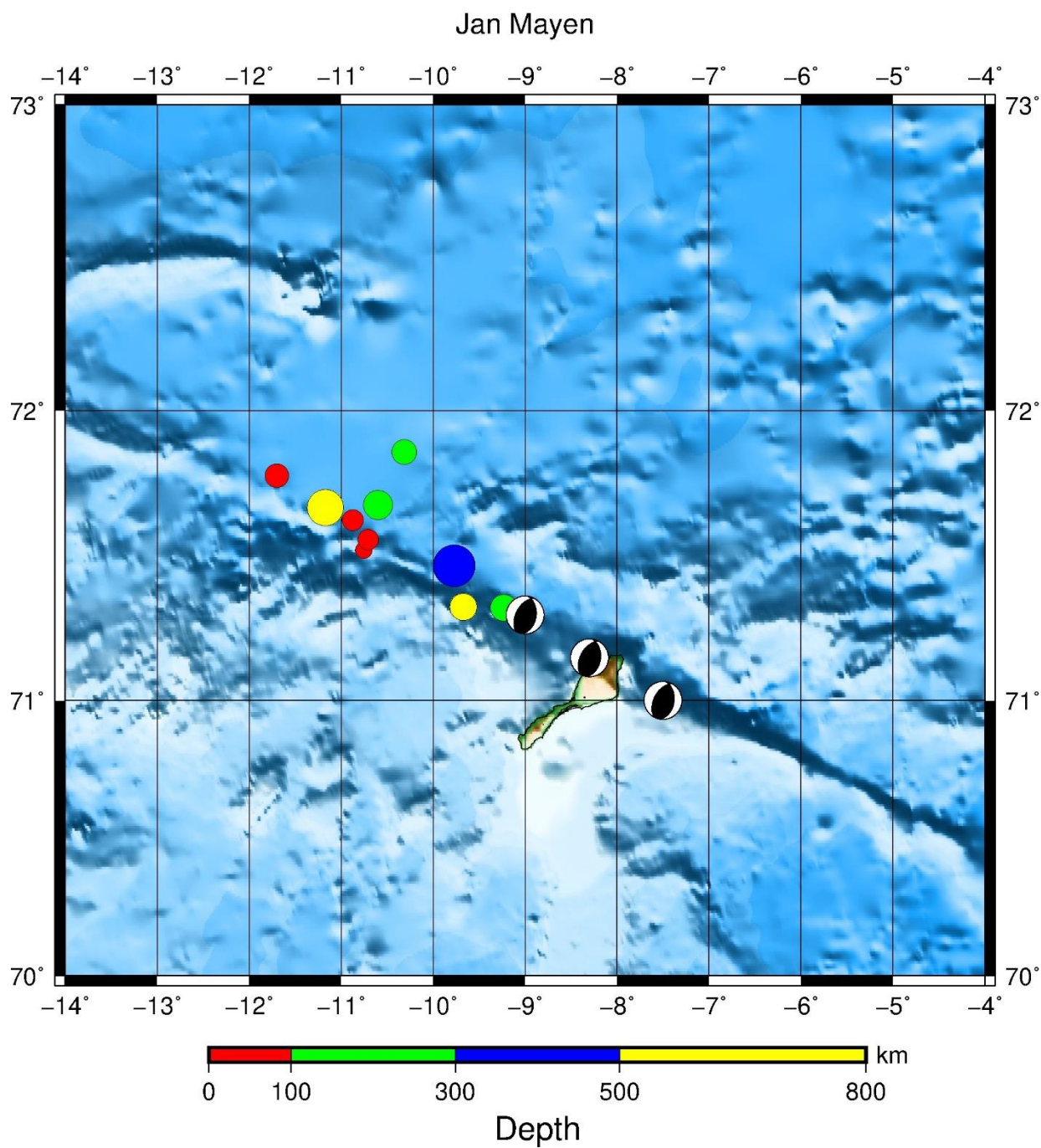
```
gmt psmecca psmecca.out -R -J -V -Sa1.5/-1 -P -O >> $file
```

```
outeps=`echo $file | sed 's/ps/eps/g'`
```

```
eps2eps $file $outeps
```

```
gmt psconvert $outeps -Tj -P
```

```
gv $file
```

EX17 Plot events and a depth-scale

Input file example:

ALL_EPI.txt

2018/11/06	19:31:46.9	71.182	-8.354	17.1	2.1
2018/11/08	13:47:34.2	70.955	-7.250	10.0	3.4
2018/11/09	01:49:37.2	71.671	-11.171	10.0	6.3
2018/11/09	02:04:37.8	71.495	-11.340	0.0	3.8
2018/11/09	02:10:09.9	71.561	-10.706	0.1	3.6
2018/11/09	02:30:46.4	71.960	-11.114	1.6	3.3
2018/11/09	02:39:00.7	71.540	-11.053	0.0	3.9
2018/11/09	02:44:03.3	71.394	-9.687	0.0	2.4

2018/11/09	02:52:26.0	71.497	-11.056	0.0	3.9
2018/11/09	03:07:03.1	71.026	-11.215	0.0	2.2
2018/11/09	03:48:21.3	71.471	-10.353	3.2	2.7
2018/11/09	04:06:42.8	71.483	-11.049	3.0	3.9
2018/11/09	04:11:37.1	71.513	-11.043	0.0	3.5
2018/11/09	04:18:58.5	71.427	-7.180	0.0	2.2
2018/11/09	04:32:05.6	71.481	-10.723	0.0	2.2
2018/11/09	05:21:24.0	71.519	-10.935	3.0	4.2
2018/11/09	05:36:39.8	71.115	-11.036	1.1	2.1
2018/11/09	05:45:27.5	71.510	-11.799	0.0	4.2
2018/11/09	06:24:18.0	71.378	-10.998	0.0	2.4
2018/11/09	07:35:37.3	71.499	-11.004	1.6	3.0
2018/11/09	08:06:06.8	71.780	-11.699	1.1	4.1
2018/11/09	08:27:38.3	71.328	-10.828	0.0	2.5
2018/11/09	09:20:31.5	71.471	-10.638	10.0	2.5
2018/11/09	10:32:55.4	71.529	-10.475	18.0	2.6
2018/11/09	10:33:52.8	71.478	-9.861	3.2	2.1
2018/11/09	13:20:44.7	71.368	-12.016	0.1	3.6
2018/11/09	14:52:26.7	71.628	-10.872	0.0	3.7
2018/11/11	12:20:19.8	71.525	-10.754	0.0	2.9
2018/11/11	12:28:27.3	70.941	-7.458	0.0	2.5
2018/11/11	17:15:29.5	71.264	-9.320	19.5	2.9
2018/11/11	18:43:02.3	71.325	-9.232	3.0	2.4
2018/11/12	01:30:17.7	70.590	-8.314	10.0	2.1
2018/11/12	01:54:59.1	71.228	-9.511	0.0	4.0
2018/11/12	02:10:39.5	71.278	-9.263	0.0	2.1
2018/11/12	03:33:37.5	71.342	-9.200	3.0	2.3
2018/11/12	03:59:24.8	71.334	-9.269	3.0	2.4
2018/11/12	05:05:46.9	71.440	-10.922	0.0	3.7
2018/11/12	06:49:58.7	71.316	-9.369	10.0	2.4
2018/11/12	07:10:36.7	71.340	-9.345	3.0	2.0
2018/11/12	09:49:13.7	70.992	-8.183	6.9	0.0
2018/11/12	14:22:06.6	71.295	-9.326	0.0	1.9
2018/11/12	14:29:47.2	71.127	-9.397	0.0	3.4
2018/11/12	14:32:31.5	71.358	-9.233	3.0	2.0
2018/11/12	15:51:05.7	71.288	-9.118	0.0	2.1
2018/11/12	18:23:15.0	71.197	-9.410	0.0	1.6
2018/11/12	22:04:22.2	71.211	-9.114	0.0	1.8
2018/11/12	23:52:00.6	71.283	-9.260	0.1	1.8
2018/11/13	03:43:40.9	71.393	-10.006	3.0	1.9
2018/11/13	05:52:35.8	70.648	-7.987	0.0	2.2
2018/11/13	05:59:27.2	71.279	-9.343	0.0	1.7
2018/11/13	08:37:28.3	71.319	-9.181	3.0	1.6
2018/11/13	09:04:05.3	70.649	-8.361	0.0	2.0
2018/11/13	09:06:11.4	71.253	-9.901	0.0	4.5
2018/11/13	10:09:59.1	71.251	-9.241	0.0	1.9
2018/11/13	10:22:18.3	70.620	-8.040	0.0	2.0
2018/11/13	11:06:54.8	71.247	-9.322	0.0	1.8
2018/11/13	12:17:37.1	71.267	-9.251	0.1	2.3
2018/11/13	19:04:03.3	71.278	-9.295	0.0	1.6
2018/11/13	21:19:48.9	71.336	-9.185	2.9	1.3
2018/11/13	21:50:36.0	71.200	-9.467	0.0	1.6
2018/11/14	03:38:34.6	70.649	-8.449	0.0	1.9
2018/11/14	05:28:09.6	71.536	-10.842	1.7	2.9
2018/11/14	05:55:41.0	71.249	-9.215	0.0	1.7
2018/11/14	06:44:20.4	71.332	-9.290	10.0	1.6
2018/11/14	08:06:01.3	71.283	-9.236	0.0	2.2
2018/11/14	10:20:34.3	71.083	-7.772	0.0	2.7

2018/11/14	16:57:10.0	71.344	-9.268	3.0	2.7
2018/11/14	21:12:01.3	71.335	-9.222	10.0	2.0
2018/11/14	21:31:21.3	70.638	-8.455	0.0	1.9
2018/11/14	23:15:33.8	71.099	-7.600	0.0	2.0
2018/11/14	23:59:48.7	71.333	-9.318	3.0	2.1
2018/11/15	00:09:05.6	71.269	-9.845	0.0	4.9
2018/11/15	00:15:57.9	71.242	-9.108	0.0	2.7
2018/11/15	00:37:17.6	71.387	-8.533	3.0	1.6
2018/11/15	00:46:56.0	71.286	-9.142	0.0	2.0
2018/11/15	01:04:48.6	70.891	-6.647	0.0	2.4
2018/11/15	01:14:55.4	71.286	-9.379	1.6	2.1
2018/11/15	01:27:48.4	71.273	-9.207	0.0	2.1
2018/11/15	03:42:05.2	71.220	-9.421	1.6	1.9
2018/11/15	03:57:52.0	71.242	-9.020	0.0	1.4
2018/11/15	04:20:51.5	71.310	-9.273	3.0	1.8
2018/11/15	05:14:21.1	71.413	-8.729	3.0	1.7
2018/11/15	05:35:52.5	71.356	-9.170	3.0	1.8
2018/11/15	07:54:38.2	71.310	-9.355	3.0	2.5
2018/11/15	08:35:28.9	71.321	-9.253	3.0	1.7
2018/11/15	08:47:47.1	71.333	-9.283	3.0	1.8
2018/11/15	09:51:42.3	71.445	-8.567	3.0	1.5
2018/11/15	10:53:54.3	71.158	-9.424	0.0	2.3
2018/11/15	13:38:14.9	71.162	-9.449	0.0	1.8
2018/11/15	14:34:19.4	71.238	-9.795	0.0	2.7
2018/11/15	16:53:19.5	71.242	-9.759	0.0	3.2
2018/11/15	22:06:23.3	71.141	-8.392	20.0	2.2

depth.cpt

color palette for seismicity

#z0	red	green	blue	z1	red	green	blue
0	255	0	0	100	255	0	0
100	0	255	0	300	0	255	0
300	0	0	255	500	0	0	255
500	255	255	0	800	255	255	0

#!/bin/bash

file=Map.ps

rm -f *.grd

grdfile=/home/seismo/GMTEXAMPLES/DATA/newbathy.grd

#grdfile=/home/seismo/GMTEXAMPLES/DATA/ETOPO10_Bed_c_gdal.grd

#grdfile=/home/seismo/GMTEXAMPLES/DATA/Bathymetry_GEBCO_30s_world.grd

area map

xmin=-14

xmax=-4

ymin=70

ymax=73

midlon=`gmt gmtmath -Q \$xmin \$xmax ADD 2 DIV =`

midlat=`gmt gmtmath -Q \$ymin \$ymax ADD 2 DIV =`

R="-R\$xmin/\$xmax/\$ymin/\$ymax"

```
J="-JM$midlon/$midlat/16c"

gmt grdcut $grdfile $R -Gtmpf.grd

gmt grdinfo tmpf.grd

gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

gmt psbasemap -B1g1 -B+t"Jan Mayen" $J $R -K -P > $file

gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd

gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >>
$file

gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

gmt psxy $R $J $B -O ALL_EPI.txt -Wfaint -i3,2,4,5s0.1 -h1 -Scc -
Cdepth.cpt >> $file

gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.1i+h -By+1km
-K -P >> $file

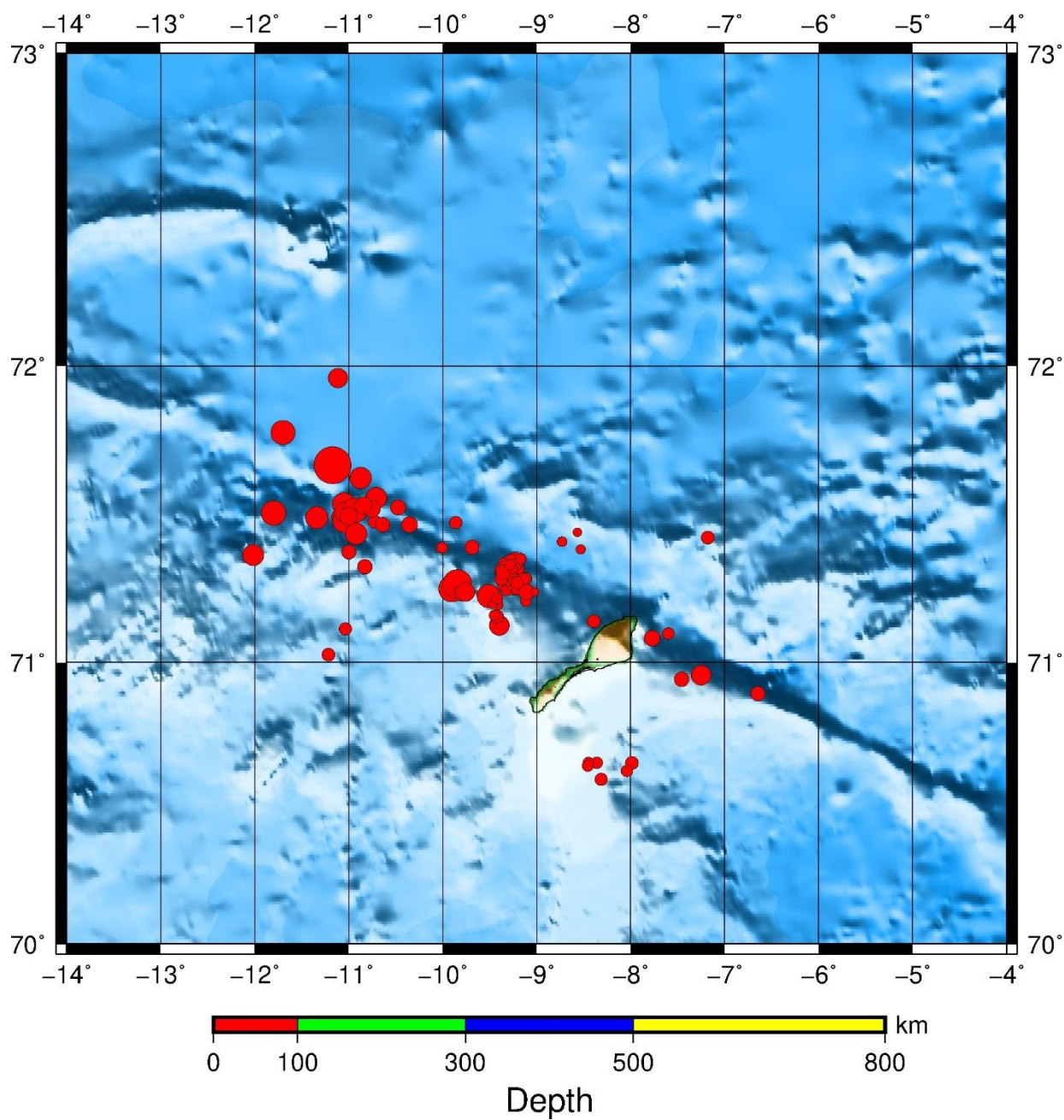
outeps=`echo $file | sed 's/ps/eps/g'`

eps2eps $file $outeps

gmt psconvert $outeps -Tj -P

gv $file
```


Jan Mayen



EX18 a) events, focal mechanisms and depth-scale. b) same as a) but with bottom legend

Input file example:

SRN.txt

```
5.019516362346828 65.41524425083982
4.947228430378107 65.36720829328469
4.904097682893287 65.32593417232923
4.878556714672504 65.2882138240668
4.824380699372535 65.24377260252297
4.802761822768773 65.21406810388999
```

4.801667151659414	65.17773497820853
4.806838219002398	65.12105305535525
4.857731668335463	65.0746558367135
4.897946139060285	65.022550557919
4.88855675205145	64.9729910326444
4.874769688515119	64.91806349464032
4.84394794203488	64.85966707280778
4.819971288828322	64.7991155992818
4.773194646819137	64.73476423445504
4.683304119093872	64.65517215172954
4.586144560610769	64.56229679381194
4.445520451400739	64.47715607995305
4.314051383649639	64.3847102477789
4.160120469418656	64.27280398481616
4.014047774086604	64.1586144509522
3.872250685916772	64.07014749366894
3.710033791764791	63.9750257310155

gmtxyz.K2

3.000	70.000	200.0	1.0
4.000	70.000	200.0	2.0
5.000	70.000	200.0	3.0
6.000	70.000	200.0	4.0
7.000	70.000	200.0	5.0
8.000	70.000	200.0	6.0
9.000	70.000	200.0	7.0
10.000	70.000	200.0	8.0
6.047	59.384	0.0	1.10000
8.976	58.363	25.8	1.10000
13.047	67.037	21.4	0.90000
5.043	61.832	0.0	1.70000
11.503	61.154	0.0	1.10000
10.954	59.975	0.0	1.20000
11.044	59.115	0.0	1.20000
5.026	60.784	0.0	0.90000
7.833	78.258	13.1	2.50000
6.675	62.482	0.0	1.20000
8.621	77.882	18.3	2.60000
20.966	66.993	0.0	1.90000
11.515	60.482	20.5	0.30000
26.882	67.551	0.0	0.90000
5.035	61.627	0.0	1.10000
8.728	77.994	10.0	2.60000
15.910	68.120	15.0	2.40000
15.558	76.931	2.9	1.70000
7.458	75.478	15.0	3.70000
6.311	59.639	15.0	1.20000
15.079	68.760	15.0	1.40000
20.642	67.927	0.0	1.30000
8.970	58.571	0.0	1.10000
9.169	74.707	16.1	3.50000
8.670	74.667	10.0	3.40000
5.664	59.837	2.1	0.80000

30.440	69.559	0.0	0.70000
4.607	79.693	10.0	2.90000
8.894	77.750	10.0	2.20000
7.713	78.097	10.0	2.40000
5.547	60.710	0.0	1.20000
6.918	58.767	0.0	1.60000
7.544	78.318	10.0	2.20000
13.465	66.613	21.8	1.50000
14.523	67.771	12.1	0.50000
14.757	66.411	0.0	1.10000
19.652	77.427	14.1	1.30000
4.258	61.313	13.6	1.20000
8.014	77.263	3.0	2.30000
26.844	67.600	0.0	1.20000
3.056	79.118	27.0	2.90000
13.665	59.380	0.0	1.80000
30.488	64.737	0.0	1.60000
9.758	59.793	0.0	1.10000
14.901	67.858	0.0	0.80000
13.235	64.730	0.0	1.00000
6.057	59.362	0.0	1.30000

.
.
.

quakes.cpt

```
# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255
```

depth.cpt

```
# color palette for seismicity
#z0 red green blue z1 red green blue
0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 500 0 0 255
500 255 255 0 800 255 255 0
```

psmeca.out

13.33	66.49	6.30	279.16	16.48	13.67	1.50	13.33	66.49	20100328
13.36	66.40	7.50	23.36	22.76	-14.51	2.30	13.36	66.40	20100802
5.36	59.90	8.00	138.00	57.00	-42.00	3.10	5.36	59.90	20101220
5.36	59.90	8.00	243.40	57.70	-176.00	3.10	5.36	59.90	20101220
5.36	59.90	8.00	50.00	75.00	174.00	3.10	5.36	59.90	20101220
5.36	59.90	8.00	314.80	78.01	-87.96	3.10	5.36	59.90	20101220
5.37	59.90	17.00	60.00	63.00	-167.00	3.40	5.37	59.90	20101220
5.37	59.90	17.00	110.00	5.00	0.00	3.40	5.37	59.90	20101220
6.40	60.63	15.30	58.00	68.00	178.00	3.20	6.40	60.63	20120324
6.40	60.63	15.30	53.10	76.90	170.40	3.20	6.40	60.63	20120324
13.33	66.43	5.00	324.20	46.00	-118.30	2.30	13.33	66.43	20130918
13.33	66.43	5.00	205.00	80.00	-90.00	2.30	13.33	66.43	20130918
9.77	67.48	14.70	14.30	42.30	-79.60	2.30	9.77	67.48	20130918

14.12	67.45	8.00	43.65	57.20	-32.73	2.60	14.12	67.45	20131010
14.12	67.45	8.00	85.11	7.07	44.89	2.60	14.12	67.45	20131010
14.12	67.45	8.00	277.20	44.90	121.60	2.60	14.12	67.45	20131010
13.46	66.68	3.80	108.00	61.00	-82.00	2.50	13.46	66.68	20140124
13.46	66.68	3.80	123.49	55.15	-83.90	2.50	13.46	66.68	20140124
13.46	66.68	3.80	123.00	49.00	-53.00	2.50	13.46	66.68	20140124
13.46	66.68	3.80	265.30	56.00	-108.30	2.50	13.46	66.68	20140124
13.40	66.95	3.50	70.70	8.40	-26.50	2.70	13.40	66.95	20140307
13.40	66.95	3.50	85.00	38.00	-56.00	2.70	13.40	66.95	20140307
13.40	66.95	3.50	63.02	15.79	-71.32	2.70	13.40	66.95	20140307
13.40	66.95	3.50	201.70	63.00	-139.90	2.70	13.40	66.95	20140307
12.36	66.31	12.40	335.10	53.70	96.30	1.80	12.36	66.31	20140421
12.36	66.31	12.40	188.05	65.41	78.99	1.80	12.36	66.31	20140421
12.36	66.31	12.40	336.00	46.30	98.60	1.80	12.36	66.31	20140421
15.19	67.08	6.60	17.10	67.70	-143.00	1.80	15.19	67.08	20140531
15.19	67.08	6.60	249.82	43.96	-60.48	1.80	15.19	67.08	20140531
15.19	67.08	6.60	21.90	62.40	-120.40	1.80	15.19	67.08	20140531
15.19	67.08	6.60	13.00	56.00	-142.00	1.80	15.19	67.08	20140531
11.59	68.37	8.30	82.80	83.60	77.50	2.10	11.59	68.37	20140604
11.59	68.37	8.30	70.00	88.00	54.00	2.10	11.59	68.37	20140604
11.59	68.37	8.30	80.26	85.08	79.96	2.10	11.59	68.37	20140604
11.59	68.37	8.30	265.00	84.20	-90.00	2.10	11.59	68.37	20140604
13.34	66.39	2.60	271.70	32.50	45.10	1.10	13.34	66.39	20140606
9.65	66.87	17.50	28.43	42.06	31.11	3.50	9.65	66.87	20140607
9.65	66.87	17.50	315.90	28.70	-64.40	3.50	9.65	66.87	20140607
9.65	66.87	17.50	106.90	57.40	-102.20	3.50	9.65	66.87	20140607
9.65	66.87	17.50	100.00	58.00	-102.00	3.50	9.65	66.87	20140607
13.42	66.67	7.50	41.55	31.61	-49.26	2.10	13.42	66.67	20140614
13.42	66.67	7.50	36.00	33.00	-62.00	2.10	13.42	66.67	20140614
13.42	66.67	7.50	186.20	72.90	-119.00	2.10	13.42	66.67	20140614
13.42	66.67	7.50	41.55	31.61	-49.26	2.10	13.42	66.67	20140614
13.42	66.67	7.50	38.00	32.00	-62.00	2.10	13.42	66.67	20140614
13.42	66.67	7.50	202.70	88.00	-68.90	2.10	13.42	66.67	20140614
13.42	66.67	7.50	65.40	25.80	-16.50	2.10	13.42	66.67	20140614
13.47	66.67	3.40	350.00	50.00	-90.00	2.20	13.47	66.67	20140623
13.47	66.67	3.40	16.80	68.60	-81.60	2.20	13.47	66.67	20140623
13.47	66.67	3.40	0.00	57.00	-82.00	2.20	13.47	66.67	20140623
13.47	66.67	3.40	154.00	41.00	-93.60	2.20	13.47	66.67	20140623
9.94	68.07	15.00	36.90	75.60	-125.90	1.90	9.94	68.07	20141028
13.41	66.69	4.20	215.00	90.00	85.00	2.50	13.41	66.69	20150219
13.41	66.69	4.20	246.40	29.40	39.10	2.50	13.41	66.69	20150219
13.43	66.65	4.80	41.34	75.06	-84.82	2.80	13.43	66.65	20150411
13.43	66.65	4.80	41.34	75.06	-84.82	2.80	13.43	66.65	20150411
13.43	66.65	4.80	269.89	7.07	-44.89	2.80	13.43	66.65	20150411
13.44	66.65	3.60	40.76	66.76	-74.73	3.30	13.44	66.65	20150424
13.44	66.65	3.60	132.40	45.00	165.00	3.30	13.44	66.65	20150424
13.44	66.65	3.60	31.14	63.94	-24.23	3.30	13.44	66.65	20150424
13.44	66.65	3.60	214.18	50.18	-83.48	3.30	13.44	66.65	20150424
13.44	66.65	3.60	215.00	40.00	-90.00	3.30	13.44	66.65	20150424
5.85	59.70	15.40	75.30	18.30	-33.90	2.90	5.85	59.70	20150723
5.85	59.70	15.40	230.04	71.25	-68.83	2.90	5.85	59.70	20150723
5.85	59.70	15.40	54.00	18.00	-62.00	2.90	5.85	59.70	20150723
24.24	69.35	6.10	133.20	45.40	22.70	1.60	24.24	69.35	20150731
11.35	67.70	20.60	292.62	76.43	64.23	2.10	11.35	67.70	20150803
13.01	66.63	14.30	8.58	30.38	-80.08	3.00	13.01	66.63	20150809
13.01	66.63	14.30	352.70	26.40	-98.80	3.00	13.01	66.63	20150809
13.01	66.63	14.30	10.30	40.80	-79.10	3.00	13.01	66.63	20150809
13.01	66.63	14.30	2.00	32.00	-82.00	3.00	13.01	66.63	20150809
13.01	66.63	14.30	10.00	18.00	-62.00	3.00	13.01	66.63	20150809
13.01	66.63	14.30	27.70	30.20	-47.80	3.00	13.01	66.63	20150809
13.01	66.63	14.30	15.41	56.36	-71.89	3.00	13.01	66.63	20150809
13.01	66.63	14.30	24.60	32.30	-34.50	3.00	13.01	66.63	20150809
5.57	59.49	12.20	115.92	48.65	-65.69	2.70	5.57	59.49	20170625
1.78	58.98	11.30	280.71	75.48	-39.86	4.70	1.78	58.98	20170630
4.67	60.53	12.50	-52.00	90.00	62.00	3.70	4.67	60.53	20171107
4.67	60.53	12.50	337.30	66.10	61.50	3.70	4.67	60.53	20171107
4.67	60.53	12.50	122.14	81.46	-34.07	3.70	4.67	60.53	20171107

```

#!/bin/bash
file=Map.ps
grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd
# Norway map
xmin=0
xmax=33
ymin=54
ymax=73
midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"

#Make a 1-degree grid
#B="-B1a1f1g1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd
gmt grdinfo tmpf.grd
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

#Create map with top title
gmt psbasemap $B -B+t"Norway" $J $R -K -P > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

# Draw fault-line
gmt psxy SRN.txt -R -JM -W2,black -O -K >> $file

# Add text on a longitude/latitude on map
gmt pstext -R -J -N -K -O -V -F+f25,1,blue+j << EOF >> $file
8.0 65.6 BR Fault line
EOF

# Draw seismic events
gmt psxy -R -J -O gmtxyz.K2 -Wfaint -i0,1,2,3s0.1 -h3 -Sc -Cquakes.cpt
>> $file

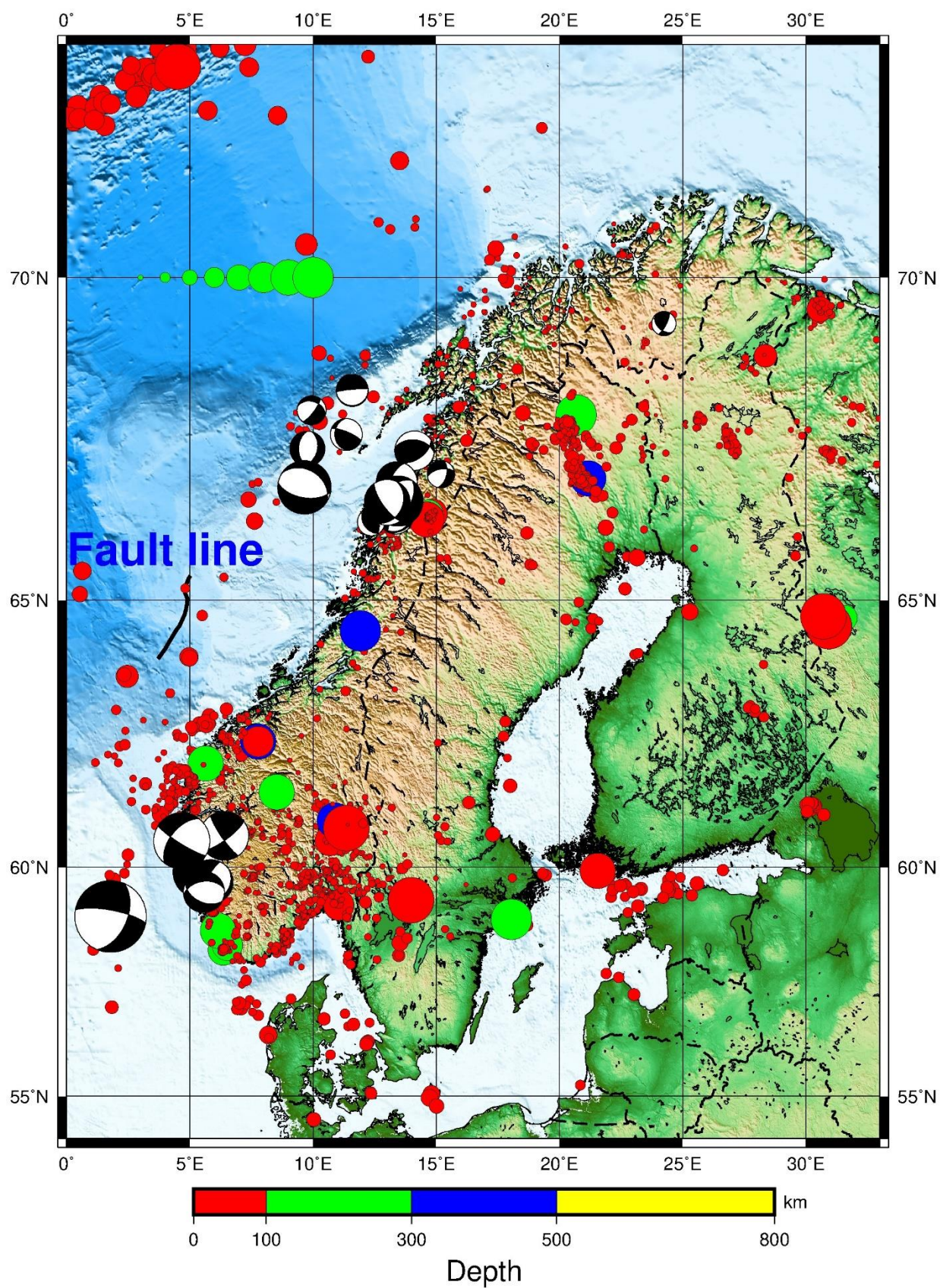
# Draw depth-scale
gmt psscale -Cdepth.cpt -B+l"Depth" -Dx2.5/-1.5c+w4.5i/0.2i+h -By+1km -K
-P >> $file

# Draw focal mec.
gmt psmeca psmeca.out -R -J -V -Sa1.5/-1 -P -O >> $file

outeps=`echo $file | sed 's/ps/eps/g'`
eps2eps $file $outeps
gmt psconvert $outeps -Tj -P
gv $file

```


Norway



```

#!/bin/bash
file=Map.ps
grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd
# Norway map
xmin=0
xmax=33
ymin=54
ymax=73
midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"

#Make a 1-degree grid
#B="-Bl1flg1"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd
gmt grdinfo tmpf.grd
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

#Create map with top title
gmt psbasemap $B -B+t"Norway" $J $R -K -P > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

# Draw fault-line
gmt psxy SRN.txt -R -JM -W2,black -O -K >> $file

# Add text on a longitude/latitude on map (f12: size text)
gmt pstext -R -J -N -K -O -V -F+f12,1,blue+j << EOF >> $file
8.0 65.6 BR Fault line
EOF

# Add text on a longitude/latitude as sub-title outside map
gmt pstext -R -J -N -K -O -V -F+f15,1,black+j << EOF >> $file
15.0 50.0 BR -----
EOF

# Draw seismic events (-h3: lines to skip on top) (0.06 size magnitude
circles)
gmt psxy -R -J -O gmtxyz.K2 -Wfaint -i0,1,2,3s0.06 -h3 -Sc -Cquakes.cpt
-K >> $file

# Draw focal mec. (1.0: size focmec circles)
gmt psmea psmea.out -R -J -V -Sa1.0/-1 -P -O -K >> $file

# Create legend input file for NEIS quake plot
# the line: N 1.9i 2.4i 2.0i placement of circles
cat > neis.legend << END
N 1.9i 2.4i 2.0i
#V 0 1p
S 0.1i c 0.1i red 0.25p 0.2i Shallow depth (0-100 km)

```

```

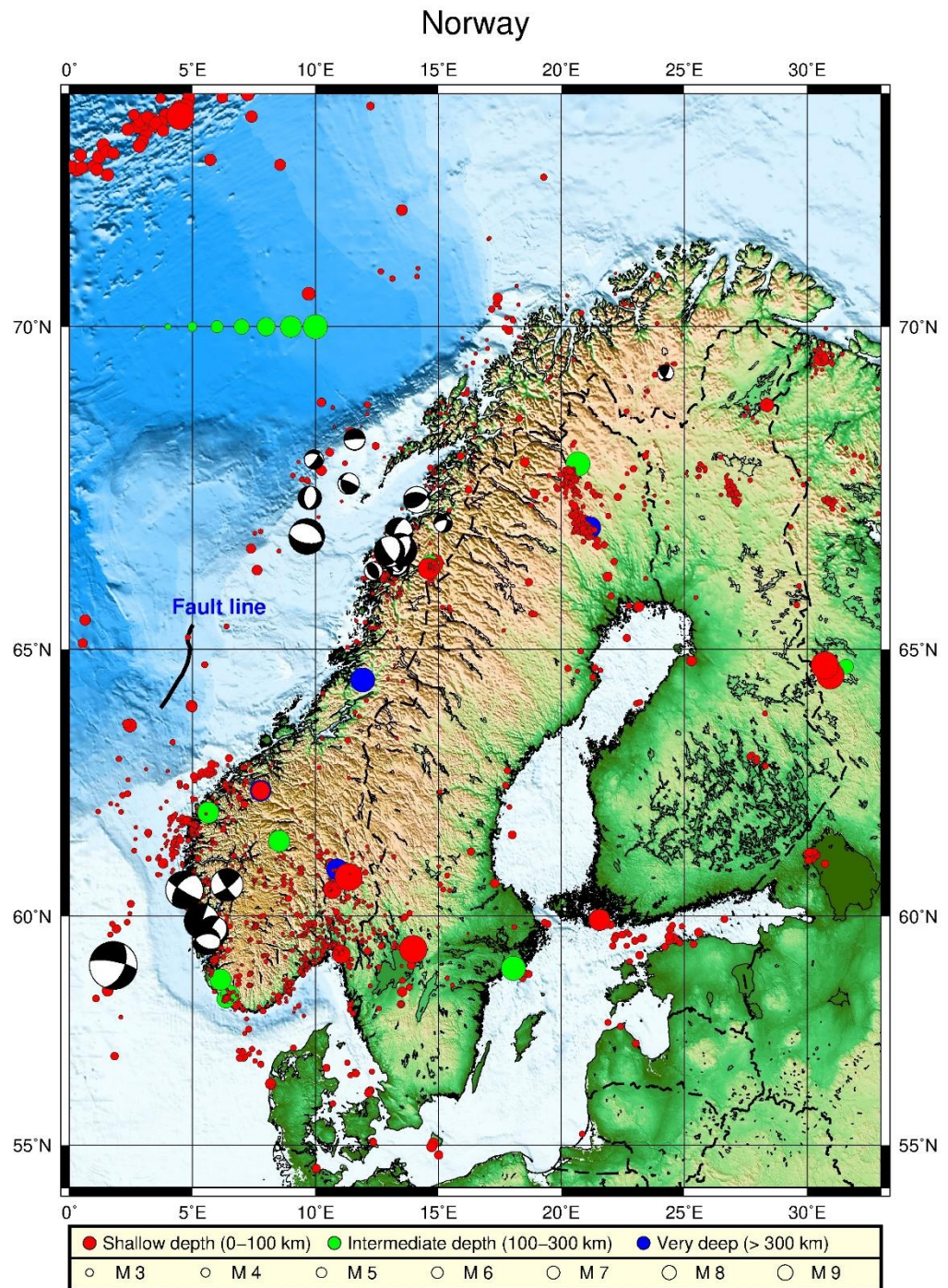
S 0.1i c 0.1i green 0.25p 0.2i Intermediate depth (100-300 km)
S 0.1i c 0.1i blue 0.25p 0.2i Very deep (> 300 km)
D 0 1p
V 0 1p
N 7
#V 0 1p
S 0.1i c 0.06i - 0.25p 0.3i M 3
S 0.1i c 0.07i - 0.25p 0.3i M 4
S 0.1i c 0.08i - 0.25p 0.3i M 5
S 0.1i c 0.09i - 0.25p 0.3i M 6
S 0.1i c 0.10i - 0.25p 0.3i M 7
S 0.1i c 0.11i - 0.25p 0.3i M 8
S 0.1i c 0.12i - 0.25p 0.3i M 9
#D 0 1p
#V 0 1p
#N 1
END
# placement and size of legend
gmt pslegend -DJBC+o0/0.3i+w6.3i/0.50i -R -J -O -F+p+glightyellow
neis.legend >> $file

```

```

outeps=`echo $file | sed 's/ps/eps/g'`
eps2eps $file $outeps
gmt psconvert $outeps -Tj -P
gv $file

```

EX19 Plot events and a legend

Input file example:

chilexy.txt

date	time	latitude	longitude	depth	magnitude	magtype
2017/04/02	08:31:20.50	-21.503	-66.564	0.0	2.3	LTES
2017/04/02	08:43:59.50	-20.898	-68.839	92.1	1.8	LTES
2017/04/02	09:00:39.20	-20.753	-69.448	12.1	2.0	LTES
2017/04/02	09:00:28.00	-21.462	-68.762	96.6	2.4	LTES
2017/04/03	14:59:04.50	-23.740	-71.438	0.0	2.1	LTES
2017/04/03	18:51:30.30	-32.546	-80.045	700.0	3.4	CTES
2017/04/03	19:00:13.10	-21.637	-68.410	115.2	2.3	LTES
2017/04/03	19:48:38.30	-22.111	-68.692	116.0	1.9	LTES
2017/04/03	20:25:37.20	-20.446	-69.191	99.1	3.8	LTES
2017/04/04	17:17:25.60	-23.445	-69.497	0.0	1.7	LTES
2017/04/04	17:38:30.50	-20.879	-69.223	0.0	1.7	LTES
2017/04/04	17:51:08.80	-21.110	-68.924	112.5	1.7	LTES
2017/04/04	18:11:19.10	-18.329	-69.195	147.0	2.1	LTES
2017/04/04	18:26:48.00	-19.696	-69.550	13.1	2.1	LTES
2017/04/04	18:32:11.70	-22.241	-69.117	0.1	1.9	LTES
2017/04/04	18:38:20.70	-21.954	-70.560	3.5	3.2	LTES
2017/04/04	19:10:51.70	-19.985	-70.825	0.0	2.0	LTES
2017/04/04	19:42:46.50	-19.263	-69.540	129.0	1.4	CTES
2017/04/04	19:47:53.40	-21.735	-67.965	12.2	2.2	LTES
2017/04/04	19:59:36.20	-21.207	-68.508	23.7	1.9	LTES
2017/04/04	20:03:30.30	-20.037	-70.996	0.1	2.5	LTES
2017/04/04	20:09:10.60	-23.411	-69.548	0.0	1.7	LTES
2017/04/04	20:25:14.30	-22.338	-69.206	0.0	1.6	LTES
2017/04/09	17:45:12.00	-21.057	-69.005	0.0	1.8	LTES
2017/04/10	09:30:35.30	-44.994	167.463	138.7	2.1	LTES
2017/04/10	13:40:14.60	-19.690	-69.315	89.2	1.7	LTES
2017/04/10	13:48:22.10	-20.777	-69.077	67.1	2.2	LTES
2017/04/10	14:37:37.20	-20.908	-68.839	190.7	2.0	LTES
2017/04/10	14:55:10.90	-20.344	-69.896	0.0	1.6	LTES
2017/04/10	14:55:10.80	-20.342	-69.906	0.0	1.9	CTES
2017/04/10	17:38:21.60	-20.917	-69.504	54.3	2.4	LTES
2017/04/10	17:57:43.90	-22.752	-69.136	74.9	1.7	LTES
2017/04/10	18:47:00.40	-22.250	-69.145	0.0	1.7	LTES
2017/04/15	14:31:33.50	-21.778	-67.424	241.9	1.9	LTES
2017/04/15	14:44:30.90	-24.461	-66.978	2.9	1.7	CTES
2017/04/15	14:44:32.70	-24.291	-67.224	201.3	2.4	LTES
2017/04/15	16:10:28.20	-22.586	-69.883	0.0	2.0	LTES
2017/04/15	16:15:06.70	-22.080	-68.355	115.1	2.2	LTES
2017/04/15	16:22:43.90	-26.443	-58.750	0.0	3.4	LTES
2017/04/15	16:33:34.40	-20.559	-68.954	82.2	2.3	LTES
2017/04/15	16:58:51.80	-19.612	-70.338	1.4	2.3	LTES
2017/04/15	17:02:11.30	-21.505	-68.485	121.8	1.7	LTES
2017/04/15	17:35:13.40	-20.829	-69.281	1.3	1.7	LTES
2017/04/16	11:36:10.40	-23.242	-69.590	62.3	3.9	LTES
2017/05/16	17:09:51.10	-17.194	-71.793	0.1	3.6	LTES
2017/05/16	18:05:27.50	-24.205	-66.853	285.3	3.2	LTES
2017/05/16	18:29:44.80	-22.250	-69.095	0.0	2.6	CTES
2017/05/16	18:39:07.40	-22.882	-69.782	0.0	2.1	LTES
2017/05/16	18:55:08.90	-20.966	-69.284	22.0	1.9	LTES
2017/05/16	18:59:40.30	-17.755	-58.941	0.0	3.4	LTES
2017/05/16	19:07:20.50	-19.795	-69.033	100.5	2.1	LTES
2017/05/16	19:07:20.50	-19.747	-69.022	97.7	2.1	LTES
2017/05/17	18:34:35.30	-20.246	-69.356	82.9	2.2	LTES
2017/05/17	18:47:58.90	-22.777	-69.378	0.0	1.8	LTES
2017/05/17	18:54:01.10	-21.187	-70.239	25.4	2.1	LTES
2017/05/17	19:00:06.20	-21.870	-68.421	126.0	1.8	CTES
2017/05/17	19:00:05.80	-21.823	-68.416	132.0	2.5	LTES


```
2017/05/17 19:41:30.90 -20.203 -69.586 126.2 2.2 LTES
2017/06/04 10:40:45.20 -22.047 -67.500 282.0 2.7 LTES
```

quakes.cpt

```
# color palette for seismicity
#z0 red green blue z1 red green blue
 0 255 0 0 100 255 0 0
100 0 255 0 300 0 255 0
300 0 0 255 100000 0 0 255

#!/bin/bash
file=Map.ps
grdfile=../DATA/newbathy.grd
#grdfile=../DATA/Bathymetry_GEBCO_30s_world.grd

# Chile
xmin=-80
xmax=-50
ymax=-10
ymin=-35

midlon=`gmt gmtmath -Q $xmin $xmax ADD 2 DIV =`
midlat=`gmt gmtmath -Q $ymin $ymax ADD 2 DIV =`
R="-R$xmin/$xmax/$ymin/$ymax"
J="-JM$midlon/$midlat/16c"

# Make a 5-degree grid
B="-B5g5"

gmt grdcut $grdfile $R -Gtmpf.grd
gmt grdinfo tmpf.grd
gmt makecpt -Cglobe -T-8500/8500/50 -Z > cptfile2.cpt

#Create map with top title
gmt psbasemap $B -B+t"Chile" $J $R -K -P > $file
gmt grdgradient tmpf.grd -Nt1 -A225 -Gtmpgrd.grd
gmt grdimage $J $R tmpf.grd -Itmpgrd.grd -O -K -Ccptfile2.cpt >> $file
gmt pscoast $J -B $R -Dh -N1/1.00p,- -K -O -W >> $file

# Add text on a longitude/latitude on map (f12: size text)
gmt pstext -R -J -N -K -O -V -F+f12,1,blue+j << EOF >> $file
-55.0 -12.0 BR Add some text
EOF

# Add text on a longitude/latitude as sub-title outside map
gmt pstext -R -J -N -K -O -V -F+f15,1,black+j << EOF >> $file
-69.0 -38.8 BR -----
EOF

# Draw seismic events (-h3: lines to skip on top) (0.06 size magnitude
circles)
gmt psxy -R -J -O chilexy.txt -Wfaint -i3,2,4,5s0.1 -h3 -Sc -Cquakes.cpt
-K >> $file

# Create legend input file for NEIS quake plot
```

```

# the line: N 1.9i 2.4i 2.0i placement of circles
cat > neis.legend << END
N 1.9i 2.4i 2.0i
#V 0 1p
S 0.1i c 0.1i red 0.25p 0.2i Shallow depth (0-100 km)
S 0.1i c 0.1i green 0.25p 0.2i Intermediate depth (100-300 km)
S 0.1i c 0.1i blue 0.25p 0.2i Very deep (> 300 km)
D 0 1p
V 0 1p
N 7
#V 0 1p
S 0.1i c 0.06i - 0.25p 0.3i M 3
S 0.1i c 0.07i - 0.25p 0.3i M 4
S 0.1i c 0.08i - 0.25p 0.3i M 5
S 0.1i c 0.09i - 0.25p 0.3i M 6
S 0.1i c 0.10i - 0.25p 0.3i M 7
S 0.1i c 0.11i - 0.25p 0.3i M 8
S 0.1i c 0.12i - 0.25p 0.3i M 9
#D 0 1p
#V 0 1p
#N 1
END
# placement and size of legend
gmt pslegend -F+glightyellow+p1p,0 -Dx0c/-2.5c+w16.0c/1.5c+l1.2 -
C0.2c/0.2c -V -O neis.legend >> $file

outeps=`echo $file | sed 's/ps/eps/g'`
eps2eps $file $outeps
gmt psconvert $outeps -Tj -P
gv $file

```

Chile

