

Plots and Tables for the Six-Monthly Report

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Before Creating Any Plots Or Tables

Event Counts

There is a bug in the SEISAN program *volcstat* which is meant to count volcanic event types per day. It doesn't show the counts for the last day on which there were counts. It is run once a day on *opsproc2* as part of the *update_counts.sh* script.

```
# script to update select, collect and volcstat: RCS 14-Jan-2021
0 21 * * * /home/seisan/bin/update_counts.sh >/dev/null 2>&1
```

In order to get the correct counts:

- 1 Run *volcstatLess.pl* in *~/src/utils* on *opsproc3*.
- 2 Edit the *volcstat_daily_*.out* files in */mnt/mvofls2/Seismic_Data/monitoring_data/seisan*.
 - Copy the last non-zero count from *volcstat_daily_*.fixed.out* to *volcstat_daily_*.out*.
- 3 Manually update *volcstat_daily_t_distal.txt* and *volcstat_daily_t_string.txt* in */mnt/mvofls2/Seismic_Data/monitoring_data/seisan* with daily counts of distal and string VTs respectively.
 - 3.1 To extract list of distal VTs
 - 3.1.1 Run *select* and search for DistalVT
 - 3.1.2 \$ *cat select.out | grep "1\$"*
- 4 Run the following commands in *MATLAB* (or run a script that calls them).

```
>> setup = setupGlobals()
>> reFetch( setup )
```

- 5 You will be fine until a *MATLAB* script runs *reFetch* more than a day later.

Gas and GPS Data for Megaplots

See Updating Data in <https://github.com/mvoseismic/megaplot>.

Figures

You will need to manually add a), b), c) etc to most of the figures to agree with the figure captions.

Fig	Environment	Directory	Script	Example Keyboard Input Comments
1	MATLAB	src/megaplot	plotMegaplot.m	1/4/2025 1/10/2025 <cr> for all remaining
2	MATLAB	projects/SeismicPlots	plotCounts.m	N 1/4/2025 1/10/2025 d
3	MATLAB	projects/SeismicPlots	plotCounts.m	N begPause5+2 1/10/2025 w
4	MATLAB	projects/SeismicPlots	plotHypocentres2.m	N 1/4/2025 1/10/2025 y m n -1
5	MATLAB	projects/SeismicPlots	plotVtDepthsLatsLons.m	N 1/4/2025 1/10/2025 N
6	MATLAB	projects/SeismicPlots	plotVtCummoment.m	N begPause5 endYear -1 n y n
7	MATLAB	projects/SeismicPlots	plotRockfallCountsRain2.m	N begPause5+2 1/10/2025 w <i>Needs manual updating of rainfall data.</i>
9	MATLAB	projects/SeismicPlots	plotVtCountsPercentString.m	N 1/4/2014 1/10/2025 m
10	bash			See below
12	MATLAB	projects/SeismicPlots	plotVtCummoment.m	N begPause5 endYear -1 y n y

43	MATLAB	src/megaplot	plotMegaplot.m	<cr> 1/10/2025 <cr> for all remaining
44	MATLAB	src/megaplot	plotMegaplot.m	begPause5 1/10/2025 <cr> for all remaining

Figure 10 Fault Plane Solutions

Figure 10 shows FOCMEC FPSs for all VTs with ML 3.0 or greater.

Easiest way is to use the *select* command to extract the VTs. Then add an entry for each event in the *Events* sheet of *SeismicityDiary.xlsx*. Then process them with:

```
$ wo
$ eev index.out
```

I usually do 10 degree searches in FOCMEC with zero allowable polarity errors. I create a plot for each event. This is the keyboard input for each event:

```
f
<CR>
4
<CR>
<CR>
10
2
Q
```

After each FPS has been determined:

- Rename *focmec.eps* and *focmec.out* to the "standard" format, eg 20241220-2127--VT-*focmec.out*.
- If solutions were obtained by *FOCMEC*, add a *y* to the *FPS* column of the *Events* sheet in *SeismicityDiary.xlsx* for this event. If no solutions were obtained, add an *n*.

After all FPSs have been determined.

- Convert eps files to png files by running *focmeceps2png*.
- Copy all the *focmec* files to *~/projects/Seismicity/fps/focmecResults*.
- Copy all the *focmec* png files to *~/projects/SeismicityDiary/plots/yyyy*.

Edit png files in *GIMP*.

- Image - Mode - Grayscale
- Filters - Generic - Erode

Use *ImageMagick* to create a montage:

```
$ montage *focmec.png -tile 2x2 -geometry +0+0 fig_09--fps.png
```

Tables

Table 1

Event counts and rates are calculated with the *MATLAB* script *calcRates.m* in *~/projects/SEISANdatabase/calcRates*. Give it the first and last dates of the time period and the results for Table 1 are in the last two columns of the first three and the third-last rows.

Table 2 never changes.

Table 3

Create a file with data for Table 3 using *MATLAB*, in folder *~/projects/Seismicity/VT_strings/stringAnalysis*.

```
>> calcMoments  
>> listStrings2
```

This prints the data needed for Table 3 on screen in a csv format. Cut and paste the strings for the six-month period into the report.

Table 4

Create Table 4 with the *MATLAB* script *vtstringStats.m* in *~/projects/Seismicity/VT_strings/stringAnalysis*.

This calculates the stats for all strings to date, so you should run it between the end of the reporting period and before any more strings are added to *SeismicityDiary.xlsx*.

For Karen

I create a table for Karen with all strings and non-string VTs that have a seismic moment bigger than that for an ML3.0 VT.

Run the MATLAB script *forKaren.m* in *~/projects/seismicity/VT_strings/scripts*. It creates a file *forKaren.txt*.