

Guidelines to using the *suresstat* command in SU

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- The following 3 steps must be followed:
 1. Sort NMO-corrected data into shot gathers using the *susort* command.
 2. Use *suresstat* command to calculate the residual statics associated with every source and receiver.
 3. Use the *sustatic* command to apply the calculated source and receiver statics to the data.

- **Example**

- I have the NMO-corrected dataset sorted in CDP in a file called: data-tm-flt-dec-bal-cdp-nmo.su (Figure 1).
- I sort it into shot gathers using the command:

```
susort < data-tm-flt-dec-bal-cdp-nmo.su > data-tm-flt-dec-bal-cdp-nmo-fldr.su fldr  
offset
```

- The sorted data is shown in Figure 2.
- I calculate the source and receiver statics using the command:

```
suresstat < data-tm-flt-dec-bal-cdp-nmo-fldr.su ssol=sstats rsol=rstats  
ntraces=594 ntpick=50 niter=5 nshot=19 nr=33 nc=594 sfold=33 rfold=18  
cfold=18
```

- Note the following:
 - The *ntraces* parameter must be equal to the number of prestack traces in the line (594 traces).
 - The *ntpick* parameter sets the maximum allowable shift desired (in samples NOT time).
 - The *niter* parameter sets the number of iterations desired.
 - The *nshot* parameter must be equal to the maximum *fldr* number in the data. Note that this number might be different from the actual number of shot records in the data (i.e., the maximum *ep* number). For getting the correct maximum *fldr* number, you may use the *surange* command.
 - The *nr* parameter must be equal to the largest number of receivers per shot in the whole data.
 - The *nc* parameter must be equal to the number of prestack traces in the data.
 - The *sfold* parameter must be equal to the *nr* parameter.
 - The *rfold* parameter must be equal to the maximum *ep* number.
 - The *cfold* parameter must be equal to the maximum CDP fold, which is equal to the maximum number under the *cdpt* entry in the output of the *surange* command.

- This command should produce the 2 files named *sstats* and *rstats* containing the source and receiver statics, respectively.

- I apply the statics using the command:

```
sustatic < data-tm-flt-dec-bal-cdp-nmo.su > data-tm-flt-dec-bal-cdp-nmostat.su  
hdrs=3 sou_file=sstats rec_file=rstats ns=19 nr=65
```

- Note the following:
 - We apply the statics to the CDP-sorted file (NOT the shot-sorted file).

- The *hdrs* parameter must be equal to 3 if the statics are to be read from files generated by the *suressstat* command.
- The *sou_file* parameter must be equal to the *ssol* parameter of the *suressstat* command you used earlier.
- The *rec_file* parameter must be equal to the *rsol* parameter of the *suressstat* command you used earlier.
- The *ns* parameter must be equal to the *nshot* parameter of the *suressstat* command you used earlier.
- The *nr* parameter must be equal to the number of CDPs in the stacked file.
- The data after application of residual statics correction using this command is shown in Figure 3. As you can see, the command worked just fine.

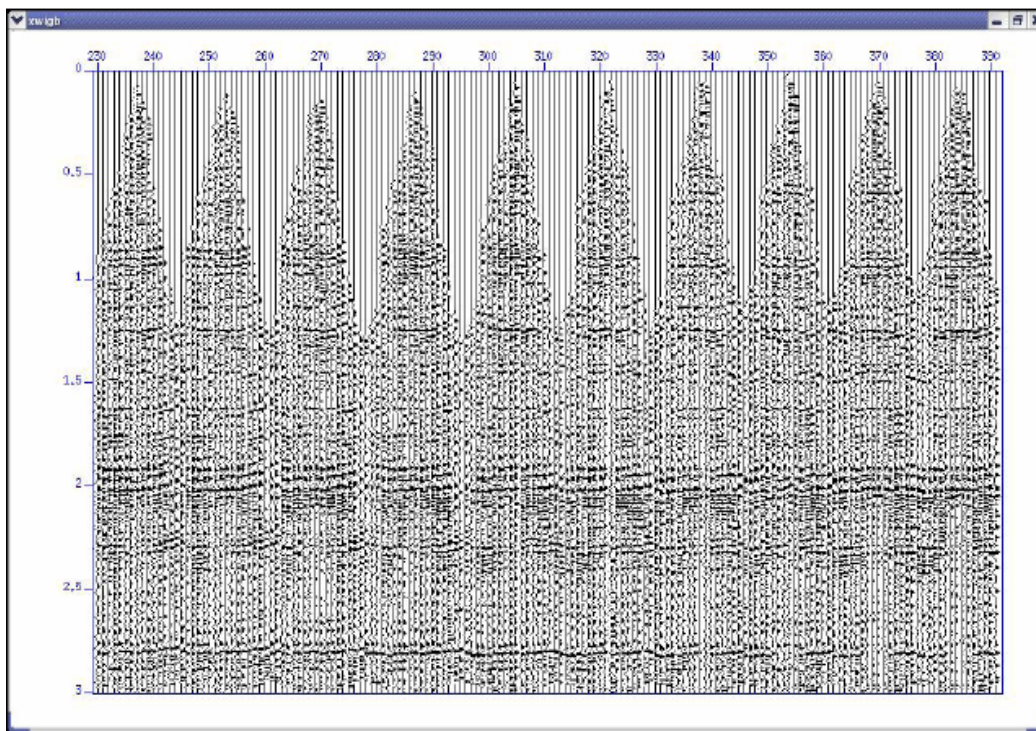


Figure 1: CDPs from the file data-tm-flt-dec-bal-cdp-nmo.su.

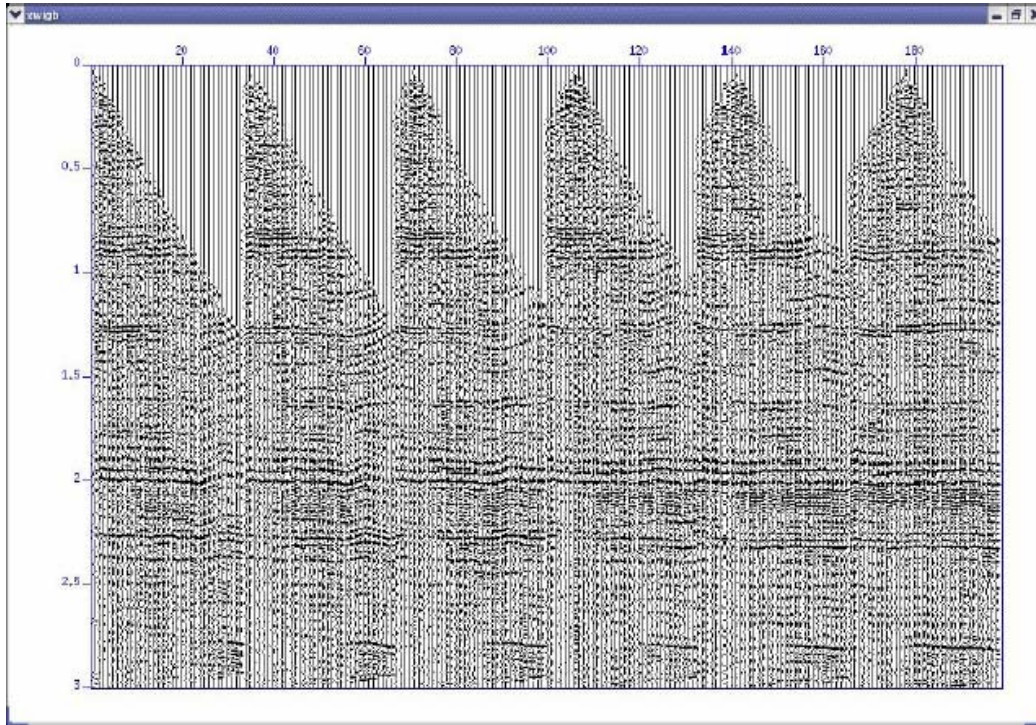


Figure 2: Shot gathers from the file data-tm-flt-dec-bal-cdp-nmo-fldr.su.

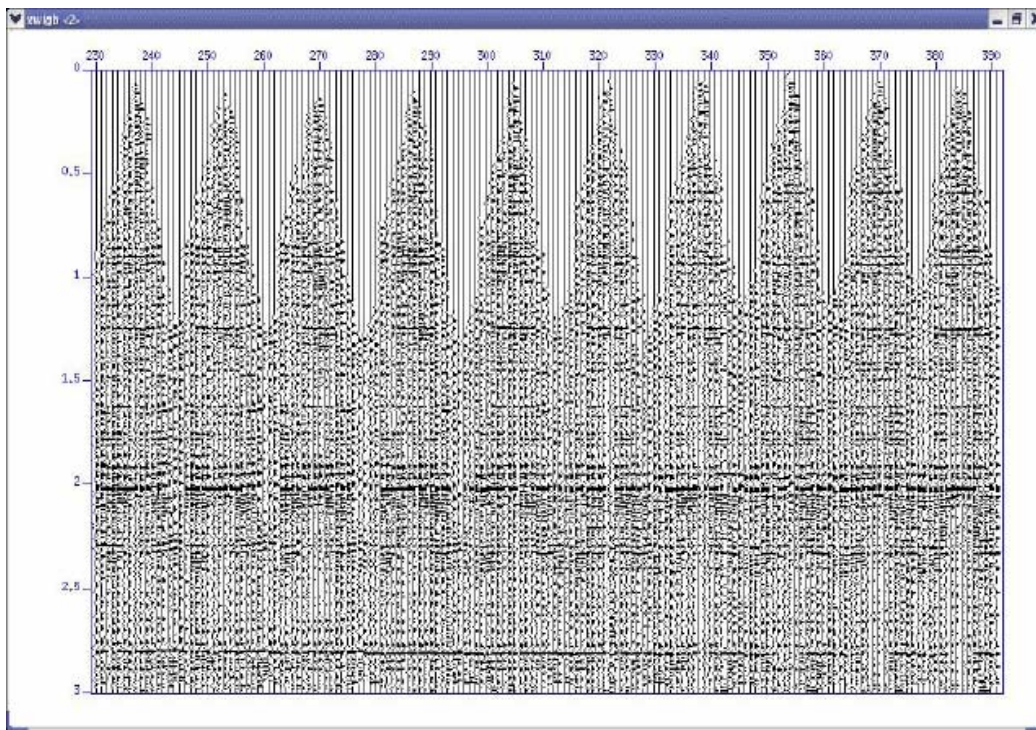


Figure 3: CDPs from the file data-tm-flt-dec-bal-cdp-nmostat.su.