

After the job has completed you can use the processing flows **26\_stack\_compare.job** and **27\_cdpqc.job**, which are configured to compare the CDPs and stacks for this line so far. Both use seismic file lists (SFL) files for input and are configured to display the results as overlapping panels.

You can compare the results by clicking on the numbered boxes, using the arrow keys or numbers on the keyboard.

The quality of the result will depend on how accurately you picked velocities, and how you selected your parameters. If you stuck with the “GNS” parameters, these should have done a reasonable job, although there are some artefacts that could be removed by improving the parameterisation.

- If you accidentally picked a multiple velocity trend during velocity analysis, there will be no changes.
- To review this, build a job that reads in selected CDP's (without demultiple), and uses the repeat option in DISCREAD to make two copies. Then, using IF-ENDIF loops, NMO correct one REPEAT value with your velocities, and one with the GNS velocities. Compare on-screen using XVIEW.
- The CDPs will always show considerably more improvement than the stacked section.

### 7.3 Sorting to Offset Planes and Applying Dip Moveout (DMO)

The common midpoint (CMP or CDP) methodology for processing seismic data is extremely robust. It is, however, very simplistic. Simple geometric optics tells us that if an interface is dipping, then the common midpoint methodology will not work very well; the angle of incidence and the angle of reflection are equal, but about the normal to the reflecting interface, not the surface.

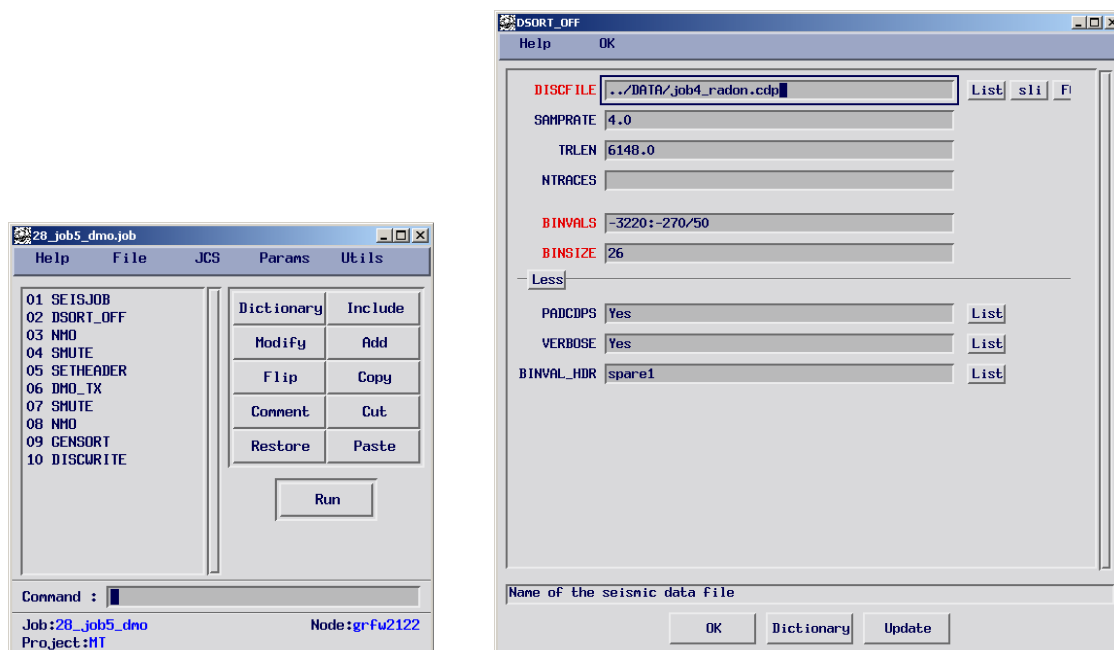
This also has an impact on the stacking velocity – not only are the CDP's essentially smeared, but the velocities will be *higher* as well.

To correct for this we need to migrate the data pre-stack. While we could use pre-stack time migration, in this tutorial we will employ the Dip Moveout correction (DMO), which is a partial pre-stack time migration performed on common offset planes, which serves to correct the lateral position of reflection events for their dip. It has a weak velocity dependence – in that we do not have to accurately know the stacking velocities for it to be effective.

We'll use this approach because it provides a useful example of sorting the data directly from disc, in this case from CDP order to offset order, and then sorting back to CDP order.

Open the job **28\_job5\_dmo.job**, and look at how the job is constructed.

Instead of **DISCREAD**, this processing flow uses a module called **DSORT\_OFF** to read the data. **DSORT\_OFF** uses the GLOBE Claritas random access capability to read the CDP-ordered input file in offset order for the application of DMO; the **GENSORT** module is used to reorder the data back into CDP's after DMO has been applied.



The processing flow **28\_job5\_dmo.job**; the **DSORT\_OFF** module is used to form offset planes directly from shot or CDP ordered data. Rather than sorting the dataset, the module takes advantage of the random access capabilities of *GLOBE Claritas*.

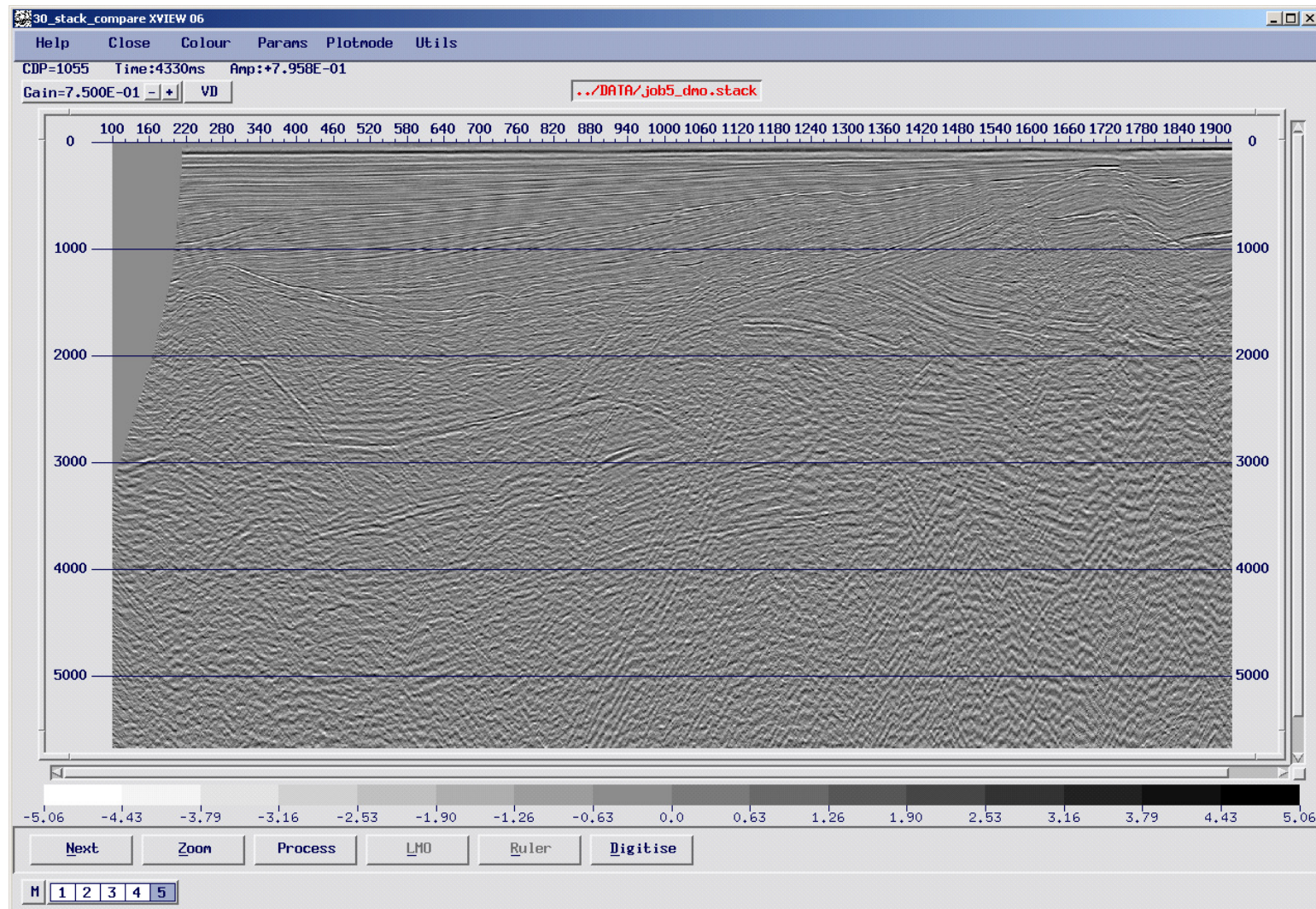
This flow also regularises the offsets to create 60 fully populated offset planes. The offset values used are the average of the two offset values that have been combined to make each offset plane. This offset value is stored in the **SPARE1** header. After the data has been NMO corrected (with the true offset value), the **OFFSET** header is updated with the value in **SPARE1**. This offset is then retained for the rest of the processing sequence, including the reverse NMO.

This offset regularisation process produces a better result in DMO or pre-stack migration.

Update the job to include your velocities and/or CDP gathers (if needed), and run it.

The processing flow **29\_dmo\_stack.job** can then be used to create a new stack; note that we could have output the data from **28\_job5\_dmo.job** in offset plane order, and then used **DISCGATH** in the subsequent processing flows to sort-on-read back to CDP order.

The jobs **30\_stack\_compare.job** and **31\_cdpqc.job** compare the results of the processing flow so far.



The stack panel with DMO applied generated by the processing flow 30\_stack\_compare.job. You can compare the five stacked results (brute, with deconvolution, with new velocities and with demultiple) by clicking on the numbered boxes, using the arrow keys or numbers on the keyboard.