BERT tutorial

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1 Introduction

BERT is a powerful 2-D and 3-D electrical resistivity inversion program and it is relatively easy to use. It is installed on the Student Linux computer. You can use it either by physically sitting at the Linux computer or by accessing your account remotely.

2 Workflow

Using BERT for basic inversions is generally very simple. It happens in 3 steps:

1. Create an inversion configuration file (and edit it if you need to)
2. run the calculations
3. create a .vtk file that you can look at using paraview

3 Preparation and editing of inversion file

To do step 1, type, in the Linux command line (which you openend through PuTTY)

```
bertNew3D datafile.ohm > invfile.cfg
```

Here you should replace `datafile.ohm` with the name of the .ohm datafile you are using and replace `invfile.cfg` with the name you would like to use for your inversion file. If you would like to run 2.5-D inversion instead of inversion, replace `bertNew3D` with `bertNew2D`.

Once the inversion file is created, you can copy it to your machine and have a look at the parameters or use emacs to look at it directly through the command line:

```
emacs invfile.cfg
```

Which will open the text file. To save changes, hold Ctrl and press "x" and then "s". To exit the editing screen and return to command line hold Ctrl and then press "x" and then "c".

4 Running the inversion

To do the calculations, run

```
bert invfile.cfg all
```

This may take a while as such calculations can be quite involved. In particular if you edited the inversion configuration file to make a fine mesh.

5 Creating visualization files

To create visualization output files (.vtk which you can view using paraview), run

```
bert invfile.cfg show
```

This will create a .vtk file which you can now copy onto your computer using PSCP.

To view the .vtk file on your computer, use Paraview which you can obtain from here: `www.paraview.org/`

6 Storing your calculation results

To store your calculation results, for example if you want to run another calculation using different settings but don't want to overwrite your results, run

```
bert invfile.cfg save myfoldername
```

This will create a new folder with the name `myfoldername` and automatically copy all relevant files into it. You can change the name of the folder if you like.

7 Cleaning up calculation results

To clean up the folder from temporary calculation results, run

```
bert invfile.cfg clean
```

This will keep your data and cfg files and only delete temporary calculation files.

8 More options

BERT has many more useful commands. Run

```
bert
```

to get a list of commands. Also, read through the BERT tutorial `http://www.resistivity.net/download/bert-tutorial.pdf`.