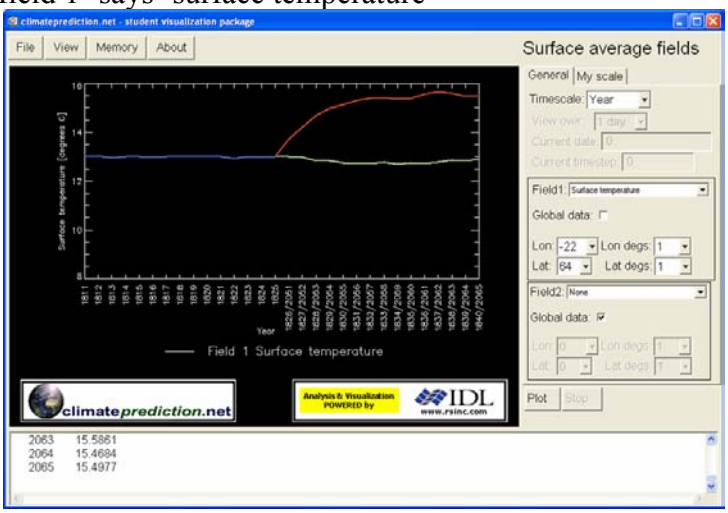
Investigating Climate Model Output

- Double click on the 'SVI' icon
- Select 'change experiment' from the 'file' menu and choose one of the experiments other than the currently running experiment, which is probably experiment_1
- Select 'surface average fields' from the 'view' menu
- Check that 'timescale' says 'year'
- Check that 'field 1' says 'surface temperature'



Click on 'global data' for field 1, and then enter the grid reference for your location in the world. 'Lon degs' and 'Lat degs' should stay as 1 degree.
Press 'plot'.
The package will calculate the average (mean) surface temperature for each of the 45 years the model ran at your position in the world.
You need to calculate the **average** (mean) temperature between 1826 – 1840. Add up the 15 values for those years (you can use the scroll bar at the bottom to get to the right year, copy and paste the numbers into Excel and write an expression to calculate the average)

Record the value you get for the average here:

To calculate the **absolute error** for this value, see which of the 15 values is most different to the average – to do this you need to subtract the average from each of the numbers in turn and see which has the greatest **residual**.
Record the greatest residual here:

absolute error

To calculate the **percentage error** for this value, divide the residual by the average and multiply by 100.

percentage error = absolute ⁒ average x 100

to get the **scaling factor** for this experiment, divide your average value by the 'real' value for your city, which is given in bold next to the city location

scaling factor:
= value÷ real value

experiment name:

The scaling factor is how much you need to adjust the model answer by to get the real answer.
Now do the same for the other 2 experiments:

average temperature:

percentage error:

scaling factor:

experiment name:

average temperature:

percentage error:

scaling factor:

experiment name:

Now you need to do the same for future climates:
calculate the average temperature in each model for the period 2051 – 2065 and divide this by the scaling factor for that model to get what the 'real' future temperature should be

model average temperature for 2051 – 2065 ÷ by scaling factor =scaled temperature.

model average temperature for 2051 – 2065 ÷ scaling factor =scaled temperature.

model average temperature for 2051 – 2065 [ ] ÷ scaling factor =scaled temperature [ ]

Now you need to calculate the average of these predictions for the future – add up the 3 scaled temperatures and divide by 3.

Mean future temperature: [ ]

This is what the 3 models predict the annual average temperature at your location will be when carbon dioxide levels have doubled – some time this century.

Is it warmer or colder than it was in pre-industrial times?