






Setup Software:

1. Download and Install Gwyddion
 - a. <http://gwyddion.net/download.php>
2. 'Install' Settings files (This my settings - you do not need install this if you do not want)
 - a. Copy [.gwyddion.zip](#)
 - b. Unzip and put in correct directory with correct name as per <http://gwyddion.net/documentation/user-guide-en/settings.html>
(Root on unix/mac)

Basic .PNG Creation

1. Open desired .ibw file in gwyddion
2. Right click on image and select *Fix Zero*, Right click on scale on right and select *Halcyon*
3. If image contains horizontal scars (strokes) use  tool to clean up the image, Redo the Fix Zero
4. Using the stretch color range tool  fix scale to make pleasing
 - a. Select Explicitly set range 
 - b. Increase or Lower max to highlight desired feature (remove outliers)
 - c. Set Max to integer value for nice .PNG output
5. Save .PNG
 - a. *File* → *Save as* (Shift+Ctrl+M)
 - b. Rename removing trailing zeros, adding scan size and .png
 - i. ex. *AFM_009_01-1um.png*
 - c. If setting transferred correctly (See Setup Above) click ok to save

Height Histogram Plot and RMS Roughness

1. With desired file open and Zero Fixed
2. Under *Data Process* → *Correct Data* select *Mask of Outliers*
 - a. This creates a mask covering data outside of 3σ (3 standard deviations)
3. Get Height Distribution Data
 - a. Open *calculate statistical functions* 
 - b. *Quantity*: Height Distribution, *Fix res.:* off, *Masking Mode:??* -> I have yet to decide best
 - c. Click *Apply* New Graph window appears
 - d. Right click on graph and *Export Text*
 - e. Name as AFM_Box#_Samp#-scansize.txt
 - i. ex. *AFM_009_01-1um.txt*
 - f. Close graph and Stat windows
 - g. Plot in Kaleidagraph - multiply both columns by $1e9$ to make units nm ($c0=c0*1e9$; $c1=c1/1e9$)
 - h. Plot using [this template](#)
4. Get RMS Roughness Data
 - a. Open *Statistical Quantities* 
 - b. Toggle *Masking Mode* to get both unmasked and mask excluded values