Customizing a plate for synSwath

(Pim, 02-05-'06)

In synSwath you can upload a plate and examine the ensonification of it. The first steps will be creating a plate with the desired dimensions and features (**1**). Next you will have to create some additional required files (**2**) and finally you can view it in synSwath (**3**).

1) Creating the plate

Typing:

```
make_blank -custom
```

will invoke a menu allowing you to input the name, data type, pixel size, plate dimensions and the features. In the example below I have chosen for a floating point since we're dealing with bathymetry. The x,y dimensions are multiples of the pixel size. Thus in this case the plate is 200x100.

```
Warning :  no outfile name
 input the blank array file prefix please...
test_plate
do you want an 8bit array (1) or floating point array (2)
2
input desired mpp :
0.5
 input x and y dimensions:
400 200
```

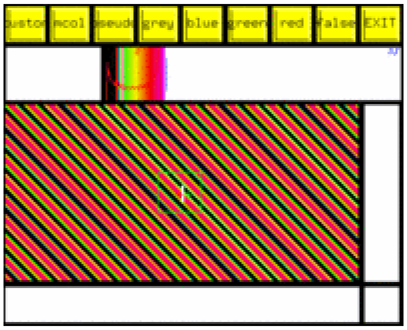
...the menu continues...

```
what custom options do you want:
      (0) nothing more
      (1) sine waves
      (2) cubes
      (3) hemispheres
      (4) vertical cylinders
      (5) horiz. half cylinders
      (6) rectangles
      (7) knolls
      (8) ramps
```

```
1
 enter : wavelength (m), amplitude (m) and azimuth (deg)
8 0.5 045
what custom options do you want:
        (0) nothing more
        (1) sine waves
        (2) cubes
        (3) hemispheres
        (4) vertical cylinders
        (5) horiz. half cylinders
        (6) rectangles
        (7) knolls
        (8) ramps
6
 enter : height (m), width (m) length (m) and azimuth (deg) (not used)
5 2 10 0
read in 5.000000 2.000000 10.0000000.000000
 centre location (x y pixels)
200 100
read in 200.000000 100.000000
what custom options do you want:
        (0) nothing more
        (1) sine waves
        (2) cubes
        (3) hemispheres
        (4) vertical cylinders
        (5) horiz. half cylinders
        (6) rectangles
        (7) knolls
        (8) ramps
0
```

It now created a sine wave and at the center of the plate a rectangle of 5x2x10. By hitting 0 the menu is exited and test_plate.blank is a fact. To double check the result we can view it:

```
            jview test_plate.blank
```



2) Necessary files

To upload a plate in synSwath it needs three files: *.r4
*.sun
*.BT

to get the *.r4:

```
tor4 test_plate
```

this will create test_plate.r4

*.sun:

```
addSUN test_plate
```

this will create test_plate.sun_315, thus we have to rename it: mv test_plate.sun_315 test_plate.sun

*.BT:
We will need to convert the r4 first to an 8bit and then rename it to a *.BT:

```
r4to8bit test_plate
mv test_plate.8bit test_plate.BT
```

Now we're set to view it in synSwath!

3) synSwath

Running sunSwath with the plate is done by:

```
synSwath -plate test_plate -level 1.0
```

The -level option pushes the plate down. The depth is default equal to the maximum length of the plate dimension. In this case the maximum plate dimension was 400 pixels (=40 meters), therefore the depth will be 400 pixels too. Thus the depth is relative to the maximum plate dimension. This can be modified by simply adjusting the -level factor. For example if the depth would have to be 10 meters we would use:

```
synSwath -plate test_plate -level 0.25
```

Now when positioning the mouse in the synSwath 3D window and hitting 'i' the illumination becomes apparent. With a 't', 'r' or 'b' stroke you can choose to view the transmit, receive or product of both.