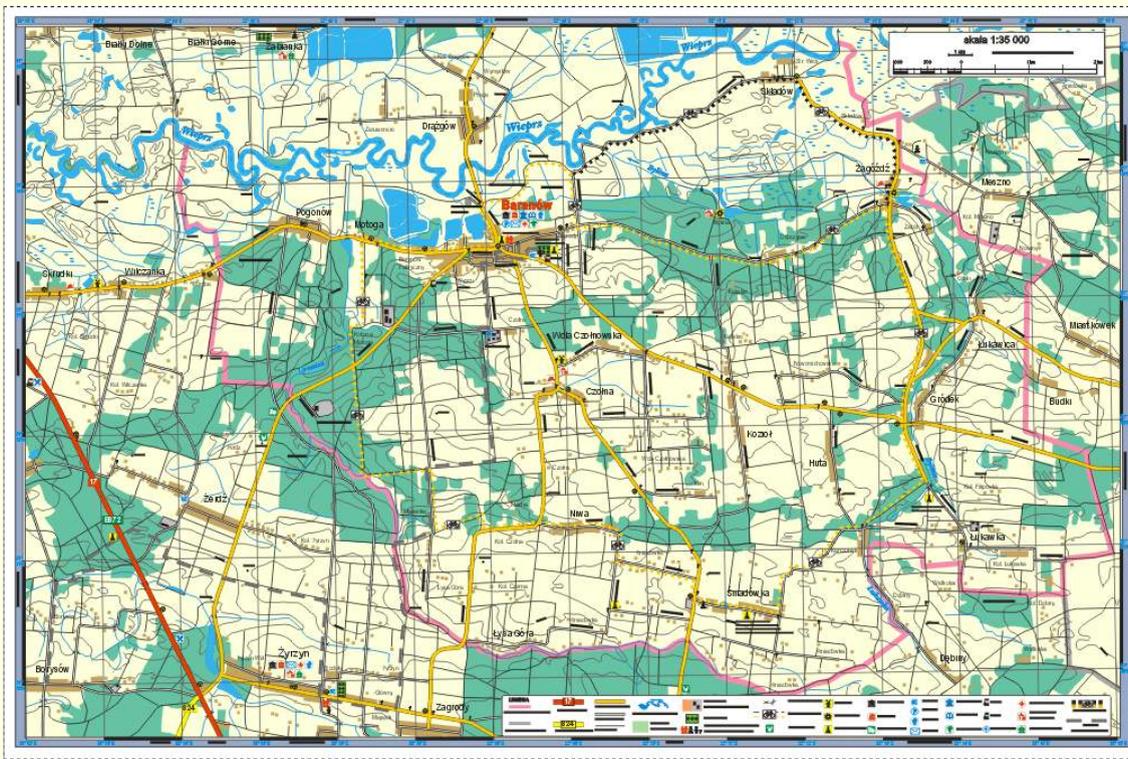# How to create 3D shadowed maps for Print Office with Global Mapper, one drawing software and one raster editor.

1. **Even detailed map that has many levels of elevation grid lines doesn't demonstrate to a user entire variety of three dimensional structure of a given area.** Fig. 01 (below) **shows such a map created with NON GIS drawing software . Let us start from this point.**

2. **So let us open the map in the drawing software** (Fig 2. - left)**, and close / hide every single layers of the map** (Fig. 3 - right)**, except only some: the map frame, lat/lon grid scale and grid, background fill and the forestry (first map layer). In this instance, we have to multiply lat/lon grid layer and make it "almost invisible", since we shall export the screen content into 300 dpi, 1:1 scale TIF file ...** (Fig. 4)
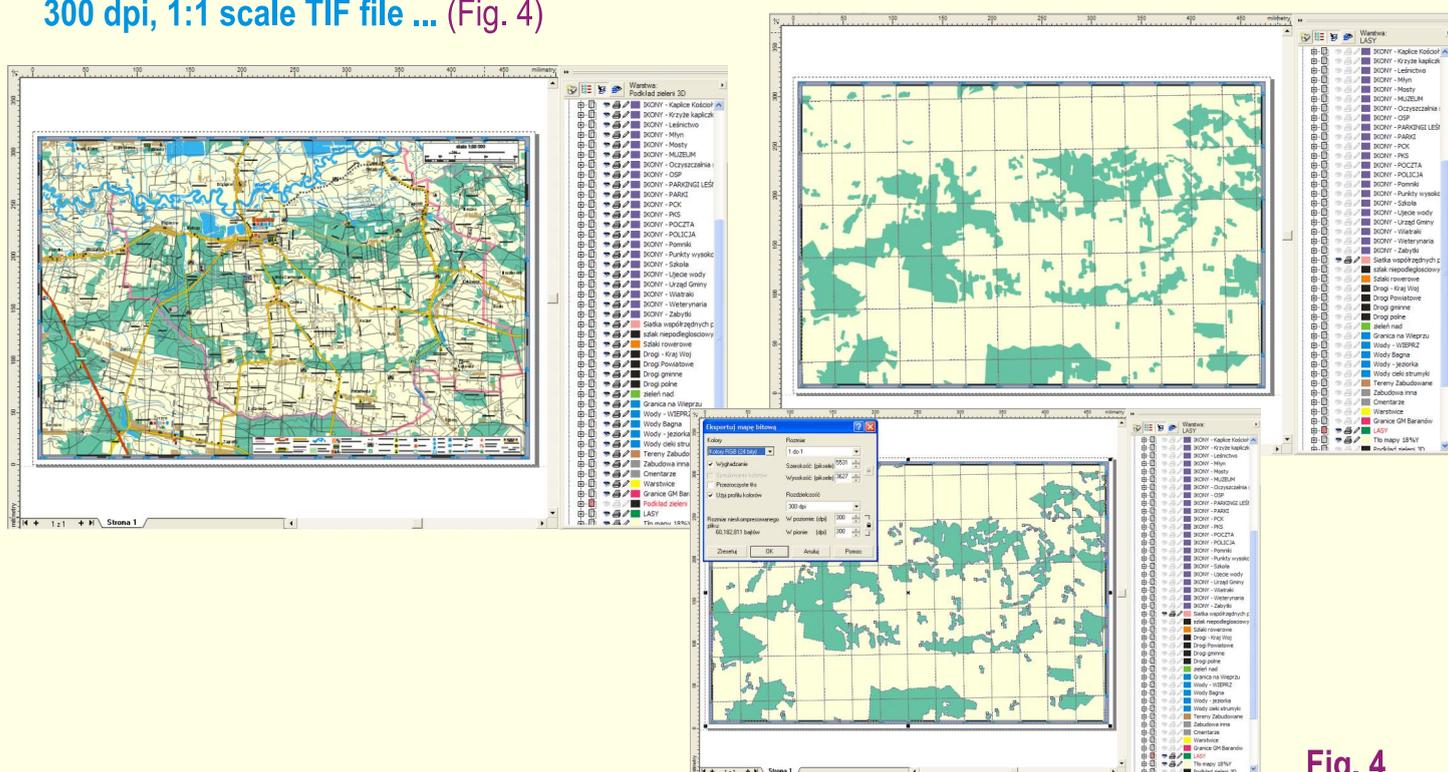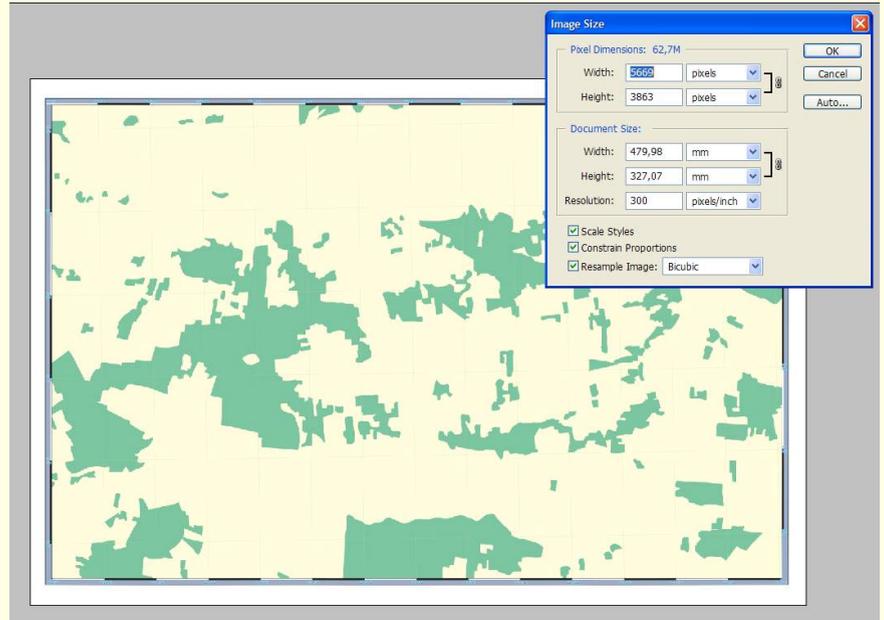

Fig. 4

3. Now, we should check what we've got... (Fig. 5)... ,looks OK, we have 300 dpi, all necessary layers visible and the grid - just almost invisible...

4. Let's try to georeference it with Global Mapper...

For that we need an reference map... (I've used a topomap covering the given area...

So, let's open the reference topomap with Global Mapper - first...

5. This is the great tool with Global Mapper that one could georeference even "white paper" ... For referencing above image I've used 37 control points around the area frame finding vislible grid nodes (Fig. 6) - both on topo map and imported TIF with "almost invisible grid)...

6. Let's check quality of our rectification for the TIF. (Fig. 7). Since we've exported the map layer along with it's grid and grid's scale bars - it would be quite simple to verify our rectification.
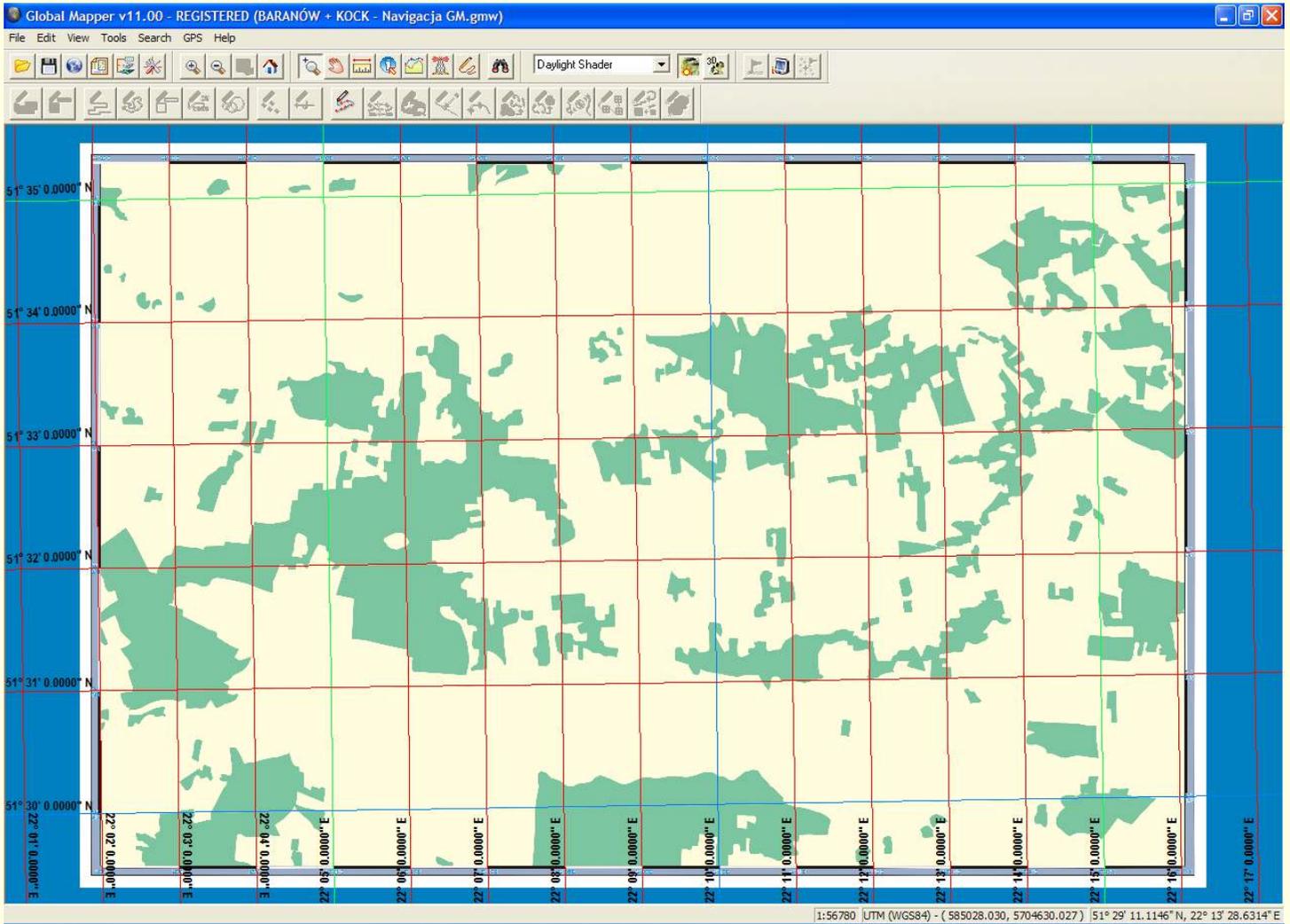
7. Looks OK... so - next step to be import SRTM data using "Global Mapper - "Download online data for the area visible on screen", (Fig. 8 and Fig. 9)
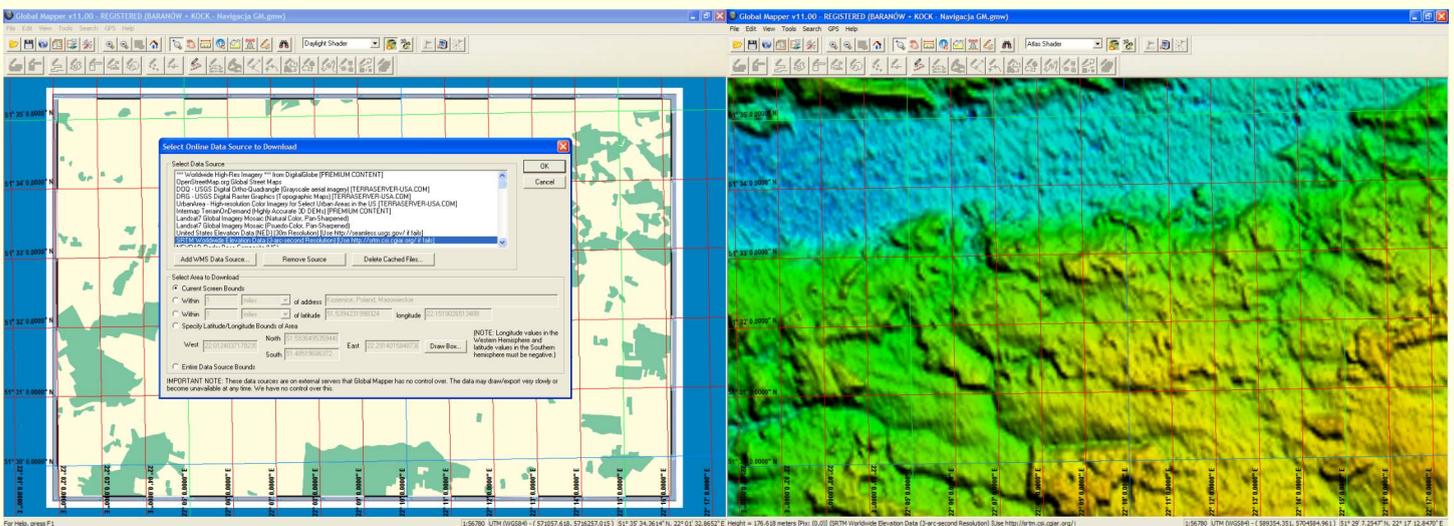

8. Since SRTM data has been downloaded as a last layer, it covers up our map...
Let's change the Global Mapper layer's order now - (Fig. 10))
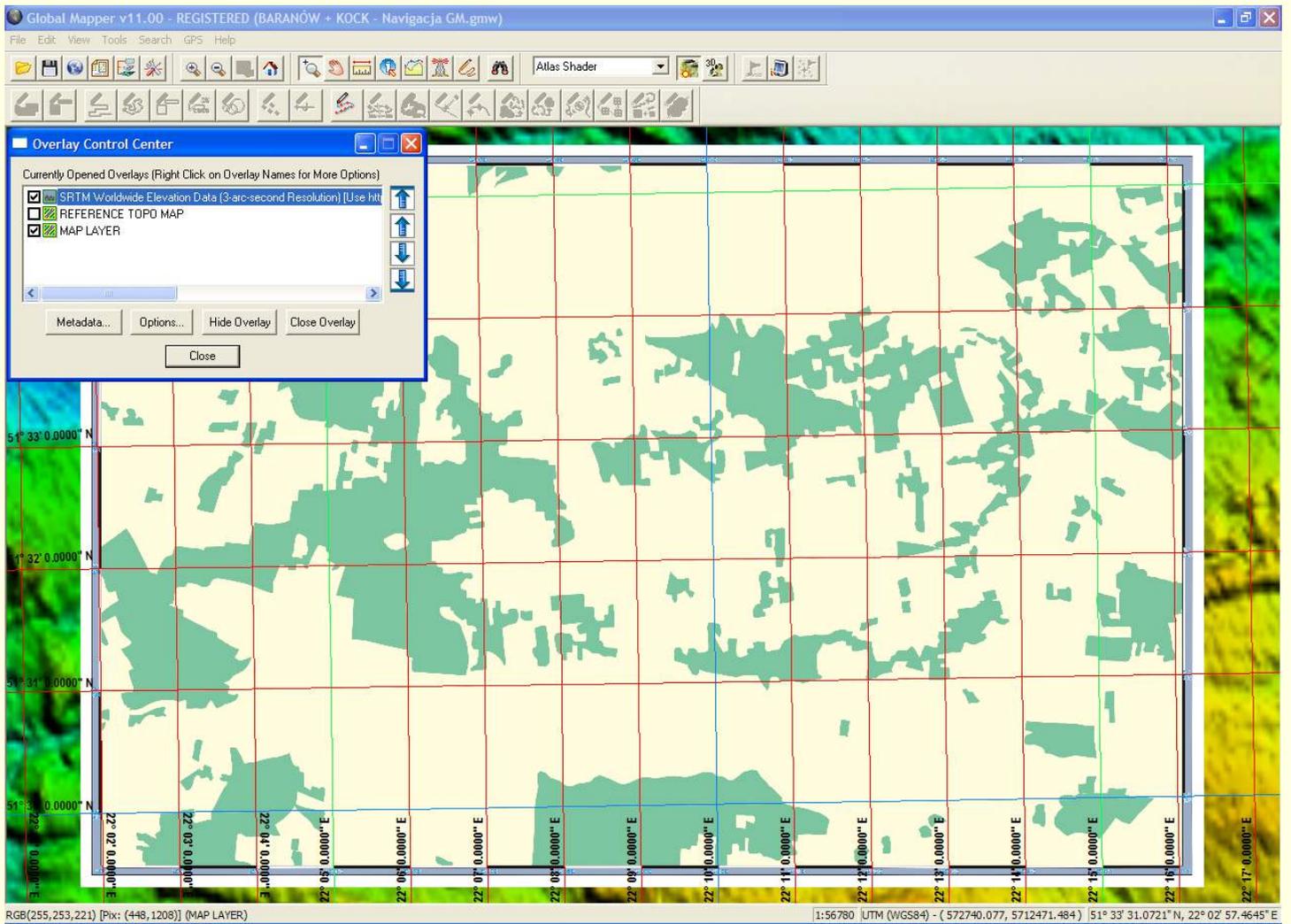
9. We can do that by means of Global Mapper - "Overal Control Center" - shifting the SRTM data on top of the list, so it will be open as the first and unhide our map layer - (Fig. 10 - above)

10. In next step, we have to use Global Mapper - "Overal Control Center" again - and mark our map layer, than when the "Raster Option" window pops up, we have to experiment with available adjustements in order to achieve expected result in shading our map. (I've used just "Translucency" parameter and adjusted it to 70%.

Let's see what we will get...
(Fig 11 - right)
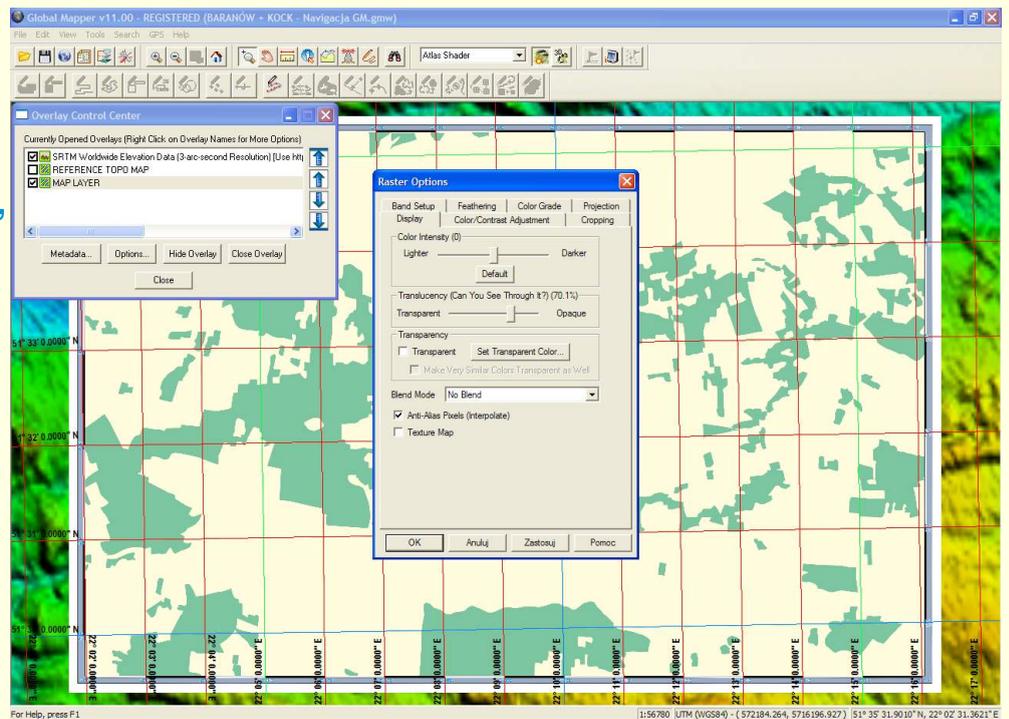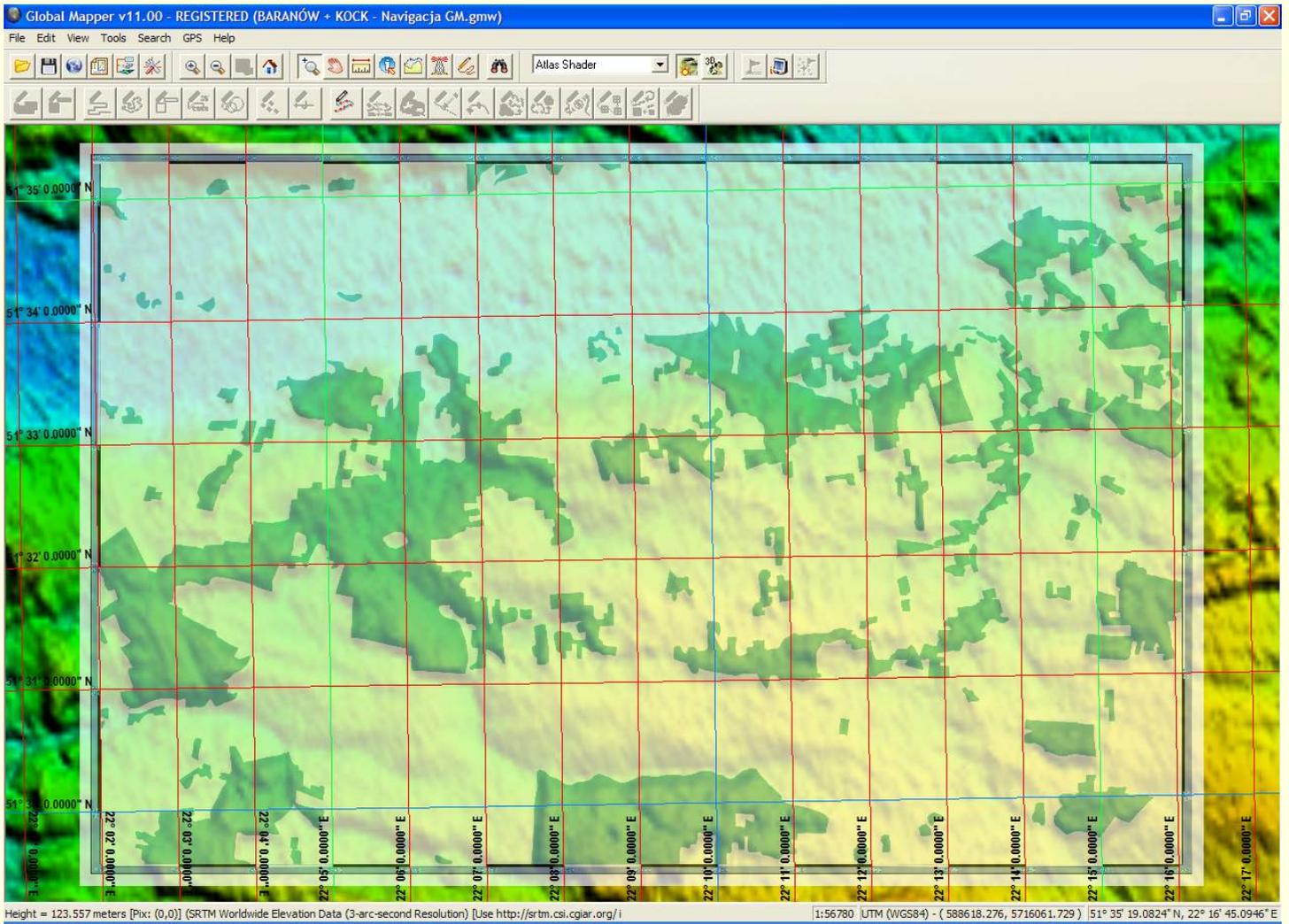
11. So, here we are... What do you say about it ?... As for me, looks quite good... (Fig. 12)
But from the other hand, let's try to change Atlas Shader into Daylight Shader.. OK?
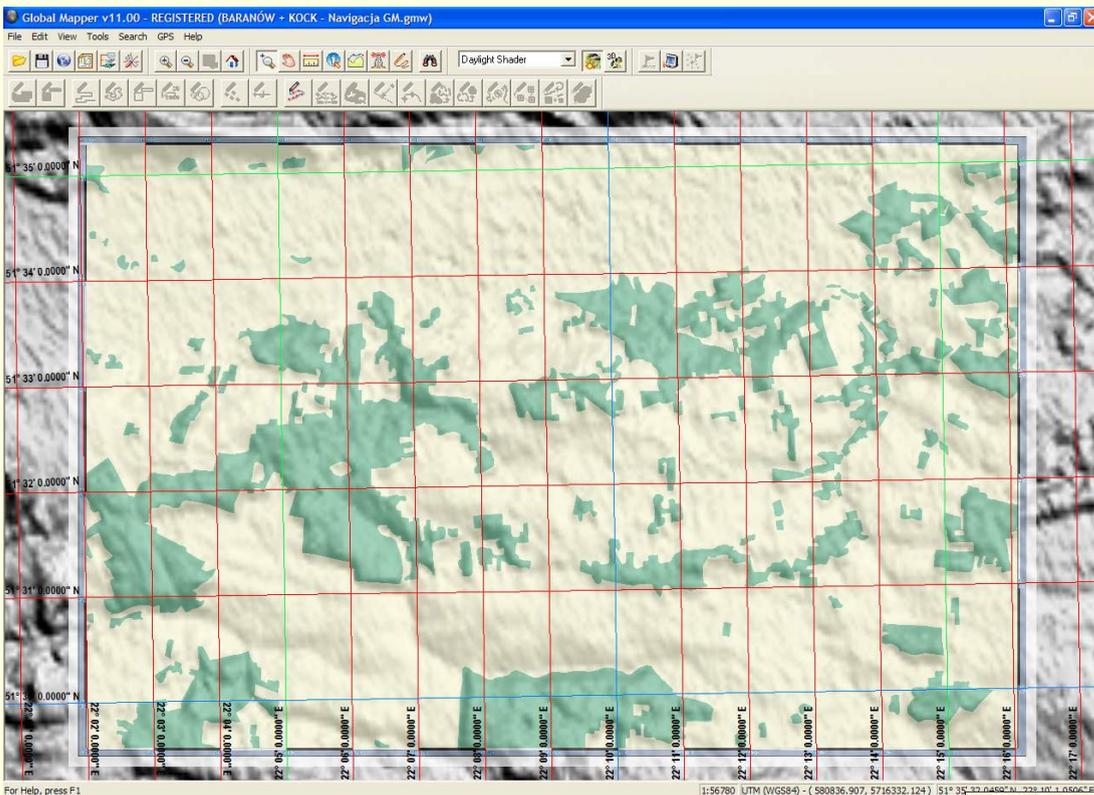
12. OK, looks different, but for my purposes I prefare this one.... (Fig. 13)

13. And what to do next ?... I will try to export that into GeoTIF of 300dpi...
But first, we have to switch off Global Mapper grids...
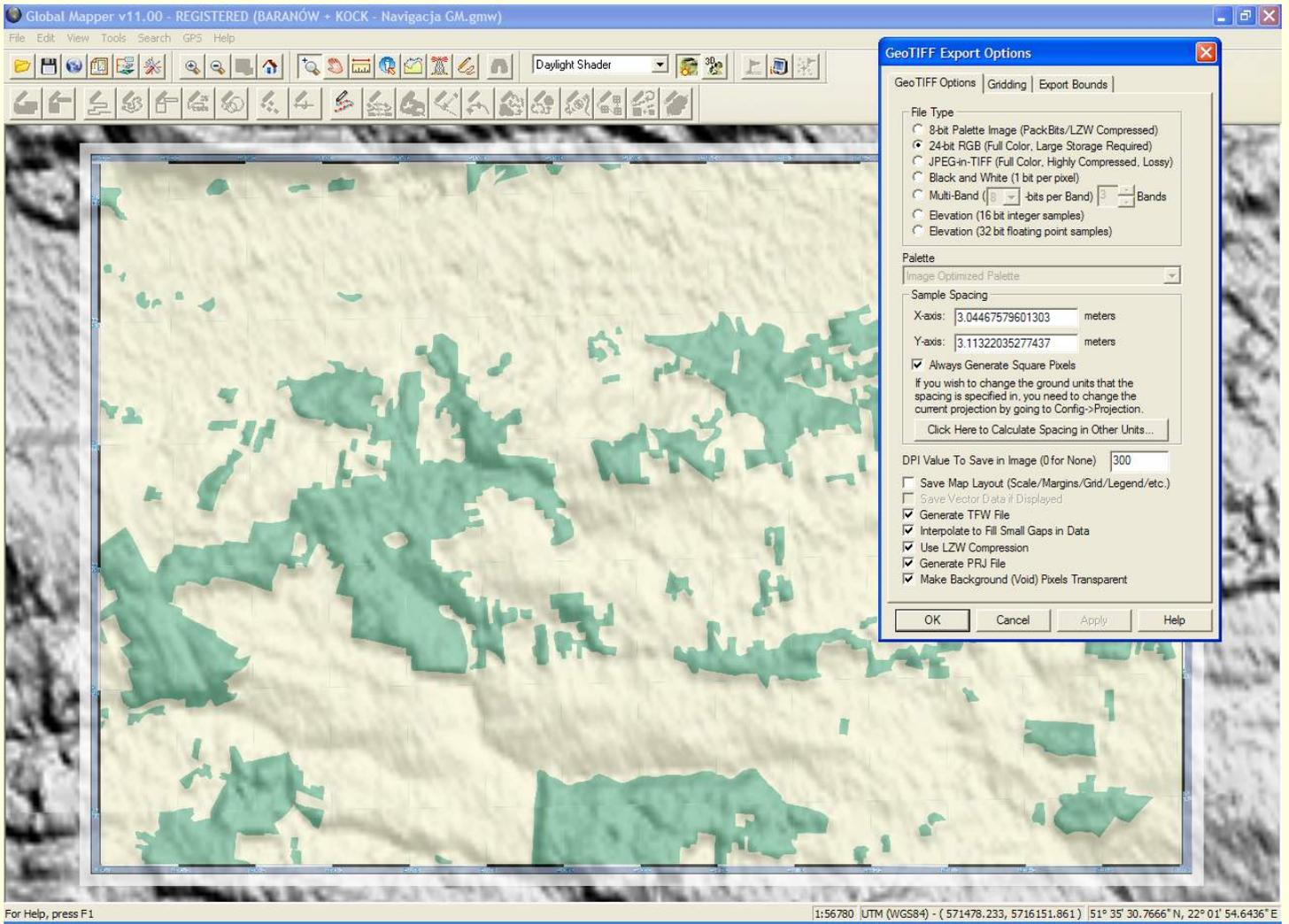
14. Could it be like that ? Let us see it after a while...
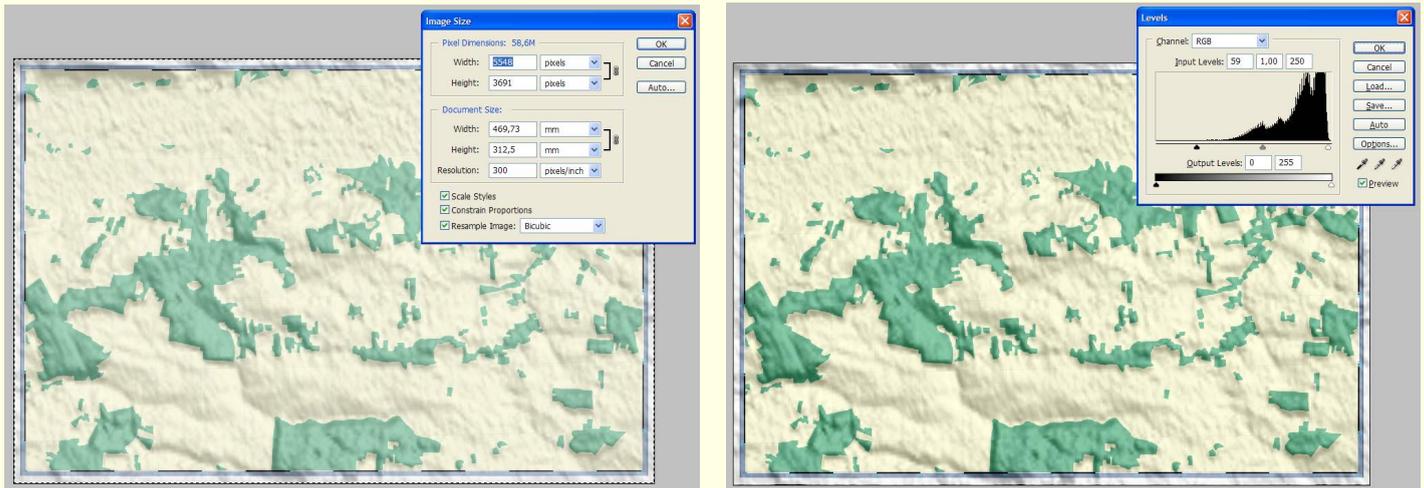
15. As for me...
I'm going to accept it...

16. But now, any raster
editing software would
be required...
It's up to your choice
which one, but I also
have my favourite..

I'm going to import
my GeoTIFF into
that soft...
The reason for doing so
is to :
a) crop the collar
b) change RGB color model into CMYK
c) adjust colour ballance, contrast, check final resolution and raster size before we are ready
to import our raster into our mother drawing software, where the entire map has been created in.
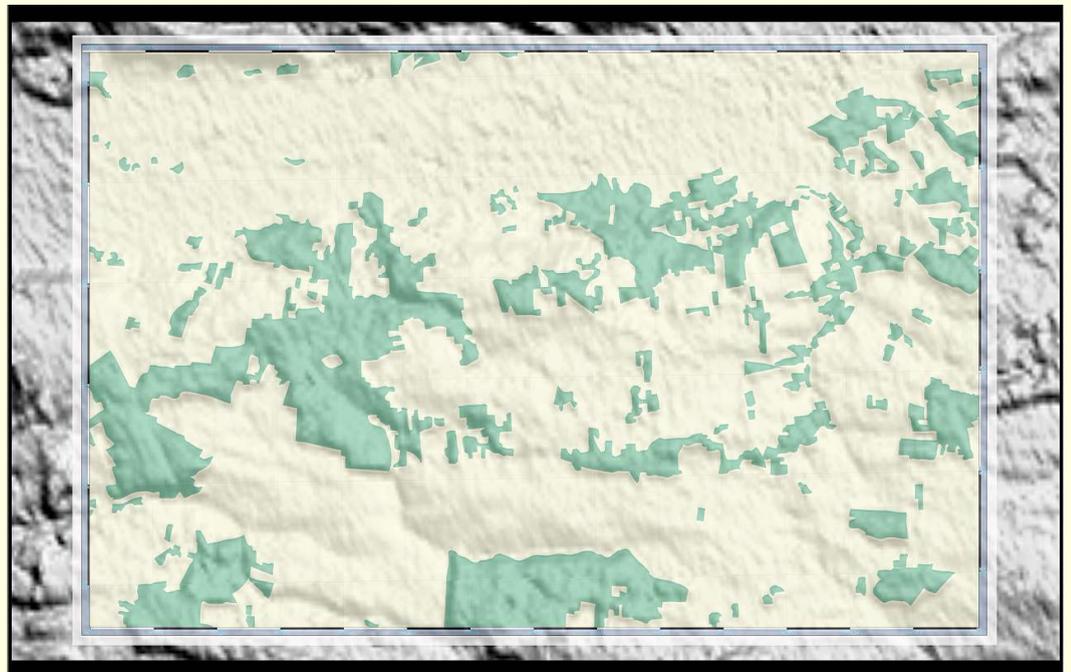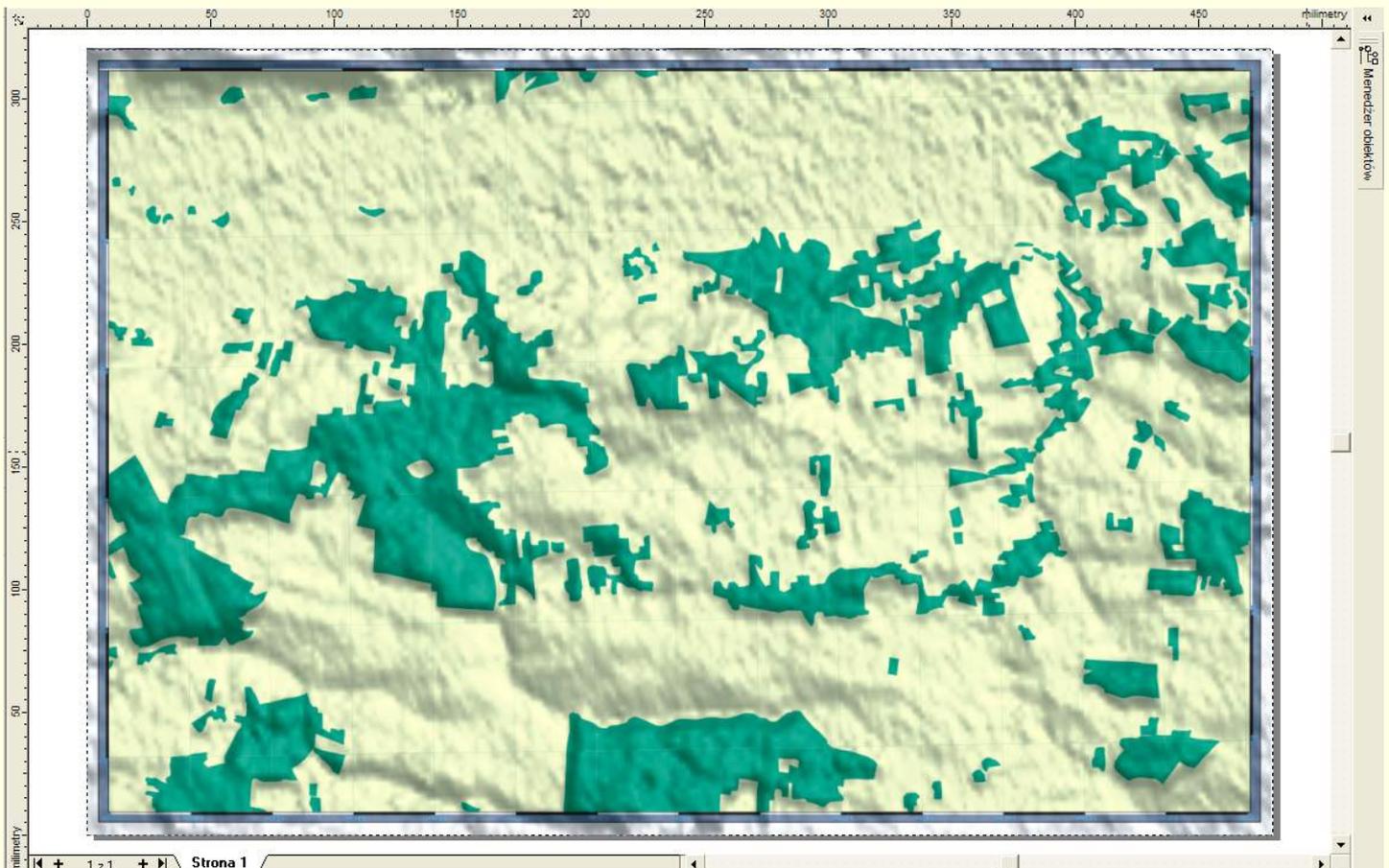
17. Here is "before and after" some adjustments with raster editting software...


18. If the result is acceptable, let's export it into new file (CMYK and 300 dpi TIF)

19. And from now on, we are just a step before we can see a final result of our attepts...
  a) Open again our drawing software and import into it just created - shadowed background...

  a) Now we are going to make visible (enable) all map layers (switched-off) in the begining of these excercises... Only two of them will remain disabled - forests (green), and most lower layer an yellow background... Newly created shadowed background will replace them.
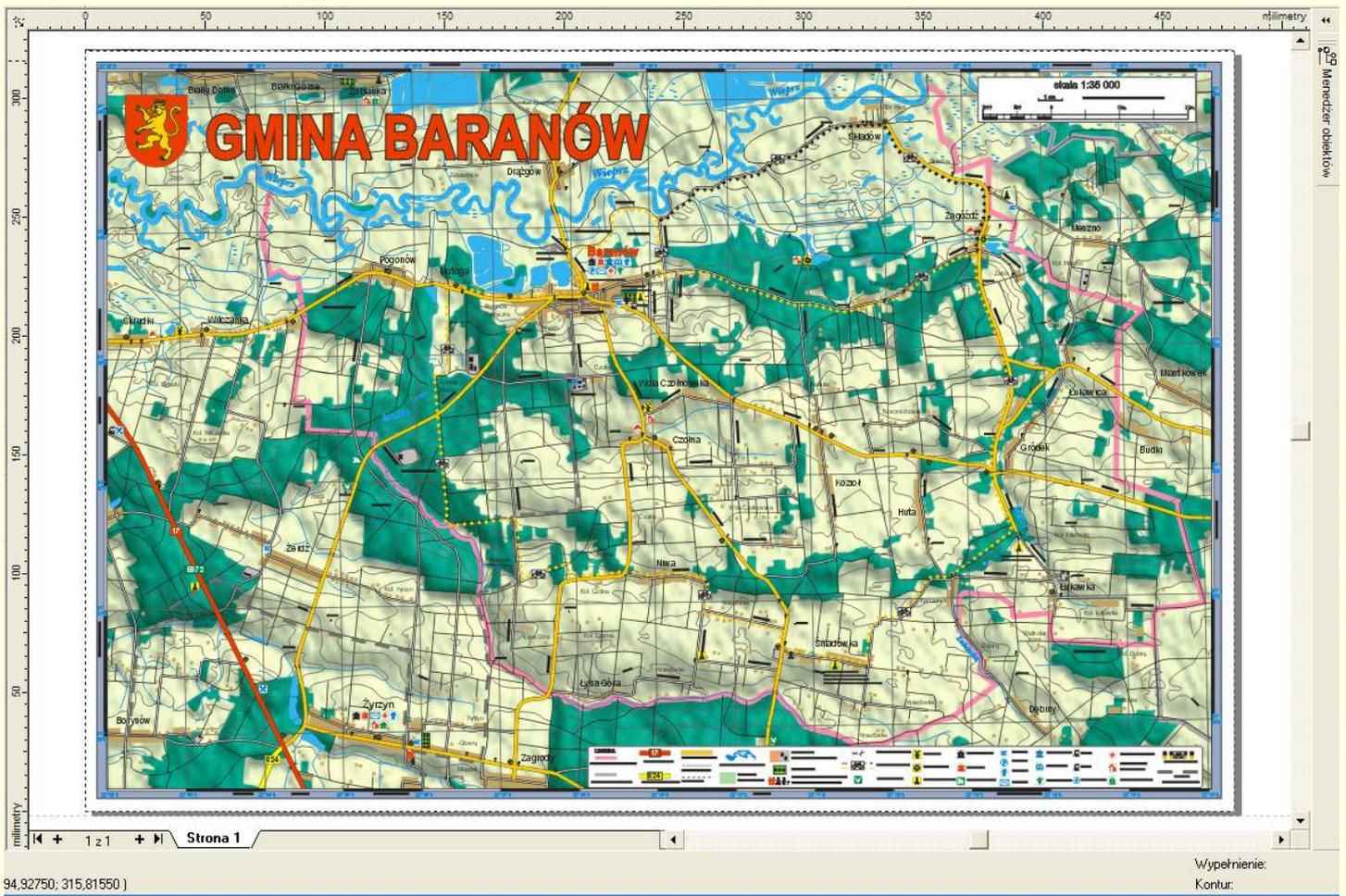
c) So, here we are. That is the result of our efforts. . PLS note, that every vector lines, texts, objects, signatures are on top of our newly created 3D shadowed background.
Therefore a rasterization effect, has no influence into any vectors, it's clearity, sharpness and colour.
The map is in 1:1 of it's given scale. The raster bacground is CMYK, therefore the map is ready to be printed in an print office. And by comparing with our source map - here is the "flat" version of it.

I would be very glad
to hear back from You
if You have your own
thoughts about the subject
of how to use Global Mapper,
to create printable 3D maps

You can find me on
Global Mapper Forum

Regards
EDGAR

"Note that rather than using **Translucency** to apply the shading one can also check the "**Texture Map**" option which will directly apply the shadowing from underlying elevation layers to a raster layer."
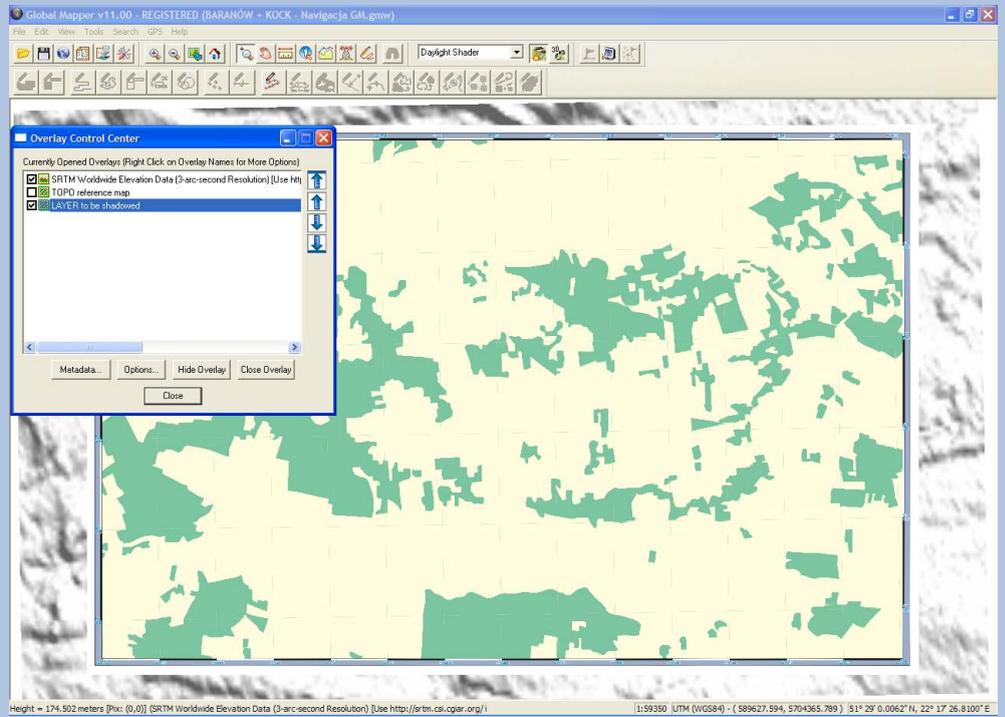
So, let's have a check in that way... We can start from the point where SRTM data are loaded...
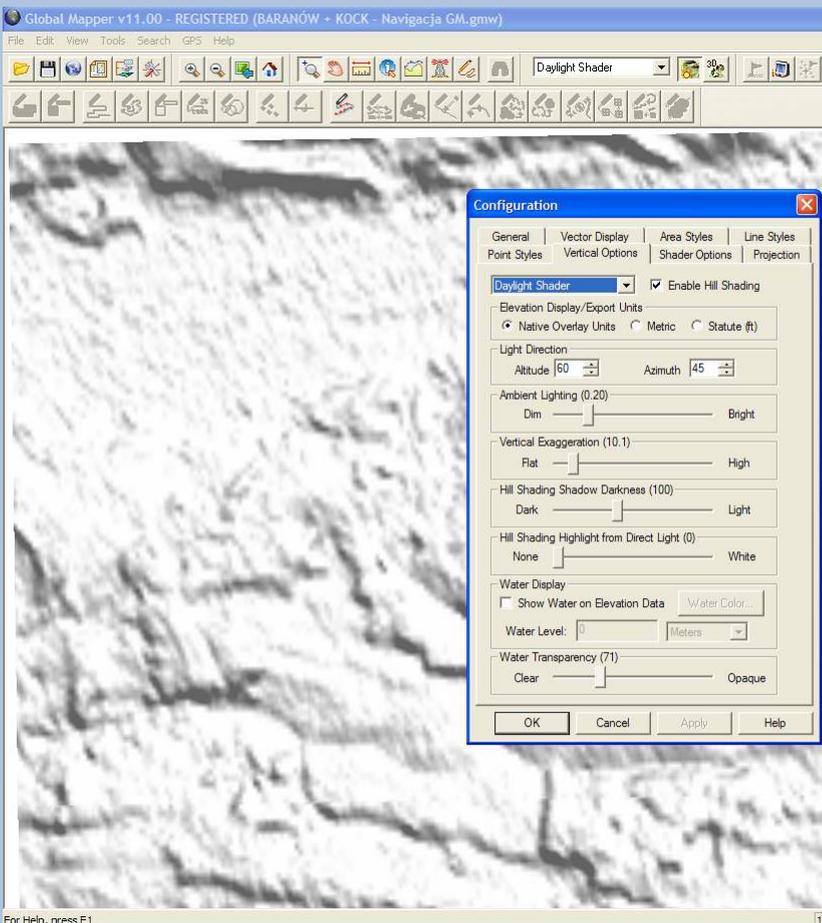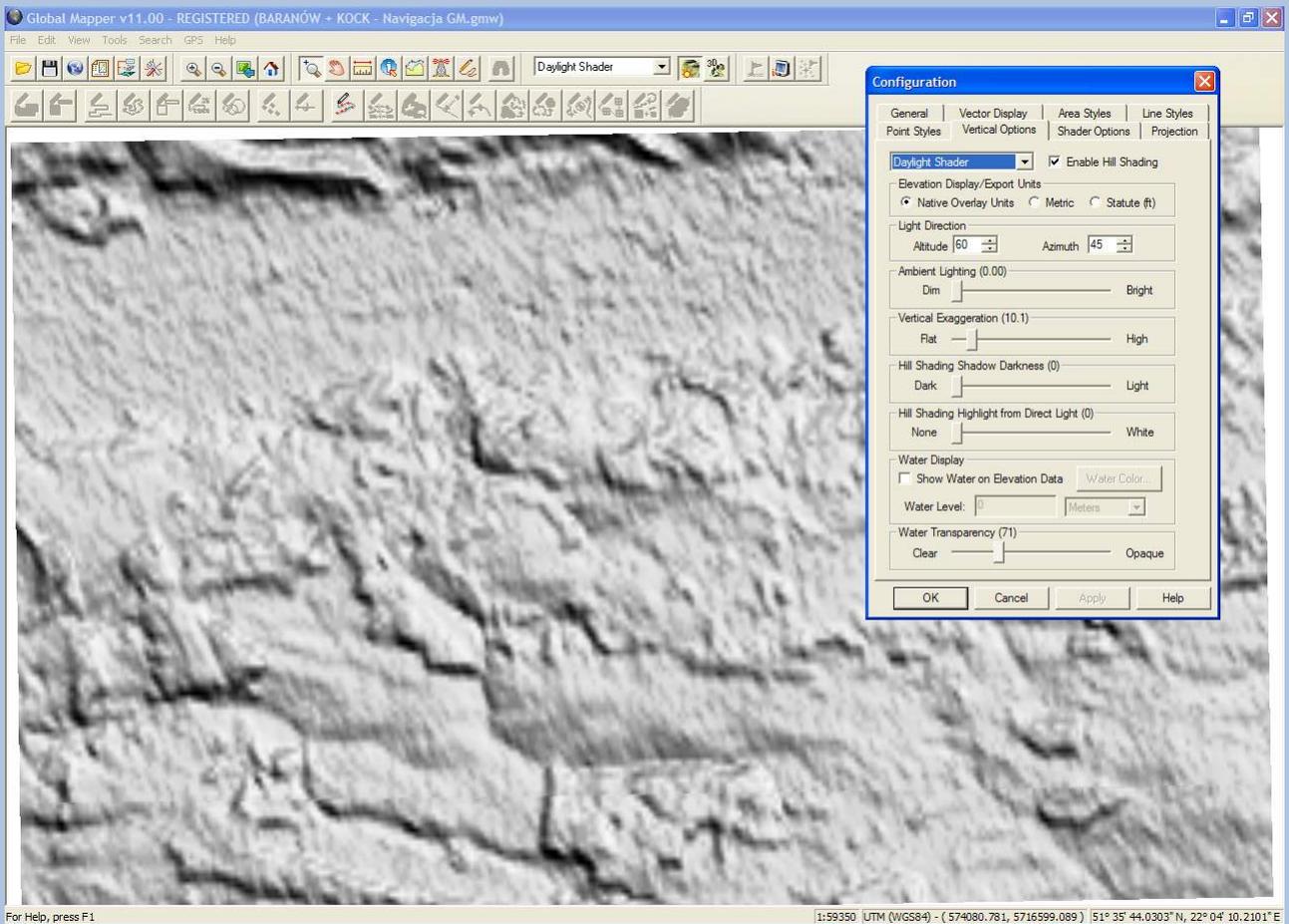

We can do some adjustements to:
- **Light Direction** - ex. 60 / 45
- **Vertical Exaggeration** ex. 10
- **Hill Shading Darkness** - ex. 100
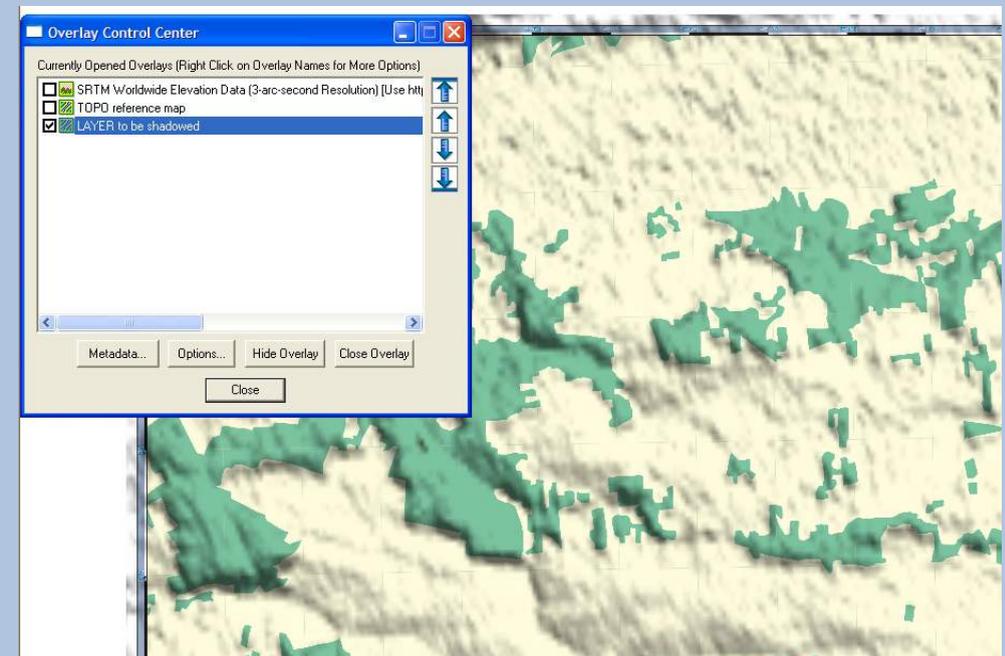- **Hill Shading Highlight Direct Light** - 0

Now we can activate our map layer to be shadowed...
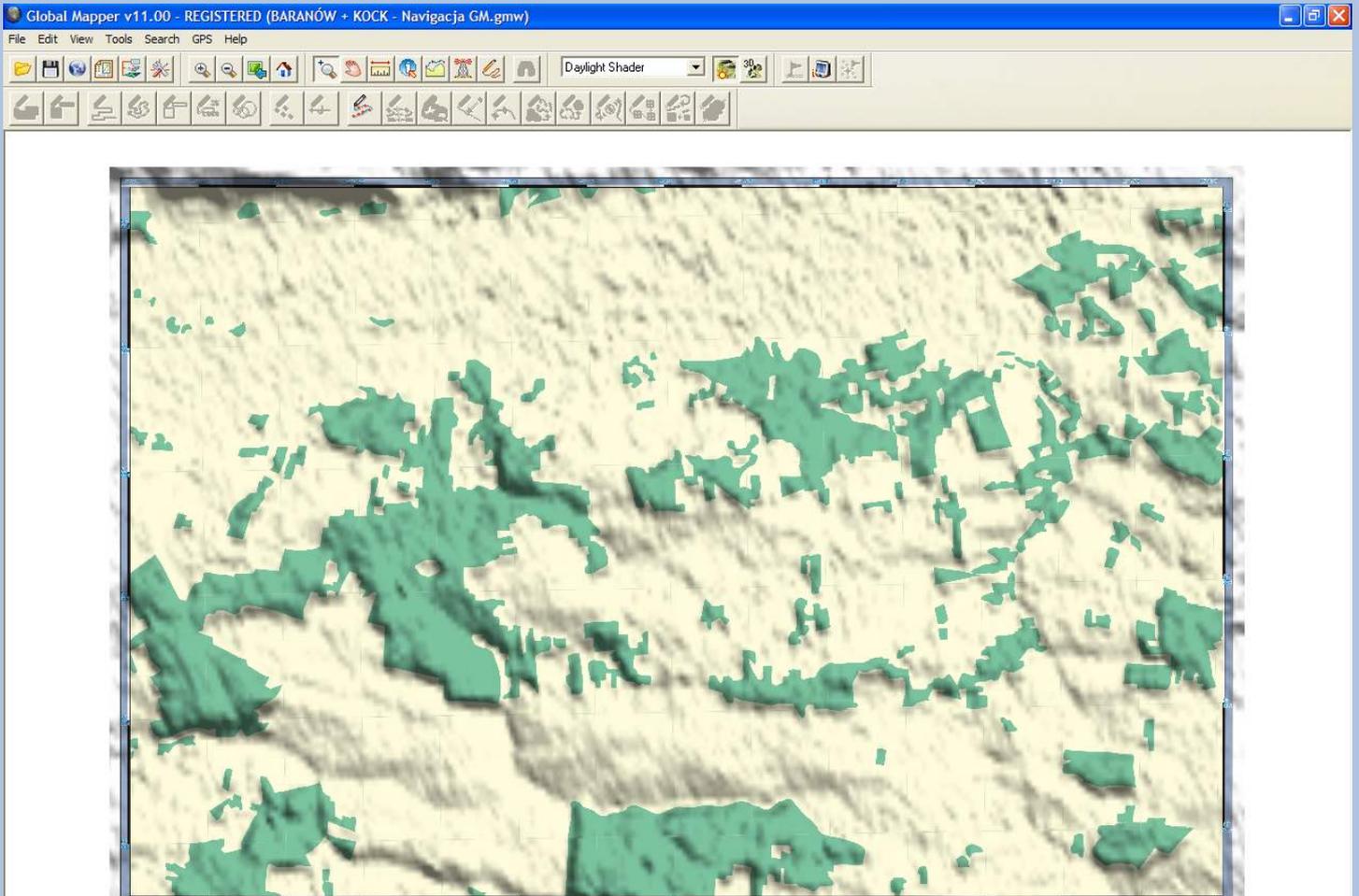**Mark our layer in the Overal Control Center** an hit **Options...**

In Raster Options pop-up window - this time we leave Translucency in Opaque position, but we check up
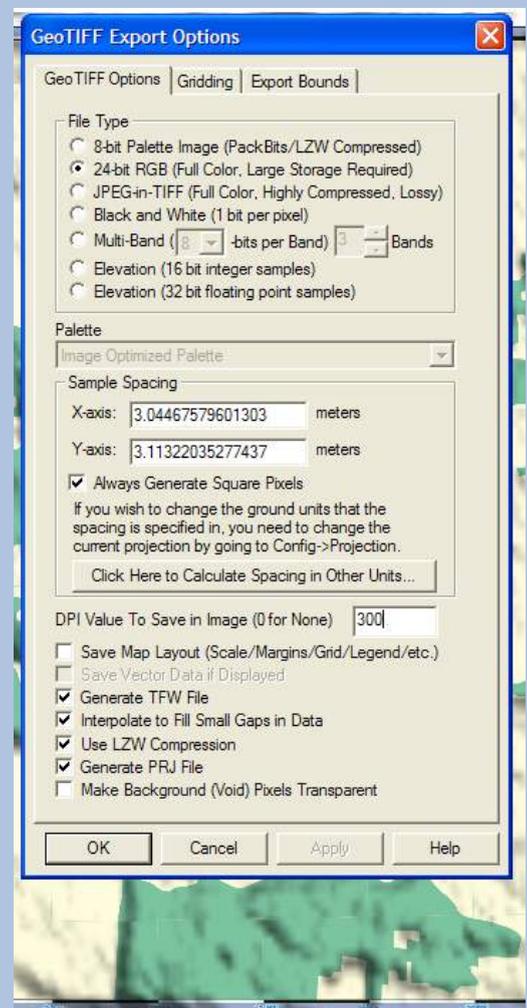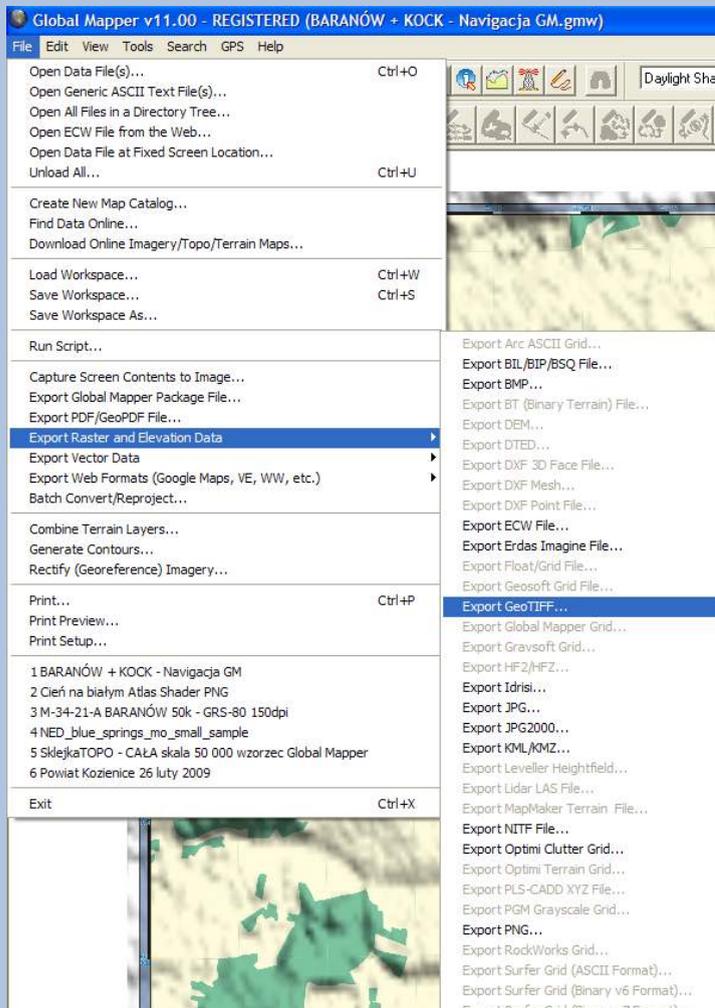**- Anti-Alias Pixcel** and
- Texture map
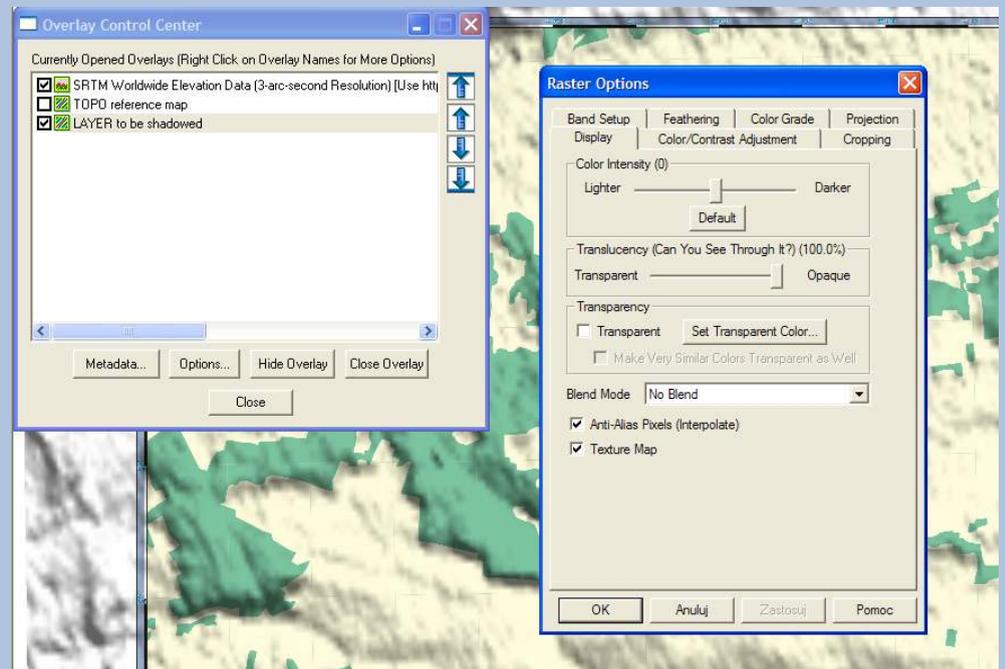
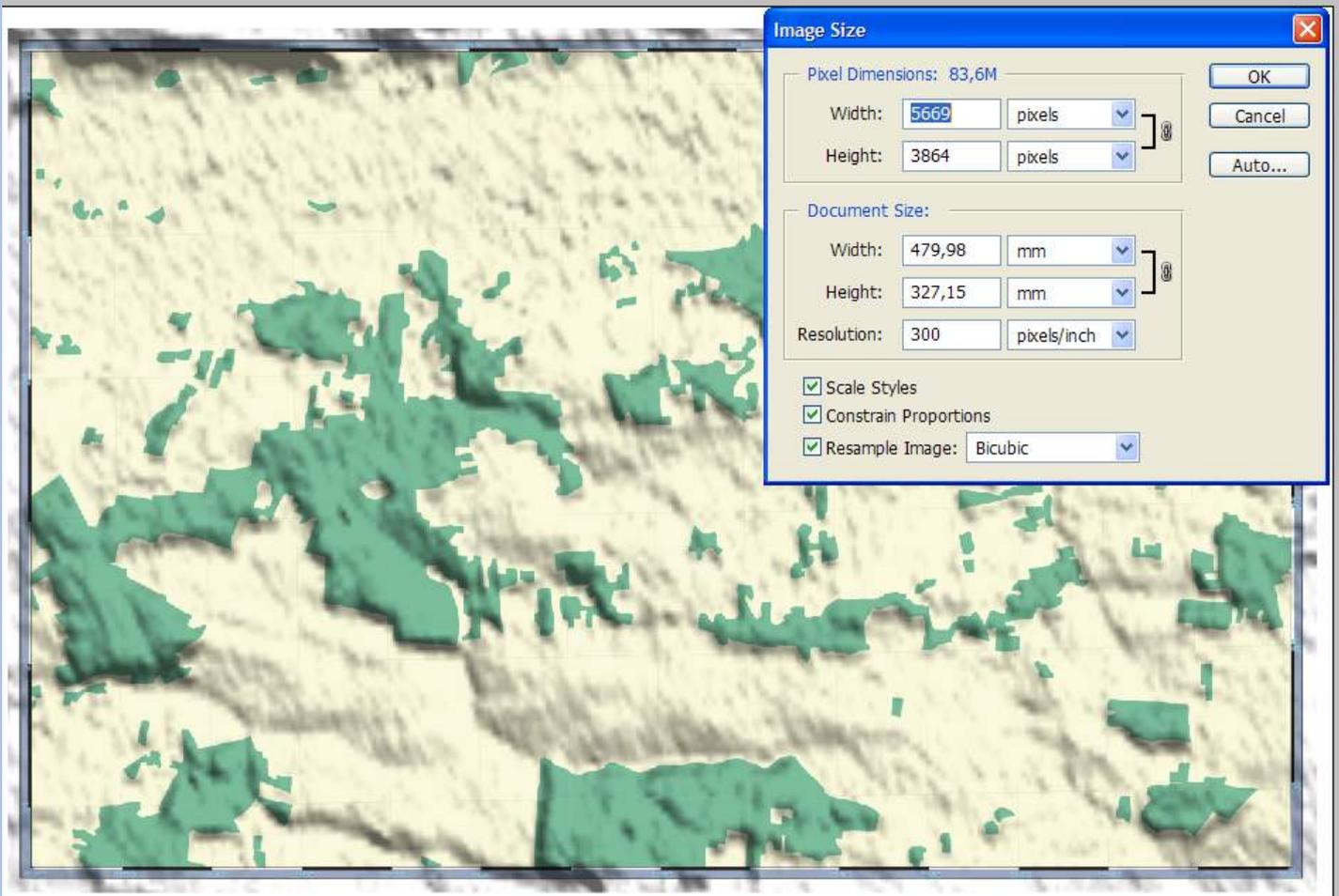**In Overal Control Center uncheck SRTM data...**
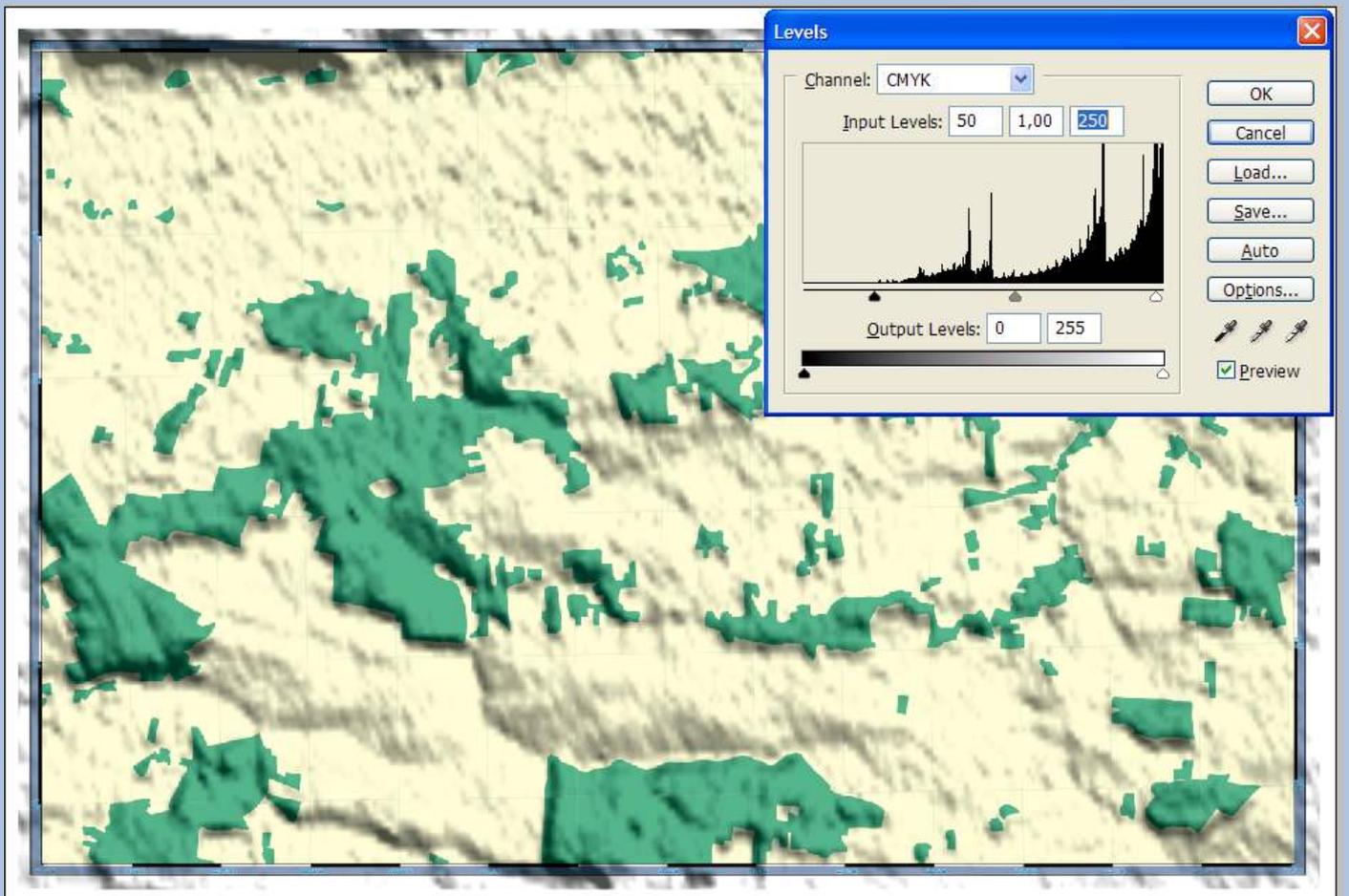
And this is what we got...

Let's export the layer into 300 dpi GeoTIF...

Our raster editor shows - pixel dimension and resolution - looks OK...

After exchanging color model from RGB to CMYK and slight adjustement of BLACK & WHITE levels, this time we have not much to do with our layer.. So let's try it with our map...

So, here we are... The first top screen shot represents the method using "**Texture Map**" since the lower one comes here from the "**Transulcency**" method described before. Obviously all what we've got here depends on our presonal needs and requirements when adjusting particular controls with **Global Mapper** in particular, but also with a raster editor and drawing software of our choice. So, let's experiment and share our news on the Forum.