PCA-5017
INTRODUÇÃO AOS SISTEMAS DE INFORMAÇÃO GEOGRÁFICA EM SOFTWARE LIVRE

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GRASS

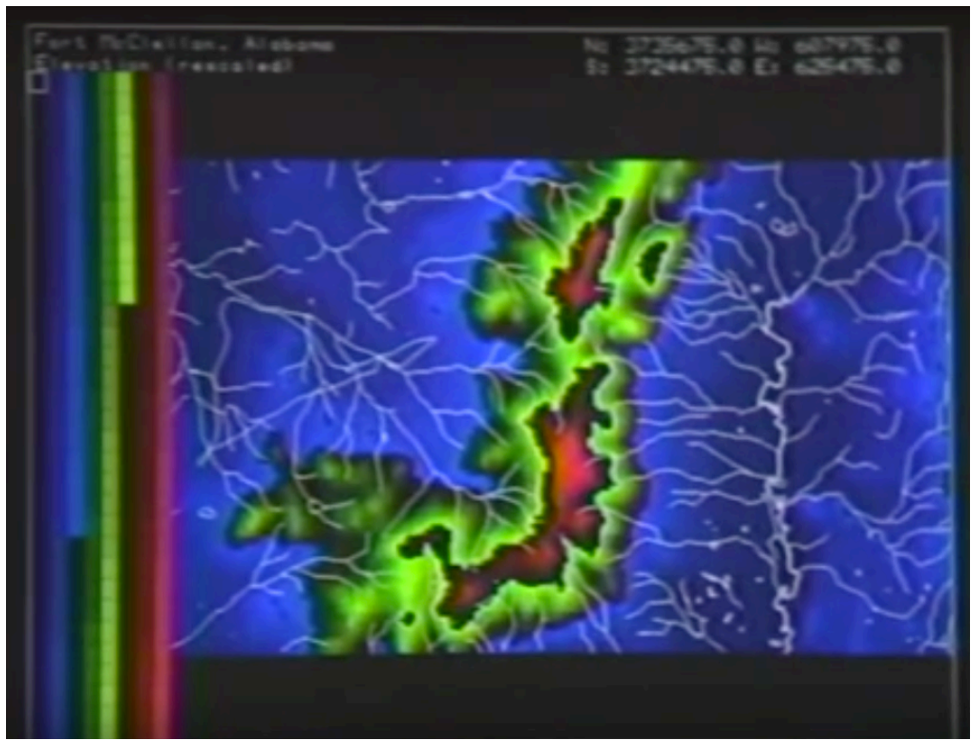
GRASS – HISTÓRICO

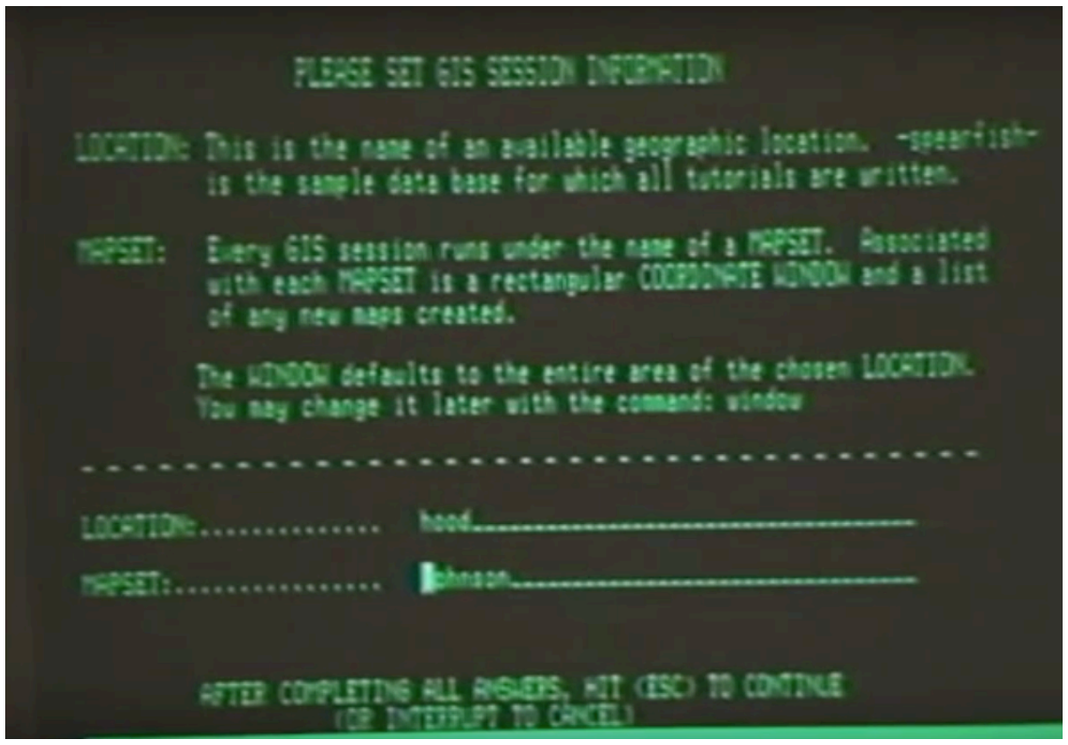
- Geographic Resources Analysis Support System
- 1982 Fort Hood Information System (FHIS) (Vax11/780)
- 1983 Installation Geographic Information System (IGIS) (SUN-1)
- 1984 GRASS (SUN-1 and Masscomp)
- 1985 GRASS 1.0
- 1987 GRASS 2.0
- 1988 GRASS 3.0
- 1991 GRASS 4.0
- 1997 GRASS 4.2 Baylor University
- 1998 GRASS 4.2.1 Markus Neteler, University of Hannover, Germany
- 1999 GRASS 5.0 Baylor University and Markus Neteler

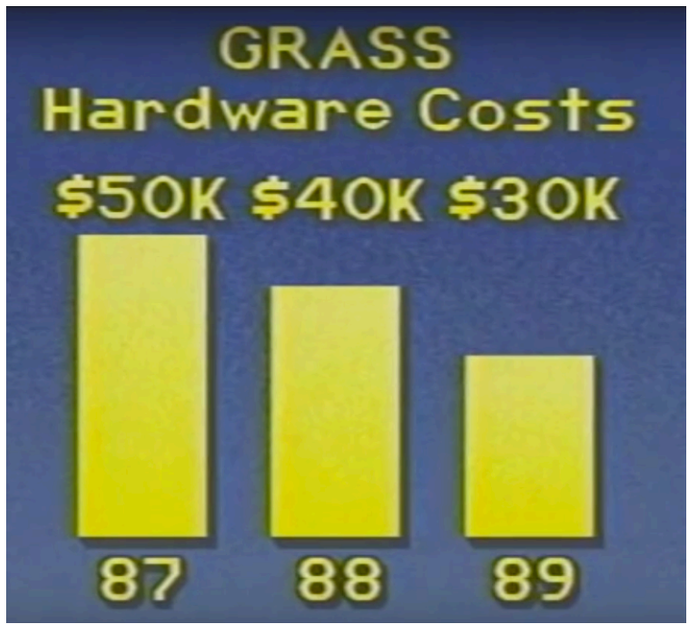
GRASS – HISTÓRICO

- 2001 The GRASS Development Team
- 2002 GRASS 5.0 stable
- 2004 GRASS 5.4.0
- 2005 GRASS 6.0
- 2006 GRASS 6.1
- 2006/7 GRASS 6.2
- 2007/8 GRASS 6.3
- 2008 GRASS 6.4 (+ WinGRASS)
- 2012 GRASS 6.4.2
- GRASS 6.5 - bugfix + testing
- GRASS 7.0 - new stuff

GRASS – HISTÓRICO – VERSÃO 2.0

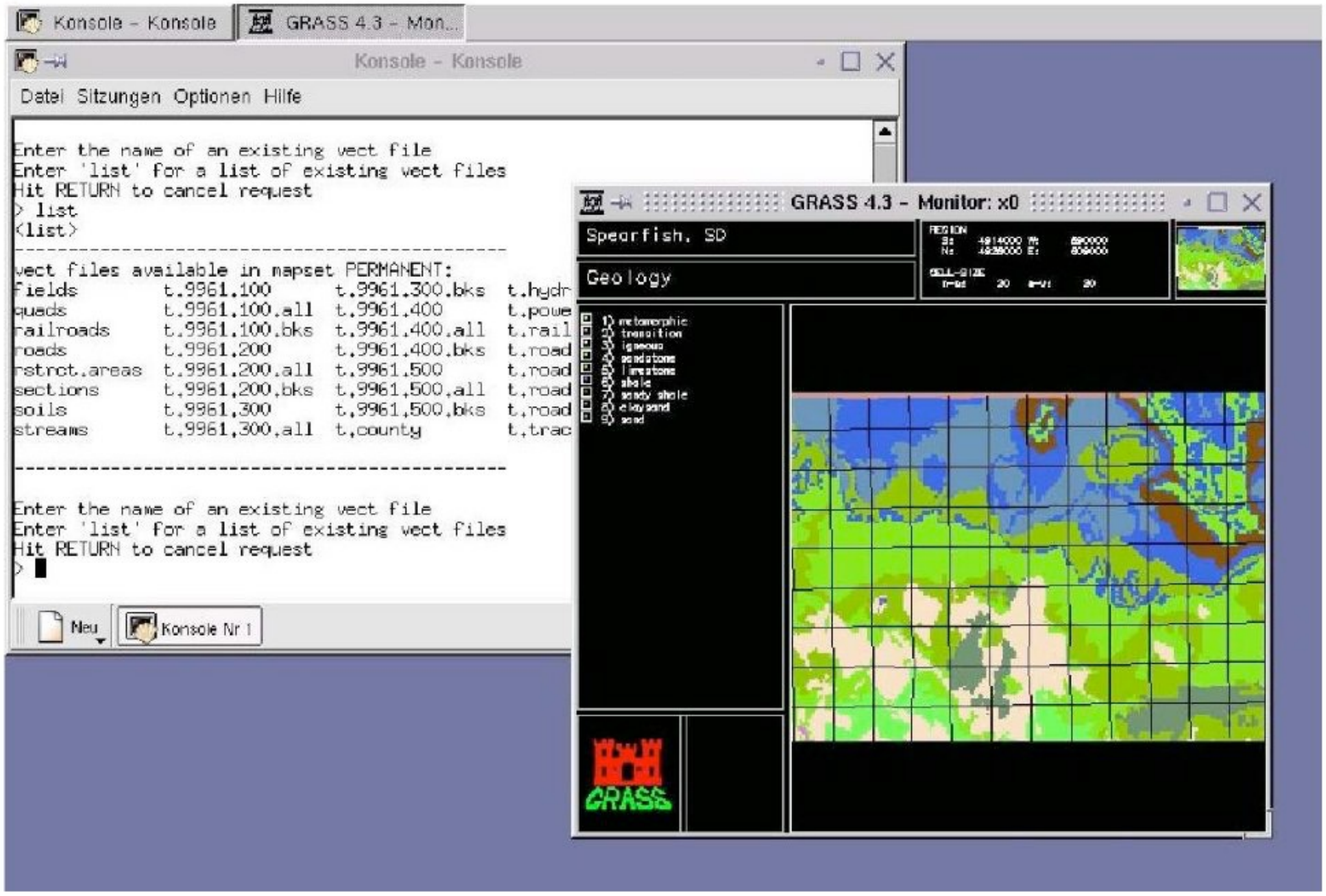




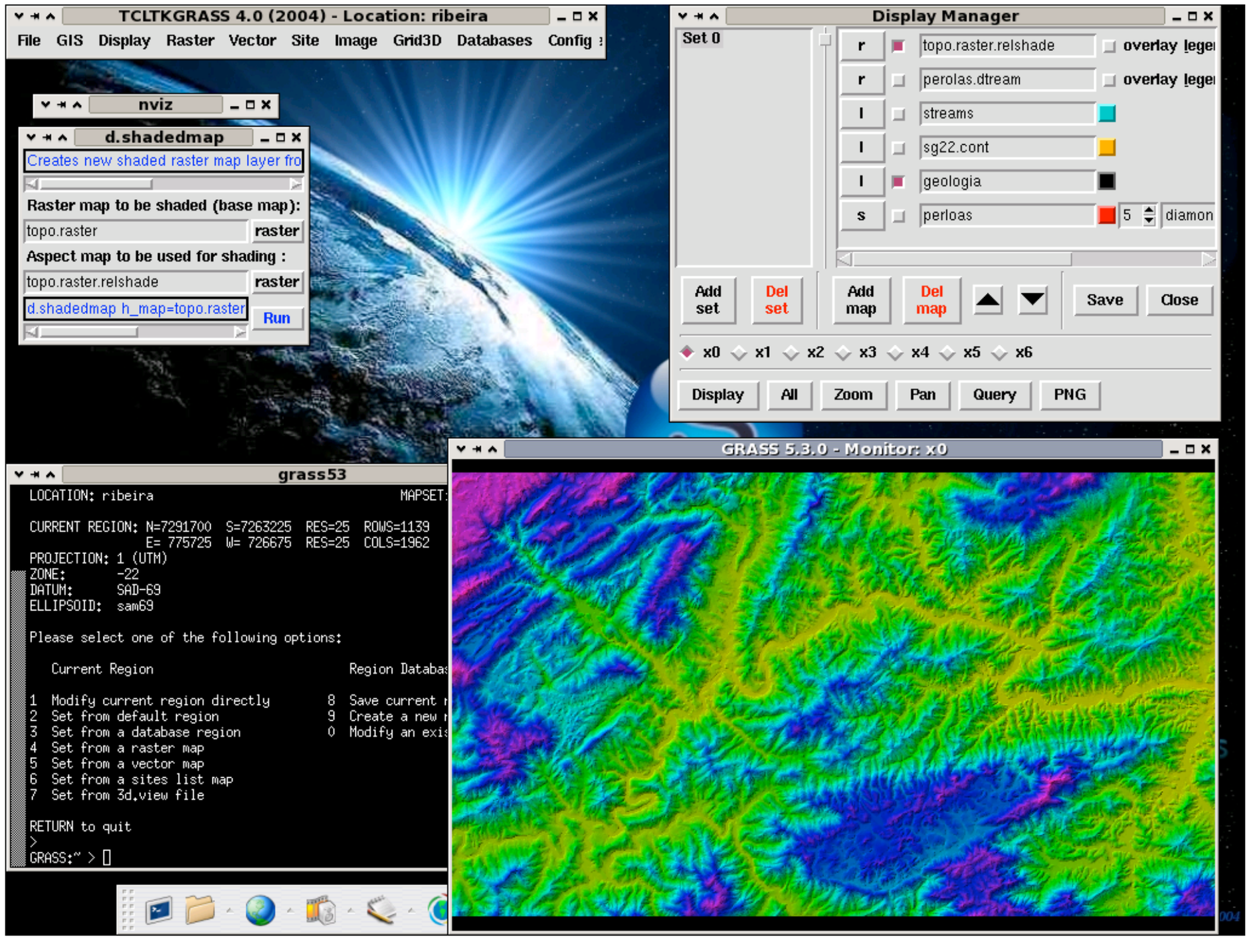


https://www.youtube.com/watch?v=U3Hf0qI4JLc

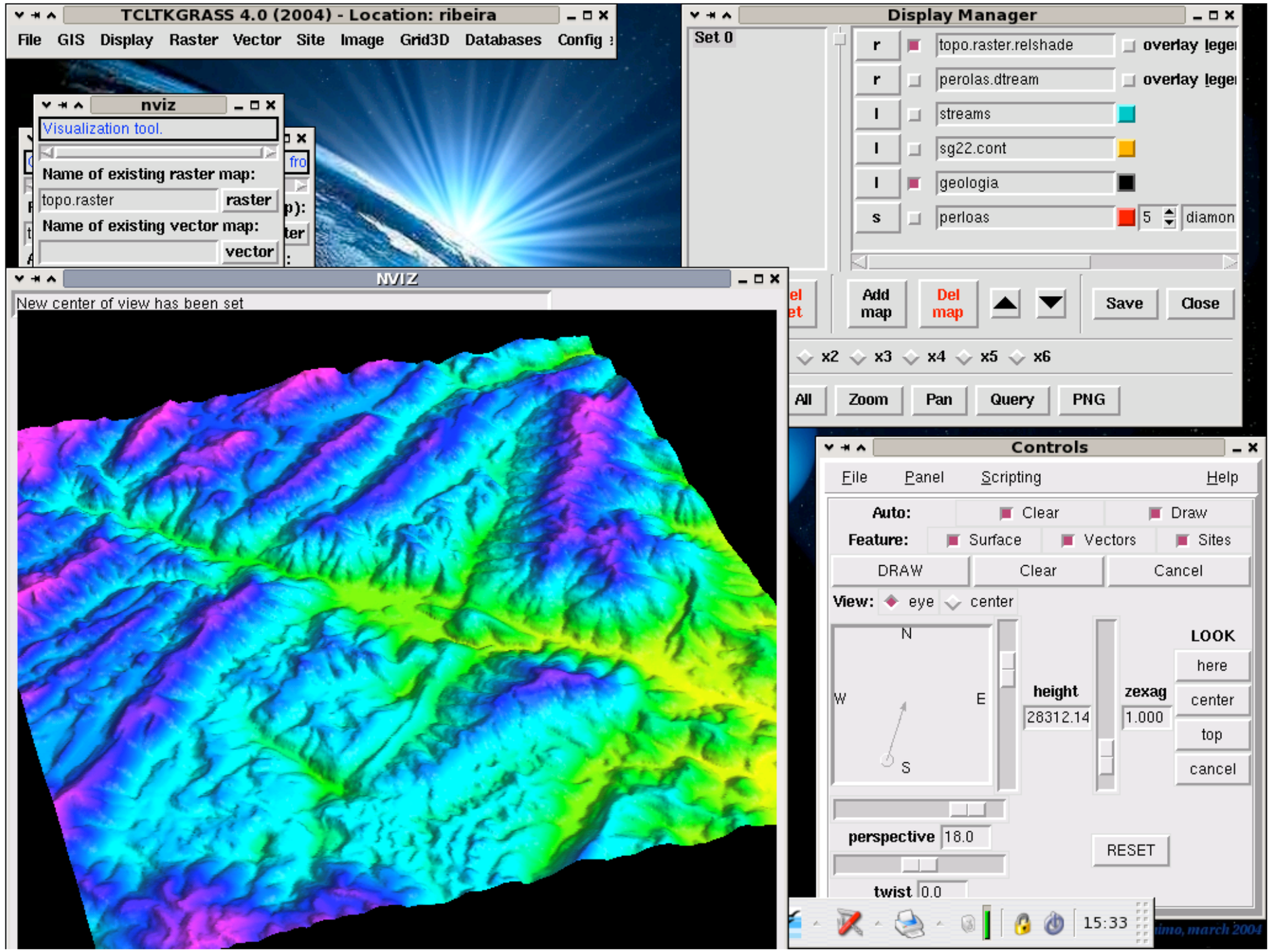
GRASS – HISTÓRICO – VERSÃO 4.3



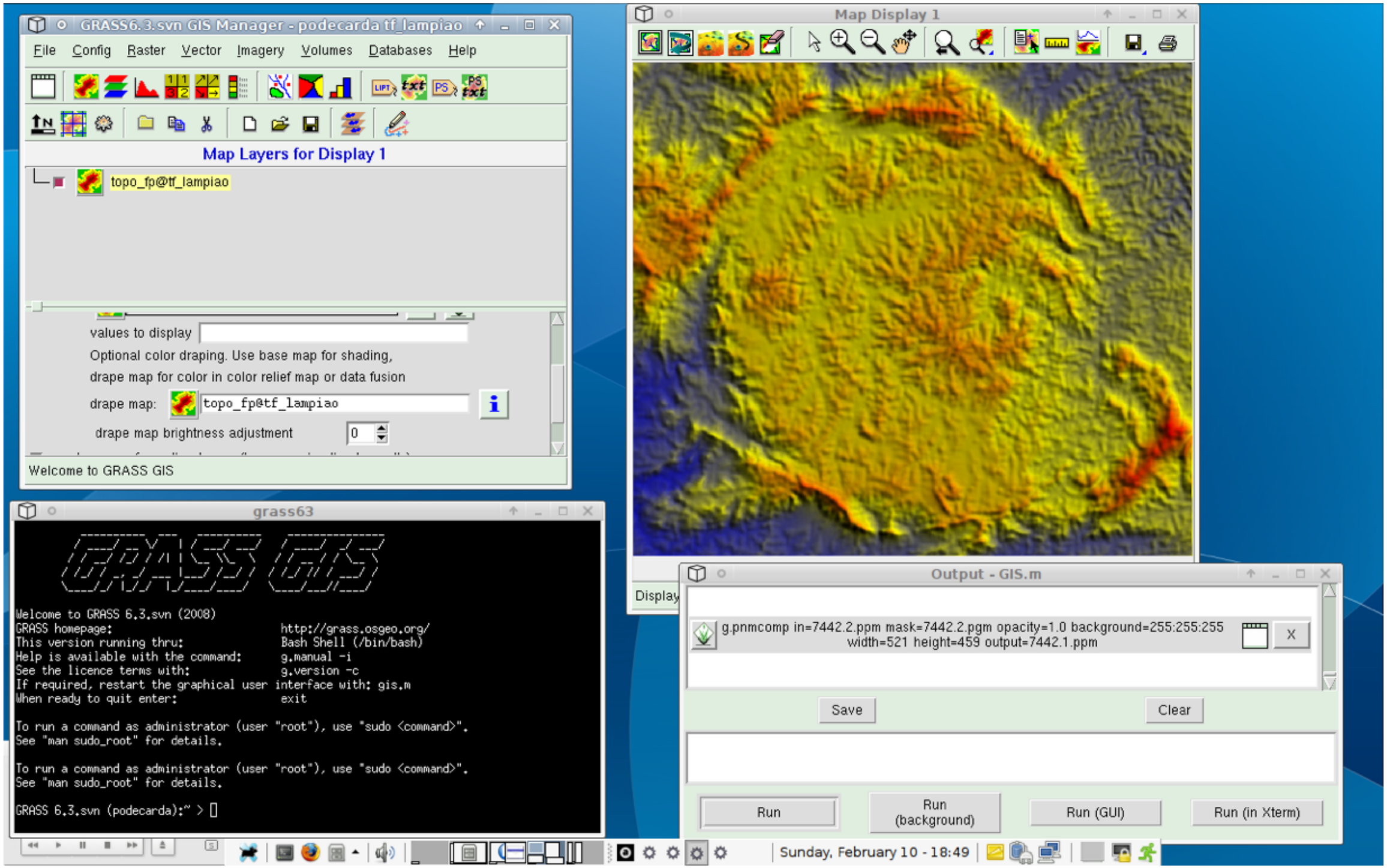
GRASS – HISTÓRICO – VERSÃO 5.3



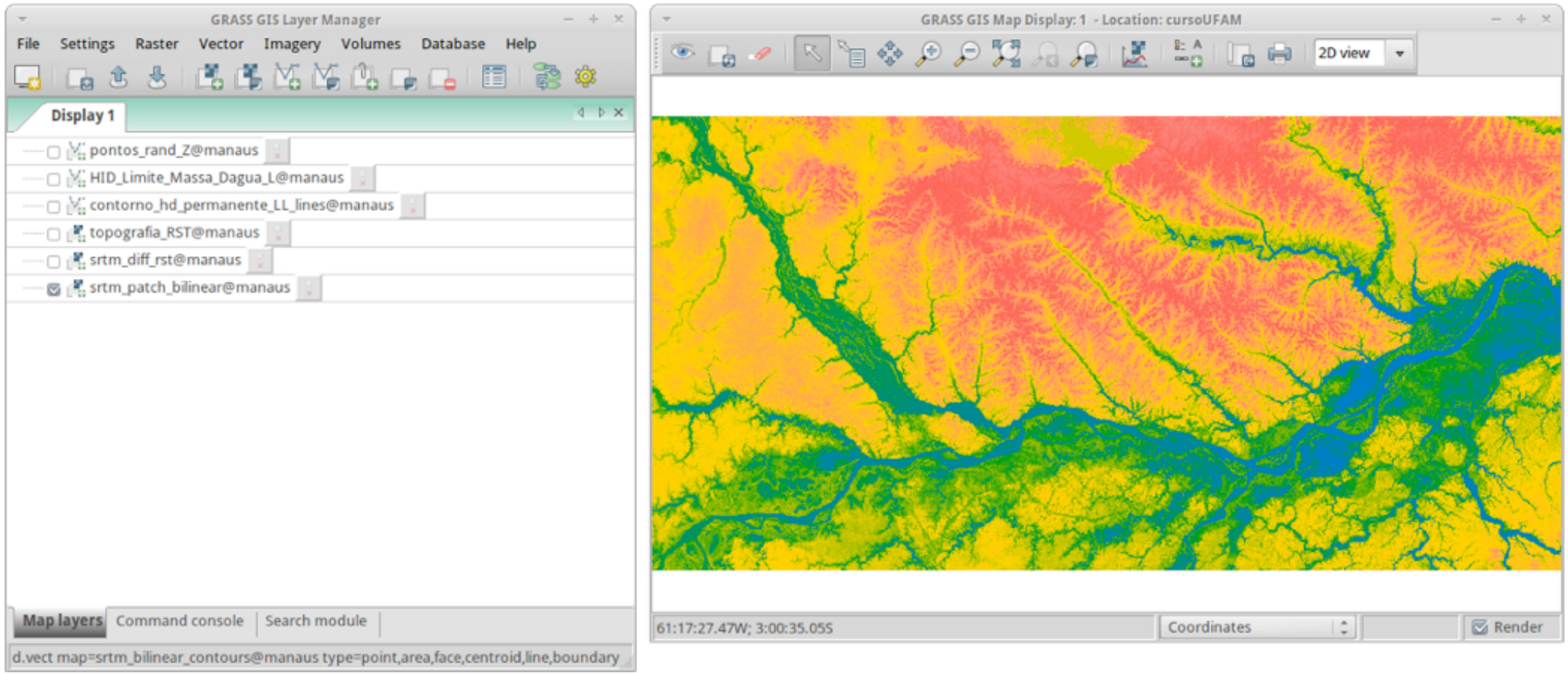
GRASS – HISTÓRICO – VERSÃO 5.3

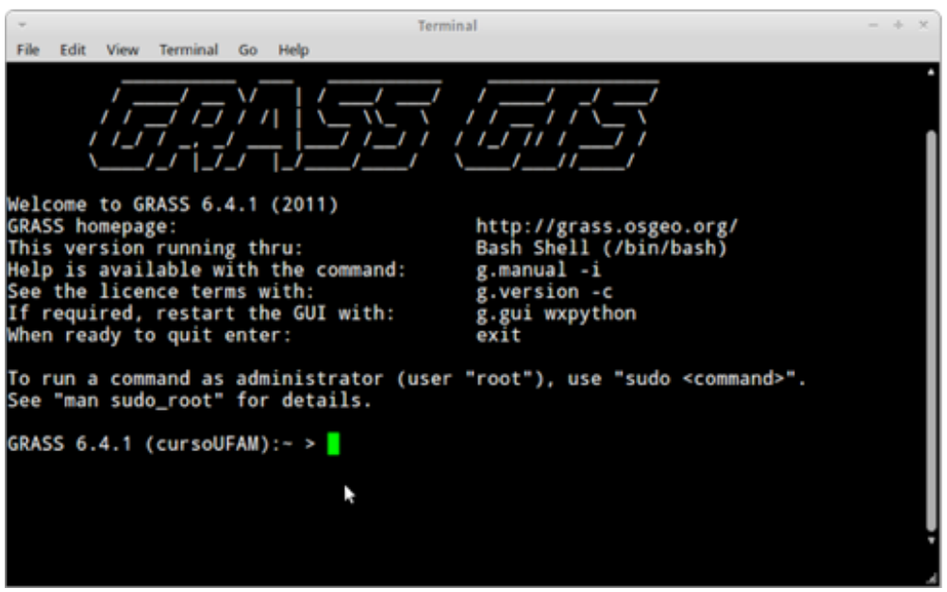


GRASS – HISTÓRICO – VERSÃO 6.2



GRASS – HISTÓRICO – VERSÃO 6.4 + 7.0

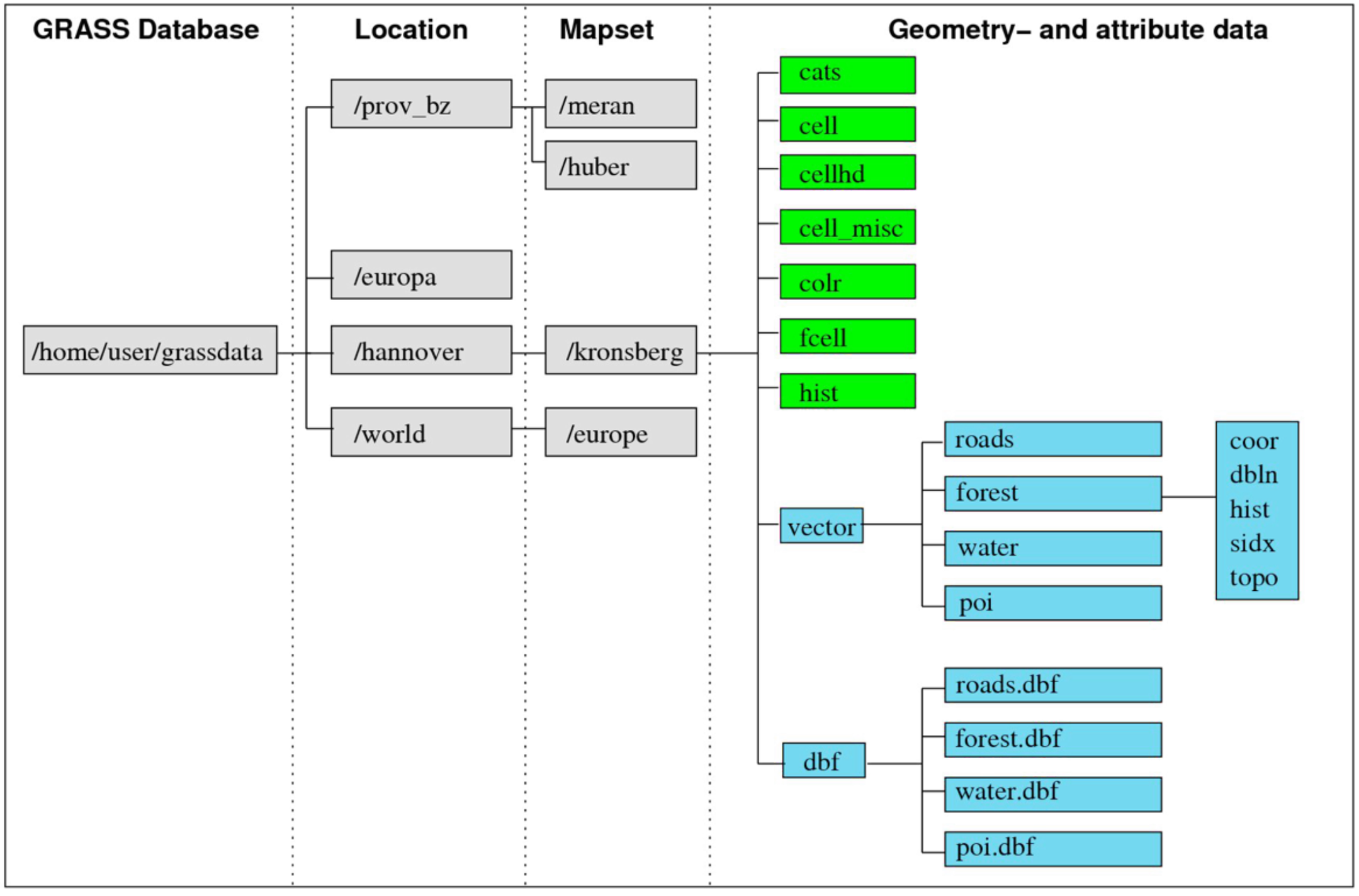




ORGANIZAÇÃO DOS PROJETOS

- Hieraquia baseada em **Locations** e **mapsets**
- A **Location** compreende toda a área de trabalho (p.ex., **America_do_Sul**)
- O **mapset** é a porção ativa e utilizada para análise, que pode ser do mesmo tamanho ou menor que a location (p.ex., **Sao_Paulo**, **area_mestrado**, etc)
- Vários mapsets podem ser definidos para a mesma location.
- Dados de interesse comum (tais como modelos de relevo, imagens de satélite etc) podem ser armazenados em um mapset especial ao qual todos os usuários têm acesso, chamado de PERMANENT, que é criado automaticamente ao se criar uma nova Location

ORGANIZAÇÃO DOS PROJETOS

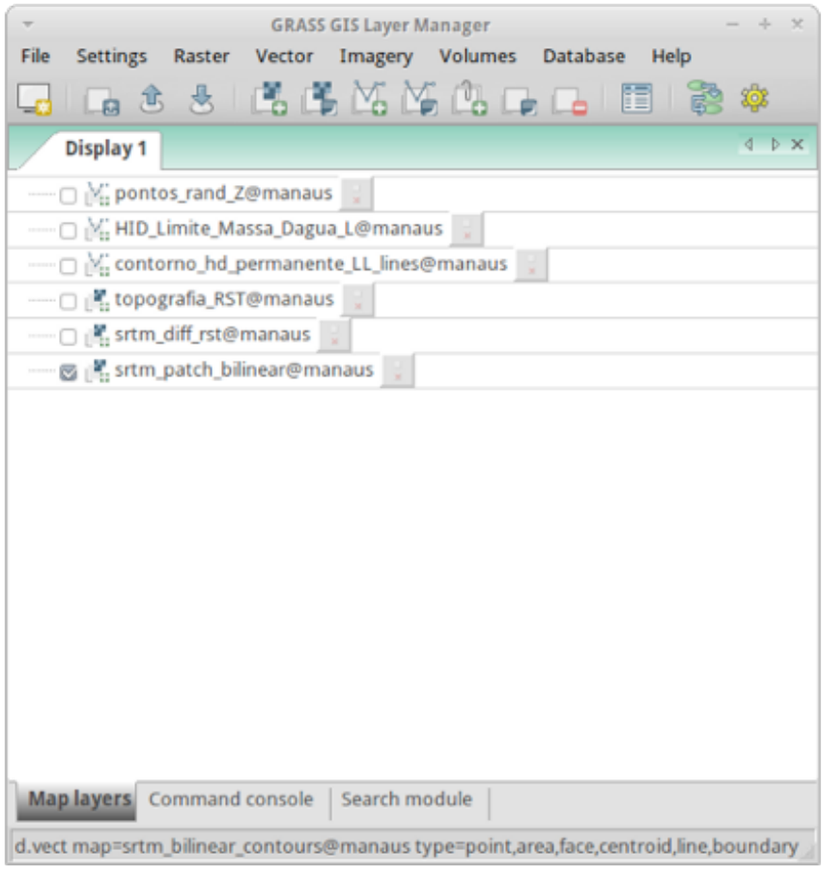


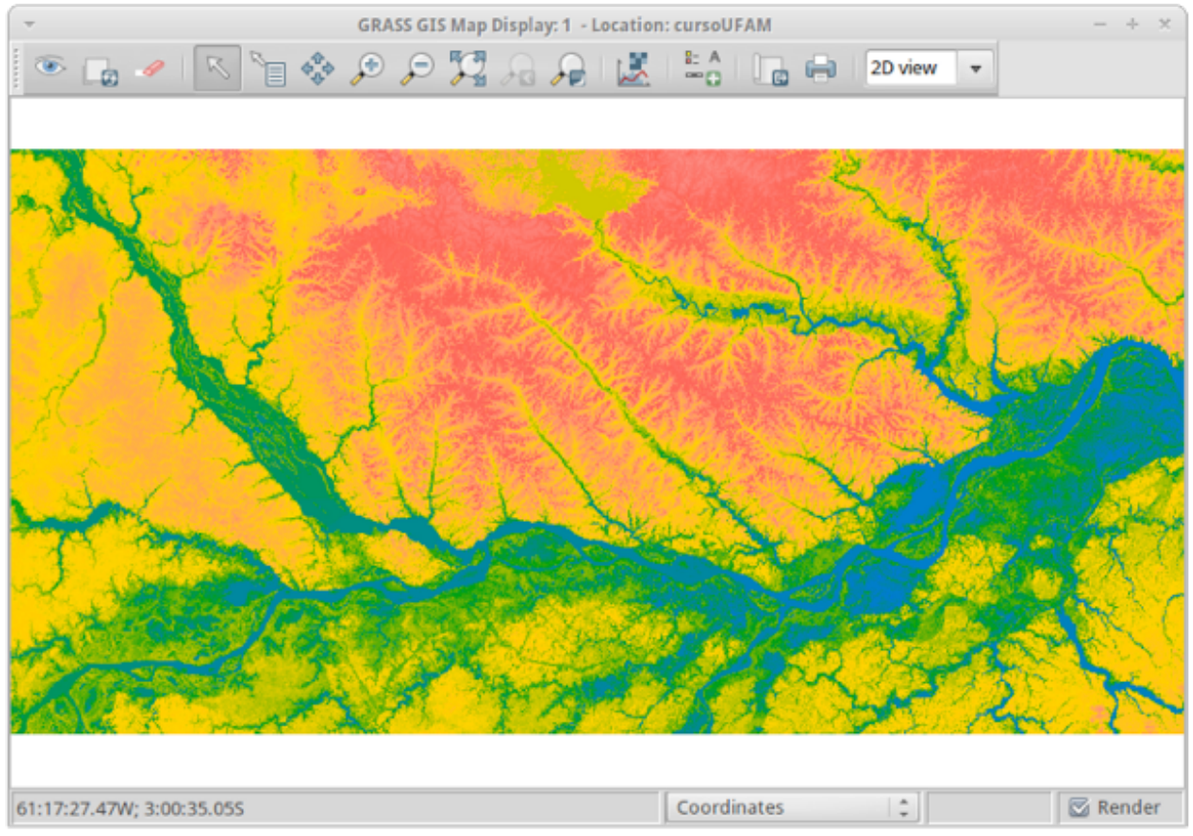
REGION

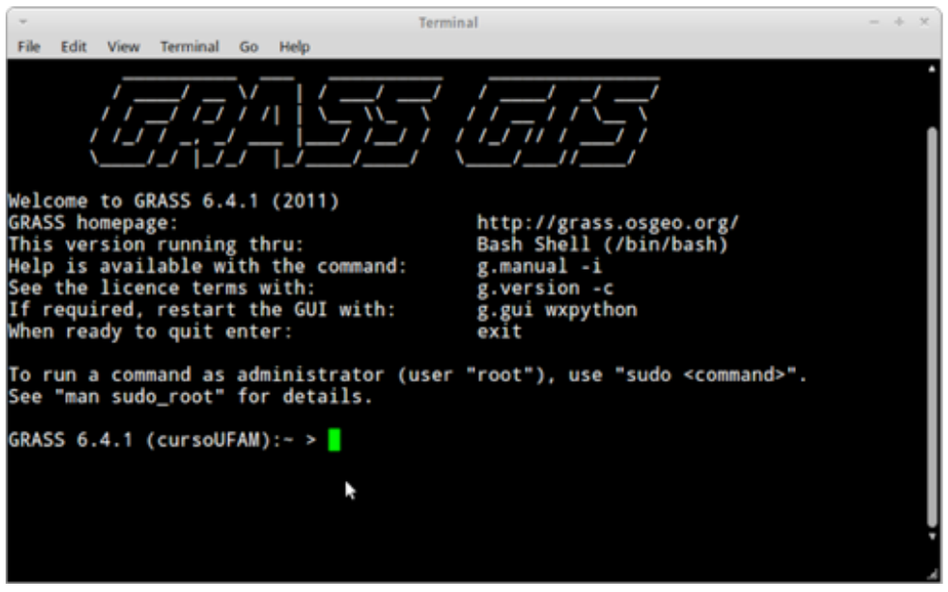
- Um conceito importante dentro do GRASS é o de **region**, que define, dentro do mapset, a área de interesse e a resolução espacial dos mapas raster. Tanto a resolução espacial quanto as coordenadas do retângulo envolvente da region podem ser facilmente alteradas sem a necessidade de reinicialização do sistema ou a criação de novos projetos; é possivel salvar as configurações da region para acessá-la facilmente quando necessário.

- É preciso frisar que todas as análises envolvendo mapas raster (análise de terreno, álgebra de mapas, interpolação de superfícies etc) são efetuadas de acordo com as configurações da region ativa, e que esta não necessariamente corresponde com as configurações do Display.

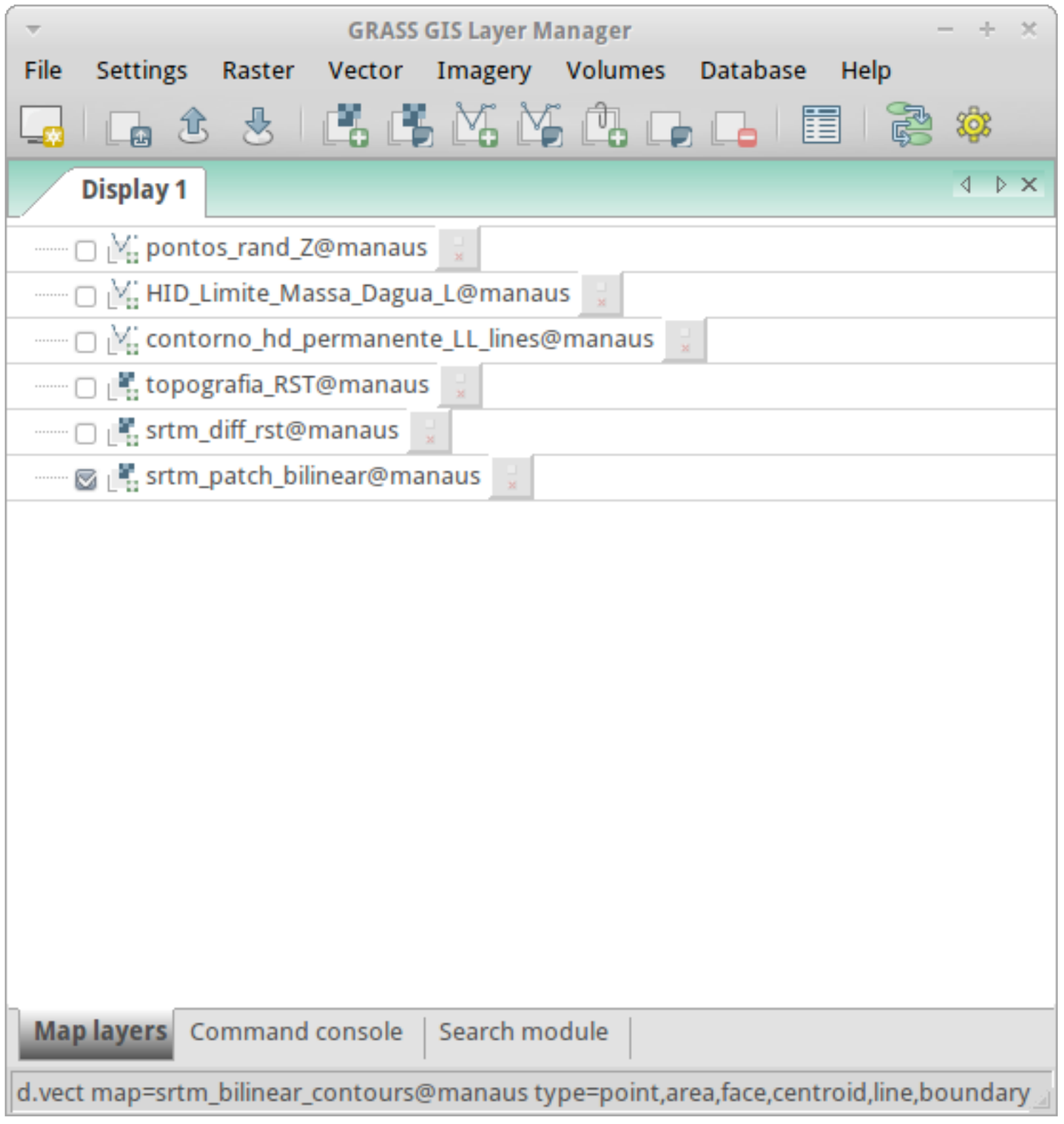
INTERFACE GRÁFICA



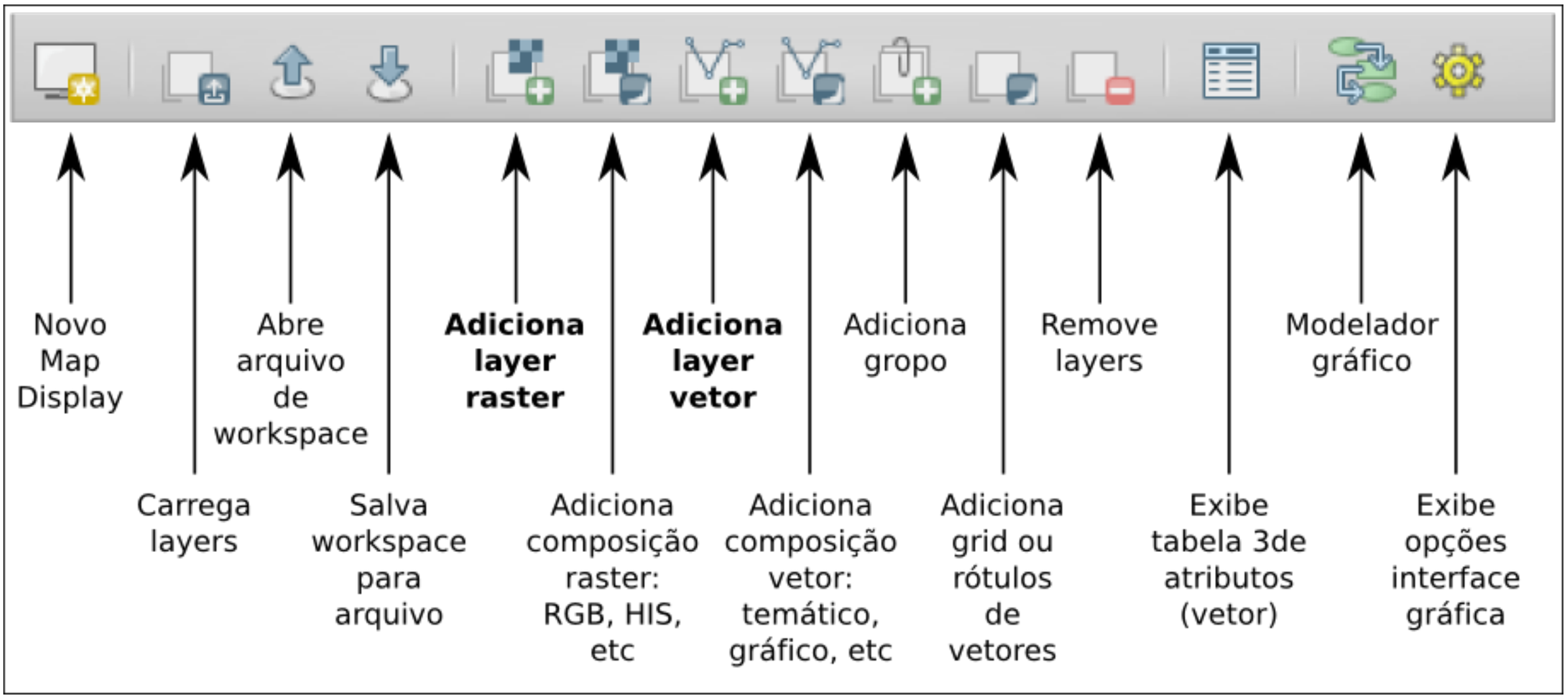




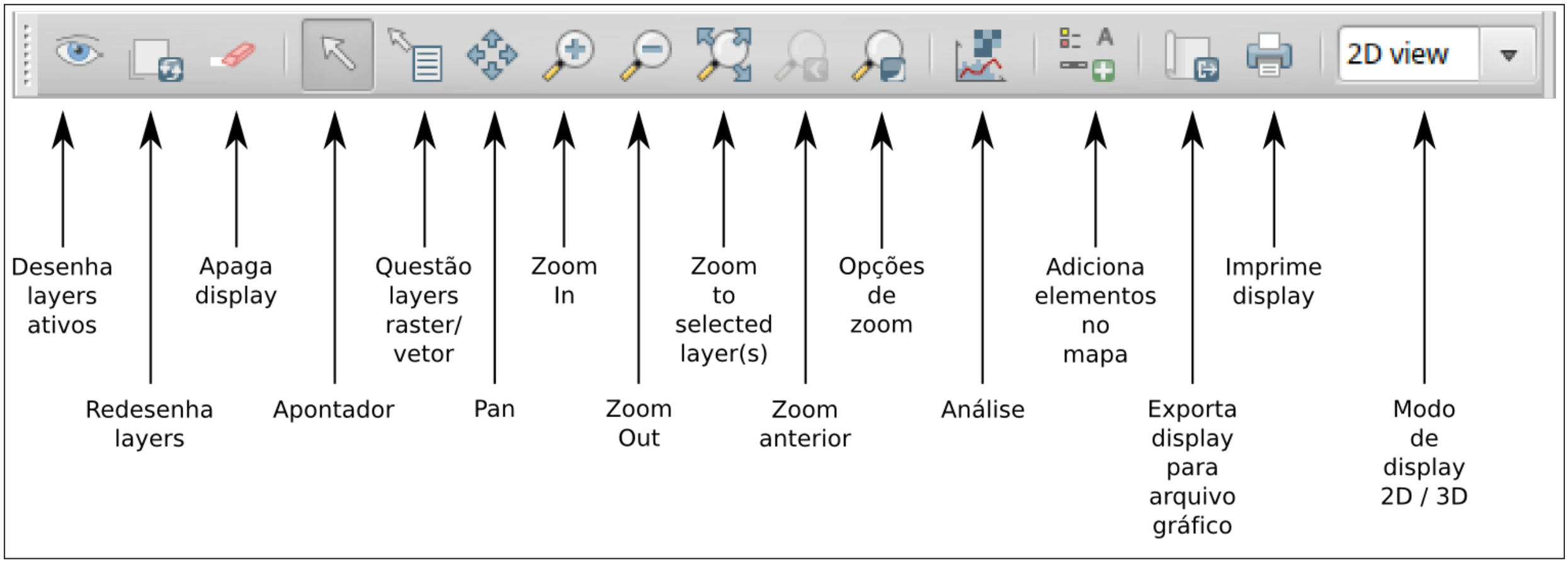
LAYER MANAGER



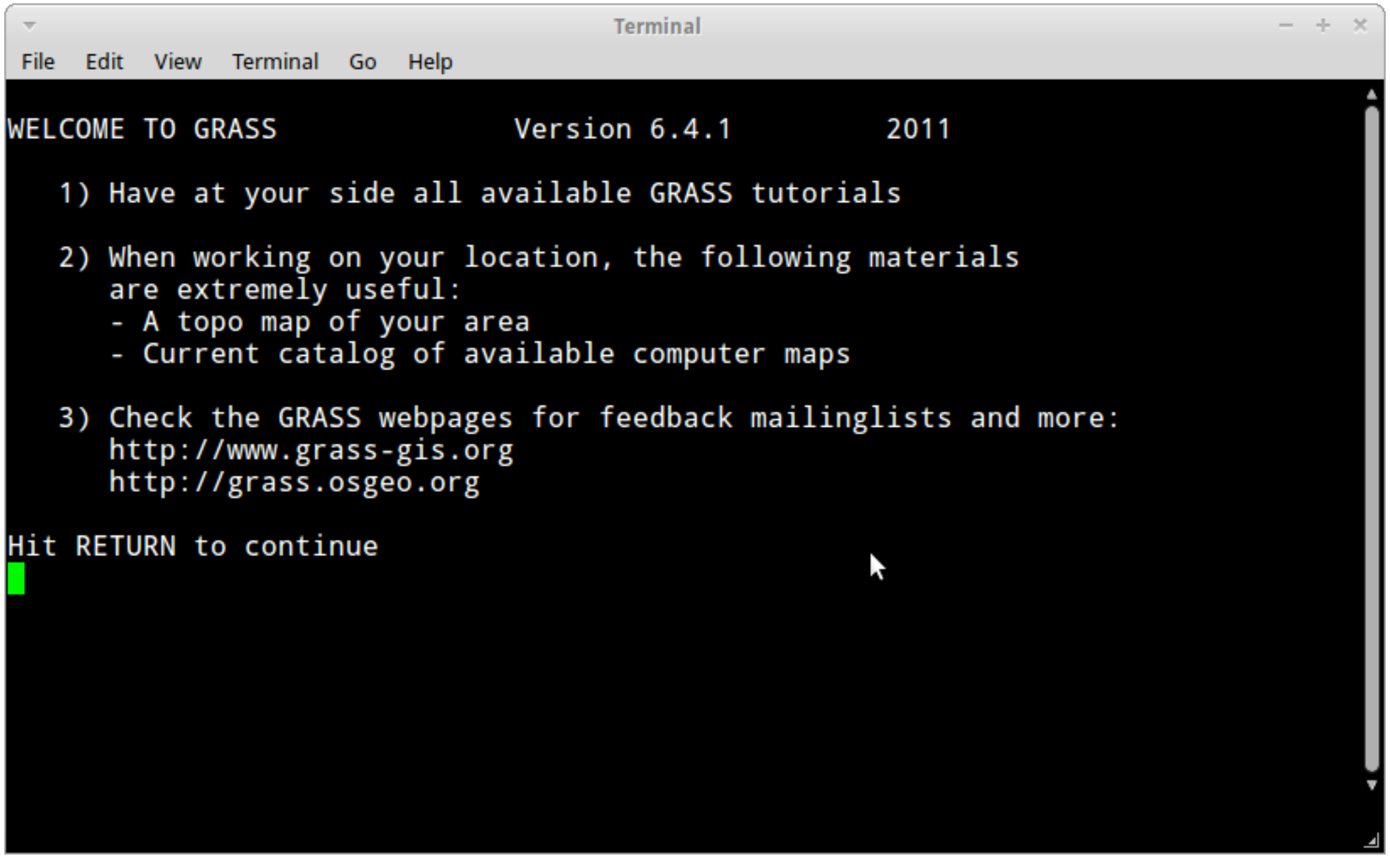
FERRAMENTAS GISM



FERRAMENTAS MAPDISPLAY



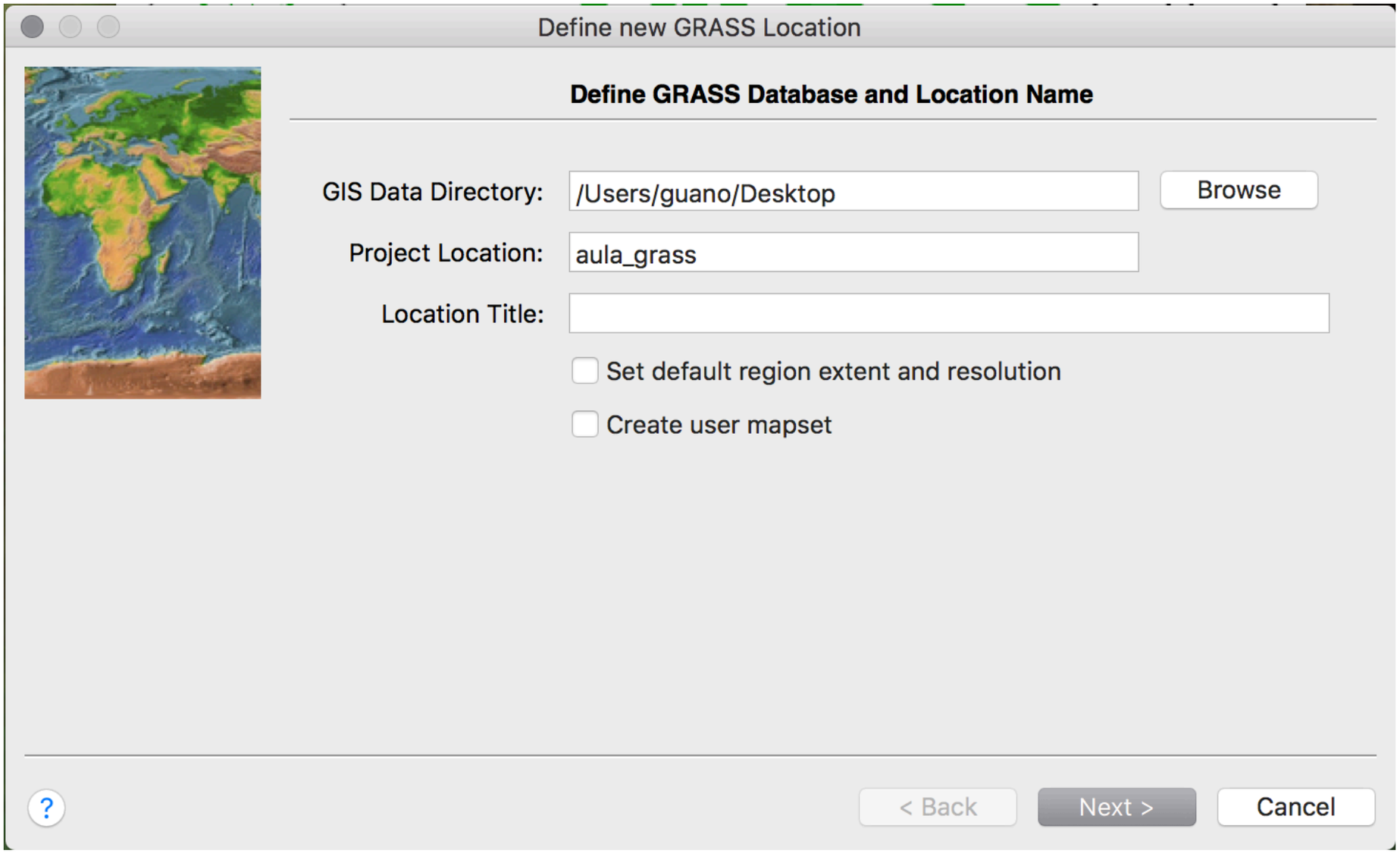
WELCOME!


Terminal
File Edit View Terminal Go Help
WELCOME TO GRASS Version 6.4.1 2011
1) Have at your side all available GRASS tutorials
2) When working on your location, the following materials
are extremely useful:
- A topo map of your area
- Current catalog of available computer maps
3) Check the GRASS webpages for feedback mailinglists and more:
http://www.grass-gis.org
http://grass.osgeo.org
Hit RETURN to continue

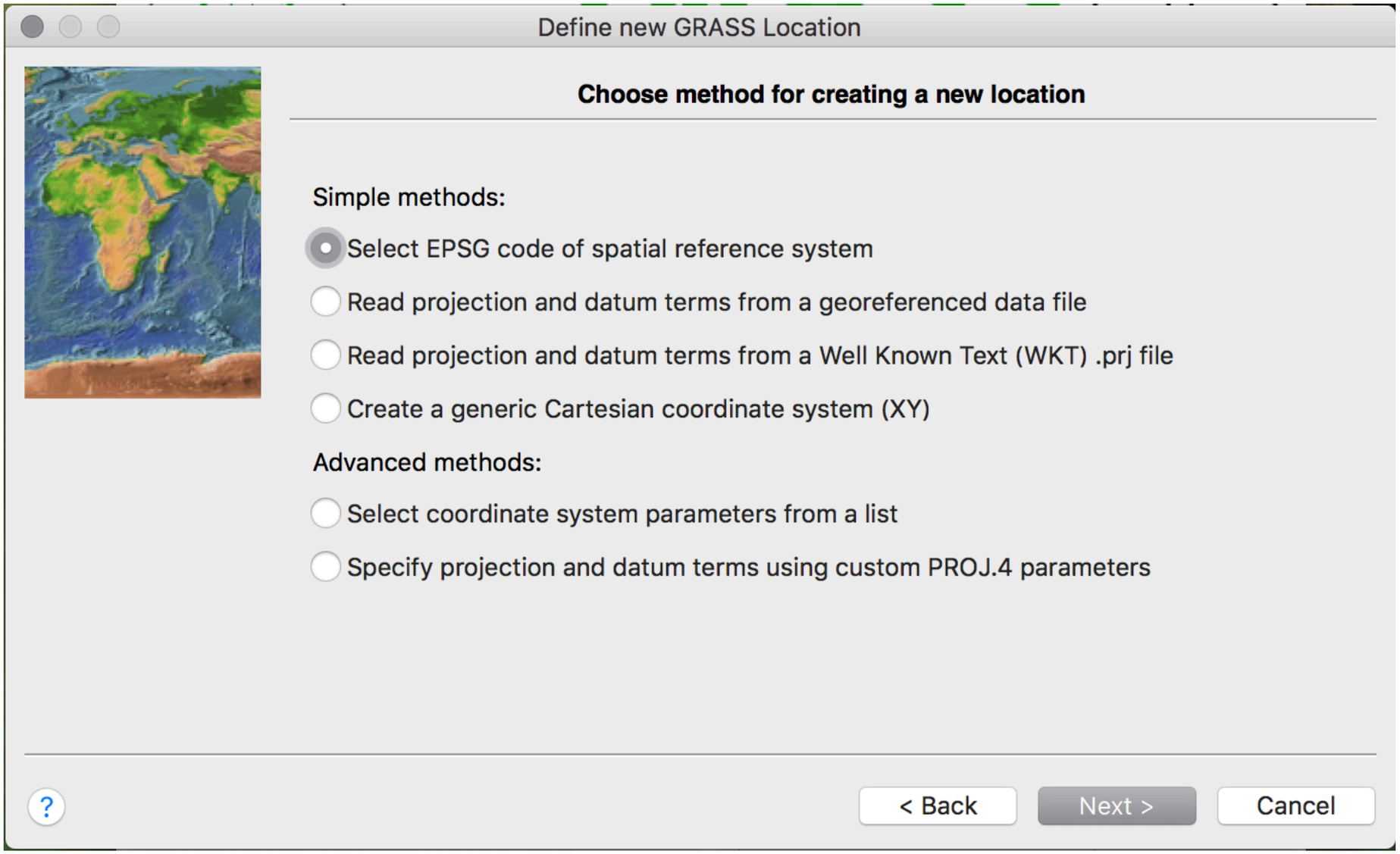
WELCOME!


GRASS GIS 7.2.1 startup
GRASS GIS
Bringing advanced geospatial technologies to the world
1. Select GRASS GIS database directory
/Users/guano/Desktop
Browse
GRASS GIS database directory contains Locations.
No GRASS Location found in '/Users/guano/Desktop'. Create a new Location or choose different GRASS database directory.
2. Select GRASS Location
New
Rename
Delete
All data in one Location is in the same coordinate reference system (projection). One Location can be one project. Location contains Mapsets.
3. Select GRASS Mapset
New
Rename
Delete
Mapset contains GIS data related to one project, task within one project, subregion or user.
Start GRASS session
Quit
?

CRIAR LOCATION E MAPSET



CRIAR LOCATION E MAPSET



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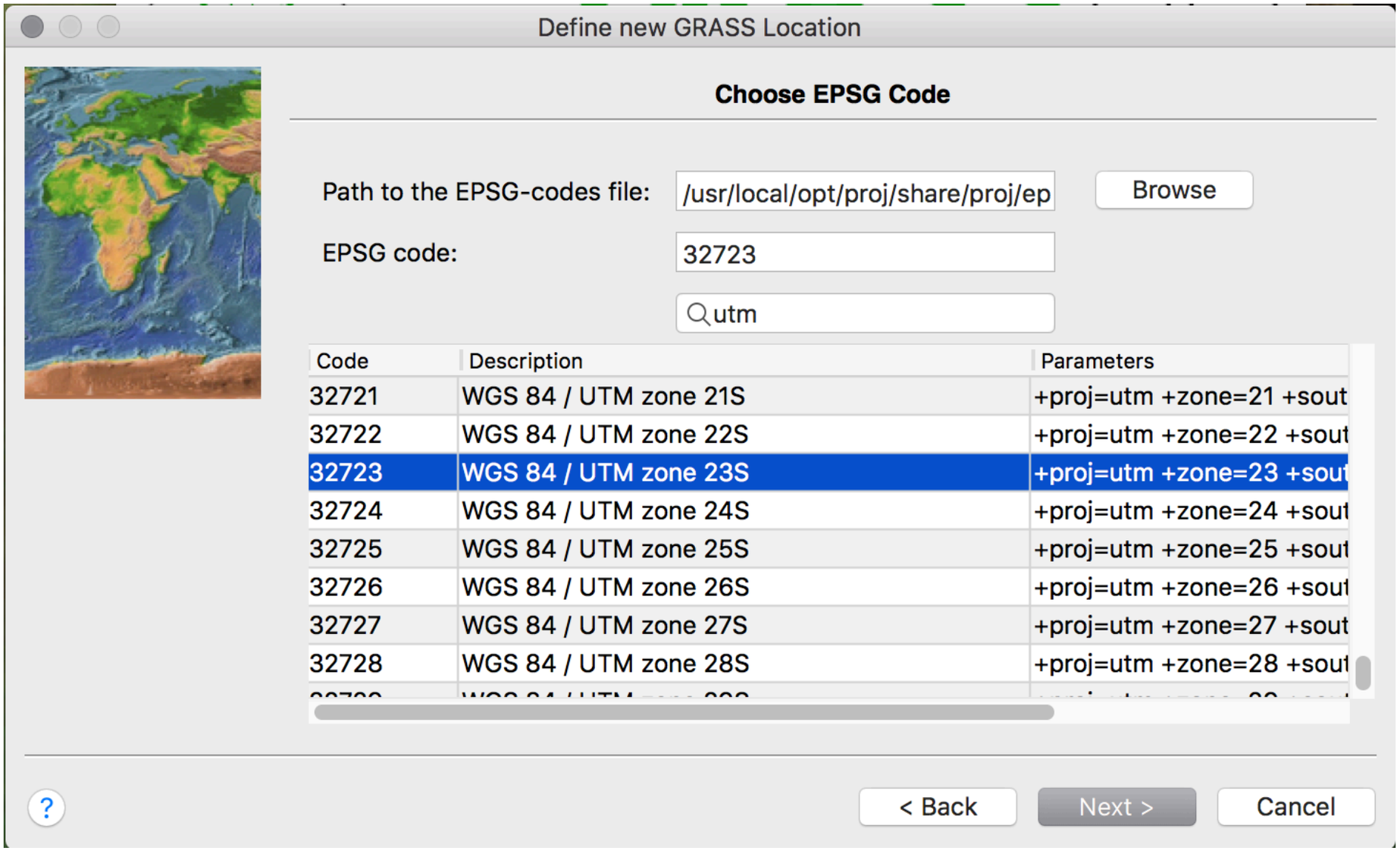
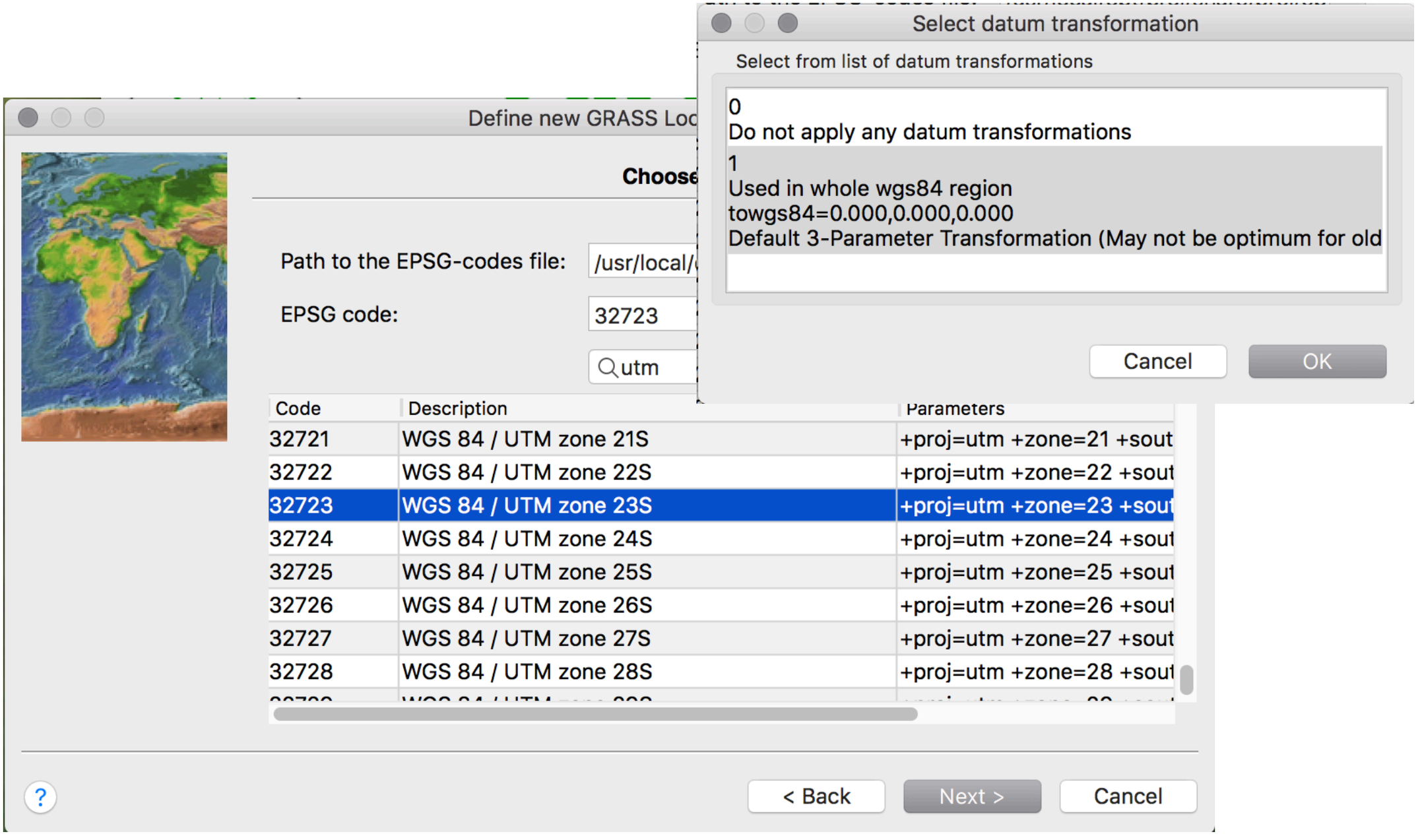


CRIAR LOCATION E MAPSET



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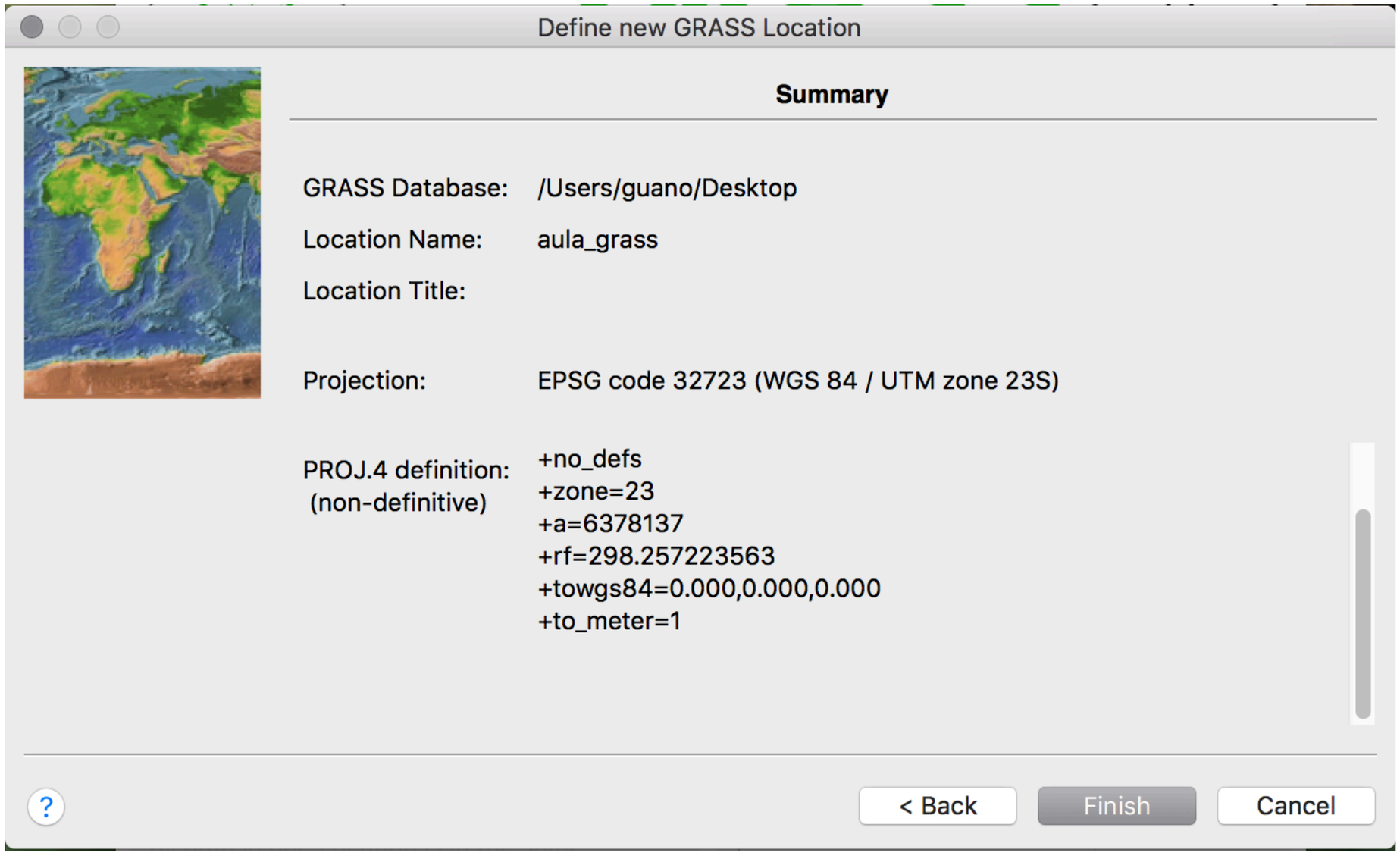
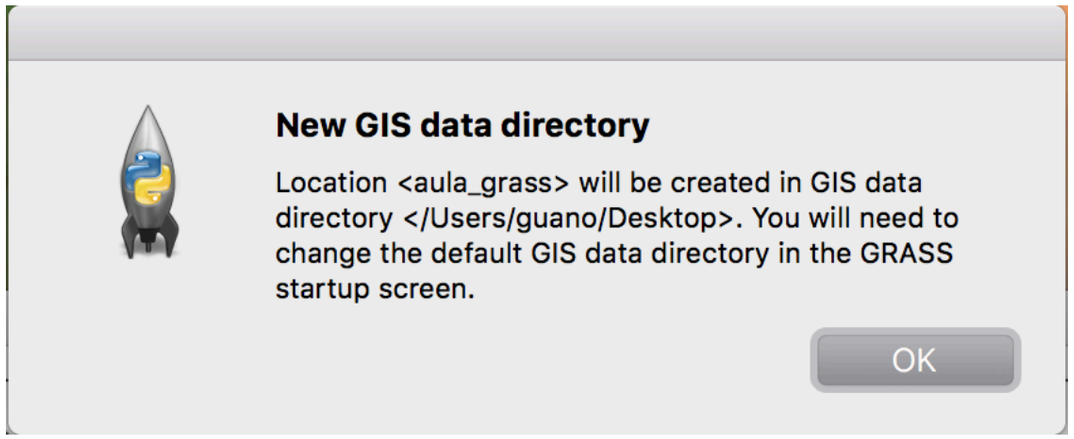
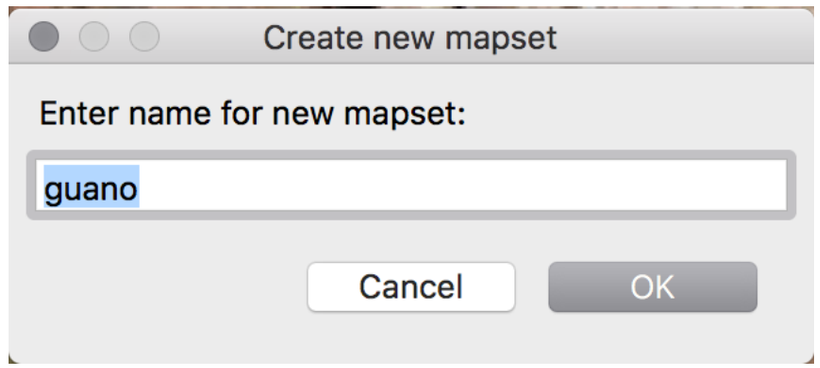
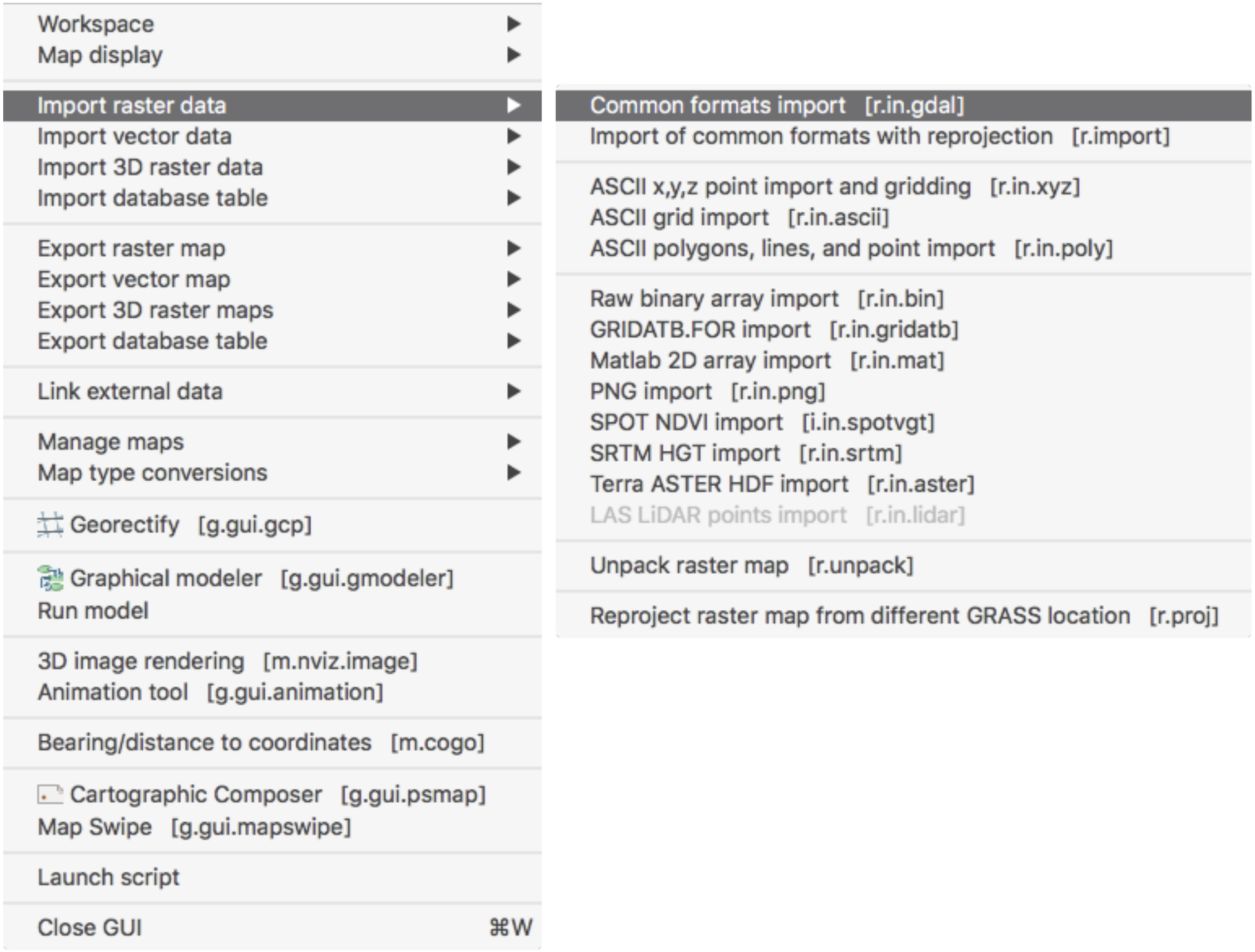


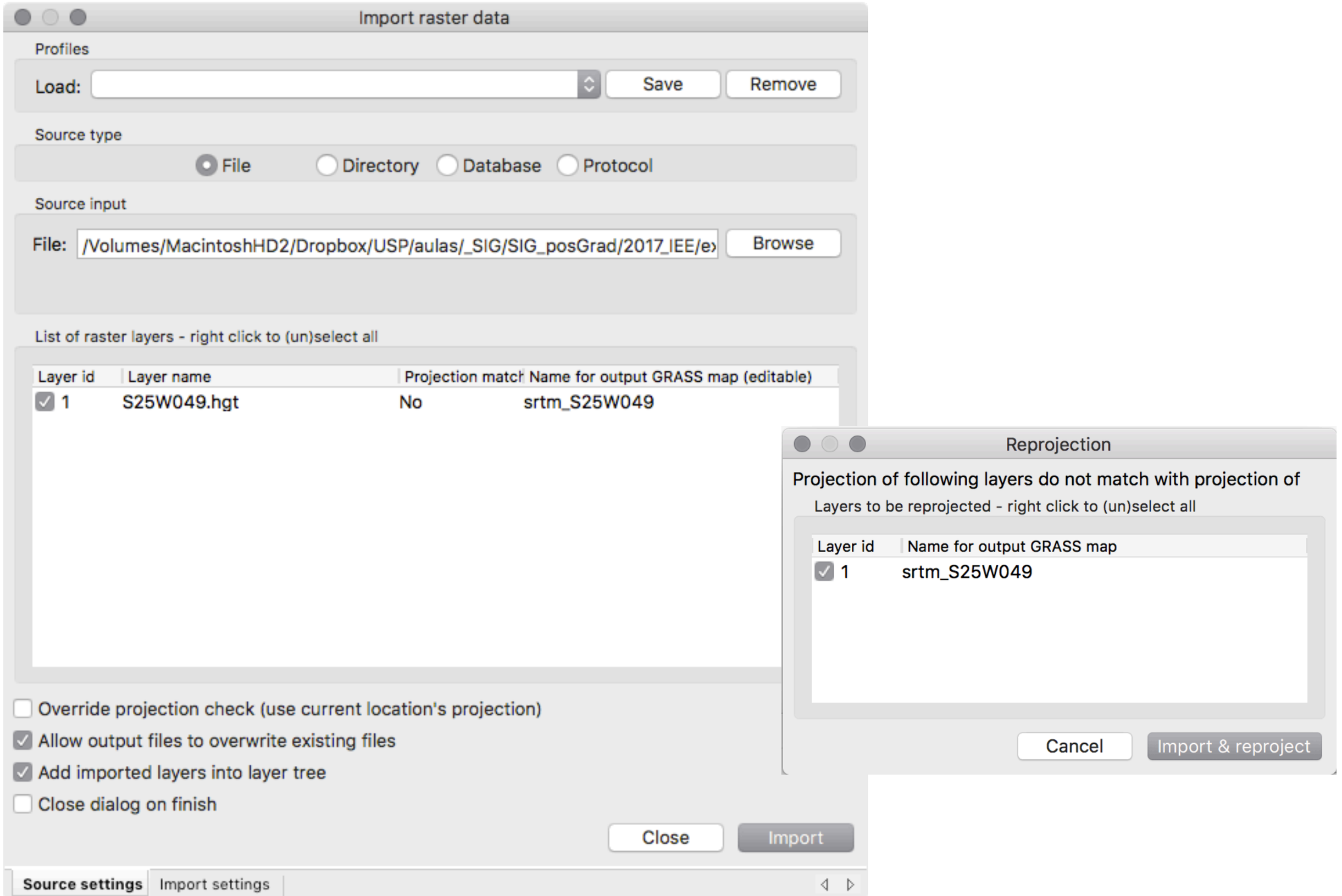
CRIAR LOCATION E MAPSET



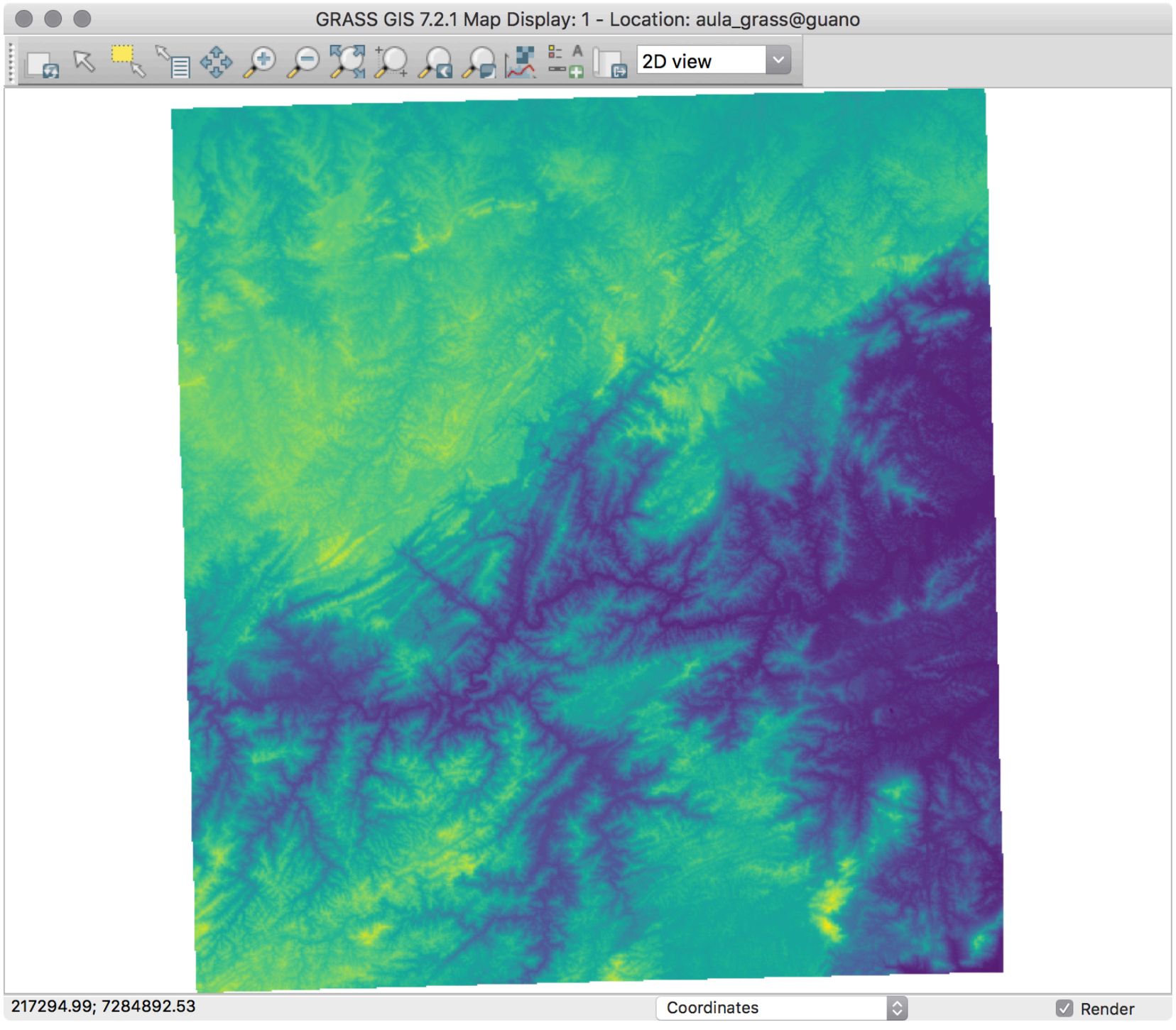


IMPORTAR SRTM

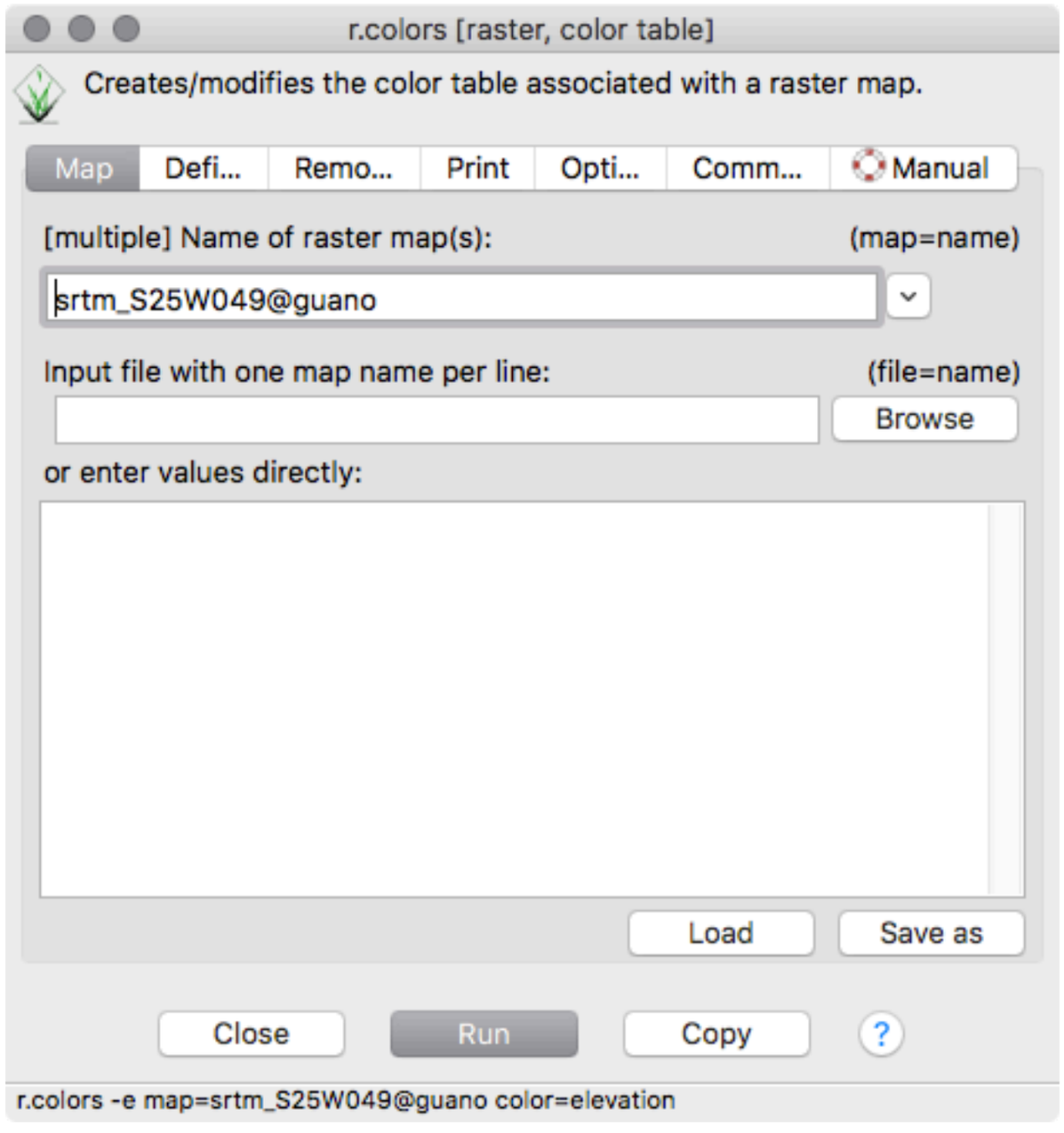


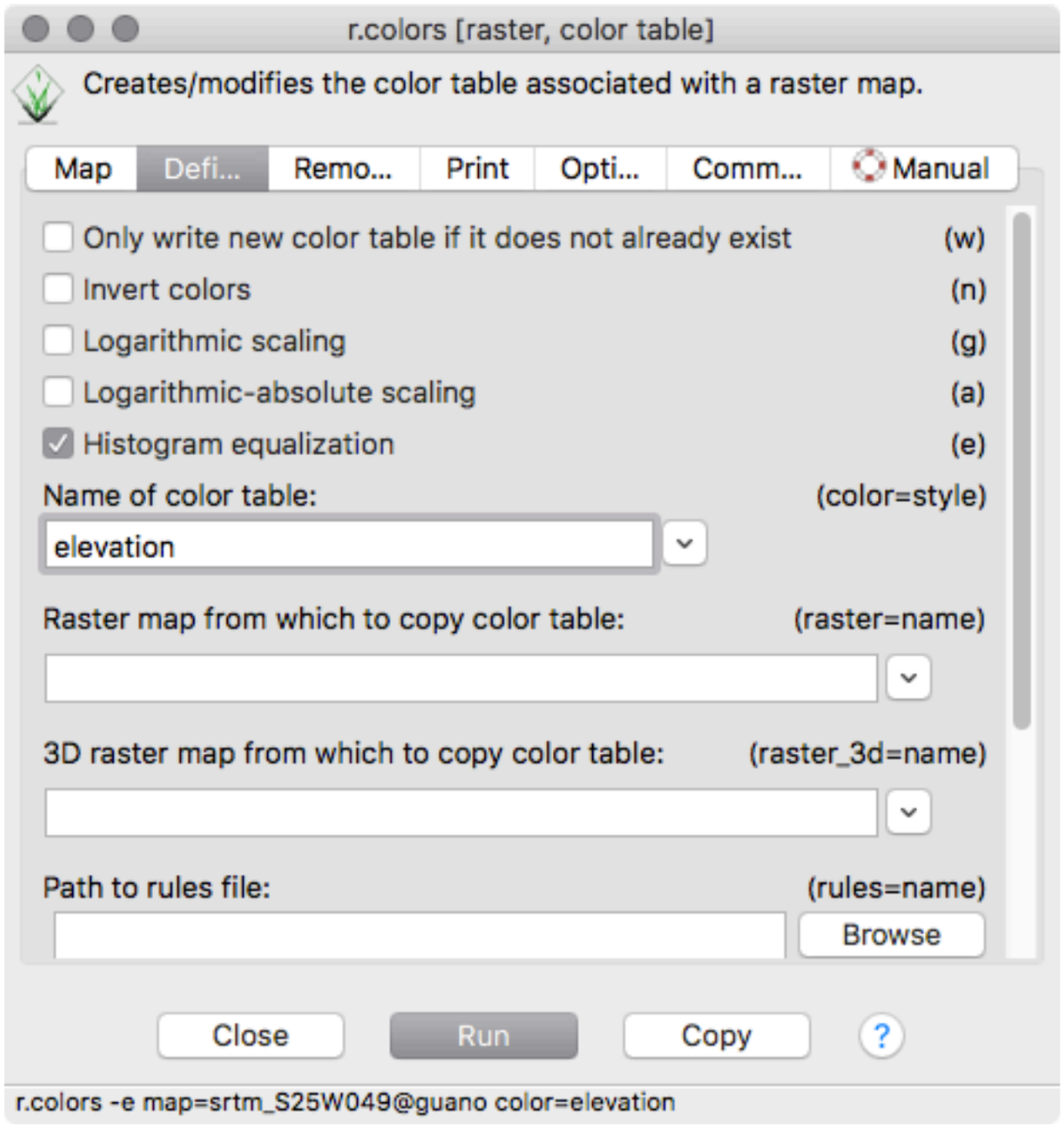

Import raster data
Profiles
Load:
Save
Remove
Source type
File
Directory
Database
Protocol
Source input
File:
/Volumes/MacintoshHD2/Dropbox/USP/aulas/_SIG/SIG_posGrad/2017_IEE/e
Browse
List of raster layers - right click to (un)select all
Layer id
Layer name
Projection match
Name for output GRASS map (editable)
1
S25W049.hgt
No
srtm_S25W049
Override projection check (use current location's projection)
Allow output files to overwrite existing files
Add imported layers into layer tree
Close dialog on finish
Close
Import
Source settings
Import settings
Reprojection
Projection of following layers do not match with projection of
Layers to be reprojected - right click to (un)select all
Layer id
Name for output GRASS map
1
srtm_S25W049
Cancel
Import & reproject

DISPLAY RASTER

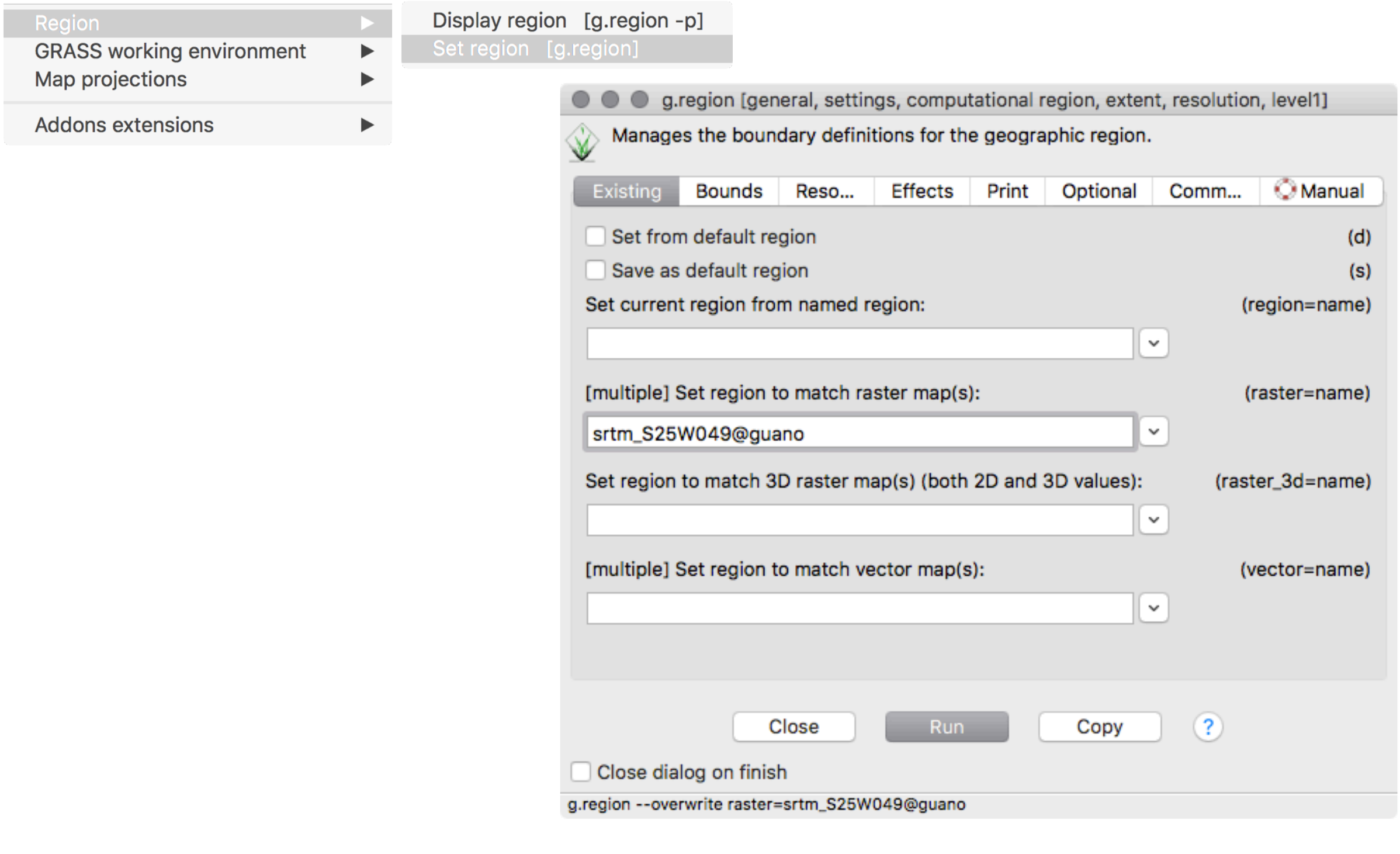


ALTERAR CORES (RASTER – MANAGE COLORS – R.COLORS)

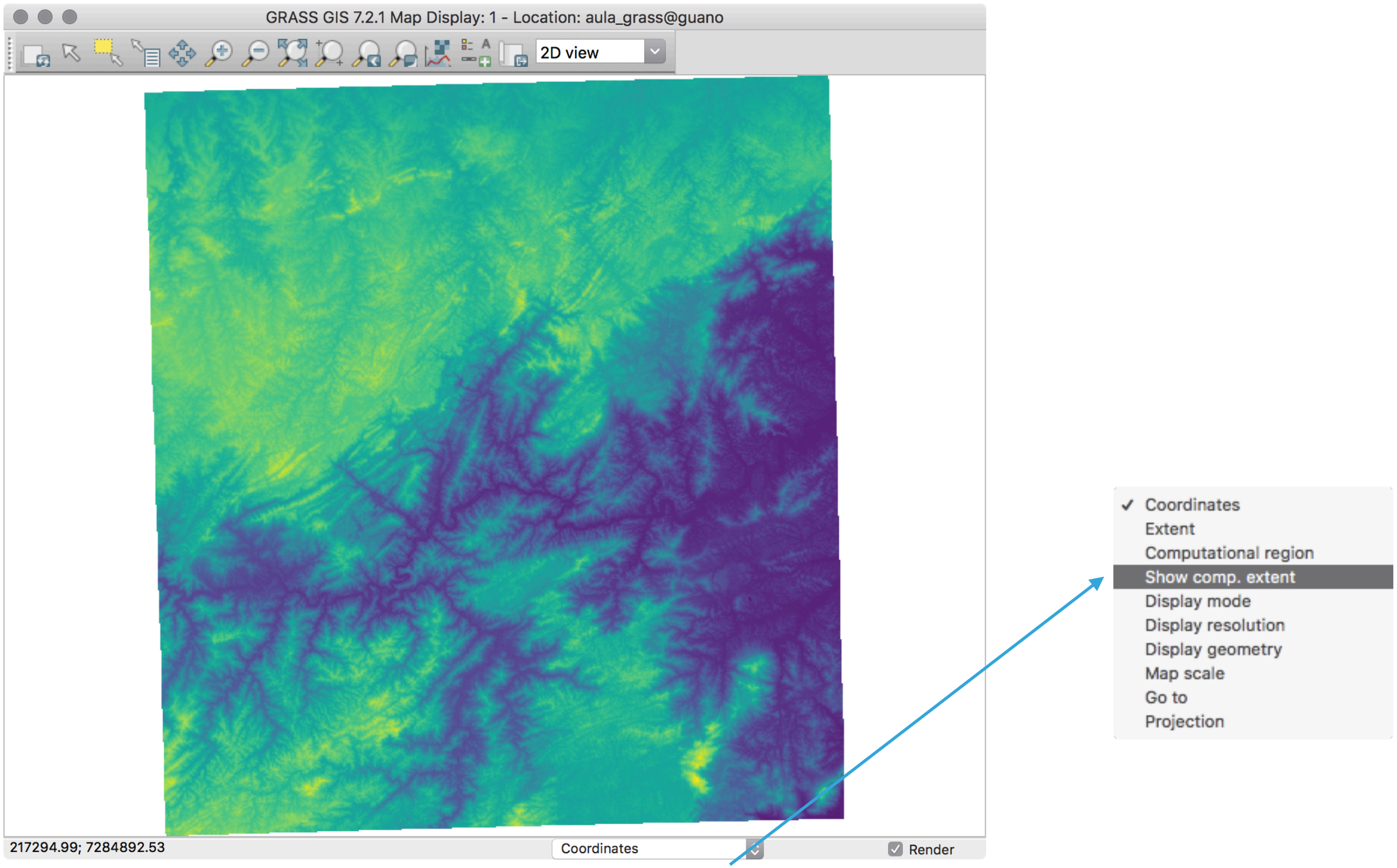




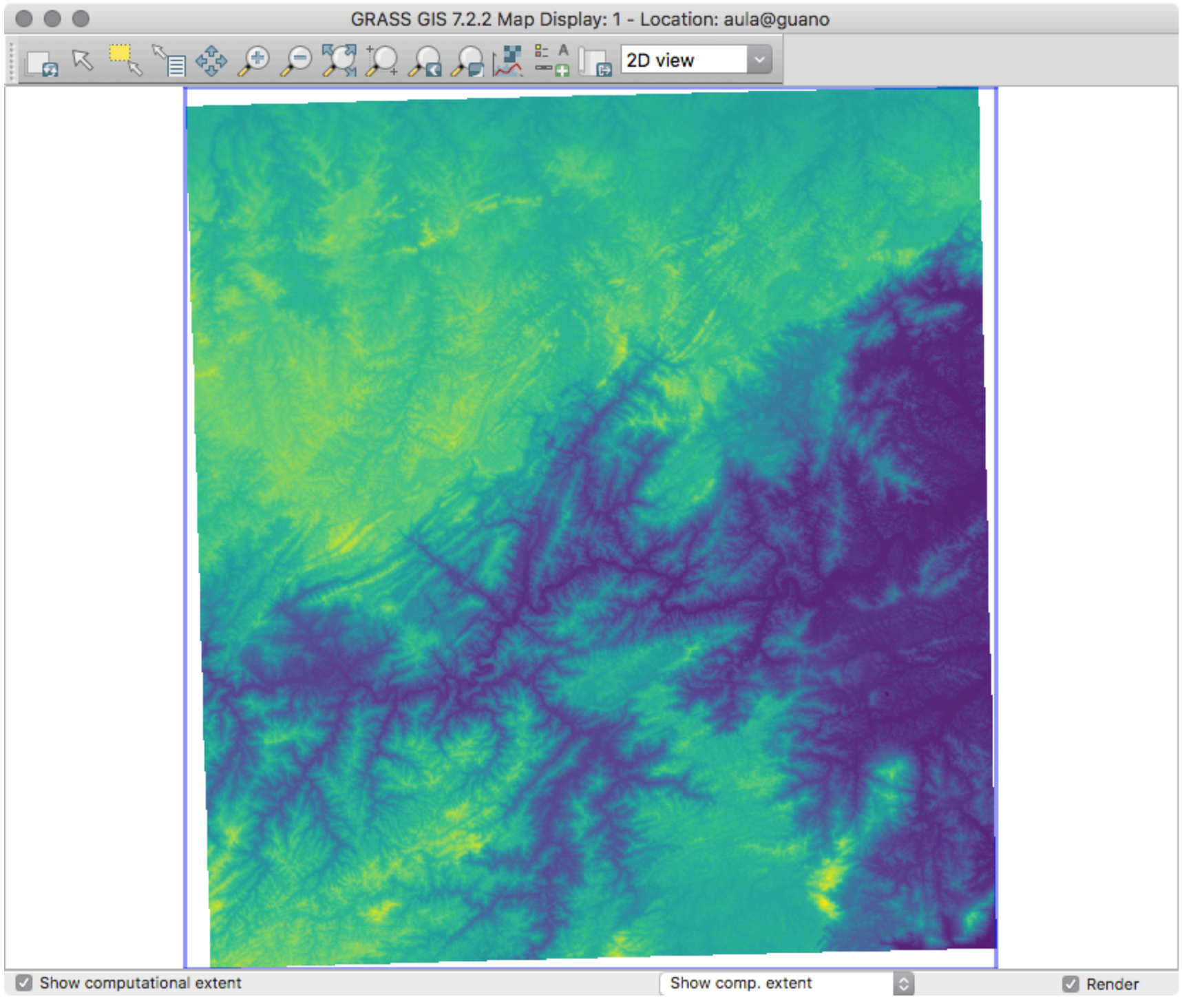
ACERTAR REGION



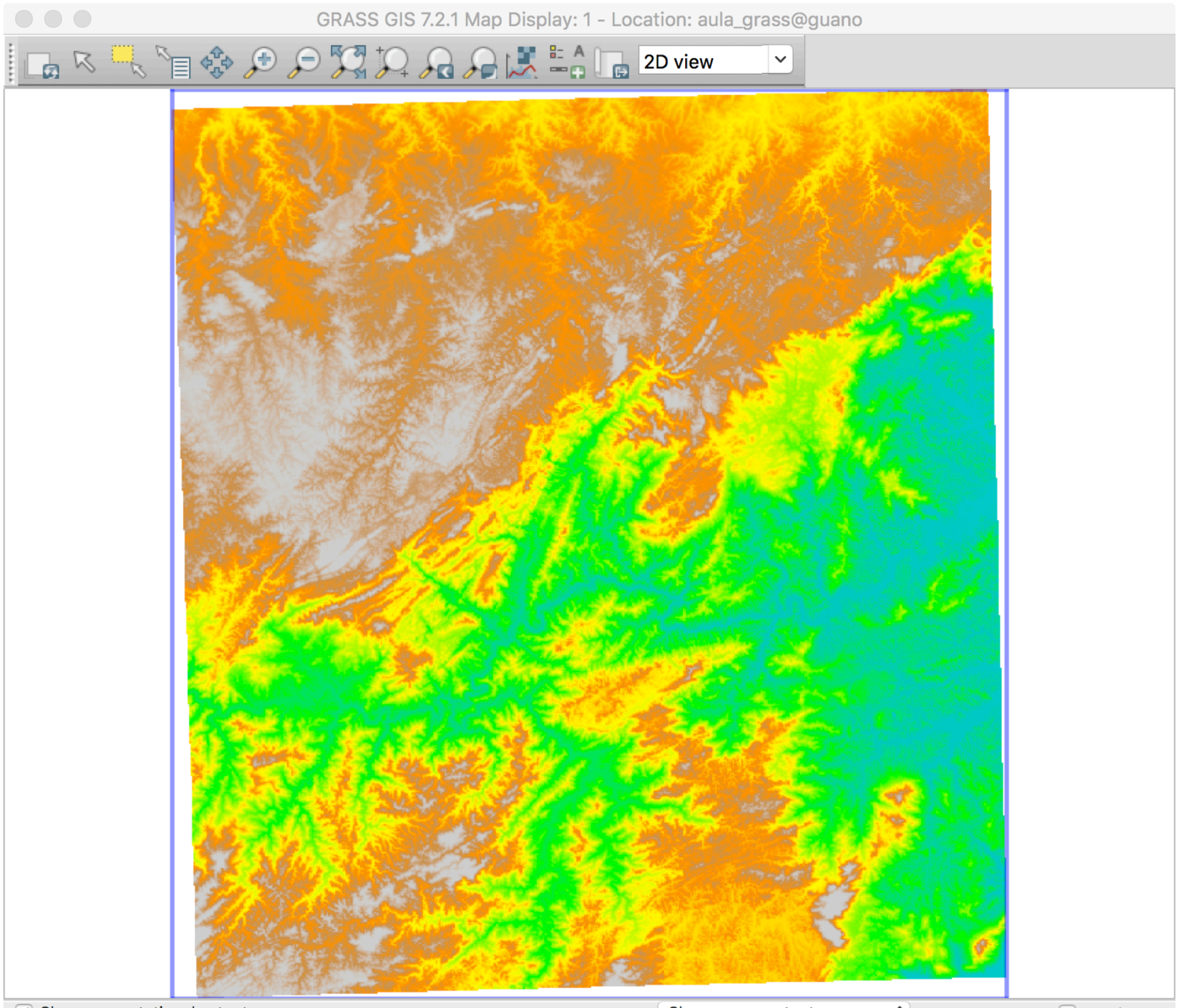
VER REGION NO MAP DISPLAY



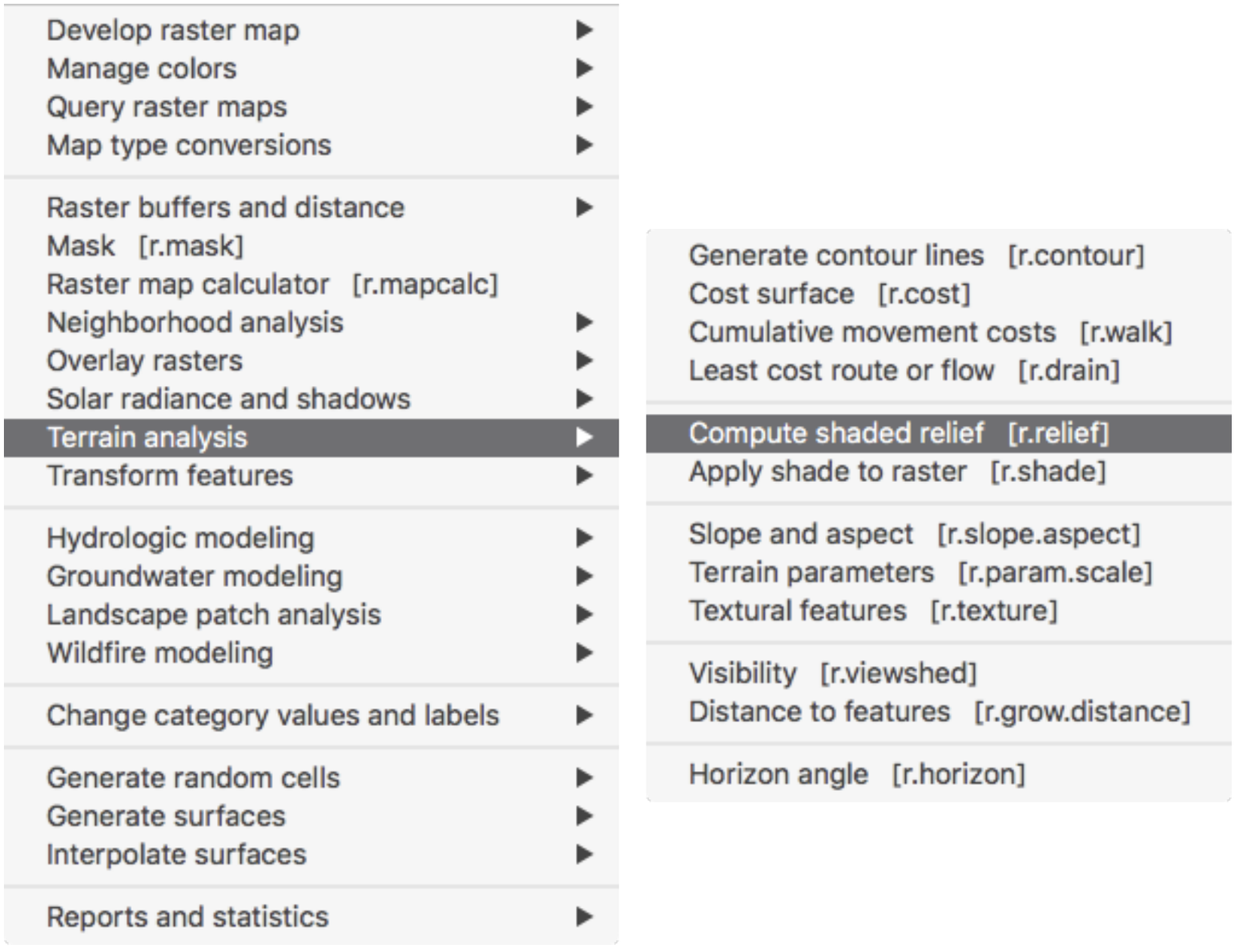
VER REGION NO MAP DISPLAY



ESCALA DE CORES (FUNCIONANDO)

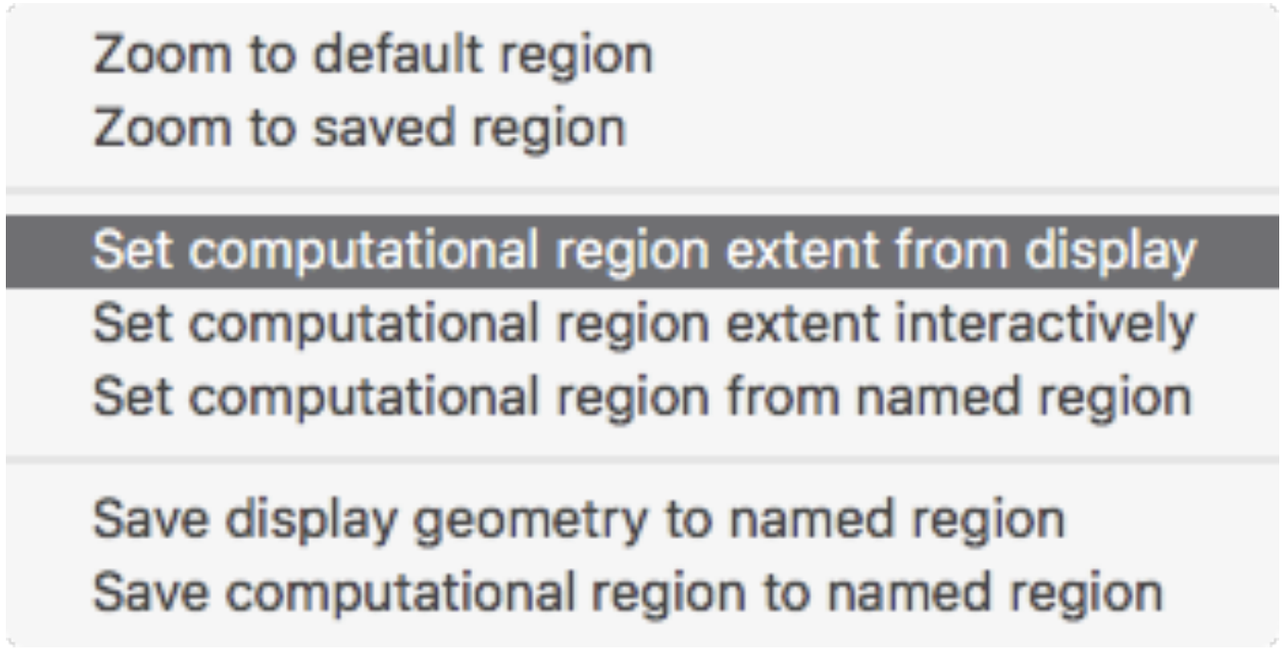


RELEVO SOMBREADO



RELEVO SOMBREADO

- 1) zoom em uma área pequena
- 2) MapDisplay - set region to display



RELEVO SOMBREADO

r.relief [raster, elevation, relief, terrain, hillshade]

Creates shaded relief map from an elevation map (DEM).

Required | Sun position | Optional | Command output | Manual

Name of input raster map: * (input=name)

srtm_S25W049@guano

Name for output shaded relief map: * (output=name)

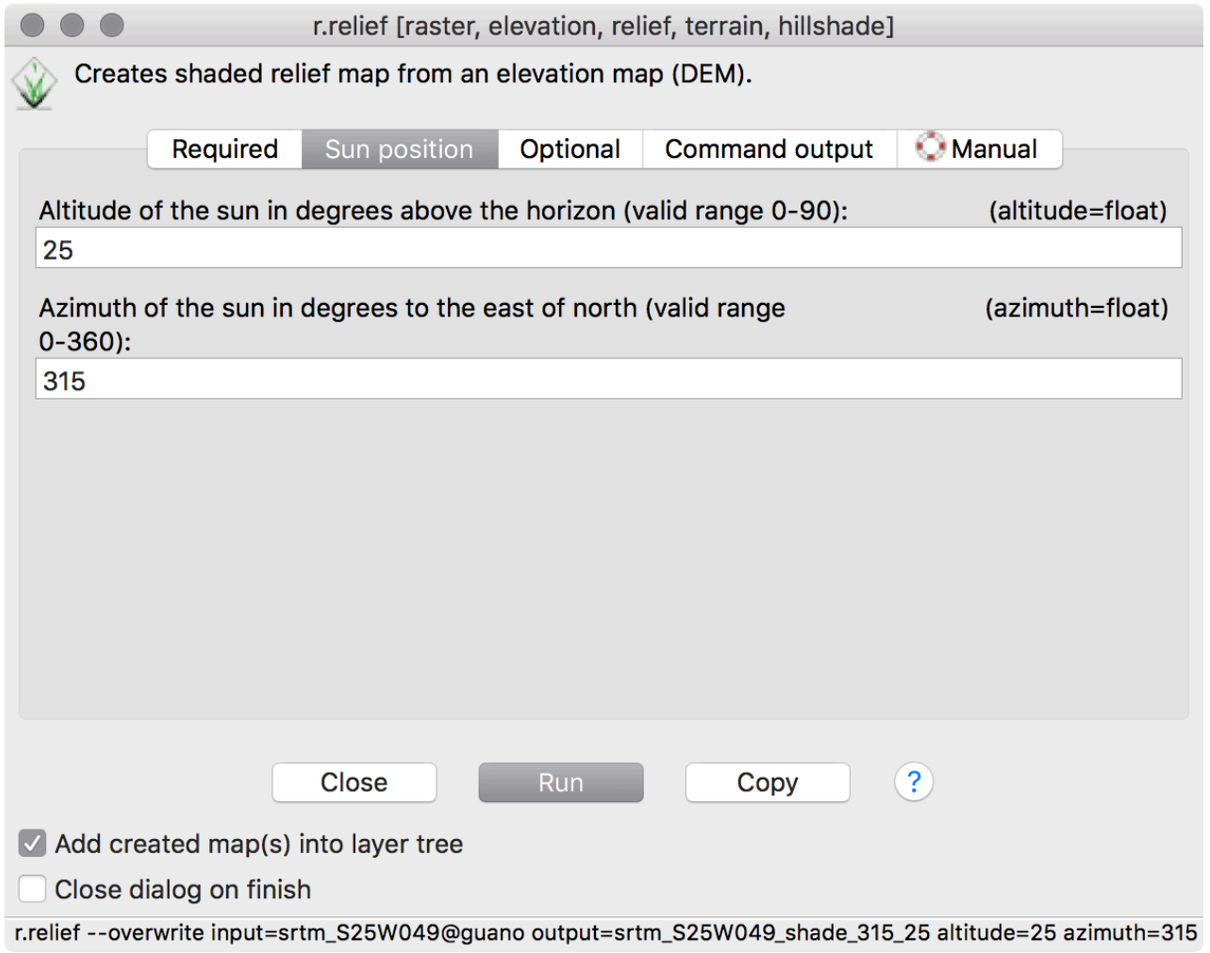
srtm_S25W049_shade_315_25

Close | Run | Copy | ?

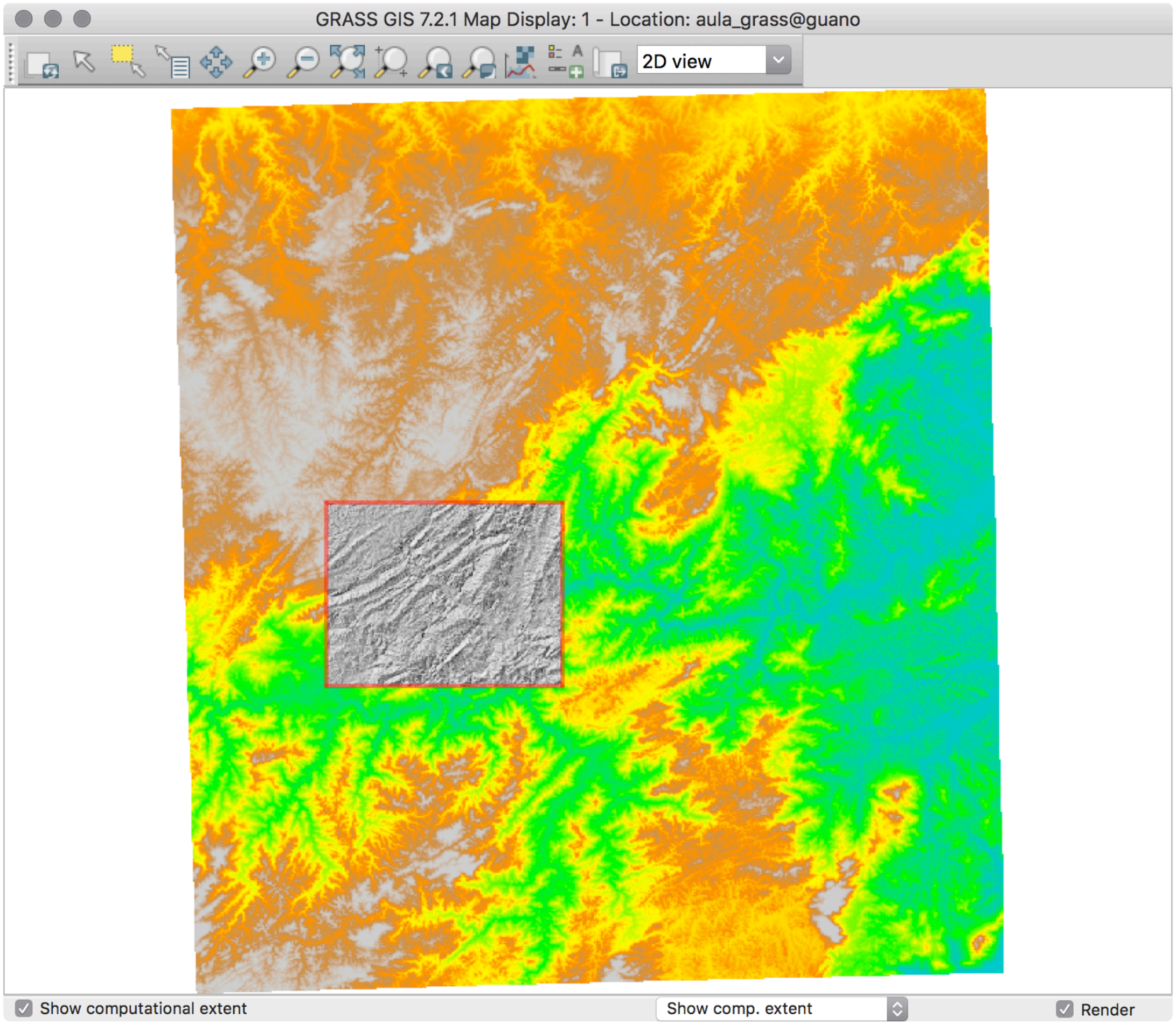
Add created map(s) into layer tree

Close dialog on finish

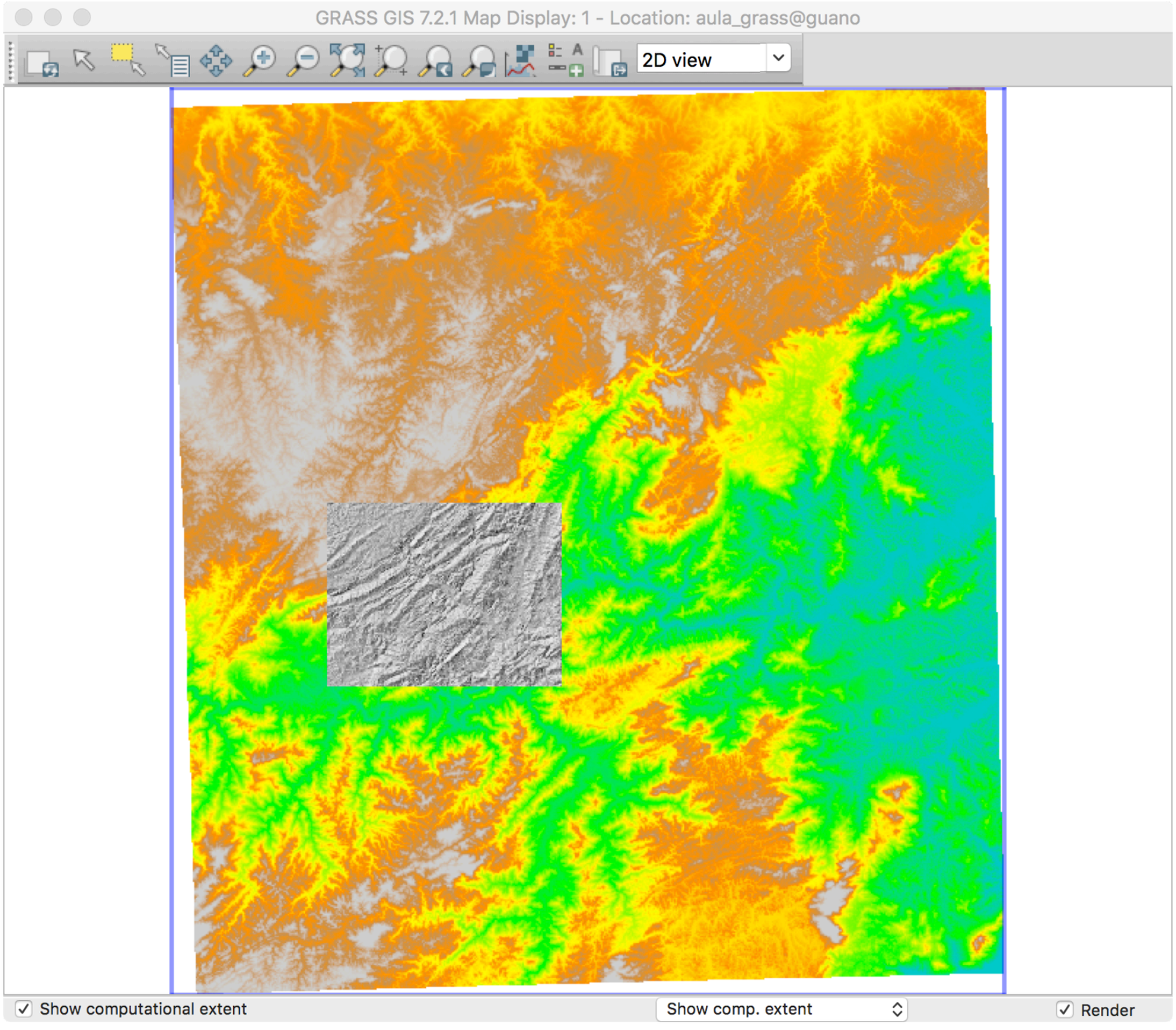
```
r.relief --overwrite input=srtm_S25W049@guano output=srtm_S25W049_shade_315_25 altitude=25 azimuth=315
```



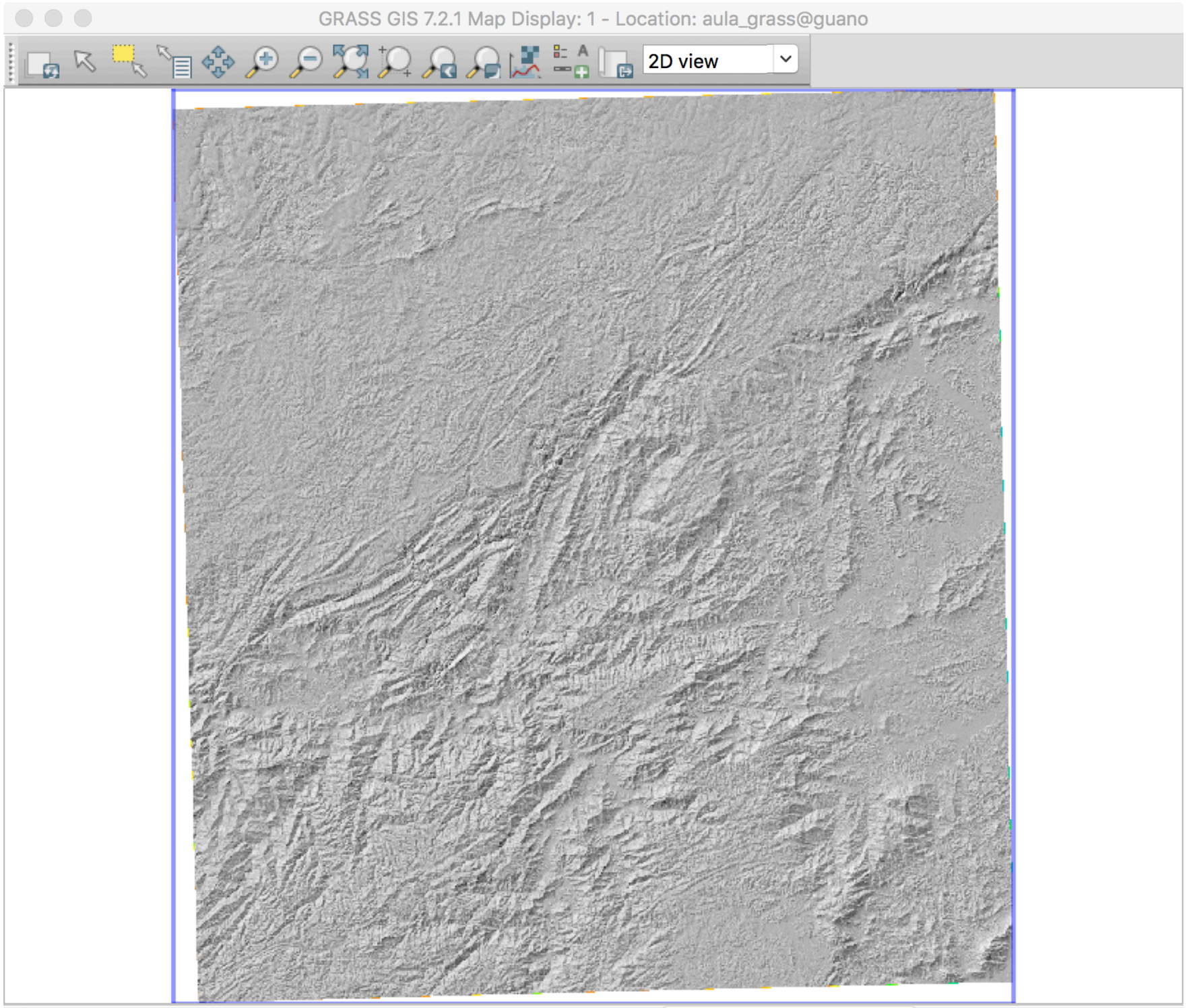
RELEVO SOMBREADO



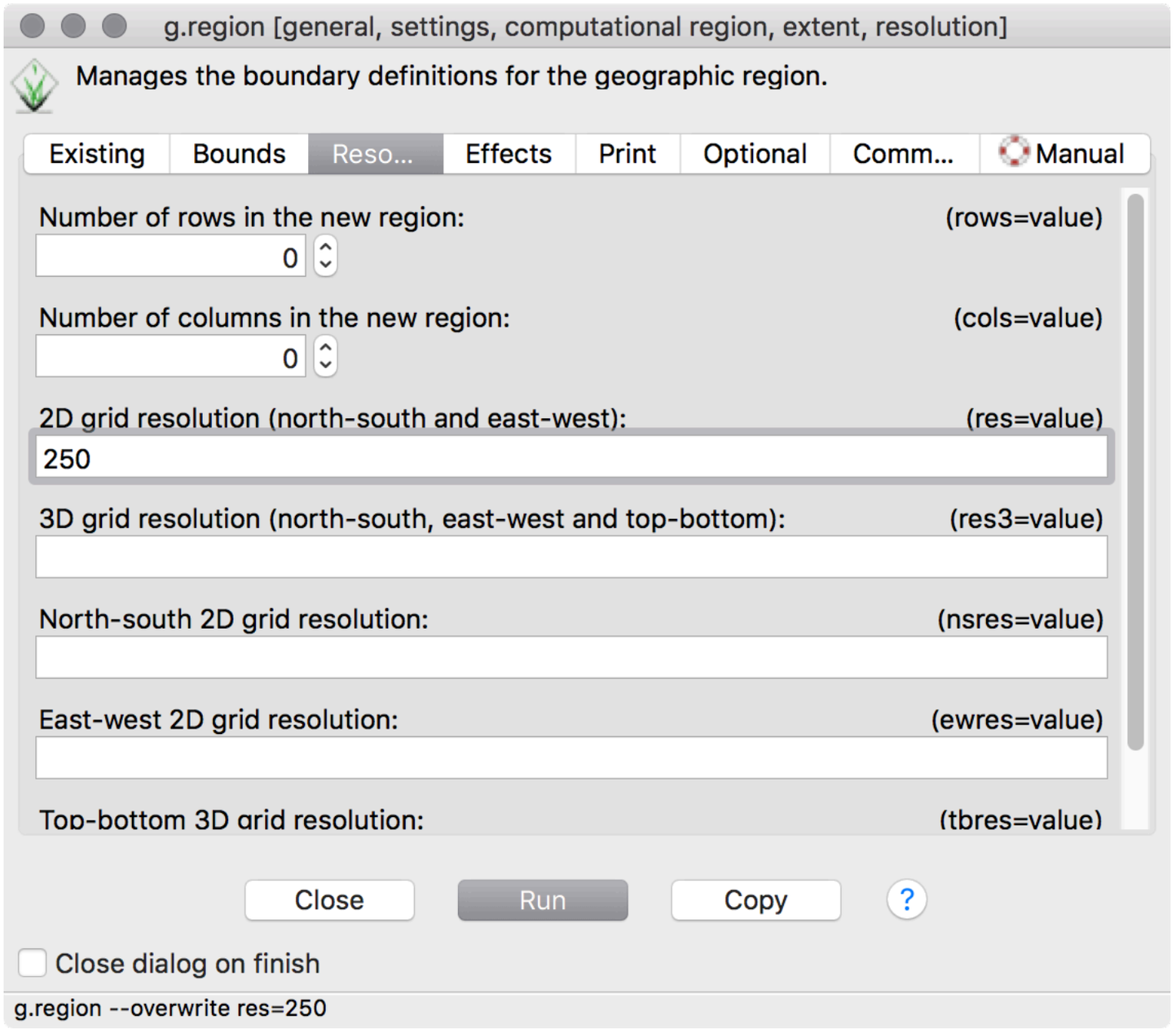
RELEVO SOMBREADO – DEFINIR REGION PARA LAYER



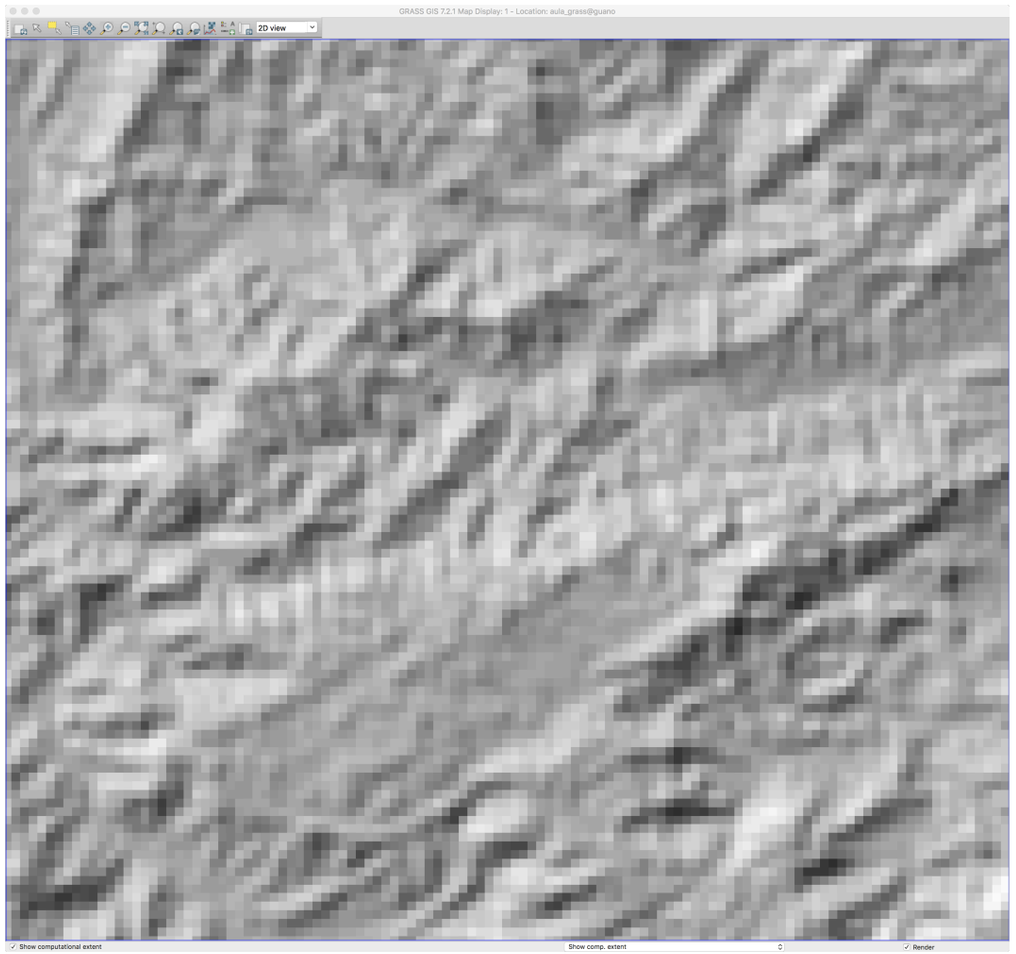
RELEVO SOMBREADO



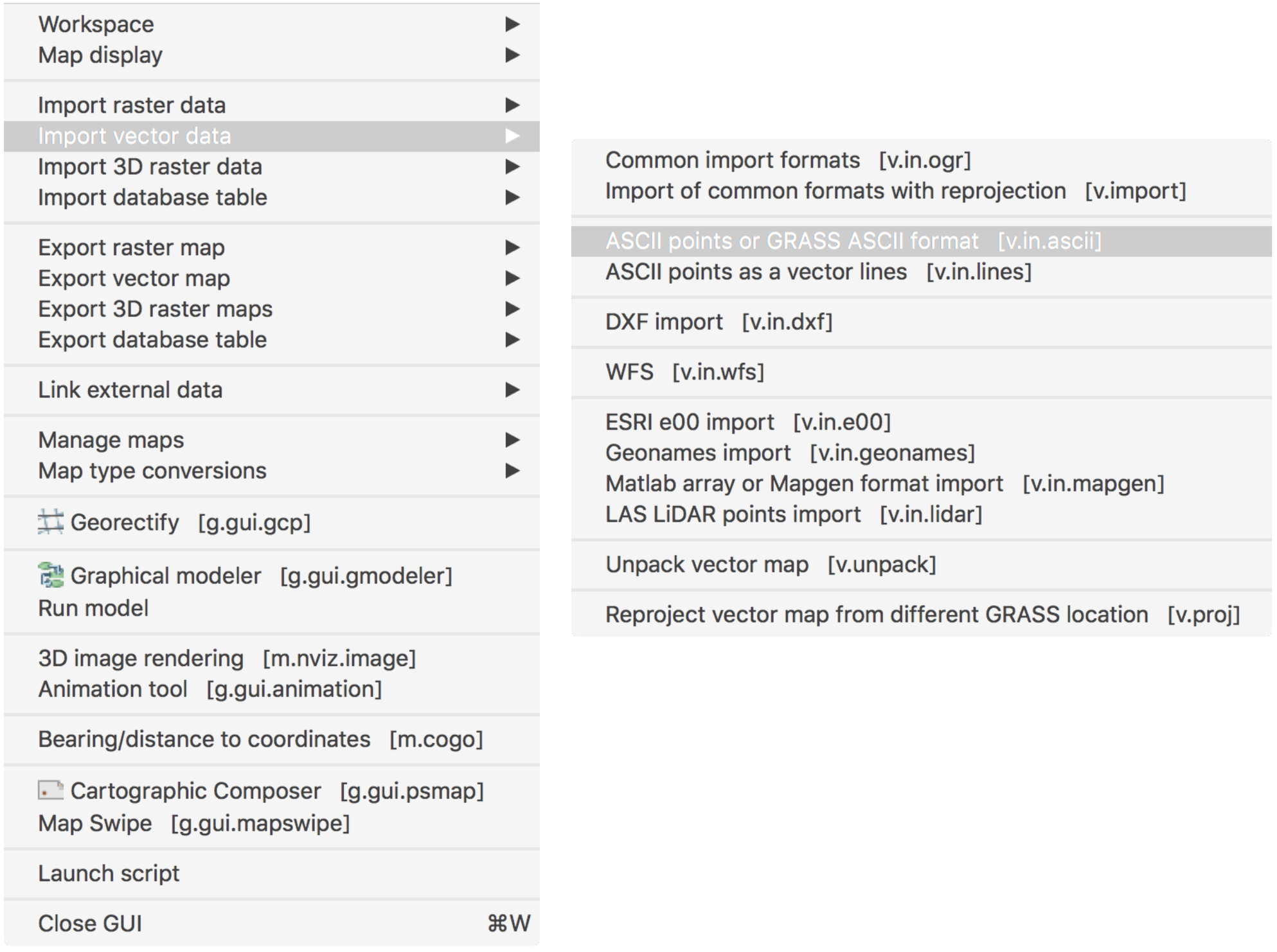
REGION – MUDAR RESOLUÇÃO PARA 250M



CRIAR LOCATION E MAPSET



IMPORTAR VETOR (PONTOS – DAVIS.DAT)



IMPORTAR VETOR

v.in.ascii [vector, import, ASCII]

Creates a vector map from an ASCII points file or ASCII vector file.

Required | Input format | Points | Optional | Command output | Manual

Name of input file to be imported: * (input=name)

/Volumes/MacintoshHD2/Dropbox/USP/aulas/_SIG/SIG_posGrad/2017_

Browse

or enter values directly:

Load | Save as

Name for output vector map: * (output=name)

davis

Close | Run | Copy | ?

Add created map(s) into layer tree

Close dialog on finish

v.in.ascii --overwrite input=/Volumes/MacintoshHD2/Dropbox/USP/aulas/_SIG/SIG_posGrad/2017_IEE/exe

v.in.ascii [vector, import, ASCII]

Creates a vector map from an ASCII points file or ASCII vector file.

Required | Input format | Points | Optional | Command output | Manual

Do not expect a header when reading in standard format (n)

Input file format: (format=string)

point

Field separator: (separator=character)

comma

Text delimiter: (text=character)

doublequote

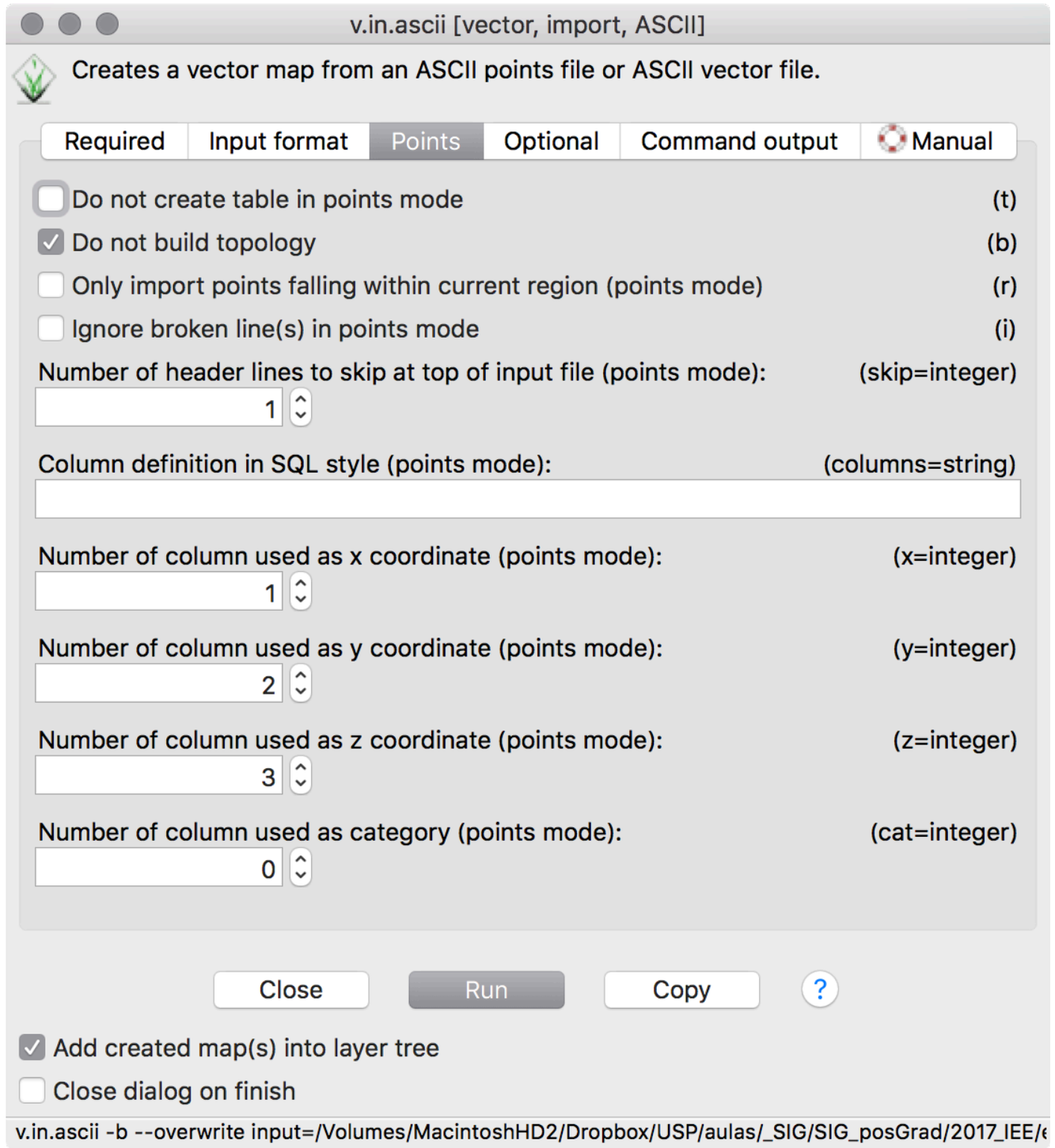
Close | Run | Copy | ?

Add created map(s) into layer tree

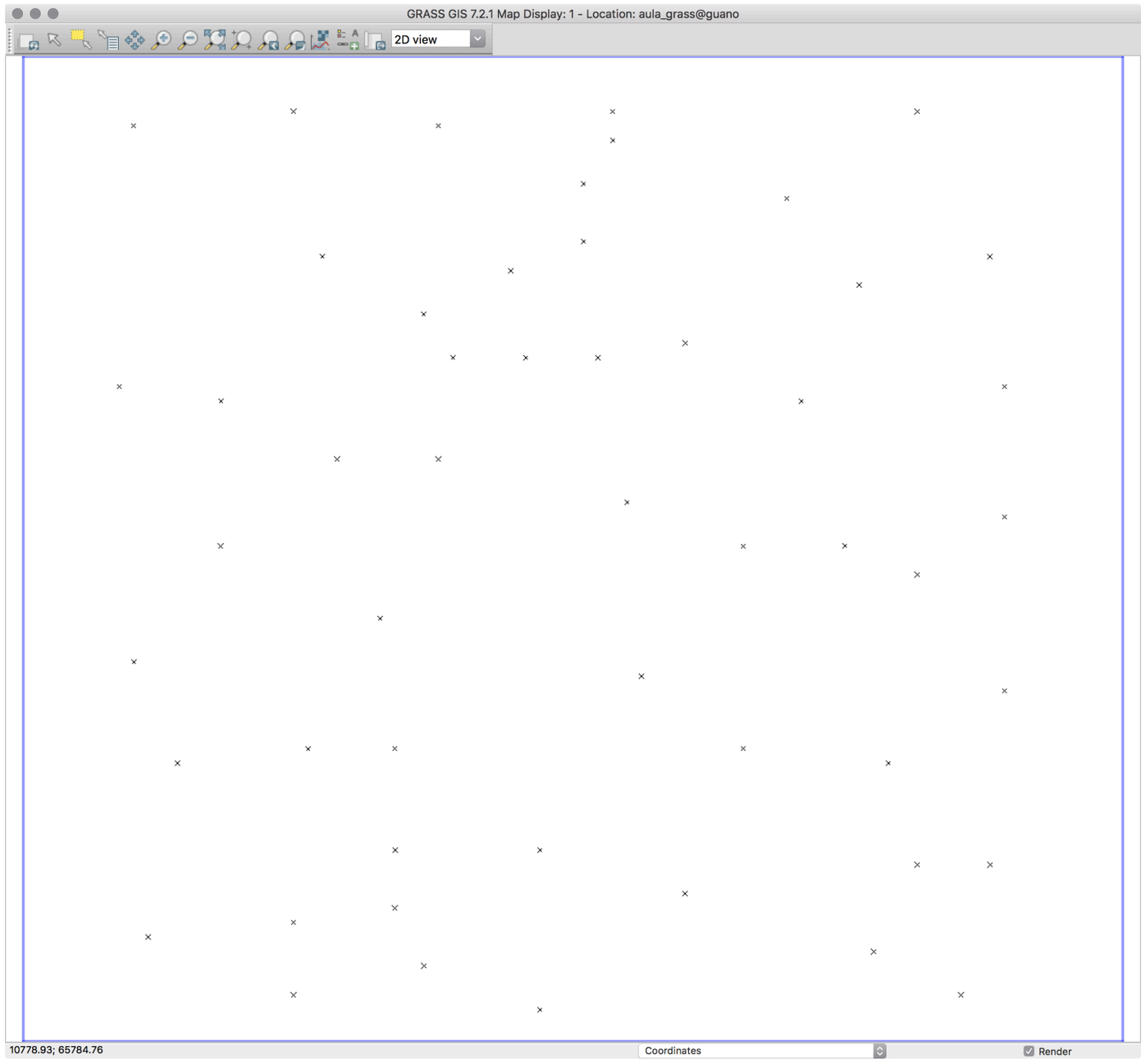
Close dialog on finish

v.in.ascii --overwrite input=/Volumes/MacintoshHD2/Dropbox/USP/aulas/_SIG/SIG_posGrad/2017_IEE/exe

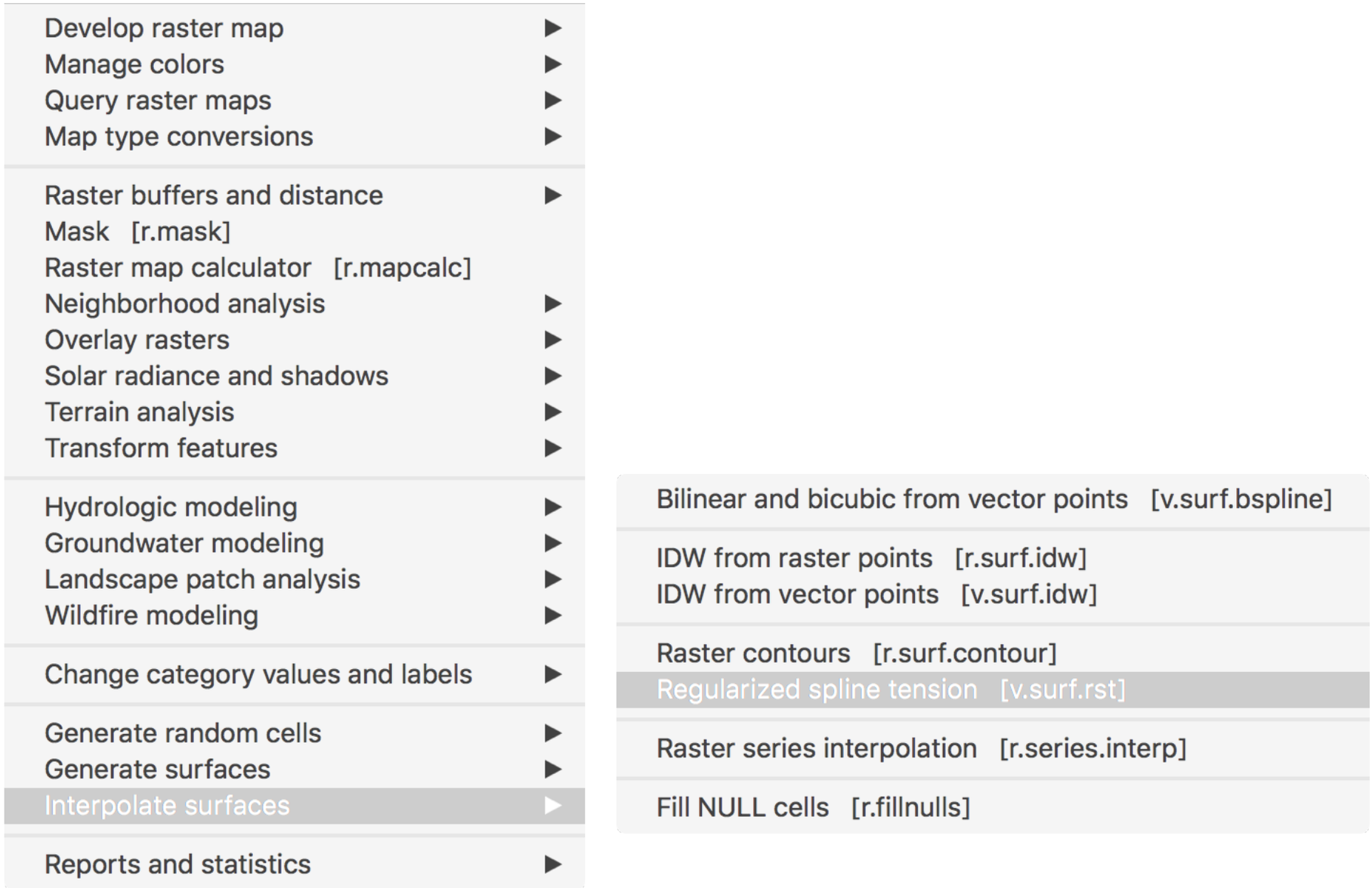
IMPORTAR VETOR



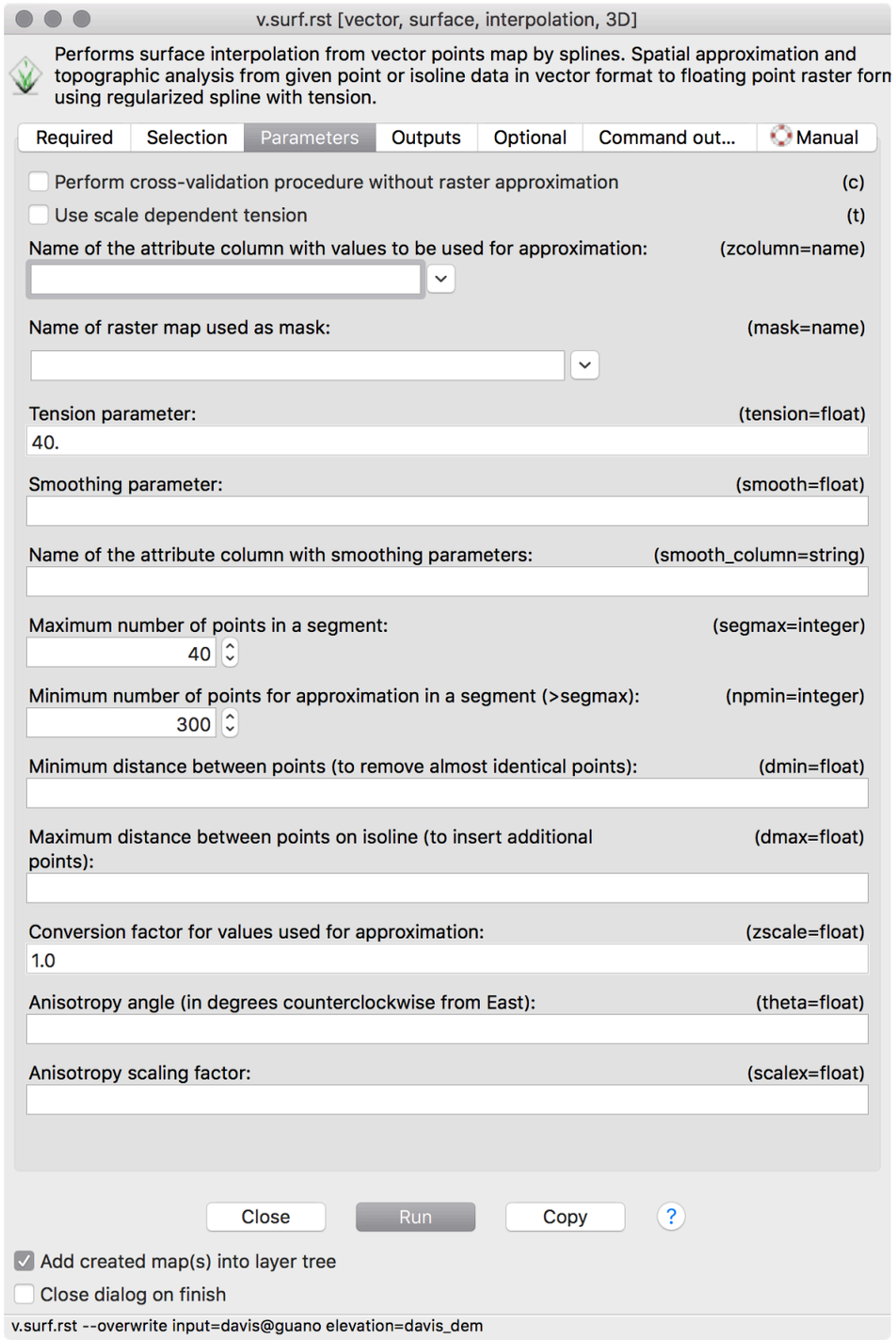
VETOR

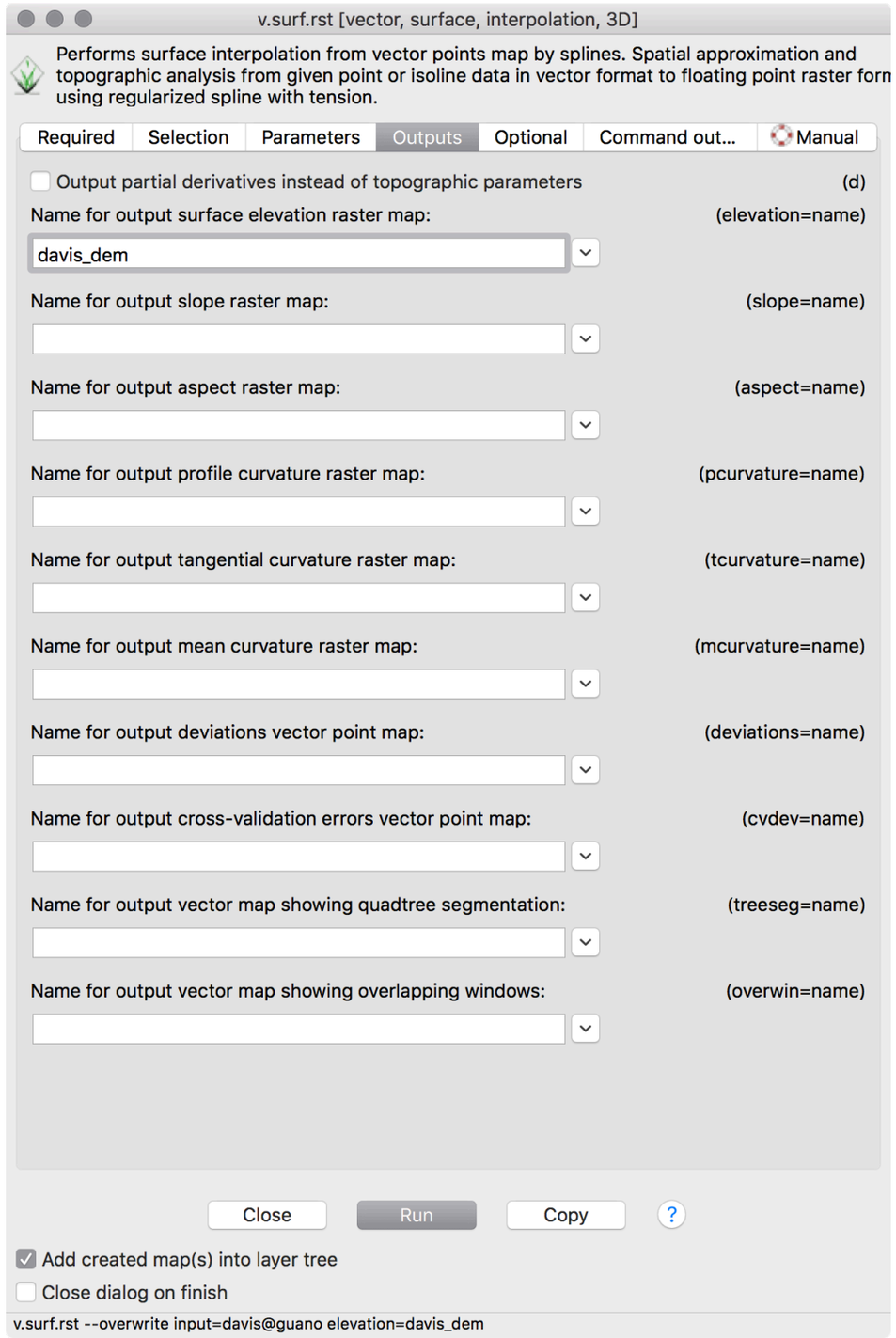

GRASS GIS 7.2.1 Map Display: 1 - Location: aula_grass@guano
2D view
10778.93; 65784.76
Coordinates
Render

INTERPOLAR SUPERFICIE



INTERPOLAR SUPERFICIE





GERAR CURVAS DE NIVEL

r.contour [raster, surface, contours, vector]

Produces a vector map of specified contours from a raster map.

Required | Contour levels | Optional | Command output | Manual

Name of input raster map: * (input=name)

davis_dem@guano

Name for output vector map: * (output=name)

davis_dem_r50m_c10m

Close | Run | Copy | ?

Add created map(s) into layer tree

Close dialog on finish

r.contour --overwrite input=davis_dem@guano output=davis_dem_r50m_c10m step=10

r.contour [raster, surface, contours, vector]

Produces a vector map of specified contours from a raster map.

Required | Contour levels | Optional | Command output | Manual

Increment between contour levels: (step=float)

10

[multiple] List of contour levels: (levels=float)

Minimum contour level: (minlevel=float)

Maximum contour level: (maxlevel=float)

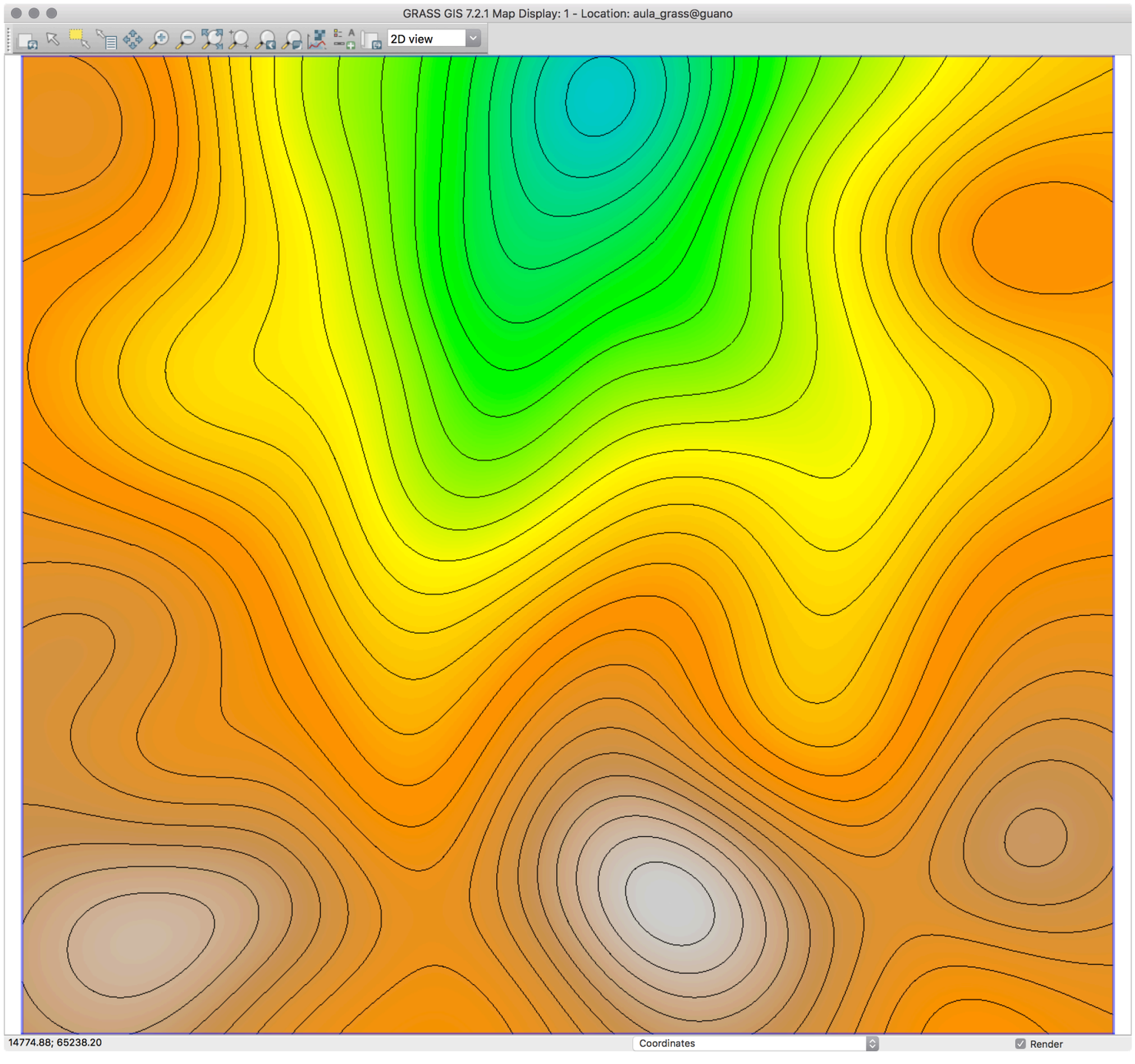
Close | Run | Copy | ?

Add created map(s) into layer tree

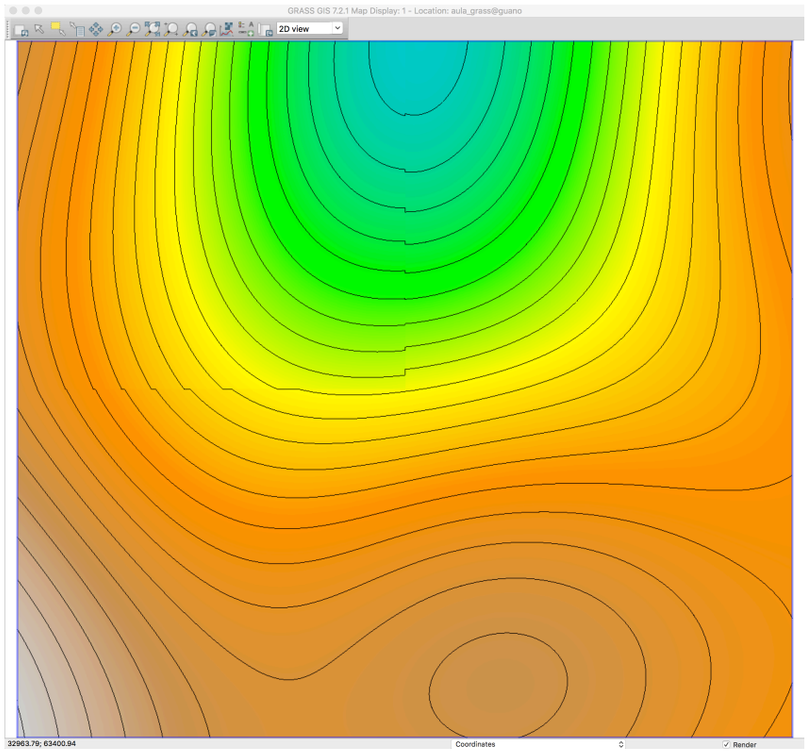
Close dialog on finish

r.contour --overwrite input=davis_dem@guano output=davis_dem_r50m_c10m step=10

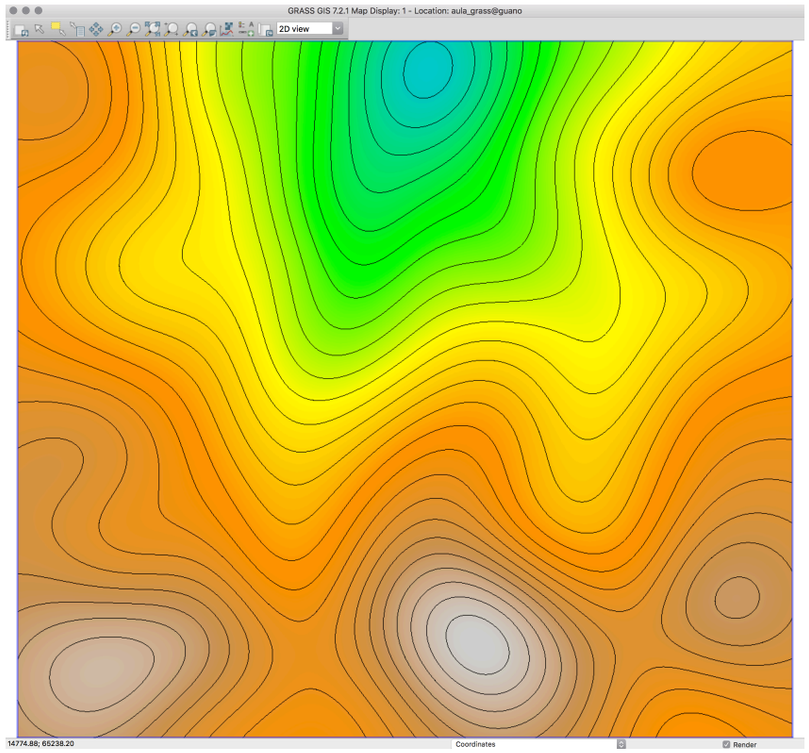
DEM + CURVAS DE NIVEL



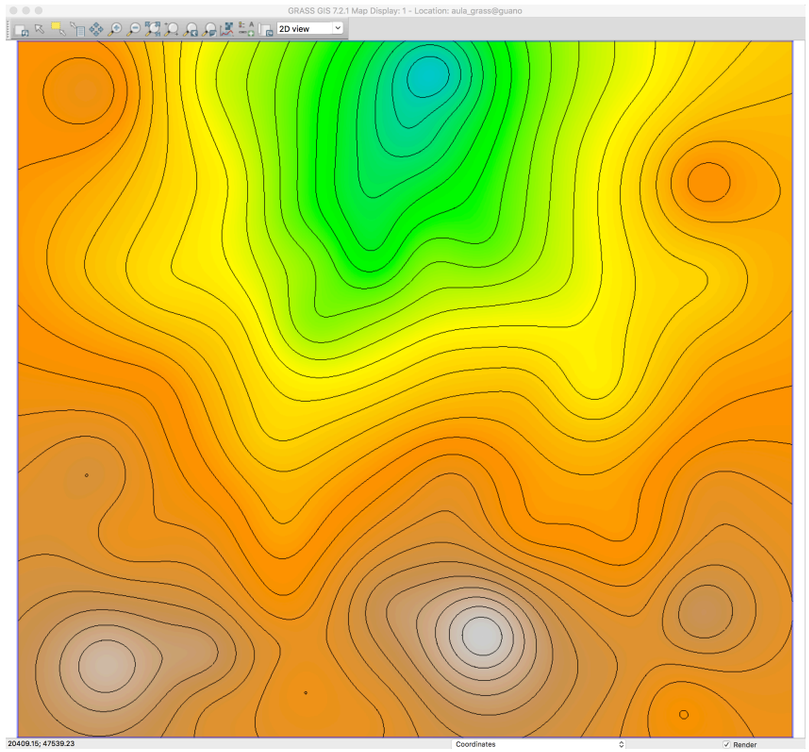
DEM + CURVAS DE NIVEL



T=10

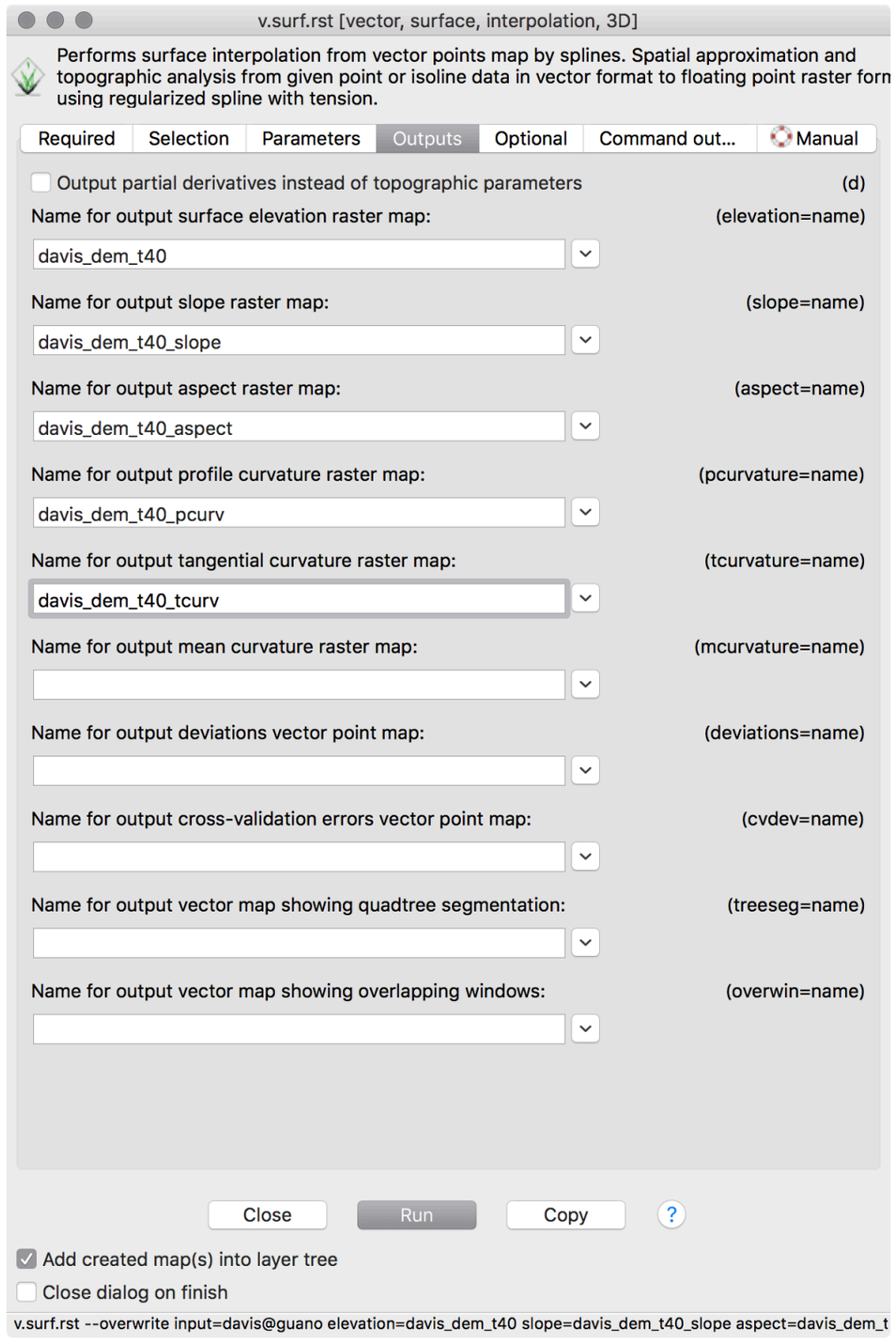


T=40

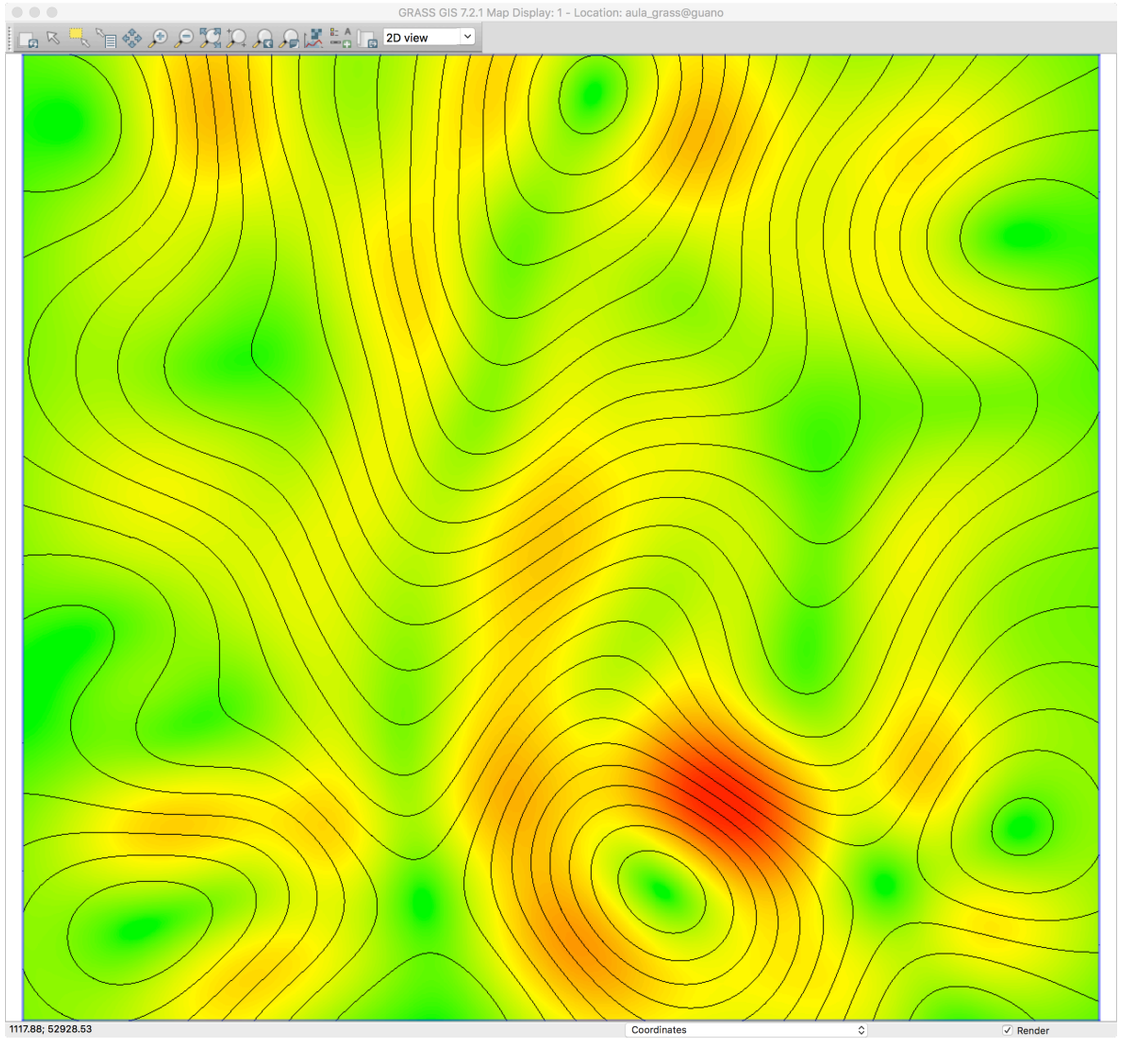


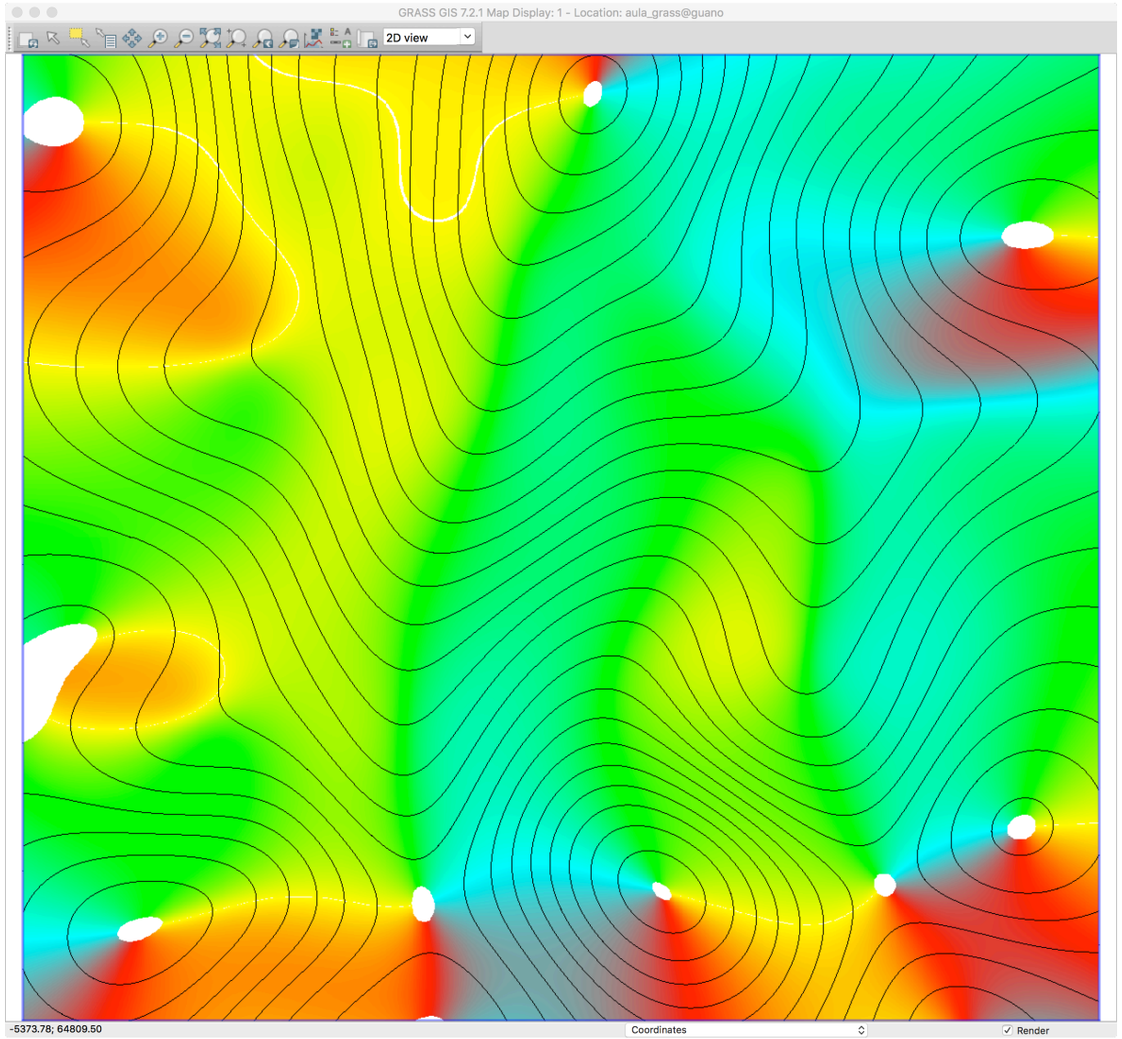
T=100

INTERPOLAR SUPERFICIE + DERIVADAS

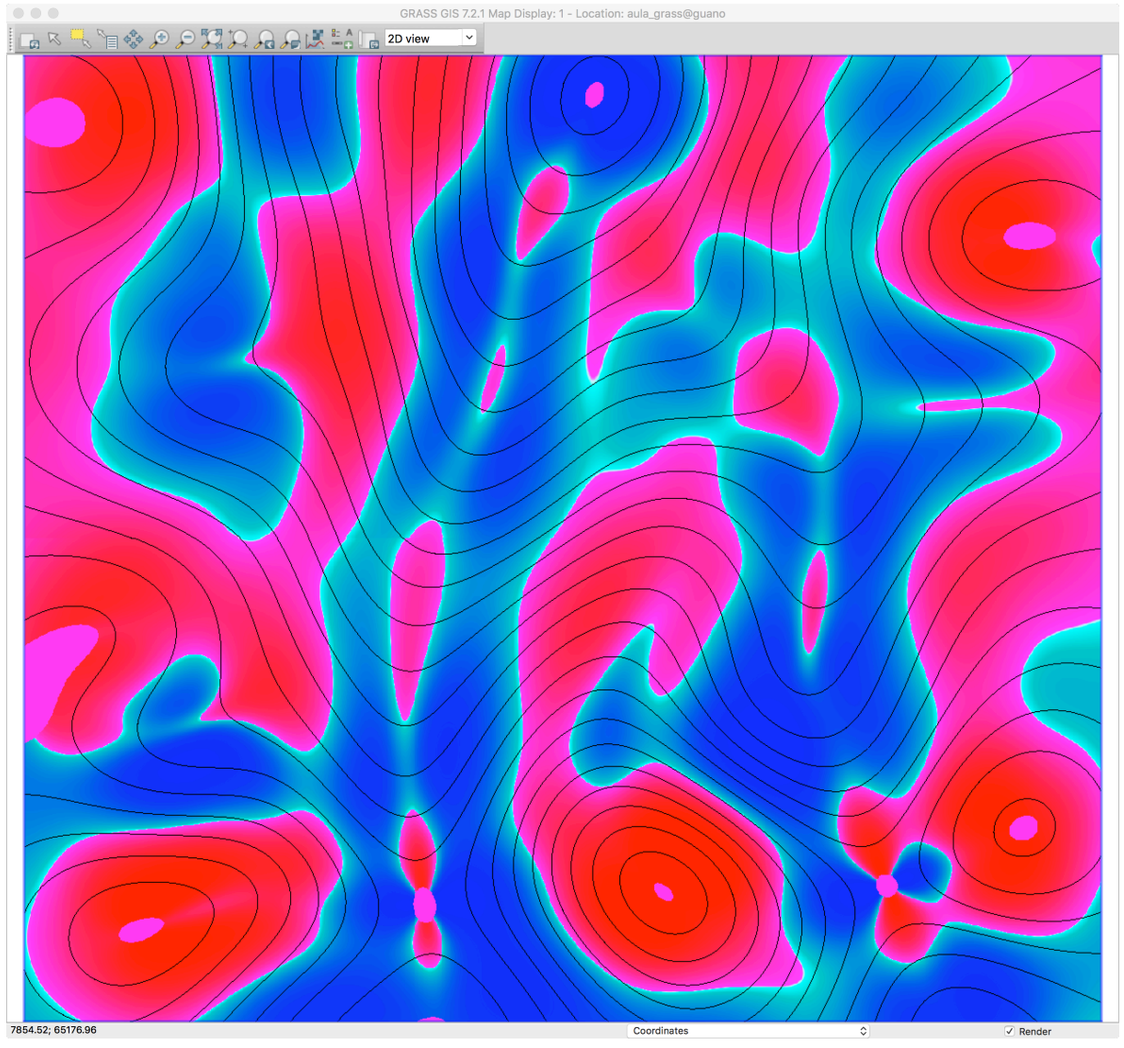


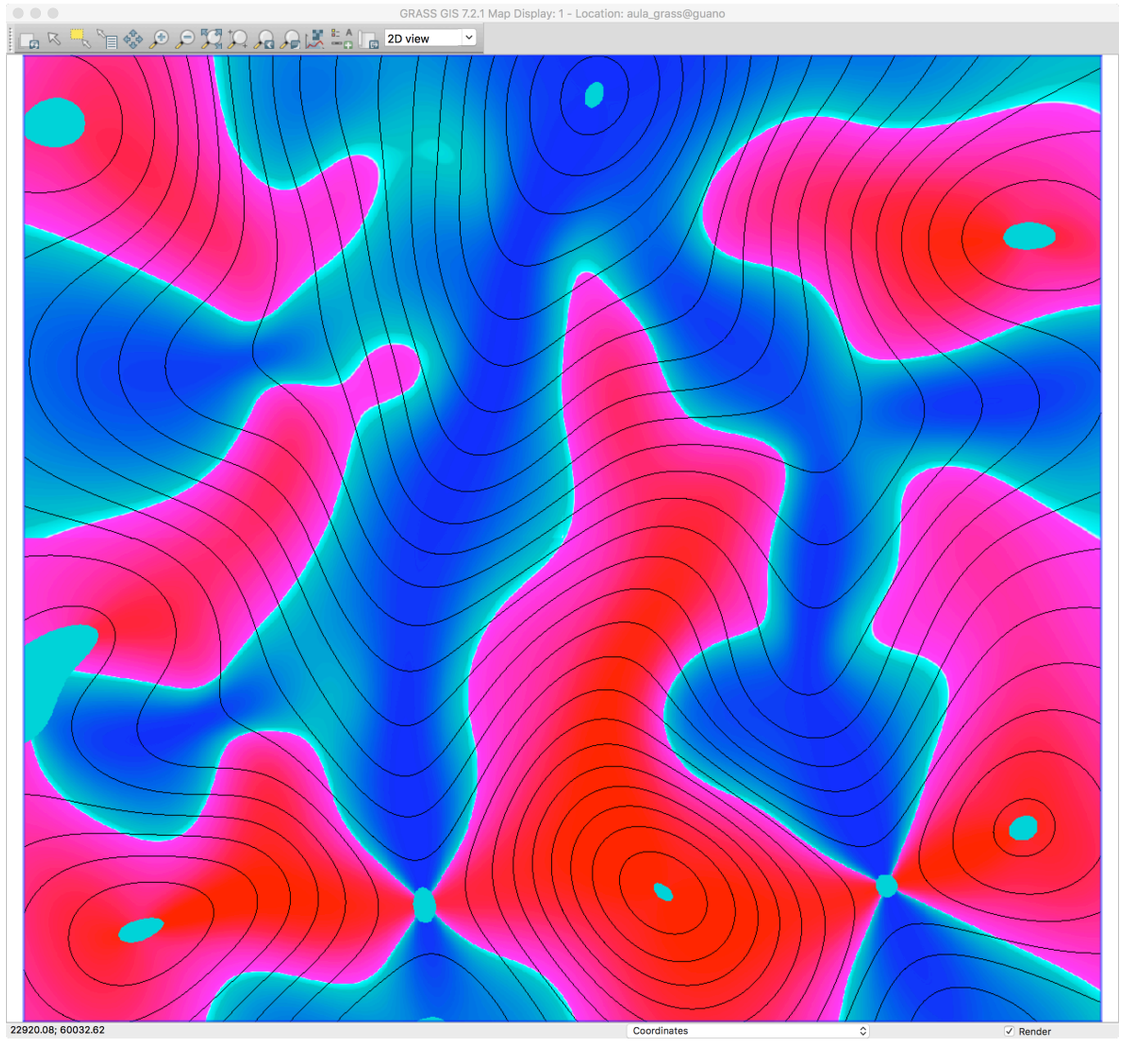
DECLIVIDADE / ASPECTO





CURVATURAS


GRASS GIS 7.2.1 Map Display: 1 - Location: aula_grass@guano
2D view
7854.52; 65176.96
Coordinates
Render


GRASS GIS 7.2.1 Map Display: 1 - Location: aula_grass@guano
2D view
22920.08; 60032.62
Coordinates
Render