

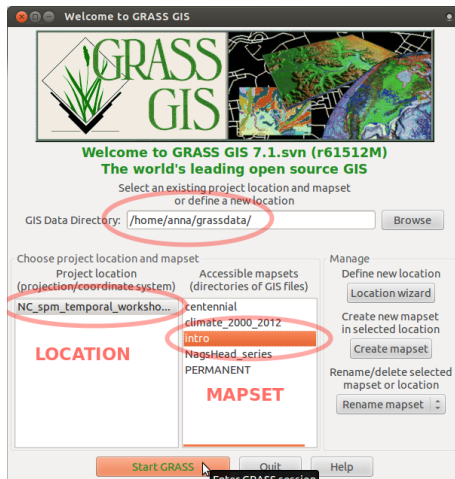
# Brief introduction to GRASS GIS 7

## GRASS GIS Temporal Workshop

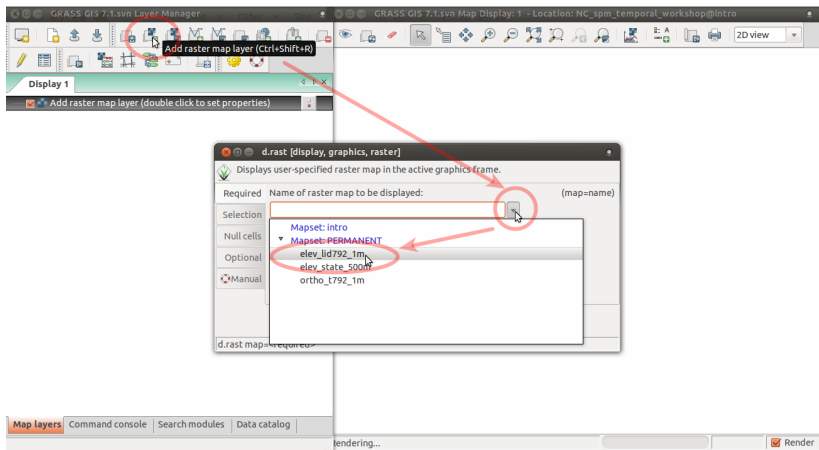


September, 2013

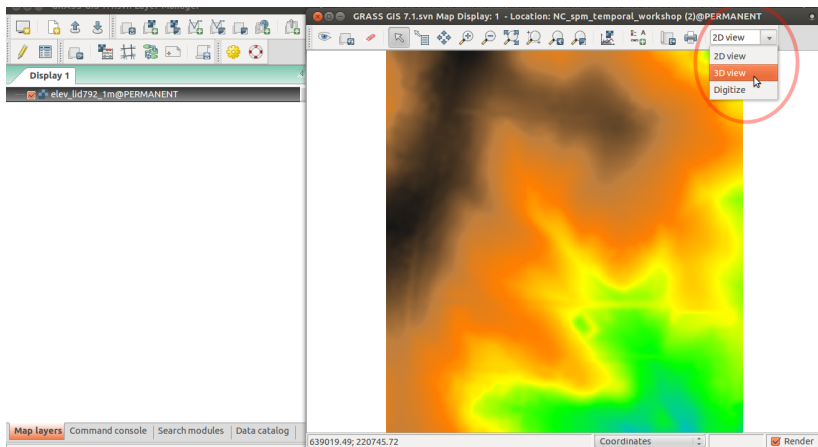
# GRASS GIS data structure



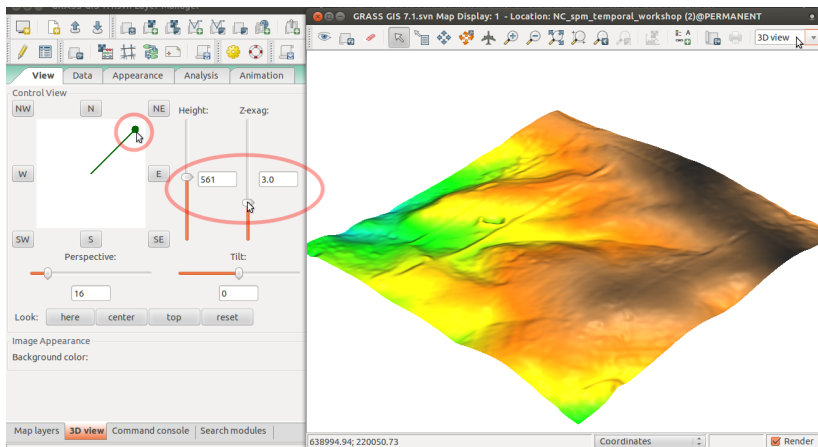
# GRASS GIS GUI: Add raster map elev\_lid792\_1m



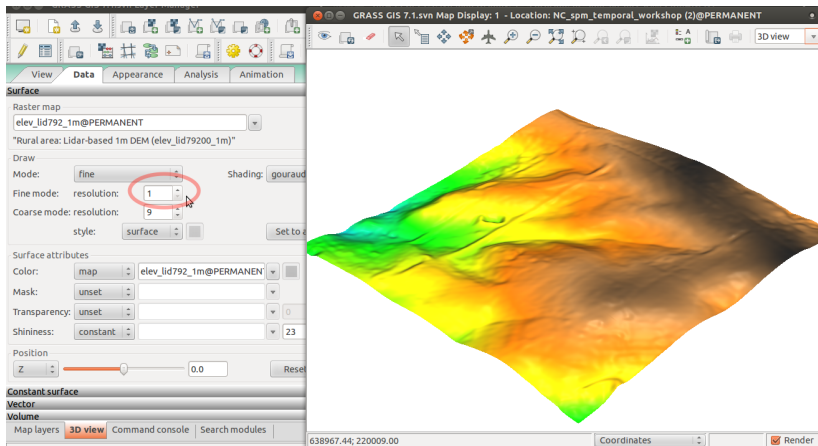
# Display elevation in 3D view



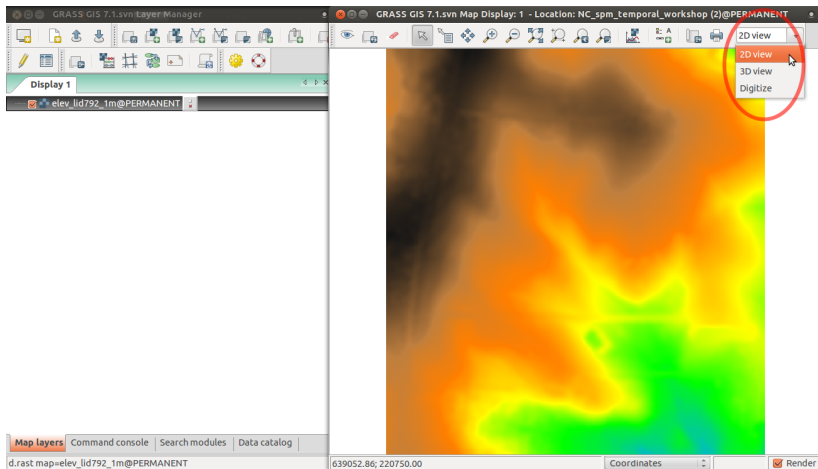
# Display elevation in 3D view



# Display elevation in 3D view



# Display elevation in 3D view



# GRASS modules

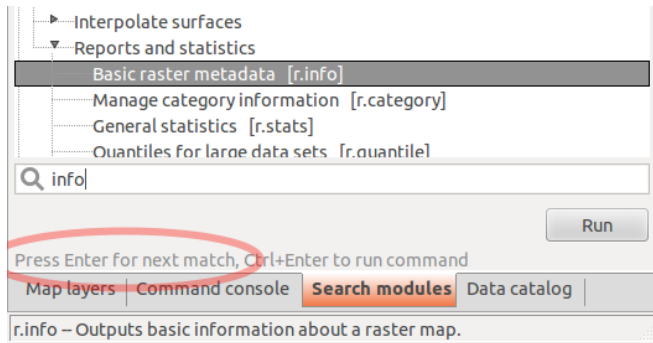
GRASS functionality is available through modules (tools). Modules respect following naming conventions:

group	prefix	examples
general	g.*	g.list, g.remove, g.copy
raster	r.*	r.univar, r.neighbors, r.contour
vector	v.*	v.info, v.generalize, v.db.select
3D raster	r3.*	r3.info, r3.to.rast, r3.colors
temporal	t.*	t.list, t.rast.aggregate, t.vect.univar
...		



# Finding and running a module

Type name or keyword in Search



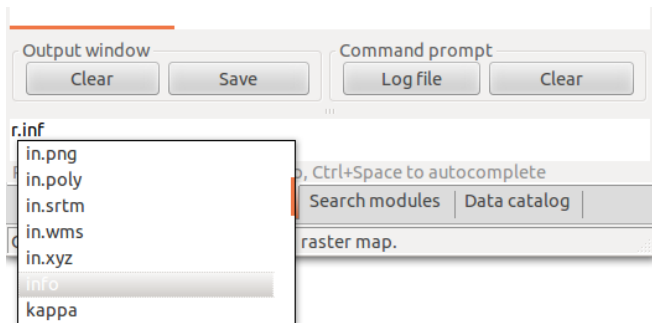
# Finding and running a module

Raster → Reports and statistics → Basic raster metadata

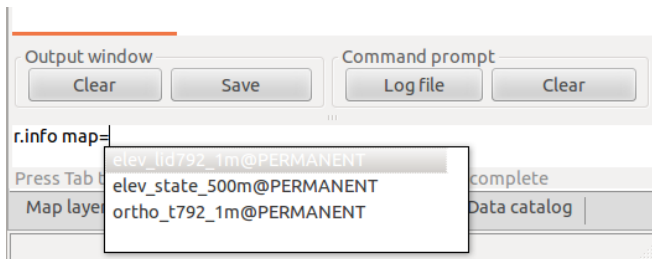


# Finding and running a module

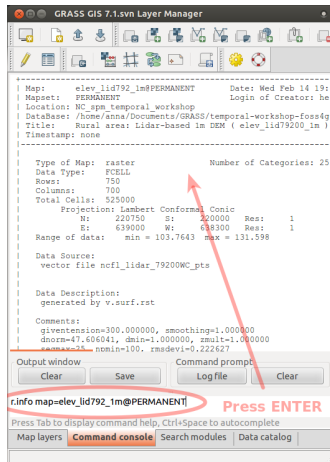
Type beginning of command in Command console



# Finding and running a module

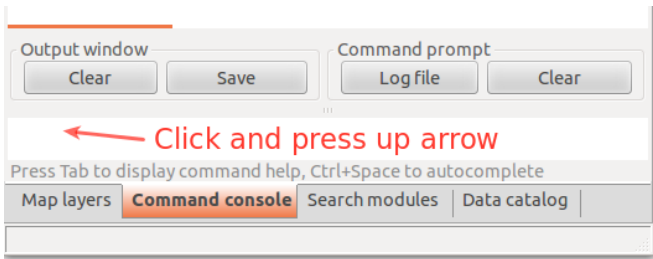


# Finding and running a module



## Finding and running a module

Use up/down arrows in command console to browse through command history

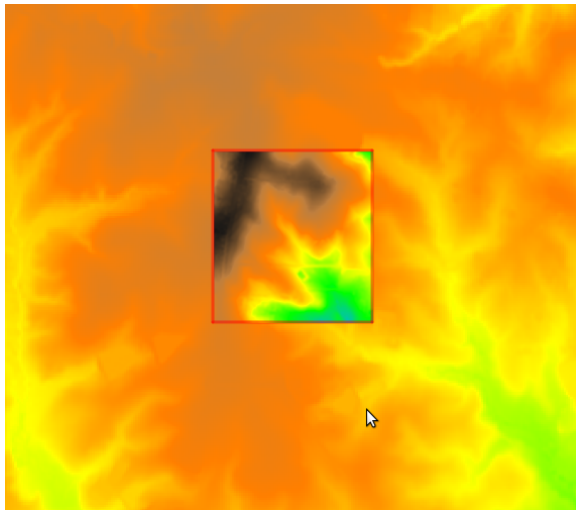


Before we use a module to compute a new raster map...

## Computational region

```
g.region -p
```

```
north:      220750  
south:      220000  
west:       638300  
east:       639000  
nsres:      1  
ewres:      1  
rows:       750  
cols:       700  
cells:      525000
```

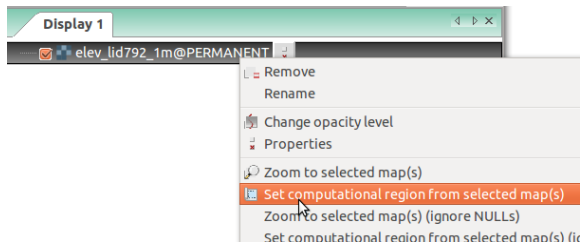




# Computational region

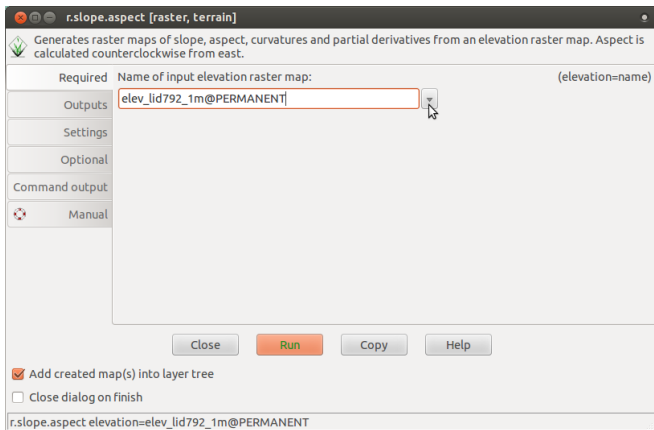
```
g.region -p
```

```
north:      220750
south:      220000
west:       638300
east:       639000
nsres:      1
ewres:      1
rows:       750
cols:       700
cells:      525000
```





## Module example: r.slope.aspect

Raster → Terrain analysis → Slope and aspect



# Module example: r.slope.aspect

 **r.slope.aspect [raster, terrain]**

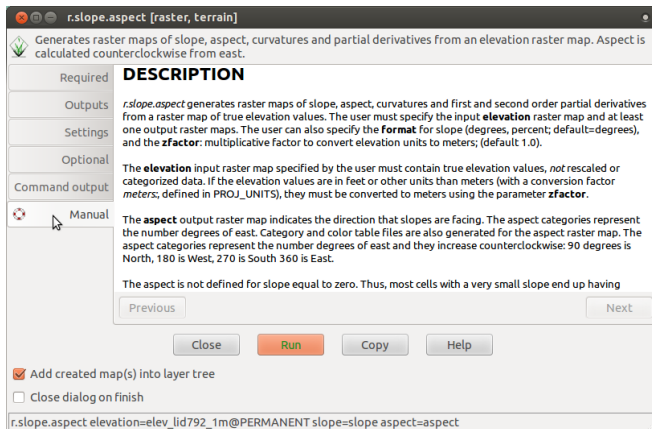
 Generates raster maps of slope, aspect, curvatures and partial derivatives from an elevation raster map. Aspect is calculated counterclockwise from east.

Required	Name for output slope raster map:	(slope=name)
Outputs	<input type="text" value="slope"/>	
Settings	Name for output aspect raster map:	(aspect=name)
Optional	<input type="text" value="aspect"/>	
Command output	Name for output profile curvature raster map:	(pcurv=name)
	<input type="text"/>	
Manual	Name for output tangential curvature raster map:	(tcurv=name)
	<input type="text"/>	
	Name for output first order partial derivative dx (E-W slope) raster map:	(dx=name)
	<input type="text"/>	
	Name for output first order partial derivative dy (N-S slope) raster map:	(dy=name)
	<input type="text"/>	

☒ Add created map(s) into layer tree  
☐ Close dialog on finish

r.slope.aspect elevation=elev\_lid792\_1m@PERMANENT slope=slope aspect=aspect

# Module example: r.slope.aspect



**r.slope.aspect [raster, terrain]**

Generates raster maps of slope, aspect, curvatures and partial derivatives from an elevation raster map. Aspect is calculated counterclockwise from east.

**DESCRIPTION**

**Required**

**Outputs**

**Settings**

**Optional**

**Command output**

**Manual**

**DESCRIPTION**

*r.slope.aspect* generates raster maps of slope, aspect, curvatures and first and second order partial derivatives from a raster map of true elevation values. The user must specify the input **elevation** raster map and at least one output raster maps. The user can also specify the **format** for slope (degrees, percent; default=degrees), and the **zfactor**: multiplicative factor to convert elevation units to meters; (default 1.0).

The **elevation** input raster map specified by the user must contain true elevation values, *not* rescaled or categorized data. If the elevation values are in feet or other units than meters (with a conversion factor *meters*, defined in PROJ\_UNITS), they must be converted to meters using the parameter **zfactor**.

The **aspect** output raster map indicates the direction that slopes are facing. The aspect categories represent the number degrees of east. Category and color table files are also generated for the aspect raster map. The aspect categories represent the number degrees of east and they increase counterclockwise: 90 degrees is North, 180 is West, 270 is South 360 is East.

The aspect is not defined for slope equal to zero. Thus, most cells with a very small slope end up having

Previous Next

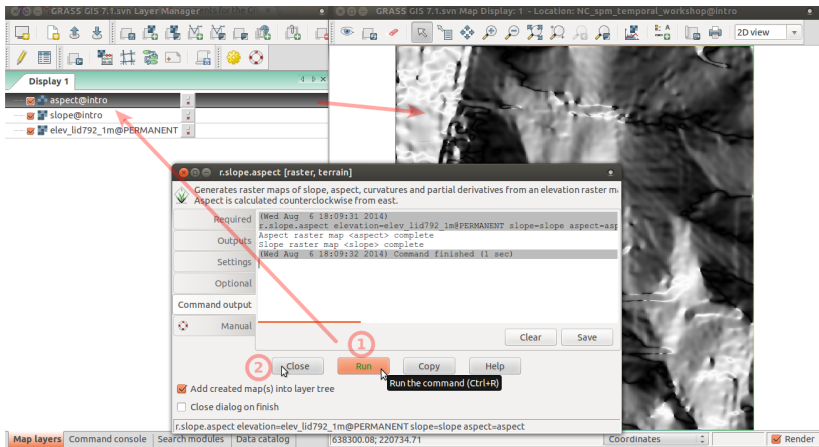
Close Run Copy Help

☒ Add created map(s) into layer tree

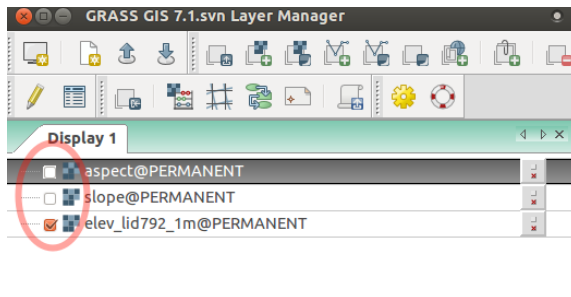
☐ Close dialog on finish

r.slope.aspect elevation=elev\_lid792\_1m@PERMANENT slope=slope aspect=aspect

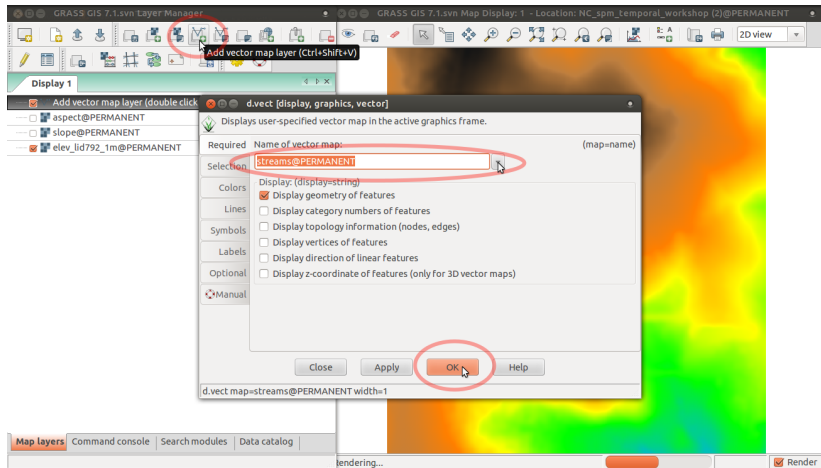
# Module example: r.slope.aspect



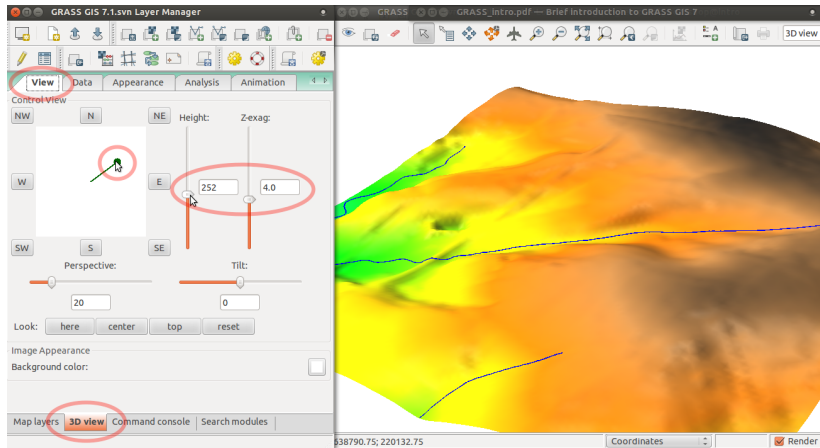
Uncheck newly created maps:



## Add vector map streams:

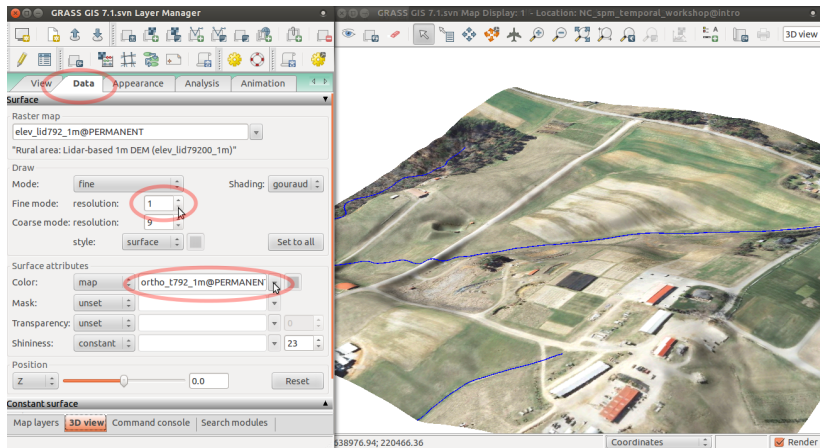


# GRASS GIS: 3D view

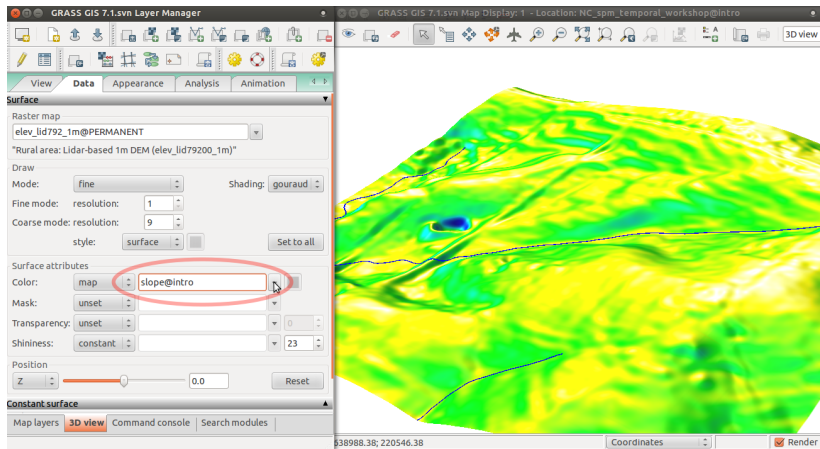




# GRASS GIS 7.1: 3D view

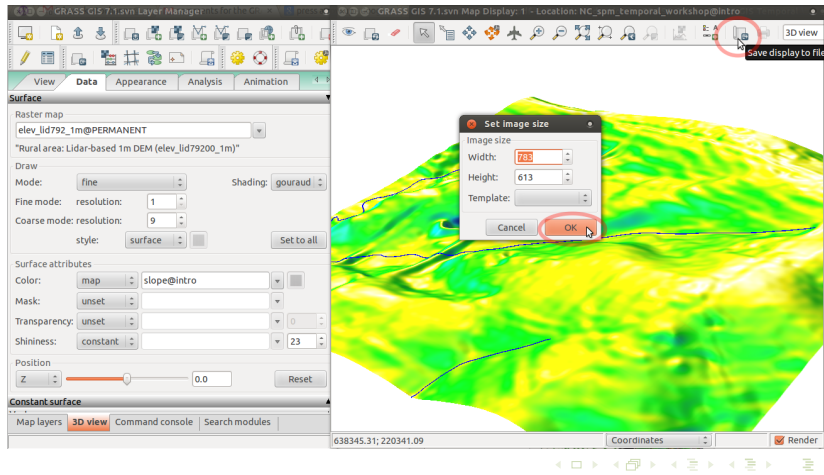


# GRASS GIS 7.1: 3D view



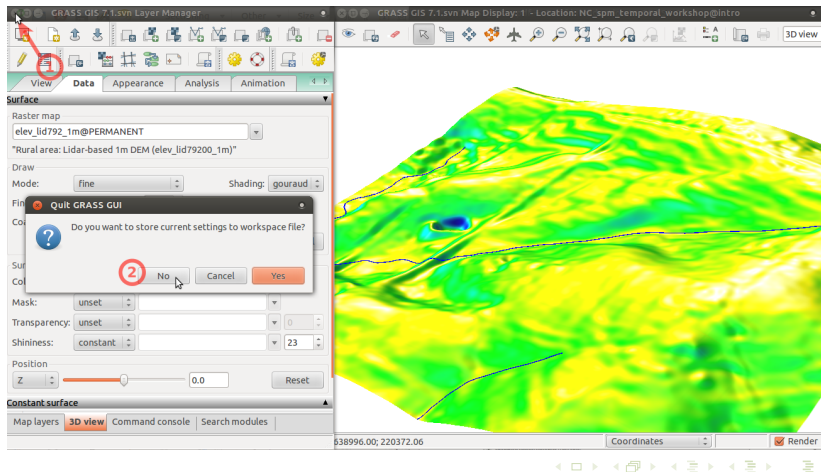
# GRASS GIS 7.1.5vn 3D view

## Save picture



# GRASS GIS: Quit

## Quit GUI



# GRASS GUI: Quit

## Quit session

```
GRASS 7.1.svn (NC_spm_temporal_workshop):~ >  
GRASS 7.1.svn (NC_spm_temporal_workshop):~ > exit  
exit  
  
Cleaning up temporary files...  
Done.  
  
Goodbye from GRASS GIS
```

**GRASS GIS 7** Free download for MS Windows, Mac OSX, Linux and source code: <http://grass.osgeo.org/download/>  
Addons (user contributed extensions):  
[http://grasswiki.osgeo.org/wiki/GRASS\\_AddOns](http://grasswiki.osgeo.org/wiki/GRASS_AddOns)

**Sample data** Rich data set of North Carolina (NC) available as GRASS GIS location and in common GIS formats:  
<http://grass.osgeo.org/download/sample-data/>

**User Help** Mailing lists (in different languages):  
<http://grass.osgeo.org/support/>  
Wiki including FAQ:  
<http://grasswiki.osgeo.org/wiki/>  
Manuals:  
<http://grass.osgeo.org/documentation/manuals/>