

# Introducere în SIG

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# Sisteme Informaționale **Geografice**

- Software care manipulează date (geo)spatiale.
- Hardware + rețea.
- Oameni + algoritmi.
- Focus pe rezolvarea problemelor.
- 1963 – primul SIG în Canada = Land Inventory
- La ora actuală, după Goodchild (1992) vorbim de Știința **Informației Geografice**.
- Geografic = spațial = geospațial; în geografie SIG este o unealtă “organică”, indispensabilă.

Goodchild, M. F. 1992. Geographical information science. International Journal of Geographical Information Systems 6: 31–45.

# Free and Open Source Software for Geospatial

- Free = liber, nu gratuit: “as in free beer”.
- Sursă deschisă = codul sursă este liber și poate fi compilat și reutilizat de oricine, dar trebuie păstrată licența deschisă.
- For Geospatial = software pentru manipularea de date (geo)spațiale.
- Piața este destul de diversă și bine dezvoltată, cu facilități complete, rivalizând aplicațiile comerciale proprietare, iar interoperabilitatea depășește piața comercială.
- QGIS - <https://www.qgis.org/>
- GRASS GIS - <https://grass.osgeo.org/>
- SAGA GIS - <https://sourceforge.net/projects/saga-gis/files/>
- R + Rstudio - <https://www.r-project.org/> și <https://rstudio.com/>

# Free and Open Source Software for Geospatial

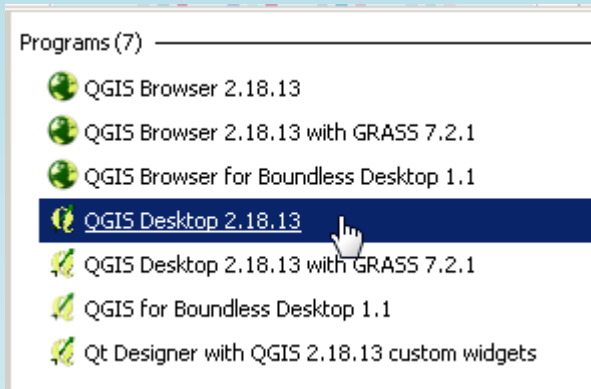
## AVANTAJE

- A
- B
- C
- D
- E
- F
- G
- H

## DEZAVANTAJE

- A
- B
- C
- D
- E
- F
- G
- H

# QGIS – aplicație GIS open source



- Următoarele paneluri (click dreapta pe spațiul gri din partea de sus a ferestrei QGIS) ar trebui activate:
- Layers Panel
- Attributes Toolbar
- Database Toolbar
- Digitizing Toolbar
- Digitizing Tools
- Editing
- Help Toolbar
- Label Toolbar
- Manage Layers Toolbar
- Map Navigation Toolbar
- Project Toolbar
- Raster Toolbar
- Vector Toolbar
- Web Toolbar

Meniuri

Toolbars

Layer Manager

Main view

Toolbars

Coordonate cursor

Scara de vizualizare

Cod EPSG

# Baze de date cartografice libere

## Natural Earth

↑ Name

- [-.]
- [10m\_cultural]
- [10m\_physical]
- [110m\_cultural]
- [110m\_physical]
- [50m\_raster]
- CHANGELOG
- Natural\_Earth\_quick\_start\_for\_ArcMap
- Natural\_Earth\_quick\_start\_for\_QGIS
- Natural\_Earth\_quick\_start\_for\_QGIS\_v2
- Natural\_Earth\_quick\_start\_for\_QGIS\_v2
- README
- VERSION

- ne\_10m\_admin\_0\_boundary\_lines\_disputed\_areas
- ne\_10m\_admin\_0\_boundary\_lines\_land
- ne\_10m\_admin\_0\_boundary\_lines\_maritime\_indicator
- ne\_10m\_admin\_0\_disputed\_areas
- ne\_10m\_admin\_0\_map\_subunits
- ne\_10m\_admin\_0\_map\_units
- ne\_10m\_admin\_0\_scale\_rank\_minor\_islands
- ne\_10m\_admin\_1\_states\_provinces
- ne\_10m\_admin\_1\_states\_provinces\_lines
- ne\_10m\_admin\_1\_states\_provinces\_lines\_shp
- ne\_10m\_admin\_1\_states\_provinces\_shp
- ne\_10m\_populated\_places
- ne\_10m\_urban\_areas

- ne\_10m\_coastline
- ne\_10m\_geography\_marine\_polys
- ne\_10m\_geography\_regions\_elevation\_points
- ne\_10m\_geography\_regions\_points
- ne\_10m\_geography\_regions\_polys
- ne\_10m\_lakes
- ne\_10m\_minor\_islands
- ne\_10m\_ocean
- ne\_10m\_rivers\_lake\_centerlines
- ne\_10m\_rivers\_lake\_centerlines\_scale\_rank

- ne\_110m\_coastline
- ne\_110m\_geography\_marine\_polys
- ne\_110m\_geography\_regions\_points
- ne\_110m\_geography\_regions\_polys
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- ne\_110m\_ocean

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- ne\_110m\_admin\_0\_countries
- ne\_110m\_admin\_0\_pacific\_groupings
- ne\_110m\_admin\_0\_tiny\_countries
- ne\_110m\_admin\_1\_states\_provinces
- ne\_110m\_admin\_1\_states\_provinces\_shp
- ne\_110m\_populated\_places

- NE1\_50M\_SR\_W
- NE1\_50M\_SR\_W
- NE1\_50M\_SR\_W
- NE1\_50M\_SR\_W.VERSION
- Read\_me

www.naturalearthdata.com

Natural Earth

Free vector and raster map data at 1:10m, 1:50m, and 1:110m scales

Home Features Downloads Blog Forums Corrections About

Map Gallery

Natural Earth I with Shaded Relief and Water

Natural Earth is a public domain map dataset available at 1:10m, 1:50m, and 1:110 million scales. Featuring tightly integrated vector and raster data, with Natural Earth you can make a variety of visually pleasing, well-crafted maps with cartography or GIS software.

Natural Earth was built through a collaboration of many [volunteers](#) and is supported by [NACIS](#) (North American Cartographic Information Society), and is free for use in any type of project (see our [Terms of Use](#) page for more information).

Get the Data

Convenience

Natural Earth solves a problem: finding suitable data for making small-scale maps. In a time when the web is awash in geospatial data, cartographers are forced to waste time sifting through confusing tangles of poorly attributed data to make clean, legible maps. Because your time is valuable, Natural Earth data comes ready-to-use.

Neatness Counts

The carefully generalized linework maintains consistent, recognizable geographic shapes at 1:10m, 1:50m, and 1:110m scales. Natural Earth was built from the ground up so you will find that all data layers align precisely with one another. For example, where rivers and country borders are one and the same, the lines are coincident.

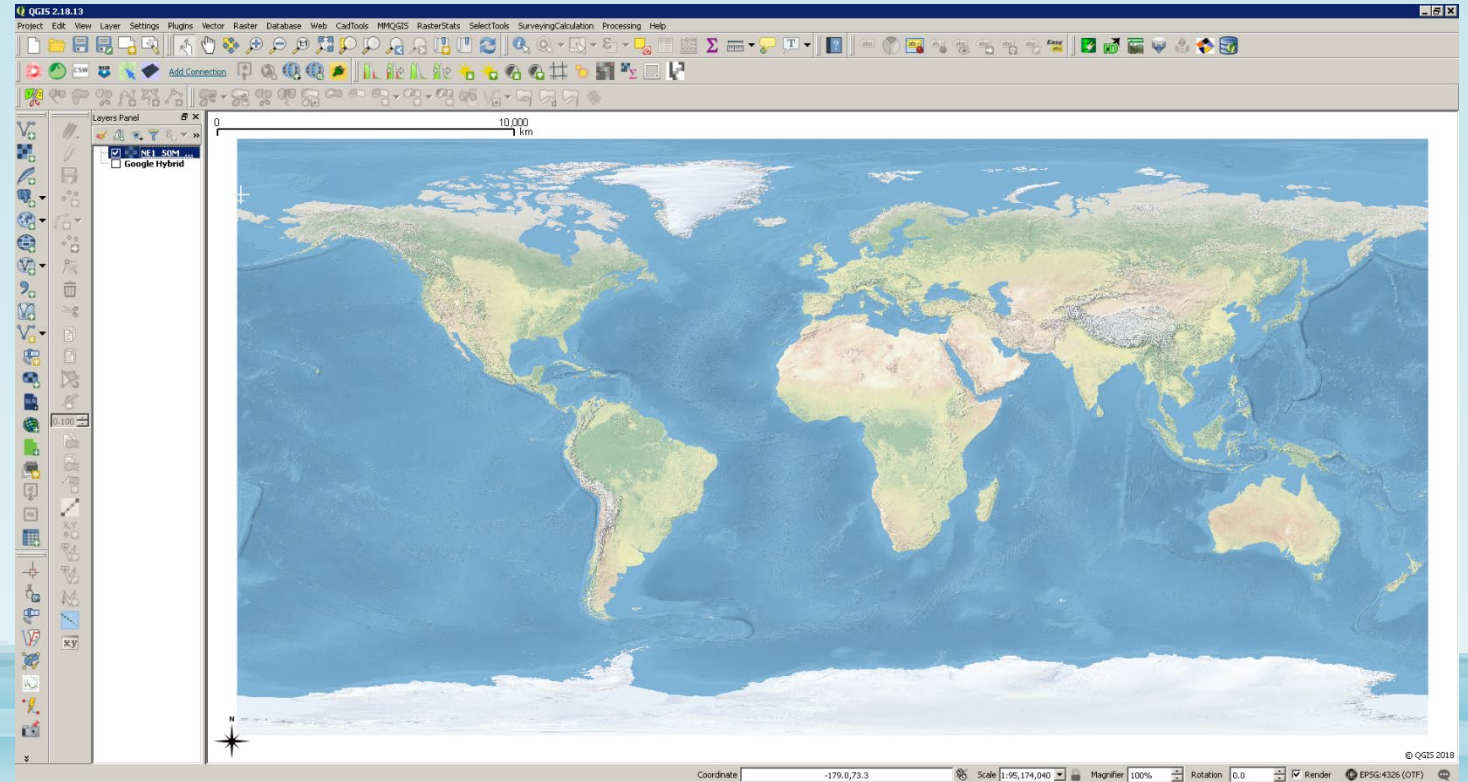
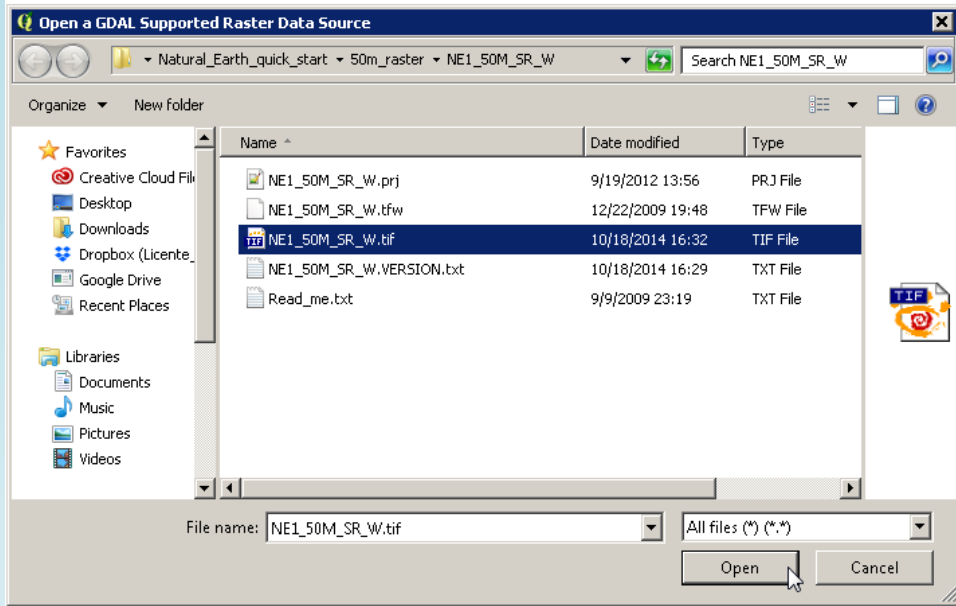
GIS Attributes

Natural Earth, however, is more than just a collection of pretty lines. The data attributes are equally important for mapmaking. Most data contain embedded feature names, which are ranked by relative importance. Other attributes facilitate faster map production, such as width attributes assigned to river segments for creating tapers.

COUNTRYNAM	SCALERANKY	FEATURECLA	SOVE
Afghanistan	1.000000000000	Countries	Afghanis
Aland	3.000000000000	Countries	Finland
Albania	1.000000000000	Countries	Albania
Algeria	1.000000000000	Countries	Algeria



# Date raster (imagine)





# Date vector

