

# A workflow for Earth and planetary geologic mapping in the digital domain

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Like most of the scientific activities abroad, also geologic mapping has slowly migrated to the digital domain. Being an interpretative process, digital geologic mapping needs a deeper computer-human interaction when compared with traditional processing techniques. While specific software has been developed specifically for the problem, their use did not spread among the scientific community and the use of Geographic Information Systems (GIS) is nowadays the de-facto standard for the crafting of a geologic map. Here we will discuss a workflow for the production of a geologic map, from digitizing to the presentation of the results.

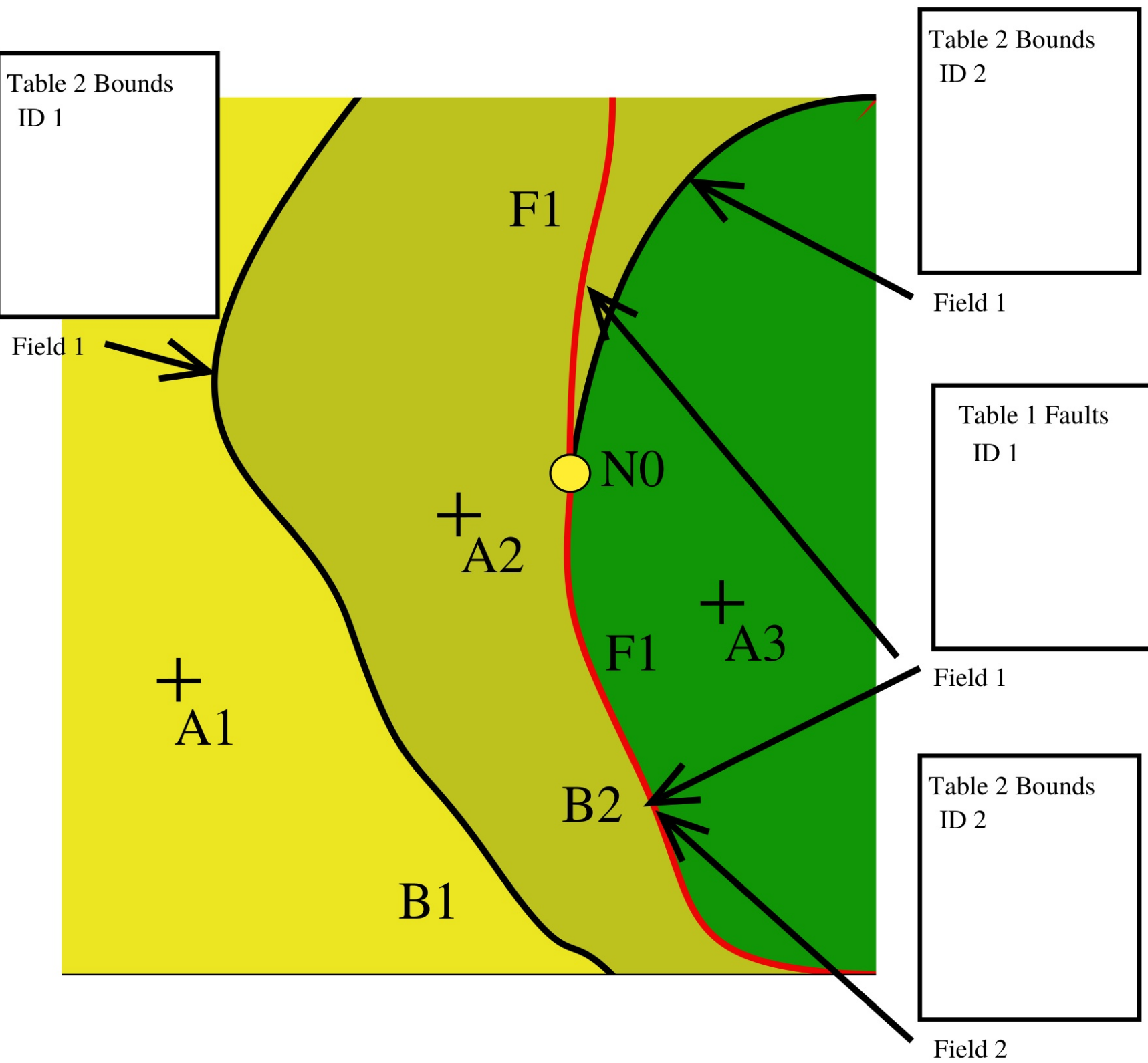
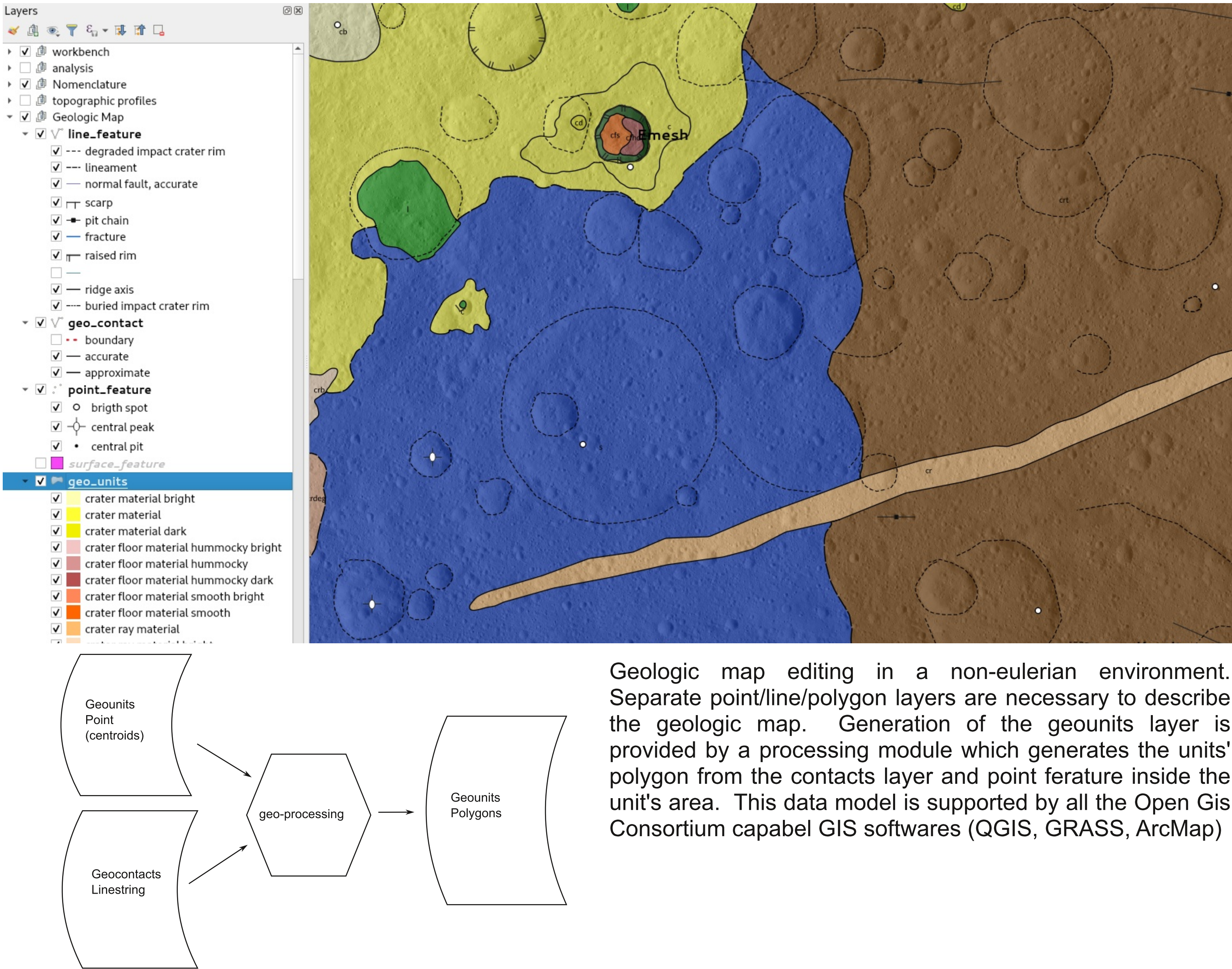


Figure 6: Records in a vector attribute table are linked to vector entities by field and category number

Geologic map editing in a 'Eulerian' environment. No separate layers are necessary, only arcs and nodes define the geometry. Multiple table linking allows to describe the unit and the nature of the boundary. GRASS gis offers this capability, both alone and through QGIS GUI (Figure adapted from Frigeri et al., 2004)



Geologic map editing in a non-eulerian environment. Separate point/line/polygon layers are necessary to describe the geologic map. Generation of the geounits layer is provided by a processing module which generates the units' polygon from the contacts layer and point ferature inside the unit's area. This data model is supported by all the Open Gis Consortium capabel GIS softwares (QGIS, GRASS, ArcMap)

## References

Frigeri, A., Marchesini, I., Mirabella, F., 2004. Modern geological mapping: Free Software and satellite positioning system, in: 32nd International Geological Congress. Firenze, Italia.