

Introduction to Geoinformatics – IFGI-Munster SS 2015

Assignment #3 – An essay on “Geographical Fields”

In this assignment, you will first consider the notion of a field (or coverage, in OGC’s jargon). First read the entry about geographical fields at Wikipedia: ([http://en.wikipedia.org/wiki/Field_\(geography\)](http://en.wikipedia.org/wiki/Field_(geography))). Then, read the four papers in following order: Couclelis, Kemp, Tomlin and Camara.

The Couclelis paper is one of the first theoretical perspectives comparing the ‘object’ and ‘field’ visions of the geographical world. It is a great paper that deserves to be read many times. Kemp’s paper discusses the different representations of fields and the conversions between those representations. Tomlin’s paper presents a generic overview of his Algebra proposal, that has led to a language for map operations that is widely used in different GIS. Please also refer to the ArcGIS manual for details on Map Algebra. Camara’s 1994 paper presents an object-oriented approach to map algebra that has been implemented in the SPRING GIS (<http://www.dpi.inpe.br/spring>).

Then, write an essay on geographical fields (400-1000 words). Please present your vision of the topic and also consider the following issues:

1. What are geographical fields and what is their importance? What is the origin of the term ‘fields’? Why do we use ‘fields’ to refer to natural landscapes?
2. What kinds of geographical entities does Couclelis classify as fields? According to her, are there entities that could be classified sometimes as fields, and sometimes as objects?
3. In Couclelis’ view, are fields always represented as raster geometries in GIS? Does Kemp agree with this view? According to Kemp, what are some possible geometries for representing fields?
4. What are the similarities and the differences between the definitions of fields given by Camara and by Kemp?
5. What are the main differences between the map algebra languages proposed by Tomlin and by Camara? Provide at least one positive and one negative argument for each proposal.
6. How does the OGC represent fields using the “coverage” concept? What is the author that presents the view closer to the OGC perspective: Couclelis, Kemp, Tomlin or Camara?