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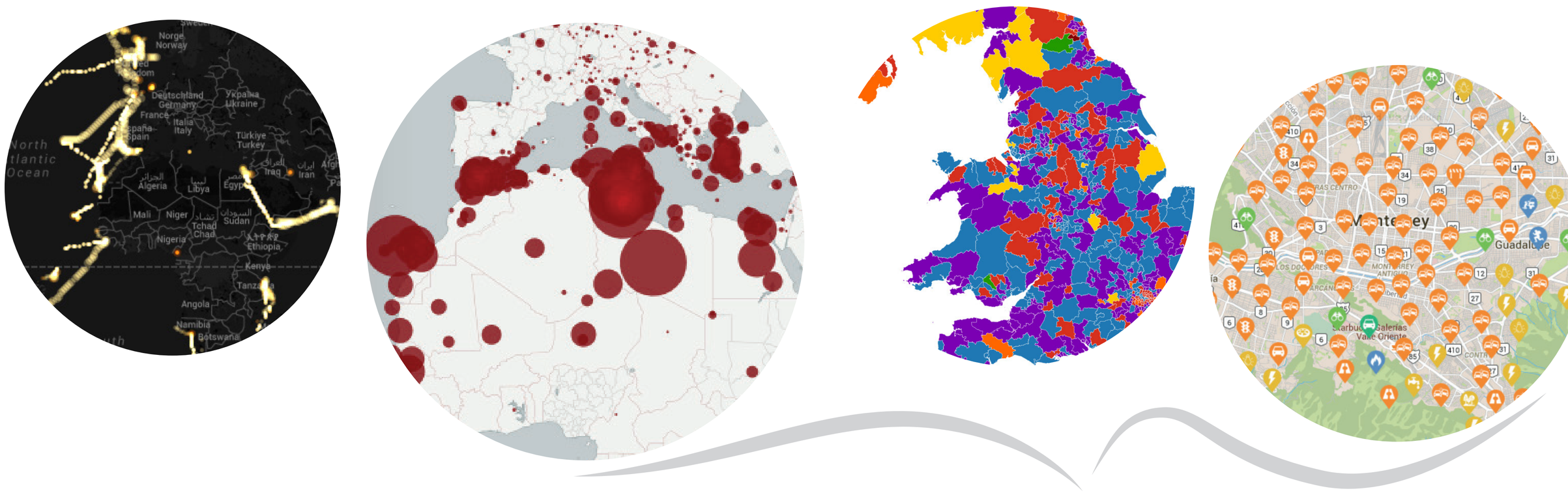
How do prosumers use graphical variables on webmaps to communicate?

When collecting geodata prosumers (producer + consumer) often rely on web maps. This pre-study looks at the characteristics of graphical variables created by prosumers in web maps to communicate. The central question is how do prosumers use graphical variables on webmaps. This is the basis for research into how they connect graphic representations to the underlying geographical phenomena.

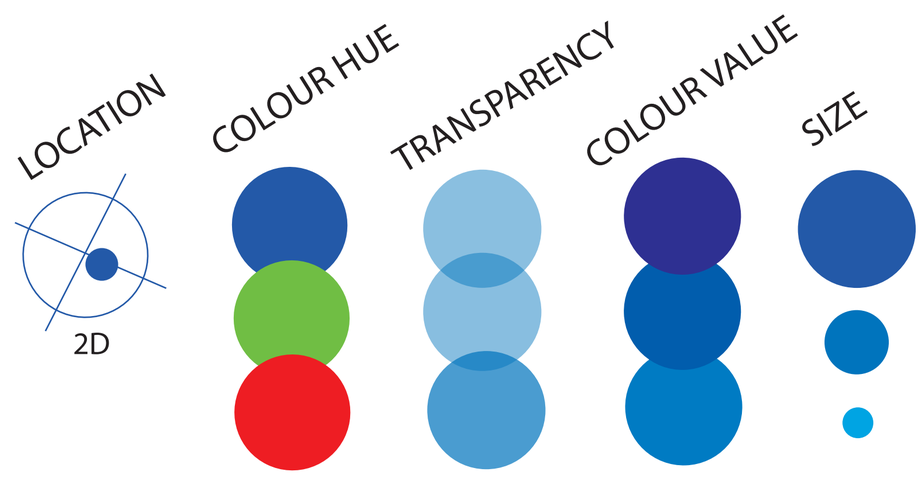
METHODOLOGY

The first step of the study is to analyse characteristics of 2D interactive webmaps available through Carto.com using content analysis based on Bertin´s graphical variables (location, size, shape, colour hue, colour value, orientation, texture) and MacEachren´s (colour saturation, arrangement, crispness, resolution, transparency) extensions. We chose these maps from Carto.com has it offers a variety of visualization tools for prosumers and seems to target this user group. In the actual content analysis we consider 157 interactive maps.



RESULTS

Observation	Results
The most commonly used of Bertin's and MacEachren's graphical varibles	1. Colour hue (29%) 2. Transparency (20%) 3. Colour value (14%) 4. Size (13%)
The complexity of map layers	Single-layer (86%) Multi-layered (14%)
No usage	The graphical variables "resolution" as well as "orientation" are not used in any of the 157 maps
Map scale	1:500 - 1:50000 (28%) 1:50000 - 1:1 Mio (38 %) Milionscale (34 %) Carto maps do not report any cartographic generalisation, therefore the map scales have no significant influence on the evaluation.
Graphical elements	Points (58%)
Map topics	13 map topics do not indicate any impacts on graphical variables
Symbols/Icons/Pins	Somewhat surprisingly, point symbols, which include textures, like icons or pictograms, were only used in 3% of the maps.



CONCLUSION

In the results from the pre-study, prosumers tend to use colour distinctions with point symbols to communicate. The second part of this research works directly with prosumers to assess this and other choices. This content analysis and study of user choices has been done to identify the most frequently used graphical variables and refine theoretical questions and methodological approaches for additional study. An empirical study draws on these results to analyse questions how prosumers operate with graphical variables in relationship to levels of measurements and communication goals.