# Here be dragons:
# the challenges of visualizing data on maps

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**Abstract**

Maps tell stories. As the earliest graphical representations of data, they have a long history of telling a mix of truth and fiction. With today's ubiquitous technology and data, it has never been easier to create a map.

However, challenges remain as to how best to encode other, non geographic, variates on maps so as to reveal their relation to spatial coordinates. Some of these relate to how our visual system works, some relate to statistical reasoning. Perhaps most important is the purpose of the visualization. For post-analysis presentation a map's principal purpose is to provide a visual narrative. The consequent danger is the potential for misleading the viewer. For exploratory analysis, the emphasis is on presenting the data clearly and honestly so as to help the viewer reason about its import. Conveying uncertainty, or terra incognito, is a long standing challenge that is especially apropos for statistical and/or model data.

In this talk, largely through a series of examples, I will provide an overview of challenges to, and some recommendations for, using maps to visually aid our reasoning about data.