**Thoughts: 1 27/04/2021**

**Initial Thoughts**

**What’s the outcome, what do we want to achieve?**

* Format … website? Set of visualised maps?
  + Creating a set of map visualizations
  + Web visualizations
* For what? Natural hazard? How broad? Volcanic eruptions? Earthquakes?
  + Ethics review for working with people.
  + Online questionnaire
* Feedback through anonymous review.

**Uncertainty**

* ‘uncertainty itself is ill-defined.
* concept, with distinction between it and related
* concepts such as data quality, reliability, accuracy,
* and error often remaining ambiguous.’
* we lack methods for measuring.
* and representing many aspects of uncertainty
* in a GIS database.
* Unknown error, e.g. we know it’s not wright, but we also don’t know how wrong it could be
* Accuracy positional and attribute
* Precision
* Report accuracy or report error (good or bad)
* Maps are not numerical.

**Outcome**

* Creating a method to measure uncertainty.
* Discovery of techniques or set of rules to follow to visualise uncertainty.
* Feedback from populations – framework to conduct a study into how to visualize uncertainty.
* List of risks and the ways that they are uncertain.

**Visualization -** each map is its own.

How do you make that information useful for decision making? How do you make that information useful for actually informing a response?"

* Maps can lie.
  + - Distance
    - Elevation
    - Scale
    - Choropleth maps, sudden changes at boundaries
    - Point data is only point data – can’t really be extrapolated.
* Scientific knowledge it hard to understand.
  + - Correct language to use?
    - Colour schemes
* Colour theory
* Basic colour correlation e.eg. red means danger
  + - Explaining with images not words
* Standardizing symbolization techniques
* Disasters are uncertain.
* Temporal visualization
  + Hazards at 4d changing rapidly through time,
* Decision making
* Needs to be clear.
* Prevent actions being taken or not take due to uncertain data.
* Protect yourself from bad decision making.

**Books**

Risk, Governance and Society

Visualizing Geospatial Information Uncertainty:

What We Know and What We Need to Know

Bertin’s (1983) visual variables

https://www.esri.com/arcgis-blog/products/story-maps/3d-gis/using-3d-data-to-understand-hurricane-patterns/

https://www.forbes.com/sites/marshallshepherd/2015/08/28/why-is-tracking-a-hurricane-easier-than-predicting-its-intensity/

**Meeting: 1 28/04/2021**

**Scoping Meeting**

**Claire and Kelvin**

**The Project**

Visualizing uncertainty

**The brief**

In 2020, we were bombarded with maps—but maps can lie. When communicating an issue that is as complicated, as delicate, and as uncertain as COVID-19, data visualizations must be clearer than ever to ensure the right message is communicated to the audience. This project investigates the wider issue of communicating uncertainty through maps, from issues such as climate change to catastrophe modelling to modelling a global pandemic. The focus is on cartography and the visualisation of uncertain geographic phenomena.

**RMS wish list**

* Tom sabertelly?
* Uncertainty cone with event response cone, contextualize how rms communicate uncertainty. E.g. hurricane cone.
* Taking text to dynamic image
* Dynamic portal compared to picture
* Build a dynamic portal from static text to
* Compare to current industry what is going on?

**Where do I position my research?**

* Geospatial to solve something.
* Influences from cognitive
* Eliminated named users.
* How does RMS visualize?

**Final remarks**

* Literature view on how visualising is used conatively to make it easier to understand.
* Meat of the work – creating eh improved visualisation.
* Final – get feedback from industry/public.
* Bonus – extra hazards
* Bonus – how do other cultures.
* Picking the best hurricane?
  + Laura
  + Validate for rms use cases? nda?

**Meeting: 2 28/04/2021**

**First Meeting**

**Claire**