

# An Australian alternative to choropleth maps; visualising geo-spatial disease data

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# Australian Cancer Atlas



The image shows the homepage of the Australian Cancer Atlas. At the top left is the logo 'AUSTRALIAN CANCER ATLAS' with three overlapping colored circles (blue, red, and yellow). The top navigation bar includes links for Overview, The Data, Methodology, Resources, About, and Atlas, along with a search icon. The main title 'AUSTRALIAN CANCER ATLAS' is prominently displayed in large white letters against a blue background featuring a map of Australia. Below the title is a green button labeled 'LAUNCH ATLAS'. To the left of the button are several small, light-colored links: 'Launch Atlas', 'What is the Australian Cancer Atlas?', 'More information', 'Guided Tours', and 'Statistics'. The overall design is clean and modern, with a focus on accessibility and user navigation.

# Liver (F)



Liver: Red and orange areas in North Queensland

Liver: Most of the South East is blue

Melanoma: Red and orange areas around Brisbane

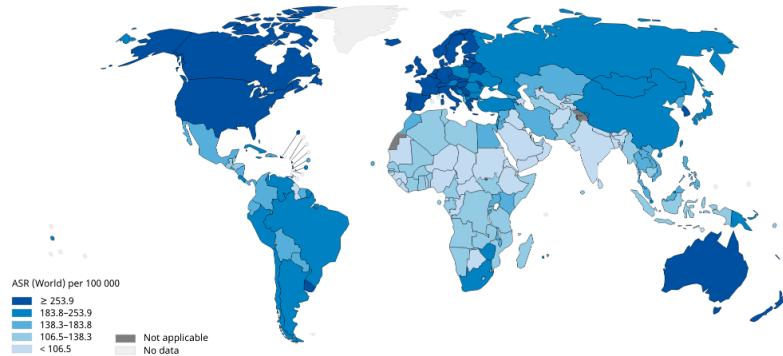
Melanoma: Most of the country is blue, except Queensland

# Melanoma (P)



# Global Atlases

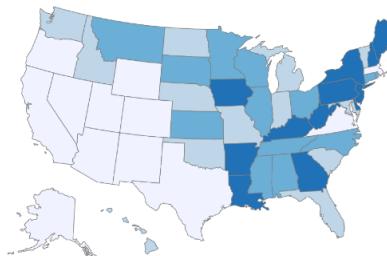
Estimated age-standardized incidence rates (World) in 2018, all cancers, both sexes, all ages



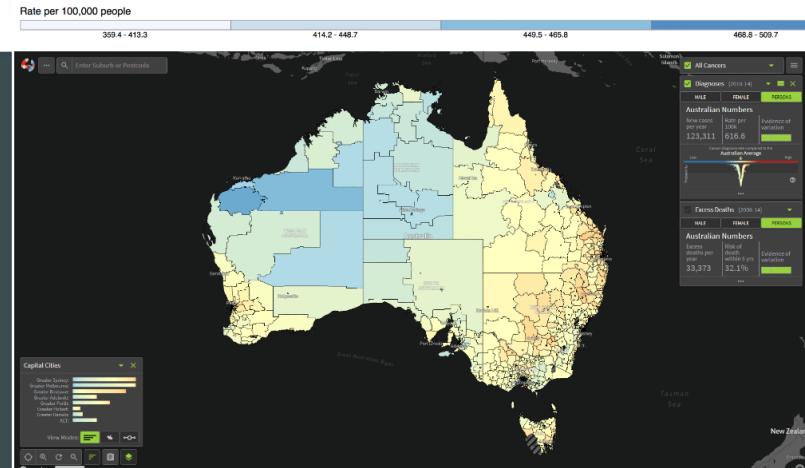
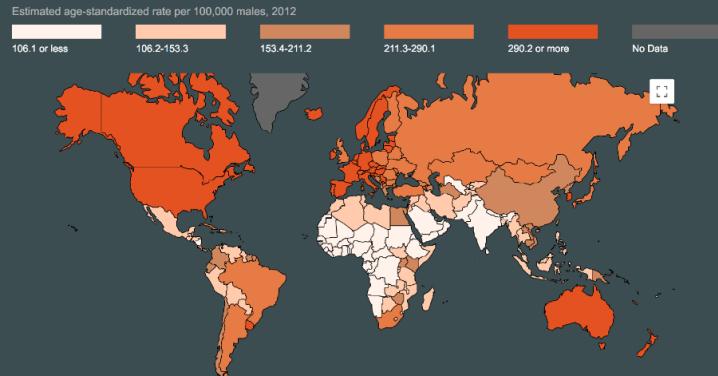
Rate of New Cancers in the United States

All Types of Cancer, All Ages, All Races/Ethnicities, Male and Female  
Rate per 100,000 people

Map | List | Top | Chart | Export

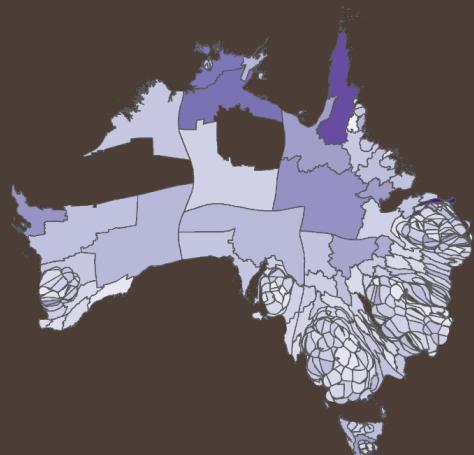


All cancers incidence (excluding non-melanoma skin cancers), males



# Alternative displays of Australia

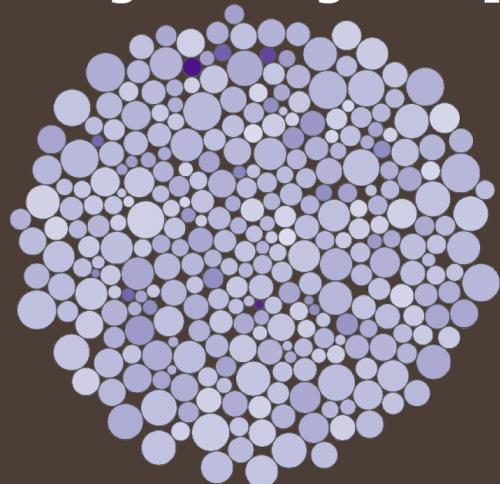
a. Contiguous Cartogram [1]



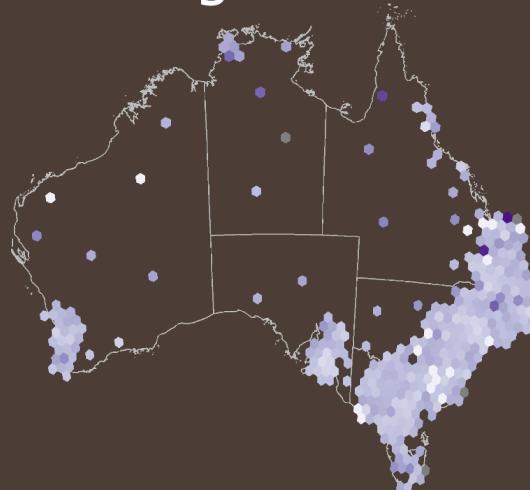
b. Non-contiguous Cartogram [2]



c. Dorling Cartogram [3]



d. Hexagon tile map

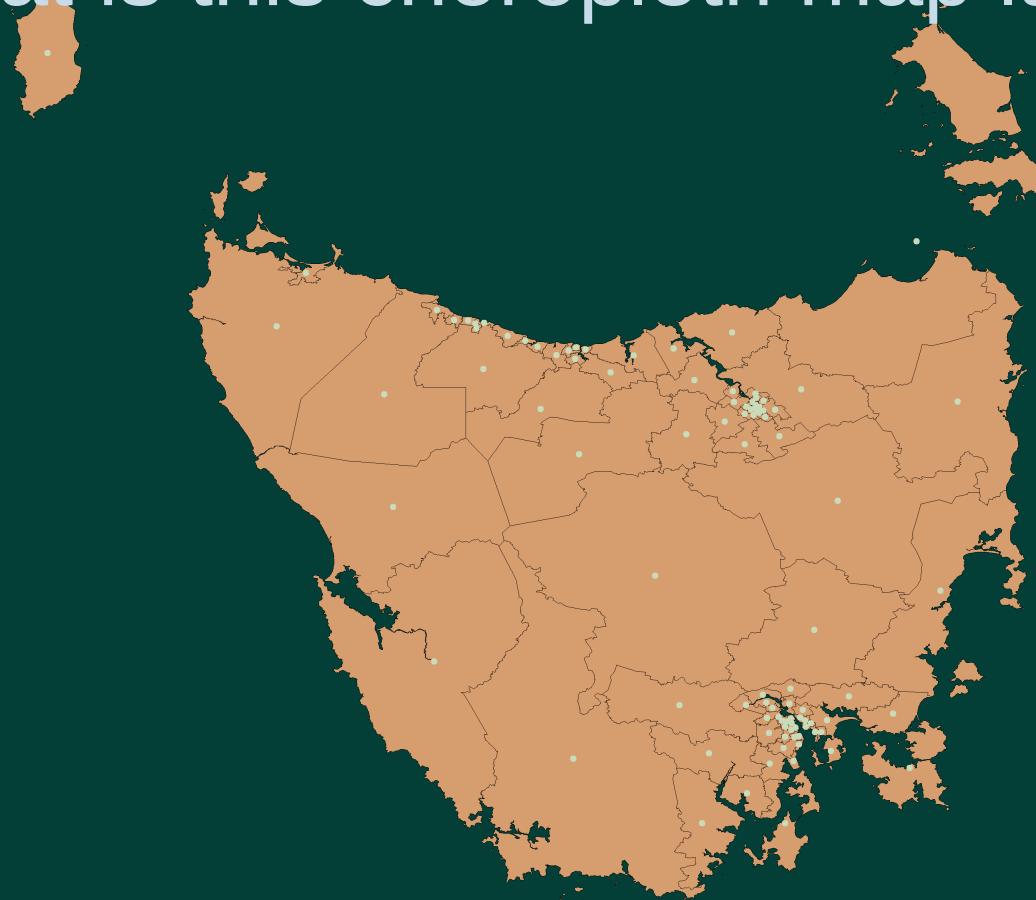


# Aims

- 1: Hexagon tile maps: an algorithm
- 2: Animation: connecting the choropleth and hexagon tile maps
- 3: Test the effectiveness: understanding the hexagon tile map in action

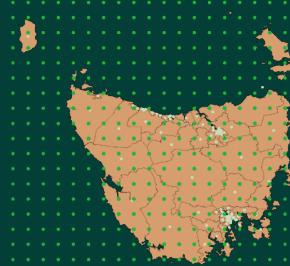
# Tasmania: 98 SA2 regions

What is this choropleth map lacking?



# Choosing a hexagon

Step 1: Create grid



Step 2: Shift grid



Step 3: Apply buffer



Step 4: Square distance



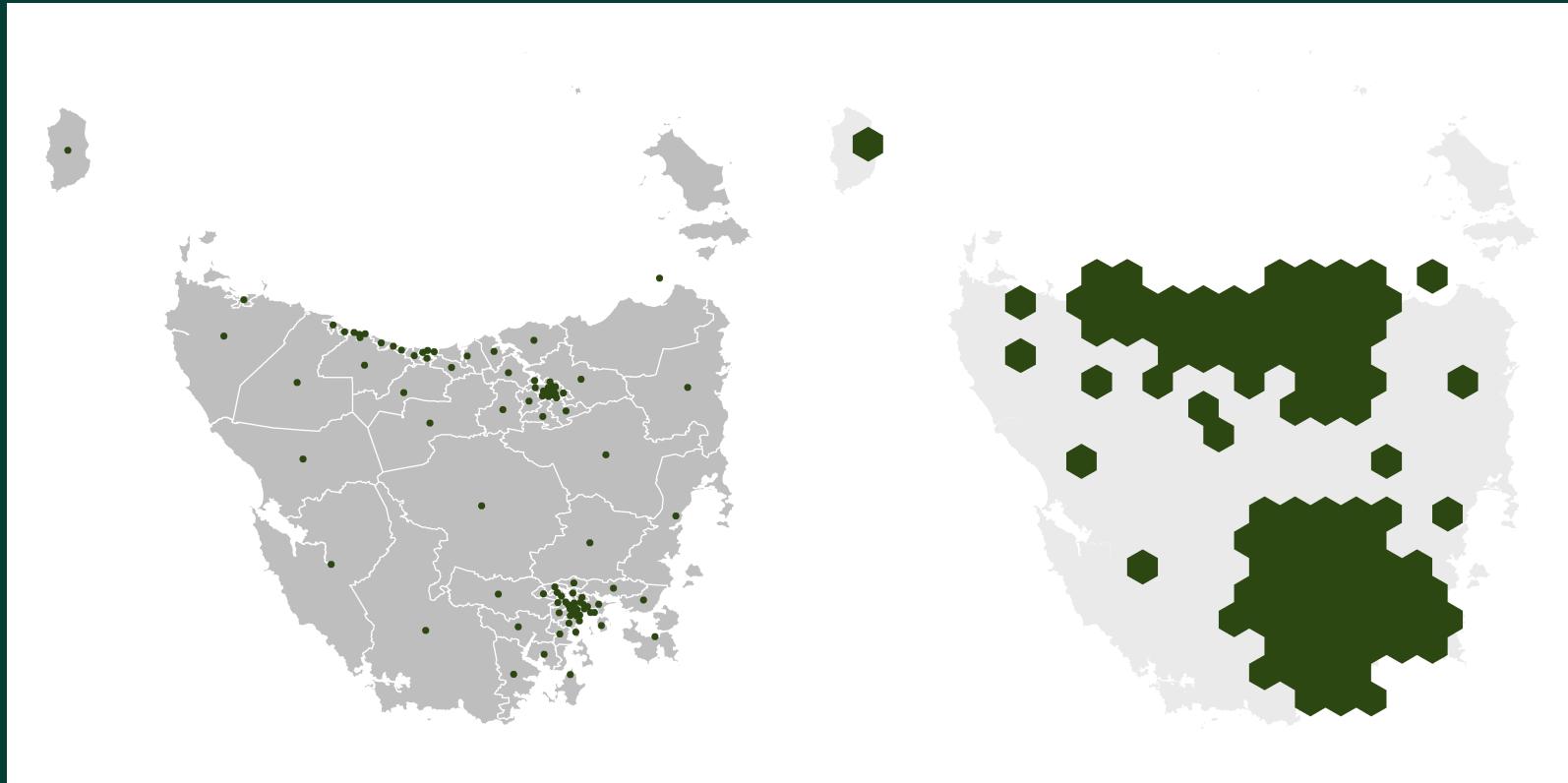
Step 5: Circle distance



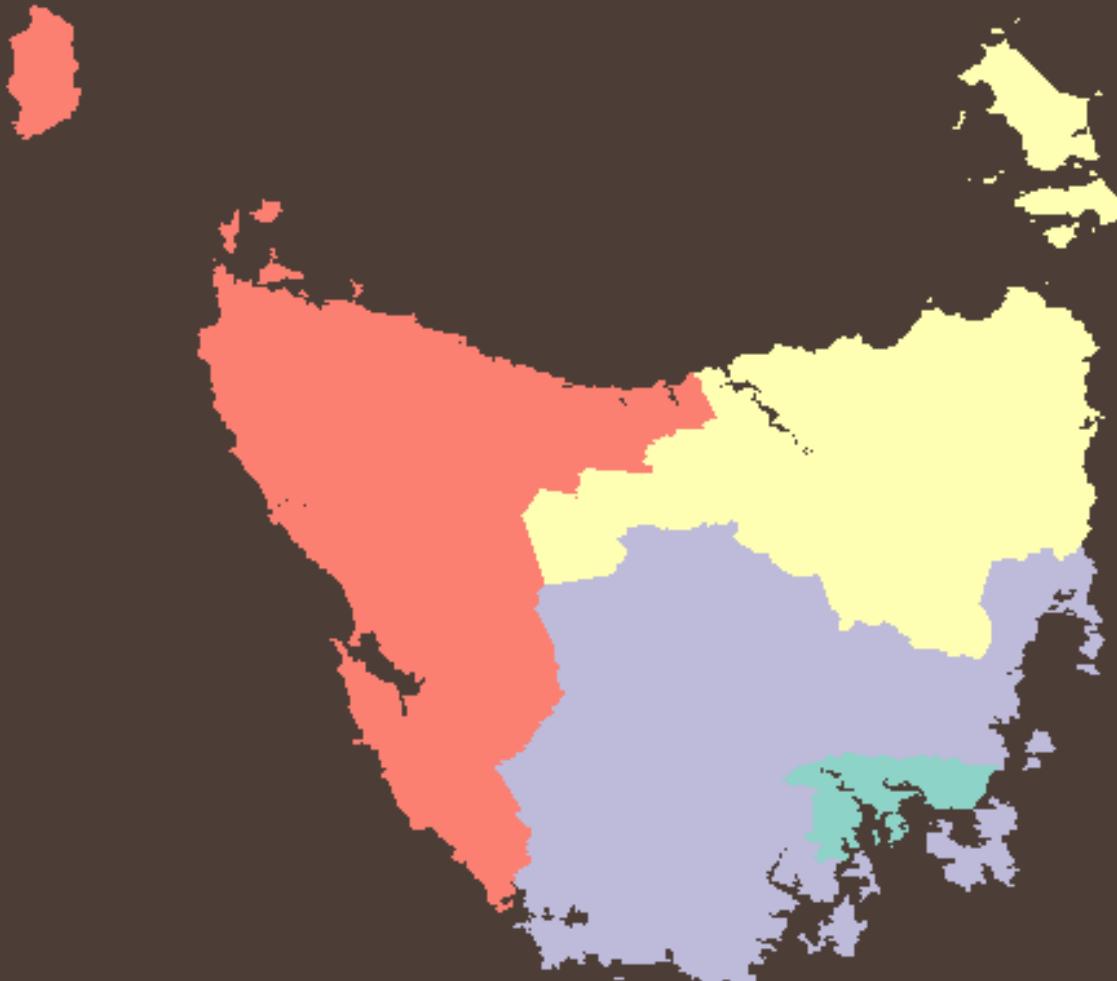
Step 6: Pie slice



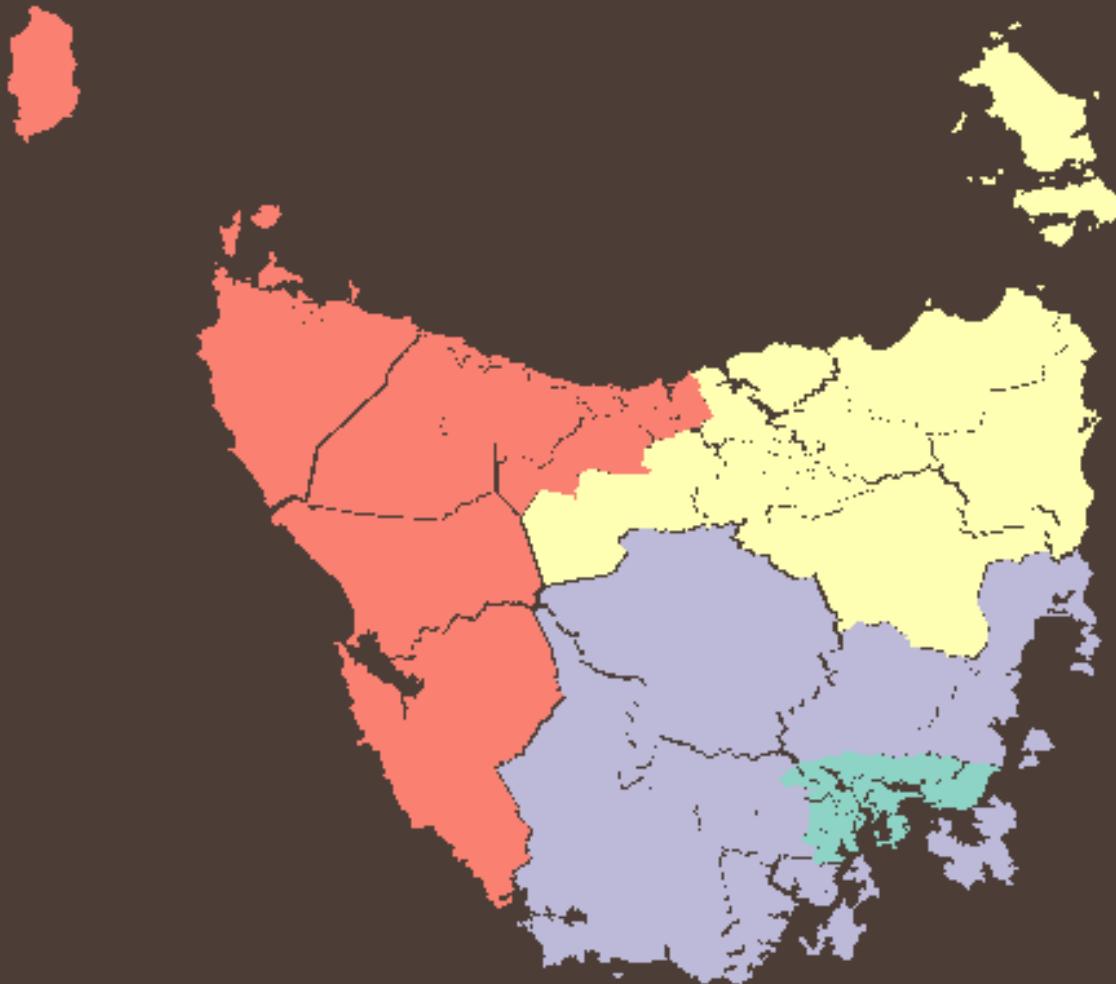
# Final product



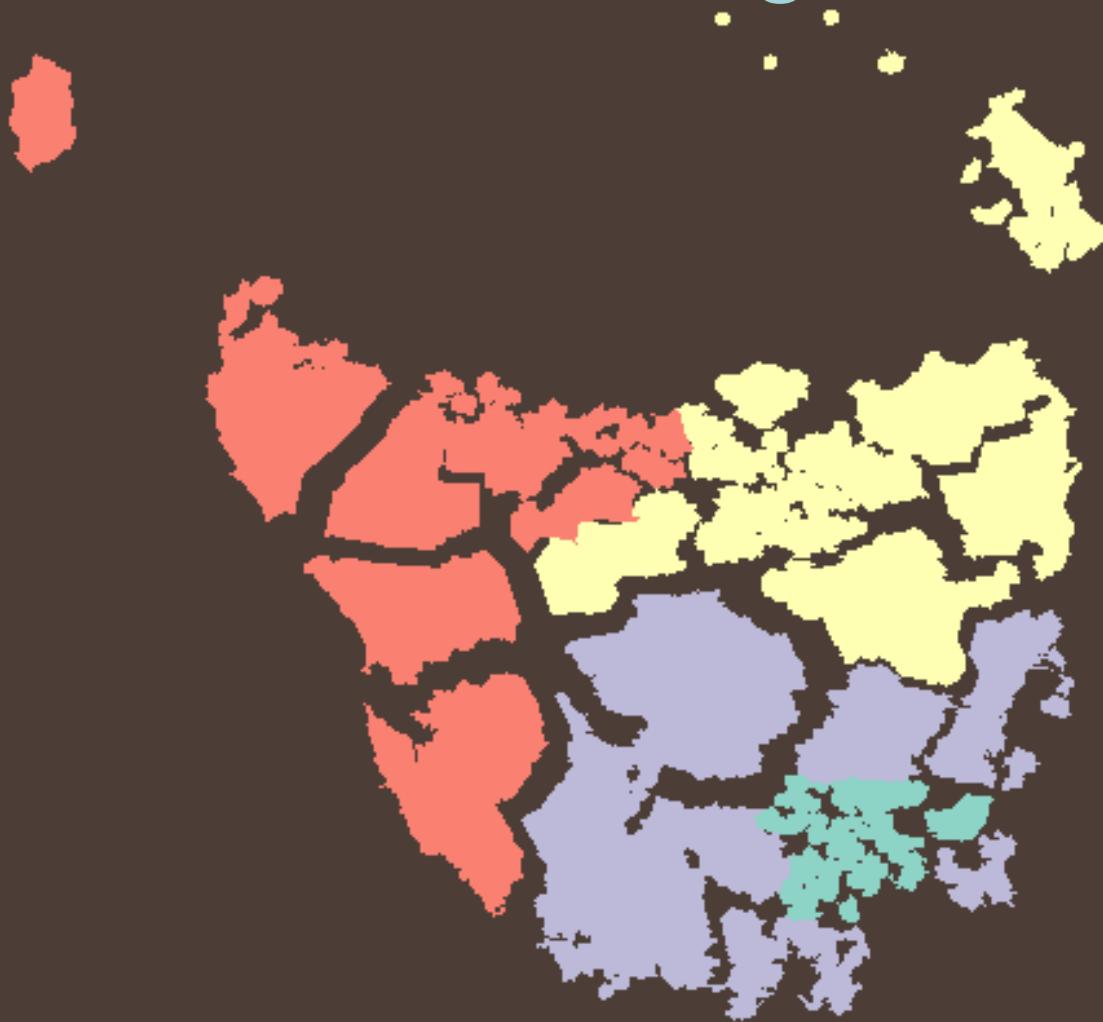
# Animating



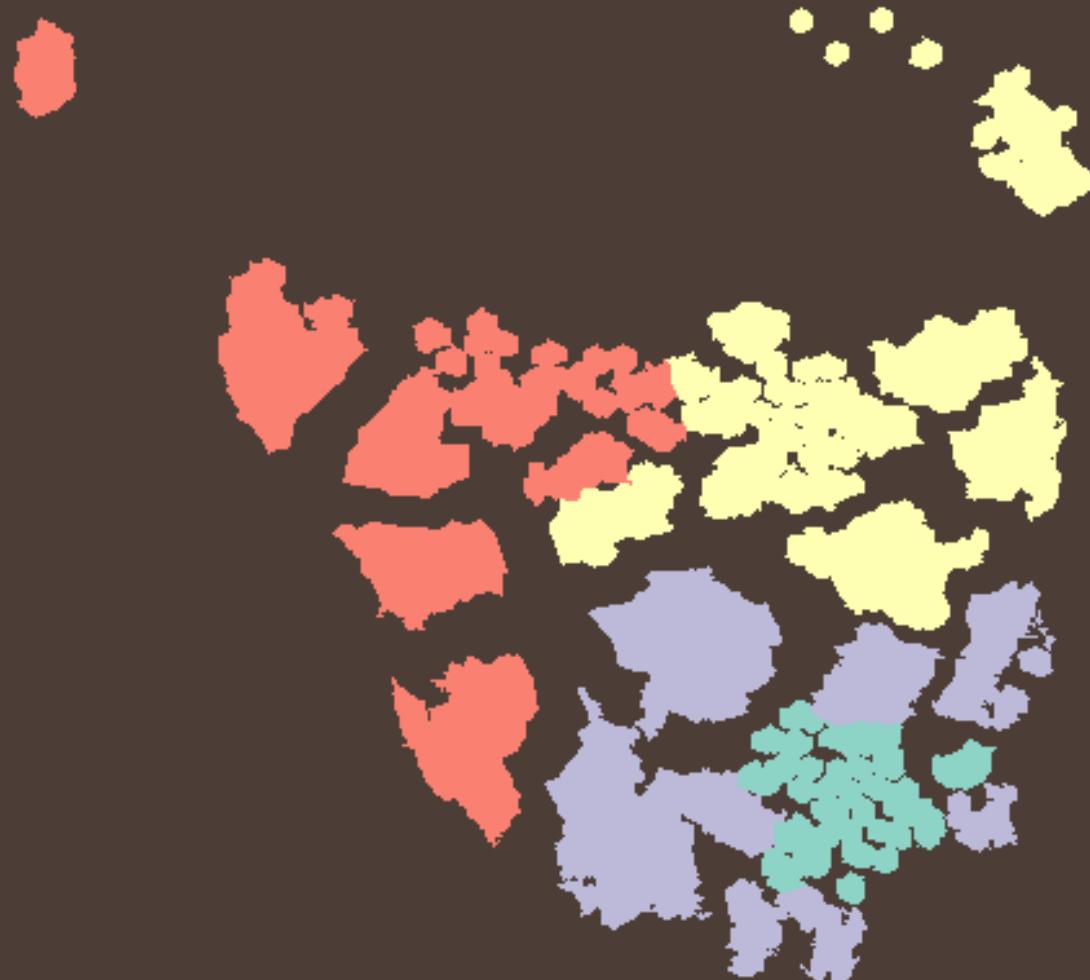
# Animating



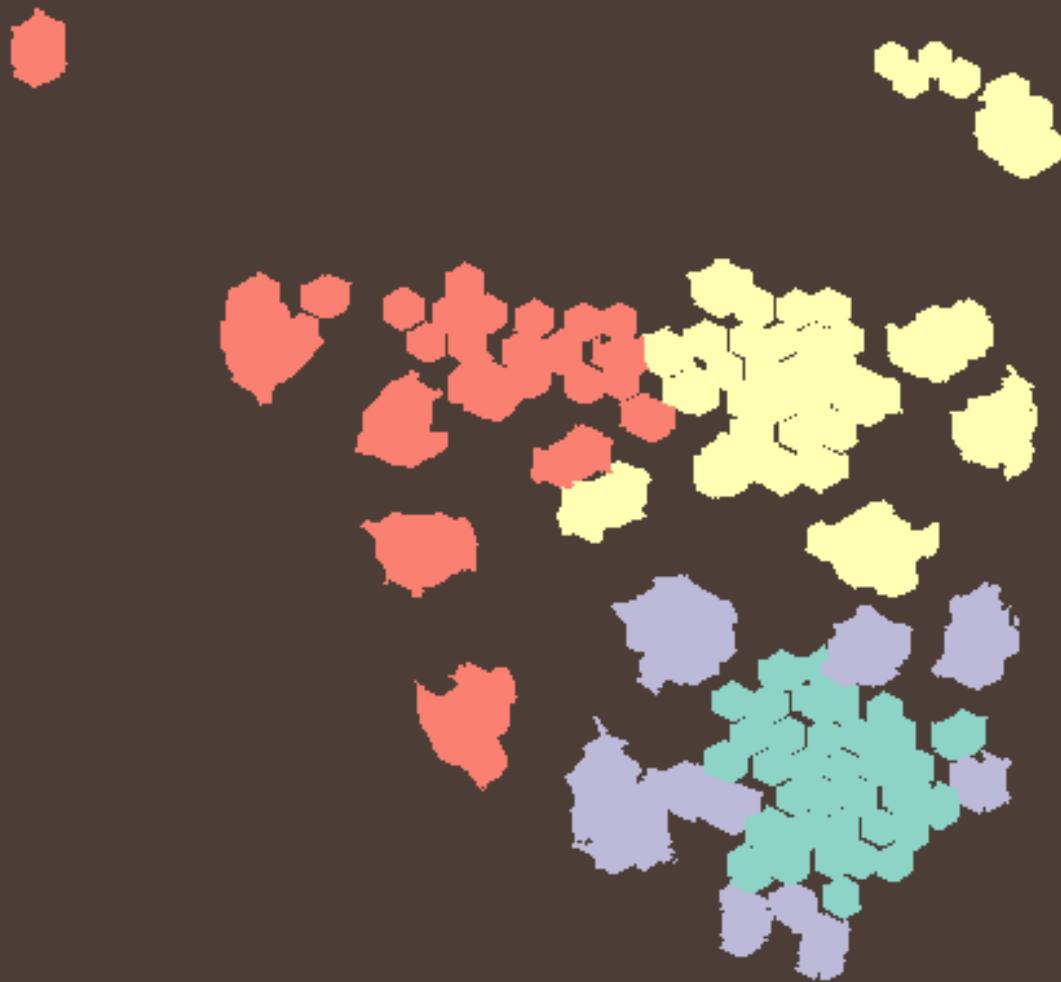
# Animating



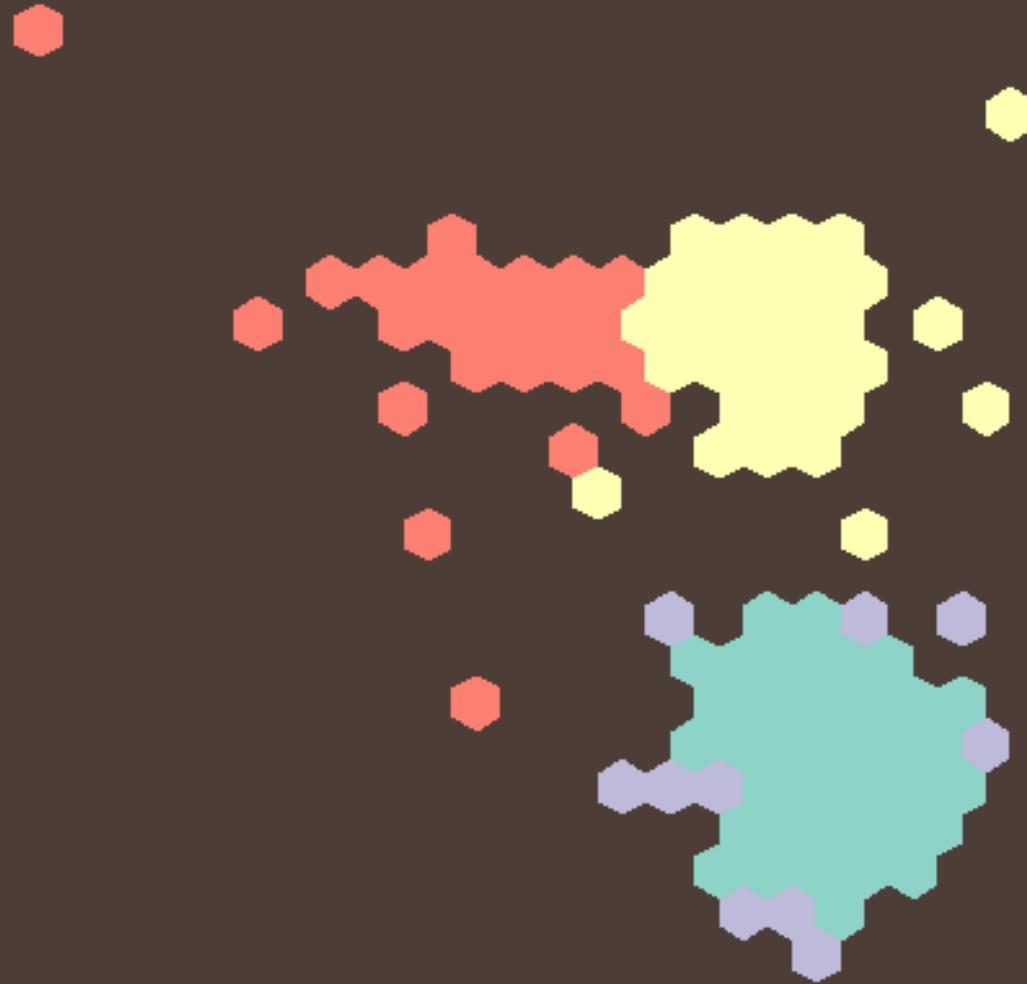
# Animating



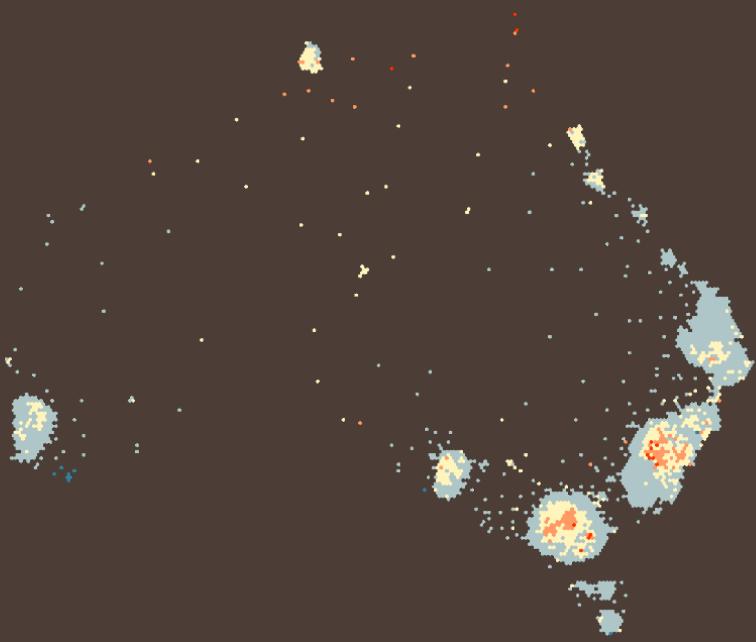
# Animating



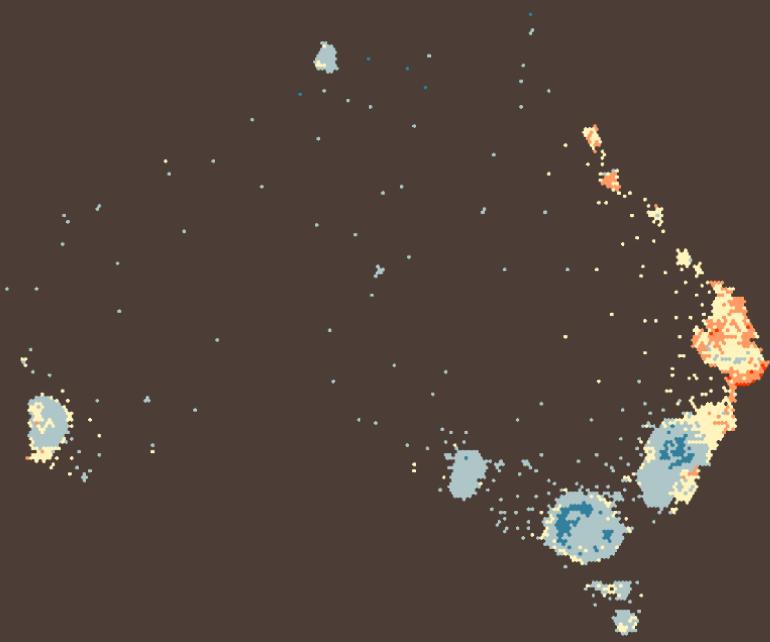
# Animating



# Liver (F)



# Melanoma (P)



Liver: Red and orange areas in North Queensland, Melbourne, Sydney

Liver: Most of the South East is blue, city areas are yellow

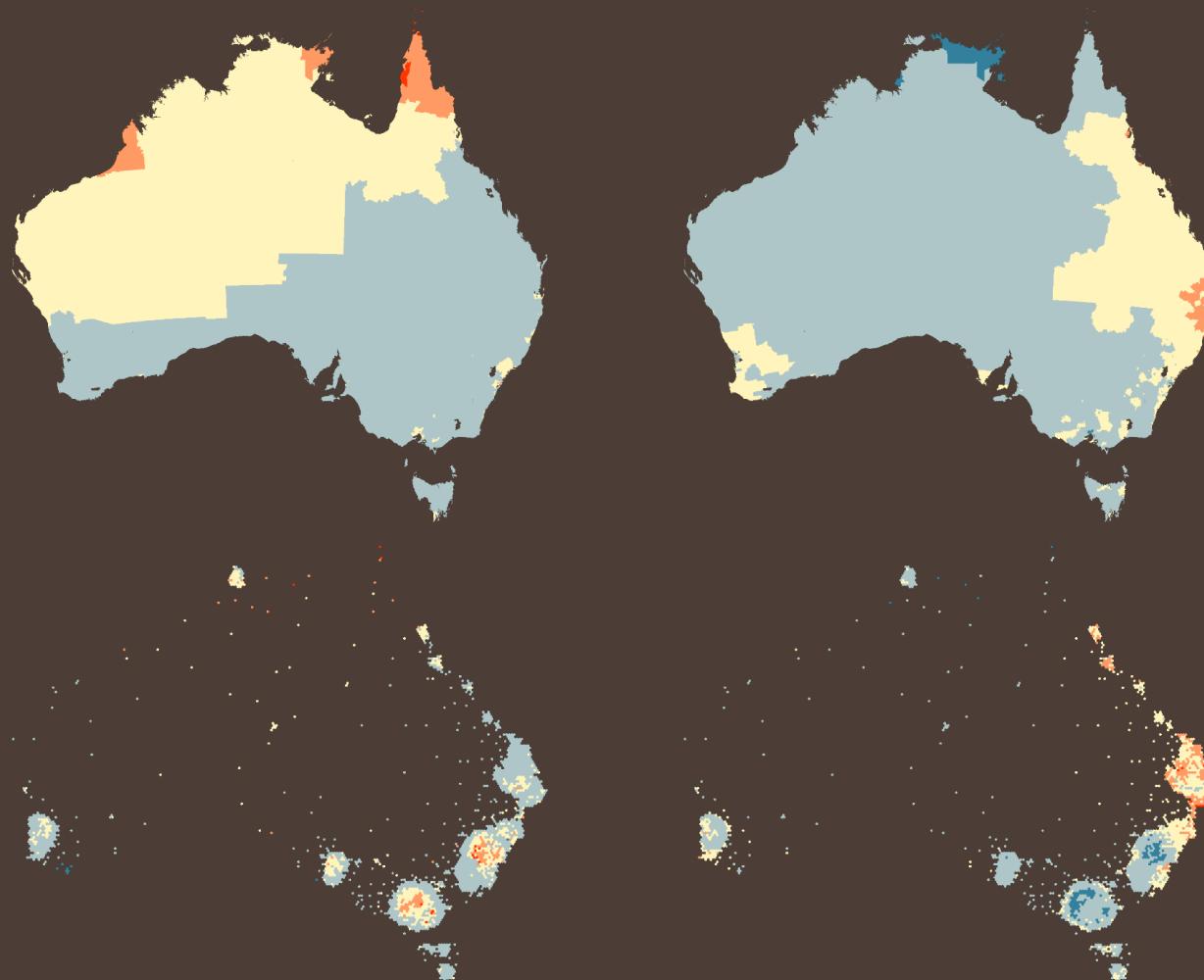
Melanoma: Red and orange areas around Queensland cities and Brisbane, not in CBD

Melanoma: Most of the other areas are blue

# What can we learn?

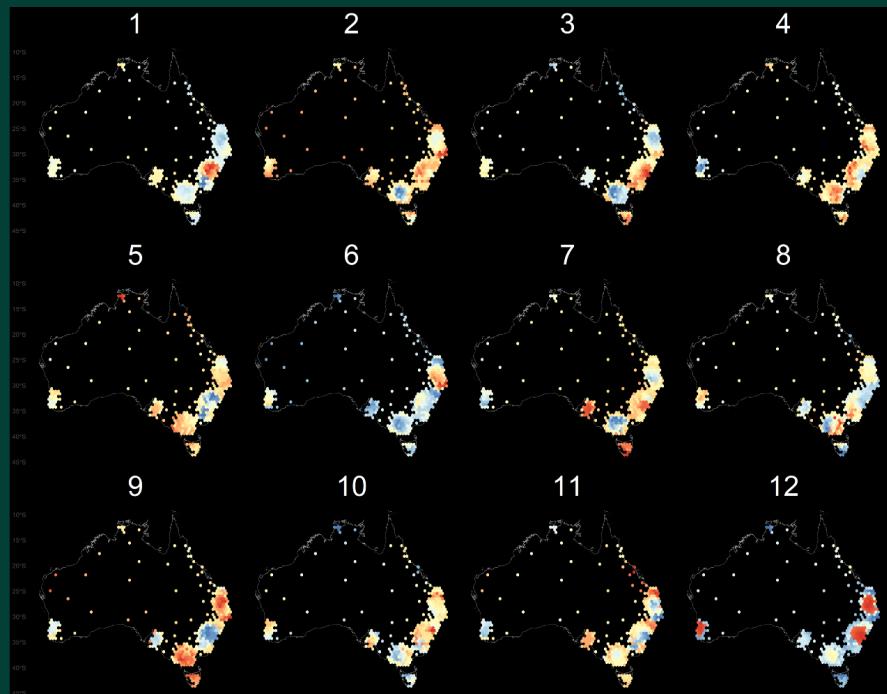
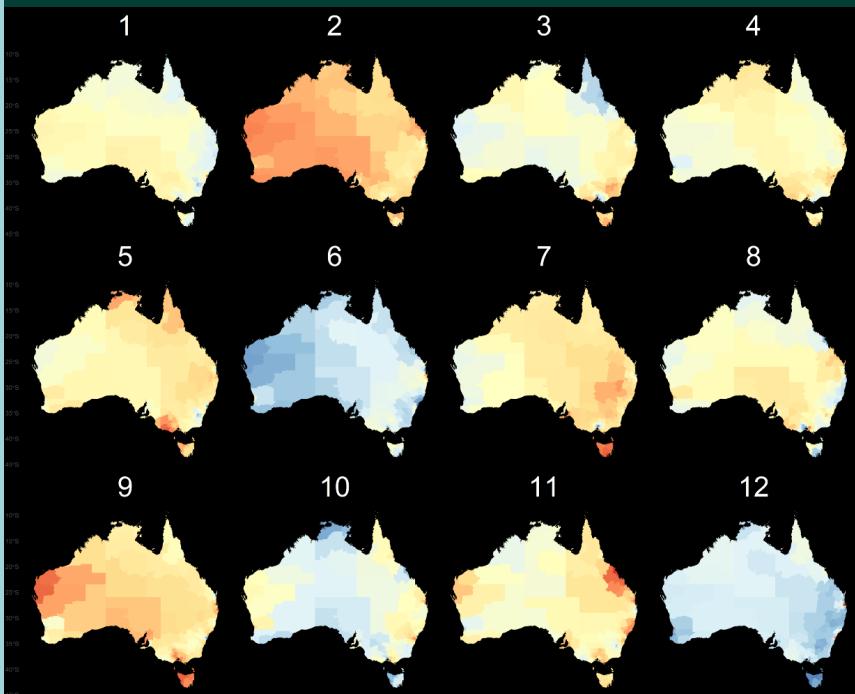
Liver (F)

Melanoma (P)

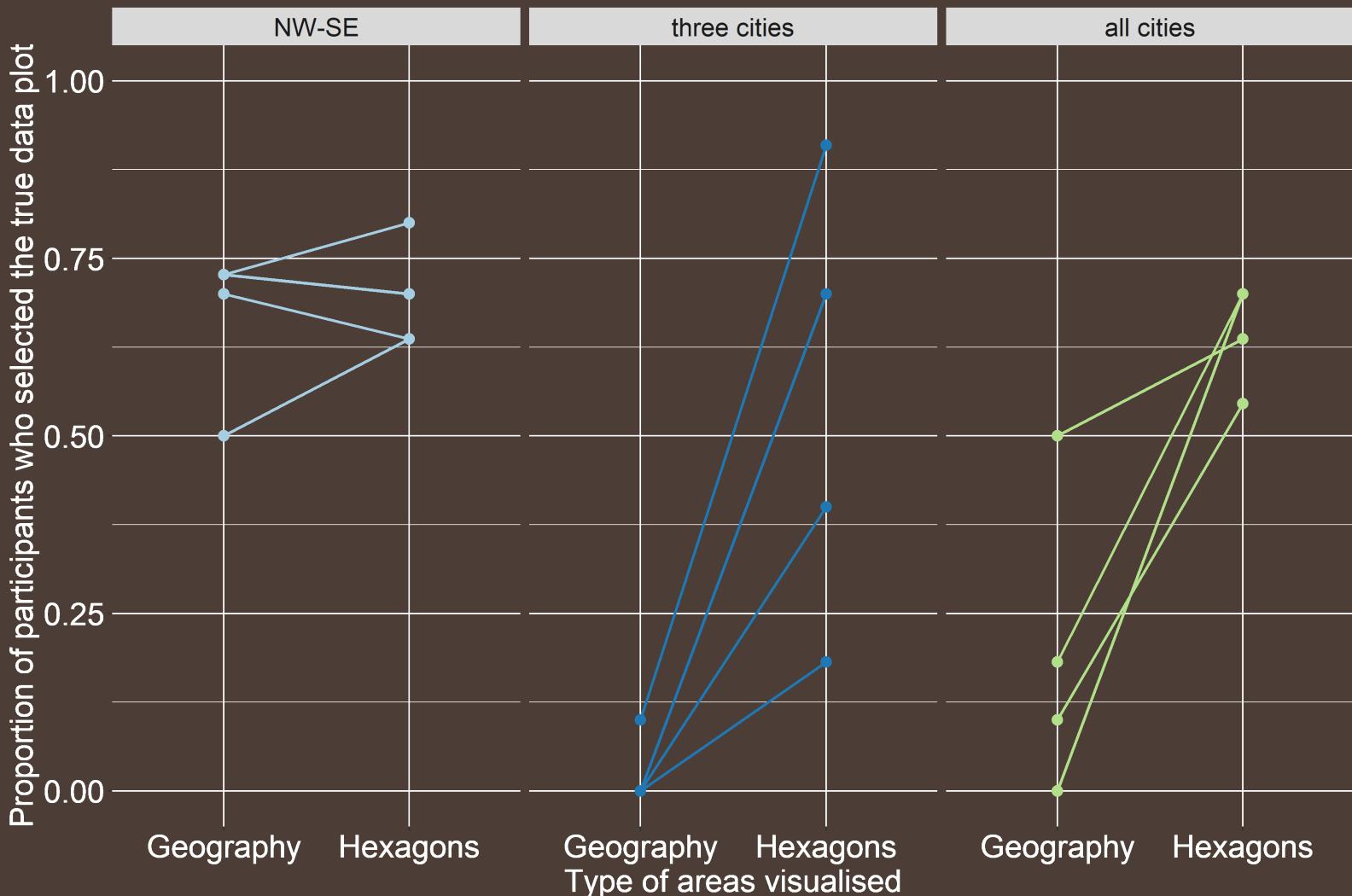


# Line up experiment

Same data, different display



# Probability of detection



# References

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9. Stephanie Kobakian and Dianne Cook (2019). sugarbag: Create Tessellated Hexagon Mans. R package version 0.1.1. <https://CRAN.R-project.org/package=sugarbag>

# Thank you!

DProf. Kerrie Mengersen, Dr Earl Duncan, Prof. Di Cook

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scripts and data available  [srkobakian](#)

title slide image [NASA/EarthKAM](#)

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