

DESIGN SHEETS 1 PART 1

Sheet 1

Isaac Katsouras

23/09/25

10 Ideas

- (1) Choropleth Map (Disaster count or Affected)
- (2) Geographic heatmap for selectable disaster
- (3) Symbol map for most common type
- (4) Time vs deaths and disaster occurrence
- (5) Temporal heatmap (start month vs start year)
- (6) Barchart of disaster type vs frequency or cost
- (7) Treemap Disaster type and sub type vs total affected
- (8) Sunburst chart Disaster _{group} → sub type → type
- (9) Scatter plot of damage vs deaths
- (10) Scatter plot of ^{Bubble} size is total affected
- (11) Histogram of earthquake Magnitude
- (12) Boxplot of disaster type damage
- (13) Barchart of decade vs frequency
- (14) Australia specific map for different areas (choropleth)
- (15) Australia most common and bar chart occurrence
- (16) Australia damage/deaths/affected/cost vs other countries
- (17) Most destructive Australian disasters
- (18) Time vs count with stacked chart for Australia
- (19) Barchart of country vs death for selectable type

DESIGN SHEETS 1 PART 2

Filter

- (9) and (10) too similar, remove (9)
- (13) and (4) too similar, (13) more interesting
- (6) and (7), (6) is easier to digest, but (7) more visually interesting, so keep (7)

Categorise

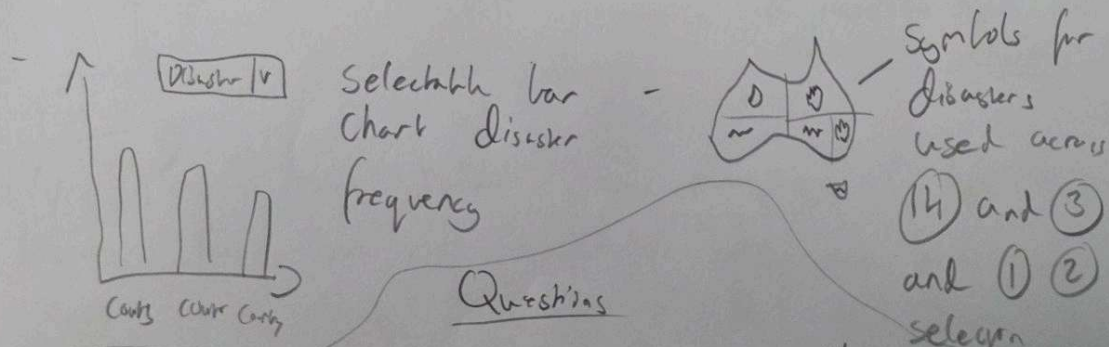
- (1) (2) (3) (14) are all maps
- (4) (5) (13) are all time-based
- (6) (7) (8) are frequency of disaster based
- (9) (12) (16) (17) are damage and affect focused
- (11) (15) (16) (17) are focused on Australia

Combine and refine

- (1) (2) (14) could have →

Disaster	v
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 to select
- All disaster types would be colour coordinated

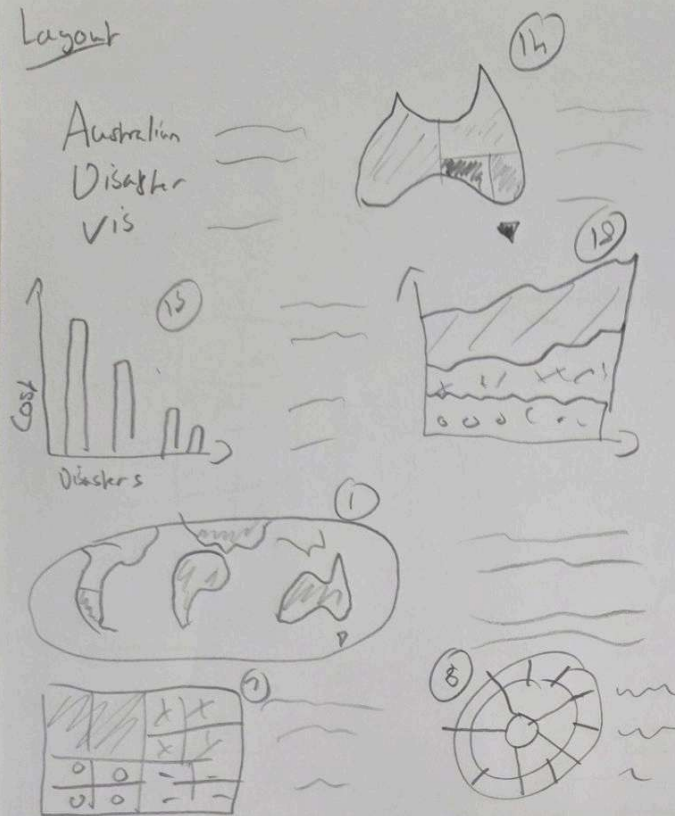


Questions

- Is data for all countries overwhelming?
- Will Australia vis data be too samey?
- Not enough simple options
- Hard to build story

DESIGN SHEET 2

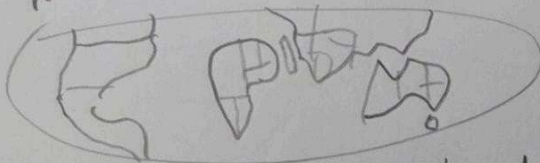
Layout



Focus

Global Frequency Count

- Each country has a chip for: Count, Most common, generally



- The colours both will be red.
- Dark red for high freq, light for low freq

They will spend time looking at all the counts and how they compare, as well as hot spots and most common

Sheet 2 Isaac Kiboo
23/09/25

Title: Disaster frequency
Australia in the world
Description: Starts with AUS, then goes global for frequency

Component

- Text tips on everything
- Specifically, on both maps highlight most common and actual count
- ①, ⑧ and ⑫ will sync when highlighted.

Pros vs Cons

Pros: Cons:

- Australia states too similar so boring vs
- ⑦ and ⑧ slightly similar, maybe repetitive

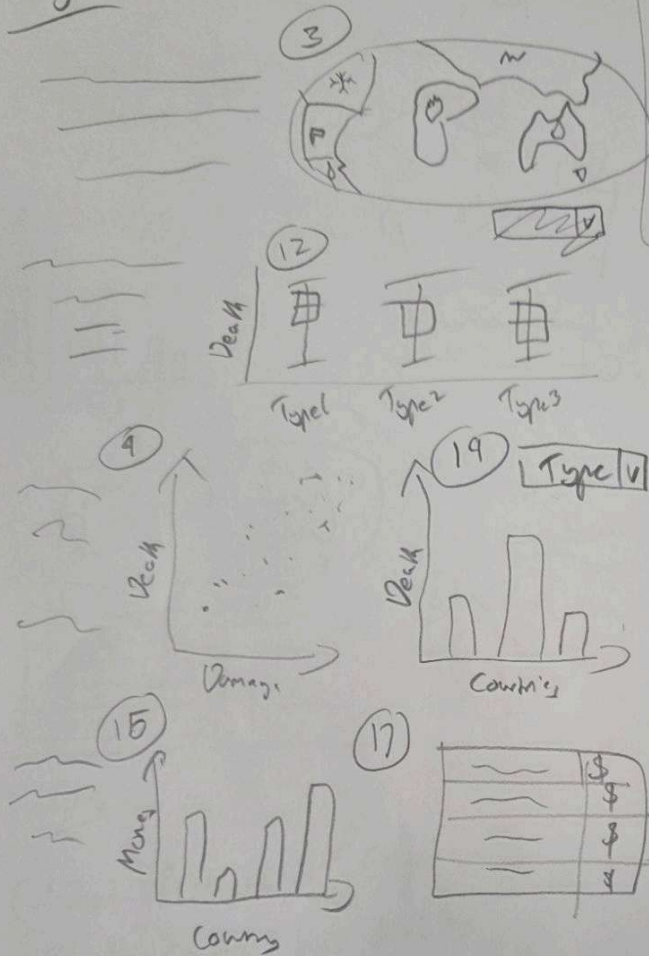
Pros:

- ① is large and simple, will grab attention

- The order makes sense, starting at Australia then wider world.

DESIGN SHEET 3

Layout



Sheet 3 Isaac Katsaros

23/04/25 | Disaster types

From AUS to GBL

Description: focuses on the type, rather than frequency

Operations

- Type V changes for all idiom

Steak - Selecting any type on any idiom will

highlight

- Tooltips for all idiom that show relevant info + type

Pro:

- Engaging sync between idiom
- More text focus gives context

Cons:

AS would need to change to incorporate type, maybe stacked bar chart?

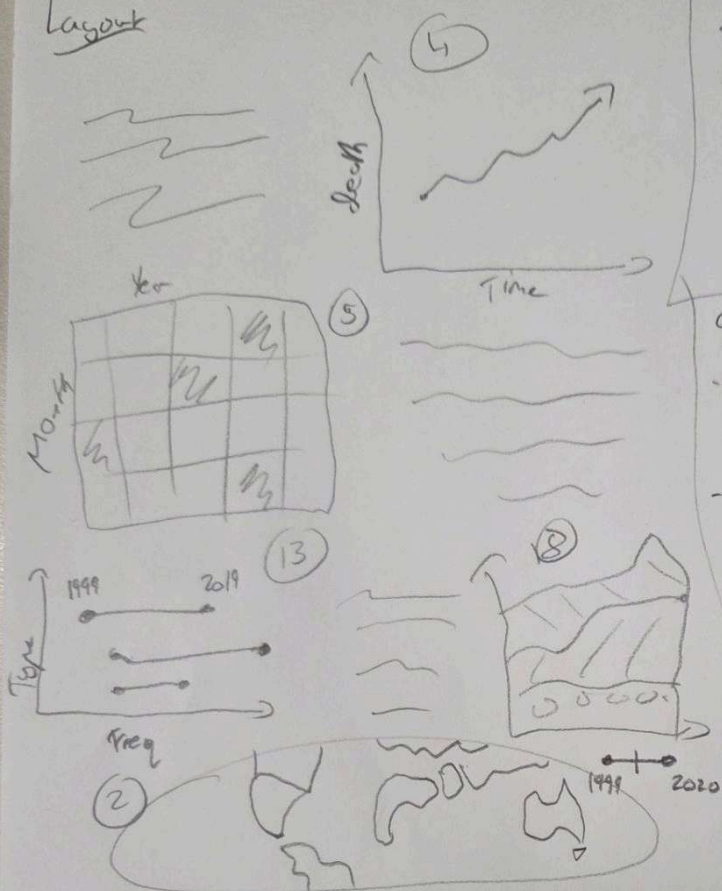
Focus

No main focus, rather, since everything is type used, focus is on coordination and visualization-wide colours and displays. (3) (12) (14) and (17) all colour coordinated by type.

Starts at Global and shrinks to individual Australian disasters. This aims to tell a comparison story.

DESIGN SHEET 4

Layout



Sheet 4 Isaac Koharas
23/09/25

Time focused vis
Description: shows
changes over time
for disaster

operation

- On ②, change in brightness for freq
- On ②, slider that changes the year on the map
- Tooltips showing year + relevant data

Focus Focus on world map



has adjustable year slider for map
- Each country will have lighter or darker red representing frequency

Pros vs Cons

Pros:

②'s advanced slider is compelling

All visualisations are time based, easy to tell story

Cons:

⑤ is complex and could overwhelm

DESIGN SHEET 5

Layout

Shots Isaac Katsaros
24/09/2025
Title: Australia vs Global
Disaster vis
Description: Picked the
best of 2, 3 and 4

Australia vs Global Disaster Visualisation

(20) Map of the world showing Australia highlighted.

(15) Bar chart showing Count vs Type.

(4) Line graph showing Affected vs Time.

(9) Scatter plot showing Deaths vs Country.

(7) Table with columns: Type, Type1, Type2, Type3, Type4.

(12) Box plot showing Deaths vs Type.

(1) Map of Australia with a zoomed-in view of a disaster area.

(1) Map of Australia with a zoomed-in view of a disaster area.

Components

- Actions shared between, highlighter across vis.
- Highlighter across Country and type
- Tooltips on everything
- For map, a dropdown for most common or sum for disasters - Different colour and different brightness respectively

Details

- Map would be 2 different that are separable
- Would not take long, max 1 week or 8 hrs
- Web page width and scrollable
- Vis would not include blanks on idiom

Focus

Will be coloured so red for fire it is more common.

Common Most det. Countries.

Final vis is the largest and most complicated

Also finality in story, expanding from AUS to GBL

Tool tip

Sum or common for sum, all red, etc.

i. The Domain, the Why, and the Who

The domain of this project is **Natural Disasters**. The vis follows a narrative that begins with the recent 2019-20 Black Summer bushfires, then expanding to Australia vs other countries, and finally zooming out to a global overview.

The “why” is to provide perspective on the scale and impact of natural disasters. Australians are fortunate enough to experience very few disasters, this dashboard contextualises our worst recent event against other global disasters, highlighting their devastating human and economic costs. The “who” is therefore the Australian public who may be less aware of the sheer frequency and scale of disasters worldwide.

ii. What: The Data

1. **NASA Bush fire satellite data:** This dataset provides detailed satellite data on fire hotspots, location, and brightness temperature. The file is for 2019-20 summer. Furthermore, I sampled 1/10 of the rows randomly for my dataset to reduce the size to around 3mb (with permission from TA)
2. **EM-DAT: The International Disaster Database:** This database covers global disasters from 2000 to 2025. To manage file size, all unused columns were removed, retaining only those relevant to the visualisation.

iii. How: Rationale for Visualisation Choices

The dashboard is designed as a guided analysis, with each idiom chosen for a specific task.

The narrative begins with a **proportional symbol map** of Australian bushfires. This idiom was chosen to show the precise location and intensity of individual fire events during this period, which is more effective for visualising a specific incident like the Black Summer than a choropleth map. The dashboard then broadens its scope with a **box plot** to compare the *distribution* and *variability* of annual disaster counts between a handful of popular countries.

To provide a global overview, a **bar chart** is used to clearly rank the frequency of different disaster types, while a **line graph** effectively shows the trend of total people affected over time. A **scatter plot** was chosen as the ideal idiom for exploring the correlation between two quantitative variables: the financial damage and human cost of each disaster (Structural damage vs Human damage). I also wanted this dot plot to see if there would be any differences between sudden and expected disasters, and how expecting a disaster can impact on cost and lives.

This is followed by a series of **pie charts**, the idiom for showing part-to-whole relationships, which effectively communicate the composition of total deaths by disaster type. This is placed below the frequency chart in order to convey how most common does not take the most lives.

Finally, a **choropleth map** displays the year over year disaster frequency across all countries, providing a clear global overview of high-risk regions.

Special features are built in to enhance exploration: the choropleth map includes a **time slider**, all charts feature detailed **tooltips**, and several include **dynamic text annotations** to highlight key insights like the "Most Frequent" or "Most deadly" events.