**Question –** How does the weather vary across different locations of the UK on a monthly and yearly basis, and are there any noticeable trends?

* **Temp & rainfall** thought to be **key** (significantly affects daily life)
* **Location** **large factor** in changing weather

**Layout & visualisations**

* **Main charts** backwards ‘L’, helps eye/visual scan.
  + **Significant** chart – **scatter** (precip vs temp): show any correlation
  + **Bar** (precip over time): Discrete data points,

Comparative analysis,

Categorical time periods

* + **Multi-line** (Temp over time): Continuous data points,

Multivariant data,

Emphasise trends

* + These charts line up
* **Location & data overview**, form natural grouping
  + **Bubble map** – shows stations,

size average temp

* + **Burst pie** – data split,

inner months,

outer attributes

* + Colour split – North/South, East/West
  + Semantic colours – North (mainly Scotland and North England) = blue

South (England / Wales) = orange

West ( spread out, Ireland west) = green

East (England) = red, as white could get lost in background

Tried semantic colours across charts, too busy, so soft pascal colours

* **Minor chart**, shows sun hours / air frost days over months

**Interactions**

* **Major** **charts**
  + **Max / scaled** – Axes based on maximum recorded value,

Allows differences to be clearly seen when changing between different aggregated sub groups

* + **Views** – 3 available
    - * **Default** – Month average across all years
      * **2nd** – Specific month (selected) showing averages for each year for that specific month
      * **3rd** – Specific year (selected) showing averages for each month of that specific year
      * Click again to cycle between 2nd and 3rd
      * Double click to reset
* **Minor chart**
  + Lesser significance, so only providing overview averages of month across all years
  + **Dropdown** – to change sun hours / air frost days
* **Burst pie**
  + **Zoom** for closer look
  + Attributes **expand** when over **month** or **attribute**
  + **Rotate** to change split and bubble / burst colours to show different split
* **Map**
  + **Zoom**  for closer look
  + **Click**  to change **all charts** (except burst) to show **data** regarding **only that stations location**
  + **Double click** to reset
* **Shared highlighting**
  + For **months** & **years** –
    - Show when **charts different** does **not highlight**
    - Show **multi line** highlights only **one** when over, but **all** if from another chart
* **Tooltips**
  + Availiable for **every chart,** showing more detailed info
    - Show different for **different views** & **stations**

**Insights**

* **Scatter** - Typically
  + Temp increases late winter / early spring (Jan / Mar), whilst precip starts to fall until mid / late spring (April / May)
  + Precip rises again whilst temp continues to rise until mid / late summer (Jul / Aug).
  + Appears a rise or fall in temp is followed later by a rise or fall in precip respectively (approx. 3 months)
* **Burst** – on average
  + West 20mm more rainfall than east
  + North 15mm more rainfall than south
* **Bar** – average rainfall is around 1/3 to 1/4 than the highest on record.
  + Highest on record recorded by Eskalemuir in Dec 2015 (which seemed a particularly wet year) – see Dec bar - 2015
  + This station also recorded the lowest temp in Dec 2010 (which seemed a particularly cold year) – see dec multi line – 2010
  + Highest temp was recorded at Heathrow in Jul 2018 (which seemed a particularly hot year) – see Jul multi line – 2018
  + Eskalemuir records higher than average rainfall and lower than average temp – see max scale bar, scat, and multi line when changing from default to Eskalemuir stations, also show with bar and multi line set to December
  + See how Heathrow by comparison changes – temp up, precip down, also show with bar and multi line set to July