The Million Points on a Map Problem: Advanced Techniques

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Point features are aggregated into artificial bins
Spatial aggregation in bins
Why spatial aggregation?

- Sometimes drawing the raw data is overwhelming and doesn’t provide any value
Artificial geography types

- Rectangular bins
- Hexagons (hexbins)
Creating geographies

- Create multiple levels to support aggregation at smaller to larger scales
- Use an equal-area projection
Authoring your map

• Set scale dependencies for each level of geography
Using standardized geographies

- Select the appropriate level of geography
  - South Africa example:
    - Nation
    - Province
- District
  - Do not necessarily use the most detailed geographies
Tornado example
Aggregation approaches

On-the-fly
- Provides flexibility
- Immediately shows updated data
- Is appropriate for data that changes often

Pre-calculated
- Can have faster drawing speed
- Requires upfront processing time from the author
- Is appropriate for unchanging data
Pre-calculated aggregation options

- Geoprocessing tools

- Native RDBMS SQL

```sql
SELECT [..] INTO Tornado_Aggregate FROM Tornado t INNER JOIN Tornado_Bins bins ON bins.geom.STIntersects(t.geom) = 1 WHERE [..]
```
On-the-fly aggregation in ArcMap

- Query layer with custom SQL
On-the-fly aggregation in ArcGIS Pro

- Query layer with custom SQL
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Related topics:
• Visualize Dynamically Aggregated Results from Time Series Data Using ArcGIS Pro and Map Services (Wednesday, July 12) @ 1:30 pm in Demo Theater #3