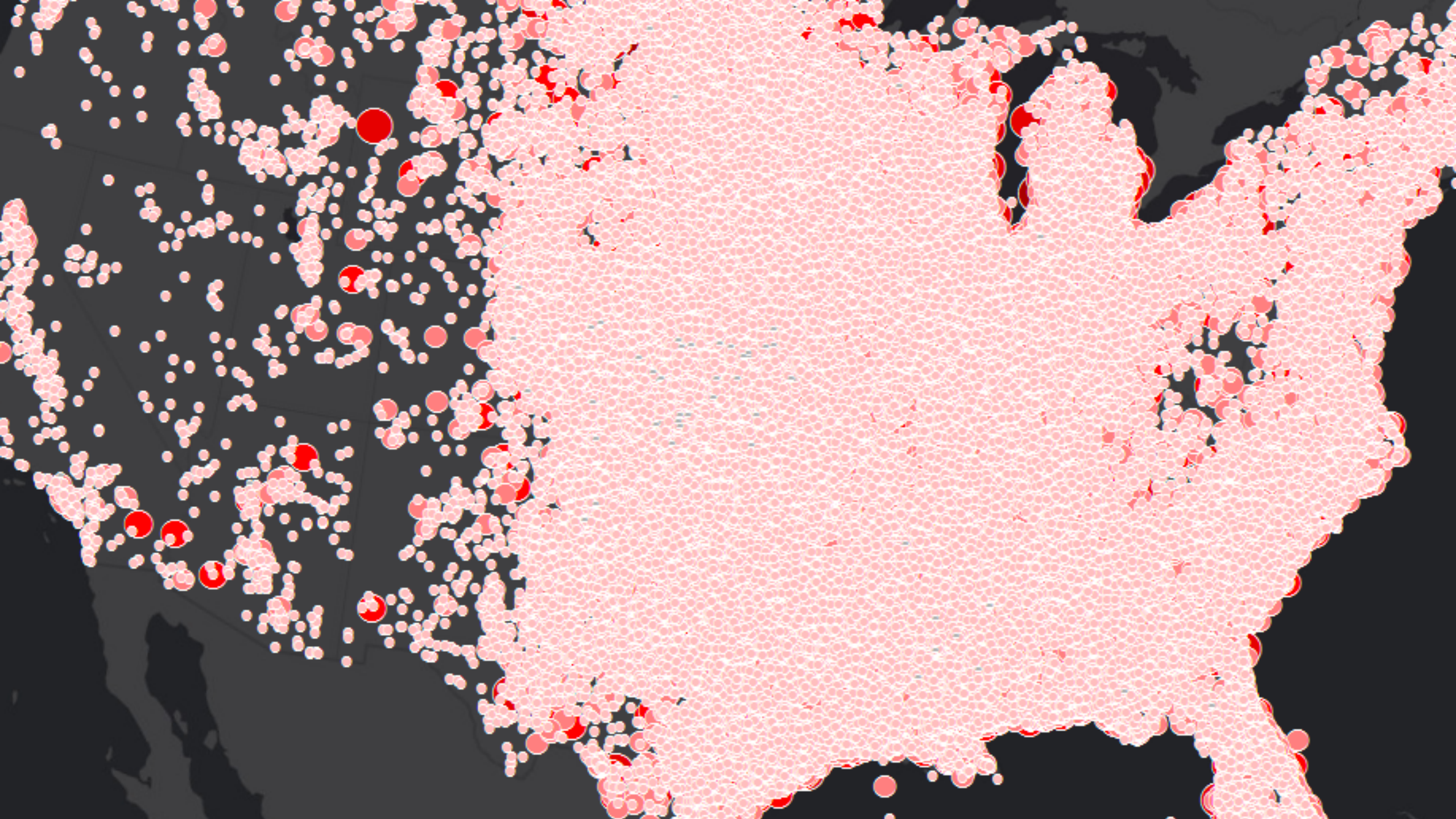


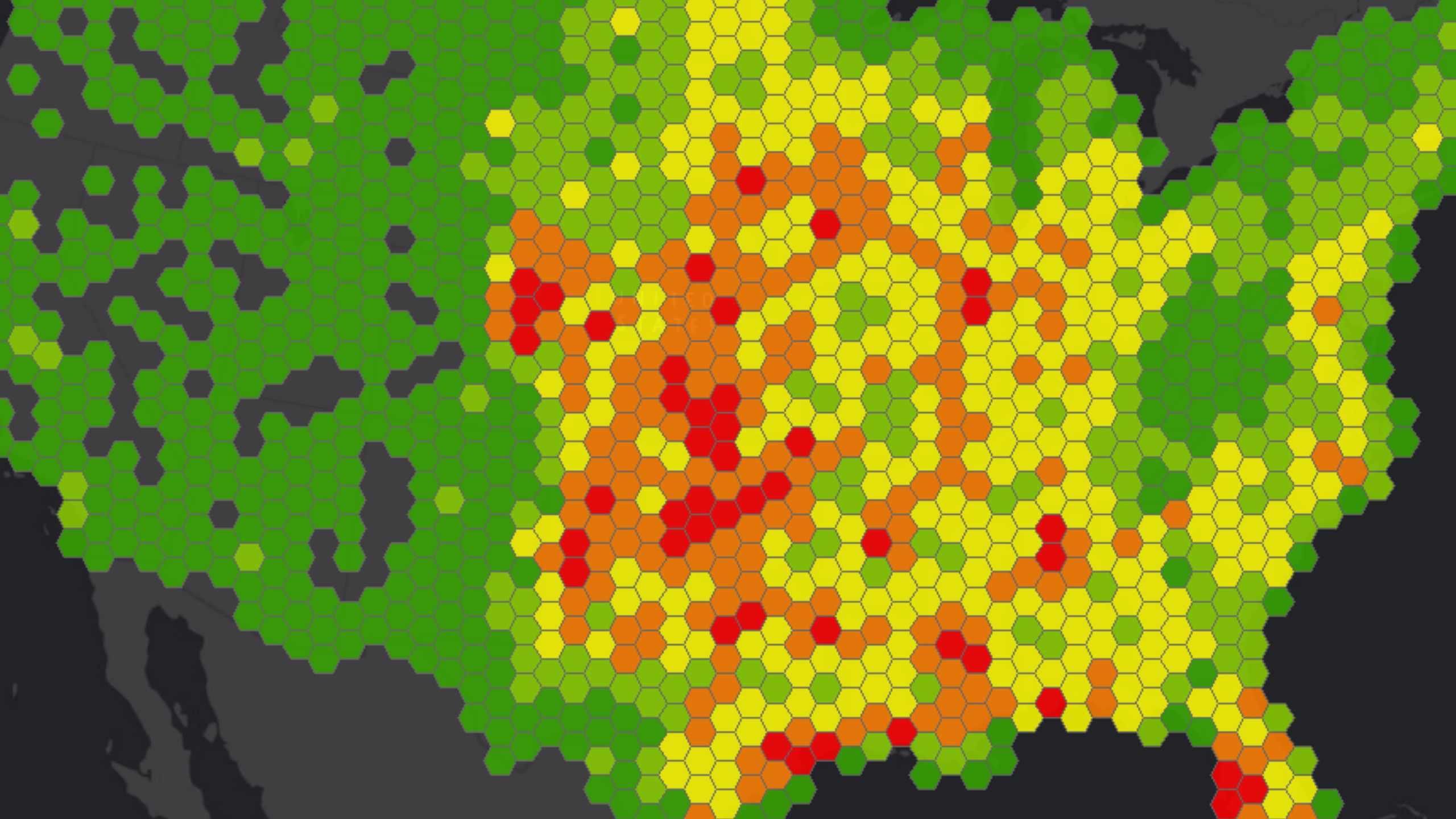
UC



The Million Points on a Map Problem: Advanced Techniques

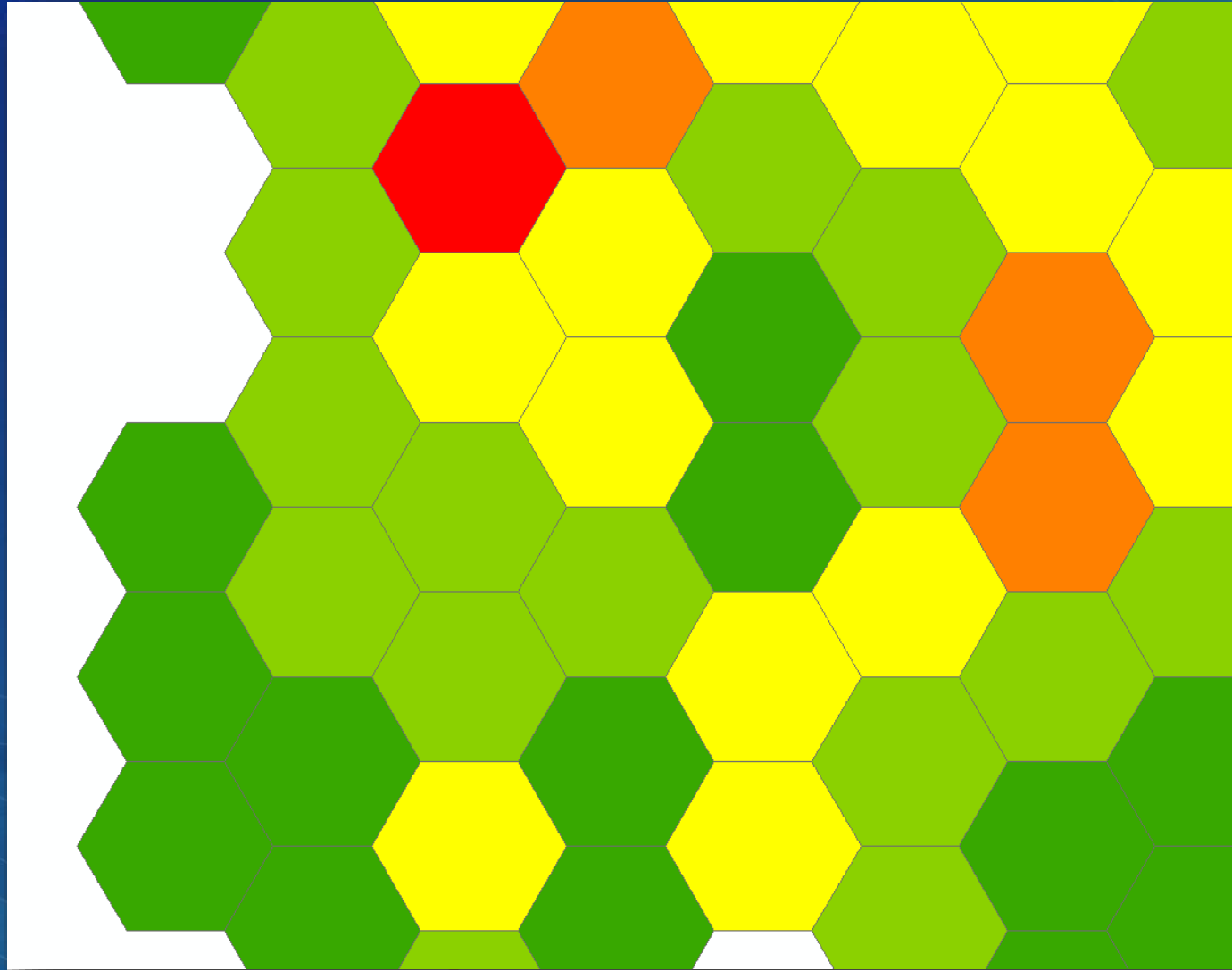
TANU HOQUE



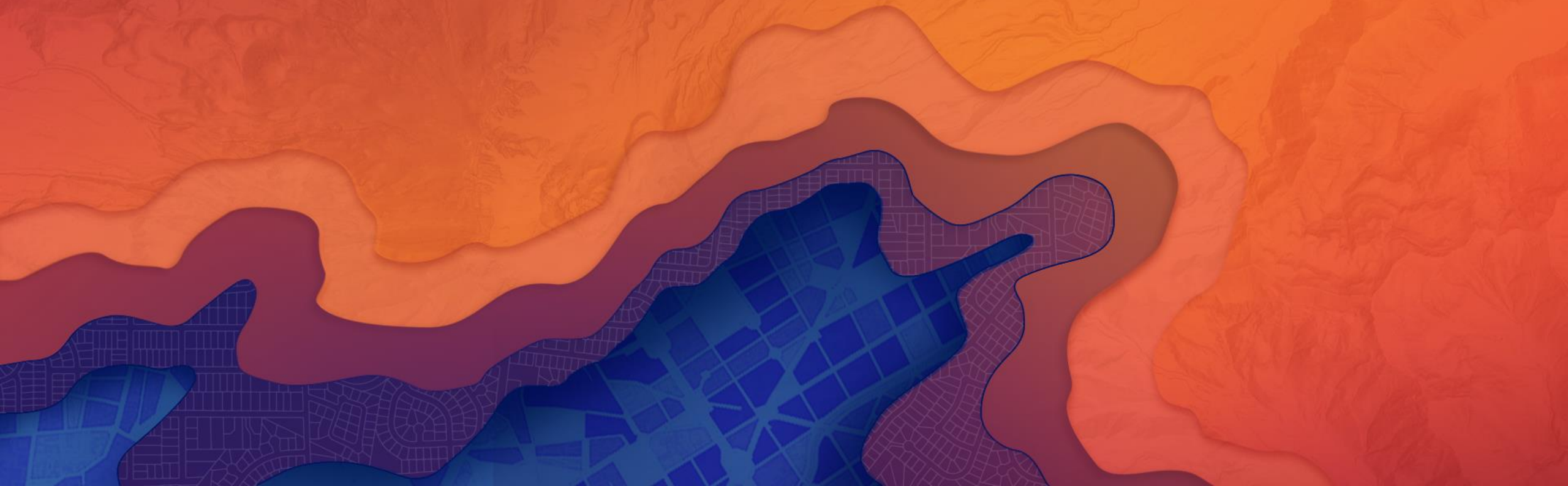


Point features are aggregated into artificial bins

Subhead Here

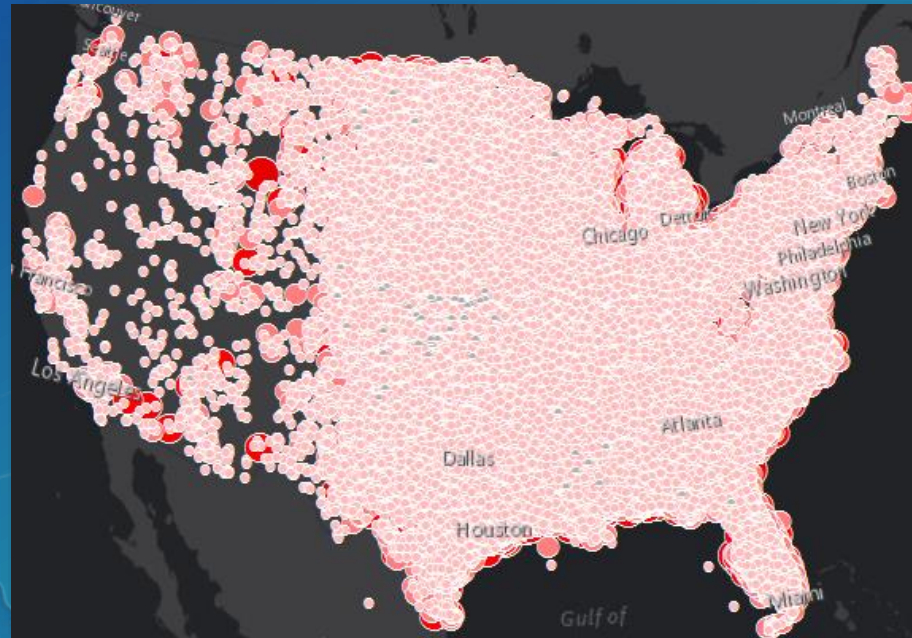


Spatial aggregation in bins



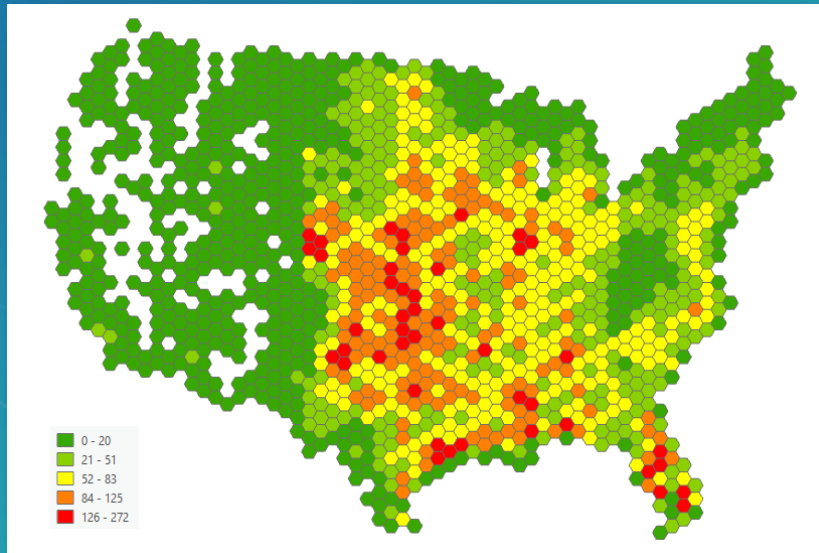
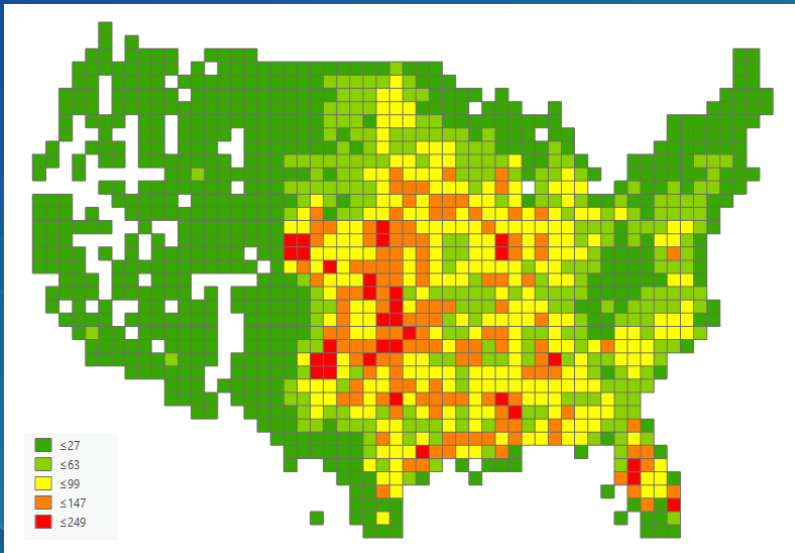
Why spatial aggregation?

- Sometimes drawing the raw data is overwhelming and doesn't provide any value



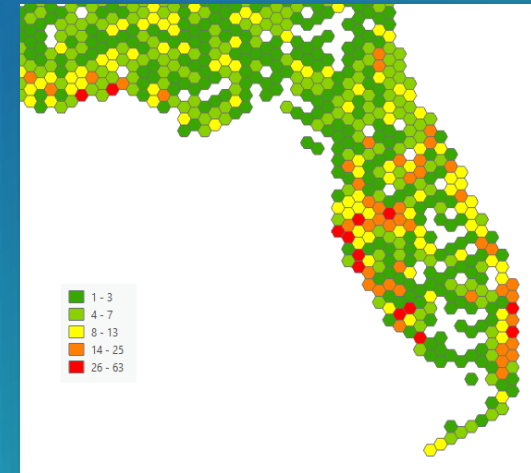
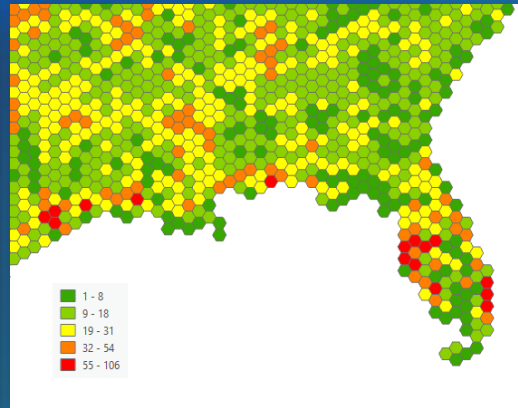
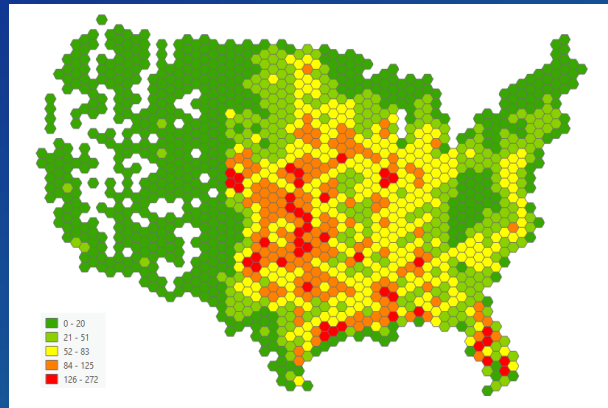
Artificial geography types

- Rectangular bins
- Hexagons (hexbins)



Creating geographies

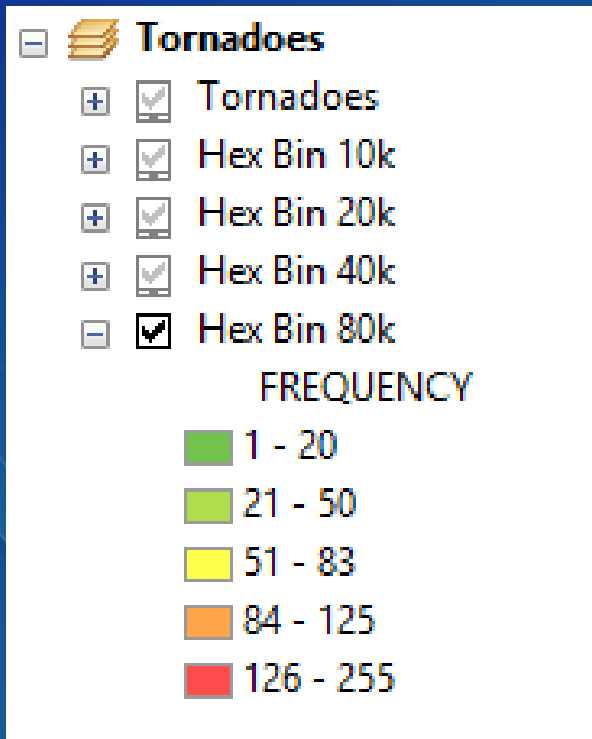
- Create multiple levels to support aggregation at smaller to larger scales



- Use an equal-area projection

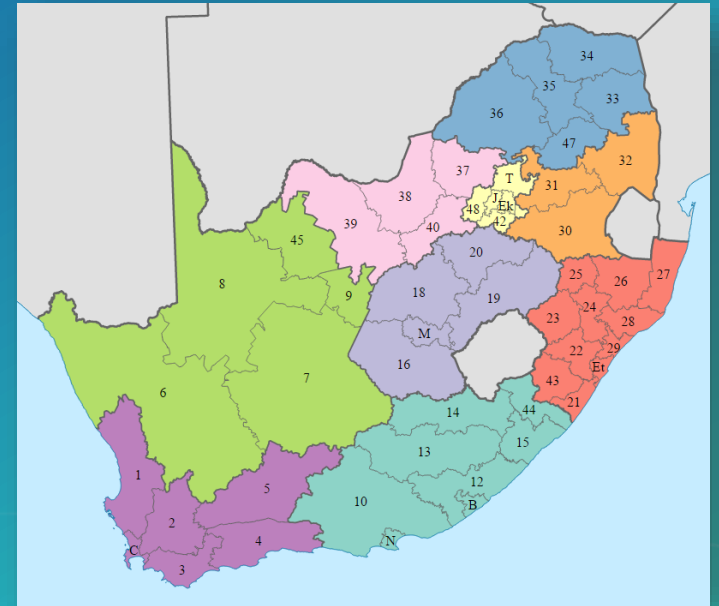
Authoring your map

- Set scale dependencies for each level of geography



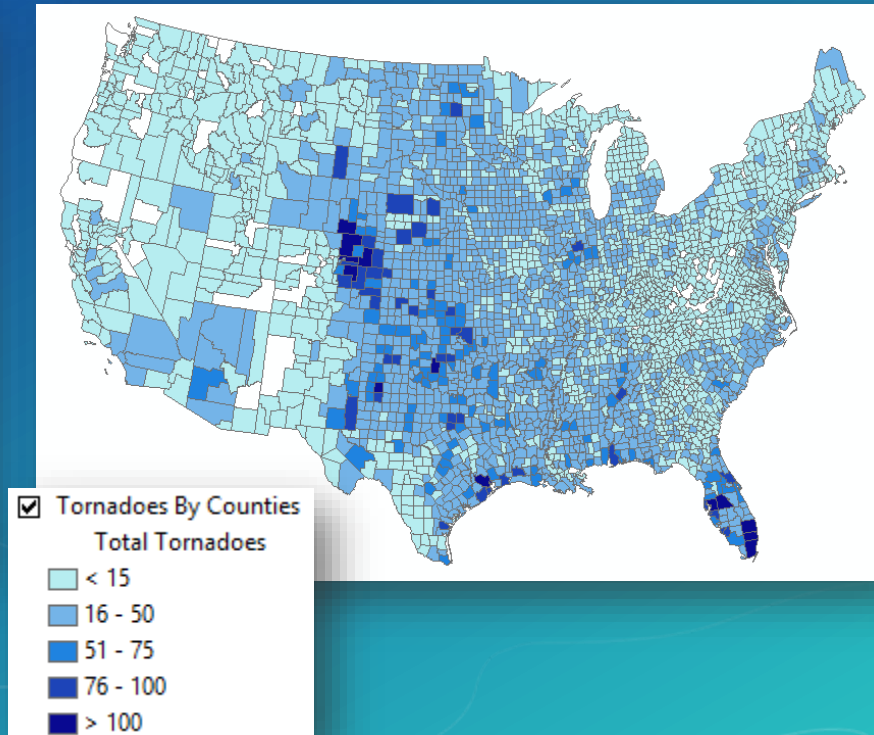
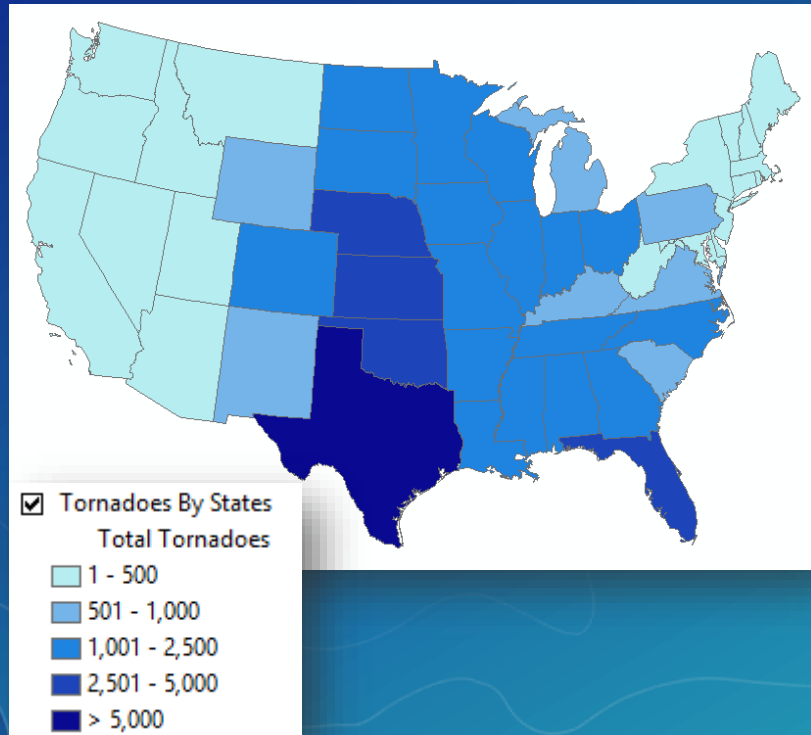
Using standardized geographies

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



South African provinces and districts

Tornado example



Aggregation approaches

On-the-fly

- Provides flexibility

- Immediately shows updated data

- Is appropriate for data that changes often

Pre-calculated

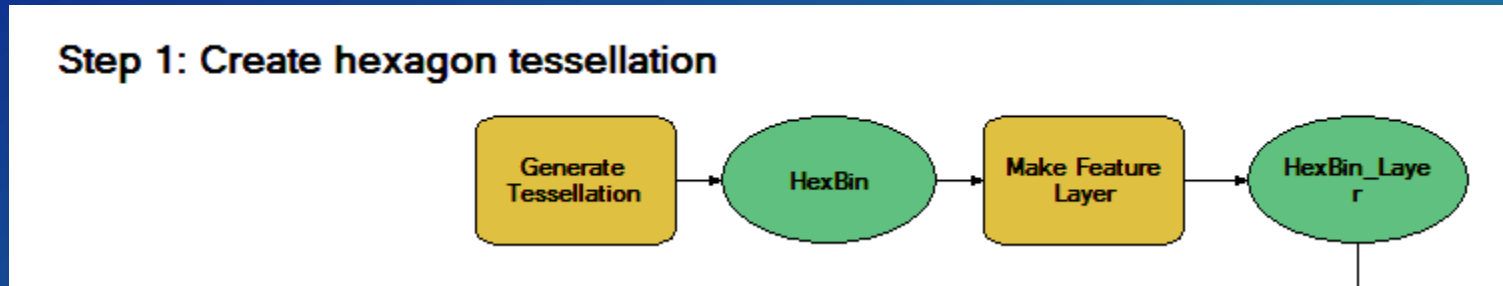
- Can have faster drawing speed

- Requires upfront processing time from the author

- Is appropriate for unchanging data

Pre-calculated aggregation options

- Geoprocessing tools

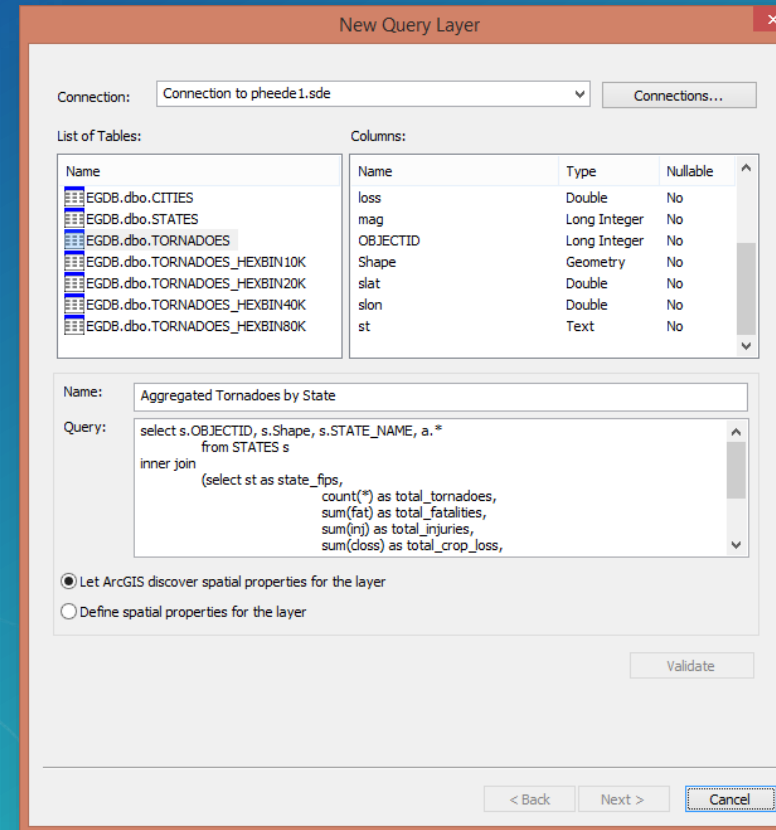
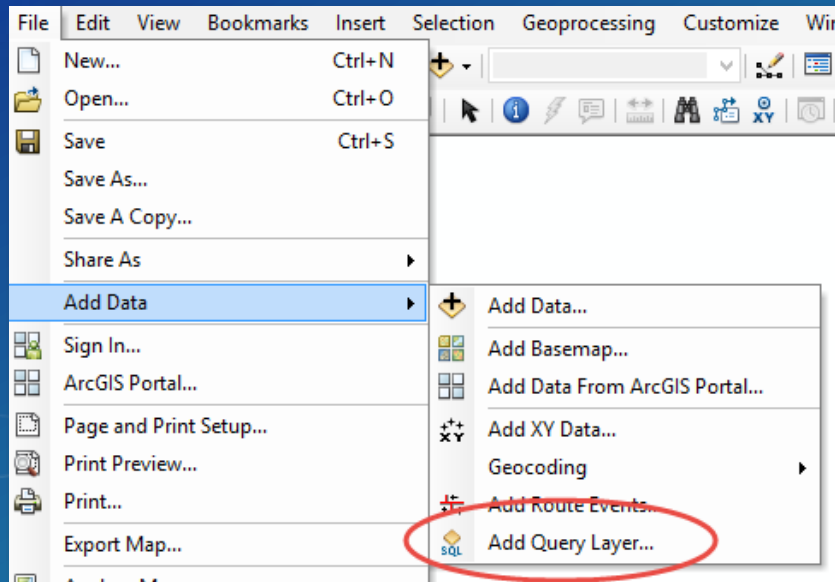


- Native RDBMS SQL

```
SELECT [...] INTO Tornado_Aggregate FROM Tornado t INNER  
JOIN Tornado_Bins bins ON  
bins.geom.STIntersects(t.geom) = 1 WHERE [...]
```

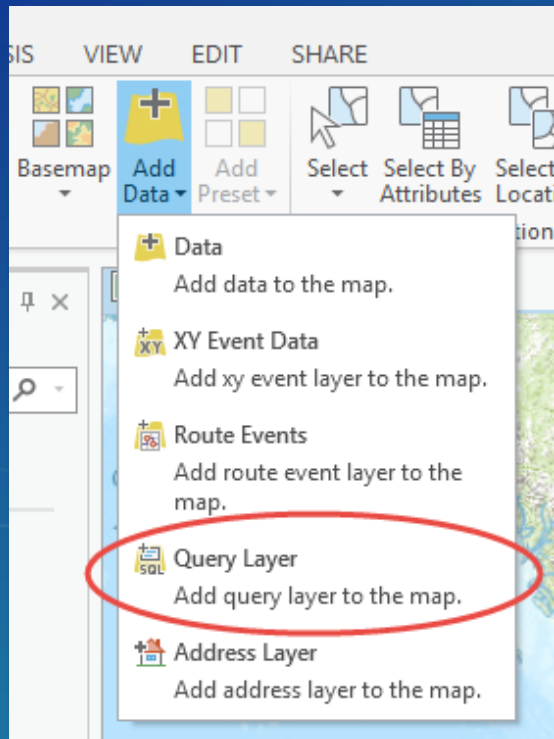
On-the-fly aggregation in ArcMap

- Query layer with custom SQL



On-the-fly aggregation in ArcGIS Pro

- Query layer with custom SQL



New Query Layer

Connect to a database and define the query.

Connection: localhost.sde

List of Tables:

Name
LTSDemo.dbo.COUNTIES
LTSDemo.dbo.STATES
LTSDemo.dbo.STREAM_FLOW
LTSDemo.dbo.STREAM_FLOW_STEP
LTSDemo.dbo.STREAM_FLOW_TIME
LTSDemo.dbo.Streams
LTSDemo.dbo.TORNADOES

Columns:

Name	Type	Nullable
------	------	----------

Name: Tornadoes by States

Query: [Learn about using parameters in a query layer](#)

```
select s.OBJECTID, s.Shape, s.STATE_NAME, a.*
  from STATES s inner join
    (select stf as state_fips,
      count(*) as total_tornadoes,
      sum(fat) as total_fatalities,
      sum(inj) as total_injuries,
      sum(closs) as total_crop_loss,
      sum(loss) as total_loss
    from TORNADOES
    where ::r:timeVar
      group by stf) a
 on s.STATE_FIPS = a.state_fips
```

Alias	Field or Expression	Data Type
	year	Integer

☐ Default value to

> Advanced

☒ Let ArcGIS Pro discover spatial properties for the layer
☐ Define spatial properties for the layer

Validate

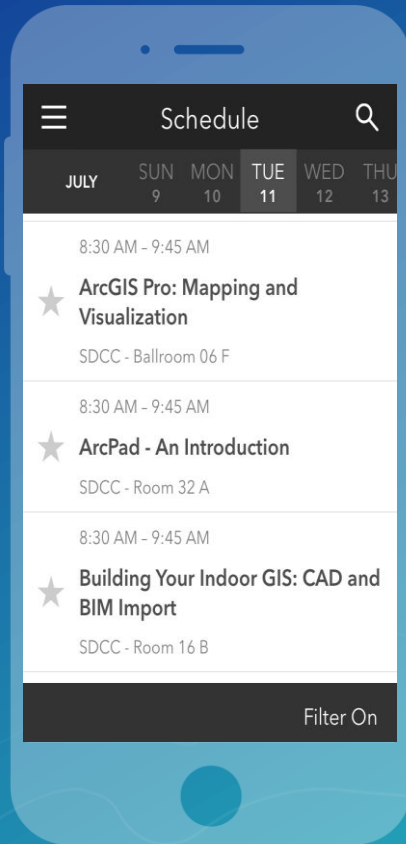
< Back Next > Cancel

Please Take Our Survey on the Esri Events App!

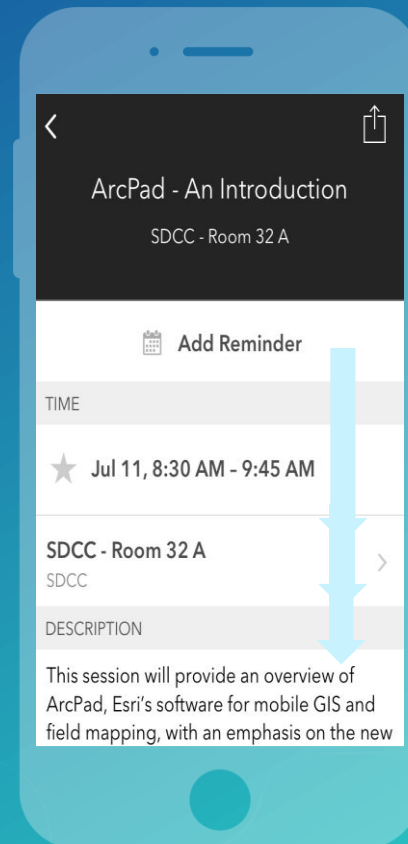
Download the Esri Events app and find your event



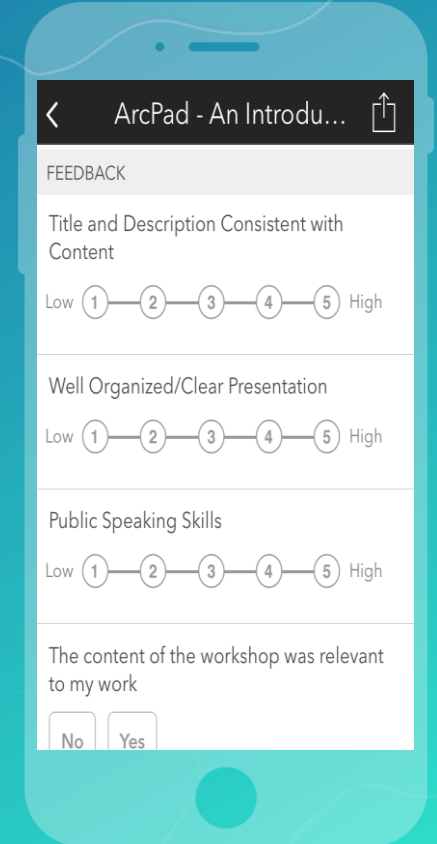
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"



Thank you

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



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