



# ArcGIS API for JavaScript: Creating Custom Layers and Layer Views

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Services Enablement Workshop 2021



# Going Beyond the JSAPI Layer

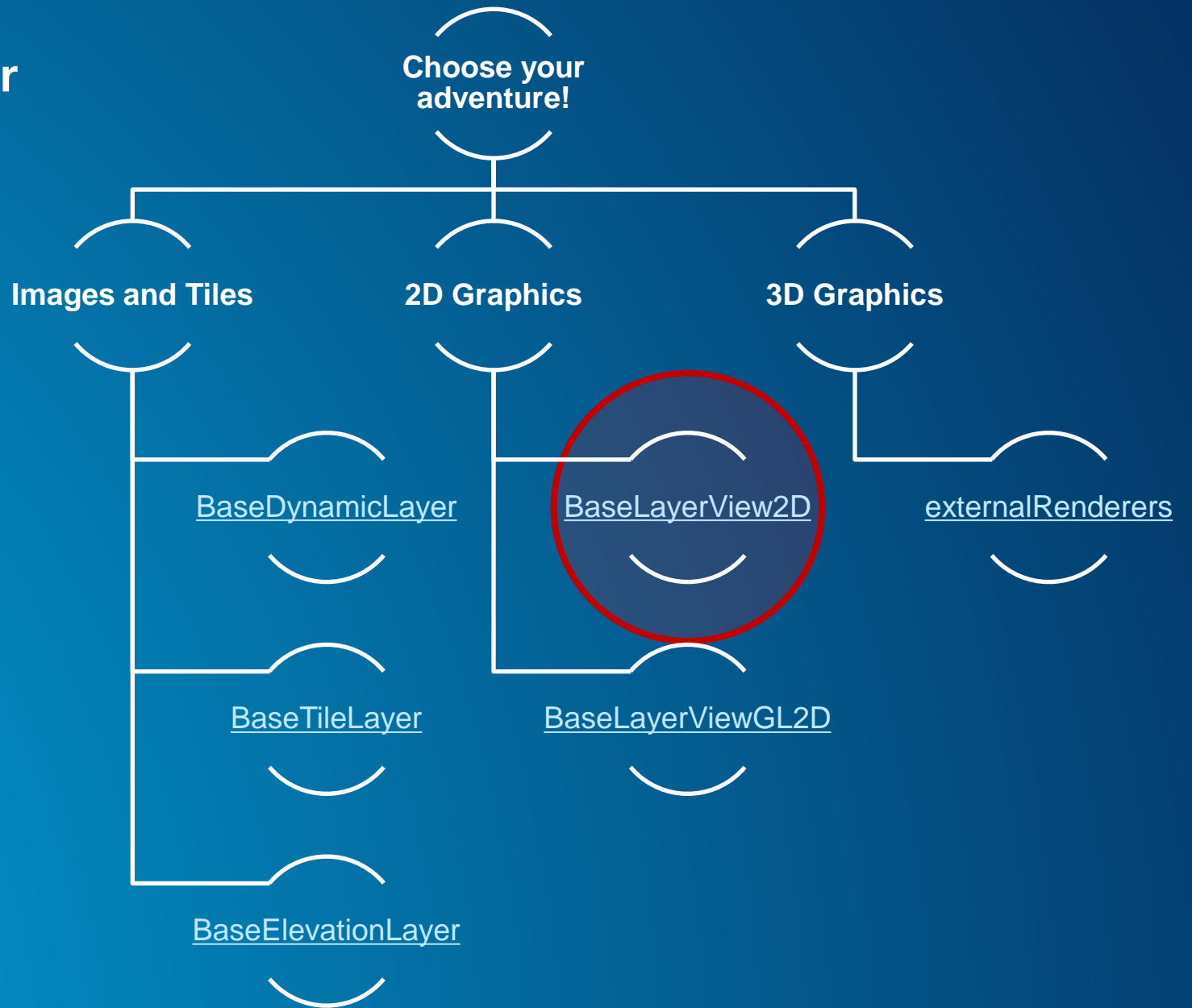


- Preprocess images
- Manipulate elevations
- Connect to a unique service(s)

*...OR YOU COULD...*



- Draw your own 2D or 3D graphics
- Bring your dreams to life with Canvas or WebGL





# Hello World!

A custom and animated  
**BaseLayerView2D**

1. Review a simple GraphicsLayer
2. Compare with a BaseLayerView2D
3. Animate it!

<https://github.com/jwasilgeo/esri-experiments>

# Custom Layer from Feature Layer - Animated points

```
const worldAirports = new FeatureLayer({...});

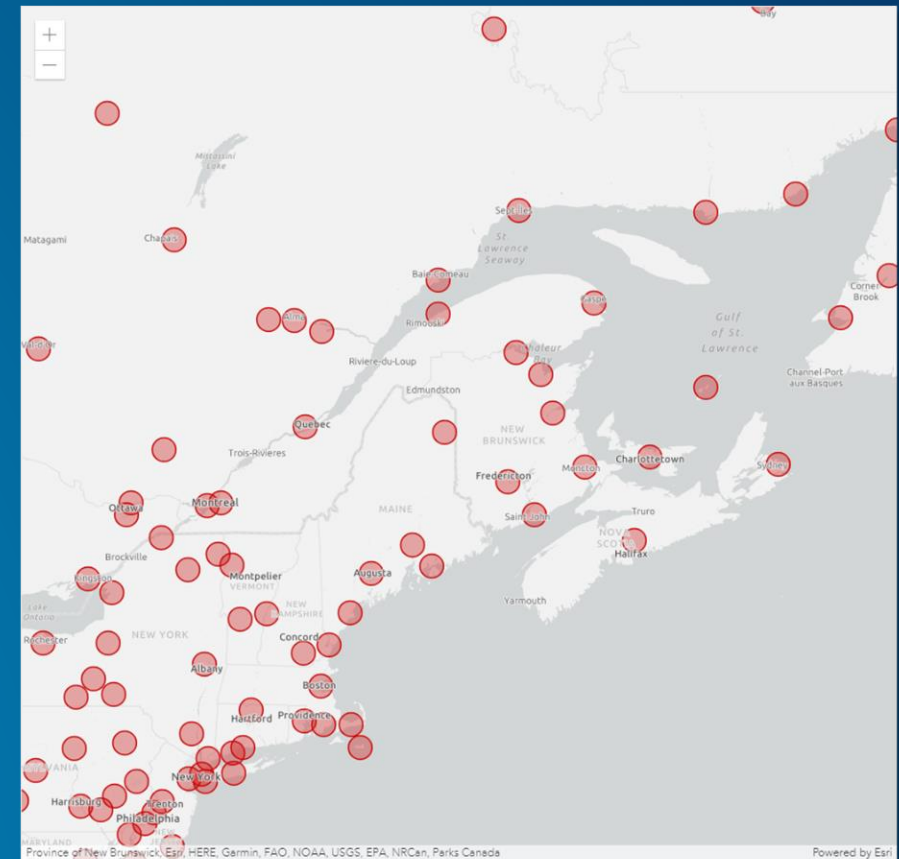
map.add(worldAirports);

function addArrayOfGraphicsToCustomLayer(arrayOfGraphics) {
  customLayerInstance.removeAll();

  arrayOfGraphics.features.forEach(function (feature) {
    customLayerInstance.add(new Graphic({
      geometry: feature.geometry
    }));
  });
};

view.whenLayerView(worldAirports).then(function (layerView) {
  layerView.queryFeatures({
    returnGeometry: true
  }).then(function (results) {
    addArrayOfGraphicsToCustomLayer(results);
  });

  layerView.watch("updating", function (value) {
    layerView.queryFeatures({
      returnGeometry: true
    }).then(function (results) {
      addArrayOfGraphicsToCustomLayer(results);
    });
  });
});
});
```



Sean McGee

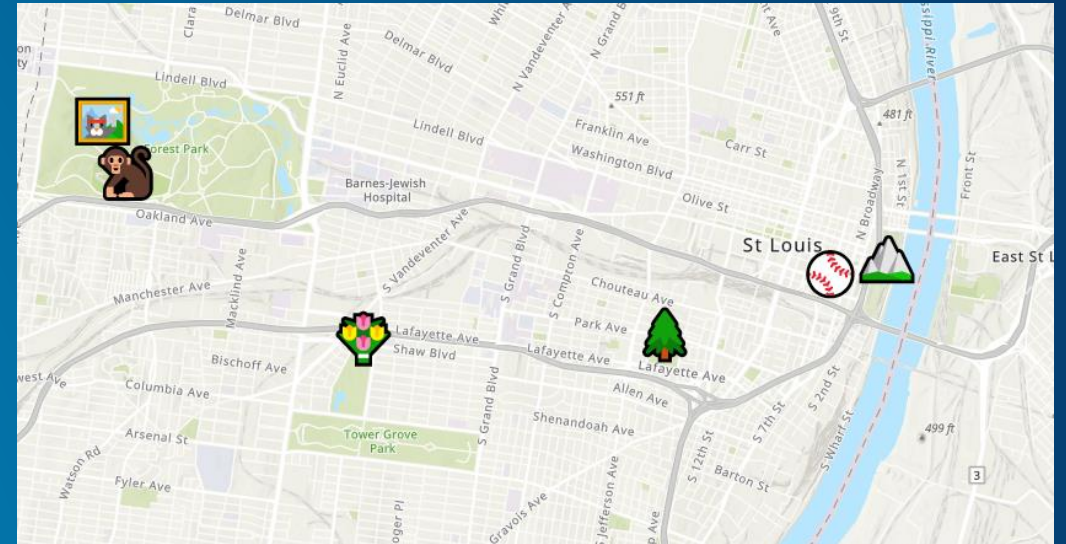


@HertsWestUK

<https://codepen.io/hertswestuk/pen/mdOENve>

# Custom Layer from Feature Layer - Accessing attribute data

```
function addArrayOfGraphicsToCustomLayer(arrayOfGraphics) {  
    customLayerInstance.removeAll();  
  
    arrayOfGraphics.features.forEach(function (feature) {  
        customLayerInstance.add(new Graphic({  
            geometry: feature.geometry,  
            attributes: feature.attributes  
        }));  
    });  
};
```



Gavin Rehkemper



@gavinrehkemper

[gavinr.github.io/emoji-map-layer](https://gavinr.github.io/emoji-map-layer)

# The River Thames

All about the River Thames.

Sean McGee | February 9, 2021

The **River Thames**, known alternatively in parts as the **River Isis**, is a river that flows through southern England including London. At 215 miles (346 km), it is the longest river entirely in England and the second-longest in the United Kingdom, after the River Severn.

listen) *TEMZ*), known alternatively in parts as the **River Isis**, is a river that flows through southern England including London. At 215 miles (346 km), it is the longest river entirely in England and the second-longest in the United Kingdom, after the River Severn.



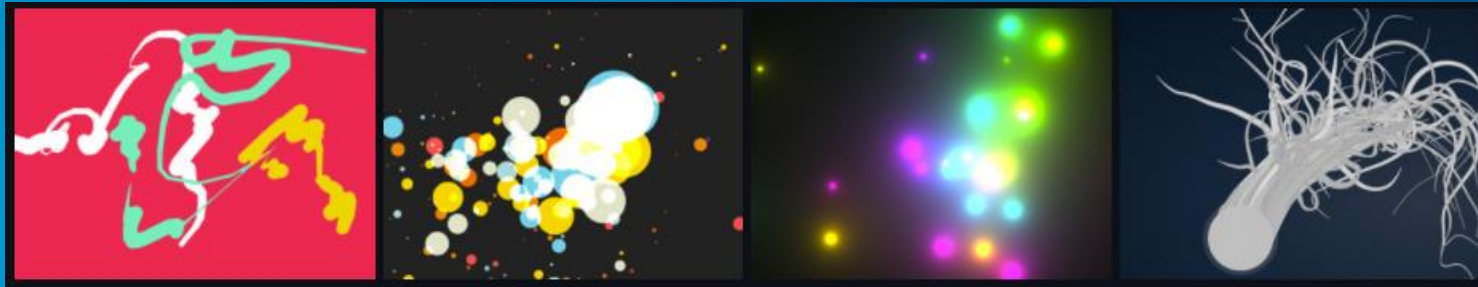
## Demo

Using canvas stylings made by Sean McGee

[codepen.io/hertswestuk/pen/LYbZwvK](https://codepen.io/hertswestuk/pen/LYbZwvK)

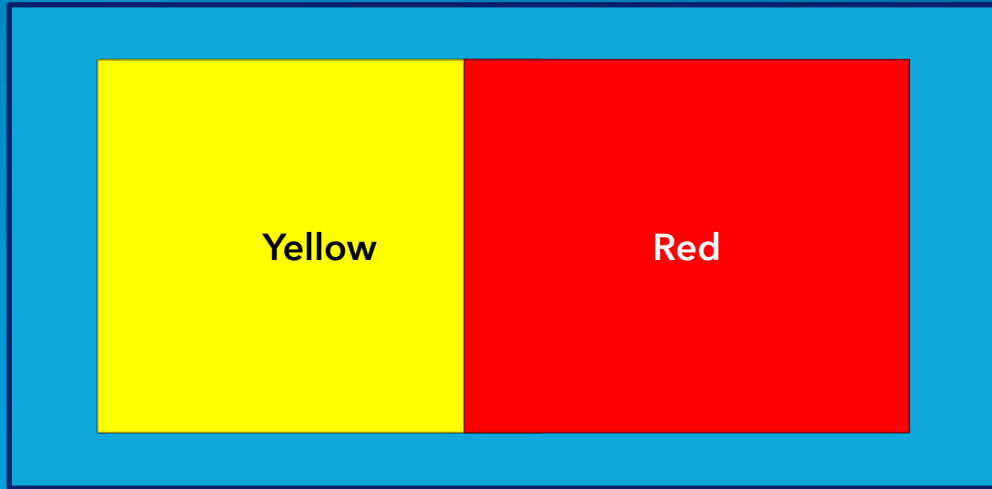


# Utilizing Canvas

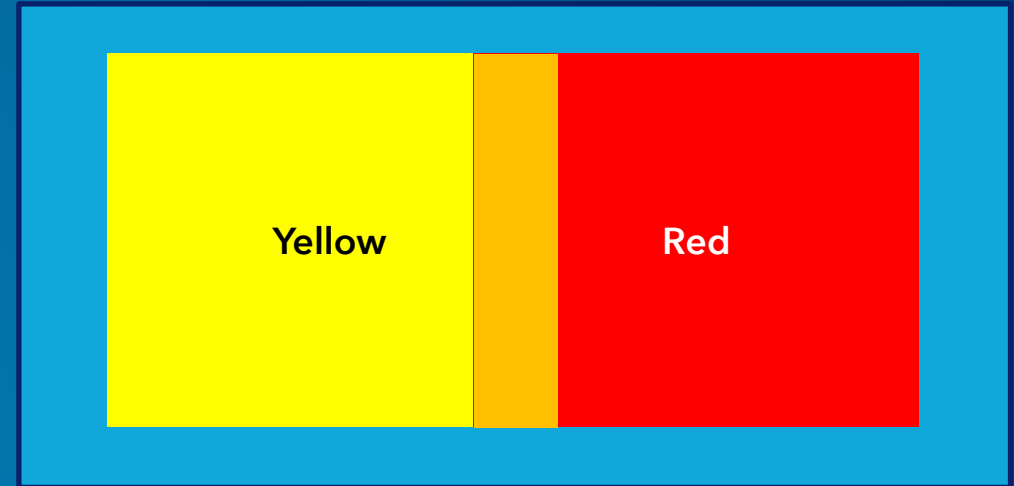


# Blending sample

2 overlapping square symbols with a solid colour (yellow and red).

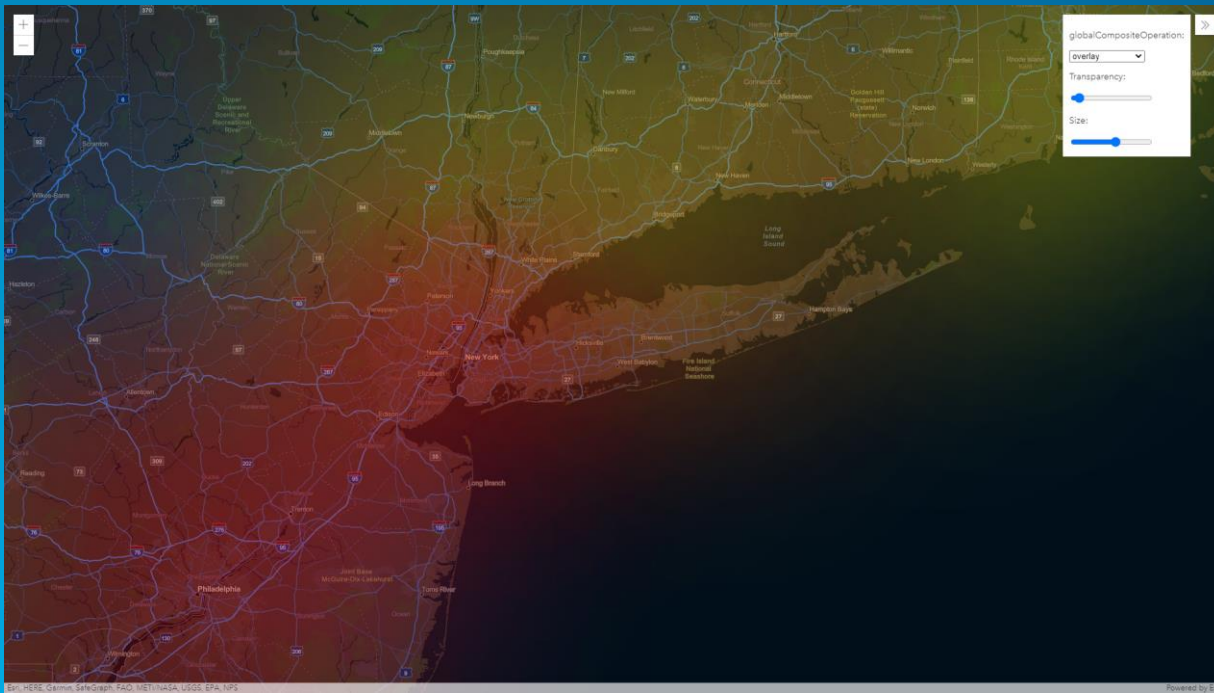


No blend option



Symbol blend option enabled

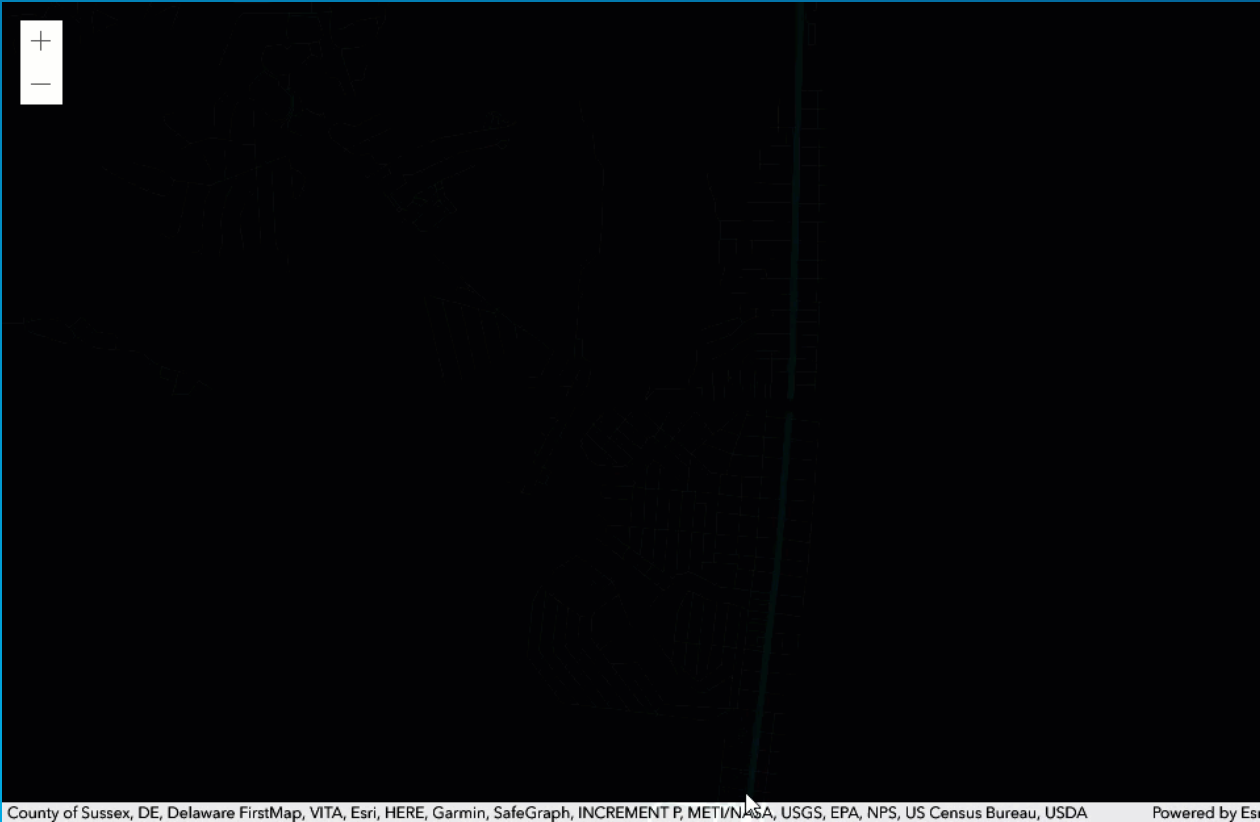




# Demo

Using canvas blending made by Sean McGee

[https://github.com/smcgee2/EsriJS\\_CustomLayer\\_WeatherSample](https://github.com/smcgee2/EsriJS_CustomLayer_WeatherSample)



# Demo

A custom **BaseLayerView2D** made by  
Sean McGee

<https://codepen.io/smcgee/pen/KKpKPxW>

# Demo

"Canvas-Flowmap-Layer"

A custom **BaseLayerView2D** made by Sarah Bell and Jacob Wasilkowski

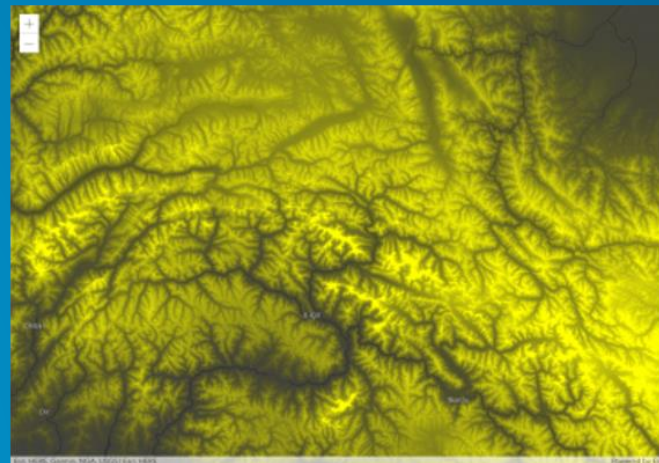
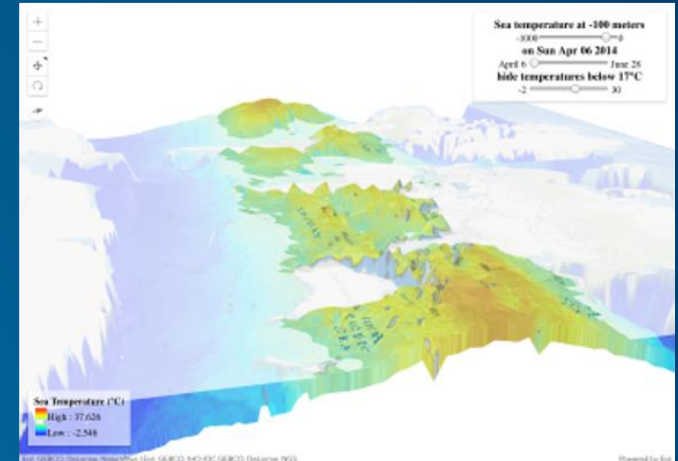
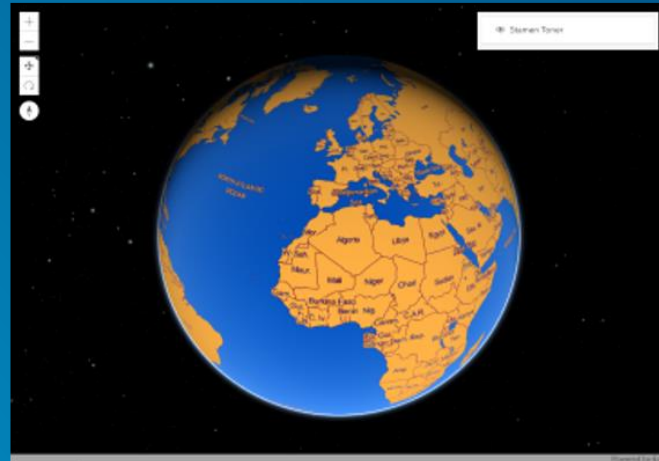
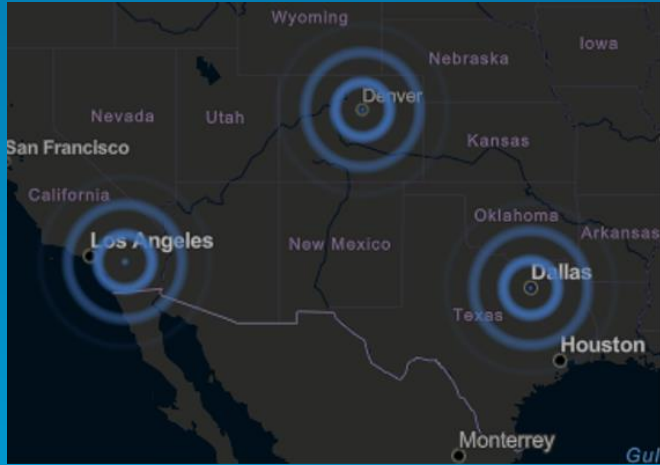


@sarahbellmaps

<https://github.com/sarahbellum/Canvas-Flowmap-Layer>



# JSAPI Examples of What's Possible: <https://esriurl.com/jsCustomLayers>





# Resources

- These slides are available at
  - <https://github.com/jwasilgeo/presentations>
- Dev Summit 2021
  - <https://youtu.be/HFDdLI3aIVg>
- Dev Summit 2019
  - [https://proceedings.esri.com/library/userconf/devsummit19/papers/DevSummitPS\\_10.pdf](https://proceedings.esri.com/library/userconf/devsummit19/papers/DevSummitPS_10.pdf)
- Dev Summit 2018
  - <https://proceedings.esri.com/library/userconf/devsummit18/papers/dev-int-018.pdf>





Thank you!

Jacob Wasilkowski

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