

THE  
**GINA MAP LAYERS**  
JAVASCRIPT LIBRARY

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# OUTLINE

- Introduction to GINA Map Layers
- Create a map using Google Maps
- Create a map using OpenLayers
- Add more layers
- Switch Projections



# GINA MAP LAYERS LIBRARY

Quick and easy method to add GINA's tile layers to existing JavaScript map applications.

Code: <https://github.com/gina-alaska/gina-map-layers>



# GINA MAP LAYERS LIBRARY

Quick and easy method to add GINA's tile layers to existing JavaScript map applications.

Code: <https://github.com/gina-alaska/gina-map-layers>

Supports:

Google Maps 3  
OpenLayers 2.11+  
Bing Maps 6.3, 7.0  
ArcGIS JS API 2.6



README.md

## GINA Map Layers Javascript Library

This project is a library used to inject GINA Map layers into various web map apis.

Examples can be found at <http://github.com/gina-alaska/gina-map-layers-examples>

### Supported Web Map APIs

- OpenLayers 2.11
- Google Maps 3
- Bing Maps 6.3, 7.0
- ArcGIS JS API 2.6

### Include the library

Include the base library and layer definitions for your desired web api,

OpenLayers:

```
<script src="gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
```

Google Maps:

```
<script src="gina-map-layers/gina-googlemaps3.js" type="text/javascript"></script>
```

Bing Maps 6.3

```
<script src="gina-map-layers/gina-bingmaps63.js" type="text/javascript"></script>
```

Bing Maps 7.0

```
<script src="gina-map-layers/gina-bingmaps7.js" type="text/javascript"></script>
```

ArcGIS JS API 2.6

```
<script src="gina-map-layers/gina-arcgis26.js" type="text/javascript"></script>
```

### Inject the layers into your map object

Code: <https://github.com/gina-alaska/gina-map-layers>

# THE TILE LAYERS

- ▶ Best Data Layer
  - ▶ Includes 2010 Alaska Ortho delivery
  - ▶ 2011 will be added soon (in time for Alaska Surveying and Mapping Conference)
- ▶ Alaska Ortho Project
  - ▶ Overlay only, base layer use the BDL
  - ▶ Natural Color, Color Infrared CIR, Grayscale
- ▶ OpenStreetMaps
- ▶ USGS Topographic DRG
- ▶ NOAA Nautical Charts
- ▶ Landsat Panchromatic
- ▶ Shaded Relief



# SUPPORTED PROJECTIONS

## ► Tile Layers

- EPSG:3857 - Web Mercator
  - Usable in OpenLayers, Google Maps, Bing, ArcGIS
- EPSG:3338 - Alaskan Albers
  - Usable in OpenLayers
- EPSG:3572 - Alaska Centric Polar
  - Usable in OpenLayers

## ► WMS Layers

- Many projections available, use a desktop client like QGIS or ArcMap to see the available projections.
- Usable in OpenLayers



# THE TOOLS



# THE TOOLS

- Text Editor
  - Notepad, TextMate, VIM, etc...



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- Text Editor
  - Notepad, TextMate, VIM, etc...
- Google Chrome - <http://www.google.com/chrome>
  - Developer Tools - built into Chrome



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- Text Editor
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  - Developer Tools - built into Chrome
- Firefox - <http://www.mozilla.org>
  - Firebug - <http://getfirebug.com>



# THE TOOLS

- Text Editor
  - Notepad, TextMate, VIM, etc...
- Google Chrome - <http://www.google.com/chrome>
  - Developer Tools - built into Chrome
- Firefox - <http://www.mozilla.org>
  - Firebug - <http://getfirebug.com>
- Github - <https://github.com/gina-alaska/gina-map-layers>



# ADDING LAYERS IN 3 EASY STEPS



# ADDING LAYERS IN 3 EASY STEPS

1. Include the GINA Map Layers library in the page

```
<script src="gina-map-layers/gina-<map type>.js" type="text/javascript"></script>
```



# ADDING LAYERS IN 3 EASY STEPS

1. Include the GINA Map Layers library in the page

```
<script src="gina-map-layers/gina-<map type>.js" type="text/javascript"></script>
```

2. Inject the map layers into the map

```
Gina.Layers.inject(<map object>, <layer list>)
```



# ADDING LAYERS IN 3 EASY STEPS

1. Include the GINA Map Layers library in the page

```
<script src="gina-map-layers/gina-<map type>.js" type="text/javascript"></script>
```

2. Inject the map layers into the map

```
Gina.Layers.inject(<map object>, <layer list>)
```

3. Profit!

View the website in your browser



The screenshot shows the SDMI website interface. At the top left is a green logo with a white grid and the text "ALASKA MAPPED". At the top right is a yellow map of Alaska with the text "SDMI Statewide Digital Mapping Initiative". Below the logo are links for "Home", "Browse", "Cart", and "Log In". On the left, a sidebar titled "Show Available Data" includes a "Refresh" button and dropdown menus for "GINA Data Vault", "By Resolution", "By Year", "By License Type", "By Data Type", and "Aerial Photos". Under "Aerial Photos", there are further options for "By Resolution" (0.08 m and 0.25 m), followed by a list of 15 items labeled "AERIAL.UAF.MAY2007.UAF\_AREA". The main area displays a detailed aerial photograph of the UAF campus, featuring various buildings, roads, and green spaces. A vertical toolbar on the left of the map includes zoom controls (+/-), a search icon, and a "POI" button. A "View" dropdown menu is at the top of the map area. A "Link to this map" button is in the top right corner. A "SDMI BDL" button is in the top right of the map frame. The bottom right of the map frame has a "Terms of Use" link.

# GOOGLE MAPS

# GOOGLE MAPS



 powered

# GOOGLE MAPS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
    <meta name="viewport"
      content="width=device-width, initial-scale=1.0, user-scalable=no">
    <meta charset="UTF-8">
    <link rel="stylesheet" href="/application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script type="text/javascript" src="http://maps.googleapis.com/maps/api/js?sensor=false"></script>

    <script type="text/javascript">
      var map;
      function initialize() {
        map = new google.maps.Map(document.getElementById('map'), {
          center: new google.maps.LatLng(64.856, -147.849),
          zoom: 8,
          mapTypeId: google.maps.MapTypeId.ROADMAP,
          mapTypeControlOptions: {
            mapTypeIds: [google.maps.MapTypeId.ROADMAP]
          }
        });
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="page">
      <h1 id="google_maps_example">Google Maps Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



# GOOGLE MAPS

```
<!DOCTYPE html>
<html>
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    <meta charset="UTF-8">
    <link rel="stylesheet" href="/application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script type="text/javascript" src="http://maps.googleapis.com/maps/api/js?sensor=false"></script>
    <script src="/gina-map-layers/gina-googlemaps3.js" type="text/javascript"></script>

    <script type="text/javascript">
      var map;
      function initialize() {
        map = new google.maps.Map(document.getElementById('map'), {
          center: new google.maps.LatLng(64.856, -147.849),
          zoom: 8,
          mapTypeId: google.maps.MapTypeId.ROADMAP,
          mapTypeControlOptions: {
            mapTypeIds: [google.maps.MapTypeId.ROADMAP]
          }
        });
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="page">
      <h1 id="google_maps_example">Google Maps Example</h1>
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  </body>
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**Step 1:**  
Add the library



# GOOGLE MAPS

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<!DOCTYPE html>
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    <meta charset="UTF-8">
    <link rel="stylesheet" href="/application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script type="text/javascript" src="http://maps.googleapis.com/maps/api/js?sensor=false"></script>
    <script src="/gina-map-layers/gina-googlemaps3.js" type="text/javascript"></script>

    <script type="text/javascript">
      var map;
      function initialize() {
        map = new google.maps.Map(document.getElementById('map'), {
          center: new google.maps.LatLng(64.856, -147.849),
          zoom: 8,
          mapTypeId: google.maps.MapTypeId.ROADMAP,
          mapTypeControlOptions: {
            mapTypeIds: [google.maps.MapTypeId.ROADMAP, 'TILE.EPSG:3857.BDL']
          }
        });
        Gina.Layers.inject(map, 'TILE.EPSG:3857.BDL');
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="page">
      <h1 id="google_maps_example">Google Maps Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```

Step 1:  
Add the library

Step 2:  
Inject the layer(s)



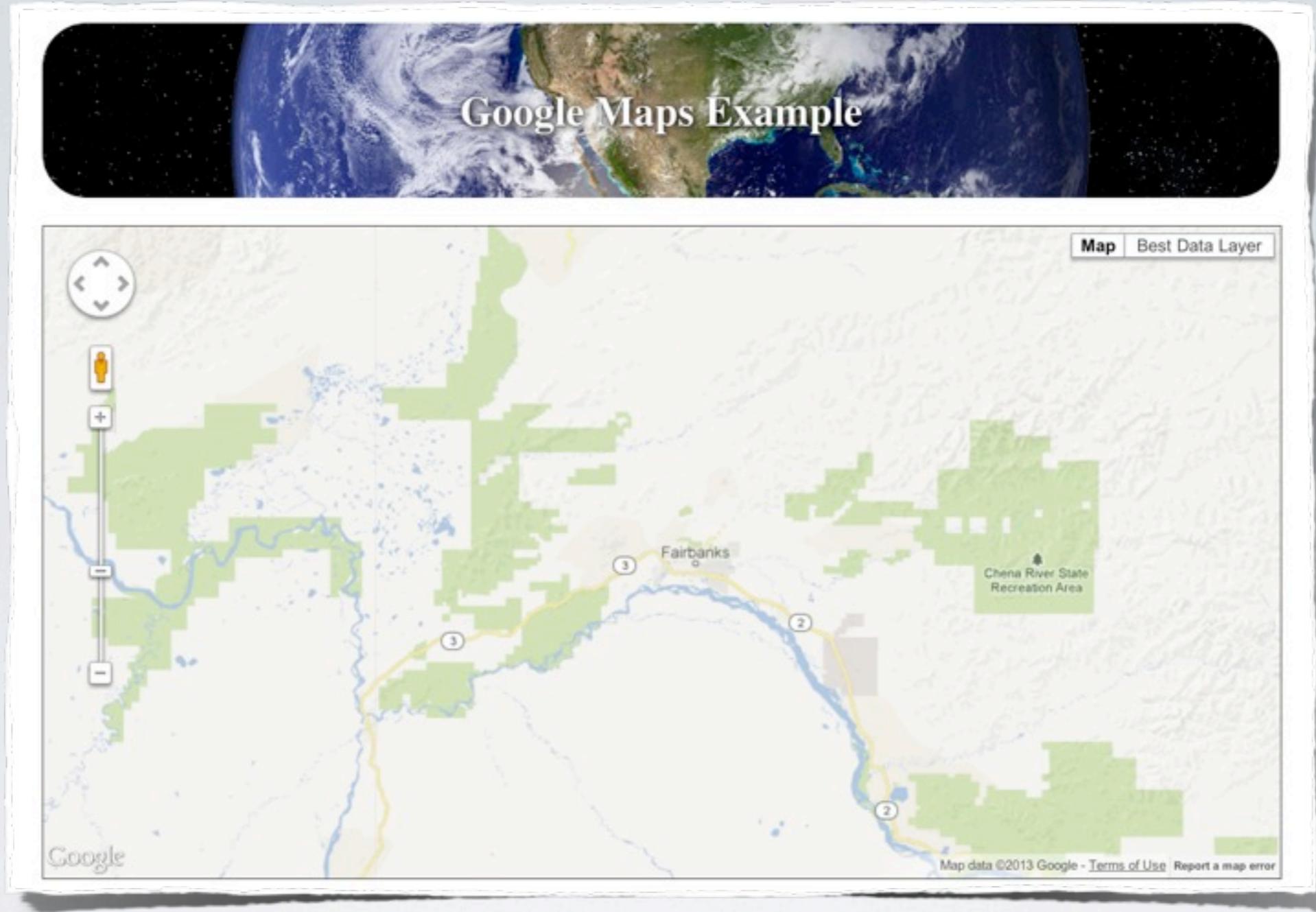
# GOOGLE MAPS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS - 2013</title>
    <meta name="viewport"
      content="width=device-width, initial-scale=1.0, user-scalable=no">
    <meta charset="UTF-8">
    <link rel="stylesheet" href="/application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script type="text/javascript" src="http://maps.googleapis.com/maps/api/js?sensor=false"></script>
    <script src="/gina-map-layers/gina-googlemaps3.js" type="text/javascript"></script>

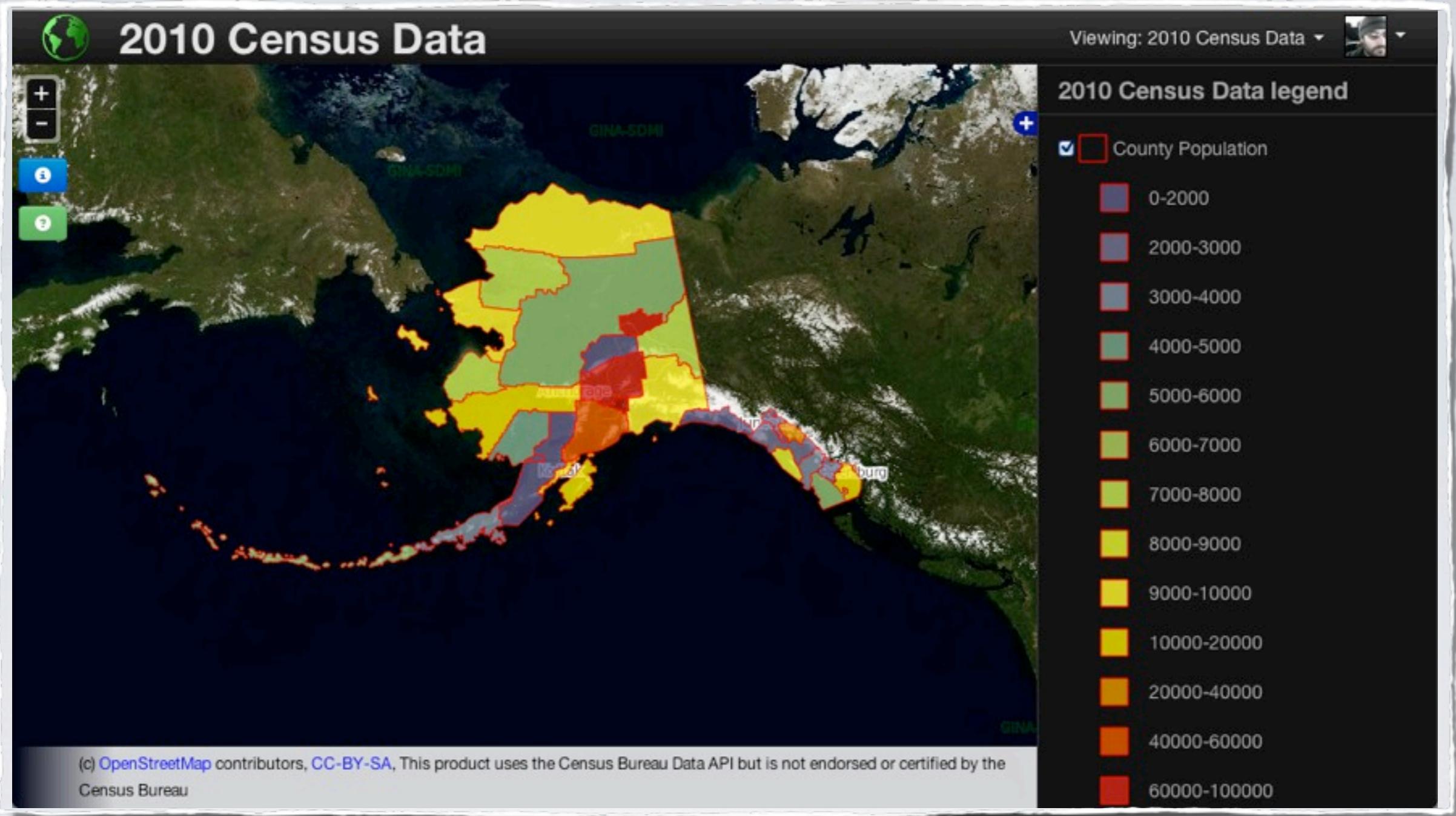
    <script type="text/javascript">
      var map;
      function initialize() {
        map = new google.maps.Map(document.getElementById('map'), {
          center: new google.maps.LatLng(64.856, -147.849),
          zoom: 8,
          mapTypeId: google.maps.MapTypeId.ROADMAP,
          mapTypeControlOptions: {
            mapTypeIds: [google.maps.MapTypeId.ROADMAP, 'TILE.EPSG:3857.BDL']
          }
        });
        Gina.Layers.inject(map, 'TILE.EPSG:3857.BDL');
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="page">
      <h1 id="google_maps_example">Google Maps Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```

List of available layers at  
<https://github.com/gina-alaska/gina-map-layers/>





## STEP 3: PROFIT!



# OPEN LAYERS

# OPENLAYERS



# OPENLAYERS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
    <link rel="stylesheet" href="../application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");

        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



# OPENLAYERS

```
<!DOCTYPE html>
<html>
  <head>
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");

        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```

Step 1:  
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```
<!DOCTYPE html>
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");
        Gina.Layers.inject(map, 'TILE.EPSG:3857.BDL');

        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```

Step 1:  
Add the library

Step 2:  
Inject the layer(s)



## OpenLayers Example



# STEP 3: PROFIT!

## OpenLayers Example



# ADDING MORE LAYERS

## OpenLayers Example



# ADDING MORE LAYERS

# ADDING MORE LAYERS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
    <link rel="stylesheet" href="../application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");

        Gina.Layers.inject(map, 'TITLE.EPSG:3857.BDL');

        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



# ADDING MORE LAYERS

```
<script type="text/javascript" charset="utf-8">
  var map;
  function initialize() {
    map = new OpenLayers.Map("map");

    Gina.Layers.inject(map, 'TILE.EPSG:3857.BDL'
      );

    map.addControl(new OpenLayers.Control.LayerSwitcher());
    map.zoomToMaxExtent();
  }
</script>
```



# ADDING MORE LAYERS

```
<script type="text/javascript" charset="utf-8">
  var map;
  function initialize() {
    map = new OpenLayers.Map("map");

    Gina.Layers.inject(map,
                      );
    map.addControl(new OpenLayers.Control.LayerSwitcher());
    map.zoomToMaxExtent();
  }
</script>
```



# ADDING MORE LAYERS

```
<script type="text/javascript" charset="utf-8">
  var map;
  function initialize() {
    map = new OpenLayers.Map("map");

    Gina.Layers.inject(map, ['TILE.EPSG:3857.BDL', 'TILE.EPSG:3857.TOP0', 'TILE.EPSG:3857.SHADe_RELIEF',
      'TILE.EPSG:3857.OSM', 'TILE.EPSG:3857.LANDSAT_PAN', ... ]);

    map.addControl(new OpenLayers.Control.LayerSwitcher());
    map.zoomToMaxExtent();
  }
</script>
```



List of available layers at  
[https://github.com/gina-alaska/  
gina-map-layers/](https://github.com/gina-alaska/gina-map-layers/)



# ADDING MORE LAYERS

```
<script type="text/javascript" charset="utf-8">
  var map;
  function initialize() {
    map = new OpenLayers.Map("map");

    Gina.Layers.inject(map, 'TILE.EPSG:3857.*');

    map.addControl(new OpenLayers.Control.LayerSwitcher());
    map.zoomToMaxExtent();
  }
</script>
```



Special wildcard to load all available layers for the given projection.



## OpenLayers Example

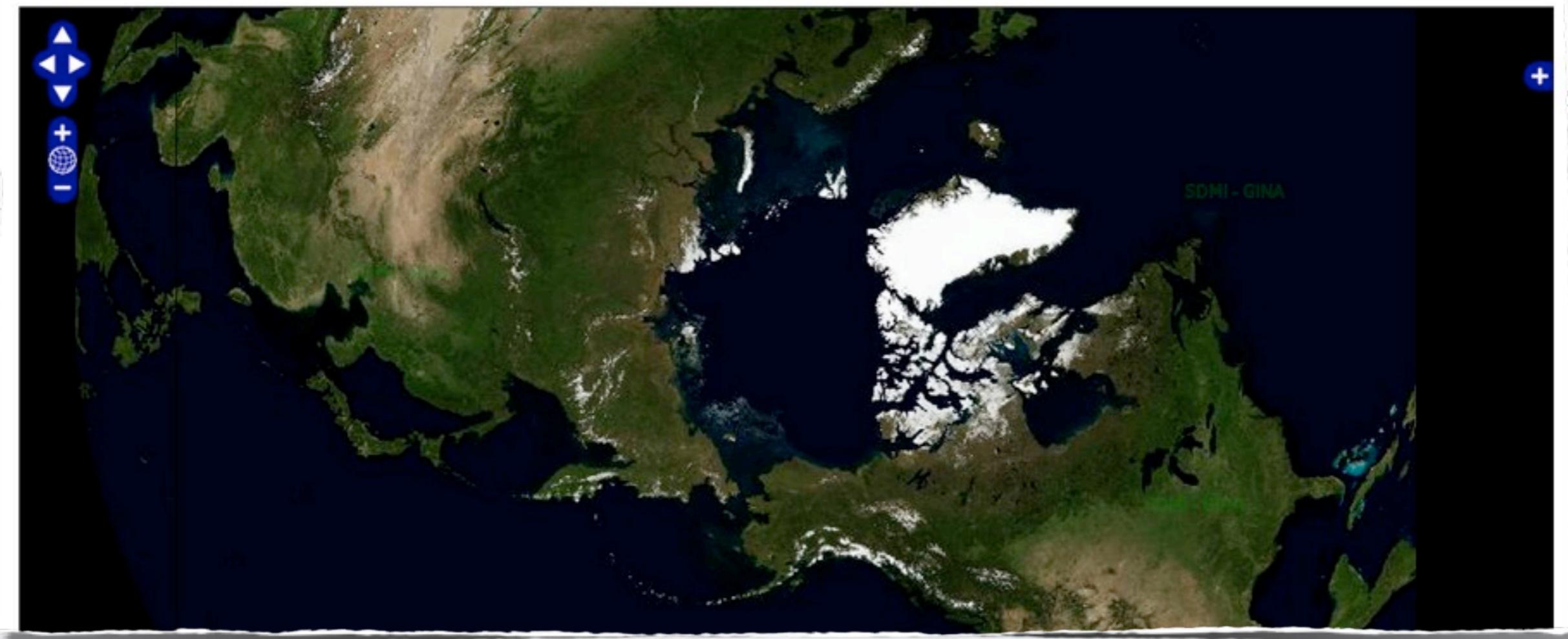


# SWITCHING PROJECTIONS

## Alaskan Albers Projection Example



# SWITCHING PROJECTIONS



# SWITCHING PROJECTIONS

# SWITCHING PROJECTIONS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
    <link rel="stylesheet" href="../application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script src="/0penLayers-2.11/0penLayers.js" type="text/javascript" charset="utf-8"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {

        map = new OpenLayers.Map("map");
        Gina.Layers.inject(map, 'TILE.EPSG:3857.*');

        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



# SWITCHING PROJECTIONS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
    <link rel="stylesheet" href="../application.css" type="text/css" media="screen" title="no title" charset="utf-8">
    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script src="/gina-map-layers/projections/epsg_3338.js" type="text/javascript"></script>
    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");
        Gina.Layers.inject(map, 'TILE.EPSG:3857.*');
        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



Include the projection settings



# SWITCHING PROJECTIONS

```
<!DOCTYPE html>
<html>
  <head>
    <title>AKMSS – 2013</title>
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script src="/gina-map-layers/projections/epsg_3338.js" type="text/javascript"></script>
    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        map = new OpenLayers.Map("map");
        Gina.Layers.inject(map, 'TILE.EPSG:3857.*');
        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
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    </div>
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script src="/gina-map-layers/projections/epsg_3338.js" type="text/javascript"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        var config = Gina.Projections.get('EPSG:3338');

        map = new OpenLayers.Map("map", config);
        Gina.Layers.inject(map, 'TILE.EPSG:3857.*' );
        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



Create the map with the  
projection settings



# SWITCHING PROJECTIONS

```
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  <head>
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script src="/gina-map-layers/projections/epsg_3338.js" type="text/javascript"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        var config = Gina.Projections.get('EPSG:3338');

        map = new OpenLayers.Map("map", config);

        Gina.Layers.inject(map,
                           );
        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
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      <div id="map"></div>
    </div>
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```



# SWITCHING PROJECTIONS

```
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    <script src="/OpenLayers-2.11/OpenLayers.js" type="text/javascript" charset="utf-8"></script>
    <script src="/gina-map-layers/gina-openlayers.js" type="text/javascript"></script>
    <script src="/gina-map-layers/projections/epsg_3338.js" type="text/javascript"></script>

    <script type="text/javascript" charset="utf-8">
      var map;
      function initialize() {
        var config = Gina.Projections.get('EPSG:3338');

        map = new OpenLayers.Map("map", config);
        Gina.Layers.inject(map, 'TILE.EPSG:3338.*' );
        map.addControl(new OpenLayers.Control.LayerSwitcher());
        map.zoomToMaxExtent();
      }
    </script>
  </head>
  <body onLoad="initialize()">
    <div id="page">
      <h1 id="openlayers_example">OpenLayers Example</h1>
      <div id="map"></div>
    </div>
  </body>
</html>
```



Update layers to use the  
correct projection





EPSG:3338 - ALASKAN ALBERS

# USEFUL LINKS

GINA Website

<http://www.gina.alaska.edu>

GINA Map Layers Library

<http://github.com/gina-alaska/gina-map-layers>

Additional Examples

<http://mashup.gina.alaska.edu>



# QUESTIONS?

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