



# Who is this guy ?

MAX

Tom Gonzalez  
*Managing Director*

**brightpoint consulting**

data visualization - research and development

**Current Tools**

**Axiis**

**Real World Example**

**Methodology**

**Code**

**Demos**

**Q and A**



#adobemax75





You

+



MXML, Binding, AS3

=



**Design Pattern**

!

=





## Adobe Flex Data Viz

(examples)

## ILOG Extensions

(examples)

Third Party

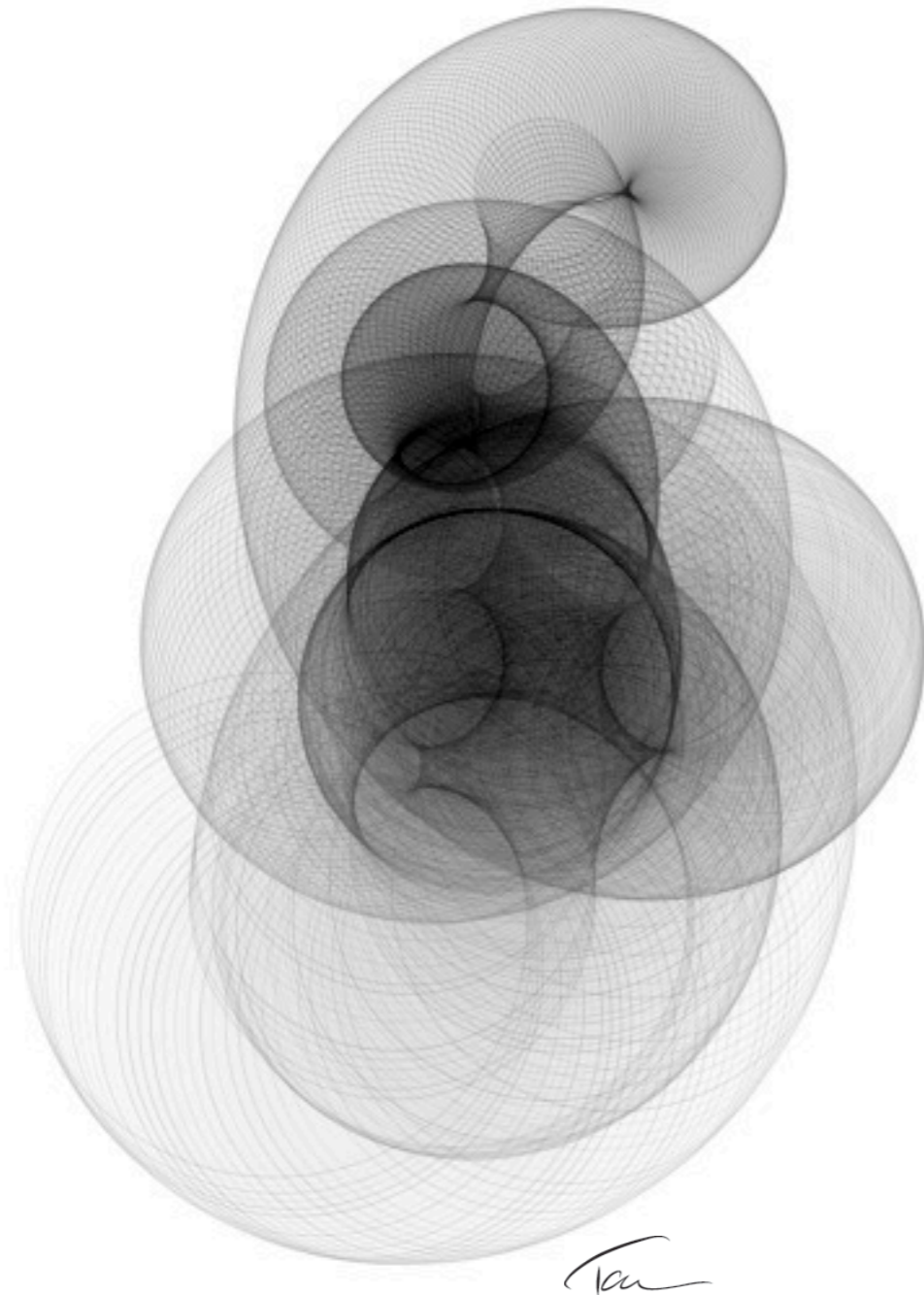
**Flex SDK/OO**

**Pre Composited**

**Source Code**

**Lots of Examples**

**Get going quickly**

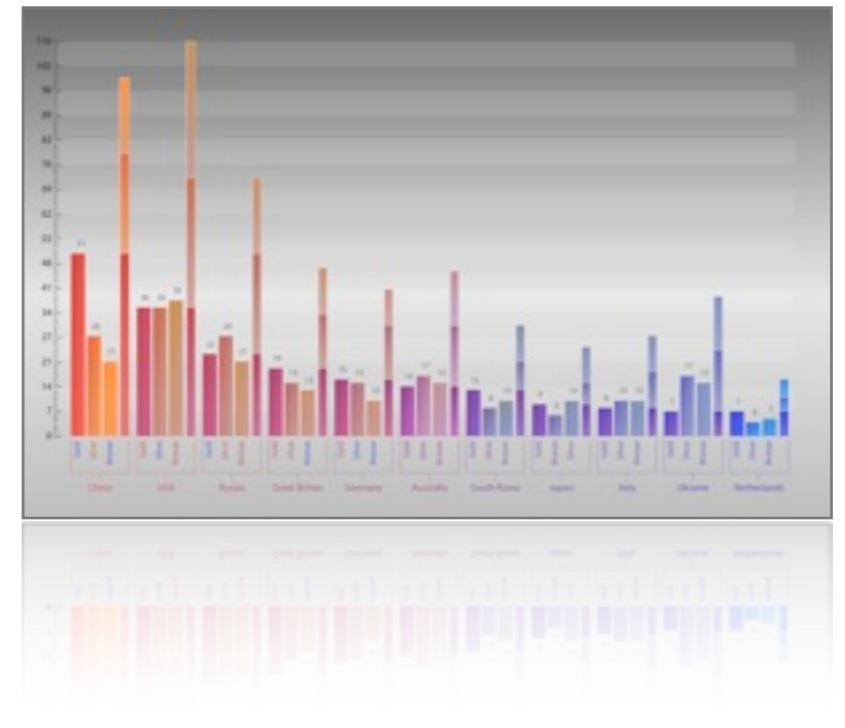
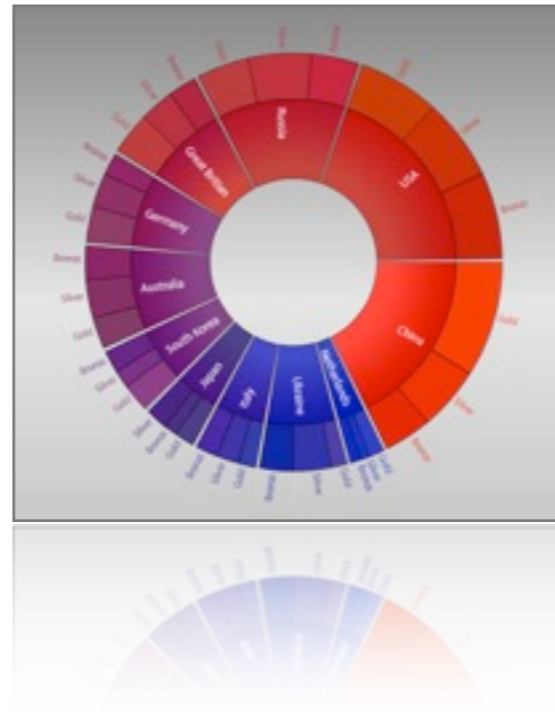
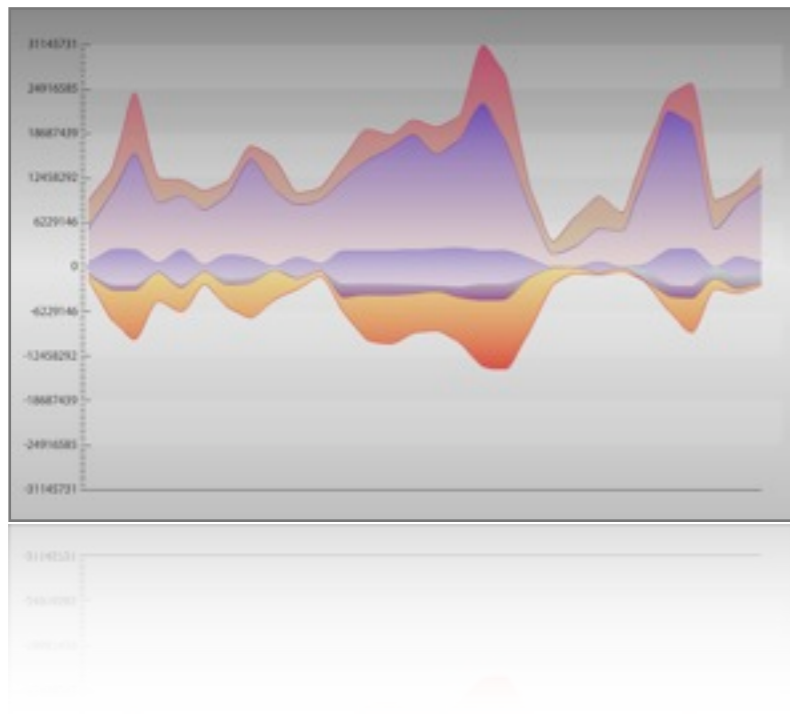


**Skinning and Styling**

**Customization**

**Innovation**

**Productivity**

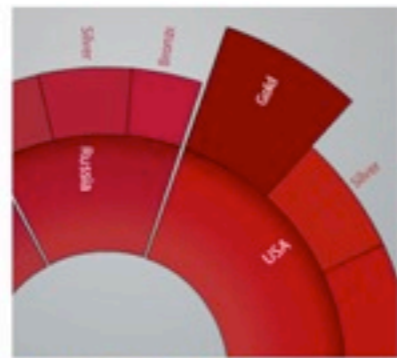


Design patterns for Data Visualization

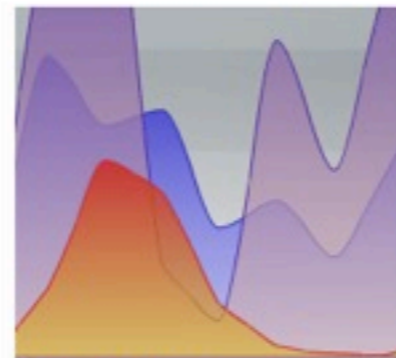
Open Source (MIT License)

Beta - using on commercial projects

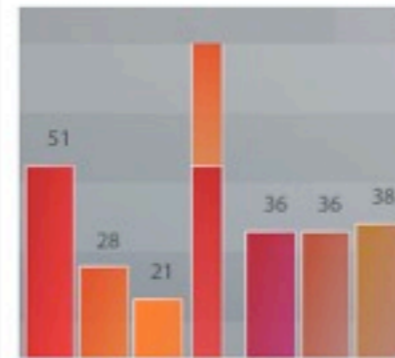
# Examples



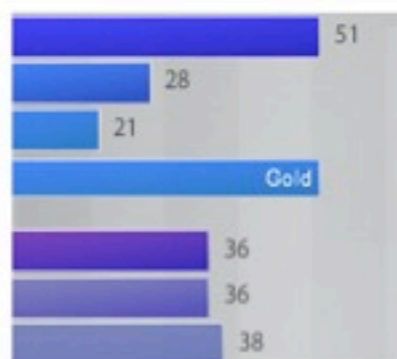
**Wedge Stack Graph**  
Tom Gonzalez  
[View](#) [Source](#)



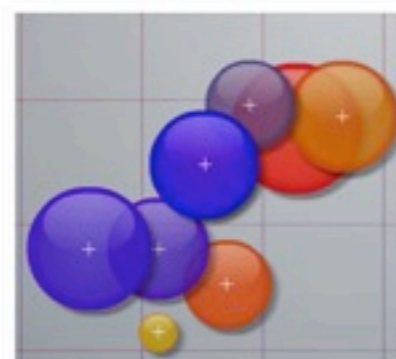
**Lines and Areas**  
Tom Gonzalez  
[View](#) [Source](#)



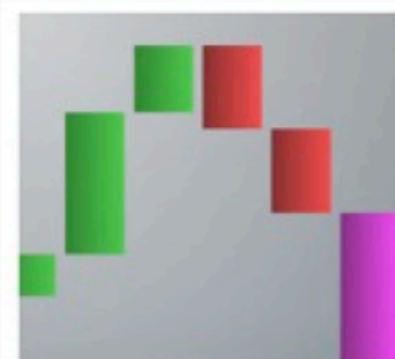
**Column Clusters and Stacks**  
Tom Gonzalez  
[View](#) [Source](#)



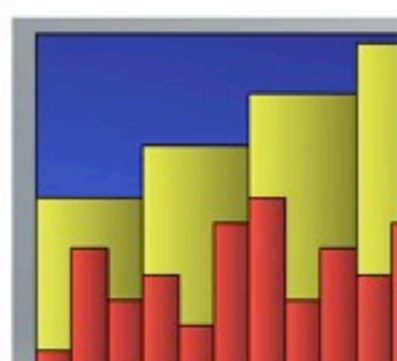
**Bar Clusters and Stacks**  
Tom Gonzalez  
[View](#) [Source](#)



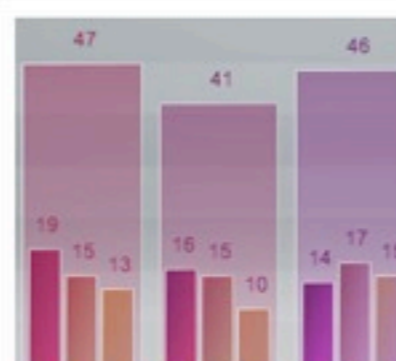
**Plots and Bubbles**  
Tom Gonzalez  
[View](#) [Source](#)



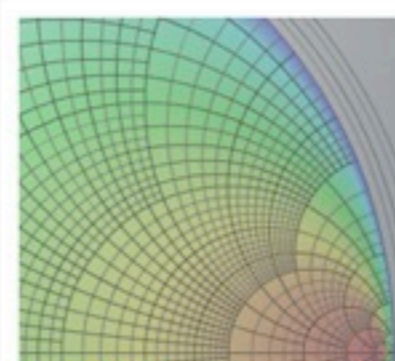
**Waterfall Chart**  
Michael VanDaniker  
[View](#) [Source](#)



**Nested Columns**  
Michael VanDaniker  
[View](#) [Source](#)



**HCluster Column**  
Tom Gonzalez  
[View](#) [Source](#)

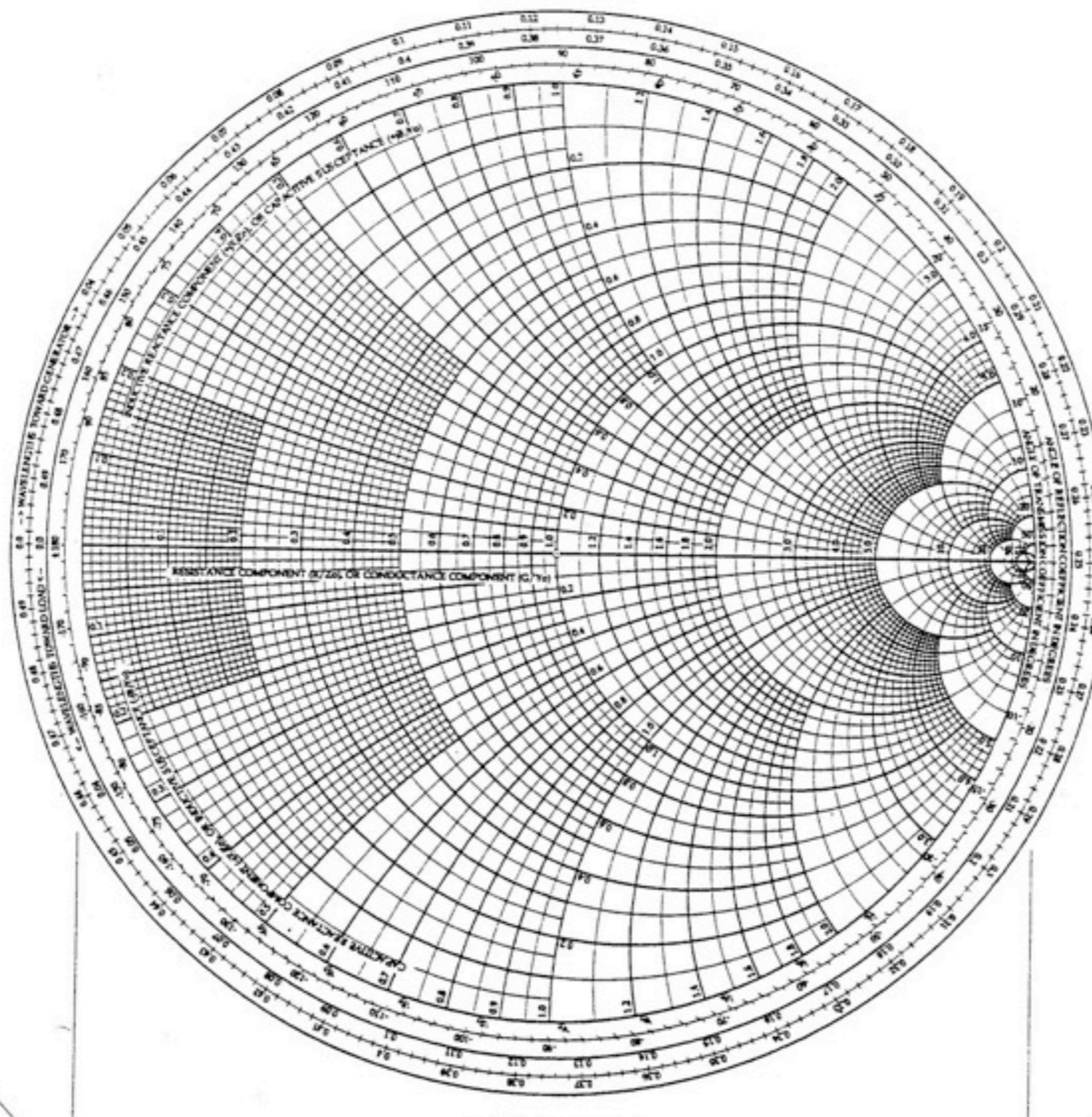


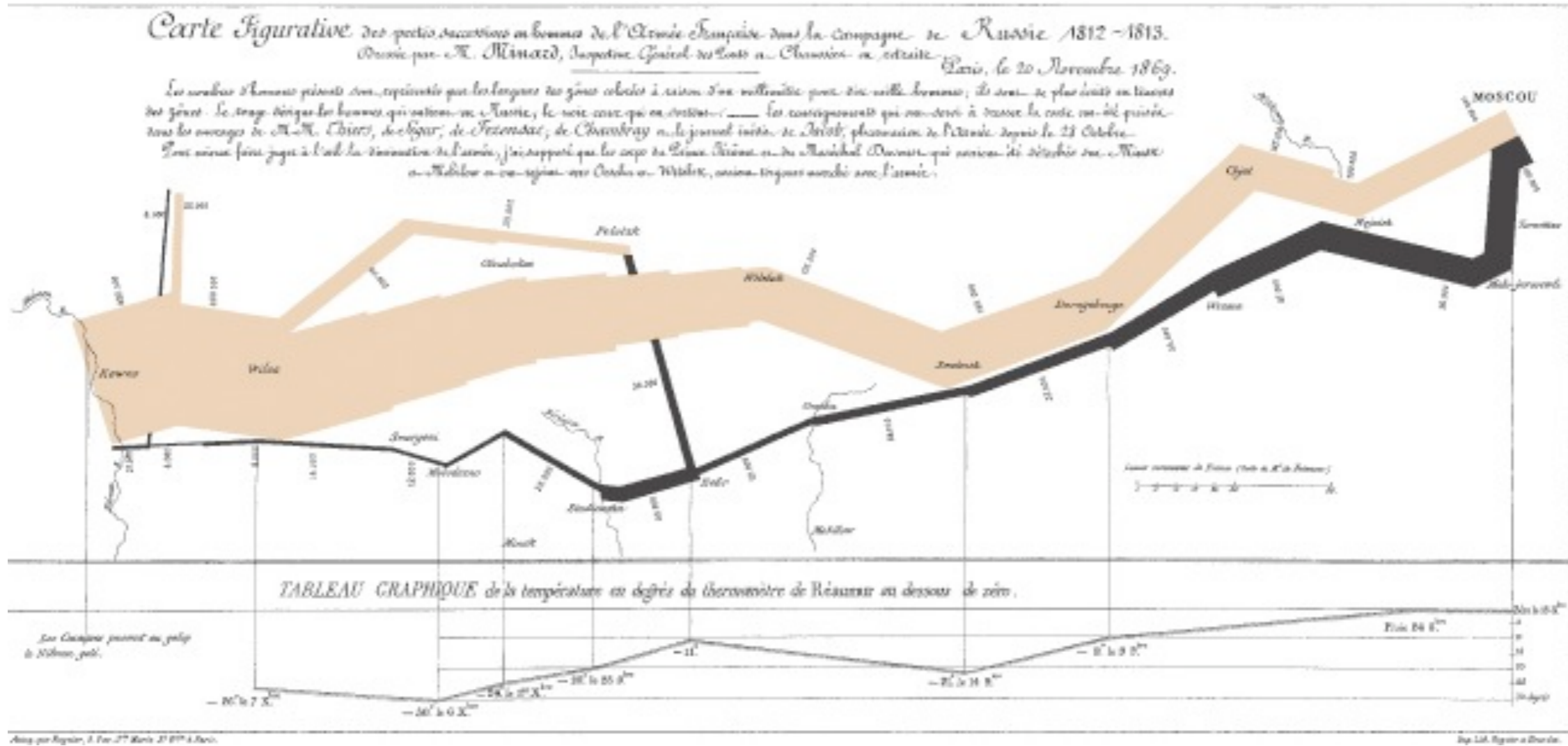
**Smith Chart**  
Andrew Westberg  
[View](#) [Source](#)

# Our Inspiration



# Our Inspiration

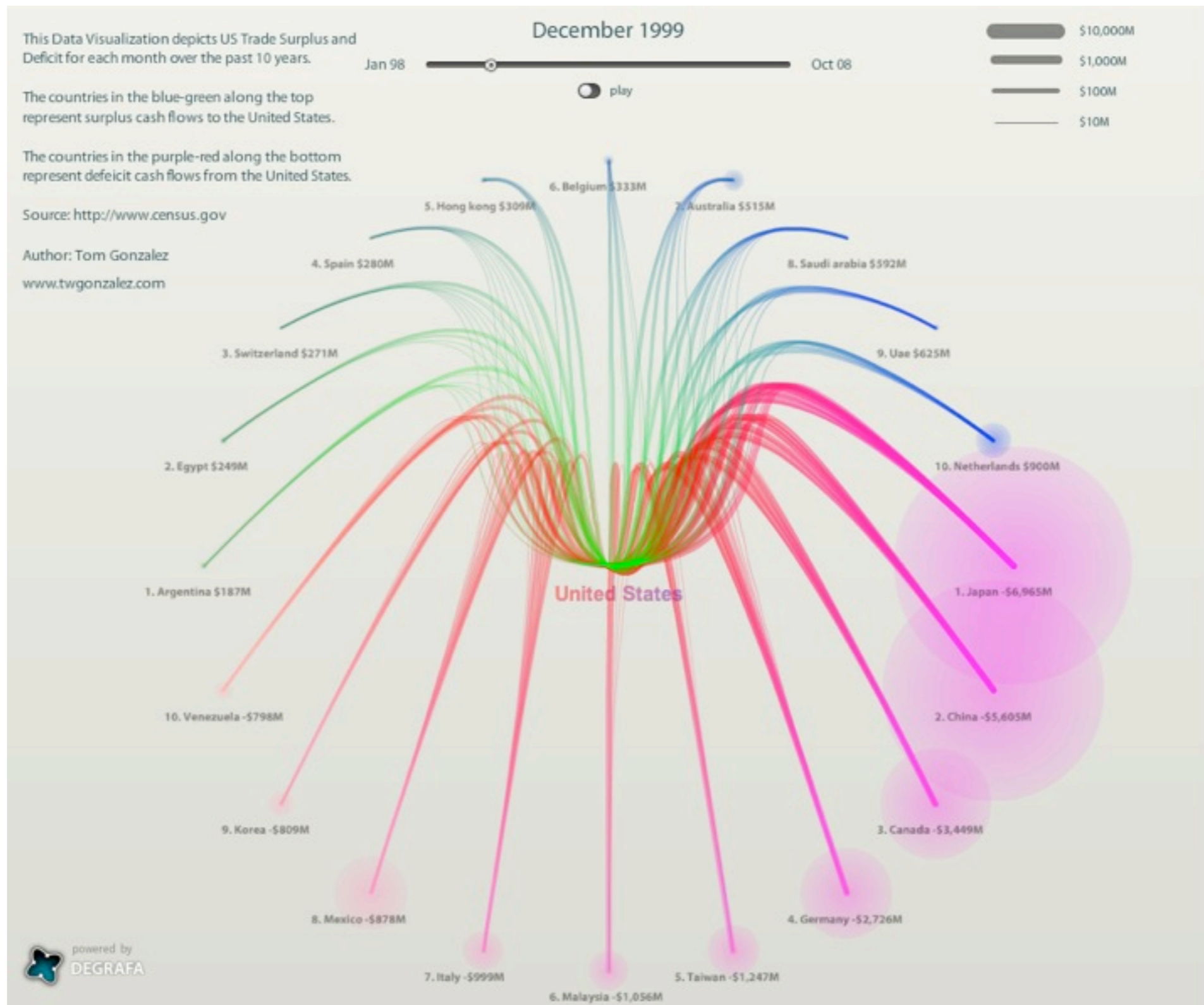




# Our Inspiration

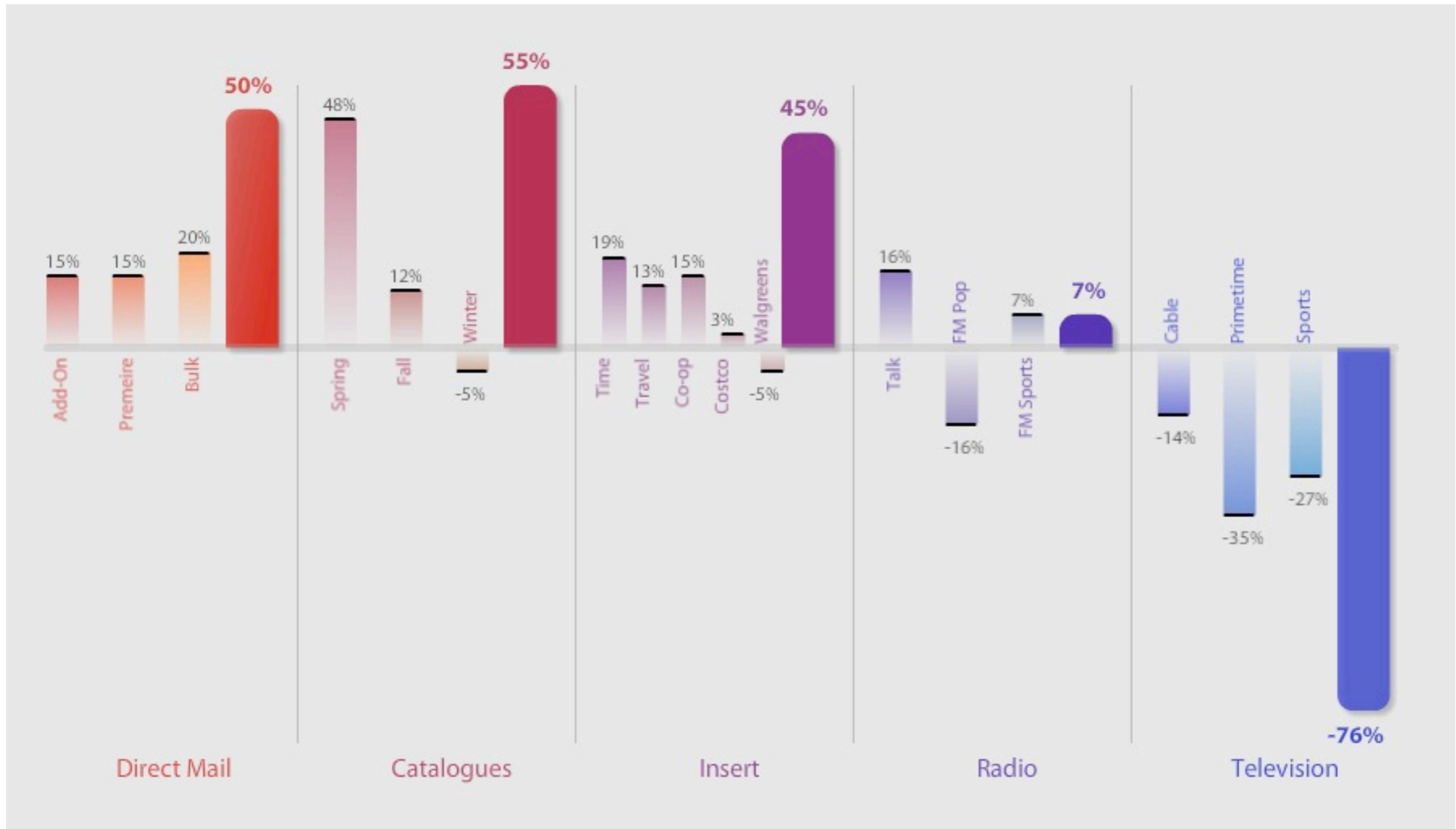


# Our Inspiration





# Our Inspiration



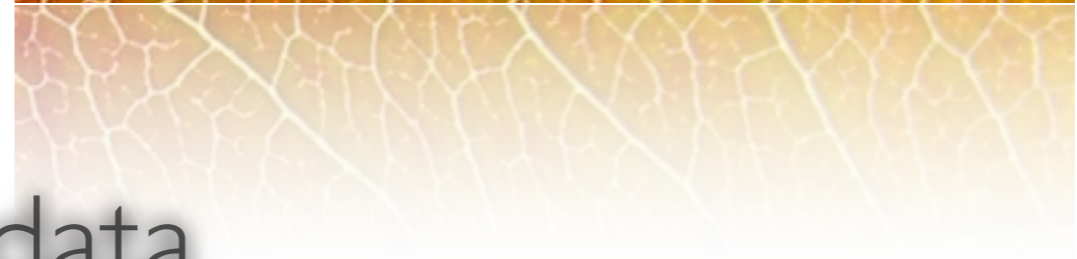
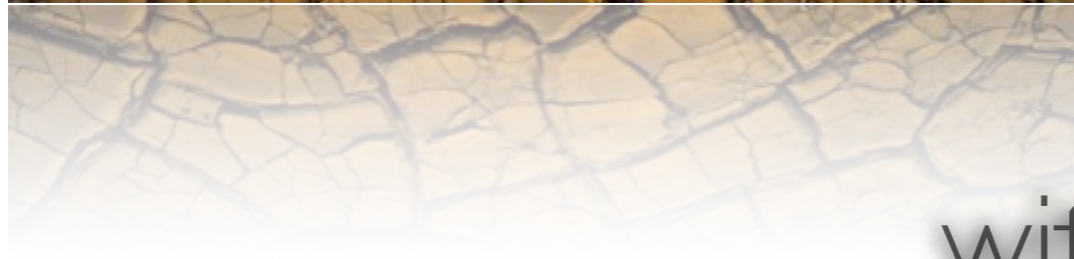
# How is it different ?



# How is it different ?



its all about describing patterns



with data

&  
your imagination

Expressive

Concise

Modular

```
<!-- Common calculations used by geometries -->
<utils:NumericExpression id="outerRadius"
  value="{(width/2)*outerRadiusRatio}"/>
<utils:NumericExpression id="center"
  value="{boundsRadius.value/2}"/>
<utils:NumericExpression id="boundsRadius"
  value="{Math.min(this.height,this.width)}"/>
<utils:NumericExpression id="arc"
  value="{Number(currentValue)/maxValue*(maxArc-angleGap*itemCount)}"/>
<utils:BooleanExpression id="transposeLabel"
  value="{!( (wedge.startAngle + wedge.arc * .5) > 90 && (wedge.startAngle + wedge.arc * .5) < 270)}"/>

<groupings:referenceRepeater>
  <!-- innerRepeater: the reference repeater wedge for the inner ring of wedges -->
  <layoutUtils:GeometryRepeater id="innerRepeater">
    <layoutUtils:geometry>
      <geometry:Wedge id="wedge"
        centerX="{width/2}"
        centerY="{width/2}"
        innerRadius="{(width/2)*innerRadiusRatio}"
        outerRadius="{(width/2)*outerRadiusRatio}"
        startAngle="{startAngle}"
        arc="0"/>
    </layoutUtils:geometry>
    <layoutUtils:modifiers>
      <layoutUtils:PropertyModifier property="startAngle" modifier="{wedge.arc+angleGap}" modifierOperator="add"/>
      <layoutUtils:PropertyModifier property="arc" modifier="{arc.value}" modifierOperator="none"/>
    </layoutUtils:modifiers>
  </layoutUtils:GeometryRepeater>
</groupings:referenceRepeater>
```



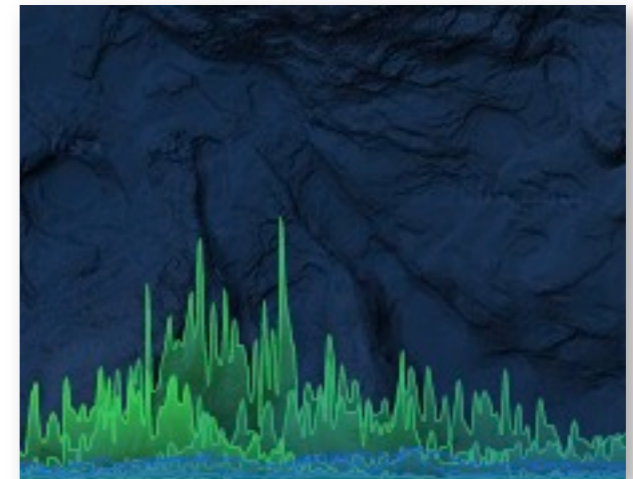
# Real world example





```
private function onSelect(e:Event):void
{
    if (selectedBuoy)
    {
        selectedBuoy.selected=false;
        selectedBuoy.invalidateDisplayList();
    }
    selectedBuoy=BuoyViz(e.currentTarget);
    selectedBuoy.selected=true;
    selectedBuoy.invalidate();
    waveSeries.energy=this["dsE_"+ e.target.id].data.pivot.ro
    waveSeries.invalidate();
}

private function onSliderMoved(e:Event):void
{
    pointer=Math.round(slider.getSliderPercent() * dsD_Oceans
    start();
}
```



waves + code + data viz

# Real world example

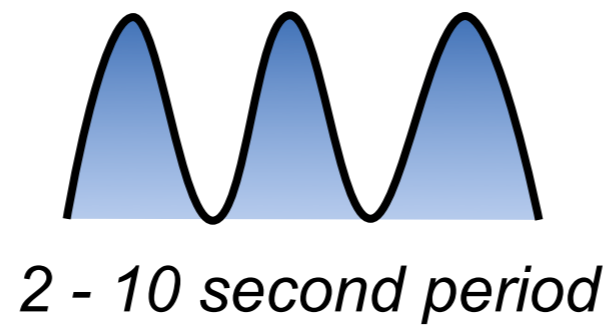
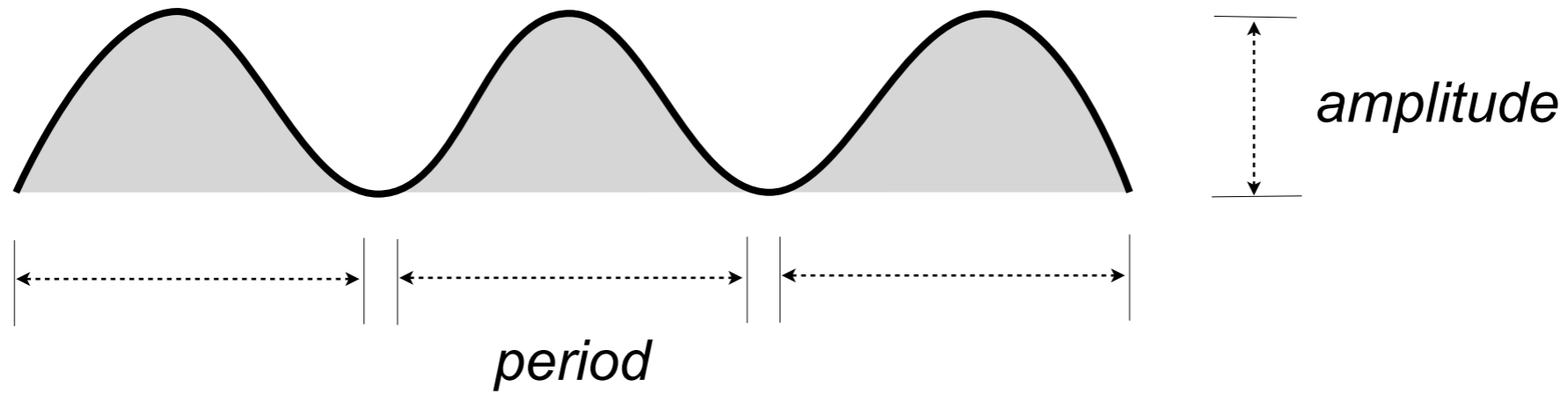
MAX



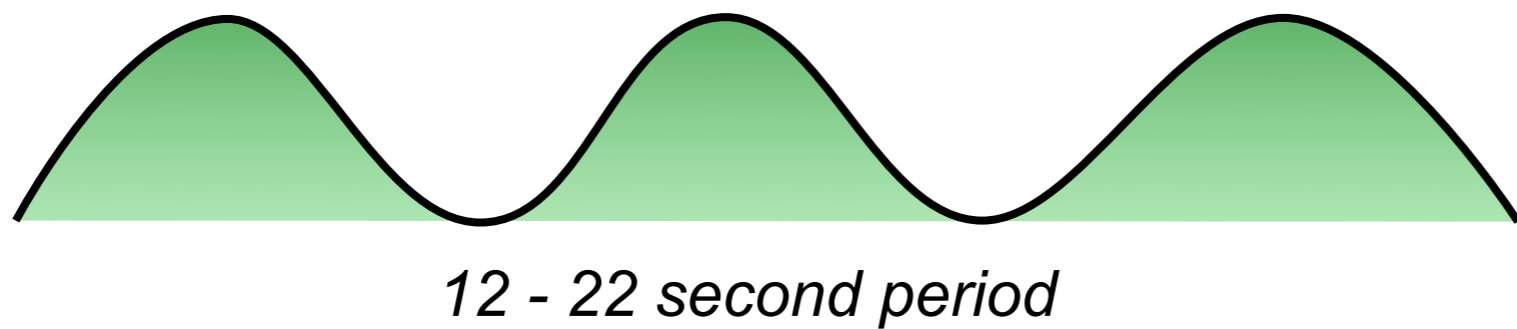
 #adobemax75

- 1. What's the Question?** - Are the waves *good* now and are they getting *better* or *worse* ?
- 2. Why is this Important?** - I need to know how to schedule and prioritize my day and week.
- 3. What data do I need?** -
  1. Is the swell increasing or decreasing?  
**wave amplitude over time**
  2. What type of swell is it?  
**wave period**
  3. Where is the swell coming from?  
**direction (angle)**

# A little Oceanography



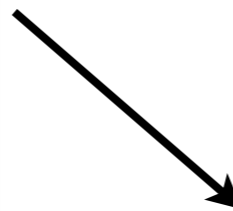
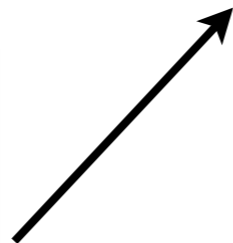
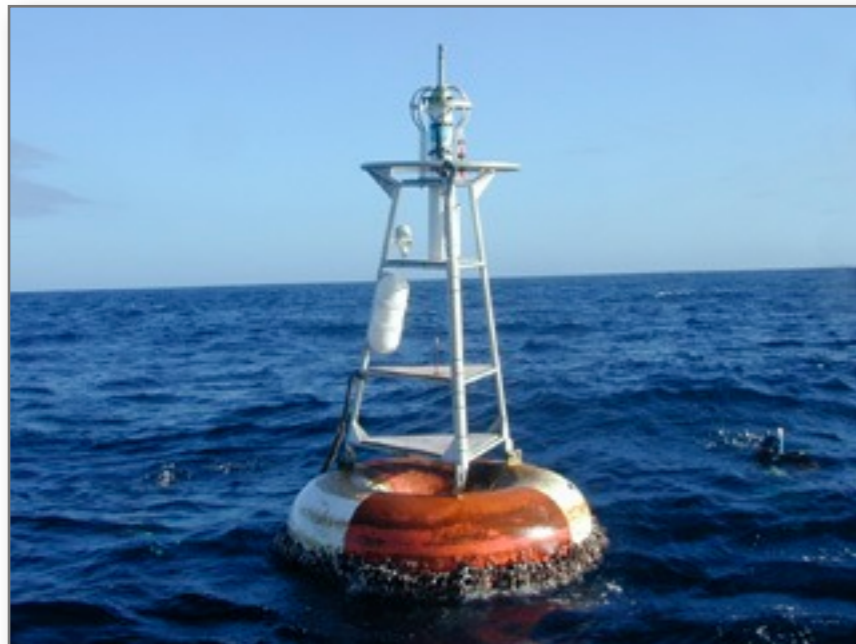
**Wind Swell**



**Ground Swell**

## energy

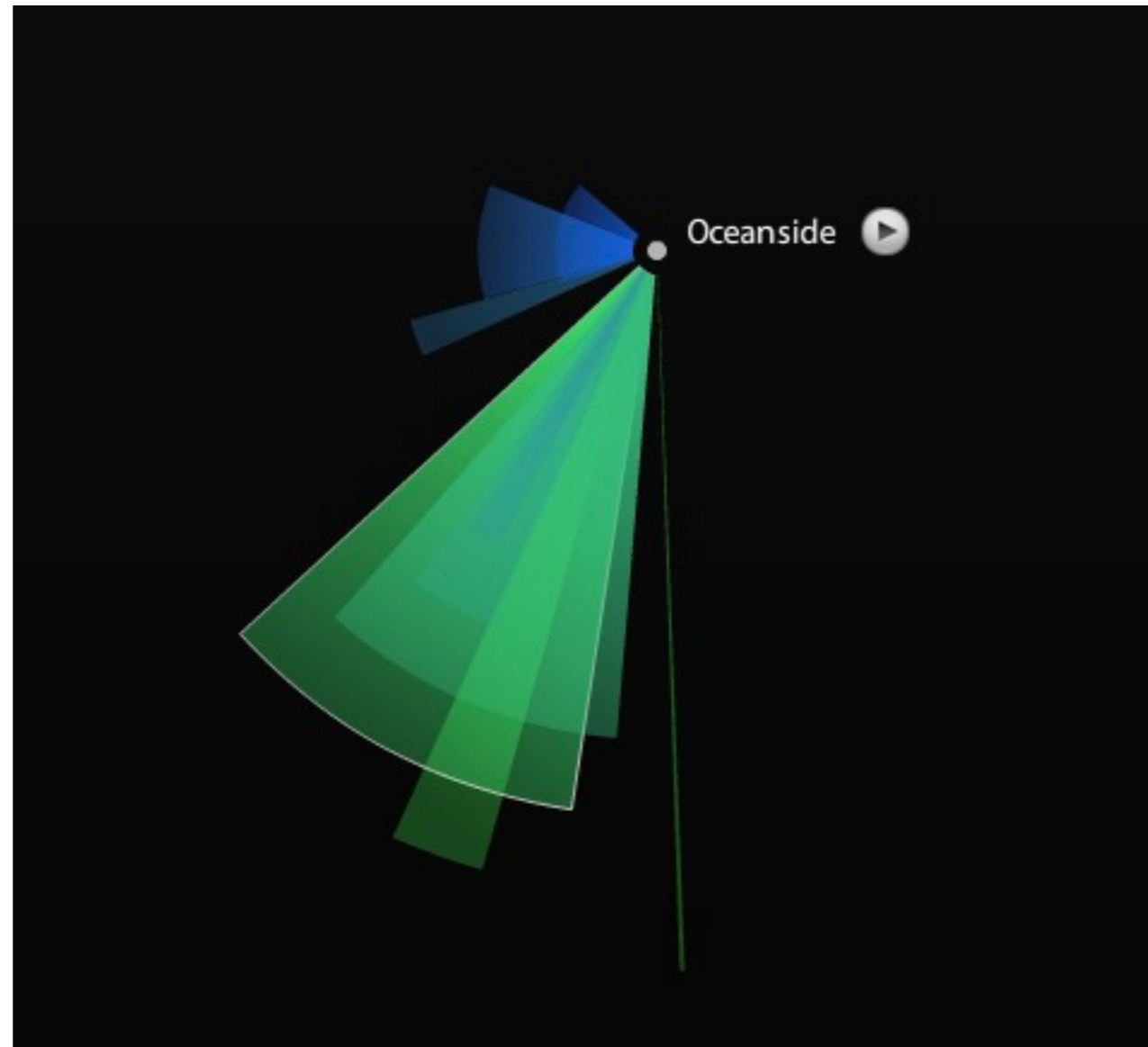
UTC YYYYMMDDHHMM	Hs (CM)	Tp (SEC)	ENERGY (CM <sup>2</sup> )								
			BAND	PERIOD	LIMITS (SECS)	22+	22-18	18-16	16-14	14-12	12-10
200909261812	60	4	3	30	11	19	11	13	18	28	88
200909261842	60	4	3	37	25	14	9	13	14	18	86
200909261912	62	4	2	35	37	18	14	15	16	23	82
200909261942	59	4	3	25	13	27	16	11	17	19	86
200909262012	56	4	1	20	12	16	17	13	18	18	76
200909262042	55	4	2	22	16	13	13	14	12	16	79
200909262112	57	4	2	21	17	17	11	14	11	23	82



## direction

ANGULAR DISTRIBUTION IN PERIOD BANDS  
(ANGLES IN DEGREES)

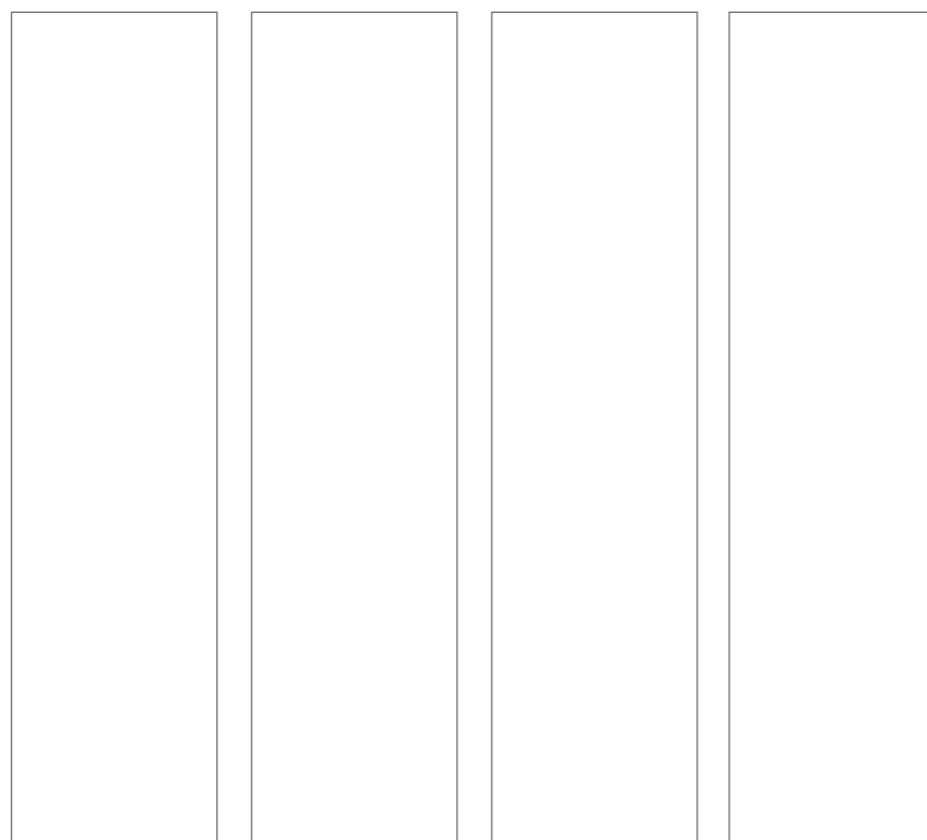
UTC YYYYMMDDHHMM	Dp (DEG)	BAND PERIOD LIMITS (SECS)								
		+22	22-18	18-16	16-14	14-12	12-10	10-8	8-6	6-2
200909261812	254	261	257	253	237	233	252	266	271	254
200909261842	255	264	257	251	230	234	251	259	271	255
200909261912	256	264	255	249	235	239	245	260	270	256
200909261942	252	258	254	249	236	235	256	266	276	252
200909262012	257	283	257	249	234	231	248	259	273	257
200909262042	260	260	254	248	236	234	249	267	273	260
200909262112	262	270	258	251	232	230	252	269	273	262



# The Repeater Pattern

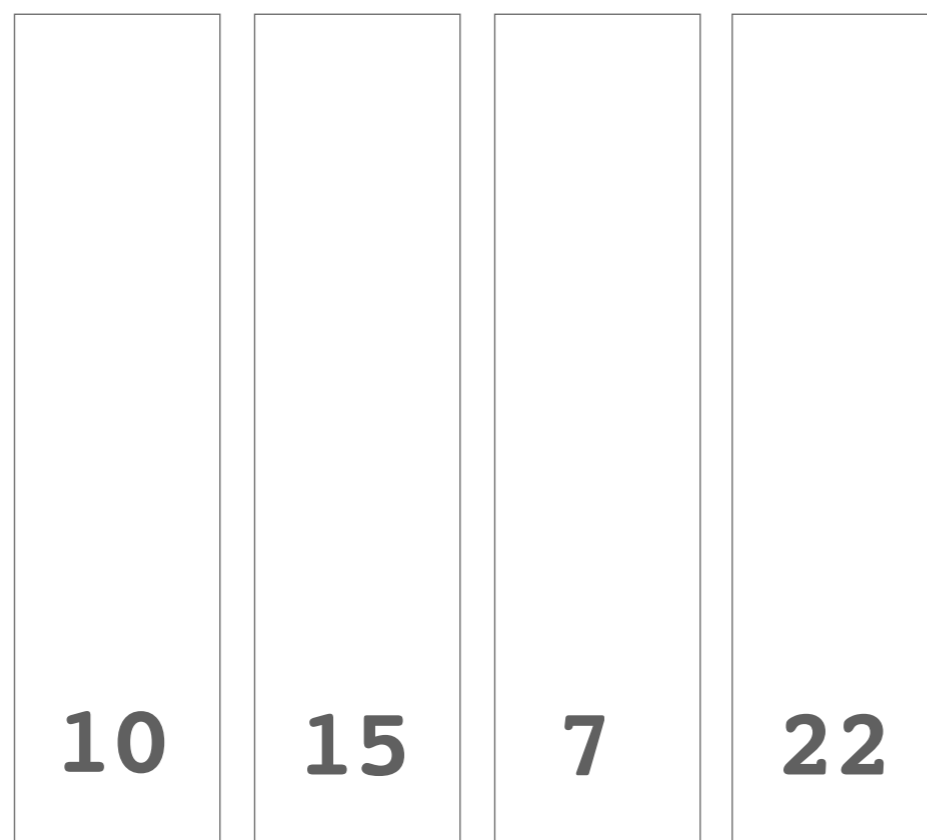


describe a  
pattern



reference repeater





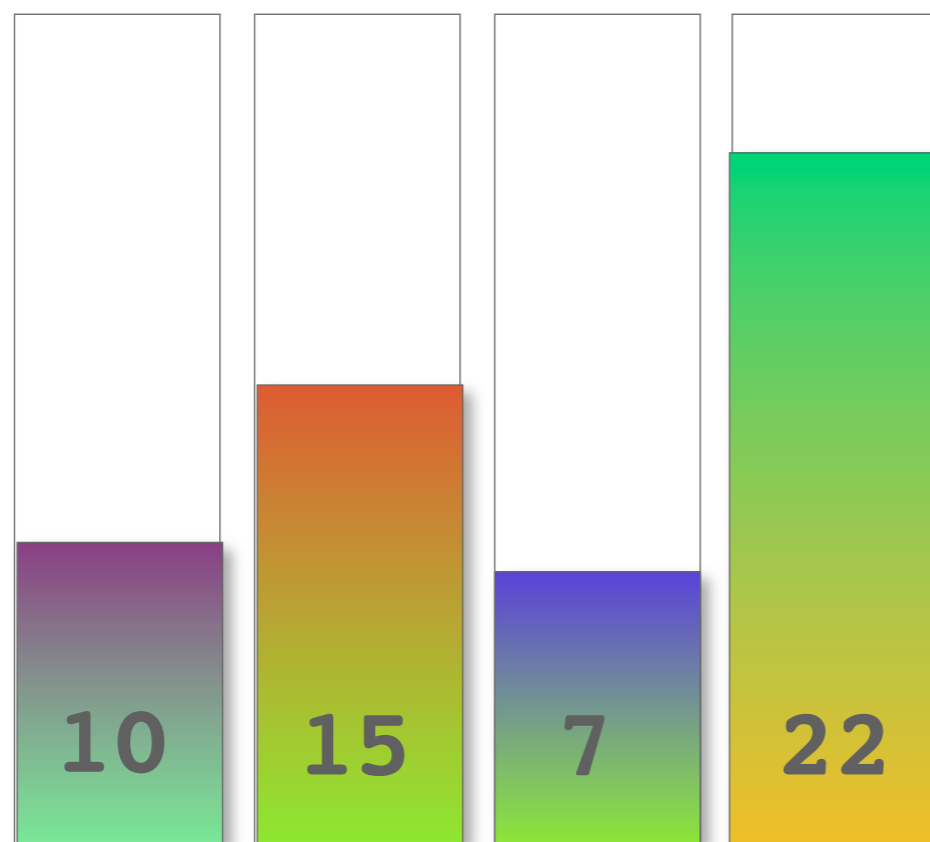
describe a  
pattern

bind some  
data

reference repeater



drawing geometries



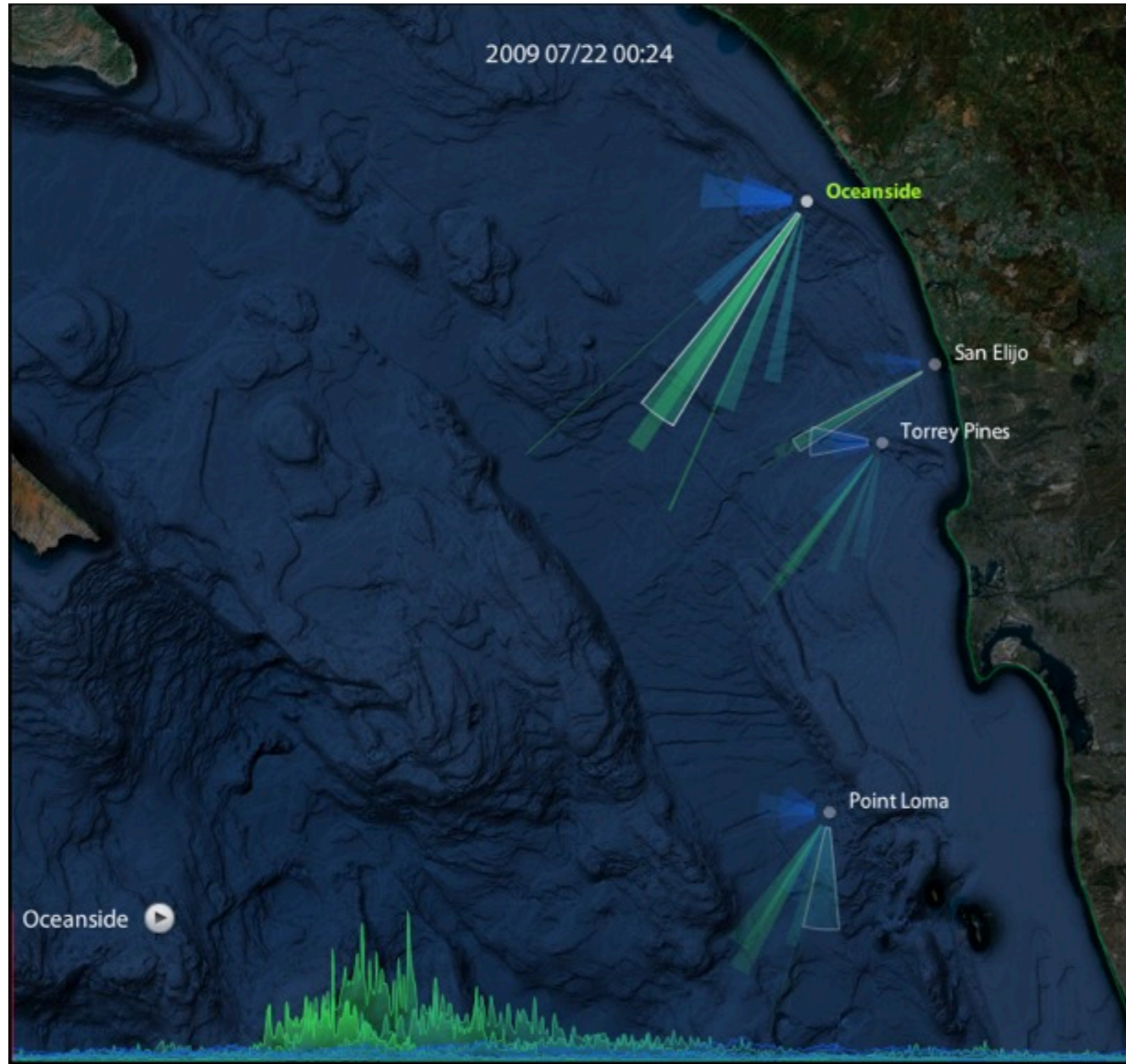
describe a pattern

bind some data

draw a picture

reference repeater

# Putting it all Together



# When it all Comes together

MAX

July 25, 2009  
Newport Beach



 #adobemax75



*Tom*

axiis: [www.axiis.org](http://www.axiis.org)

email: [tgonzalez@brightpointinc.com](mailto:tgonzalez@brightpointinc.com)

corp: [www.brightpointinc.com](http://www.brightpointinc.com)

blog: [www.twgonzalez.com](http://www.twgonzalez.com)



*Tom*



CONNECT. DISCOVER. INSPIRE.