NASA's Hyperwall

A Guide for Preparing Hyperwall Content

NASA's Goddard Space Flight Center (GSFC) hyperwall is a high-resolution video wall (5760x3240 pixels) capable of displaying multiple data visualizations and/or images simultaneously across an arrangement of screens. A 3x3 grid of screens is most common, with a "10th" screen for accompanying text. The native resolution of each screen is 1920x1080 pixels. The hyperwall software is provided by the GSFC Scientific Visualization Studio.

Four Steps for Preparing Content

1. Determine appropriate content

2. Ensure that your content meets hyperwall requirements - see Table 1

3. Design your layout, including layout notes and story text - see Designing Your Hyperwall Content

4. Submit individual content files, design layout, layout notes, and story text

Content type	Size requirements	Screen Display	File Formats
Full HD movie	*1080p (1920x1080) @ 30fps* *720p (1280x720) @ 30fps*	*1 screen, a 2x2 arrangement, and/or a 3x3 arrangement of screens*	*QuickTime* *H.264* *MPEG*
Large animation (frames)	*1368x768 up to 5760x3240*	*Any number of whole screens*	*PNG* *TIFF*
Still images	*1368x768 up to 5760x3240*	*Any number of whole screens*	*PNG* *TIFF*
Text	*~1600 characters per screen*	*1 screen*	*Plain text*

Table 1. Content for the hyperwall must meet the requirements listed above. ***Native PowerPoint and Apple Keynote files are not supported and are only recommended when "designing" your hyperwall layout***

Designing Your Hyperwall Layout

A fairly easy way to design layouts is to make a PowerPoint or Keynote slide show with a 16x9 slide size (widescreen). Make a grid to represent the individual video screens on each slide. Arrange images that represent your content on each slide (**Figure 1**).

When the final design is complete and the final images/slides are created, the individual content files should be submitted along with a set of Layout Notes.

Layout Notes should include:
1. Slide number
2. A listing of the individual content file names and position coordinates as described in **Example 1**.
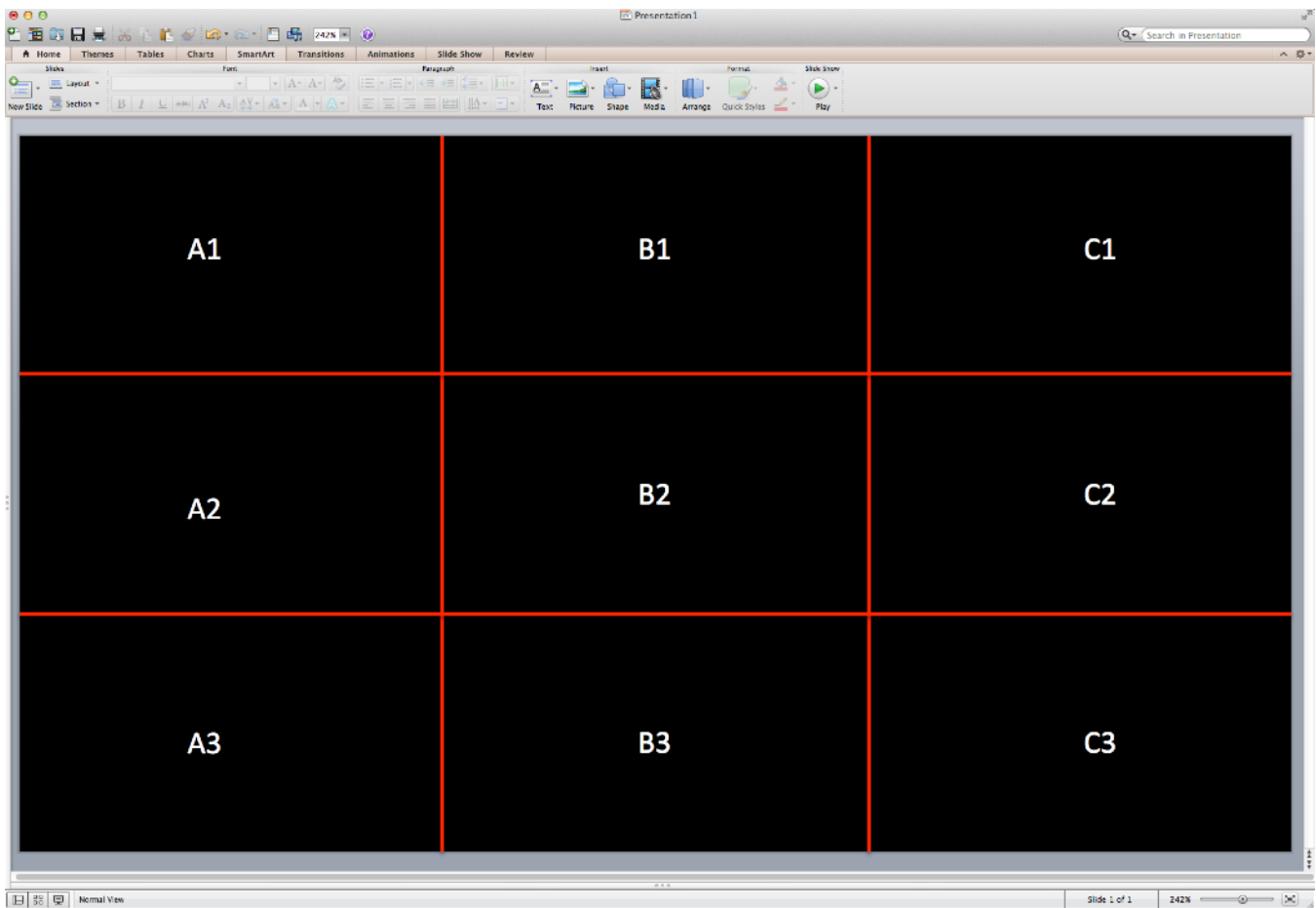
Figure 1. Using PowerPoint or Keynote, design your hyperwall layout by arranging images that represent the content you wish to show. Before you start, make a grid to represent the individual video screens (red lines). **Visit eospso.nasa.gov/content/about-nasas-hyperwall to download template PowerPoint and Keynote files.**

Example 1 Hyperwall Layout
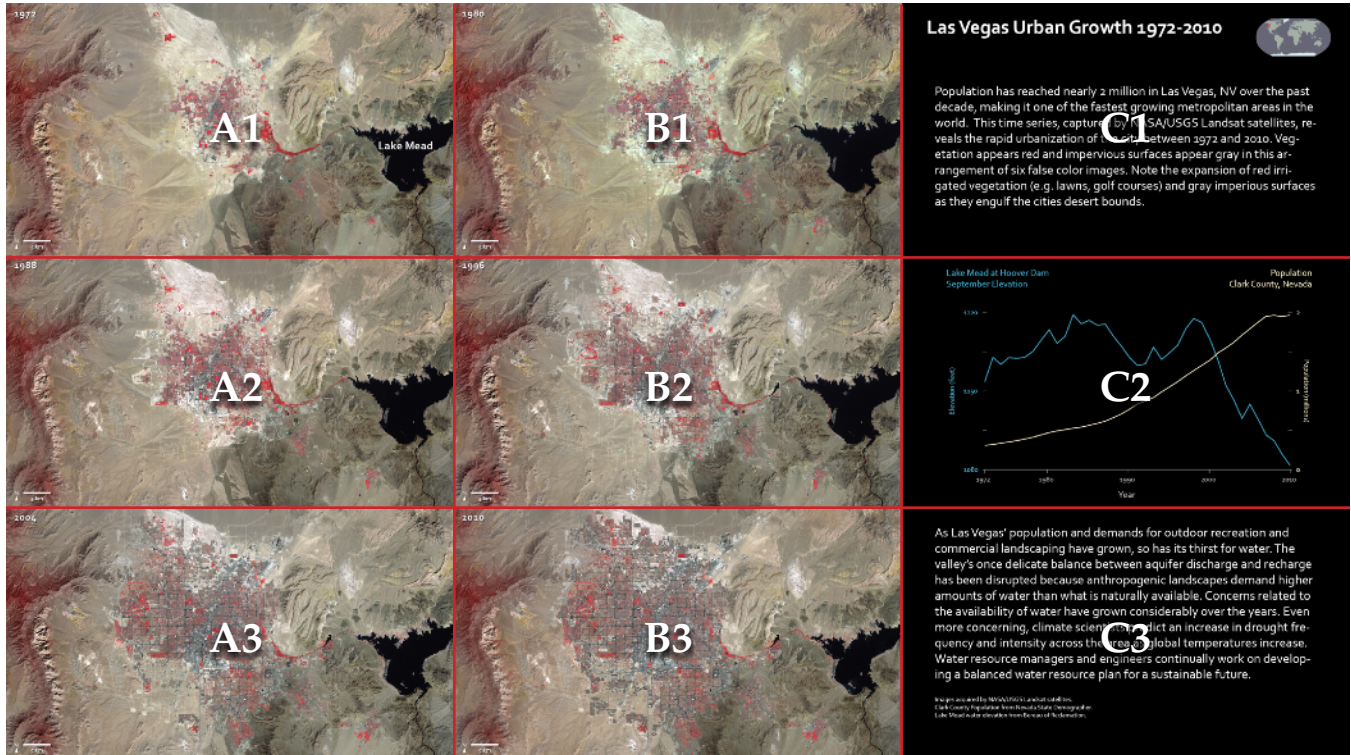
Example 1. Position coordinates have been assigned to each screen. Please identify which screen(s) your content should be displayed across in your layout notes.

Layout Notes for Example 1

A1: las_vegas_1972.tif
A2: las_vegas_1978.tif
A3: las_vegas_1984.tif
B1: las_vegas_1990.tif
B2: las_vegas_2000.tif
B3: las_vegas_2010.tif
C1: las_vegas_intro_text.png
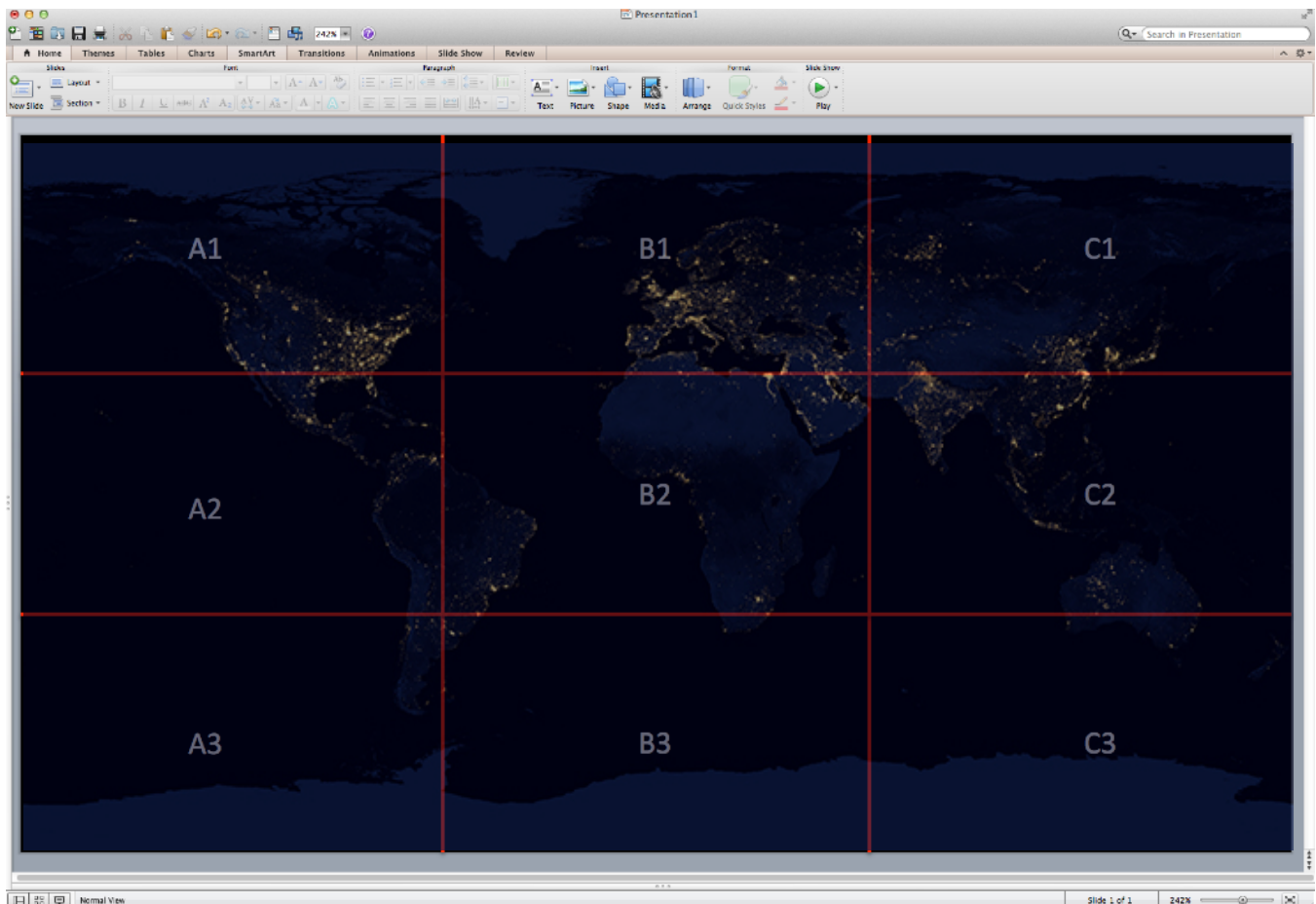C2: las_vegas_graph.png
C3: las_vegas_closing_text.png

10th screen: NASA logo

Example 2 Hyperwall Layout

Layout Notes for Example 2
A1-C3: EarthatNight.png (a single 5760x3240 pixel image displayed across all screens)

10th screen: One way to study the spatial distribution, or arrangement, of human settlements is to view the planet from space during nighttime hours. The brightest areas are generally the most urbanized but not necessarily the most populated. The Visible Infrared Imaging Radiometer Suite (VIIRS) "day-night band" onboard the Suomi National Polar-orbiting Partnership (NPP) satellite can observe dim signals such as city lights, wildfires, gas flares, auroras, and reflected moonlight during nighttime hours. Swaths of data are processed to find moonless, non-cloudy picture elements, or pixels. Over time, all moonless and non-cloudy pixels for a particular location during night-time hours are averaged to produce a global image that depicts the Earth's lights at night. The data are used to study settlement patterns and the effects of future population growth. Once other sources of light like fire and lightning are removed, the "human footprint" is revealed. The remaining light comes from stable light sources such as streetlights, headlights, store signs, etc. Areas with more of these stable light sources are usually more economically developed. The image shown here is a composite of data acquired over nine days in April and thirteen days in October 2012.

Example 2 layout using PowerPoint.

Actual hyperwall display for Example 2.

Frequently Asked Questions

1. What content works best on the hyperwall?

   High resolution images and visualizations look best on the hyperwall. Designing a presentation for the hyperwall is similar to creating a PowerPoint presentation but with more of a focus on the imagery and less of a focus on the text. The imagery and visualizations drive the story. However, there is an added challenge that in order for the presentation to look good, the images must be high resolution. Standard definition video or imagery does not work well on the hyperwall. With that in mind, it's important to keep in mind the size requirements listed in **Table 1**.

2. What do I do if my content does not meet the requirements in Table 1?

   Call us to discuss.
   Steve Graham: 301-614-5561
   Marit Jentoft-Nilsen: 773-357-7353
   Mark Malanoski: 301-614-5819

3. What types of content can and cannot be displayed on the hyperwall?

   High definition movies (1080p preferred; 720p can be used but are not recommended)
   Very large animations with a native resolution up to 5760x3240
   Still images
   Text

   Please note that native PowerPoint and Apple Keynote files are NOT supported by the hyperwall software and should only be used when designing your hyperwall layout.

   Hyperwall does not support animated effects. Any parts of a presentation requiring animation must be rendered out into a series of frames that can played as an animation or made into an HD movie.

4. Does the hyperwall have audio?

   Audio is supported. If a video file (MPEG, Quicktime, etc.) has embedded audio, it can be played with the movie. There is a 5-10 second transition before and after a video of this type is played. Audio can also be played as a background for other visuals if it is not embedded with the visuals.

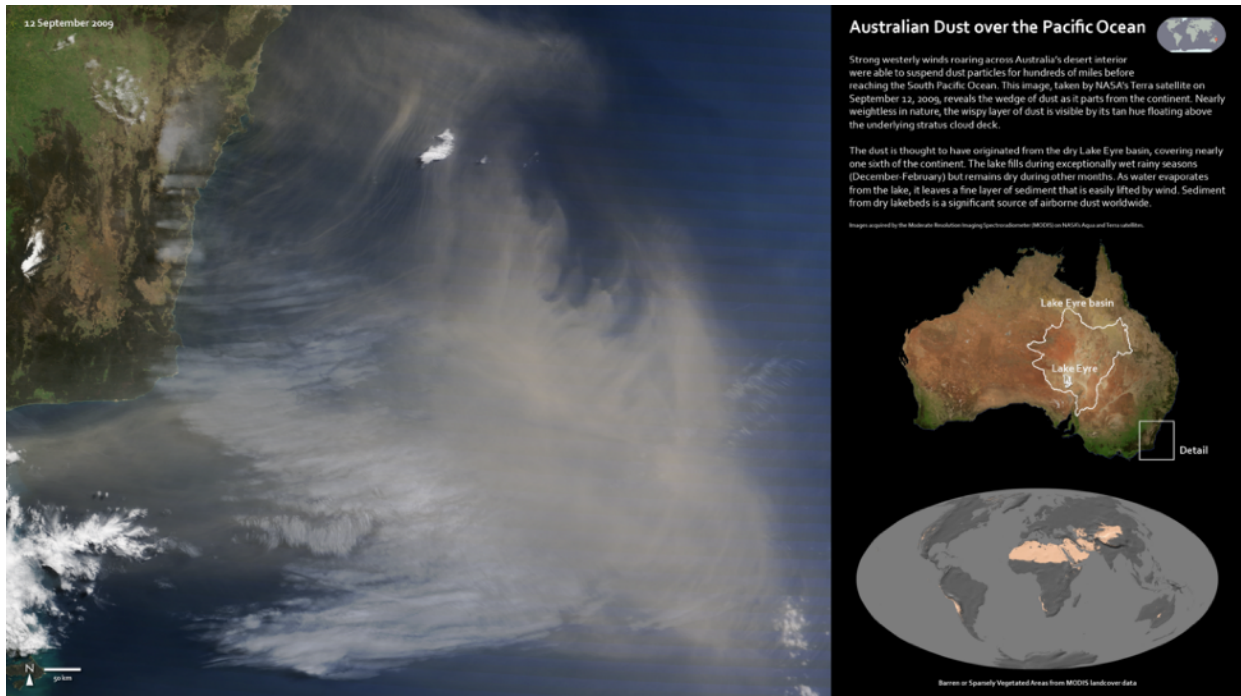5. How can I arrange my content on the hyperwall?

   See example hyperwall designs and layouts (next pages).
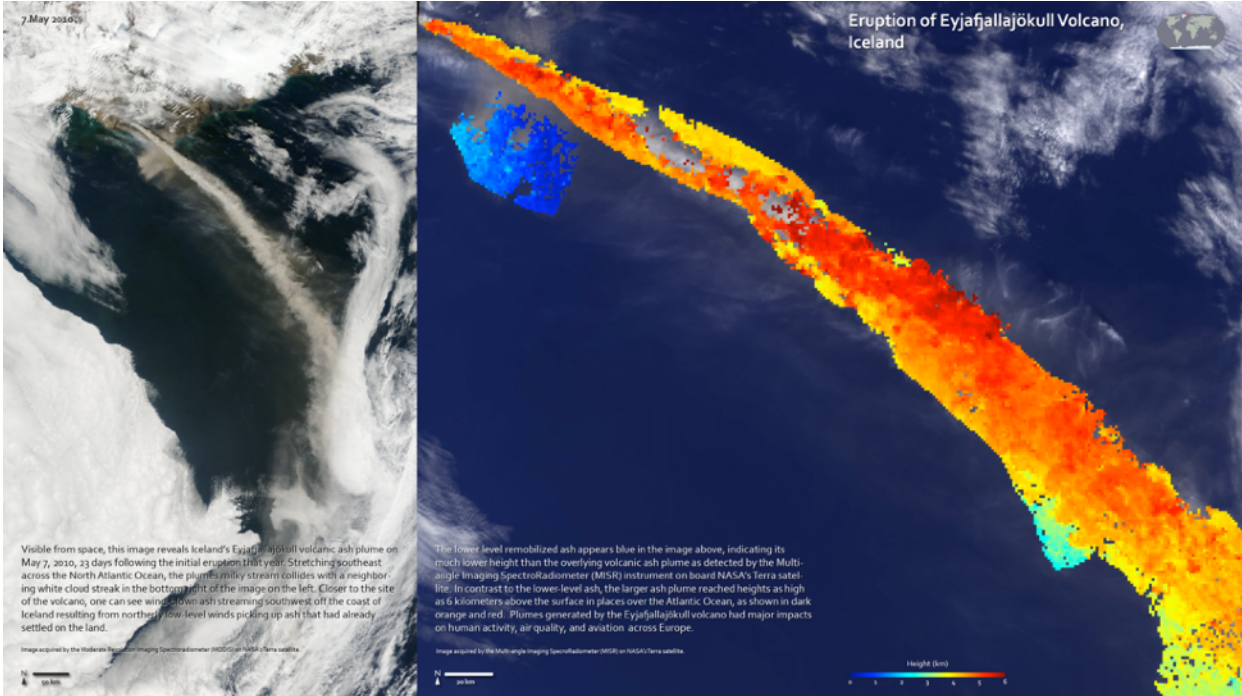
Example Designs and Layouts
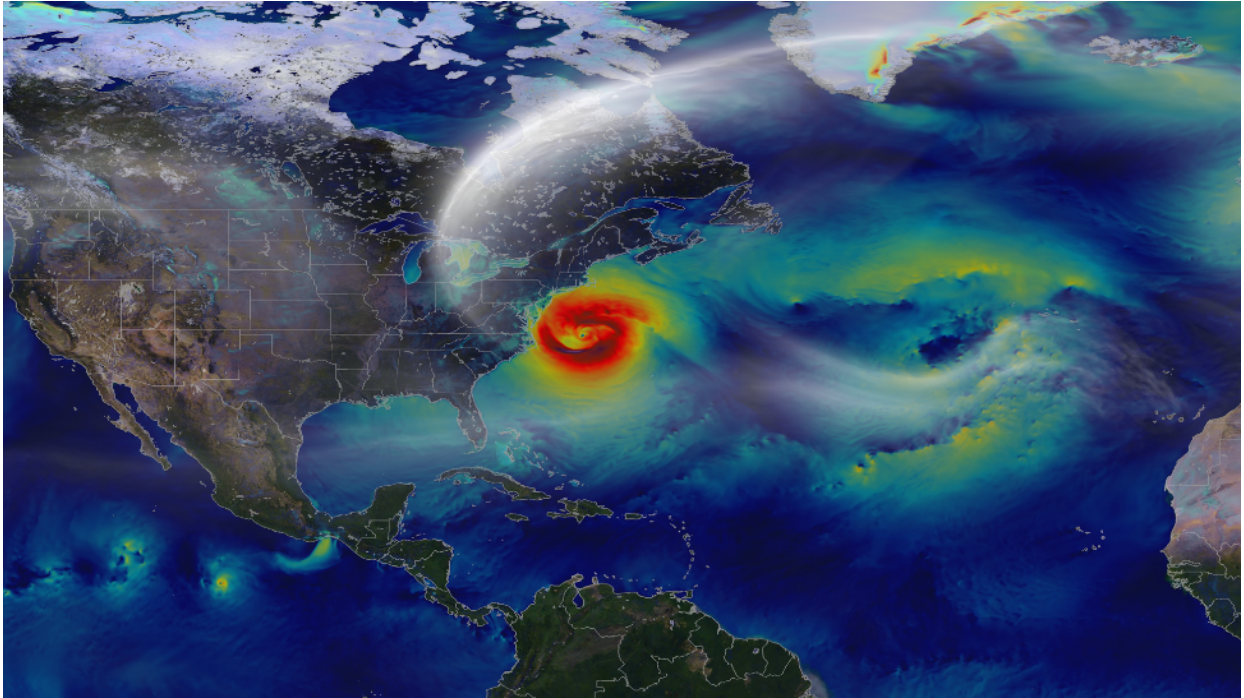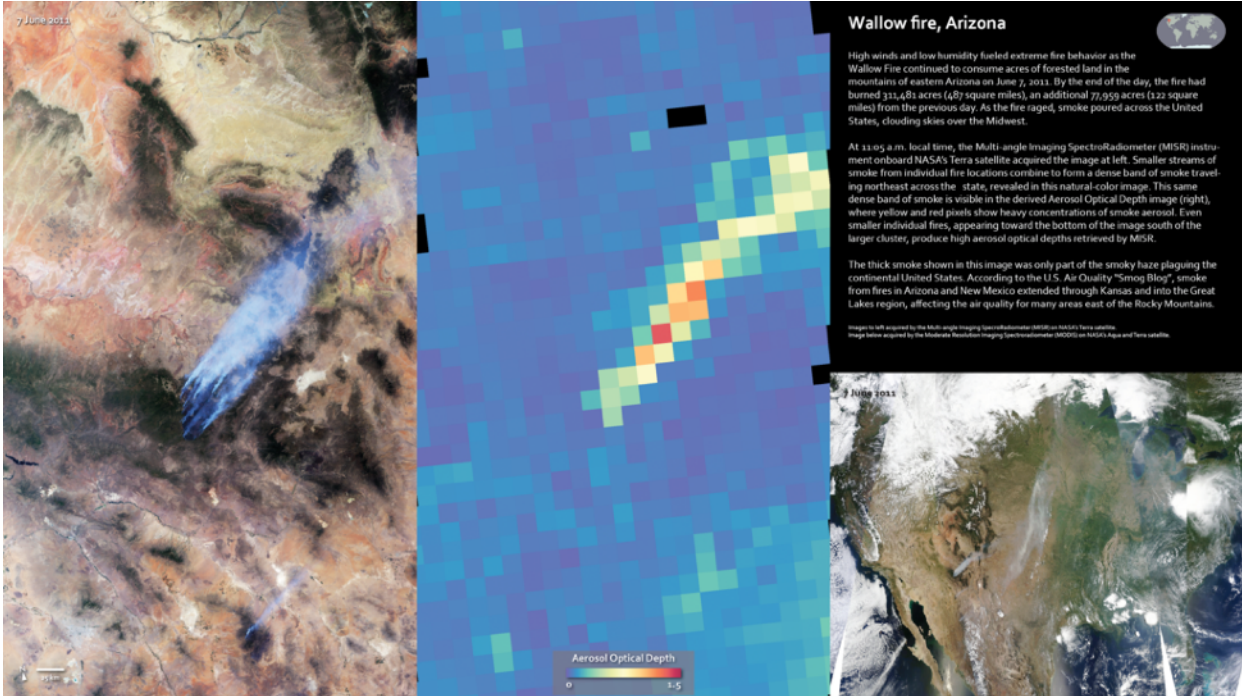

Single animation across all nine screens.

Single large image spanning A1-B3. Single images for C1, C2, and C3.
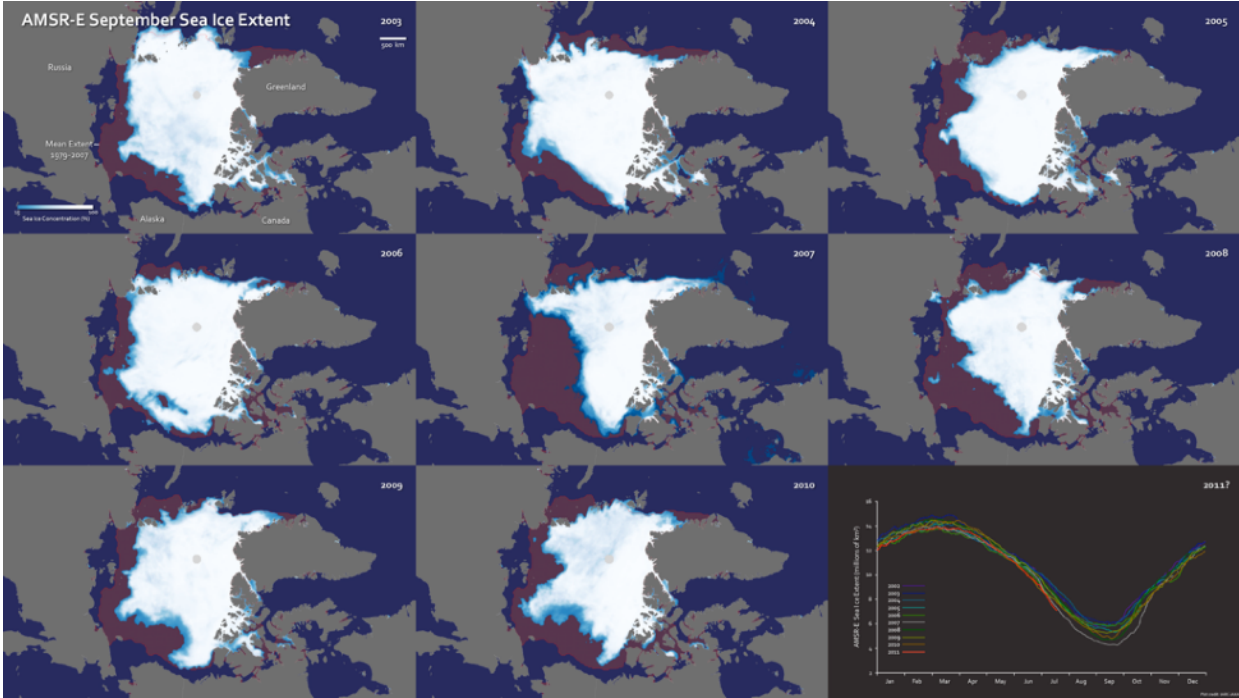
Example designs and layout

Large image spanning A1-A3. Large image spanning B1-C3.

Single large images spanning A1-A3 and B1-B3. Single image spanning C1-C2. Single image on C3.

Example designs and layout

Single image per screen.

Single large image spanning A1-B3. Single images spanning C1-C2. Single image on C3.