National Aeronautics and Space Administration

Photography in G.I.S.

Historical Documentation Through Use of Virtual Tours

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The Goal

- Document buildings and sites for historical records.
- Create a detailed navigation through a particular site.
- Make educational information available to the public.
- Property Management.

Other Uses

- Real-estate.
- Construction sites / construction process.
  - Recording construction / demolition.
- Changes in geography.
- Guide.

Benefits of a Virtual Tour

- Interactive
  - Allows for navigation through a site without actually traveling.
- Detailed and customizable
  - Can be simple or complex.
- Easy to use
  - User friendly.
  - Not time consuming.

Equipment

- Digital camera.
  - Spherical or wide angle lens
- Tripod.
  - Rotating panorama head
- Computer Software.
  - Photo editing / stitching program
  - Map program
  - Virtual tour program

Equipment

Taking the Photos

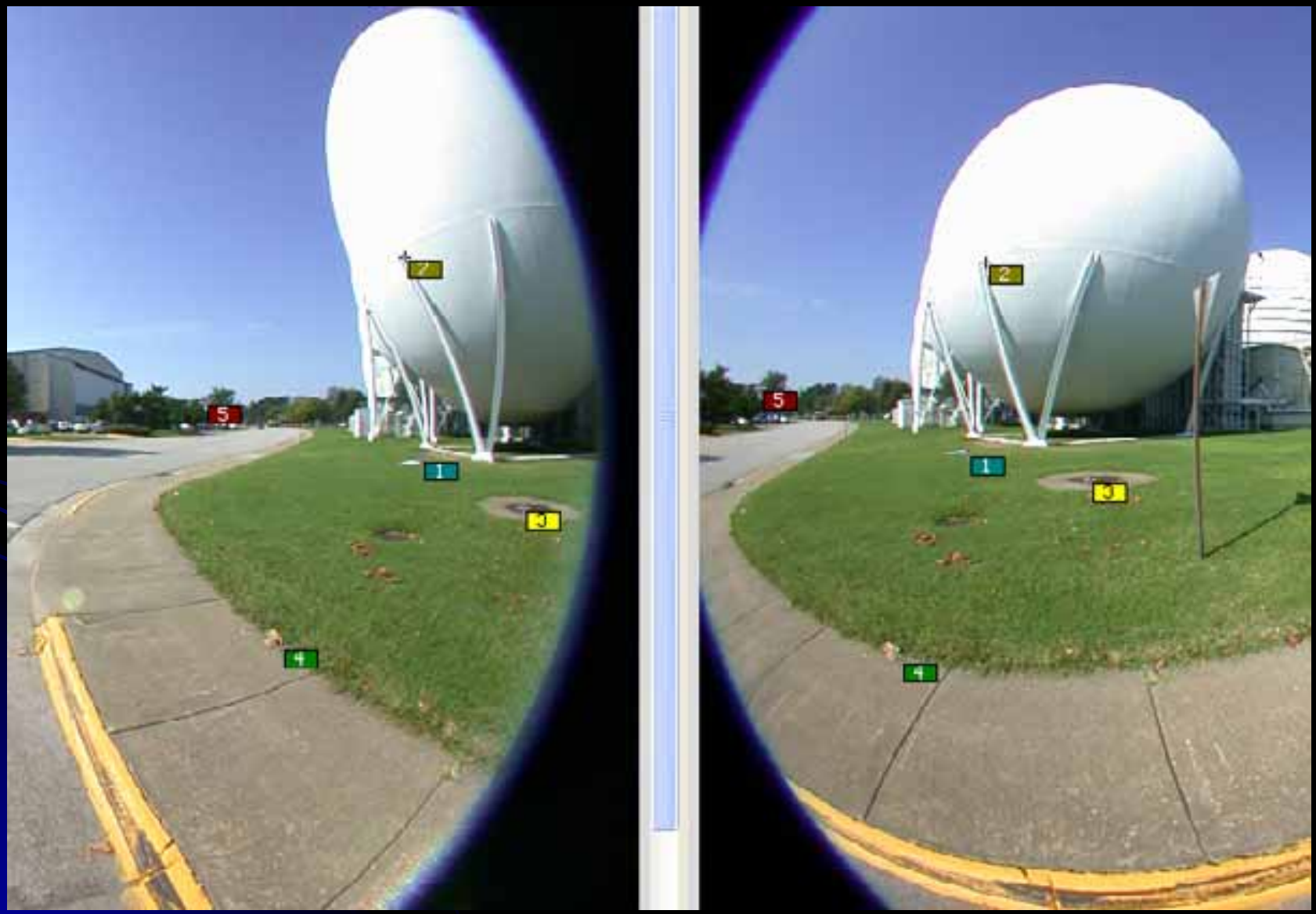
- The camera is set up on a rotating panorama head / tripod.
- Using a spherical lens, multiple pictures are taken at even intervals in a 360 degree pattern.
  - Each panorama usually takes between three and seven separate pictures, depending on the lens.

Stitching the Photos

- Creating the Panoramic Image.
  - Pictures are imported into photo stitching program.
  - Like points in each picture are selected.
  - Points are then pulled together and photos are stitched.

Stitching Process

Stitching Process



Finished Panorama

Creating the Tour

- Choose the skin/background.
- Import the panoramas.
- Choose and import a map.
- Link panoramas to the map and set compass points.
- Add extras.
- Publish on the internet.

Choosing the Skin

- A skin is the background for the tour.
- Contains the general layout of the tour and ties all of the tour's features together to create an aesthetically pleasing finished product.
- Can be simple or complex.

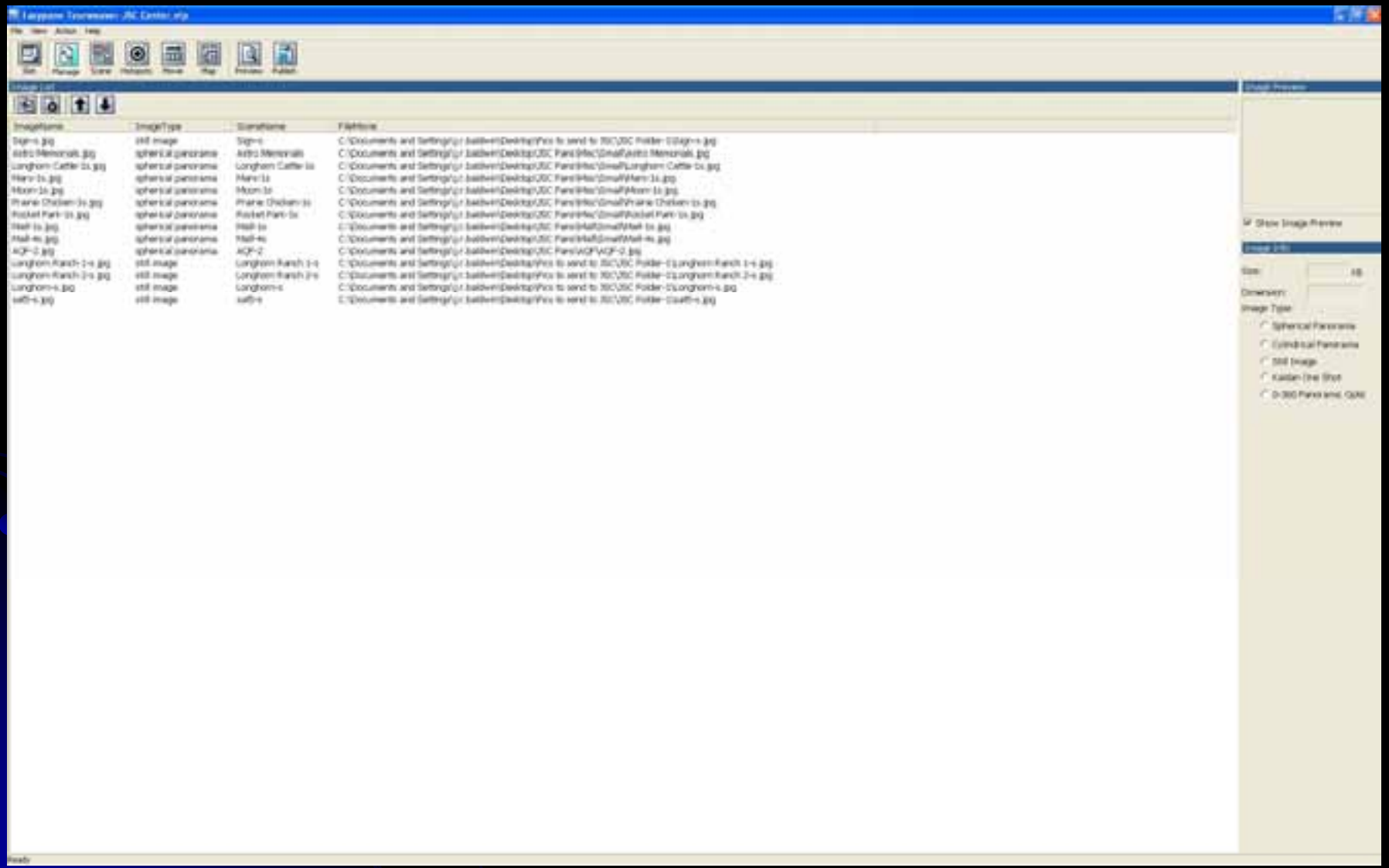
Choosing the Skin

Choosing the Skin

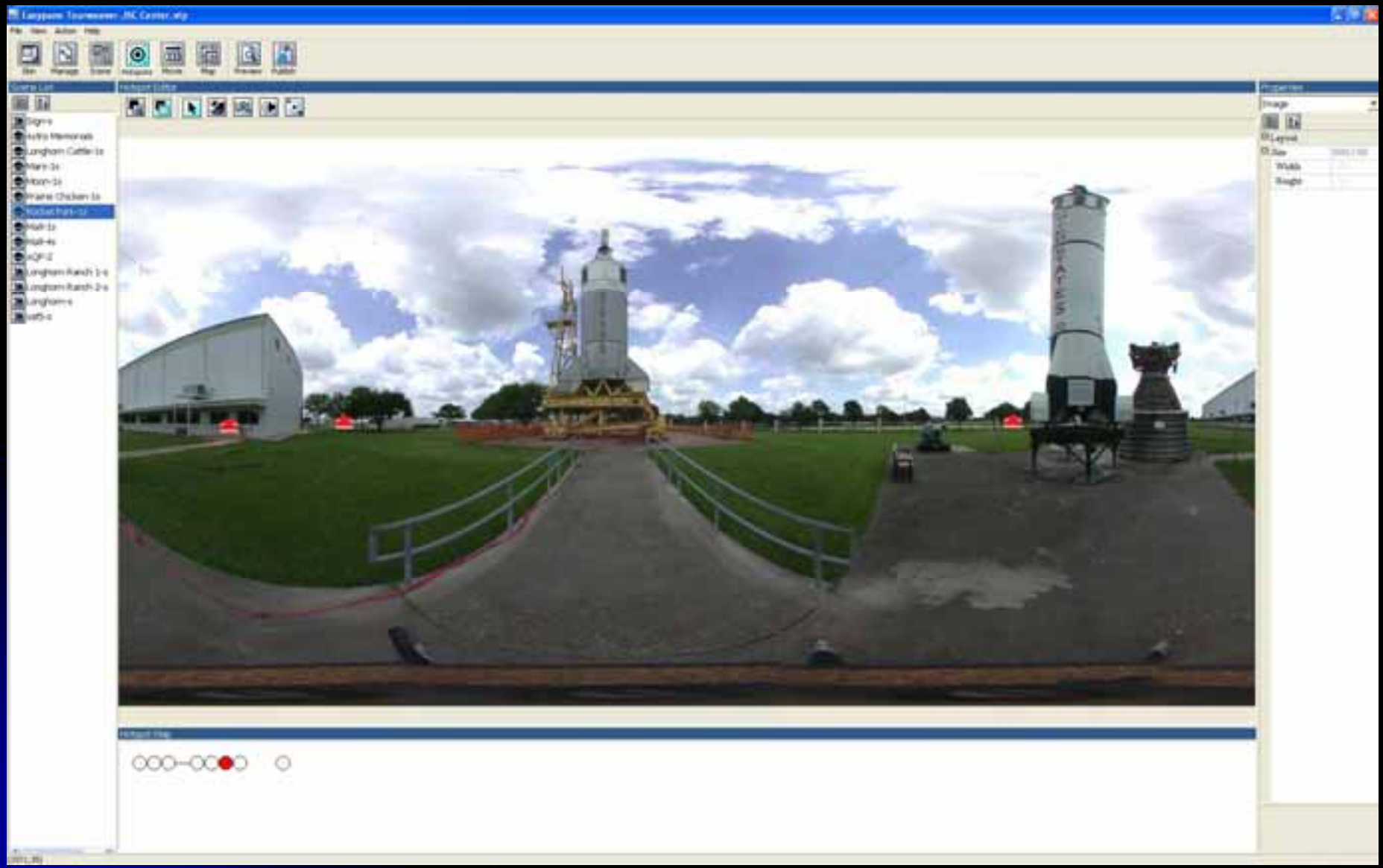
Creating the Tour

- Panoramas are imported into the tour program.
- Panoramas are then linked together using hyperlinks.
- Information is added to each panorama / scene.

Importing the Panoramas



Linking the Panoramas

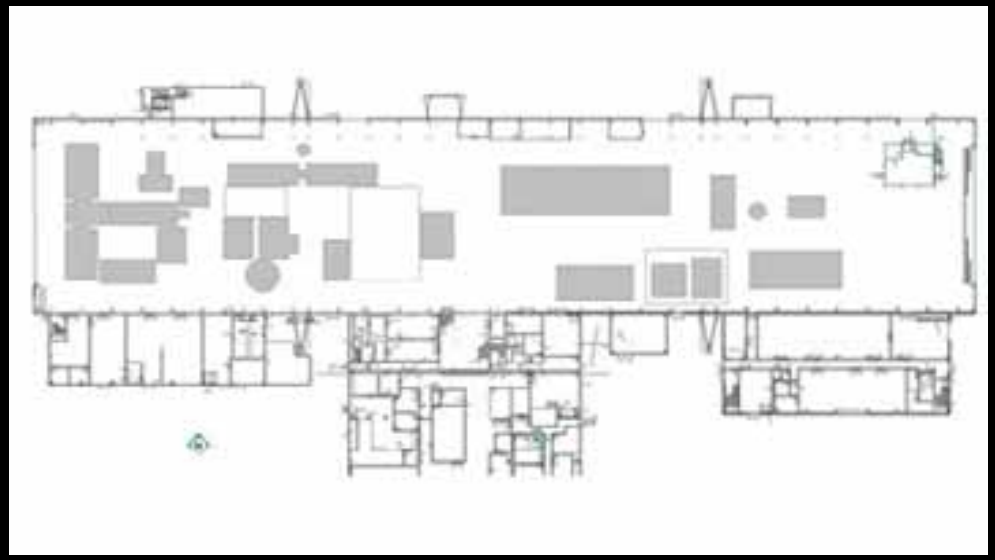


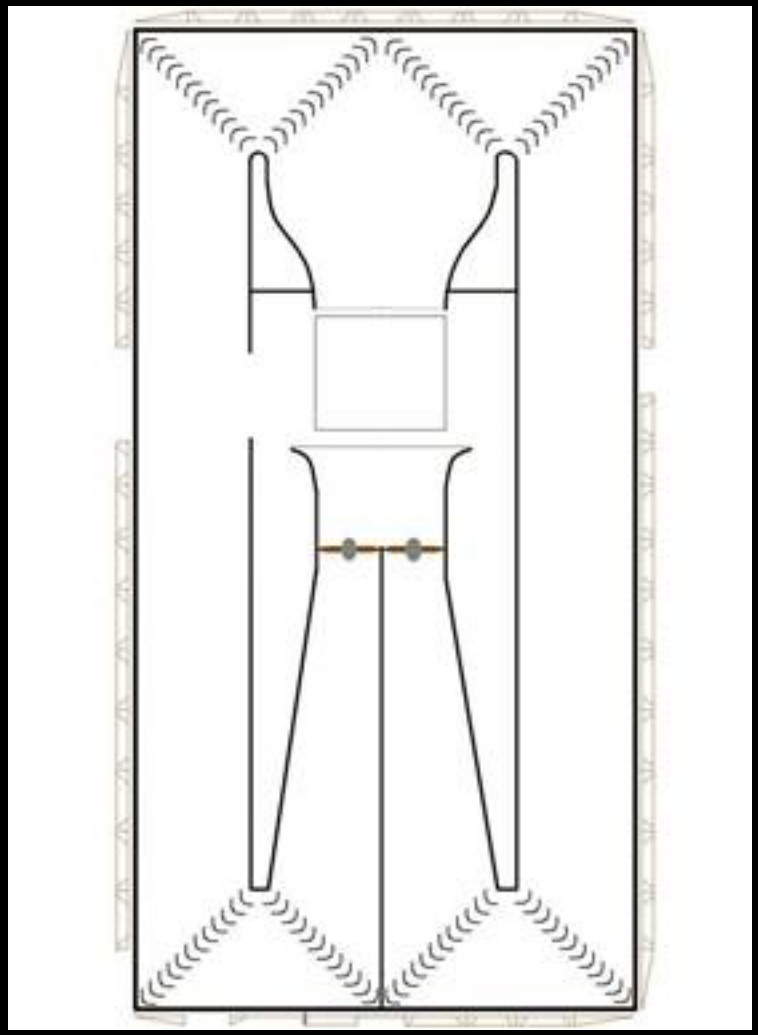
Where Am I?

- We now have a lot of locations in our tour, but no easy way to tell where we are.
  - Typically a problem with larger tours.
  - People might have trouble determining location.
  - Users may become disoriented.
- How do we fix this?

The Map

- Tying it all together.
  - A map is chosen using ArcMap and ArcGIS.
  - The map is imported into the tour program.
  - Panoramas are then linked to their corresponding locations on the map.





Linking the Panoramas to the Map

I Told You We Didn't Need Directions!

- A compass is linked to each panorama to give the viewer a better feel for each location.

Extras

- Links to other types of media can be added into the tour.
  - Web address
  - Videos
  - Audio clips
  - Pictures
  - Etc.

Problems / Difficulties

- Load time.
  - Panorama file size
  - Large number of panoramas / locations
- Swapping files.
  - Changing scene panoramas
  - Adding a new map

Finished Product

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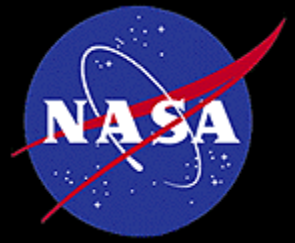

Thank you for your time.

I will now take any questions or comments you may have.

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