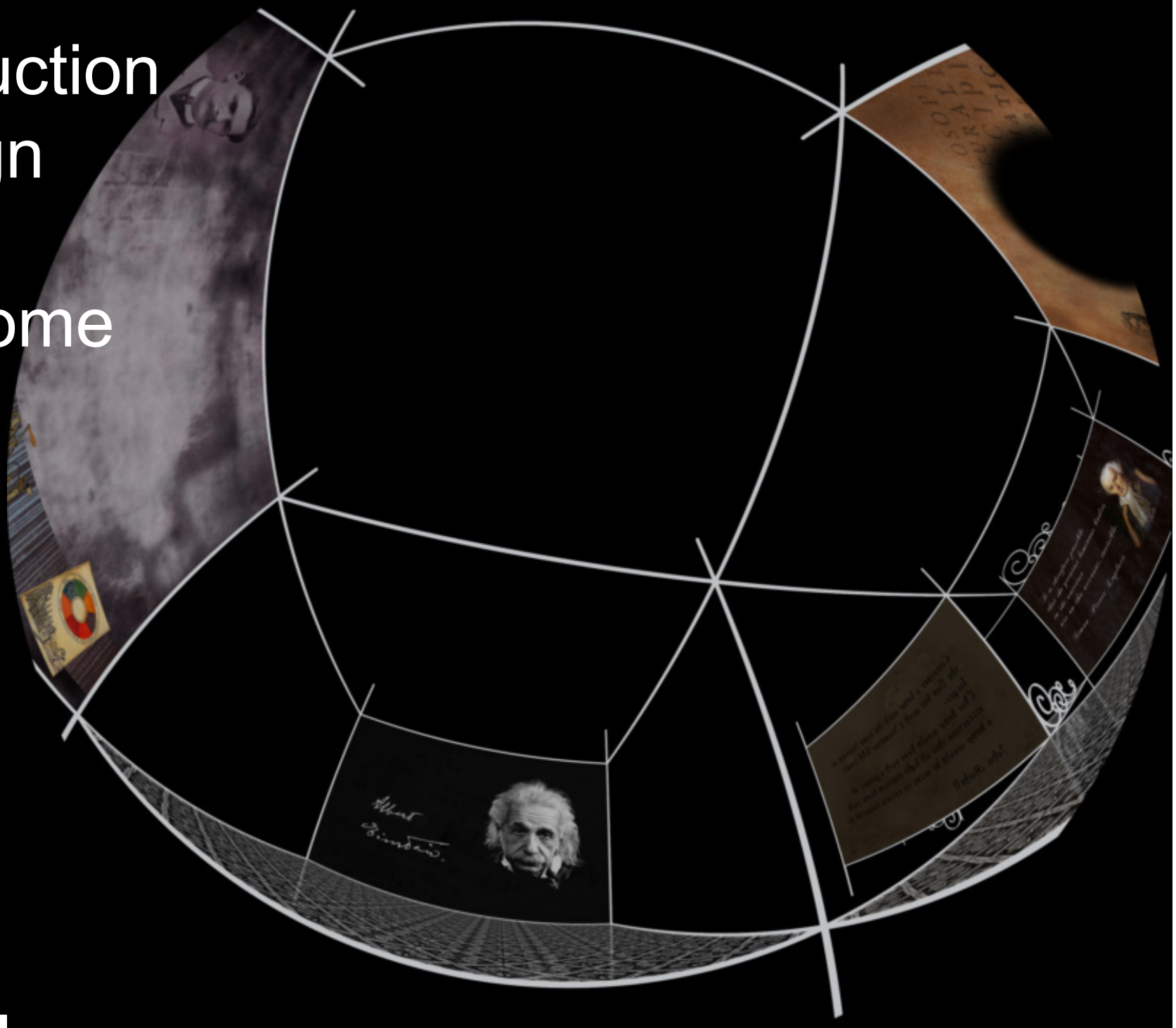
Production Design for Fulldome

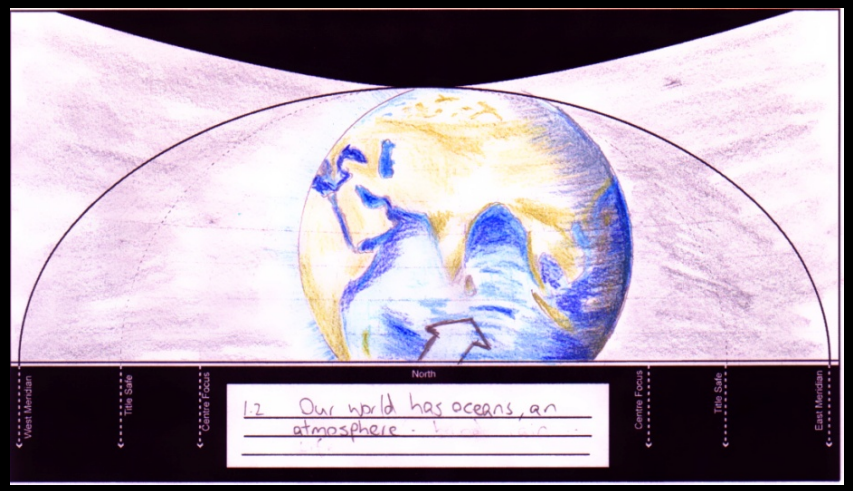


Production Pipeline

Very similar to the film making process

- Script
- Script breakdown
- Storyboard
- Animated Storyboard (Animatic)
- Production
- Assembly edit
- Narration recorded
- Music and Effects
- Final Resolution Renders

Storyboards



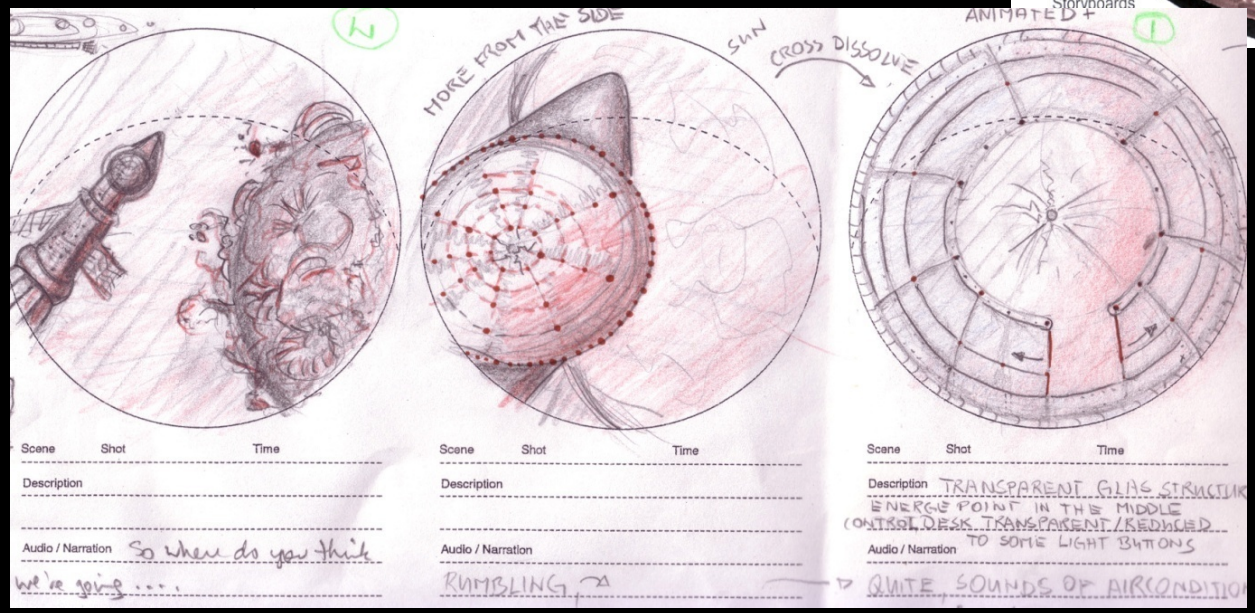


Image Creation - Realtime

Realtime systems such as Digital Sky allow us to create and manipulate planets, stars and galaxies.

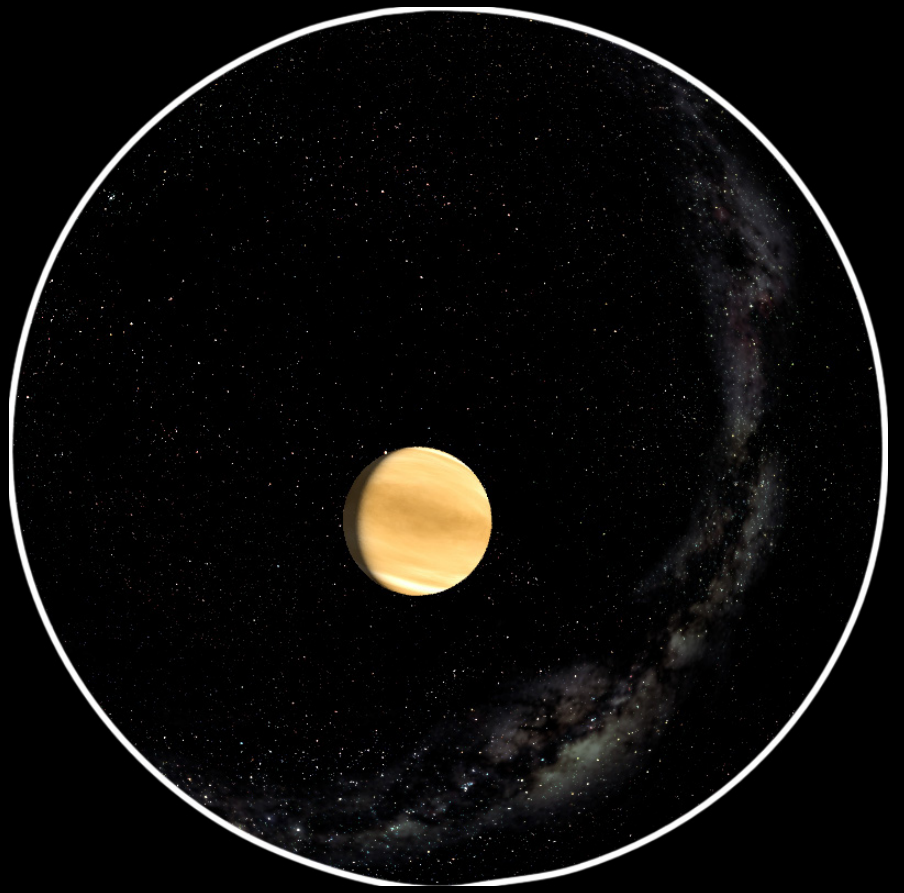
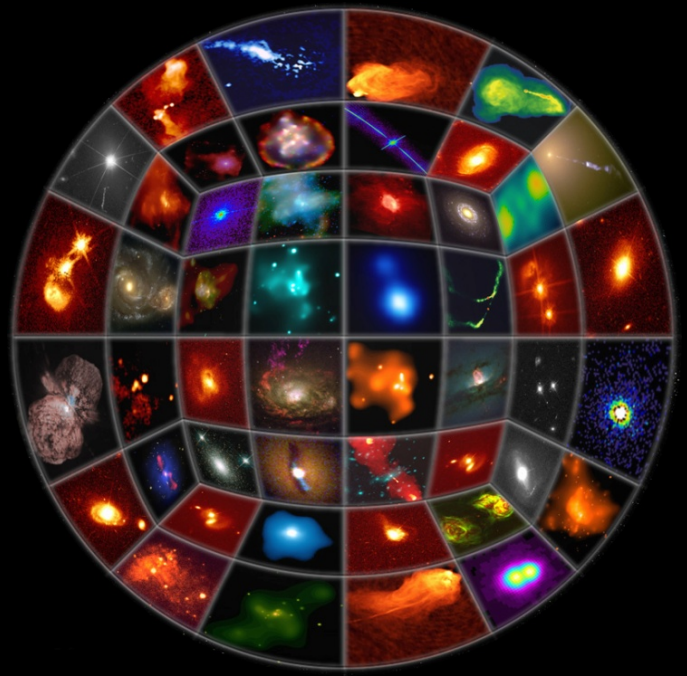


Image Creation - Photographs and Stills

Must be warped to match the dome surface

Compositing programs such as After Effects can be used to position and animate the images.



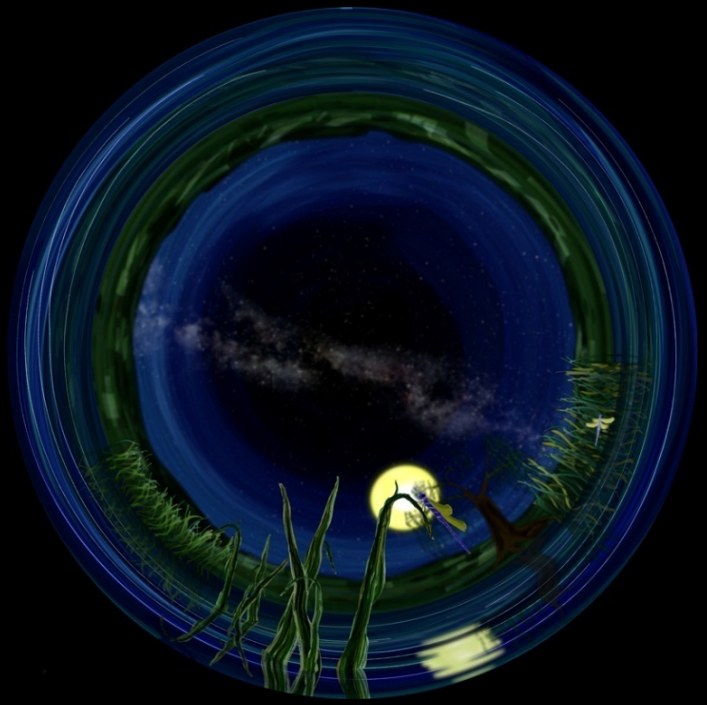


Image Creation -Video

Standard video cameras can only be used to create an image to fill a small portion of the dome.

As with still images the video image can be manipulated across the dome.

Image Creation - Computer Animation

Easiest and most efficient method for producing Fulldome sequences.

Software includes 3dsMax, Lightwave, and Vue.

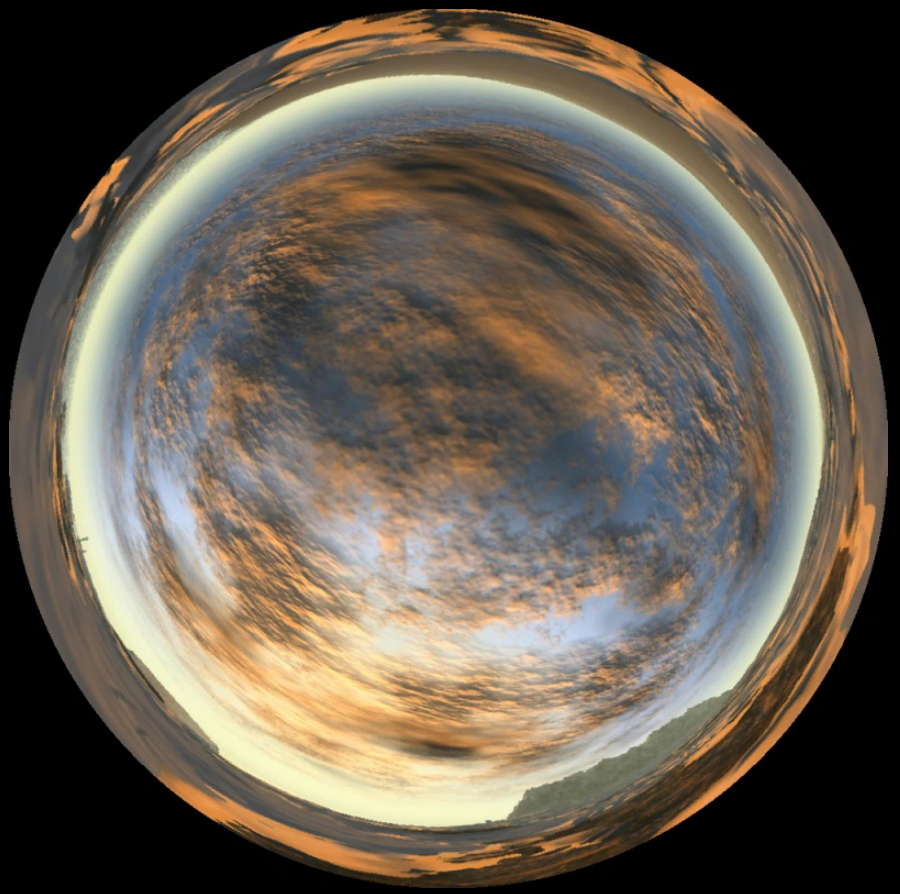


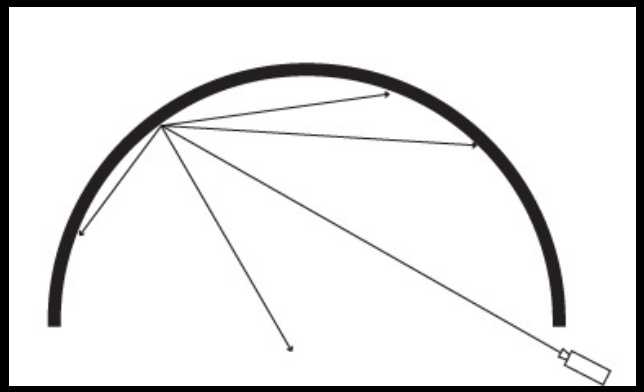
Image Creation - Fulldome Video

Only just becoming available with the development of 4k cameras.

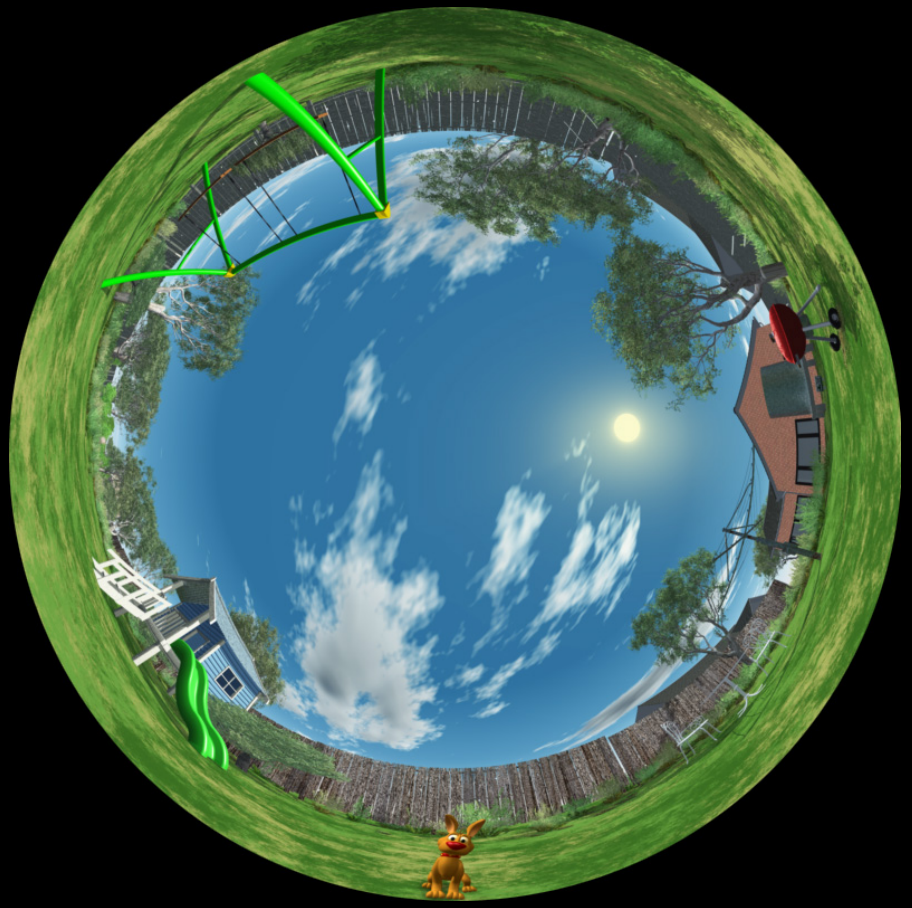
In the future it is likely to become a dominant method of production, particularly for non-astronomy shows.

Dome Design Issues

Cross reflection



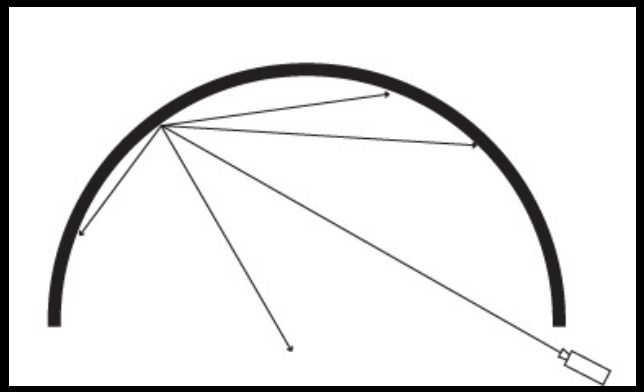
Causes a lot of desaturation.
Quite often very effective to use a lot of black.



Saturated image
– as it looks on a computer monitor

Dome Design Issues

Cross reflection



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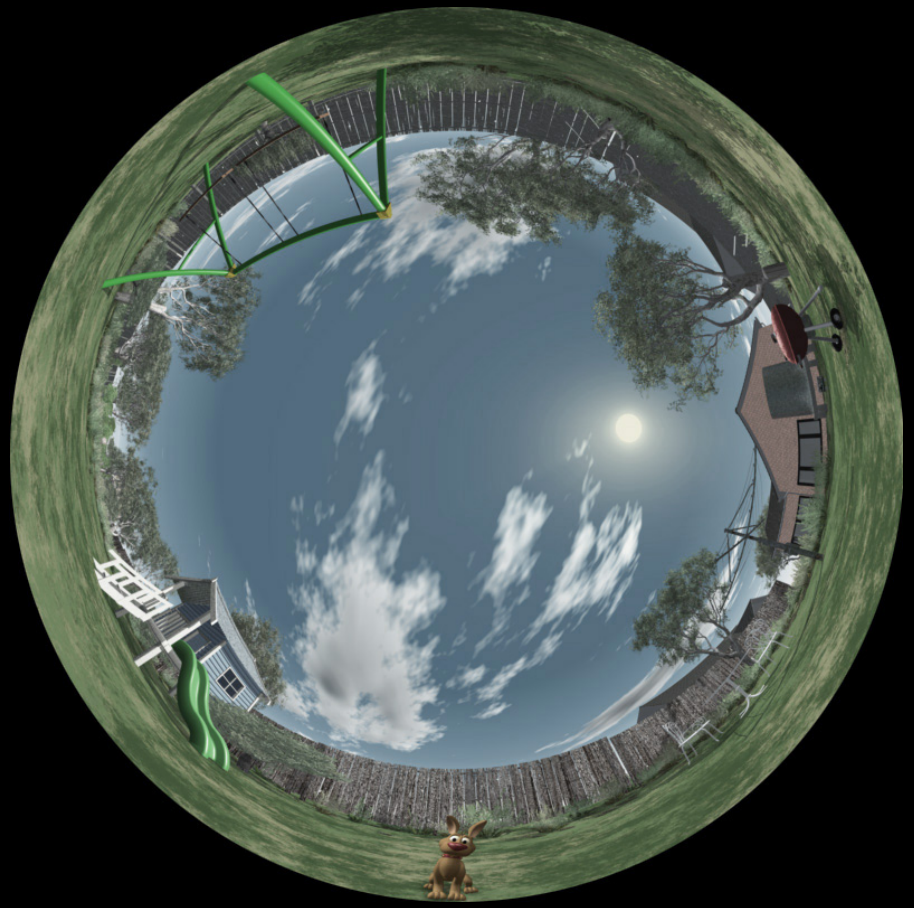


Desaturated Image
- an approximation of how it looks on the dome

Dome Design Issues

Seating Arrangement - Concentric or Uni-directional ?

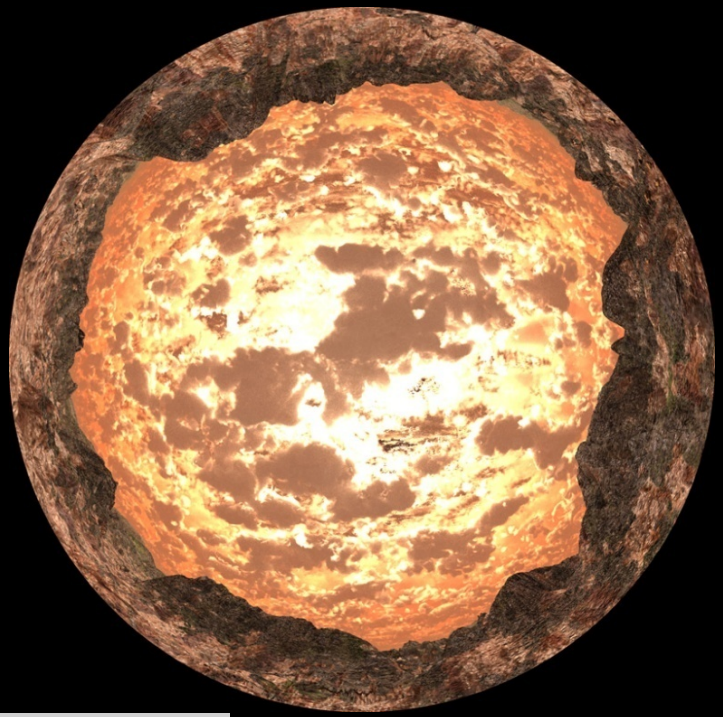
Concentric – most of the action needs to be at the zenith.

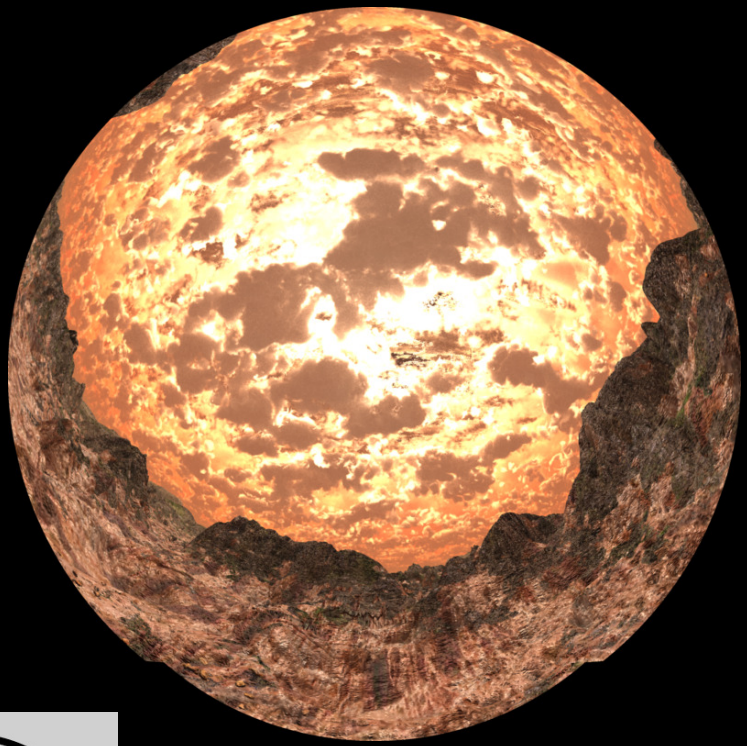
Concentric – all seats face towards the middle

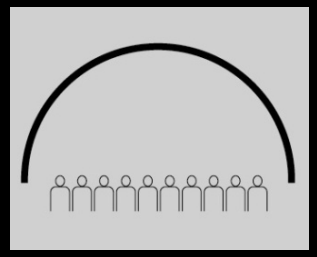
Uni-directional – all the seats face towards the front of the dome

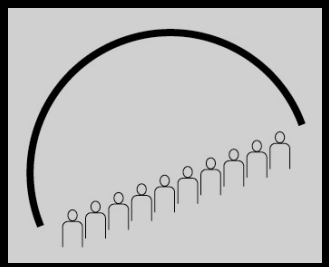
Dome Design Issues

Horizontal or Tilted Dome



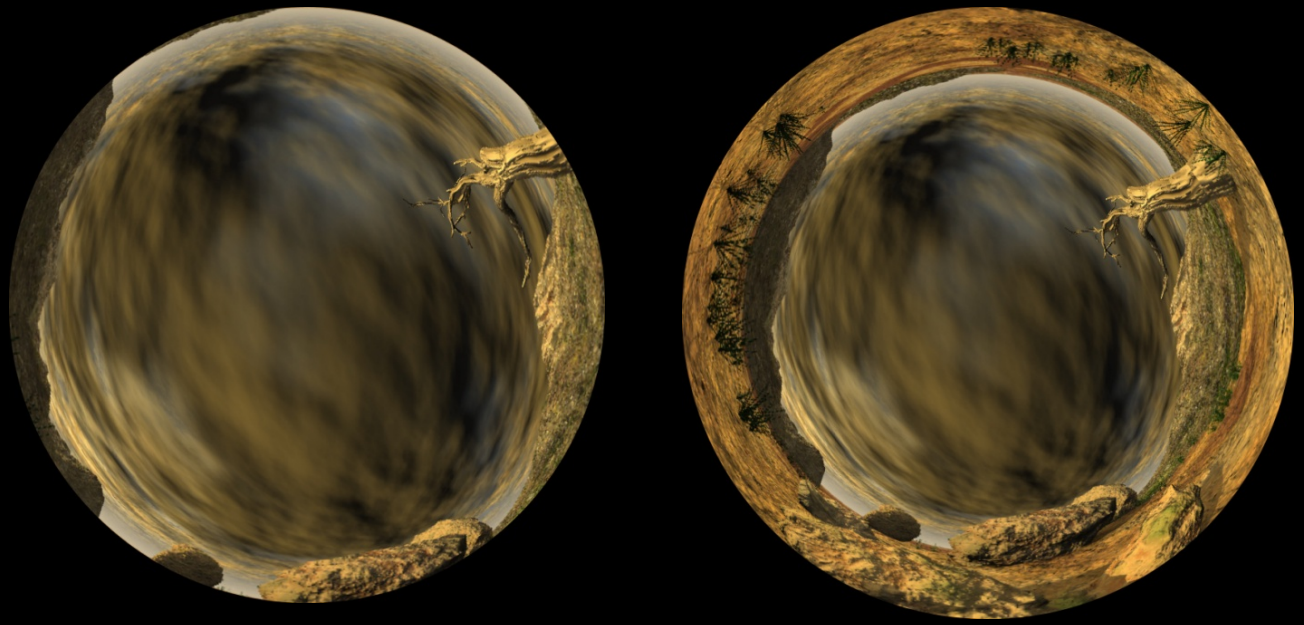


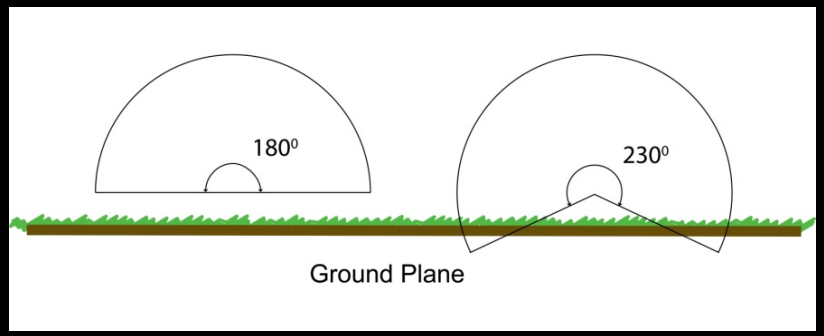




Dome Design Issues

What Field of View (FOV) to use?

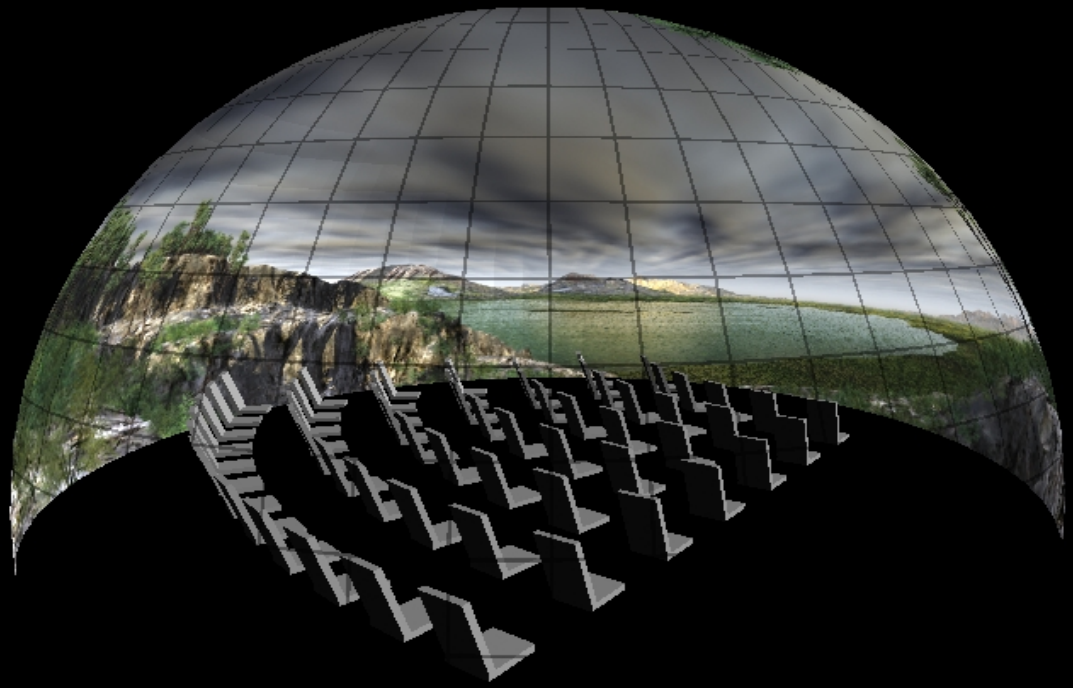




A wider FOV can be used to include the ground

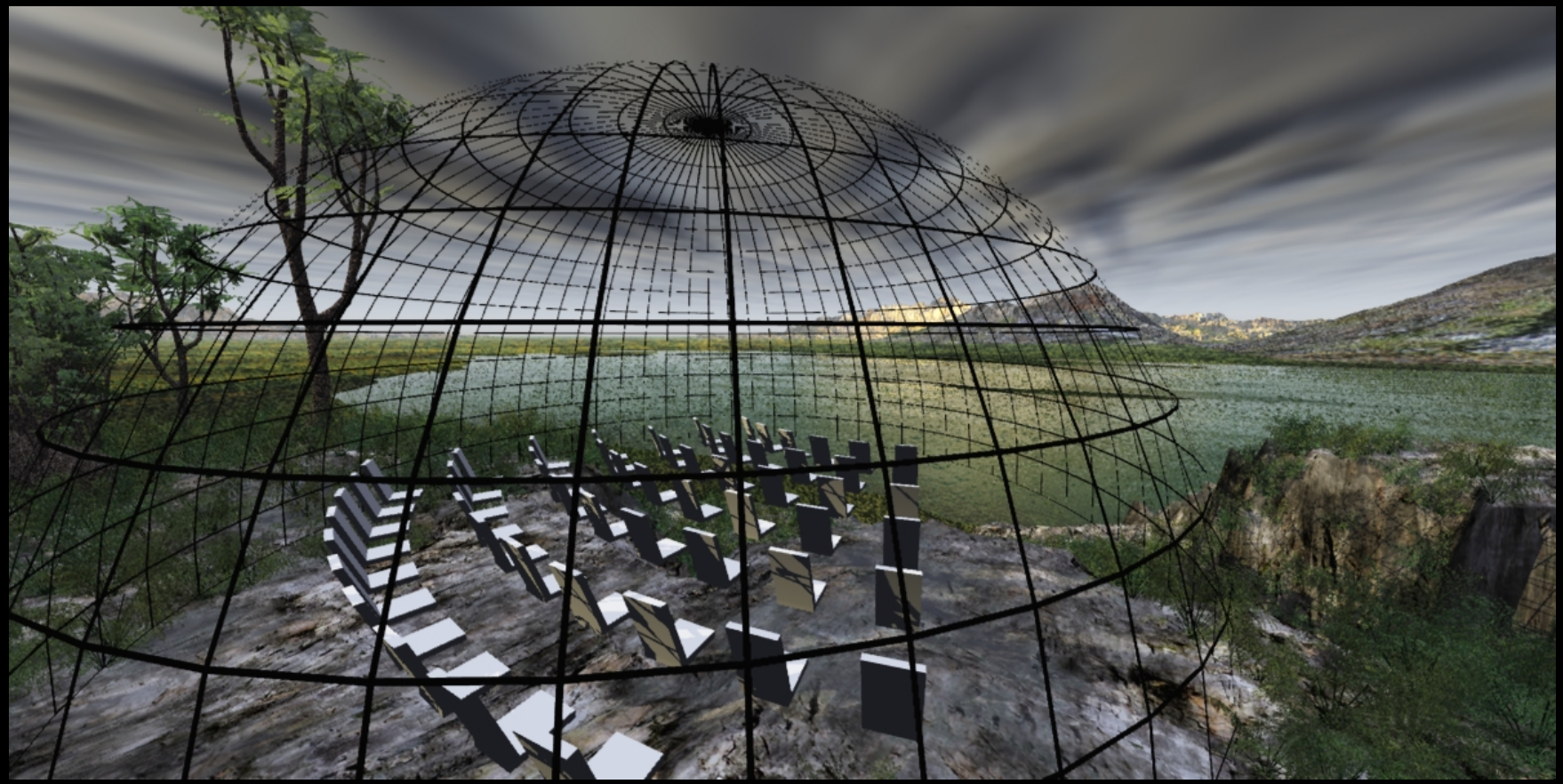
Comparing Film to Fulldome

IMMERSIVE – A 180 degree FOV creates a powerful sense of immersion



So rather seeing the dome as simply a curved screen…

Comparing Film to Fulldome



…imagine the dome as a device to transport the audience to new worlds

Comparing Film to Fulldome

COMPOSITION

- Fulldome has no edges – cannot ‘exit camera right’
- No golden rectangle – but all domes have sweet spots
- Important to make use of all of the dome – have elements appear from behind or go around the dome
- Avoid symmetry – use different size elements, make use of overlapping elements
- Make use of foreground, midground and background layers. This enhances depth and the sense of immersion.

Comparing Film to Fulldome

CAMERA

- Sees everything
- 180 degree lens – matches the shape of the dome
- 230 degree lens – allows the inclusion of the ground
- Camera movement – generally needs to be much slower
- Crane shots and dolly shots work particularly well and can enhance the sense of immersion

Comparing Film to Fulldome

EDITING

- Use close ups with careful consideration
- Direct cuts can be disorienting
- Cross dissolves and fades to black are effective
- Bring new elements up from the springline (horizon) or from behind the audience
- The long shot (eg. The Search for Life)