

A Study of X3D LocalFog

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Common Misconception

- Misconception: LocalFog is viewpoint centric.
 - ➔ No. Position of LocalFog can be decided separately from viewpoint.
- Actually LocalFog is located in the scene, and not bound.
 - ➔ LocalFog effects occur around the local transformation center, rather than bound to the viewer.

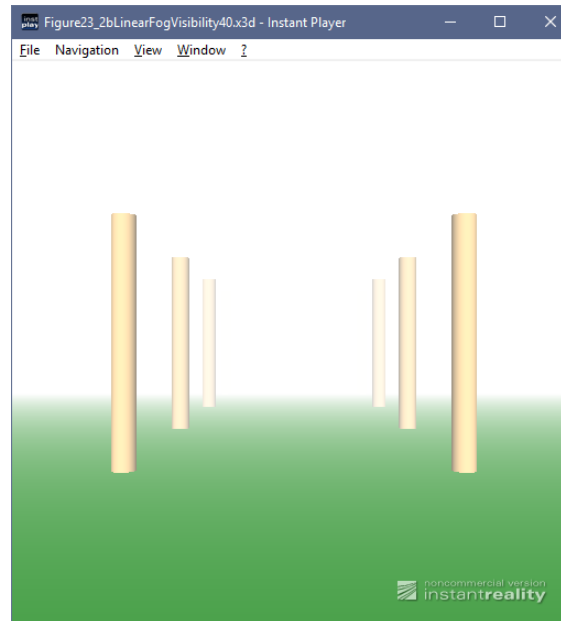
<http://www.web3d.org/x3d/tooltips/X3dTooltips.html#LocalFog>

Base Example: Fog

- Figure23_2bLinearFogVisibility40.x3d

- http://www.web3d.org/x3d/content/examples/Vrml2Sourcebook/Chapter23Fog/Figure23_2bLinearFogVisibility40Index.html

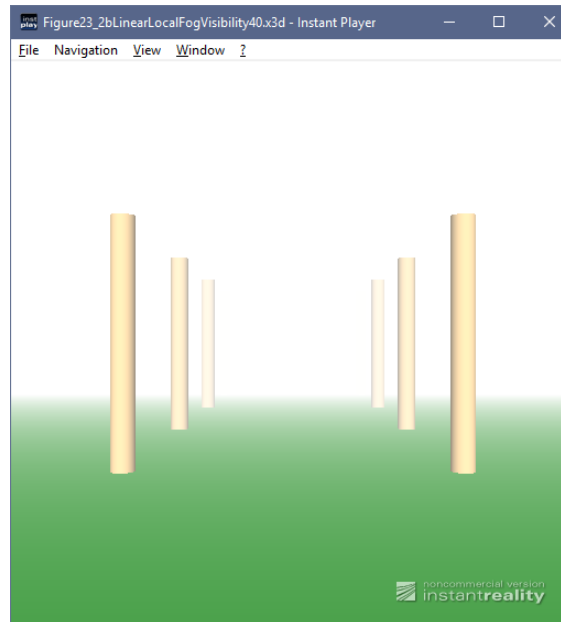
```
<Scene>  
  <Viewpoint description='Seven pairs of columns' position='0 3 32' />  
  <NavigationInfo type='FLY' "EXAMINE" "ANY" />  
  <Fog visibilityRange='40' />  
  <Background groundColor='0 0 0' skyColor='1 1 1' />  
  <Inline url='"Figure23_1FogTestWorld.x3d" "http://www.web3d.org/x3d/content/exam' />  
</Scene>
```



LocalFog Example

- Let's change slightly **Fog** node into **LocalFog** node...

```
<Scene>
  <Viewpoint description='Seven pairs of columns' position='0 3 32' />
  <NavigationInfo type='"FLY" "EXAMINE" "ANY"' />
  <LocalFog visibilityRange='40' />
  <Background groundColor='0 0 0' skyColor='1 1 1' />
  <Inline url='"Figure23_1FogTestWorld.x3d" "http://www.web3d.org/x3d/content/e' />
</Scene>
```

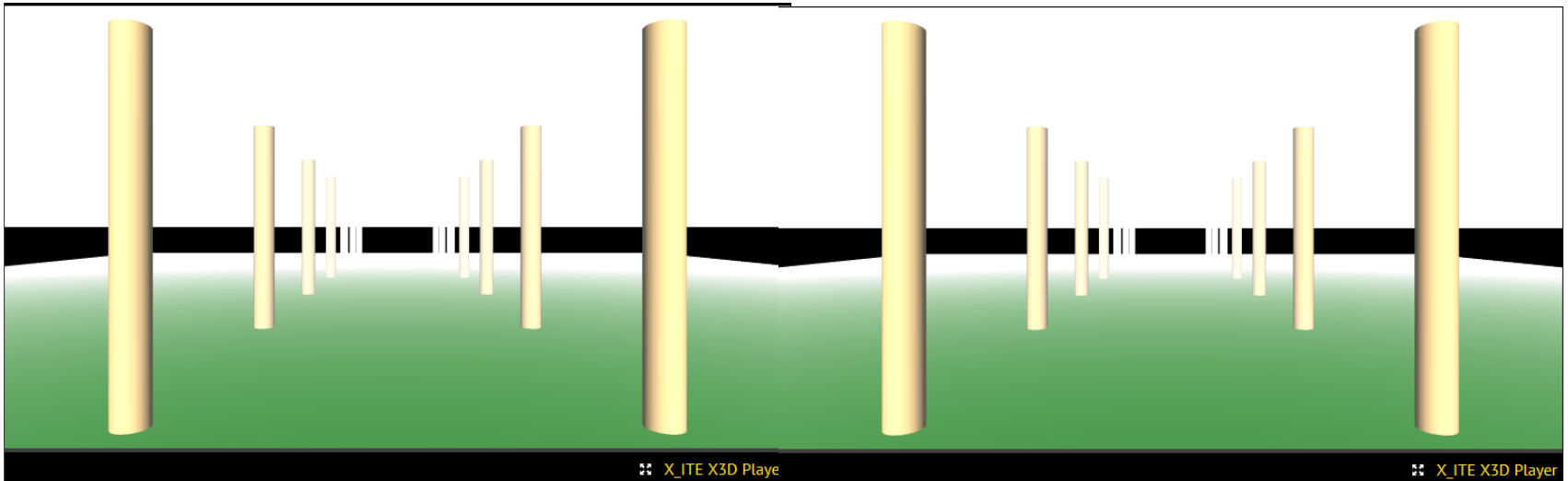


Test Results of X3D Viewers for LocalFog

	Fog node	LocalFog node
Firefox + X_ITE Player	OK	Partial support
Instant Player	OK	Partial support
Firefox + X3DOM Player	OK	No rendering
Xj3D	OK	Fails

Firefox + X_ITE Player

- LocalFog node works, initially...

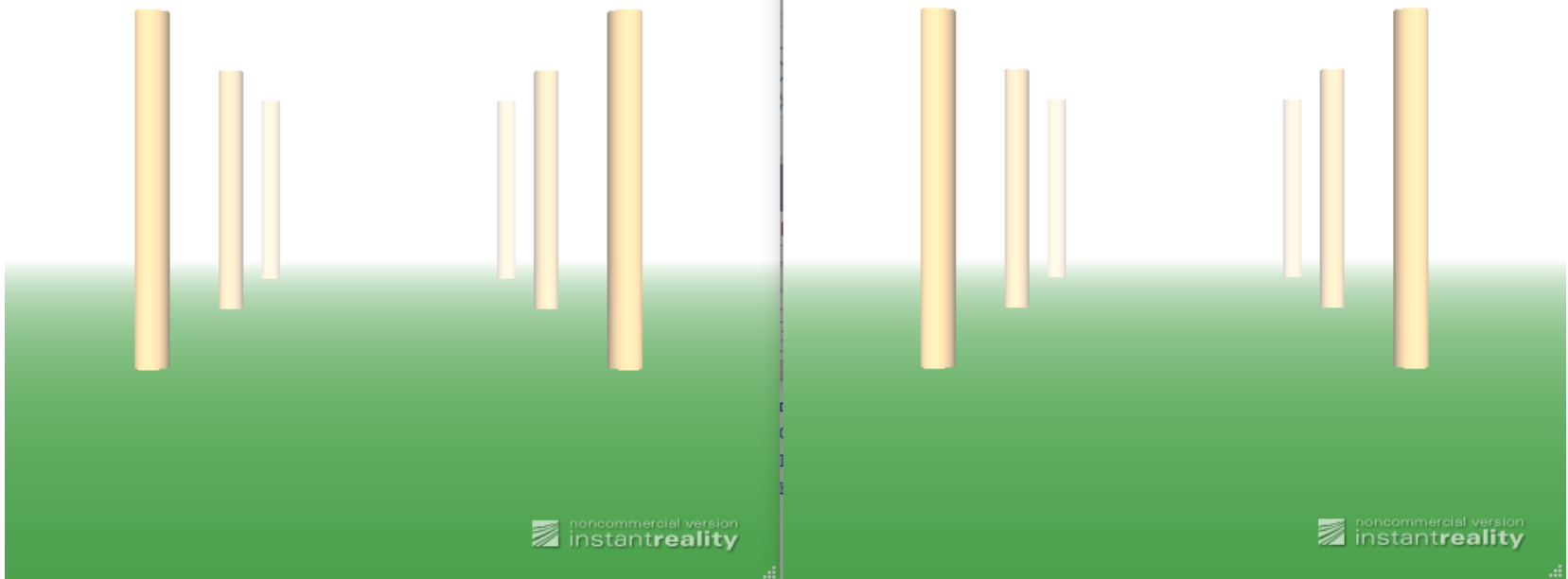


<Fog node>

<LocalFog node>

Instant Player

- LocalFog node works, initially...

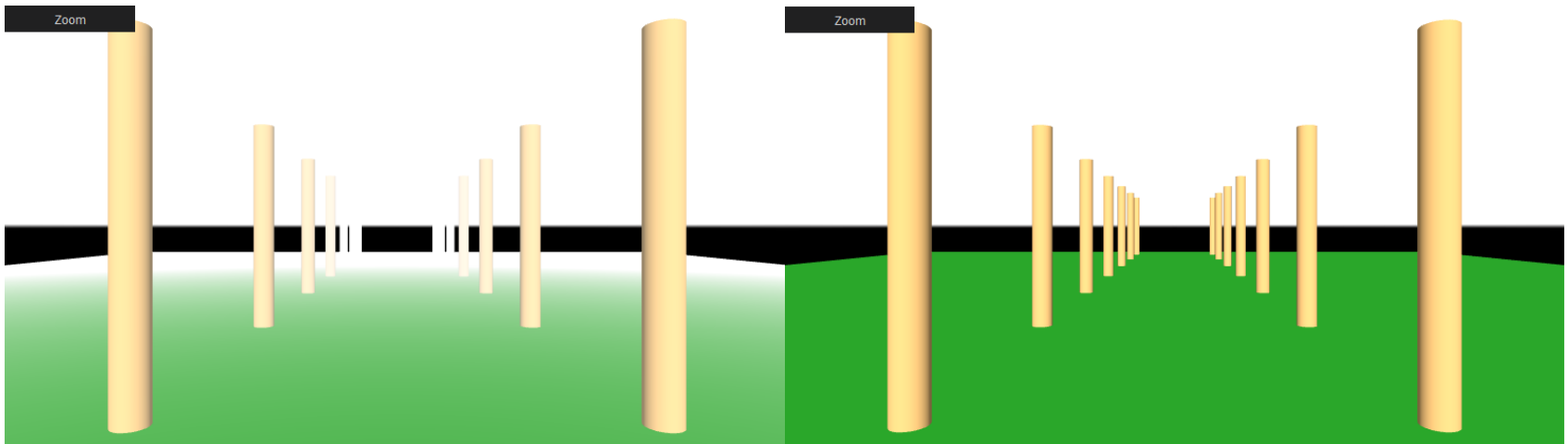


<Fog node>

<LocalFog node>

Firefox + X3DOM Player

- LocalFog node **doesn't** render.

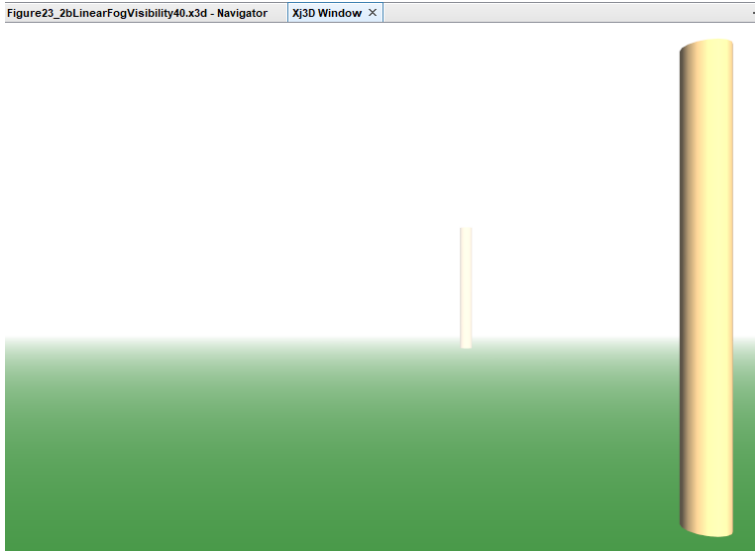


<Fog node>

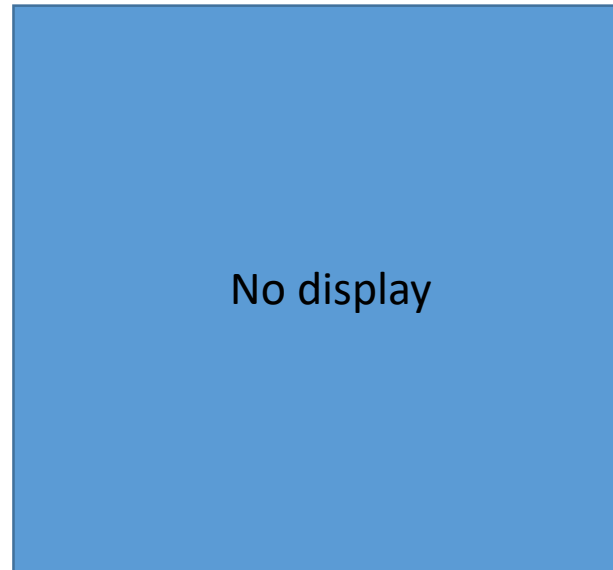
<LocalFog node>

Xj3D

- It fails on scene having LocalFog node.



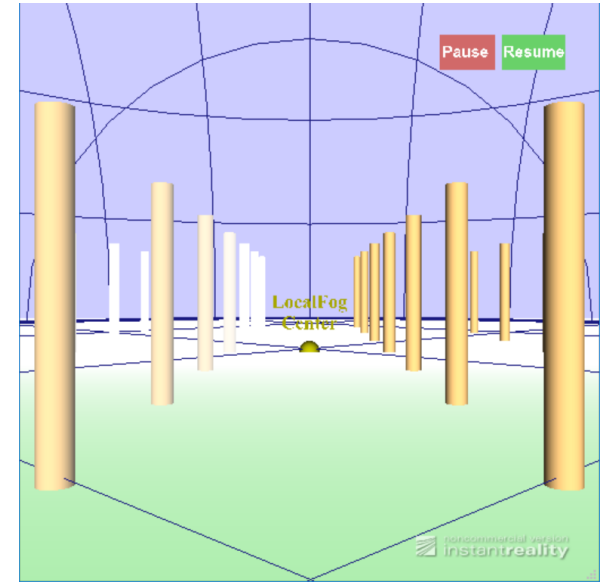
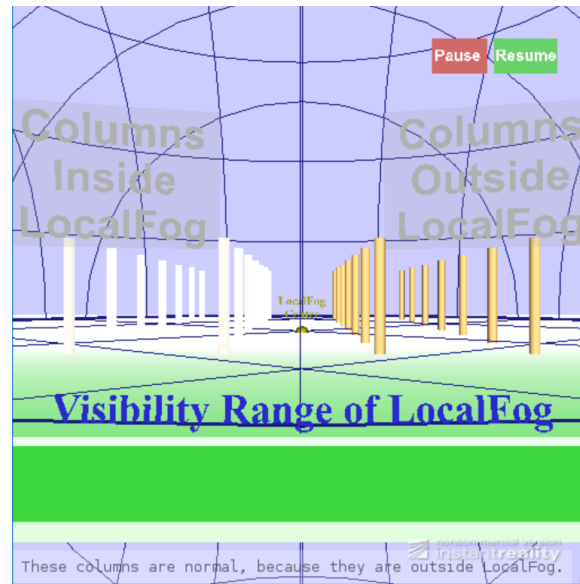
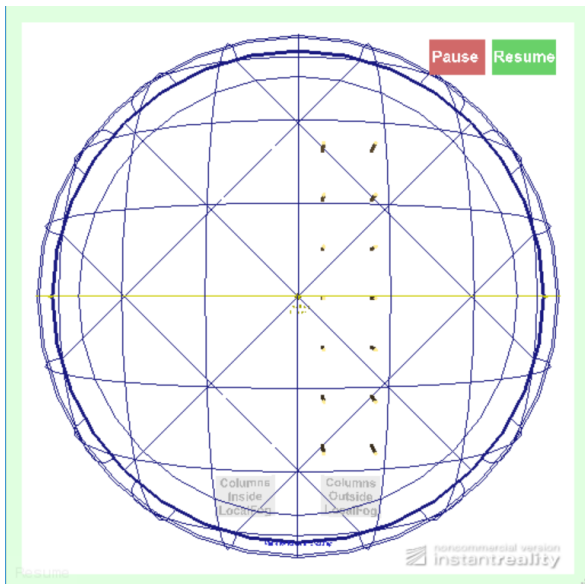
<Fog node>



<LocalFog node>

LocalFogEffectsTest.x3d

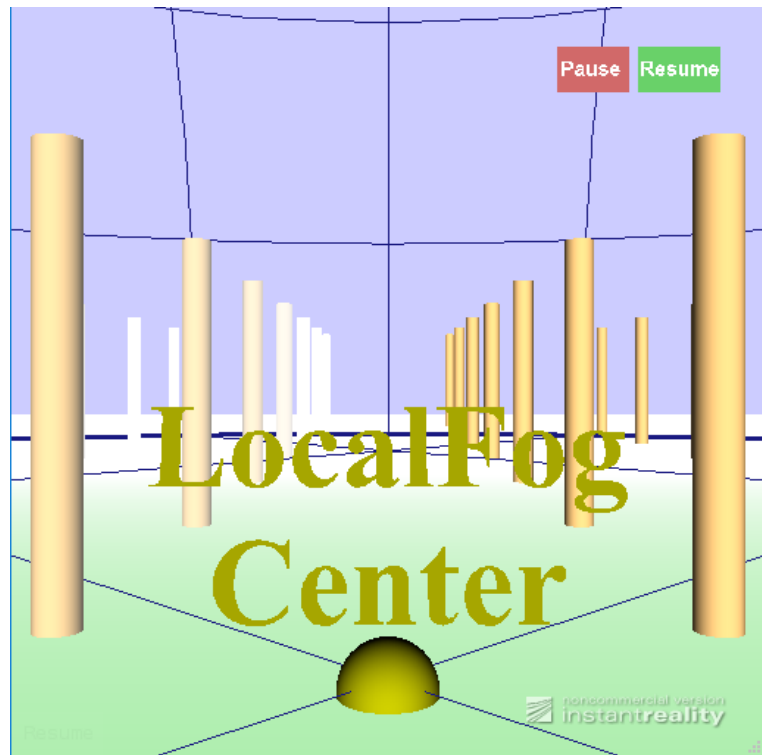
- Test Scene of LocalFog node includes animation
 - Moving LocalFog: fogType = Linear and visibilityRange = 40m
 - Fog attenuation correctly varies depending on transformation position of LocalFog, not current view.
 - Columns on right side are outside of the LocalFog scene subgraph and correctly remain unaffected, thus helping scalability.
 - However, parent Transform animation results are inconsistent.



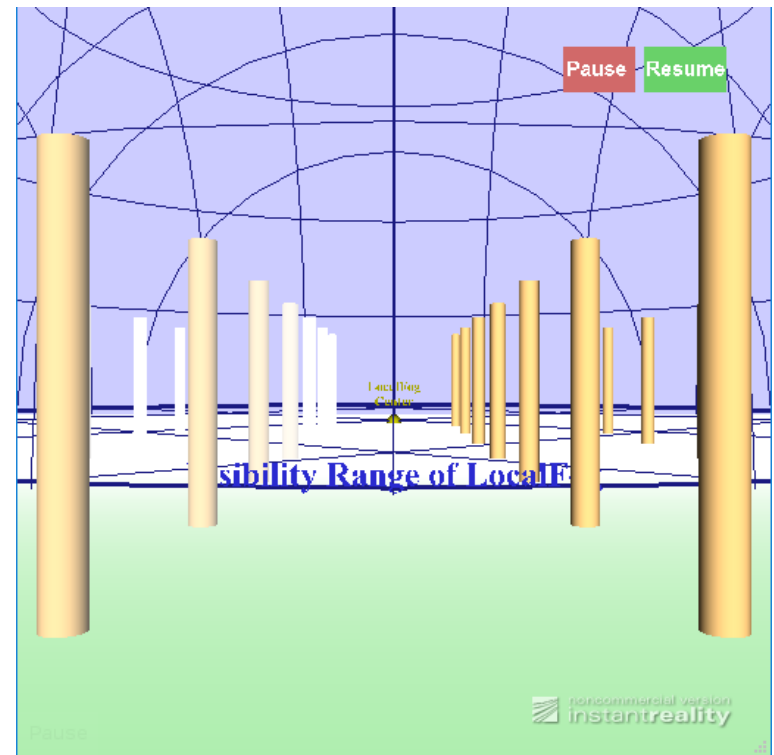
These columns are normal, because they are outside LocalFog.

Browser test: Instant Player

- LocalFog initially works, but effect doesn't move when the parent transformation hierarchy is animating.
 - Effects on left columns should vary when center moves.



<Close LocalFog>



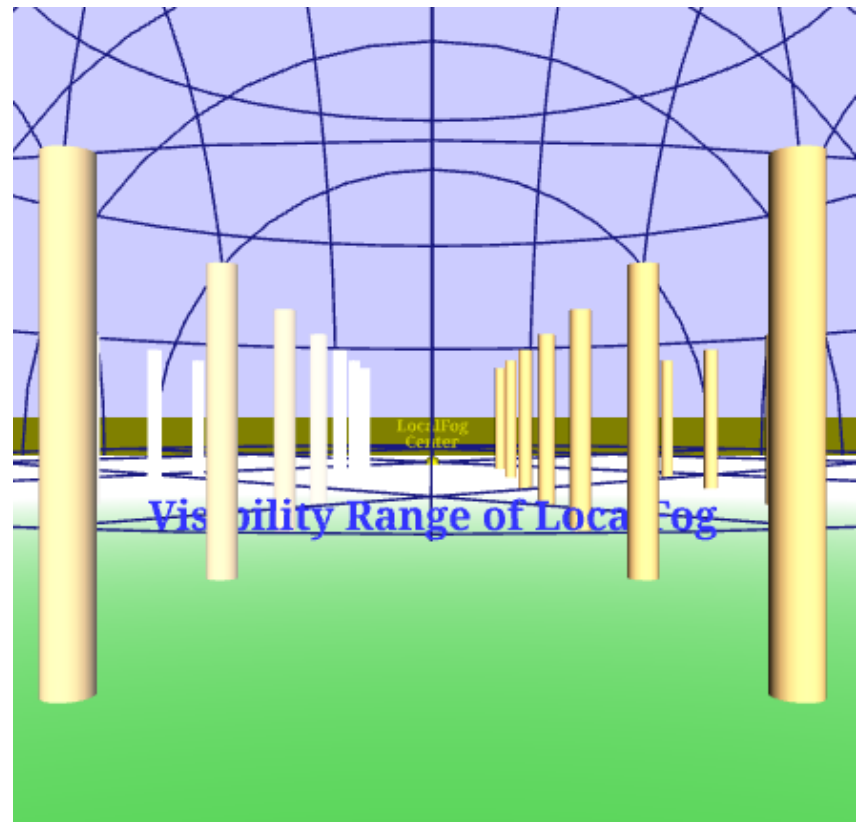
<Far LocalFog>

Browser test: Firefox + X_ITE Player

- Similar to Instant Player: renders but no animation.
- (Other browser tests didn't work with X_ITE Player.)



<Close LocalFog>



<Far LocalFog>

LocalFog Test Conclusions

- Implementations of X_ITE and Instant Player are both good, but still need animation support.
- **Other browsers need to implement LocalFog.**

	Fog node	LocalFog node	Transformation of LocalFog node
Firefox + X_ITE Player	OK	Partial support	Not supported
Instant Player	OK	Partial support	Not supported
Firefox + X3DOM Player	OK	No rendering	No rendering
Xj3D	OK	Fails	Fails