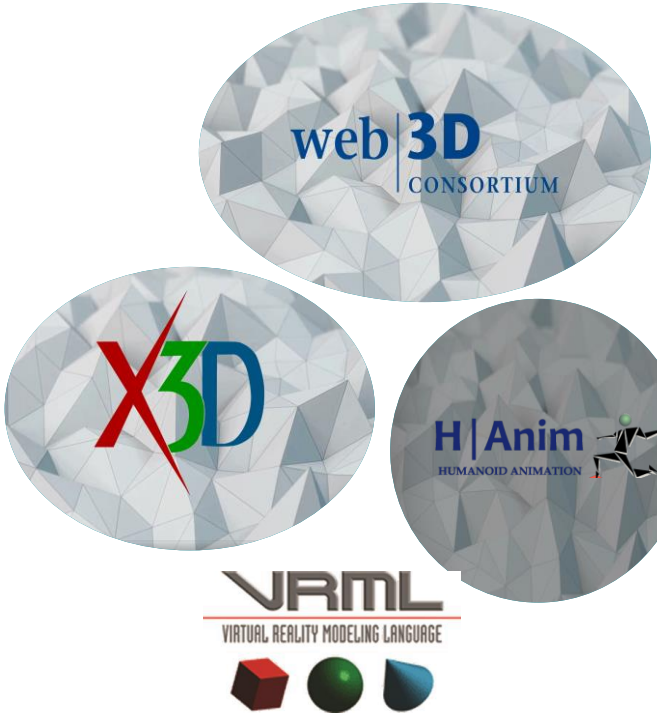
Web3D.org

Activities Update
Nicholas Polys, PhD

SIGGRAPH CARTO BOF
2022

Who are we: The Web3D Consortium

- Not-for-profit Standards Development Organization (SDO) , International, Member driven
- Providing Open International Standards (ISO-IEC) specifications for Real-Time Interactive 3D Graphics
  Our Standards: X3D, VRML, and HAnim
- Members dedicated to the portability, interoperability, and durability of interactive 3D content



Web3D Standardization Process

Volunteers and Members work together on Standards

Web3D Working Groups:

- X3D
- Medical
- Geospatial
- Mixed Reality
- Heritage
- Semantics
- Design Printing & Scanning
- Web3D UX

www.web3d.org/working-groups

SDO Partnerships:

Web3D.org

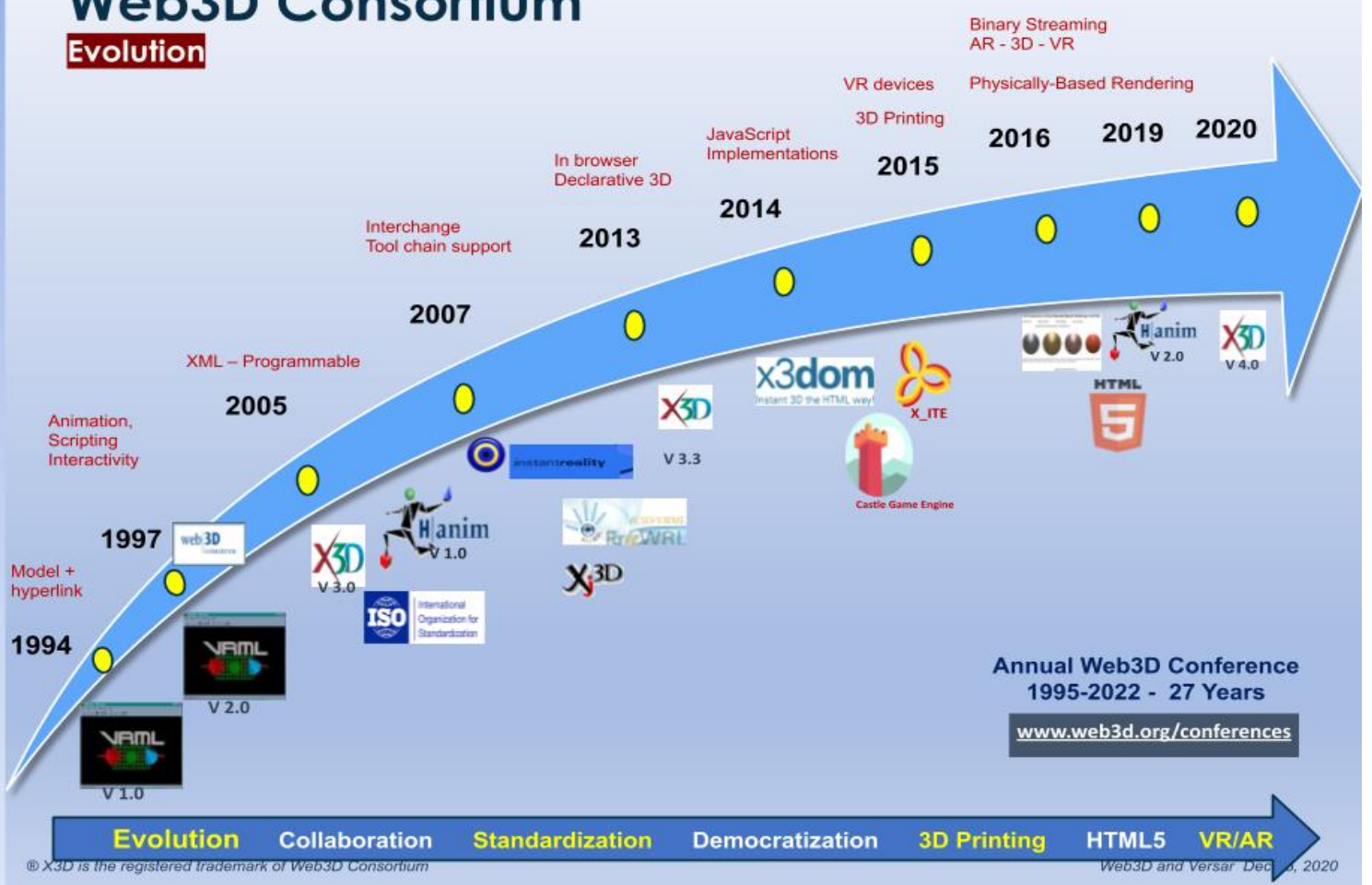
VirtuWorlds Giza (1998-2022)

Multimedia Mashup for WWW:

- *Survey drawings + GeoTIFF terrain*
- *Characters, animations*
- *Stands the test of Time*

Web3D Consortium

Evolution



Annual Web3D Conference
1995-2022 - 27 Years

www.web3d.org/conferences

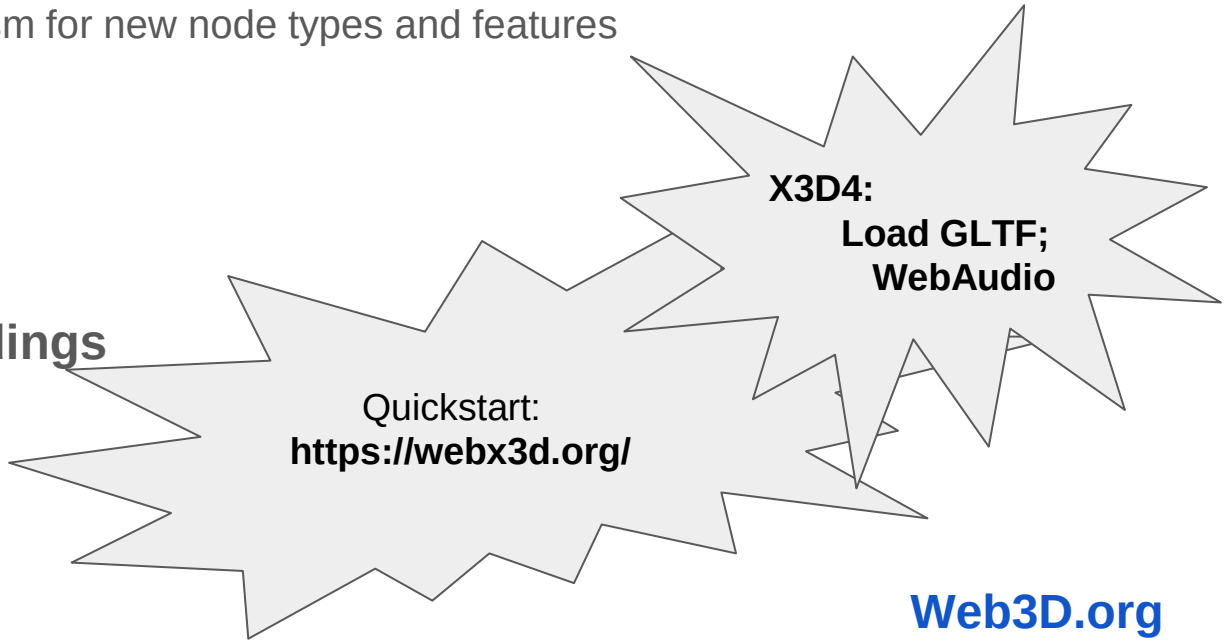
Evolution Collaboration Standardization Democratization 3D Printing HTML5 VR/AR

web3D CONSORTIUM

® X3D is the registered trademark of Web3D Consortium

Extensible 3D (X3D) Suite of Standards

- **Abstract Scenegraph for interactive 3D graphics**
  - Describes the X3D content model including transformation and behavior graphs
  - X3D Unified Object Model enables formally generated and quality assured scenes
  - Extensibility mechanism for new node types and features
- **File Encodings**
  - XML
  - Classic VRML
  - Binary
  - JSON, TTL
- **Scenegraph API bindings**
  - Javascript
  - Java
  - Python
  - C#
  - C++



X3D4 : BIG NEWS!

- The last few years we have publicly shared **X3D4** draft specifications for community comment and review. We are now under ISO-IEC ballot
  - Numerous improvements for HTML5 integration
  - GLTF and PBR support
  - WebAudio API support
  - Free online video tutorials and demos
- Members continue to innovate X3D applications with real impact:
  - Case studies from Virginia Tech and Versar
- Web3D 2022 in Paris, France this November ! https://web3d.siggraph.org/

Virginia Tech

- Continuing our explorations into
  - Immersive Cartography
  - Mirror Worlds
  - Location-based graphics

www.vt.edu

https://arc.vt.edu/

X3D Blacksburg

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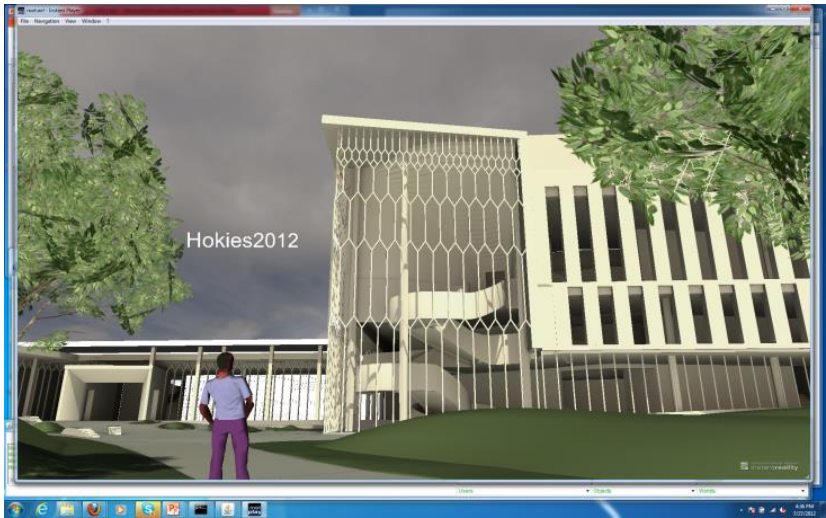
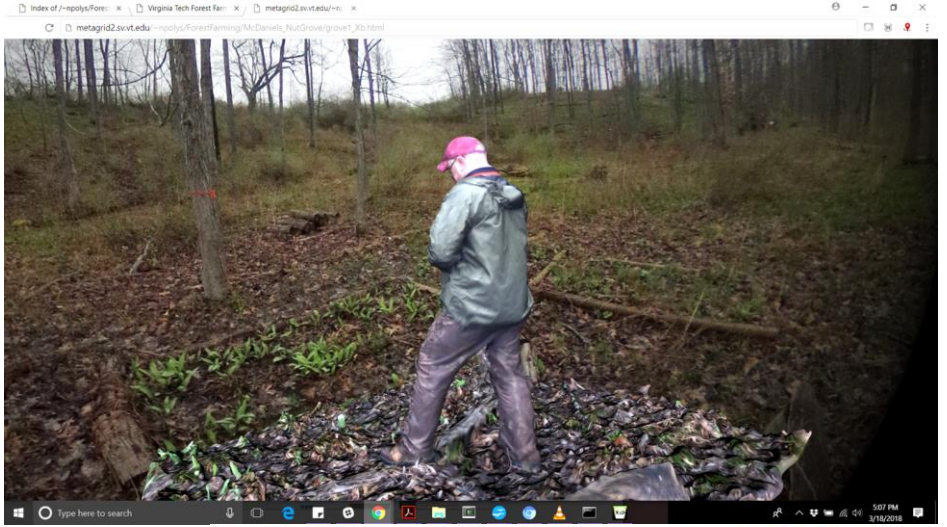
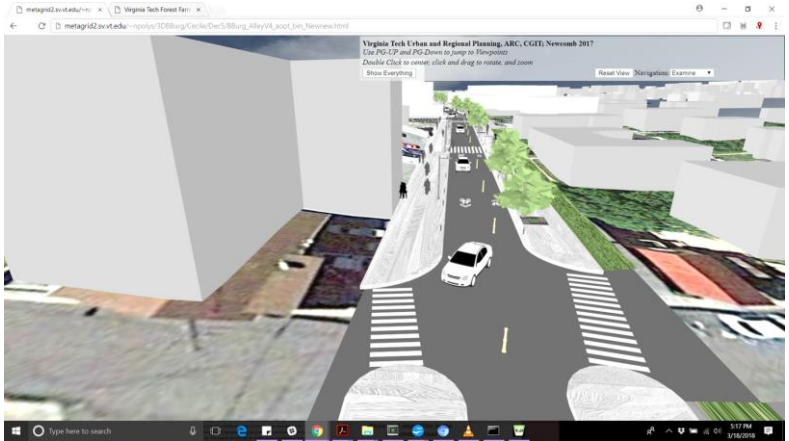


Design & Planning

- ***Virtual Tours***
  - 360 video & photospheres
  - Structure.io scans
- ***Town Planning*** (Sketchup + X3D Blacksburg)





Remote Experiences

See also: https://vimeo.com/visionarium2018

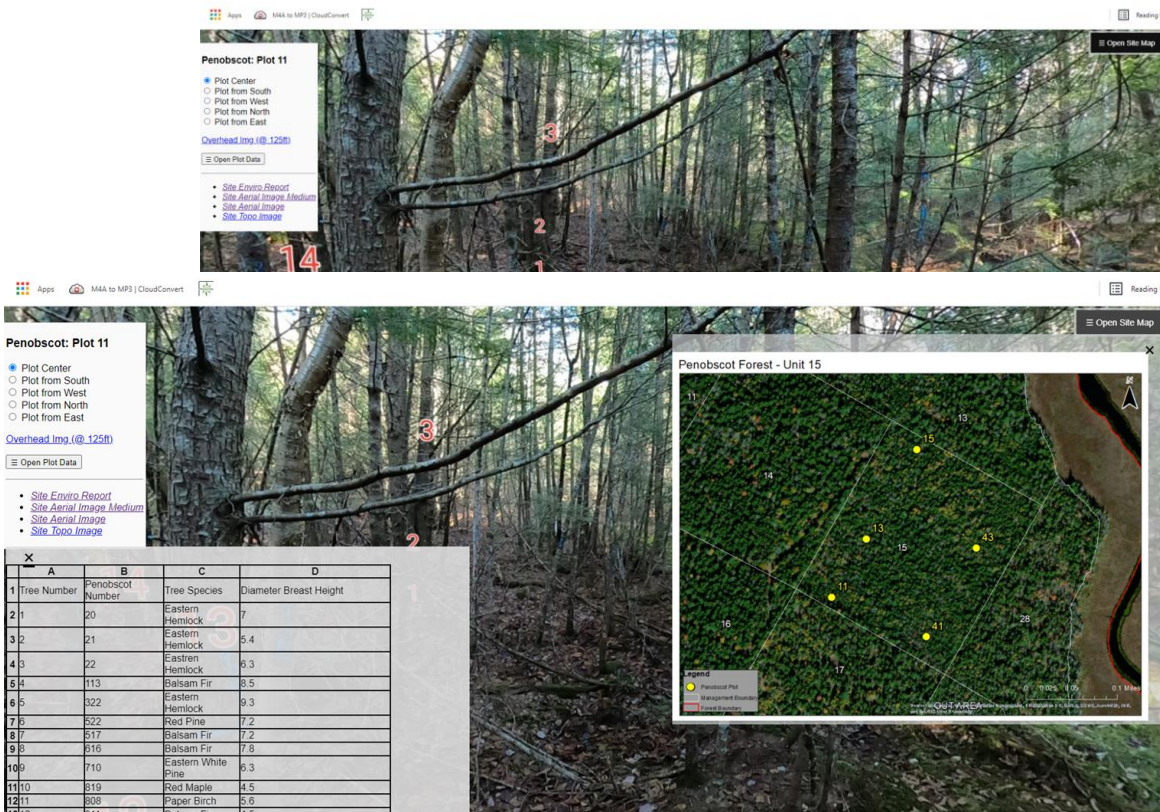
Prof Katie Meaney's

Environmental

Design module

US Forest Service Professional Cert

- Pivoted to online training
- USDA Advanced Silviculture Program is usually a 2 week on-site intensive course
- 6 forests, dozens of plots captured w 360-degree photospheres and drone video spheres



	A	B	C	D
1	Tree Number	Penobscot Number	Tree Species	Diameter Breast Height
2	1	20	Eastern Hemlock	7
3	2	21	Eastern Hemlock	5.4
4	3	22	Eastren Hemlock	6.3
5	4	113	Balsam Fir	8.5
6	5	322	Eastern Hemlock	9.3
7	6	522	Red Pine	7.2
8	7	517	Balsam Fir	7.2
9	8	616	Balsam Fir	7.8
10	9	710	Eastern White Pine	6.3
11	10	819	Red Maple	4.5
12	11	808	Paper Birch	5.6

- VT Forestry News Story: Immersive and annotated study tour videos filmed using a full-hemispherical camera
- Presents Overview-and-Detail, spatial properties of site
- *See also:* Web3D 2021 paper on X3D Field Trips for Remote Learning

Location-based Graphics

- HCI Capstone (Seniors Spring 2022) projects: new explorations into Mirror Worlds
  - Prototype concepts through user-centered design
- QR codes bridge physical and informational spaces
  - Multimedia
  - Multiplatform (* phone gyro)

Stroubles Creek Projects

Increasing Watershed awareness & stewardship:

- QR codes and map pins to Web addresses
- X3D + HTML5 presentation
- 360 Videos, images
- Links to other resources

Locations

- Triple Point
- Spout Spring
- Spout Spring (no narration)
- Owens Spring
- Owens Spring (no narration)
- Robinson Spring
- Robinson Spring (no narration)

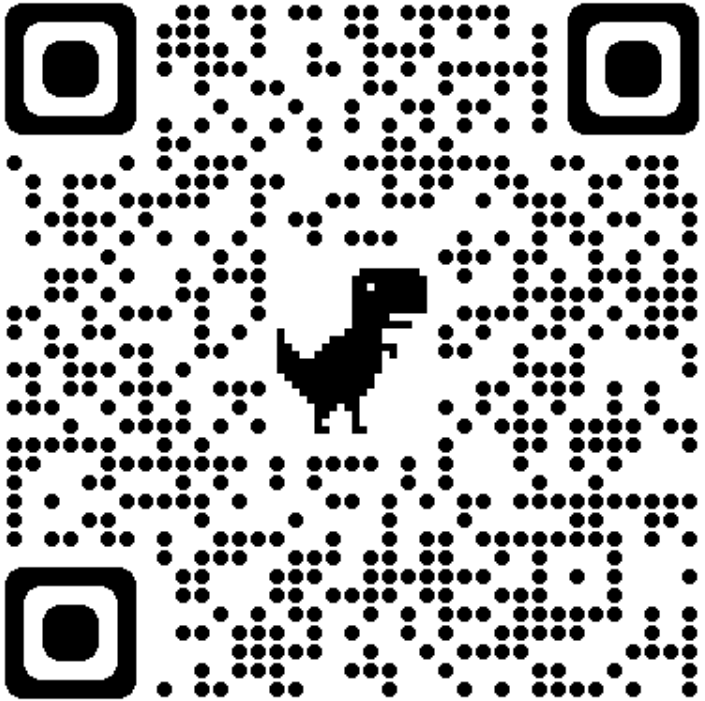
☰ Open Gallery

Useful links: Live

Videosphere Viewing w X3D

To enable first person view on your phone,

- Click the ‘Start Demo’ link at top right
- Look around in Landscape mode



Firefox File Edit View History Bookmarks Tools Window Help

Monterey Bay Aquarium Resear | stoqs_lrauv_jul2021 | stoqs_lrauv_jul2021

https://www.mbari.org

MBARI Monterey Bay Aquarium Research Institute

A nonprofit oceanographic research center

Search ...

SCIENCE TECHNOLOGY PRODUCTS NEWS AT SEA ABOUT

Environmental DNA is an effective tool for calculating marine biodiversity

July 29, 2021 – New research demonstrates that eDNA can be a valuable tool for monitoring California's kelp

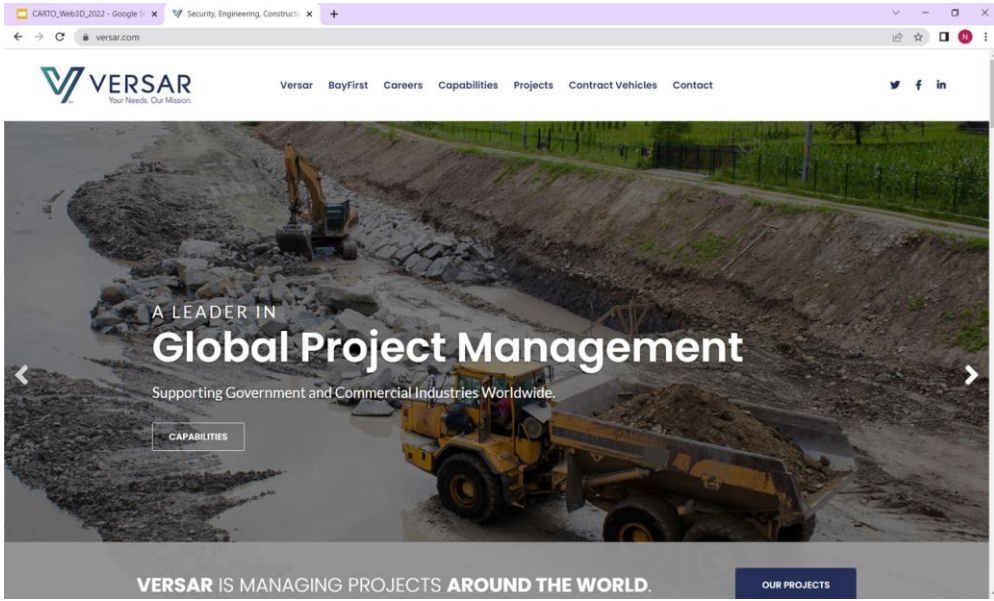
Read more ›

≋ See the latest updates from Monterey Bay

eDNA sampling is a method for identifying species of interest—both non-native and for conservation—in aquatic ecosystems without the need to sample the organism. Learn more about the process on our new interactive eDNA web page.

Versar.com

- Global A&E company
- GIS & Site surveys
- Simulation & Planning
- …
- Web3D Directing Member
- X3D for presentation and collaboration

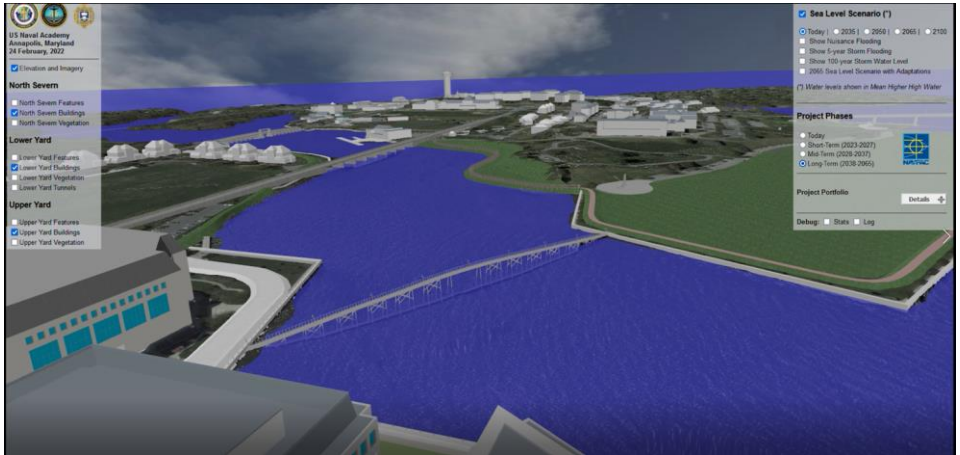


Versar

- 3DVE = 3D + GIS
- real-time, online, collaborative 3D facilities and logistics planning for US Navy and Marine Corp
- Lots of underwater and underground assets
- Explore multiple scenarios over WWW (*no install required)

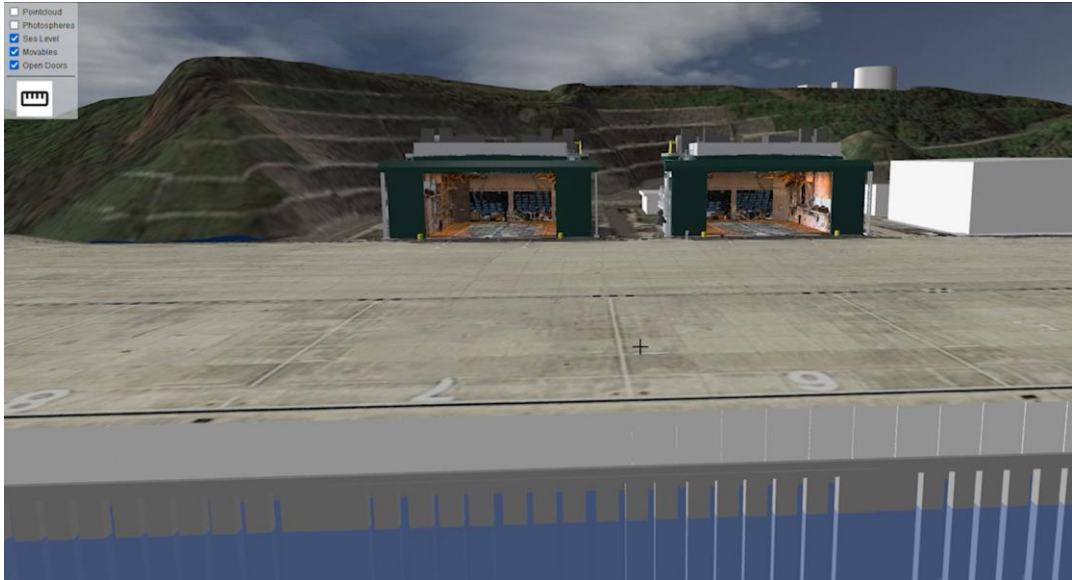
USNA Annapolis

- Coastal remediation and mitigation planning
- Numerous data sources cleaned & registered
- Composed as X3D scenes in HTML5 user interface



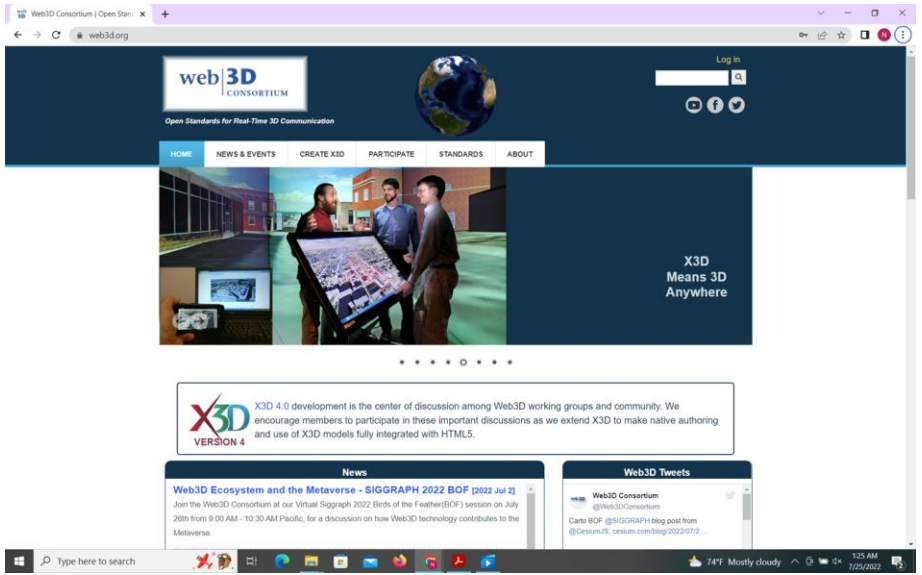
Pacific Installation

- Lidar + sonar -> 3D
- Composed as X3D scene in HTML5 user interface
- Lit, Movable objects
- Measurement
- Photospheres



Join our Community!

- **Web3D Metaverse BOF** tomorrow!
  - 2022 Birds of the Feather(BOF) session on **July 26th from 9:00 AM - 10:30 AM Pacific**
- Webinars and Tutorials online
- …
- Listserves
- WG meetings
- Conferences



WWW.Web3D.org

Web3D.org

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