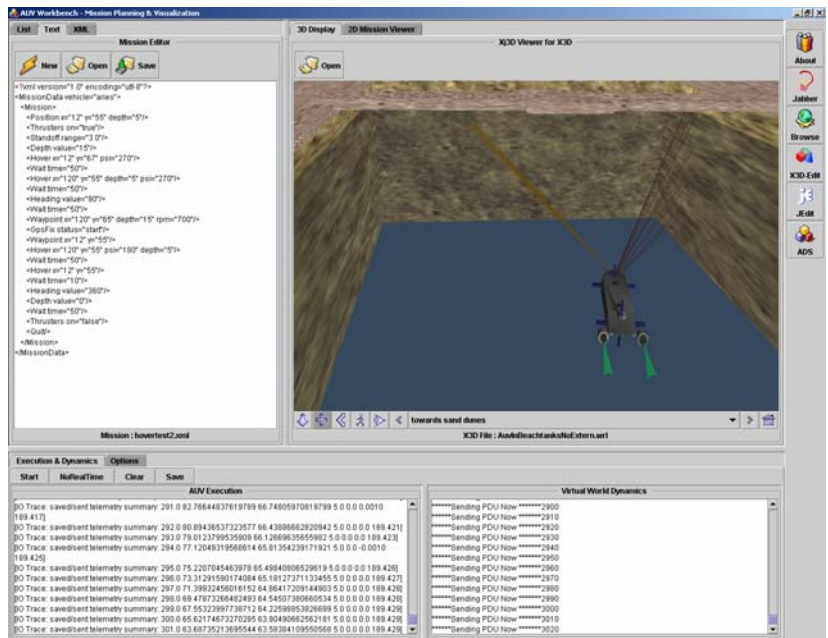


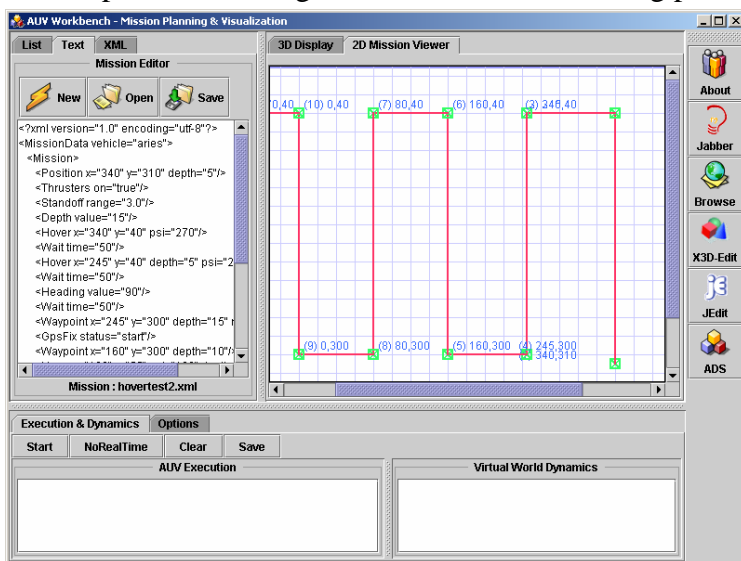
# NPS Autonomous Underwater Vehicle (AUV) Workbench

1. The NPS AUV Workbench supports physics-based AUV modeling and visualization of vehicle behavior and sensors in all mission phases.

- Animation based on vehicle-specific hydrodynamics that can be configured to model arbitrary vehicles.
- Models defined in X3D and VRML relying on Distributed Interactive Simulation Protocol allow visualization across networks utilizing custom software or off-the-shelf web browsers.
- Virtual environment facilitates control algorithm development, control constant testing, mission generation and rehearsal, and replay of completed missions in a benign laboratory environment.



2. Graphical mission generation and data handling provides:



- Automated generation of mission specifications in an XML-based command language supports mission scripting, vehicle-to-vehicle, vehicle-to-agent, & vehicle-to-human communications, as well as storage of runtime telemetry data.
- Automated conversion of XML mission into various arbitrary text-based AUV command languages using XSLT transformation.
- Efficient serialization and transmission of generated imagery, telemetry and reports using XML Schema Binary Compression (XSBC).
- Integrated sonar visualization capabilities.

3. XML-based Tactical Chat (XTC) provides open-source communications protocol among remote vehicles and individual operators, either in the virtual or real worlds.

- Reliable asynchronous data transfer between AUVs, other vehicles, agents and human controllers.
- Automatic logging of all communications in a schema-constrained XML format that facilitates data retrieval for post-mission-analysis and mission reconstruction.

4. AUV Workbench autoinstaller publicly available at <http://terra.cs.nps.navy.mil/AUV/workbench> with poster online at <http://www.movesinstitute.org/xmsf/projects/AUV/AUVWorkbench.jpg>

5. For more information, please contact LCDR Duane Davis, USN ([dtdavis@nps.navy.mil](mailto:dtdavis@nps.navy.mil)) or Dr. Don Brutzman ([brutzman@nps.navy.mil](mailto:brutzman@nps.navy.mil)) at the Naval Postgraduate School, Modeling and Virtual Environments (MOVES) Institute and NPS Center for AUV Research, Monterey California. Project links online at <http://www.movesinstitute.org/xmsf/xmsf.html#Projects-AUV>