

UsvBoxTestMission Report

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Mission Metadata	
AVCL Mission File	UsvBoxTest.xml
Mission Statement	Test mission for USV waypoint commands, running a simple box. Mission results are added to metadata comments and then converted into a mission report.
Identity information	
Date	Ongoing default demonstration
Location	Monterey Bay California USA
Personnel	Actual afloat USV operations require a safety observer that can shutdown the robot. This is a Rules of the Road requirement.
Test/report author	Don Brutzman
Live/virtual	Virtual demonstration test
Environment	
Estimated sea state	0
Estimated current set, drift	0
Estimated wind direction, speed	0
Estimated navigational fix accuracy	0
Test objectives	
Mission	Demonstrate basic USV mission capability
Hardware	NPS has two SeaFox vehicles
Software	Simple proportional difference controller in AUV Workbench
Communications	None
Software issues or problems	
Control	TODO: Control and hydrodynamics coefficients need to be parameterized rather than hard-wired into Java classes.
Conclusions and recommendations	
Conclusions	Simple box test mission works satisfactorily.
Recommendations for future work	Multiple TODO improvements and bugfixes remain, this is a work in progress.

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AVCL Mission Header	
description	Box-shaped mission to test USV kinematics.
creator	Duane Davis, Don Brutzman
created	23 May 2005
modified	28 August 2010
title	UsvBoxTest.xml
mission	UsvBoxTest.xml
MissionMetadata	UsvBoxTest.MissionMetadata.xml
reference	UsvBoxTestMissionReport.pdf
identifier	http://xmsf.svn.sourceforge.net/viewvc/xmsf/trunk/AuvWorkbench/MyAuvwProjects/DefaultProject/missions/UsvBoxTest.xml
generator	AUV Workbench https://savage.nps.edu/AuvWorkbench
missionOffsetDeltaNorth	0
missionOffsetDeltaEast	0

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AVCL Mission Details	
Vehicle Type	USV
Vehicle Name	SeaFox
Vehicle ID	5
Units of Measure	
Angle	degrees
Distance	meters
Mass	kilograms
Time	seconds
Geographic Origin	
Latitude	36.607
Longitude	-121.885
Time Units	
Start Time	26 September 2012 16:4:22
Time Zone	-1
Sample Time Interval	4 seconds

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AVCL Mission Commands

AVCL Mission Command List: UsvBoxTest.xml					
#	Command	X Position	Y Position	Z Position	Description
0	Thrusters	enabled="true"			
1	SetPositionUSV	5.0	0.0		Launch point
2	WaypointUSV	550.0	0.0	5.0	Northwest corner
3	WaypointUSV	550.0	450.0		Upper northeast corner
4	WaypointUSV	450.0	550.0	5.0	Lower northeast corner
5	WaypointUSV	0.0	550.0	5.0	Southeast corner
6	WaypointUSV	0.0	0.0	4.5	Finish by start point
7	Quit				UsvBoxTest mission complete

Reference: [Autonomous Vehicle Control Language \(AVCL\)](#)

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Screen Snapshots

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Figure 1	2DMissionView
Figure 2	3DSceneView
Figure 3	OpenMapView

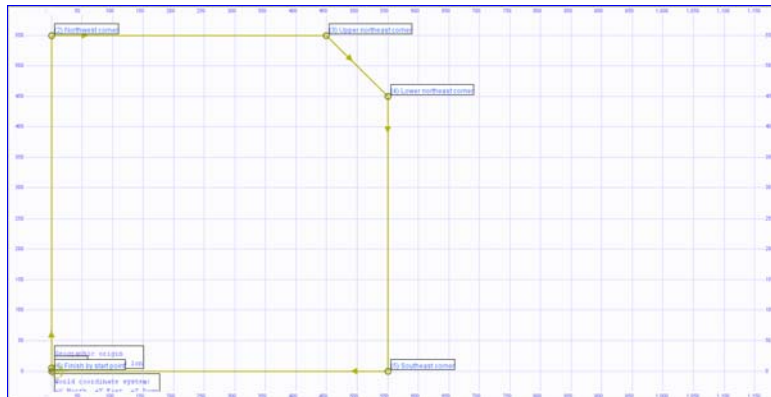


Figure 1: Resulting mission image from 2DMissionView

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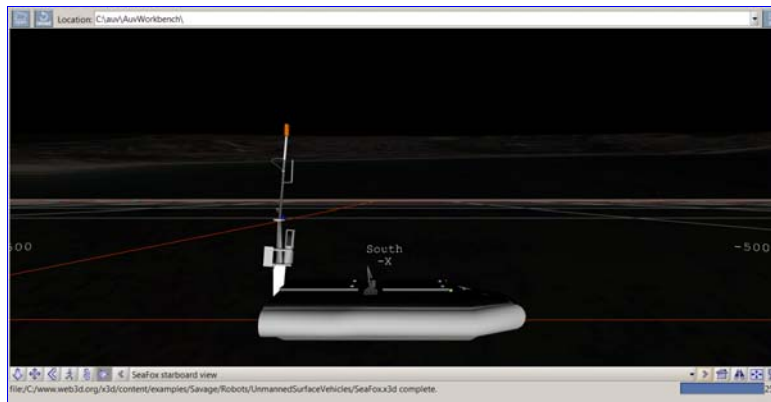


Figure 2: Resulting mission image from 3DSceneView

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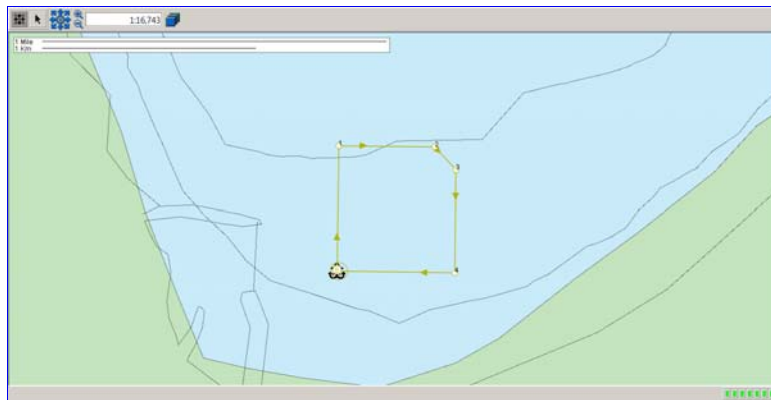


Figure 3: Resulting mission image from OpenMapView

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Mission Telemetry Plot Charts

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Figure 4	chartXy	description
Figure 5	chartXyz	description
Figure 6	chartOrientations	description
Figure 7	chartLinearVelocities	description
Figure 8	chartRotationalVelocities	description
Figure 9	chartPropellers	description
Figure 10	chartRudder	description
Figure 11	chartBodyThrusters	description

Figure 12	chartLateralThrustersCourse	description
Figure 13	chartRemainingBatteryPower	description

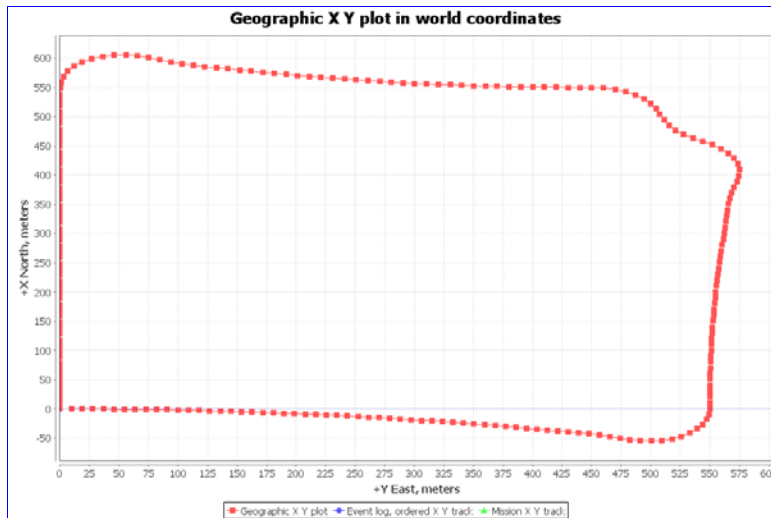


Figure 4: Telemetry plot chartXy ([description](#))

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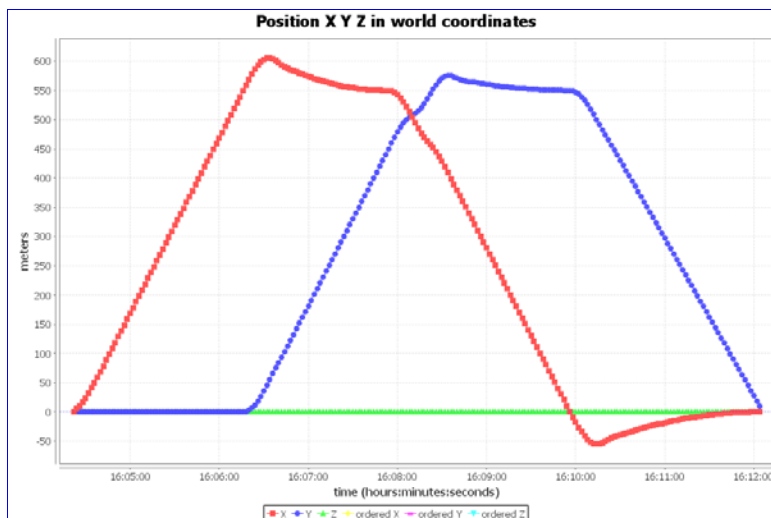


Figure 5: Telemetry plot chartXyz ([description](#))

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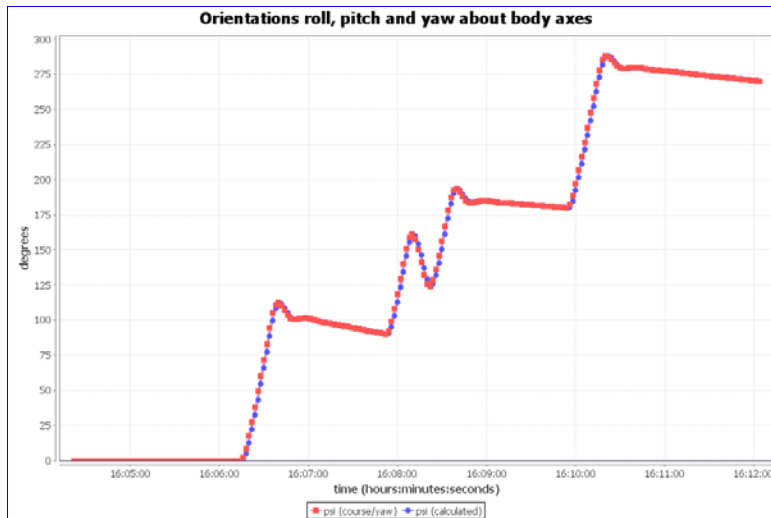


Figure 6: Telemetry plot chartOrientations ([description](#))

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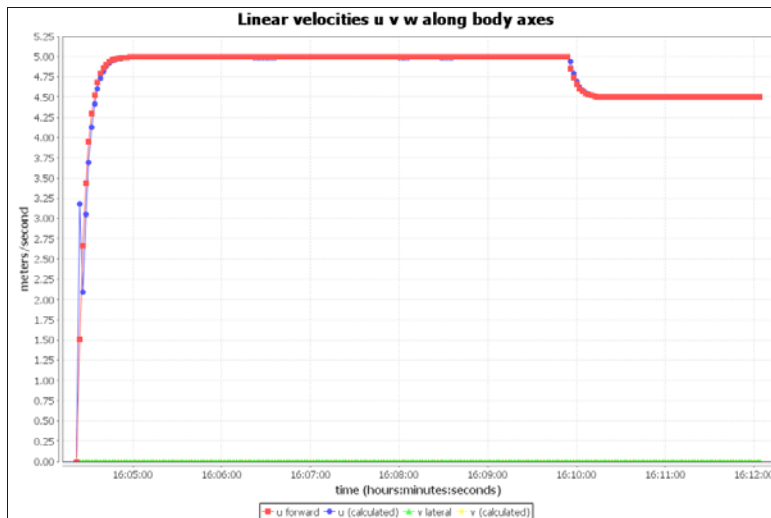


Figure 7: Telemetry plot chartLinearVelocities ([description](#))

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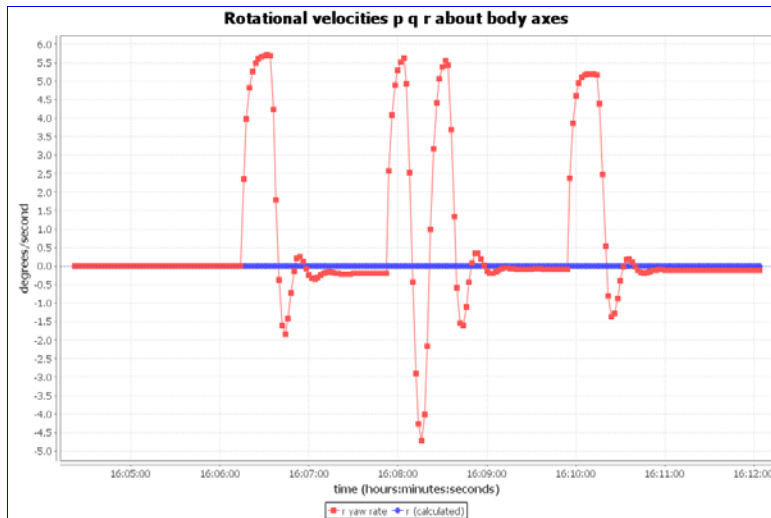


Figure 8: Telemetry plot chartRotationalVelocities ([description](#))

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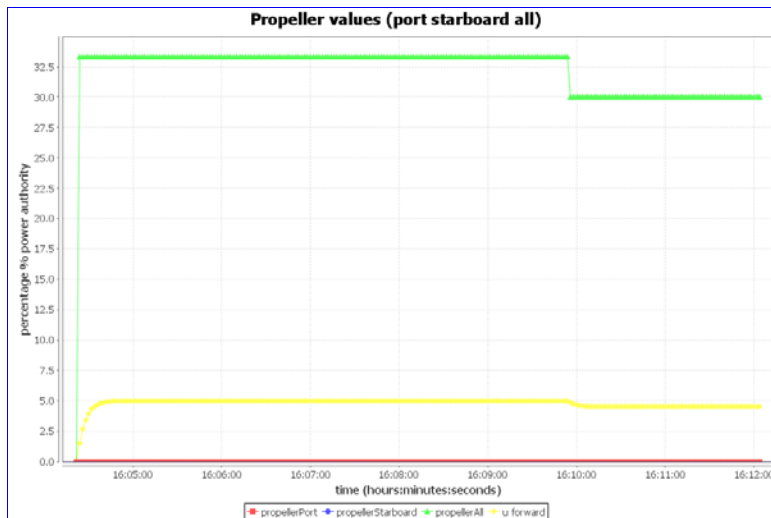


Figure 9: Telemetry plot chartPropellers ([description](#))

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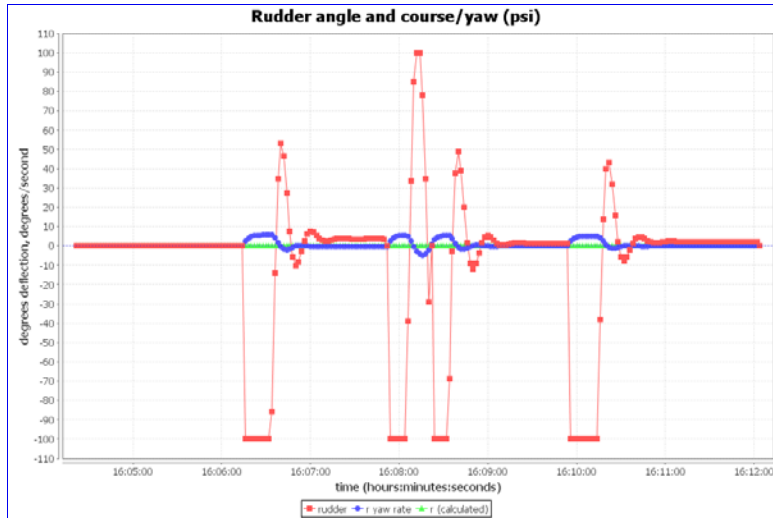


Figure 10: Telemetry plot chartRudder ([description](#))

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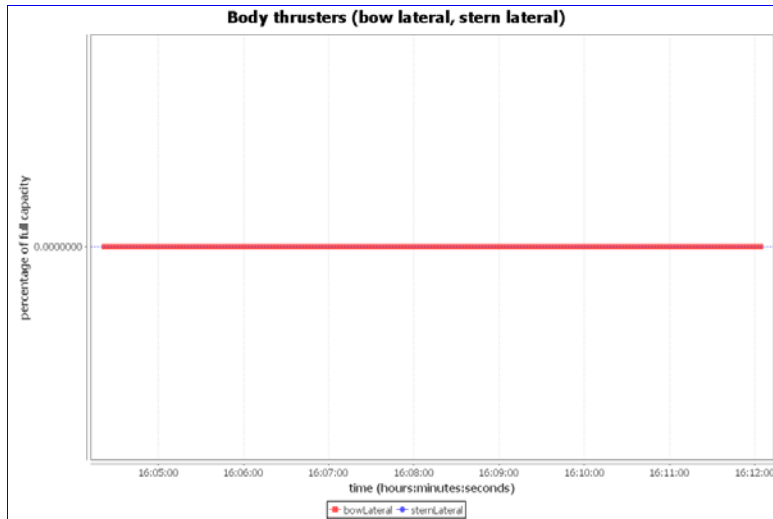


Figure 11: Telemetry plot chartBodyThrusters ([description](#))

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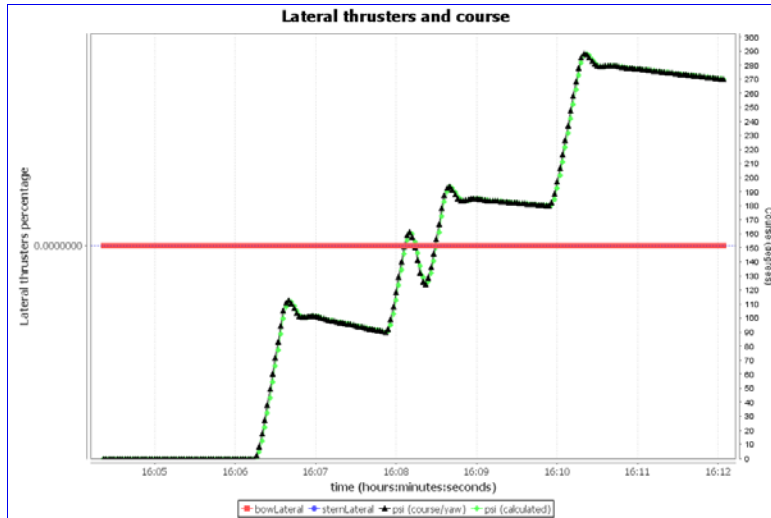


Figure 12: Telemetry plot chartLateralThrustersCourse ([description](#))

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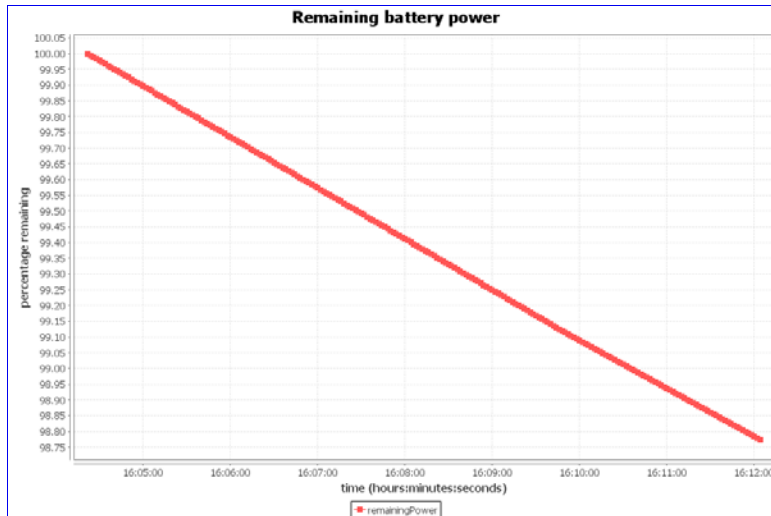


Figure 13: Telemetry plot chartRemainingBatteryPower ([description](#))

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Credits

This report was generated by the [Autonomous Unmanned Vehicle \(AUV\) Workbench](#), an open-source tool for robot-mission planning, rehearsal, execution, and playback visualization. Available online at <https://savage.nps.edu/AuvWorkbench>.

This report was generated on 261605ZSEP2012.