Trondheimsfjorden – World’s First Test Range for Autonomous Vessels

The 2nd EU-Japan Satellite Positioning Public-Private Roundtable
Tokyo, March 8th, 2017

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AUTONOMY IS NOT NEW

- Autonomous underwater vehicles
Autonomous Vessels has also been a reality for many years

**Dynamic Positioning (DP)** is a computer controlled system to automatically maintain a vessel’s position and heading by using its own propellers and thrusters (i.e. without the use of anchors).
Autonomous Systems - KONGSBERG

**Air**
JSM, NSM, Penguin, UAVs

**Land**
RWS, UGVs

**Sea-Surface**
DP, Man. Ctrl, Autopilot

**Underwater**
AUVs, ROVs
Sub Systems

• GNSS
• Inertial Navigation
• Microwave Relative Positioning
• Laser Relative Positioning
• AIS (anti collision)
• Radar
• LiDAR
• Optical (Camera)
• Broadband Communication (MBR)
• VDES
• Control Room
• Satellite Surveillance
• Land infrastructure
• E-Navigation
• Etc.
AN OCEAN OF OPPORTUNITIES

SEABORNE TRANSPORT

GOVERNMENT & CUSTOMER

TO SUCCEED WE MUST COOPERATE

INDUSTRY

RESEARCH

SMART MARINE OPERATIONS

SEAFOOD
Vil teste førerløse skip i Trondheimsfjorden

Kongsberg Gruppen mener det bør opprettes et testområde for førerløse skip i Trondheimsfjorden og utenfor kysten av Trøndelag.

I Trondhjem har forstårne i mange år studert hvordan skip kan operere uten værket hever eller mannskap, og konseptet til førerløse skip i Kongsberg Gruppen spiller en viktig rolle i farten. Selv om det er et område med store hårder, mener Kongsberg Gruppen at det bør opprettes et testområde i Trondheimsfjorden.

Norge blir først i verden: Peker ut fjord til testing av skip uten mannskap

Etablerer fast testområde.
Trondheimsfjorden – Test site for Autonomous Vessels
Test site - Trondheimsfjorden
Ship traffic – May 31st - June 14th 2016
And certainly there will be even more initiatives in the years to come.
USV Odin
Named by the Minister of Defense August 18th 2016

«Odin» is a research project between Forsvarets forskningsinstitutt and KONGSBERG
Automated Ships Ltd and KONGSBERG to build first unmanned and fully-automated vessel for offshore operations
“Building and testing autonomous vessels and transport systems in national waters now will make it easier to bring about changes in international regulations later. But the most important factor for the authorities is safety”, says Olav Akselsen, Director General of Shipping and Navigation. “If you can steer a ship from an onshore position, this means that hackers could also take control of the ship. We have to make data security a priority”, Olav Akselsen told Teknisk Ukeblad at the inauguration of the Norwegian Forum for Autonomous Ships.
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THROUGH PEOPLE, TECHNOLOGY AND DEDICATION