

Title Abstract: R-Mode Baltic – Testbed for safe navigation at the Baltic Sea

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Stefan Gewies is a Scientist working for the German Aerospace Center in the Institute of Communications and Navigation. He is there Head of the Working Group Maritime Services of the Department of Nautical Systems and Project Manager of an international project that aims to build an R-Mode testbed in the Baltic Sea. His current research focus is on terrestrial maritime navigation systems using signals-of-opportunity. Stefan is a member of the Radionavigation Services Working Group of the IALA ENG Committee. He received his PhD degree in Physics from Heidelberg University in 2009.



Abstract:

The EU co-financed R-Mode Baltic project will setup the world's first large scale R(anging)-Mode testbed which will support the development and demonstration of R-Mode ranging signals transmitted from 6 maritime radio beacons and 4 AIS/VDES base stations at the same time. This testbed will enable the long term evaluation of this novel GNSS backup system and support the continuous development and testing of R-Mode equipment, R-Mode demonstrations and training. Furthermore, the testbed will support studies considering the benefits of a terrestrial backup system with respect to the increase of safety of navigation and challenging applications like unmanned and autonomous shipping.

The present paper will report the current status of the R-Mode Baltic testbed development and implementation in the Southern Baltic Sea. It will focus on activities which lead to the selection of R-Mode testbed transmitter sides, the R-Mode Baltic testbed architecture, investigation of station compatibility, experiences of R-Mode equipment installation at the transmitter sides and first R Mode measurement results. The results will be limited to maritime radio beacons as VDES R-Mode is subject to a separate paper.