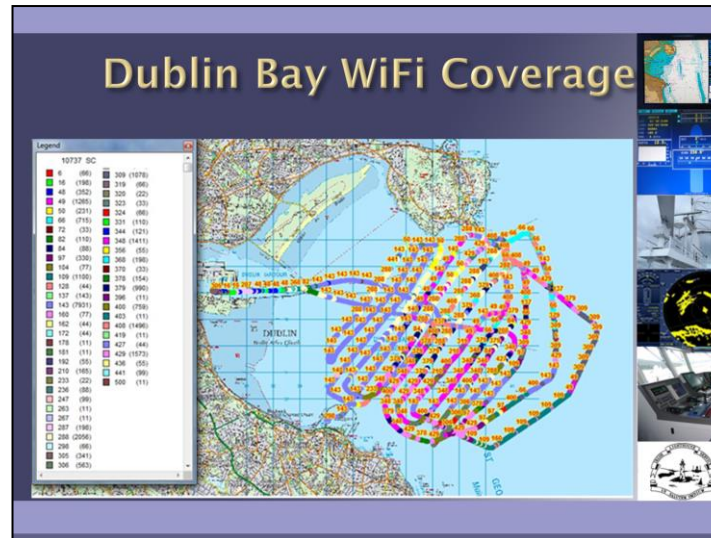


Notes

For those who are not aware the Dublin Bay Digital Diamond (DBDD) is an e-Navigation demonstrator project for the Dublin Bay area, the purpose of which is to provide an opportunity for users across the maritime sector to explore the potential of e-Navigation Services.

As part of our DBDD initiative, CIL have identified several small projects for this demonstrator. The project is supported by a Technical Advisory Committee, made up of representatives from across the maritime and technology sector. The TAC met on three occasions in order to progress the objectives of the demonstrator.

Here are some of the projects that are currently live and released.



Notes

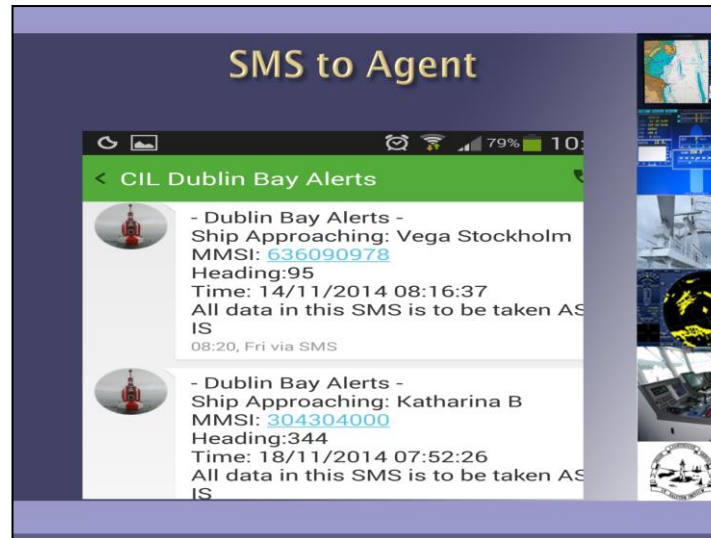
Improved communications is the key to e-Navigation and all nodes of the Dublin Bay Wi- Fi have now been installed and Wi-Fi range and overlap reception was tested using the Dublin Port pilot boat. It is planned to conduct more detailed overlap and coverage tests in the coming months. Image show VODAFONE STRONGEST SCANNED SCRAMBLING CODE Scrambling codes (SC), used to differentiate between UMTS cells, were also plotted for each mobile operator.



Notes:

The Dublin Bay Buoy continues to Tweet Wind Speed and Direction, wave Height, period and water temperature @DublinBayBuoy. Following Lab testing Dublin College University installed a Water Quality Sonde to the Buoy.

The buoy also provides on demand services like text "DBDD" to get the latest MetOcean reading from the Dublin Bay Buoy.



Notes

SMS to Agent

This project is currently on trial with a local shipping agent. By monitoring AIS messages we can determine if a ship has entered /exited a given area. The system sends a text message when a ship enters a defined area, alerting the agent who then proceeds to the ships intended berth. The purpose of this service is to cut down on the amount of time consumed updating relevant parties prior to arrival in port, moving to automated check-ins.

By using SMS, we are providing end users with a chunk of information/data in an easily read format. SMS can also be processed on smart phones and text based screens. Current applications can be expanded to include alerts for either MetOcean, ship movements and any other AIS monitoring properties.

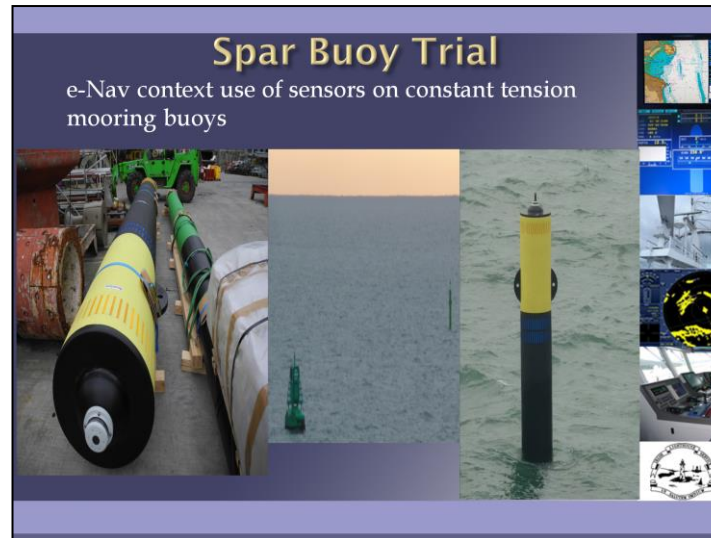
Also providing on demand services like text "DBDD" to get the latest MetOcean reading from the Dublin Bay Buoy.



Notes

A WebCam is broadcasting live footage from the Kish lighthouse. CIL have overlaid live data transmitted from the Dublin Bay Buoy onto the video footage. This gives users a real-time view of conditions out in Dublin Bay. The camera is a Y-cam Bullet IP based security camera. It takes 30 frames per second and is displayed with a resolution of 640x480. Video is streamed via a Wi-Fi link to our headquarters in Dun Laoghaire (14 km distance between the 2 locations). The camera is located inside the lighthouse (on the floor below the Optic) and pointing northwards. Ferries sailing between Dublin and Holyhead / Liverpool can be seen passing throughout the day and on a clear day.

A camera has also been installed at the entrance to Dun Laoghaire Harbour to monitor vessels in the Dublin Bay Anchorage.



Following discussions with our Finnish counterparts, it was agreed that lessons could be learned from both parties in formally testing the suitability of Spar buoys in ice free waters. While theoretical analysis has its values, it was felt that there is nothing quite as authentic as testing in the real environment.

Originally part of the Finnish Maritime Administration, Meritaito Ltd is now a state-owned company specialising in the maintenance and development of waterways and marine infrastructure. CIL are working with Meritaito as part of the Dublin Bay Digital Diamond Project to carry out performance and survivability tests on spar buoys in Irish waters. Meritaito are interested to see how their Spar type buoys would perform in ice free waters outside the Baltic region and we are interested to see how their buoys and associated systems would perform in comparison with our own designs and mooring arrangements. As with most countries that have to contend with ice on their waterways Finland has found Spar (tube) type buoys to be the best design for dealing with ice flows. While the slim profile is particularly well suited to ice conditions they can suffer from conspicuity problems when compared with conventional buoys.

These types of Buoys can be used in an e-Nav context for the use of data gathering sensors including real time water depths. Also we are testing constant tension mooring buoys.

In early 2015 we established the two buoys in close proximity (within 300 meters) to the Bennet Bank and West Blackwater stations. The spar Buoys have the same light and daymark display as the existing buoys. Performance tests are also been carried out on the suitability of pre-stressed moorings.

Stereoscopic Positioning

2 photos of the same object/view taken a few meters apart) compared with real-time onboard camera images and processed for a match at a particular bearing.

Images sent to National University of Ireland in Maynooth for processing

Initial results are that the images would need to be a higher resolution and taken at better angles.



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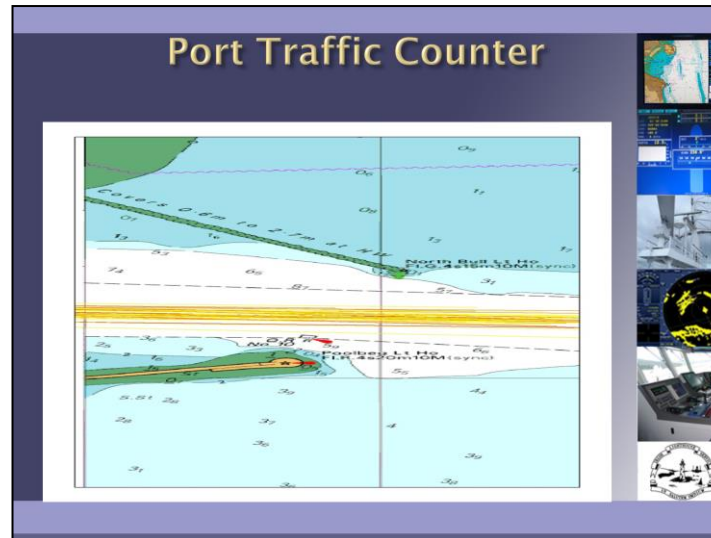
Images sent to National University of Ireland in Maynooth for processing

Initial results are that the images would need to be a higher resolution and taken at better angles.



R&RNav installed a Differential e-Loran reference station in October. Additional Secondary Factor (ASF) Coverage Tests completed in January.

Good accuracy was achieved and we are still working on coverage.



Notes

AIS Port traffic counter for light dues, recording all traffic passing North Bull and Poolbeg inbound to Dublin. We are using ARCGIS software in order to extract usable data



Next Projects

- Satellite Buoy Tracker
- Acoustic Sensor buoy
- Autonomous Buoy
- R Mode through signals of opportunity.



Notes