Black Carbon and Shipping – Business potential evaluation

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Abstract

Globally there are 100 000 diesel ships and round 250 LNG ships and some methanol and even electric ferries. This paper assesses business opportunities and designs an integrated solution, which fulfills the needs of Black Carbon (BC) measurement: The integrated measuring solution covers various hardware, software and satellite communication techniques and devices. This solution has a real time connection to land base stations thus authorities and ship owners. Measuring environments in vessels during the voyages are difficult and continuously changing. BC measuring techniques are under development, and still giving large variations in results – there is a great potential to make wrong decisions resulting wrong investments and impacts and finally huge economical and environmental failures for society. The combination of the load rates in vessels and fuel types should be revealed in detail to achieve e.g. speed optimization with lowest BC emission. Control of EU's existing and new emission regulations requires new integrated measuring solutions for various environments like vessels and ports. When vessels are operating the BC emissions should be measured and delivered to stakeholders even during the voyages. Different diesel fuels and BC affects seriously in the arctic regions and BC has direct impact to climate change and lowering of arctic ice coverage. EU air quality policy does not directly regulate black carbon, but the BC regulation is under discussion. There is evidence that the reduction in ambient SO_2 concentrations is the result of the new harbor directive, and more onshore measurements and measurements from a larger number of harbors and ships would be useful for verifying the results.