

World Maritime Day – 24 September 2009

Yesterday 24 September World Maritime Day was celebrated. The theme was "Climate change - a challenge for IMO (*) too!" – in essence somewhat similar to that for World Meteorological Day on 23 March ("Weather, climate and the air we breathe"). Both focused on the effect of air pollution, short and long term.

'Marine pollution' normally conjures up an image of an oil spill from a ship that has been involved in some kind of accident (in actual fact most of the oil pollution in the ocean comes from land-based sources) But in recent years it has become increasingly apparent that engine emissions from ships provide a very significant source of global *air* pollution. And the majority of ships remain within 200nm of the coast, not to mention their residence times in port:



In his message from the headquarters of the International Maritime Organisation (*) in London, the Secretary-General indicated that there had indeed been some success during 2008, in reducing air pollution from ships (that is, particulate matter). However, there now needs to be more emphasis on greenhouse gas emissions as well.

The particles emitted from the smokestack of an ocean-going vessel include carbon-related components (soot etc), sulphur and nitrogen oxides. In terms of

other major sources of transportation-related pollutants, the world's ~ 100 000 ocean-going vessels produce around half as much *particulate* pollution as the ~ 600 million cars. Compared with the aviation industry's production of *greenhouse gases*, shipping produces twice as much – i.e. 4-5% of the global total. Yet somehow the shipping industry managed to stay 'under the radar' of major climate change issues, for many years.

According to several health studies, the effect of the particulate matter coming from ship exhausts, is significant. Particularly in the vicinity of major shipping routes close to shore – and around large ports. For example the English Channel and the busy ports of Asia. Due to the small size of these particles, they are able to pass through body tissue and enter the bloodstream, resulting in an abnormally high frequency of cardiopulmonary ailments.

Solutions ?

One of the main reasons for high sulphur content in ship exhaust fumes is the low quality of the fuel. Bunker oil is only one step above the toffee-like substance used to make tar. Anyone who came into contact with the fuel oil on Cape Town beaches after the sinking of the 'Treasure' (June 2000) will be able to testify to its asphalt-like viscosity (it is also highly toxic to the marine ecosystem)

Thus one (partial) solution is to use a bunker fuel of better quality (lower sulphur content). In this respect legislation is improving. For example some ports have brought in a ruling that ships have to switch to a cleaner fuel when they come within a certain distance of the coast (winds ?!) The efficiency of marine engines has been improved. At the port of Vancouver it is possible for a vessel to switch to (hydroelectric) shore-power whilst alongside.

But something to bear in mind : Over 90% of the world's trade relies on the shipping industry. A ship is an extremely cheap means of transport - over long distances. It is inevitable that pure economics will resist any rapid changes in the shipping industry.

This last graphic (see below) is a pair of balloon soundings from Durban, showing the vertical changes in temperature, dew point and wind on 9 September last year. Between the early morning and the afternoon ascents a coastal low passed through : the NE'ly winds switched to SW'ly and the inversion level rose with a

