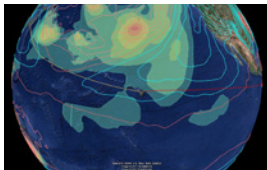


# BUNKERSPOT

INDEPENDENT INTELLIGENCE FOR THE GLOBAL BUNKER INDUSTRY

## Earth Story



**Fleet managers are being inundated by massive amounts of data from disparate sources. Somewhere in this data resides the information fleet managers need to enhance ships' safety, reduce fuel consumption, fuel costs and carbon emissions. But it's getting to the**

**information – quickly and easily, how and when fleet managers need it – that's the problem.**

Historically there hasn't been a way for fleet managers to quickly see the locations of their vessels around the globe along with important information – such as which ships are encountering or approaching adverse weather and wave conditions, which ships are burning excessive fuel, which ships could save fuel by adjusting courses, which ships are running behind or ahead of schedule, or which ships are entering territory known for pirate attacks. *GlobalView™*, **Applied Weather Technology's (AWT)** new fleet management system combines AWT's industry-leading ship routing services and software with *Google™ Earth* technology to address these issues. It gives fleet managers a more visual, easy-to-use and powerful system for enhancing the safety of ships and crew, reducing fuel consumption and curbing carbon emissions.

What makes *GlobalView* unique is that it was developed with Google's *Application Programmable Interface (API)* technology, which adds a layer on top of *Google Earth* that makes it easy to consolidate and process information. *GlobalView* literally gives fleet managers a "global view" of the locations of their companies' vessels and makes it easy to access important weather and ship-routing data about their current voyages. Fleet managers can see in an instant, all in one place, information that could have otherwise taken hours to gather from many sources. Vessels appear on the globe as colour-coded icons that can be customised to provide fleet managers with alerts regarding ship performance, fuel consumption/carbon emissions, weather conditions, estimated times of arrival (ETAs) or other factors. A click on the vessel icon gives a summary of the current voyage and sea state.

*GlobalView* makes it easy for fleet managers to see where severe weather and ocean conditions are occurring relative to vessels' locations. While many competitors take raw forecast data from governmental agencies and repackage it for customers, AWT continuously enhances the wind and wave forecast around tropical cyclones, monsoon areas, and other high-risk areas where conventional model data performs poorly. Then AWT runs a proprietary *WaveWatch III* wave model to provide the best short- and medium-range forecast available. When these features are combined with long-range vessel simulation from AWT's proprietary *Climatological Ship Resistance* model, ETA projections improve by approximately 8% compared to using conventional climatological weather.

With *GlobalView*'s customisable fleet summary report, the status of the entire fleet is literally one click away. This summary can be tailored to include the parameters that are most relevant and alert fleet managers when thresholds are exceeded, for example heavy weather, speed under performance, fuel

*Rich Brown of Applied Weather Technology unveils the latest enhancements to GlobalView™, which is now the first maritime fleet management system to utilise Google Earth*

over-consumption, or early, on-time or late laycan status. From this report, fleet managers can click on the 'F' next to the vessel's name and *GlobalView* will "fly" to the vessel's location so they can review the voyage in more detail. They can also click on the 'D' next to the vessel's name and a "detailed performance analysis" will pop up for their review.

*GlobalView* gives fleet managers easy access to information about pirate activity. *GlobalView* shows details about actual and attempted pirate attacks, as well as reports of suspicious vessels, with time and location details. Fleet managers can filter the data by time and attack types and are provided color-coded icons to easily identify the type and location where these attacks have occurred. Click on the icon and the attack details including a brief summary will pop up. The data empowers fleet managers to work together with ships' captains and AWT to help ships avoid these regions or at least be more aware so they can be properly prepared if an attack should occur.

*GlobalView* includes an option to view and evaluate alternate tracks. This gives the fleet manager the opportunity to get involved in the real-time management of the vessels route, safety and fuel efficiency. While in the past the dialogue was mainly between the captain and AWT, we see this as an opportunity to create a stronger team effort between the captain, AWT and the fleet managers. By having the capability to evaluate the recommended route from AWT and the captains' intended route they can proactively get involved to ensure that the optimum route is sailed.

There is a need for shore-side weather routing assistance from AWT along with involvement from the fleet managers. We see that many captains tactically route their vessels using short-range forecasts for making their routing decisions, which can be beneficial in situations such as avoiding an individual low-pressure system, but using short-range forecasts without considering long-range ones and historical climate data could easily put vessels in locations where they might be exposed to prolonged adverse conditions on the remainder of their voyages.

Ships in such situations are often delayed for days at sea, causing excessive, unexpected and unnecessary fuel consumption and carbon emissions. These problems can often be avoided with strategic weather routing.

Strategic weather routing uses short- and long-range forecasts, detailed current data along with climatological data to evaluate the best route to minimise time en route, fuel consumption and exposure to prolonged adverse conditions that could lead to safety issues, damage and delays.

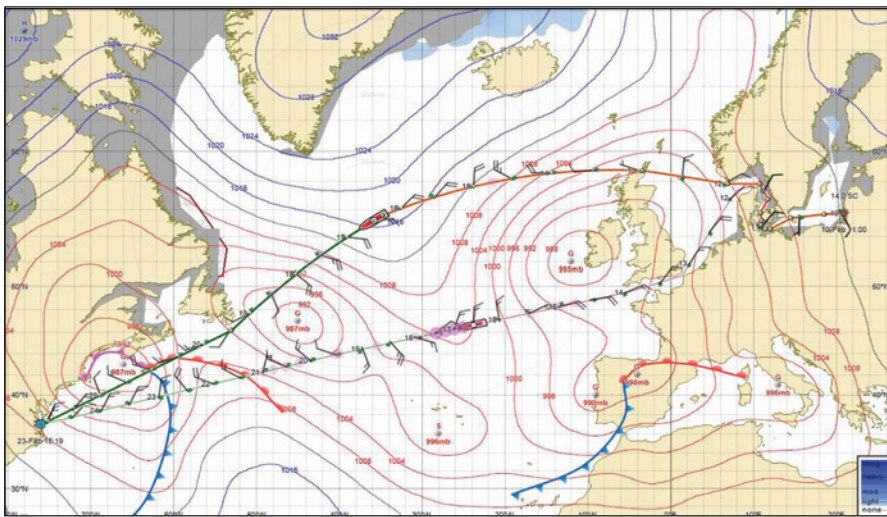
AWT uses the latest technology in ocean currents – the *Naval Coastal Ocean Model (NCOM)* combined with tidal currents at three hourly time steps. NCOM is the operational model of the **U.S. Naval Oceanographic Office** and uses input from the *Navy Layered Ocean Model (NLOM)* and the *Modular Ocean Data Assimilation System (MODAS)*. The model is used to support search and rescue operations and the Navy's optimum track ship routing as well as other military needs.

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Using this real-time, high-resolution data now gives AWT the capability to precisely determine the direction and intensity of the current globally. This enables AWT to more effectively optimise each voyage.

The combination of AWT's detailed current data with the 16-day forecasts and Climatological Ship Resistance Model provides the tools to strategically determine the optimum time or fuel route. Although the exact location of a specific gale or storm may not verify beyond 10 days, the real key is determining the storm track. By understanding the intensity and where the systems are developing and moving, AWT's Route Analyst can strategically determine the best route. Then once a vessel is within three to five days of a specific gale or storm, the route can be tactically adjusted to safely and efficiently clear that individual system.



	En-route Time (days)	Avg Daily IFO consumption (MT)	Overall IFO consumption (MT)	Overall CO <sub>2</sub> (MT)
AWT (north)	13.2	28.17	372	1184
Masters (south)	15.1	28.17	426	1356
<b>Savings</b>	<b>1.9</b>	<b>0</b>	<b>54</b>	<b>172</b>

Figure 1

Figure 1 shows an example of a route comparison where AWT's strategic weather routing saved 1.9 days, 54 metric tonnes (MT) of intermediate fuel oil (IFO) and 172 MT of carbon dioxide (CO<sub>2</sub>) emissions.

GlobalView is taking the shipping industry by storm, with leading edge technology, easy to use consolidation of information, visual alerts and the capability for fleet managers to proactively manage the safety and efficiency of their fleets.

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