



# UNITED STATES AIR FORCE CENTER FOR UNCONVENTIONAL WEAPONS STUDIES

at The Air University



## Enhancing Air Interdiction of WMD

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In the ten years since the Proliferation Security Initiative (PSI) was proposed, the United States has taken steps to expand the network of states involved, improve interdiction laws, and share procedures with involved states. A majority of this effort has been focused on maritime interdiction since most of the world's trade travels by ship. As the PSI participant states continue to improve their maritime capabilities for detecting, tracking, and interdicting chemical, biological, radiological, and nuclear (CBRN) materials and weapons of mass destruction (WMD) devices and adjust their maritime laws, state and non-state actors involved in proliferating these items will seek alternative transport modes. The most attractive alternative is air transport.

The air transport option is quicker than maritime or ground options and leaves less time for interdiction. Vann Van Diepen, the Principal Deputy Assistant Secretary of State for International Security and Nonproliferation, stated that interdicting air proliferators is difficult because "you have a lot less time to detect an activity, characterize it, [and] work with another country to take action against it."<sup>1</sup> To address the increase in WMD proliferation through the air the United States must take measures to enhance its air interdiction capabilities by: modifying international aviation laws; enhancing US military doctrine, and; improving exercises with the international community.

### — The Basis for Air Interdiction —

The United States has taken steps to prevent the proliferation of CBRN and WMD materials through the use of treaties and programs such as the Nuclear Non-Proliferation Treaty, Biological Weapons Convention, Chemical Weapons Convention, Missile Technology Control Regime, Nuclear Suppliers Group, and Australia Group. All of these programs attempt to reduce CBRN stockpiles that exist in each state, prevent the future development of more WMD, and prevent the sale and

transfer of WMD materials to other states or entities; however, these measures are only effective against the signatories who implement these treaties. Additionally, treaties are reliant upon the state to report its own status with regard to its WMD materials with limited enforceable regulations or oversight.

After the United States was attacked by terrorists on 11 September 2001, the US government advocated for stronger international measures to prevent the proliferation of WMD between state and non-state actors. One of the major outcomes of these efforts was the Proliferation Security Initiative that President George W. Bush launched in May 2003. The PSI is not a treaty, but rather a collective activity focused on stopping "the trafficking of weapons of mass destruction (WMD), their delivery systems, and related materials to and from states and non-state actors of proliferation concern."<sup>2</sup>

The PSI started with eleven states and, as of 20 November 2012, has grown to 102 participating states.<sup>3</sup> The PSI has four interdiction principles that apply to all participating states. First, participants should take action to interdict suspected WMD shipments to state and non-state actors of concern. Second, the participating states should develop information-sharing practices to provide critical intelligence data, as required, to prevent the proliferation of WMD. Third, all participating states should improve their state's legal authorities and work to improve international law with regard to interdicting WMD transport. Last, the participants shall support efforts to interdict illegal WMD shipments in accordance with their state's laws and international law.

Under this last interdiction principle, there are five statements that focus on specific actions that the participants shall take. The first three apply to maritime interdiction and are not listed here, but the last two apply to air interdiction and are listed below.

- At their own initiative or upon the request and good cause shown by another state, to (a) require

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aircraft that are reasonably suspected of carrying such cargoes to or from states or non-state actors of proliferation concern and that are transiting their airspace to land for inspection and seize any such cargoes that are identified; and/or (b) deny aircraft reasonably suspected of carrying such cargoes transit rights through their airspace in advance of such flights.

- If their ports, airfields, or other facilities are used as transshipment points for shipment of such cargoes to or from states or non-state actors of proliferation concern, to inspect vessels, aircraft, or other modes of transport reasonably suspected of carrying such cargoes, and to seize such cargoes that are identified.<sup>4</sup>

The PSI's strength lies in the fact that it is not a treaty, but rather an activity that allows states to participate as they see fit. More states are willing to sign up to an activity that is in their interest and does not have stringent reporting requirements. However, the PSI's strength is also its weakness. Since states are just participating, different states provide different levels of effort towards these principles. Some states are hesitant to change their aviation laws because they lack sufficient capital or defense forces to enforce new laws, while others may be hesitant to share information because it would compromise their intelligence capabilities. Nonetheless, the PSI alone was not developed to address every counterproliferation concern.

Almost a year after the announcement of the PSI, the United Nations Security Council adopted Resolution (UNSCR) 1540, in which they specifically called out the threat of non-state actors acquiring chemical, biological, or nuclear weapons. The PSI called upon states to participate as they would like, but UNSCR 1540 informed all members of the United Nations that they "shall refrain from providing any form of support to non-state actors that attempt to develop, acquire, manufacture, possess, transport, transfer, or use" WMD.<sup>5</sup>

Although this resolution will not stop all member states from supporting non-state actors, it establishes that those who do not follow this resolution may face undesired consequences from the other states within the United Nations. Iran and North Korea are two states within the United Nations that have several UNSCRs applied to them because of their past attempts to illegally buy or sell WMD items. These UNSCRs state that all suspect goods shipped to and from Iran or North Korea should be inspected since there is a lack of faith that these states are complying with UN mandates and other treaties.<sup>6</sup>

Now the question becomes, how will states that are members of the United Nations and participating in the PSI effectively intercept WMD shipments in the air between actors? The first step is to modify the aviation laws to make it tougher for the state and non-state actors to ship WMD components.

### — Modifying International Aviation Laws —

Throughout the past 95 years, there have been several treaties put into place regarding international aviation law; however, the treaty that is most commonly used is the Convention on International Civil Aviation of 1944, known most commonly as the Chicago Convention.<sup>7</sup> Most conventions after the Chicago

Convention have made modifications to the original guidelines through amendments or corrections. After the participating states signed the Chicago Convention back in 1944, the United Nations established the International Civil Aviation Organization (ICAO). The ICAO works with the 191 member states to explain the Chicago Convention and develop and publish guidance to the states so they can establish their own state laws that work well with the international guidance.<sup>8</sup>

Based on the Chicago Convention, there are two main categories to look at when developing air interdiction guidance: interdiction of a civil aircraft over a state's airspace and interdiction of an aircraft in international airspace. Although the Chicago Convention does mention state aircraft, the scenario regarding interdiction of a different state's aircraft over a state's airspace will not be discussed in this paper, since that is specifically handled by special agreements between those states or it is viewed as an act of war.

The Chicago Convention has several key articles that impact the air interdiction of civil aircraft over a state's airspace. First, each state has "complete and exclusive sovereignty" of the airspace within its land borders and territorial waters.<sup>9</sup> This authority allows every state to manage all air traffic within its borders. Second, the convention only applies to civil aircraft.<sup>10</sup> One would think that to enter a state's airspace a foreign civil aircraft must first request and receive permission from the state and then it must abide by that state's laws while in the state's airspace; however, this is not the case for all states.

Some states allow aircraft to fly through their borders as long as the aircraft is not stopping to load or unload passengers or items, while other states have more strict aviation requirements. According to the Chicago Convention, if a state or non-state actor attempts to use civil aircraft within the state, without the state's authority, or if it used to transport something illegal, the state has the authority to force an aircraft to land at a designated landing spot to be inspected.<sup>11</sup> The convention also suggests that state aircraft "refrain from resorting to use of weapons" when interdicting and forcing civil aircraft to land in order to protect civilian passengers.<sup>12</sup>

For example, the North American Aerospace Defense Command has established and published interception procedures for civil aircraft within the United States to ensure the safety of the civilian passengers. This guidance notifies pilots to avoid restricted airspace and to communicate with the air traffic controllers to avoid interception. It also discusses what the civil aircraft must do when intercepted to avoid the use of weapons against their aircraft.<sup>13</sup> Not all states provide these details on their interdiction procedures and some states do not possess the capabilities to threaten aircraft that overfly their state.

Intercepting an aircraft in international airspace is a very difficult and delicate procedure, but it is not impossible. There are a few cases in which state aircraft may intercept a civil aircraft in international airspace. First, all aircraft must be registered to a state and bear the state's appropriate markings; otherwise, it is deemed stateless and it is flying illegally.<sup>14</sup> Aircraft that are appropriately registered to a state can fly in international airspace without interference from other states, with the exception of those aircraft registered to Iran and North Korea that fall under the UNSCRs that have been placed against them.

Those that are flying unregistered can be diverted, forced to land, and detained until identification of the plane occurs.<sup>15</sup> Second, the state under which the aircraft is registered maintains jurisdiction of that aircraft and everything on board that aircraft. In order to interdict a registered aircraft in international airspace, a state must first receive permission from the state of registration. If permission is not granted, then the state seeking interception must possess enough evidence to ensure that the aircraft in question is doing something that is “inconsistent with the aims of” the Chicago Convention.<sup>16</sup>

Third, since very little is written specifically on aircraft in international airspace, most lawyers utilize the Convention on the High Seas or the United Nations Convention on the Law of the Sea to justify interdiction actions in international airspace. Both of these conventions state that using a vessel for piracy or slave trade is illegal and these vessels should be interdicted.<sup>17</sup>

The last, and most controversial, reason for interdicting an aircraft is self-defense. All states have a right to self-defense, but if they intercept an aircraft that is carrying WMD, they must be able to provide details on how those specific WMD items were going to be used against their state (i.e., intercepted communications, plans, etc.).<sup>18</sup> Failure to show an immediate threat would place the state that conducted the interception under heavy scrutiny, and that state may face potential legal ramifications from the ICAO or UN.

To address the issues associated with the interception of aircraft, the United States should take measures to improve intelligence sharing conducted under PSI statement of interdiction principle number two and ratify the 2010 Suppression of Unlawful Acts Relating to International Civil Aviation, also known as the Beijing Convention. Based on the lack of firm laws regarding the interception of aircraft in international airspace, catching an aircraft before it reaches international airspace is critical. Due to the lack of time available to interdict an aircraft prior to reaching international airspace, quicker intelligence sharing between PSI partner states must occur. The United States must enhance existing agreements with PSI partners to improve intelligence sharing relationships that allow for data to be shared before the aircraft leaves a participating state’s airspace.

As stated earlier, the Chicago Convention has many stipulations regarding the improper use of civil air, but it does not specifically discuss the transportation of WMD items by civil aircraft. Due to this omission, the Beijing Convention was discussed by the ICAO participant states in 2010. The Beijing Convention specifically states that any person that illegally transports CBRN materials or WMD devices by aircraft must be punished “by severe penalties.”<sup>19</sup> It also states that persons involved in an attempt to transport CBRN materials or WMD devices, people that have directed the transport, any accomplices, and any people who attempt to help the wrongdoers evade states seeking them will also be punished.<sup>20</sup>

Also, as opposed to other conventions, the Beijing Convention specifically defines what constitutes chemical, biological, or nuclear materials. Although the United States has signed this treaty, they have yet to ratify it, and as of 11 March 2014, only eight states had ratified this treaty.<sup>21</sup> In order to provide additional leverage when interdicting aircraft that are illegally carrying WMD items or CBRN materials, the member states of the

ICAO need to ratify the Beijing Convention. Additionally, the United States should ensure harsh penalties are imposed on personnel who violate these rules within its borders to reflect this proposed change and set the example to follow.

### — Enhancing US Military Doctrine —

In addition to the international and state laws needing enhancement, the US leadership must refine strategy and update military guidance regarding air interdiction of WMD. Although many US presidents have published national security strategies that included counterproliferation verbiage, the first to expand on counterproliferation initiatives was George W. Bush. In December 2002, his office published the National Strategy to Combat WMD, which presented a future plan to focus on three critical pillars: counterproliferation, strengthening nonproliferation, and establishing robust consequence management measures. Inside the counterproliferation pillar, the strategy focused on interdiction and stated that the United States must “enhance the capabilities of our military, intelligence, technical, and law enforcement communities to prevent the movement of WMD materials, technology, and expertise to hostile states and terrorist organizations.” It also called for measures to ensure counterproliferation was “fully integrated into the basic doctrine, training, and equipping of all forces.”<sup>22</sup>

The Department of Defense (DOD) did have policies and a strategy regarding counterproliferation, but terrorism was the primary focus of the DOD at that time, not counterproliferation. In 2005, Defense Secretary Donald Rumsfeld assigned the responsibility to develop counter-WMD capabilities, in particular, WMD interdiction and elimination, to US Strategic Command (USSTRATCOM).<sup>23</sup> One year later, the DOD published the National Military Strategy to Combat WMD. This document stated how the US military would partner with allies and US civilian agencies to prevent the proliferation of WMD and defeat “threats as far from the United States as possible.”<sup>24</sup> It also discussed improving interdiction operations through “better plans and capabilities” and “a systematic interagency approach” to interdict WMD shipments in a permissive environment.<sup>25</sup>

Next, the DOD updated their ten-year old policy on combating WMD (DOD Directive 2060.02, released in 2007). This directive adjusted the responsibilities of several agencies, assigned responsibilities to agencies that were not in the previous version of this directive, such as USSTRATCOM and the Defense Threat Reduction Agency, and highlighted the eight mission areas described in the National Military Strategy to Combat WMD. Despite the reorganizing of the joint interagency approach, military service commanders are still responsible for developing capabilities to counter-WMD, which means that the services need to consider how they will execute WMD elimination and interdiction missions.<sup>26</sup>

In 2007, Lieutenant Colonel J. Wesley Moore wrote an article in the *Joint Forces Quarterly* journal titled “Aerial Interdiction of WMD Shipments,” in which he argued “joint and U.S. Air Force doctrine on combating WMD proliferation [were] largely outdated, providing little guidance on how interdictions in general, as well as aerial interdictions in particular, will be conducted.” To justify this argument, he stated that interdictions would need to be accomplished “in support of law

enforcement efforts” and not viewed solely as a military function. He proposed updating Joint Publication (JP) 3-40 to include more information on WMD interdiction and Air Force Doctrine Document (AFDD) 2.1-8 (later changed to AFDD 3-40 and now Air Force Doctrine Annex (AFDA) 3-40), to provide greater detail on how aircraft could be utilized to conduct aerial interdiction. Specifically, he noted that the US Air Force needed to better describe how intelligence, surveillance, and reconnaissance (ISR) capabilities could be utilized to support aerial interdictions.<sup>27</sup>

Two years later, JP 3-40 was updated to include a 34-page appendix to discuss WMD interdiction operations. This appendix is to be used by the staffs of combatant commanders or other supporting elements to aid in interagency planning and to understand the roles of agencies in the WMD interdiction process.<sup>28</sup> It discusses interdicting WMD shipments by air and notes that intercepting a plane and forcing it to land is an unlikely scenario; however, it does explain what is needed from the services regarding air interception. First, ISR platforms are required to provide accurate data to the decision makers. Second, if the plane does take off before it is intercepted and inspected, the military services should have means to track the aircraft from takeoff through landing. Last, if the plane does land in a PSI participant’s state, the United States or a partner state must be able to rapidly transport the appropriate inspection equipment to that location.<sup>29</sup> This document provides the services with guidance on their roles in order to successfully intercept WMD shipments by air, and one would expect that the US Air Force doctrine would further elaborate on these interdiction capabilities, but it does not.

AFDD 3-40 was released in 2007, shortly after Lt Col Moore’s article was published, and has had two interim changes to it since then, one of them being to change the publication number from 2-1.8 to 3-40. AFDA 3-40 does mention interdiction operations in a paragraph under proliferation prevention operations and does discuss detection and monitoring, but it leaves many holes in determining how the US Air Force will focus on supporting the combatant commanders. This doctrine document is also heavily focused on defensive operations, such as intercepting missiles in flight, and consequence management if these defenses fail.

The portion on proliferation prevention is a small 4-page section in a 73-page document. The US Air Force should take Ben Franklin’s advice that “an ounce of prevention is worth a pound of cure,” and improve its verbiage on proliferation prevention as the threat shifts from maritime proliferation to air proliferation.<sup>31</sup> To do this, the US Air Force should ensure the next revision of AFDD 3-40 focuses on the state and non-state actors in the WMD proliferation business by shifting from the traditional definition of interdiction. The Air Force Doctrine Glossary defines interdiction as “an action to divert, disrupt, delay, or destroy the enemy’s surface military capability potential before it can be used effectively against friendly forces.”<sup>32</sup> This definition only captures the wartime focus and fails to capture the interdiction definitions currently used in proliferation prevention during peacetime. JP 1-02, JP 3-40 and JP 3-03 have all included a second part of the interdiction definition which adds that interdiction can be an action “in support of law enforcement, activities conducted to divert, disrupt, delay, inter-

cept, board, detain, or destroy, under lawful authority, vessels, vehicles, aircraft, people, cargo, and money.”<sup>33</sup>

Additionally, JP 3-40 is focused on WMD interdiction, which it defines as “Operations to track, intercept, search, divert, seize, or otherwise stop the transit of weapons of mass destruction, its delivery systems, or related materials, technologies, and expertise.”<sup>34</sup> AFDA 3-40 should be updated to address the new definition of WMD interdiction and how the US Air Force will support law enforcement; however, since AFDA 3-40 has undergone two reviews since it was published, with only two interim changes, the US Air Force will most likely not revise AFDA 3-40 unless the National Strategy or National Military Strategy to Combat WMD is changed. In the interim, the US Air Force should publish policies and instructions to capture the tactics, techniques, and procedures that will be utilized to support aerial WMD interdiction operations. This would help the US Air Force provide “the perceived effectiveness of friendly interdiction capabilities” that would serve as “a powerful deterrent to the proliferation of WMD.”<sup>35</sup>

### — Improving Exercises with the International Community —

The states within the PSI have conducted over 50 exercises between September 2003 and November 2013, and 14 of them included air interdiction in some form (see Appendix A for a list of air interdiction exercises).<sup>36</sup> Not all of the exercises were live exercises; some of them only tested command post assets or they were a tabletop exercise in which the participants describe what they would do given certain inputs. Most states do not publish data on the PSI exercises they host; however, Japan posted some of the details regarding their PSI air interdiction exercise PACIFIC SHIELD 2012.<sup>37</sup> PACIFIC SHIELD 2012 was held in Sapporo City and utilized the New Chitose Airport to demonstrate the procedures Japan would use if a “civil cargo aircraft which was suspected of carrying radioactive materials from a state of proliferation concern had intruded into the territorial airspace of Japan.”<sup>38</sup>

Japan had planned to intercept a U-4 aircraft utilizing two F-15s, but due to weather concerns the F-15s were not employed. Nonetheless, once the U-4 landed the Japanese forces inspected and unloaded the plane. The four participating states (Japan, Australia, South Korea, and Singapore) took turns demonstrating their procedures for detecting radioactive and chemical materials and decontamination.<sup>39</sup> Although Japan’s exercise allowed multiple states to practice and display their detection and decontamination procedures and allowed the involved states to establish relationships and foster communication, it failed to exercise the most important aspects, tracking and intercepting the plane.

Currently, the PSI participants are focused on accelerating information sharing to enable the interdiction of suspected WMD air shipments. This is a critical aspect of the process, but it fails to address the means taken to get the plane to land and how the plane is tracked. As discussed earlier, international laws make it difficult to force a plane to land if it is not within the state’s territorial borders. Even if the plane is within a state’s borders, it is difficult to force it to land without endan-

gering the civilians on board. If the plane is not flying in the state's publicly announced restricted airspace and all the state possesses is intelligence from another PSI participant, how likely are they to be willing to shoot at a plane to force it to land? What would be the consequences if they found that the intelligence data they received was incorrect? As the PSI moves forward with its exercises, it needs to focus more on tracking and interdicting the aircraft, since the procedures for inspecting and detecting WMD utilize similar equipment across the air, ground, and maritime domains and those are routinely practiced in every live exercise.

The recent loss of a Malaysian 777 on 8 March 2014 should seriously concern PSI participants. The plane took off as planned, flew on course for a few minutes and then turned off its communication equipment, apparently changed its course significantly, and then disappeared. In the past month, the plane still has not been found and experts are still unsure of where to look for it.<sup>40</sup> If data gets passed to a PSI partner notifying them of potential aircraft carrying WMD through their airspace in the near future and the plane has already taken off, how will they track it? Will the pilots in that plane attempt to fly their planned path, assuming that they will not be caught, or will they exploit the vulnerabilities in tracking mechanisms just shown by the Malaysian 777?

As shown in this instance, PSI participants will need to improve their capabilities of rapidly tracking targets and begin to exercise these procedures in order to quickly respond if intelligence sharing does not occur in a timely fashion. The exercise BLUE ACTION 05 was one exercise where tracking of a plane was planned to occur through three states before enough intelligence data was collected and gathered to provide Spain with the evidence to force the plane to land.<sup>41</sup> Although the details of the success of this exercise were not found, this exercise shows that PSI states are considering scenarios where they will need to track aircraft through multiple states. However, the published scenarios do not cover instances such as a state losing radar contact with a suspect aircraft or tracking an aircraft in international airspace and how states will recover from this situation in order to prevent WMD from being proliferated.

As the PSI plans future exercises, they should focus more on the air interdiction scenarios in different locations. With the shortened timeframe allotted to discover the WMD, share the intelligence, successfully track the aircraft, and then interdict the aircraft on the ground or in the air, more proliferators will start to exercise this option as states increase their interdiction efforts of maritime vessels. Several of the small states participating in the PSI are prime targets for proliferators because they lack adequate resources to track and interdict potential air proliferators.

To counter this threat, the United States must request larger states participating in the PSI to provide assistance to smaller states through the PSI and UNSCR 1540 in order to improve the smaller states' radar tracking systems and WMD interdiction capabilities. Additionally, these smaller states should be encouraged to host exercises, with support from larger PSI states, since their airspace is most likely to be exploited. Although France, Italy, and Spain may have successfully tracked a suspected aircraft in exercise BLUE ACTION 05, the results may be drastically different if a scenario utilizing a non-state actor

occurred in South America or the Caribbean. Utilizing this scenario in the next PANAMAX exercise would greatly benefit all participants as they develop ways to track aircraft through international airspace.

### — Conclusion —

As the maritime interdiction capabilities improve, more proliferators will seek to transport WMD items through the air. The United States should ratify the Beijing Convention to make proliferation of WMD through the air a serious crime and work with the international community to ensure all states ratify it.

The PSI participants also need to improve intelligence sharing capabilities to allow for the quick identification and interception of proliferators before they reach international airspace. If the proliferators are successful in reaching international airspace, the United States must have the capabilities and procedures to find and track the proliferators.

The US Air Force must take steps to improve its own defense guidance to better describe WMD interdiction operations and facilitate the development of tactics, techniques, and procedures and necessary capabilities. This improved guidance will also help provide a deterrent to proliferators contemplating transporting WMD items by air.

Last, the PSI needs to increase their air interdiction exercises to prepare for the changing threat and larger PSI states need to assist smaller PSI states in developing their tracking and intelligence sharing capabilities. Taking these actions will help deter future proliferators and prepare states to identify, track, and intercept proliferators if deterrence fails.

### — NOTES —

## APPENDIX A

<b>PSI Air Interdiction Exercises</b>			
<b>EXERCISE</b>	<b>DATES</b>	<b>HOST NATION</b>	<b>DESCRIPTION</b>
AIR CPX	8-10 October 2003	United Kingdom	Tabletop command post exercise
AIR BRAKE 04	18-19 February 2004	Italy	Italian F-16 intercepts a US Navy P-3C in the first live PSI air-interdiction exercise <sup>42</sup>
ASPE 04	23-24 June 2004	France	Command post exercise <sup>43</sup>
BLUE ACTION 05	7-8 June 2005	Spain	Intelligence sharing about a suspected cargo aircraft that was tracked on Italian, French and Spanish radar. New information was presented and the Spanish Air Force was supposed to intercept the aircraft and have it land at Zaragoza Air Base <sup>44</sup>
PSI Air Gaming	3-7 October 2005	Norway	Tabletop exercise <sup>45</sup>
PACIFIC PROTECTOR 06	4-6 April 2006	Australia	Australian Government is notified that WMD is being transported within the state's borders. F/A-18s intercept and force the plan to land in Darwin where the cargo is removed from the plane and searched <sup>46</sup>
ANATOLIAN SUN	24-26 May 2006	Turkey	Command post exercise and live exercise
HADES 06	21-22 June 2006	France	No details available
SMART RAVEN	26-27 April 2007	Lithuania	Demonstrated air interdiction capabilities and procedures of Lithuania, Estonia, Latvia, and Poland <sup>47</sup>
EASTERN SHIELD	29-31 October 2007	Ukraine	Focused on stopping WMD items at the airport <sup>48</sup>
PACIFIC PROTECTOR 10	16 September 2010	Australia	WMD interdiction exercise led by the Australian Customs and Border Protection Service <sup>49</sup>
PACIFIC SHIELD	3-5 July 2012	Japan	Air interdiction and inspection of U-4 aircraft <sup>50</sup>
LEADING EDGE 2013	27 January – 7 February 2013	United Arab Emirates	No details available
PANAMAX 2013	4-16 August 2013	Panama	No details available

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