Missile Watch

Volume 3, Issue 2
June 2010

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Survey of black market prices for shoulder-fired anti-aircraft missiles reveals large differences in missile prices

A survey of black market prices for shoulder-fired surface-to-air missiles reveals large disparities in prices not only between newer missiles and their older, less sophisticated counterparts but also between different transactions involving the same types of missiles. The data, which were compiled by the Federation of American Scientists from media articles, court documents, government statements, and other sources, includes prices applicable to at least 15 countries from 1990 to 2010. Sources of the data range from media interviews with intelligence officers to black market prices referenced by representatives of the Liberation Tigers of Tamil Eelam during taped conversations with undercover agents.2

Before summarizing the data, several key limitations should be noted. The most significant is the sample size, which is not large enough to draw definitive conclusions about current black market missile prices or pricing trends. Of the several dozen references to black market prices collected during an extensive search of open-source documents, only about forty were considered appropriate for inclusion in the survey. Furthermore, several of these references did not identify the source of the price data or the region, time period, or missile system to which they applied. For these reasons, the following observations should be viewed as tentative and preliminary.

With these caveats in mind, the data are noteworthy for several reasons. The first is the large difference in prices, which range from $500 for a “first generation SA-7”3 to $250,000 for a Stinger missile.4 While the data suggest that the older, less capable systems tend to fetch lower prices than their newer, more sophisticated counterparts, there were several notable exceptions. In one case, an arms trafficker reportedly offered to sell a first generation SA-7 missile for $45,000 – a figure that is comparable to, or higher than, lower-end price estimates for second and third generation missiles.5 In another case, an alleged trafficker from Toronto reportedly told authorities that he was offered “Russian-made Igla anti-aircraft missiles” for $1000 apiece, which he allegedly planned to sell for just $5000.6

There was also considerable variation in price references for the same model of missiles. The $5000 that the Canadian dealer planned to charge for Igla missiles is a small fraction of the tens of thousands of

1 These countries are Afghanistan, Bulgaria, China, Colombia, Cyprus, Iceland, Nicaragua, Pakistan, Peru, Russia, Sri Lanka, Somalia, Syria, United States, and Yemen. Note that most of the references do not specify the countries or regions in which the estimated prices apply. See Schroeder and Buongiorno, “Open-source Data on Black Market Prices for MANPADS,” March 2010, available at http://fas.org/programs/ssp/asmp/issueareas/manpads/black_market_prices.pdf.
2 Ibid.
dollars reportedly paid for the same system in other black market transactions. While it is possible that the trafficker was either misinformed or deliberately misleading investigators, data provided by more credible sources also reveals significant differences in prices. At an inter-governmental conference in 2007, an official from the Russian Ministry of Foreign Affairs reported that “the most sophisticated modern type of Iglas” are sold on the black market for just $25,000.7

The following table shows the range of prices for several types of missiles:

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Missile Type</th>
<th>Price Range (per unit)</th>
<th>No. of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Mistral</td>
<td>$60,000 - $100,000</td>
<td>1</td>
</tr>
<tr>
<td>2005</td>
<td>QW-2</td>
<td>$91,500</td>
<td>1</td>
</tr>
<tr>
<td>1996-2007</td>
<td>SA-7 Strela</td>
<td>$500 - $45,000</td>
<td>7</td>
</tr>
<tr>
<td>2002-2009</td>
<td>SA-18 Iglia</td>
<td>$1,000 - $125,000</td>
<td>8</td>
</tr>
<tr>
<td>2002/2003</td>
<td>SA-24 Iglia-S</td>
<td>$86,500</td>
<td>1</td>
</tr>
<tr>
<td>1990-2001</td>
<td>Stinger</td>
<td>$50,000 - $250,000</td>
<td>8</td>
</tr>
</tbody>
</table>


Some of these differences have clear contextual explanations. The exceedingly high upper-end prices for Stinger missiles, for example, are attributable, at least in part, to the U.S. Central Intelligence Agency’s (CIA) multi-million dollar program to buy back loose Stinger missiles in Afghanistan in the early 1990s. After providing an estimated 2000 missiles to the Afghan rebels during the Soviet occupation in the 1980s,8 Congress provided $65 million in funding to CIA to retrieve the remaining (loose) missiles after the Soviets withdrew.9 The CIA’s deep pockets, combined with the Afghan rebels’ reluctance to part

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with their Stingers and competition for the missiles from other foreign government agents, drove the going rate for Stinger missiles in Afghanistan as high as $150,000 per missile.\textsuperscript{10}

Also notable is the apparent consistency in prices over the 20-year period. The data suggest that, despite inflation, some missile systems cost as much or even more on the black market in the early 1990s than the same system sold (or offered for sale) more than a decade later. Without more information about the sources of – and the circumstances surrounding – the individual price estimates, however, it is not possible to confirm or explain the large range in, and apparent consistency of, black market prices.\textsuperscript{11}

**Country Reports**

**Afghanistan:** *No shoulder-fired anti-aircraft missiles in seized Afghan arms caches, confirms ISAF spokesperson*

Arms caches seized by NATO troops in Afghanistan continue to be MANPADS-free, according to the International Security Assistance Force (ISAF) in Afghanistan. In a correspondence with the Federation of American Scientists in April, Lieutenant Commander Iain Baxter, an ISAF spokesman, confirmed that the "ISAF Joint Command is not aware of any man-portable surface-to-air missile finds by ISAF units since the Command formed in October 2009."\textsuperscript{12} Lieutenant Commander Baxter also provided clarification on the seizure of four weapons originally identified as missiles near Kabul in January 2010. “The ‘missiles’ in question were actually empty launchers for single-shot ground-use rockets,” he said.\textsuperscript{13}

Surprisingly little MANPADS activity has been reported in Afghanistan during Operation Enduring Freedom. This contrasts sharply with the Soviet experience in the 1980s, when US-backed rebels shot down hundreds of military aircraft and at least five civilian planes with MANPADS, including US Stinger missiles.

**Egypt:** *Shoulder-fired missiles found in the Sinai were old, “in very bad condition,” says Egyptian official*

In March, Egyptian authorities recovered a massive weapons cache in central Sinai that included 100 anti-aircraft missiles. The press reported on the recovery but provided little information on the missiles or their condition, raising fears that they were functional MANPADS bound for terrorists in Gaza. However, an Egyptian military official interviewed by the Federation of American Scientists indicated that the missiles dated

\textsuperscript{10} Coll, *Ghost Wars*, p. 11.

\textsuperscript{11} The full dataset, including explanatory text and footnotes, is available on the FAS website at http://fas.org/programs/ssp/asmp/issueareas/manpads/black_market_prices.pdf.

\textsuperscript{12} Correspondence with Lieutenant Commander Iain Baxter of the UK’s Royal Navy, 9 April 2010. The FAS submitted a similar request to the Afghan government for information on any MANPADS seized by Afghan troops. As of 1 June 2010, no response had been received.

\textsuperscript{13} Correspondence with Lieutenant Commander Baxter. See also “Forces Seize Drugs, Weapons in Afghanistan,” *American Forces Information Service*, 4 January 2010.
back to the 1973 war with Israel and were “in very bad condition.” The missiles was discovered after heavy flooding washed away the soil covering the decades-old cache,\(^\text{14}\) which also included rocket-propelled grenades and other unidentified explosives. A photo of the cache was provided to the Federation of American Scientists:

*Photo courtesy of the Egyptian government*

This is not the first time that flooding has unearthed large piles of abandoned weapons in the Sinai. “We have had this situation many times,” said the official.\(^\text{15}\) While the utility of corroded missiles to terrorists would be minimal, the large piles of abandoned munitions pose a serious threat to civilians living nearby. At least two people have been killed when similar caches have exploded, according to the official.\(^\text{16}\)

The cache discovered in March is one of several found in the Sinai in recent years that reportedly contained surface-to-air missiles. In late May and mid-June 2008, Egyptian authorities found caches containing a combined total of 55 unidentified anti-aircraft missiles, according to media accounts. The cache found in mid-June was discovered after authorities received reports that arms dealers were

\(^{14}\)“Alleged Gaza arms cache seized in Sinai,” UPI, 1 April 2010.

\(^{15}\)Interview with Egyptian military official, April 2010.

\(^{16}\)Ibid.
“extracting explosive material from ammunition left over from the Arab-Israeli wars.” None of the reports describe the condition of the missiles or the other ammunition. Given the apparent age and conditions in which the missiles were presumably stored, it is likely that the missiles found in June at least were no longer operational.

**Iraq: Shoulder-fired missile in video of insurgent attack could be Iranian**

Video footage posted on the video-sharing website YouTube earlier this year features what appears to be an attack with a shoulder-fired, surface-to-air missile of either Iranian, Chinese, or Pakistani origin. The undated video, which the Federation of American Scientists discovered in March, consisted of several clips of insurgent attacks that allegedly took place in Iraq. It was “removed due to terms of use violations” in April, but the FAS managed to save several screenshots before the video was taken down.

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18 The title of the video, “Three RPG Attacks in Iraq,” is misleading. While it did include footage of several insurgent attacks with rocket-propelled grenades, the video also featured other types of weapons, including the surface-to-air missile shown here.
The segment featuring the anti-aircraft attack begins with a man in civilian clothing holding a missile launch tube on his shoulder. The man’s face is obscured, presumably to protect his identity. The missile system in the video appears to be one of three weapons: the Chinese QW-1, the Pakistani Anza II, or the Iranian Misagh-1. Of the three systems, which are very similar in appearance, only the Misagh-1 is identified in open-source documents as having been acquired by Iraqi insurgents.19

About 20 seconds into the clip, the man fires the missile. A short caption appears at the bottom of the video, which the Accredited Language Services (ALS) translated as: “Hezbollah Brigades – Bringing down a helicopter in the Al-Obaidi Area.”20 In the upper right hand corner of the clip is the logo for the Hezbollah Brigades, also known as Kata’ib Hizballah. According to the US government, Kata’ib Hizballah is an Iraqi Shia Islamist group that receives weapons and training from Iran and has “ideological ties to Lebanese Hizballah.”21 The group was added to the Treasury Department’s list of Foreign Terrorist Organizations in 200922 and has reportedly conducted numerous terrorist attacks in Iraq since 2007.23 The "Al-Obaidi area" may be a reference to "Al-Ubaydi", a town in Al Anbar province.

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20 Special thanks to Lindsey Marburger for her assistance with the initial translation of the caption.
23 “Designation of Kata’ib Hizballah as a Foreign Terrorist Organization”
The camera follows the missile as it chases an unseen target in the distance. It is not apparent from the video whether the missile hit the target.

The FAS was unable to verify the authenticity of the video clip, the location of the attack, or the attacker’s alleged affiliation with Kata’ib Hezbollah. A request for comment from the Iraqi government was declined. If the attack did indeed take place in Iraq, it would be the first known footage of a MANPADS attack with a system other than the ubiquitous Soviet-designed SA-7 and SA-14 missiles, hundreds of which were looted from Baathist stockpiles shortly after the US invasion in 2003.

If the missile is a Misagh-1, it would be the first publicly available video or photographic documentation of their presence in Iraq. The Defense Department released a photo of what it claimed was a Misagh-1 found near Baghdad International Airport in 2004, but the image is cropped so closely that it is impossible even to verify that the item was a missile, let alone a Misagh-1.

While not a major technological leap over the systems already on the black market, the QW-1 and its foreign variants are more sophisticated than the first generation Soviet designed missiles most commonly seen in Iraq. Widespread proliferation and use of these systems would pose a significant threat to aircraft in Iraq, particularly unprotected civilian planes.

**Iraq:** *Missile seized in 2008 was a 30-year-old Russian Strela-2M MANPADS, documents reveal*

Photos obtained by the Federation of American Scientists reveal that two previously unidentified shoulder-fired missiles recovered from an arms cache in Iraq in September 2008 were Strela-2M (SA-7b) man-portable air defense systems, one of which was 30 years old. According to Gary Fenton of Mines

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24 See “Iranian Support for Lethal Activity in Iraq”
Advisory Group, markings on the launch tube indicate that it was manufactured in 1978. The missile may have been one of the approximately 6500 Stelas purchased from the Soviet Union in 1975 and delivered to Iraq from 1975 to 1986. Markings on the other missile were obliterated, making it more difficult to determine its age.

A tip from a “local [Iraqi] national” led to the discovery of the missiles, which were found near the town of Salman Pak in the province of Wasit. The cache also included nine “Iranian Falaq-1 240 mm rockets,” an aiming tripod, and a mortar sight, photos of which were released to the Federation of American Scientists. Markings on the rockets indicate that at least eight of them were manufactured in either 2006 or 2007. Documents accompanying the photos indicate that there were “up to 50 more rockets located in the area” and that the “shallow depth of the holes” in which the weapons were buried suggests that “the area was for short term storage and transit for further distribution.”

SA-7b missiles recovered in Wasit province on 9 September 2008

Photos: United States Central Command (released to the Federation of American Scientists in May 2010)

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25 Email correspondence with Gary Fenton, 10 June 2010.
26 SIPRI Arms Transfers Database (Trade Register), Stockholm International Peace Research Institute, accessed on 5 June 2010.
28 The documents and photos were obtained under the Freedom of Information Act. The FOIA response, including the photographs, will be posted on the FAS Strategic Security Blog at [http://www.fas.org/blog/ssp/category/arms_trade](http://www.fas.org/blog/ssp/category/arms_trade).
**Iraq: At least 27 shoulder-fired anti-aircraft missiles seized from arms caches in Iraq since February**

Publicly available reports on weapons seized by Iraqi Security Forces reveal that at least 27 shoulder-fired, anti-aircraft missiles were found in insurgent arsenals in the first four months of 2010. Twenty of the missiles were discovered in a building in northeastern Mosul allegedly visited by members of the terrorist group, Ansar Al-Islam. In the building, Iraqi authorities and their US advisors discovered a massive arms cache that, in addition to the missiles, included sniper rifles, machine guns, rockets, mortars, IED components, night vision devices, and “a robot that can be used to remotely transport IEDs.”29 Defense Department summaries of the weapons do not identify the model of the missiles or describe their condition, and requests by the Federation of American Scientists for additional information were denied. Seven additional systems, identified as “Strela missiles with a rocket launcher,” were discovered by Iraqi Security Forces outside of Karbala in April.30

The comparatively large number of missiles seized in the first part of 2010 underscores the continued presence of shoulder-fired anti-aircraft missiles outside government control in Iraq. The seizures also raise the possibility that the sharp decrease in missiles recovered from arms caches in 2009 may have been anomalous and not indicative of an overall decrease in insurgent access to anti-aircraft missiles.31 Publicly available accounts of insurgent activity shed little additional light on illicit missiles in Iraq, and requests for additional information have been declined by the US and Iraqi governments.

What is known, however, is that the US has lost surprisingly few aircraft to enemy fire and even fewer to shoulder-fired missiles. According to the Brookings Institute, only around 36 helicopters have been shot down since 2003, and only an unknown fraction of these attacks featured missiles.32 Barring the sudden influx of newer, more advanced missiles and a dramatic shift in insurgent strategies and tactics, the overall threat of anti-aircraft missiles to US operations in Iraq is likely to continue to be minimal.

**Lebanon: Israeli claim about Igla-S delivery to Hezbollah raises many questions**

When news of Syria’s alleged transfer of Scud-D ballistic missiles to the Lebanese group Hezbollah captured headlines this spring, reports of an equally significant transfer went largely unnoticed. In early March, the Beirut-based news service Naharnet reported that a high-ranking official from the Israeli Defense Force’s

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Intelligence Branch told the Israeli Knesset that Syria had provided to “[I]GLA 9K338” (i.e. SA-24 or Iglas-S) missiles to Lebanese Hezbollah. The Iglas-S is an advanced Russian surface-to-air missile that is significantly more capable than its predecessors, “….outperforming them in effectiveness, reliability, service life and survivability,” according to Jane’s Information Group. The claim that Syria has transferred SA-24s to Hezbollah was reportedly made during a meeting of the Knesset’s Foreign and Security Committee. The Israeli government declined a request from the FAS for information on the intelligence behind the assertion and the specific type of missile system allegedly transferred.

As is often the case with unsubstantiated government leaks, the claim raises more questions than it answers. The first concerns the type of system that was allegedly transferred. Media accounts of the leak indicate that the missiles were “shoulder-fired,” but the only publicly reported Iglas series missiles in Syria’s arsenal are SA-18s mounted on Strelets – four-missile launchers that are mounted on ships, helicopters, and ground vehicles. At the time of the sale, Russian government officials pointed out that Strelets are not man-portable and insisted that they “never planned to sell manpack [sic] air defense systems to Syria and are not going to do so.”

Given the lack of publicly available data on Russian arms sales, it is not possible to corroborate this claim. Even if the IDF reference was to Iglas mounted on Strelets, however, this would not necessarily rule out their use by Hezbollah. While historically nearly all of the surface-to-air missiles acquired and used by non-state groups have been shoulder-fired (or pedestal-mounted), Hezbollah is not a typical non-state group. In 2006, it shocked the world with the size and sophistication of its arsenal and its ability to effectively use a wide variety of weapons, including weapons not typically seen in the arsenals of armed groups, against the technologically superior IDF.

The second question concerns the missiles themselves. It is possible that the IDF official was either misquoted or that he misspoke, saying ‘IGLA 9K338’ (SA-24) when he meant IGLA 9K38 (SA-18). Given the lack of transparency in Russian arms sales, it is also possible that Syria has indeed obtained SA-24 missiles, either as part of the earlier Strelets deal or through a subsequent transfer not reported in the press. Regardless, the transfer of either type of missile would represent a significant improvement in Hezbollah’s air defenses. While the threat posed by SA-18s or SA-24s is greater than that posed by the first generation SA-7s allegedly used during the 2006 war. However, the precise threat to Israeli air operations and aircraft posed by the more advanced missiles would depend on several factors, including the quantity of missiles transferred, the sophistication and reliability of the anti-missile systems on Israeli military aircraft, and how widely the anti-missile systems are deployed. Use of the missiles against civilian targets is much less likely, but not inconceivable. Hezbollah committed several high profile acts

36 “Russia to check how Syria uses antimissile defense systems,” RIA Novosti, 1 March 2005.
37 There is some debate over whether Strelets can be converted into man-portable systems. In 2005, Russian Defense Minister Sergei Ivanov told reporters that Russian weapons experts “proved concretely that this equipment cannot be used in man-portable mode.” Israeli officials dismissed these claims, “[w]ith modern technology it is very possible to modify them” (see “Russian missiles in Syria pose risk for Israeli civil aviation,” Agence France Presse, 27 April 2005).
38 These weapons include anti-ship missiles, large surface-to-surface rockets, and UAVs. See Nicholas Blanford, “Deconstructing Hizbullah’s surprise military prowess;,” Jane’s Intelligence Review, 1 November 2006.
of international terrorism in the 1980s and 1990s, and may decide it is in their interest to engage in such activity again. There is also the danger that the missiles could end up in the hands of a terrorist group with immediate designs on a commercial airliner. Such concerns will remain speculative, however, unless and until more information about the alleged transfer is released.

**Peru: U.S. government concerned over reported missile diversion in Peru, but praises investigation**

The U.S. government is “concerned about reports that sophisticated weaponry may have made its way to the FARC” but also “commend[s] the work of Peruvian officials in investigating and dismantling the reported arms ring,” according to a statement from State Department Spokesperson Virginia Staab.39

The statement, which was issued in response to a query from the Federation of American Scientists, is the first public response by the US government to the theft of seven Strela and Igla missiles from Peruvian arsenals in 2008 and 2009. The theft was arranged by a ring of “crooked Peruvian security officials” who then allegedly sold the missiles, along with hundreds of other weapons, to traffickers working for Colombian rebels.40

The State Department’s full statement reads:

- **We are, of course, concerned about reports that sophisticated weaponry may have made its way to the FARC.**
- **We understand Peruvian authorities have an ongoing investigation.**
- **We commend the work of Peruvian officials in investigating and dismantling the reported arms ring.**
- **We have ongoing discussions with Peruvian government on a range of security issues, including security of weapons stockpiles.**41

Given the nature and extent of the diversion, the security of the Peruvian military’s remaining missiles is a concern. According to Jane’s Information Group, the Peruvian military has at least 300 shoulder-fired, anti-aircraft missiles in its inventory, including eight British Javelin missiles.42 The Javelins are a particular concern because they feature a guidance system that is largely impervious to common infrared countermeasures.43 When queried about the security of the Javelins, which the UK sold to Peru in the 1990s, the UK government replied that “[t]here is no evidence to suggest that any UK military equipment supplied to the Peruvian government, including javelin MANPADS, has been diverted.” The reply also provides some information on the UK’s post-shipment end-use monitoring practices: “The use of military equipment in destinations of concern is monitored by UK Overseas Posts, using a variety of information

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39 Correspondence with US State Department official, 23 April 2010.
41 Ibid.
including media, NGO or intelligence reports, and they have standing instructions to report misuse of UK-origin defense equipment.”

Still unclear is the exact nature of Peru’s stockpile security and management practices, how these practices compare with international best practices, and the steps taken by the Peruvian military since the diversion to strengthen controls on its missile holdings. Requests for information sent to the Peruvian government went unanswered, as did queries sent to the Russian government regarding their response to the diversion and their post-ship end-use monitoring practices. Without this information, it is impossible assess the vulnerability of Peru’s remaining missiles to similar diversion schemes.

**Somalia: Missile attack at Mogadishu airport foiled by peacekeepers, according to UN report**

UN Peacekeepers thwarted an attempt by ‘opposition fighters’ to shoot down an aircraft at Mogadishu International Airport in October 2008, according to the latest report by UN Monitoring Group on Somalia. The missile intended for use in the attack was recovered by the peacekeepers and inspected by the Monitoring Group. With the help of the Russian government, the UN was able to confirm that the missile was an SA-7b MANPADS “…manufactured in the Soviet Union in 1979 at the Degterev and Kovrov plants.” The Monitoring Group was unable to trace the chain of custody, however, and no information on the operational status of the missile was provided in the report.

Also mentioned are details about a consignment of 18 SA-7b missiles “delivered by air from Eritrea to Guuri’eel in central Somalia…” in early 2009. According to the report, a militia connected to the armed group Al Shabaab took possession of eight of the missiles. The rest were “retained by the broker for his own profit…” and were later seized in Somaliland. No information on the manufacturer or age of the seized missiles was provided.

The Monitoring Group’s claims are the latest in a series of reports accusing Eritrea of providing missiles and other weapons to armed factions in Somalia. UN reports dating back at least to 2006 indicate that arms shipments originating in Eritrea and containing dozens of shoulder-fired, surface-to-air missiles have ended up in Somalia. One of these missiles was reportedly used to shoot down a Belarusian cargo aircraft in 2007. The Eritrean government denies the accusations.

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44 “Peru Javelin End-use Monitoring,” UK government statement, received 17 May 2010.
45 This is probably a reference to the Degtyarev plant in Kovrov, a city approximately 250 km east of Moscow.
47 Ibid.
Additional News & Resources


- "Toronto-area man pleads guilty to funding Tamil Tigers", National Post, 11 May 2010.

- "Baghdad airport tries to shed dangerous reputation", AFP, 9 May 2010.

- "Drug, Arms Trafficking SouthCom’s Biggest Concerns", Army Times, 27 April 2010. Includes the first public estimate of the number of Igla-S MANPADS being purchased by Venezuela, which could be as high as 2400, according to the head of U.S. Southern Command, General Douglas Fraser. The transcript from the 27 April breakfast meeting during which Gen. Fraser provided the estimate is available at http://www.airforce-magazine.com/DWG/Documents/2010/April%202010/042710FraserD.pdf.

- "Brazil police seize anti-aircraft missiles in drug-infested slums", RIA Novosti, 26 March 2010. NOTE: FAS sources indicate that the seized weapons were not MANPADS.


- "Large quantities of weapons and munitions found out in Hodeida", Sahwa Net, 25 February 2010.


- "Iraqi aviation free for take off", The National, 23 February 2010.


- "Where Have All the MANPADS Gone?", Danger Room (Wired), 22 February 2010.
About the Authors

Matt Schroeder is the Manager of the Arms Sales Monitoring Project at the Federation of American Scientists. Since joining FAS in February 2002, he has written more than 80 books, articles and other publications on US arms transfers, arms export policies, and the illicit arms trade. He is a co-author of the book The Small Arms Trade (Oxford: Oneworld Publications, 2007), and is a consultant for the Geneva-based Small Arms Survey.

Matthew Buongiorno recently completed a Scoville Fellowship at the Federation of American Scientists where he worked on small arms issues, U.S. nuclear policy issues, and Iranian nuclear issues.

About Missile Watch

Missile Watch is a quarterly publication by the Arms Sales Monitoring Project at the Federation of American Scientists that tracks the illicit proliferation and use of man-portable air defense systems (MANPADS), and international efforts to combat the MANPADS threat.

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