

Ofeq 6 launch failure

Source: <http://sci.tech-archive.net/Archive/sci.space.policy/2004-09/0311.html>

From: Allen Thomson (*thomsona_at_flash.net*)

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Just to record some factoids, some apparently contradictory, about the launch attempt:

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<http://www.haaretz.com/hasen/spages/474463.html>

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Last update - 02:04 07/09/2004

Spy satellite launch fails at cost of \$100m

By Amnon Barzilai

The attempt to launch the spy satellite Ofek-6 failed yesterday when the Shavit rocket carrying the payload on its tip malfunctioned in its third and final stage.

Ofek-6 was expected to provide Israel with intelligence data on countries of the "third tier," particularly Iran, who pose a threat with their ballistic missile and nuclear weapons programs.

The loss of the satellite is expected to delay Israel's plans for more sophisticated surveillance of long-distance threats, as well as an early warning of the launch of ballistic missiles from enemy territory.

The financial damage as a result of the loss is estimated at \$100 million, but what is of greater concern at Israel Aircraft Industries, the maker of the Shavit rocket and the Ofek series of satellites, is that the reputation of its products is damaged on the international market.

Foreign sources said that the Shavit rocket is a development of the Jericho surface-to-surface ballistic missile.

Following a great deal of preparation and in full secrecy, the Shavit missile was launched from the Air Force firing range at Palmahim at 3:53 p.m., carrying the Ofek-6 in its nose.

The first minutes of the launch were successful, and the Shavit progressed skyward trailing a huge flame behind.

Even after it was no longer within sight, all systems were normal – everything appeared to be unfolding as planned on the screens of the control center, as the missile moved along on its scheduled trajectory.

Among those present at the launch was Professor Haim Eshed, who is in charge of the Space Program at the Defense Ministry and founder of the Israel Space Agency, Professor Yuval Neeman, and senior officers from the Air Force and Military Intelligence.

Following the completion of the first stage of the flight, the initial rocket broke away and the second commenced operating precisely on cue. At this stage, several dozen kilometers above earth, Shavit exited the atmosphere and continued climbing.

At the completion of the second stage, a third rocket was supposed to push the payload into an elliptical trajectory around the earth, at approximately 400–600 kilometers above earth.

However, at this stage ground controllers noticed a malfunction taking place. It appears that the third–stage launch failed to bring the satellite into its orbit around the the earth.

Once the failure was discovered, consultations were held by the engineers of the project in order to pinpoint the problem. According to data from the computers, the failure occurred in the third engine, which was expected to push Ofek–6 into orbit.

Pinpointing the failed component will enable engineers to determine whether the Shavit is capable of continuing to serve as a launch vehicle for space payload.

The engines for the first two stages of the Shavit are made by the Givon factory of Israel Military Industries, and are an integral part of the Shavit launcher.

The engine for the third stage is made by Rafael and is not integral to the Shavit, but is an important component of the satellite. This last engine pushes the satellite into orbit and then breaks off from it.

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<http://www.jpost.com/servlet/Satellite?pagename=JPost/JPArticle/ShowFull&cid=1094440992585>

MOD to investigation Ofek 6 launch failure
Arieh O'Sullivan,
THE JERUSALEM POST
Sep. 6, 2004
[EXCERPTS]

The botched afternoon launch of the sophisticated satellite cost the state some \$50 million but would not lead to a situation where the country has no spy satellite in space since there are currently two Israeli spy satellites in orbit with life spans of at least two more years.

Nevertheless, the loss of the Ofek 6 would be a setback for Israel's surveillance on its enemies in the Middle East.

"The Ofek 6 was to have been the third satellite and increase the backup possibilities and pace of photographs and such that involve creating an intelligence picture," Prof. Maj.-Gen. Yitzhak Ben-Israel, former director of IDF Development of Weapons Systems and Infrastructure.

The launch of the Ofek 6 was kept secret until its failure when the Defense Ministry put out a laconic statement.

At 1:53 p.m. local time, the Ofek 6 rose off the launch pad atop a Shavit II missile at the at an air base south of kibbutz Palmachim. According to the defense sources, the Shavit II, a civilian version of the inter-continental Jericho II, performed flawlessly in its first and second stages.

The malfunction came in the third stage, which is an integral part of the satellite and separate from the Shavit II. This third stage rocket was to have given it the final boost into an elliptical orbit some 300 miles above the earth. It failed, sending the satellite plummeting into the sea, thus implementing a fail-safe strategy.

In contrast to successful launches, the Defense Ministry declined to allow anyone involved in the project to speak to the media. It referred queries to retired experts such as Ben-Israel.

"In the three or four years we have left (until Ofek 5 dies) we are able to produce quite a number of satellites," said Ben-Israel. "It's just a question of money."

The Ofek 6 is produced by Israel Aircraft Industry subsidiary MBT and contains components provided by Rafael, TASS IMI, Elbit Systems and Elisra Group.

Israel currently operates the Ofek 5 spy satellite, successfully launched in May 2002. It has a four-year lifespan and its producers boast it is the only satellite in its class that produces such high-resolution pictures from space. Its telescopic camera was designed by Elbit Systems. It is forward looking but has variable directionality.

The Ofek 5 downlinks with the ground station at Yehud run by IAI's MBT. MBT is the prime contractor for the Ofek 5 project.

Ben-Israel told Israel radio that the estimated cost of the satellite and the launcher was about \$50 million.

Monday was to have been a joyous day for Israel's space program. But instead of circling the earth keeping a watchful eye on its enemies, the Ofek 6 lies in the depths of the eastern Mediterranean Sea. Army radio reported that there were voices in the defense establishment considering retrieving it from the sea floor.

"There's no point. You can't recover it and launch it again," Ben-Israel said. "Anyone else who has the technology to remove a satellite from deep in the ocean also has the technology to make their satellite."

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<http://www.nytimes.com/aponline/international/AP-Israel-Spy-Satellite.html>

Israeli Spy Satellite Falls Into Sea
By THE ASSOCIATED PRESS
Published: September 6, 2004
Filed at 3:11 p.m. ET
[EXCERPTS]

JERUSALEM (AP) — An Israeli spy satellite plunged into the Mediterranean Sea shortly after launch Monday, dealing a severe blow to Israel's attempts to closely monitor potential enemies, particularly Iran.

The mishap occurred when boosters for the Ofek-6 satellite failed, the Defense Ministry said after the top-secret launch from the seaside Palmachim air force base in southern Israel. The satellite fell into the sea near the port city of Ashdod.

"An unsuccessful attempt was made to launch into orbit a remote sensing satellite," the ministry said in a terse statement.

The boosters apparently malfunctioned during the third phase of flight, said Isaac Ben-Israel, head of the security studies

program at Tel Aviv University, who attended the launch.

Defense Minister Shaul Mofaz said a replacement for Ofek-6 would be launched sometime in the future.

``It might be with a delay, but it will go up," he said.
``We have to be on the satellite map."

While Israel has three other spy satellites in orbit, they are not expected to last more than four years, Ben-Israel said. Ofek-6 was more advanced than its predecessors, but Ben-Israel refused to give details.

Israel is second only to the United States in spy satellite technology, Ben-Israel said, adding that Israel is currently developing the Ofek-7 and Techstar, a radar satellite. Both are expected to be ready by 2008.

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<http://www.globes.co.il/serveen/globes/docview.asp?did=834520&fid=942>

OFEQ-6 spy satellite launch fails
Felix Frisch 6 Sep 04 19:03
[EXCERPT]

The defense establishment failed today in launching the OFEQ-6 spy satellite into space. The satellite, produced by Israel Aircraft Industries MBT (MABAT) – Weapon Systems and Space Technology division, was launched at 1:53pm from the Palmachim Air Force Base, using a Shavit satellite launcher, also manufactured by IAI MBT.

The satellite's cost is an estimated \$100 million, while the launcher's cost is in the tens of millions of dollars. According to the Ministry of Defense's initial assessment, the launch failed due to a malfunction in the third stage of the launch, when its engine refused to ignite after disengaging from the second stage.

The OFEQ-6, equipped with long-range cameras outfitted with sophisticated night vision capabilities, was supposed to join the OFEQ-5 in space. The OFEQ-5 spy satellite was launched in 2002.

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<http://news.bbc.co.uk/1/hi/sci/tech/3631820.stm>

Israeli spy satellite destroyed

By Dr David Whitehouse

BBC News Online science editor

Monday, 6 September, 2004, 16:38 GMT 17:38 UK

[EXCERPTS]

An attempt by Israel to put into orbit a sophisticated spy satellite has failed, its defence ministry says.

The Shavit rocket carrying the Ofeq-6 satellite exploded in mid-air over the southern coastal city of Ashdod shortly after launch. No one was hurt.

The failure of Ofeq-6 is a major setback for Israel that will impact Israeli-Arab politics.

It was a far more sophisticated spy satellite than Ofeq-5 and was believed to be capable of night-time surveillance. If Ofeq-5 fails there is now a chance that Israel could lose its space surveillance capability.

It plans an even better spy satellite in 5-6 years' time and the satellite that was destroyed was intended to bridge the gap.

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