Egypt's new spy satellite: Egyptsat-2 (Misrsat-2)

By: Dino Ramsey - April 2014

On Wednesday April 16th, 2014 the new Egyptian satellite **Egyptsat-2**, also called Misrsat-2 was successfully launched on a Russian Soyuz-U rocket from the booster from the Russian Baikonur cosmodrome in Kazakhstan (launch pad 31\6). The Egyptsat-2 was intended to be launched in 2013 but due to the premature failure of its predecessor, Egyptsat-1 and also due to the political upheaval in Egypt in 2013, the launch was postponed until April 2014. The satellite arrived at Baikonur from Egypt onboard an An-124 transport aircraft in late February to begin final processing for launch. The satellite is a joint venture between the Egyptian National Authority for Remote Sensing and Space Sciences **(NARSS)** and RKK Energiya of Russia, it was the first time that an Arab country opted for "technology transfer" during its satellite manufacturing process, rather than simply purchasing the product, as it had done with the NileSat series of communications satellites. According to NARSS Director Ayman Dosouqi, 60% of EgyptSat-2's hardware was locally made in Egypt. Egyptsat-2 is based on RKK Energiya's 559GK satellite, it weighs 1,050 kilograms, carries three solar panels deployed in a triangular shape for power generation and like the 559GK, has efficient electric engines using Xenon. The Egyptsat-2 is a part of NARSS' program that included Egyptsat-1, Egyptsat-2 and Desertsat scheduled for 2017. Egyptsat-2 is controlled by two ground stations, the Ground Control Station & Flight Control Center (FCC) – Outside Cairo and Data Receiving Station in Aswan (south of Egypt).

The Flight Control Center (FCC) outside Cairo (Left) and the Data Recieving Station in Aswan (Above)

Images source: NARSS Director Ayman Dosouqi's report

The official statements made by the NARSS indicate that the satellite is used for agricultural, geological and environmental studies, with no mention of any military use, a similar statement was also released by Roscosmos, the Russian federal space agency (which RKK Energiya operates under). Although there are many uses for such a satellite, the main purpose behind it is spying, plain and simple, especially for a cash strapped country like Egypt, given the Israeli Ofeq program with its latest launch, the Ofeq-10, which was curiously just launched a week prior to the Egyptsat-2 launch and its advanced capabilities, Egypt has to stay in the race and deploy a spy satellite of its own, although not as advanced as the Ofeq-10. Here is a comparison between the Egyptian EgyptSat-2 and the Israeli Ofeq-10:

	EGYPTSAT-2	OFEQ–10
Launch vehicle	Russian Soyuz-U rocket	Israeli Shavit-2 rocket
Satellite mass	1.050 kg	400 kg
Type	Photo and Infra-red reconnaissance	Radar reconnaissance
Image resolution	1 meter	> 50 cm
Coast	$40 million	$300 million
Operational life span	11 years	5 years

The main difference between the Egyptian satellite and the Israeli one is mainly that the Ofeq-10 uses more capable technology, it is a SAR (synthetic Aperture Radar) for imagery. SAR is radar based, so it works at night and through clouds, while the Egyptsat-2 is camera based, although it has IR (Infra-red) capabilities too, its images are affected by clouds and bad weather, making it less capable than a SAR satellite like the Ofeq-10. Also the image resolution on the Egyptsat-2 is lower than that of the Ofeq-10, however the Ofeq-10 coasts $300 million vs a mere $40 million for Egyptsat-2. Israel also has a number of other spy satellites, so as many other countries in the region and Israel launches its satellites on indigenous rockets while Egypt relies on foreign rockets to launch its satellites. At the end of the day, the Egyptsat-2 is a major step forward for Egypt, it offers Egypt a very capable spy satellite, and it is sure to be followed by other more advanced spy satellites. With the problems Egypt is having in the Sinai Peninsula and the growing threats and instability in neighboring countries such a spy satellite is now a must and provides Egypt with valuable intelligence it lacked before. Congratulations to Egypt for joining in the spy satellite club, and I'm sure this is just the beginning and there will be many to follow and the Israeli monopoly on spy satellites is now gone.

Sources:
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