

# *INSS Insight* No. 1175, June 16, 2019 Shooting for the Stars: The Arab "Space Club" Yoel Guzansky

In recent years, several Arab countries have sped up research, development, and collaborations in the field of space in order to establish an independent technological-scientific infrastructure. The United Arab Emirates and Saudi Arabia are taking the lead, using their vast economic resources for research, commercial, and even military purposes. The Arab countries still have a shortage of scientific-human infrastructure for research and development in the space field, although it is being built. They also lack the ability to launch independently, although the motivation is there. The lion's share of the projects are intended for economic and scientific needs and express their striving for prestige and status. The desire of the Arab countries to walk the path of progress, in and of itself, should not cause the State of Israel concern; on the contrary. Several of the civilian Arab projects in the field of space research could also serve as fertile ground for collaboration with Israel. In the Arab world, however, space-related endeavors are seen more than before through the prism of security, which could pose a challenge to Israel over the long term.

Israel's lunar probe, Beresheet, aroused interest in the Arab world. Alongside the schadenfreude over the spacecraft's crash on the moon's surface, Arab writers also mentioned the necessity of an "Arab space awakening" in order to learn from Israel, in an effort to catch up with its space program. Even before then, several Arab countries sped up their research and development efforts in the field of space in order to construct an independent technological-scientific infrastructure. Particularly prominent are the efforts of the United Arab Emirates (UAE) and Saudi Arabia, which are using their vast economic resources for research, commercial and even military space uses.

While the main motivation for those efforts has to do with considerations of prestige and status (i.e., intra-Arab competition), it is also linked to the understanding that space research serves as a "technological engine" that draws many industries and fields of knowledge in its train. This understanding is tied to the desire of Arab countries to diversify their economies (and in the case of the Gulf states, to reduce their dependence on revenues from oil and its products) and develop modern economies. The growth in the number of private companies in the West in this field also contributes to the interest among Israel's neighbors in the advantages that space could give them.

### The UAE

The UAE space push is the broadest and most ambitious in the Arab world. The UAE's intention is to become a hub in this field. The federation, which has invested approximately six billion dollars in space R&D, has already launched into space several satellites, some of them developed independently. It is also building infrastructure and training scientists via branches of international universities that operate within its borders. In 2019, the UAE published its "National Space Strategy 2030," containing 21 projects in which 85 organizations, now under the auspices of the Emirates Space Agency, are taking part. An unmanned atmospheric research probe (called Hope), to be launched from Japan, is supposed to reach Mars in 2021, approximately at the time of the fiftieth anniversary celebrations of the UAE's independence. The launch of the first Emirati astronaut to the International Space Station, using a Russian launcher, is planned for September. The UAE is also establishing a "space city" whose purpose is to simulate life on Mars.

The UAE, which has cooperation agreements in the space field with foreign companies, has brought private companies on board with its ambitious vision. In 2018, KhalifaSat, the first product of development and production from the UAE, was launched from Japan. It broadcasts imaging at a reported resolution of 0.7 meters to a ground station in Dubai for various purposes, including urban and environmental planning. In 2019, the existing collaboration between the UAE and Virgin Galactic (in which the federation owns a share) was deepened in order to promote, among other things, space tourism activity from its territory. Alongside the research and commercial activity, the UAE also purchased two advanced satellites for military purposes (Falcon Eye) from French companies for one billion dollars. The satellites, the first of which is expected to be launched in July 2019, will provide imaging at a reported resolution of at least 0.7 meters. This is taking place after a protracted delay that stemmed from, among other things, obstacles that the United States reportedly had placed before the implementation of the deal.

### Saudi Arabia

The Saudi Space Agency was established in December 2018, and Prince Sultan bin Salman Al Saud, who in 1985 was the first Arab (and Muslim) astronaut on the space shuttle Discovery, was appointed its chairman. The agency, which is responsible from now on for national coordination and policy planning in the field, has a starting budget of more than one billion dollars for its first year of operation. Space-related research and development in the kingdom are coordinated by the King Abdulaziz City for Science and Technology (KACST) and operates under the auspices of the National Center for Remote Sensing Technology (NCRST). In addition, Saudi Arabia is establishing a center for space research in cooperation with NASA and Stanford University.

Saudi Arabia is not progressing in the field as rapidly as its neighbor, the UAE. As a result, Riyadh has decided to establish research, development, and production infrastructure of satellites with outside assistance. In 2018, two observation satellites, "the fruit of Saudi development" -Sat 5A and Sat 5B-were launched by a Chinese rocket, and agreements in the space field between the kingdom and Ukraine, Russia, and Kazakhstan have been reported. Saudi Arabia is also involved in China's lunar research. In addition, it has been reported that the kingdom entered a partnership with DigitalGlobe for the development of small satellites that will provide imagining at a reported resolution of 0.8 meters, and it is making contacts with France and Russia regarding the purchase of satellites for military purposes. Russia has also agreed to train and send a Saudi astronaut to the International Space Station.

## **Other Countries**

Arab countries long ago took advantage of the opening of the commercial communications satellite market and benefited from the prestige that went along with possessing advanced technology without having independent scientific infrastructure for its development. ArabSat was established under the Arab League's auspices as far back as 1976. The organization, which is located in Riyadh, purchases and operates communications satellites, which also serve as a platform for influencing public opinion in the Arab world through Arab-owned satellite channels. The first satellite was launched in 1985, and the most recent one, ArabSat 6A, build by Lockheed-Martin, was launched in April 2019.

It seems that every Arab country wants to put its national flag in space these days. In 2018, Jordan launched a micro-satellite of its own production, JY1, into space; Qatar launched a second communications satellite (Es'hail 2), produced by Japan, into space; Morocco launched another observation satellite (Mohammed VI-B), French built; and Egypt, which uses satellites for scientific, commercial, and military purposes, established its own national space agency and deepened its cooperation with Russia and China in the space field.

Together with the national efforts, there is also an attempt to promote Arab space collaboration. The UAE has already signed a cooperation agreement with Bahrain, and it is likely to sign a similar agreement with Saudi Arabia. The UAE is also the driving force behind the renewed initiative to establish the "Arab space cooperation group," to include eleven countries, which got under way last March at the fringes of the Global Space Congress that took place in the UAE.

The first project of the group, whose goal is to increase scientific cooperation, will be to construct the 813 climate-monitoring satellite, funded by the UAE. The establishment of such a body is a way of cutting the large research and development costs in the field and making the fullest possible use of the existing knowledge among its member countries. However, it should be mentioned that previous attempts at cooperation within the Arab world in this field were stopped due to mutual suspicions, political differences, and different priorities, which reflected the patterns of competition and struggles for prestige in the Arab world.

## Implications

Arab leaders have begun investing in the space field in order to contribute to the progress of their respective countries and as a rapid way to obtain prestige and status. They do not want to lag behind Israel and Iran, which are more advanced than they are in this field. They have concentrated thus far on acquiring satellites from foreign companies in order to add to their countries' (and their leaders') prestige simply by planting their national flags in space. But it is already evident that they are engaged in long-term efforts to develop an independent infrastructure with assistance from various entities, including Russia and China, which are more willing to provide them with technologies as part of the transactions.

Nonetheless, some in the Arab world hope to reduce their dependence upon foreign elements. Progress in the satellite field will enable them to establish safer communication channels, and an observation satellite in their control will provide them with operational flexibility that they cannot get from commercial satellites, due, among other things, to the restrictions on resolution that the United States imposes upon imaging of Israel.

Almost any country can purchase satellite products for research, communications, or even military uses. The Arab states are still greatly lacking in scientific-human infrastructure, though it is being built. They also lack the ability to launch independently, though they are motivated to make progress in this area as well. Saudi Arabia, for example, is evidently developing a launcher, with foreign assistance. Among other things, it has been reported that an installation for assembling surface-to-surface missiles is located near Riyadh; its construction began in 2013. Like the accelerated ("civilian") nuclear development in the region, satellite and space technology can be put to dual use for civilian-commercial and security-military needs alike.

The Arab countries' desire to walk the path of progress should not cause Israel concern. On the contrary. Some of the Arab projects in the field of space research may even serve as fertile ground for cooperation with Israel. Several of the Arab Gulf states benefit from cooperation with Israel, which can launch and operate satellites independently and has an advantage in building small, cheap, and advanced satellites. Still, the Arab world increasingly perceives space through the prism of security, which, in the long term, may pose a challenge to Israel. Israel needs to evaluate when and how the combination of the above-mentioned Arab space motivation and vast resources put to play may challenge its security.