

# The Global Range of Iran's Ballistic Missile Program

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## **Iran is Seeking to Deter the United States**

What is the rationale behind the Iranian missile program? Prior to 1991 and the first Gulf War, the main threat to Iran was Saddam Hussein's Iraq. The Iranians began developing their missile program at the height of the Iran-Iraq war, directly under fire, so to speak, after Saddam Hussein began launching missiles at Iran and the Iranians had nothing to respond with except for a few Scud-Bs they received from Libya, the only country that supported Iran.

Since 1991, the United States has replaced Iraq as the number one threat in Iran's perception. The Iranian reference threat scenario is a massive U.S. military action against Iran aided by U.S. allies in the region, including the Gulf States and Israel, which they see as an outpost of the United States.

The Iranians are realists. They don't aim to win a set-piece battle against the United States. They know that is impossible. Their policy is to deter the United States and its allies by threatening a war of attrition that will exact such a high price that this option will become unacceptable to the United States. With this in mind, they are focusing their efforts not on the renovation of their substantial arsenal of conventional arms, but rather on specific new weapon classes. Very shrewdly they are investing in deterrence enhancers and force multipliers. Replacing obsolete equipment seems to be assigned a lower priority.

This could be seen, for example, in the April 2005 fly-by of the Iranian Air Force in the course of the annual Army Day parade. The majority of the airplanes involved – F5s, F4 "Phantoms," and F14 "Tomcats" – were U.S.-made combat aircraft bought during the time of the Shah. A formation of F4s, F5s, F14s and an air tanker converted by Israel from a Boeing 707 – all predating the 1978 revolution and still flying 27 years later in the skies over Tehran. Looking at Iranian ground forces, one sees a lot of M113 APCs, some M60 tanks and some Russian and Chinese tanks bought during the Iran-Iraq war. There has been no massive renovation.

## **What Armaments Does Iran Invest In?**

What does Iran invest in? Precision-strike munitions, naval anti-ship weapons, ballistic missiles, space programs, and a military nuclear program. Iran invests extensively in anti-ship weapons like the Chinese C802 that hit the Israeli Navy ship Hanit during the recent war in Lebanon. Of more strategic significance is the 350-km.-range Ra'ad (Thunder) anti-ship missile. The purpose of this weapon is to control the Persian Gulf, which they see as the corridor through which the United States would launch an invasion. It is interesting to note the weapons tested by Iran during a recent large-scale naval exercise. Iranian media announced the use of the Misaq shoulder-launched, anti-aircraft missile, which strongly resembles the old Soviet "Strella" Manpad; the Kosar shore defense

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anti-ship missile, which is very similar to a Chinese anti-ship missile; the "Fajer 3 radar-evading" missile (probably

the Shahab 2 [Scud C]); and the Ajdar "super-fast" underwater missile, which most probably is the not-too-successful Russian Shkval underwater rocket. The overall impression is of an arsenal that is designed with a defensive mindset, but which is carefully calculated to cause the maximum damage and casualties to any aggressor – in short, an arsenal designed for battles of attrition and defenses in depth.

This arsenal is displayed, exhibited and paraded again and again, with a view to deterring the U.S. and at the same time infusing self-confidence in the Iranian public. Nothing contributes toward those two goals better than Iran's ballistic missiles.



*Iran's Revolutionary Guards test missiles including the long-range Shahab-3 during maneuvers, November 2, 2006*

### **Ballistic Missiles in the Iranian Arsenal**

The Iranians are engaged in the most intensive missile program in the Third World, with constantly increasing ranges. Iran's missile arsenal comprises both short-range, heavy tactical rockets of the Zalzal (Earthquake) family and continental-range ballistic missiles like the newly acquired BM25 that can reach all the way to Central Europe.<sup>1</sup>

The Zalzal 2 heavy rocket with a 200-km. range and a 500–600 kg. explosive warhead is designed to attack troop concentrations deploying for an invasion of Iran's own territory. Iran supplied a quantity of Zalzal rockets to Hizbullah, which threatened to launch them at Tel Aviv during the latest round of fighting in Lebanon. This did not happen, probably due to the fact that the Israel Air Force succeeded in preempting and destroying the rockets in their depots deep inside Lebanon. The Iranians used the Zalzal to good psychological effect during their November 2006 military exercises, firing a salvo of six of the heavy rockets in front of television cameras, to the alarm of their neighbors across the Persian Gulf.

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An unguided rocket like the Zalzal has a problem with accuracy. To solve this, the Iranians are developing the Fatah 110 – a guided version of the Zalzal 2 and a true battlefield short-range ballistic missile.

During the Iran-Iraq war, between 1980 and 1988, Iran received and purchased 300-km.-range Scud B missiles which were dubbed Shahab (Comet). Some were fired at Baghdad during the war, while most of the remaining ones were fired during the 1990s at Iranian opposition camps located in Saddam's Iraq. Later, Iran purchased a production line from North Korea for the 600-km.-range Huasong 5 (Scud C), dubbing it Shahab 2. These missiles are still in service, and are frequently displayed and tested.

While the Shahab 1 and 2 were acquired to deal with close-in threats, Iran's next missile purchase indicated regional aspirations. The Shahab 3, originally the North Korean No Dong, has a range of 1,300 km. and can reach Israel and the heartland of Saudi Arabia. Iran purchased a production line for these missiles in the early 1990s and is now manufacturing them at a rapid rate. The missile was declared operational and introduced into the service of the Pasadaran (Iran's Revolutionary Guards) in July 2003. In 2004, Iran revealed a more advanced version of this missile, the Shahab 3ER, with a range of 2,000 km.

This spectrum of Shahab-type missiles allows Iran to project its power over the entire Middle East. The Shahab 3 can threaten either Tel Aviv or Riyadh from the same

launch point. The newer Shahab 3ER, with its 2,000-km. range, can reach Ankara in Turkey, Alexandria in Egypt, or Sanaa in Yemen from a single launch point deep within Iran. Thus, Iran does not have to move its launchers to hit key points in the region. Basing the missiles in fixed, reinforced shelters renders the missiles more survivable.

Iran's strategic missiles are not controlled by the Iranian Army but by the Revolutionary Guard, which has its own air force, ground force and navy, and which reports to Iran's spiritual leader. As for their basing mode, the Iranians have displayed a variety of mobile launchers, but there are indications that they are now digging fixed silo-like hardened sites to make their missiles even more survivable.

The number of tests of the Shahab 3 has been relatively small (with some recent acceleration in the rate of testing) and there are indications that as many as one-half have failed. What is intriguing is that Pakistan has a parallel program of an almost identical missile that is tested more frequently and is almost always successful. This does not mean that the Shahab missiles are not operational. While Western practice does not accept a new weapon for service unless it achieves repeated successes in the test range, the Iranians apparently think that if it worked once, it's operational.

Somewhat mysteriously, Iran has managed to acquire eighteen BM25 land-mobile missiles together with their launchers from North Korea, missiles that can

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strike targets in Europe. Their progenitor, the Soviet SSN6 SLBM, had several versions with ranges varying from 2,500 to 3,500 km. Obviously, the BM25's range makes it a threat far beyond Iran's nearest neighbors. It now appears that the Iranians are seeking to project power beyond their own region. Interestingly enough, and in sharp contrast to Iran's policy of transparency regarding the Shahab program, the purchase of the BM25 has been denied by Iran.

Ever since Iran set up its own missile industry, it has been trying to cover expenses by exporting. The



*Iranian President Ahmadinejad reviews Iran's Shahab 3 missile, capable of carrying a nuclear warhead and reaching Europe, Israel, and U.S. forces in the Middle East, September 22, 2005.*

Iranians attempted to sell Scud-Bs to Zaire. They signed a \$12 billion deal with Kaddafi to set up an entire missile industry in Libya; and they were very upset when Kaddafi reversed his policy and abandoned his missile aspirations. Iran has also provided heavy rockets to Hizbullah: the Zalzal (see above), the Fajer 3 with a range of 45 km., and the Fajer 5 with a 75 km. range. Recently, a high-ranking Iranian official declared that his country is ready to supply missiles to friendly nations. An unsubstantiated report from South America talks about selling Iranian Shahab missiles to Venezuela.

Iran has declared that it is developing a new line of large, solid-propellant, two-stage ballistic missiles. Back in 1998, the U.S. Commission to Assess the Ballistic Missile Threat to the United States judged that Iran had "the technical capability and resources to demonstrate an ICBM-range ballistic missile...within five years of a decision to proceed" (Rumsfeld Commission Report, July 15, 1998).

In addition, well-substantiated reports indicate that the Iranians managed to steal and smuggle out of the Ukraine several strategic cruise missiles, probably not for deployment – the number is too small – but for emulation and copying. Thus, we can expect an Iranian cruise missile program too, loosely based on the Russian Kh55 land attack cruise missile, the Soviet equivalent of the U.S. Tomahawk.

**Iran's Space Program Could Extend Its Global Reach**

Iran announced a space program in 1998, concurrently with the first flight test of the Shahab 3 ballistic missile. Iranian disclosures refer to several satellites, some locally made, as well as an indigenous space launcher. Ultimately, their space program aims to orbit spy satellites similar to Israel's Ofek, satellites, using an Iranian satellite launcher within Iranian territory. A spy satellite of rea-

sonable performance should weigh at least 300 kg. Once Iran learns how to put 300 kg. into earth orbit, it could adapt the satellite launcher into an ICBM that could drop more than 300 kg. anywhere in the world, for instance, on Washington, D.C. The Iranians could be clever enough not to actually develop a specific ICBM. It would be enough for them to orbit a satellite in a trajectory that traverses U.S. territory. Every time the Iranian satellite passes above the U.S., it would remind America of Iran's potential to strike it. The impact on the U.S. when the Soviet Union launched its first Sputnik satellite comes to mind.

Iran's short-term goal is to deter the United States and gain freedom of action to become a nuclear power. Its long-term goal is clearly to project power beyond Iran, over Europe and over the United States. Iran is already projecting power over the entire Middle East. With its space program, Iran is bound to project power on a global scale.

Obviously, the Iranians are overstating their capabilities as part of their psychological warfare. But behind this overstatement is a real capability – not as much as they claim, but not insignificant either. They definitely have some real capability, they are investing a lot of money in it, and it is growing with time.

Since the ascendance of Mahmoud Ahmadinejad as Iran's president in 2005, Iranian political aspirations seem to have shifted from self-preservation to global power projection. At a recent conference in Berlin, one of the deputies to Iran's foreign minister called upon the world to recognize that Islam comprises 25 percent of humanity and that it should occupy its rightful place in decision-

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making in world affairs and in the allocation of the world's resources. Such statements indicate a mindset which is more aggressive than defensive. Accordingly, it should not be surprising if the Iranians embark upon massive armament programs with modern offensive

weapon systems in the near future.

Ahmadinejad has declared that Islam should now roll back 300 years of Western superiority. He was speaking in the name of Islam rather than of Iran, but he clearly viewed Iran as the spearhead of Islam in its struggle against Western civilization. Other Iranians stress the historic greatness of Iran with its 6,000-year-old civilization. The Iranians are trying to retrieve the old glory of the empire and at the same time become a world power and the leaders of world Islam. The development of long-range missiles and space launchers is a key element in building up Iran's power to assume such a leadership position in global affairs.

**Note**

1 There is no agreed convention in the literature on how to distinguish between guided and unguided ballistic missiles. For our purposes, unguided missiles (those that are free flying and have no onboard guidance and control systems) are "rockets." Missiles which have onboard guidance systems and hence better accuracy are "ballistic missiles."