Iranian Ballistic Missile Tests Since the Nuclear Deal

By Behnam Ben Taleblu

February 9, 2017

Executive Summary

Since the July 2015 announcement of the nuclear deal known as the Joint Comprehensive Plan of Action (JCPOA), Iran has tested as many as 14 ballistic missiles. This number is based on aggregated open-source reporting, as no official government or United Nations numbers have been made available to the public. Although the deal did not address ballistic missiles – the likeliest delivery mechanisms for nuclear warheads – the UN Security Council resolution endorsing the deal called on Iran to refrain from testing nuclear-capable missiles. This memo explains how the Foundation for Defense of Democracies (FDD) has calculated the number of ballistic missiles Iran has fired and explains the policy implications of these tests.

The Challenge of Calculating the Number of Tests

While Iran has tested ballistic missiles on multiple occasions since July 2015, there does not appear to be a consensus in Washington, or in the international community, on how many it has tested, which platforms were tested, and when they were launched. The challenge derives from trying to navigate multiple conflicting sources, including reports by Western media outlets that rely on government officials, Persian-language open-source material, reports by non-governmental and international organizations, and congressional testimony.


The primary reason for this lack of clarity is apparent: The Obama administration provided little, if any, public information on Iranian ballistic missile launches in the post-deal environment. It responded with scant condemnations, and in one case, sanctions. Had the U.S. intelligence community, USSTRATCOM, or other combatant commands supported by the U.S. Missile Defense Agency or Department of Defense weighed in publically, the international community would know the answer to the question of how many ballistic missiles Iran has tested since July 2015.

**Reported Missile Tests**

FDD tracked the number of ballistic missiles reportedly launched since the JCPOA’s announcement rather than the number of missile drills – each of which may include launches of multiple missiles. We believe this is a more accurate way to determine Iran’s capabilities because each tested missile, whether a success or failure, provides Tehran with data it can use to further its conventional and unconventional military capabilities. Additionally, with a few exceptions noted below, we include every incident reported in Persian- and English-language media. We include ballistic missiles that meet and do not meet the Missile Technology Control Regime’s (MTCR) metric for “nuclear-capable” missiles. Indeed, missiles that fall short of the MTCR’s range threshold could still potentially serve as a delivery vehicle for a tactical nuclear weapon in the future. We assess that Iran has tested up to 14 ballistic missiles since the JCPOA was announced in July 2015.

**Fateh-313**

- **Reported test date:** August 22, 2015
- **Type:** Single-stage, solid-fueled short-range ballistic missile (SRBM)
- **Source and comments:** Iran’s Tasnim News Agency notes that the missile was successfully tested and provided images to prove it. Days later, Iranian parliamentarians cited the test in speeches.

---


8. Additional information detailing these missiles’ manufacturer, range, payload, translation of their name, as well as other related data is available upon request.


10. “آزمایش موشک فاتح ۳۱۳ پاسخ به یاوه گویان طرح تحریم” (The Successful Test of the Fateh-313 is a Response to the Absurdity-Sayers Who Devise Sanctions), Islamic Consultative Assembly News Agency (Iran), August 26, 2015. (http://www.ican.ir/fa/news/283466)
**Irani n Ballistic Missile Tests Since the Nuclear Deal**

---

**Emad**
- **Reported test date:** October 11, 2015
- **Type:** Precision-guided, liquid-fueled medium-range ballistic missile (MRBM)
- **Source and comments:** Iranian and Western media provided similar reporting, although the Iranian media mistakenly called it a long-range missile.

**Ghadr-110 (aka Ghadr-1/Ghadr-101)**
- **Reported test date:** November 21, 2015
- **Type:** Liquid-fueled MRBM
- **Source and comments:** On December 8, 2016, a number of Western media outlets reported that Iran had tested the Ghadr in late November. The New York Times said “outside analysts” believe it was a Ghadr-110 missile. UPI claimed, “U.S. officials believe the test was conducted Nov. 21 from the city of Chabahar.” Reporting from Iranian outlets drew entirely from the Western press.

**Ghadr-F**
- **Reported test date:** March 8 or 9, 2016
- **Type:** Liquid-fueled MRBM

---

11. Likely a new warhead atop the Ghadr missile’s body. This is discernable from images, see: [http://media.farsnews.com/media/Uploaded/Files/Images/1394/07/09/1394071900026_PhotoL.jpg](http://media.farsnews.com/media/Uploaded/Files/Images/1394/07/09/1394071900026_PhotoL.jpg)
15. We assess this missile to be liquid-fueled because it is based off the liquid-fueled Shahab-3 and NoDong-A. Also, while missile experts have mentioned the increased amount of propellant in this missile, they do not mention changes to it. See: Missile Defence Cooperation in the Gulf (London: The International Institute for Strategic Studies, 2016), page 19. However, we are aware that other sources cite the Ghadr as being two-staged and hybrid (first stage liquid, second stage solid) fueled. See: John Middleton, “Ghadr -110,” Missile Defense Advocacy, November 2016. ([http://missiledefenseadvocacy.org/mi ssile-threat-and-proliferation/todays-missile-threat/iran/ghadr-110/](http://missiledefenseadvocacy.org/mi ssile-threat-and-proliferation/todays-missile-threat/iran/ghadr-110/))
• **Source and comments:** The March 2016 tests are the most complicated to assess. English- and Persian-language media outlets in Iran, the United Nations, and a prominent arms-control organization disagreed over which platforms were tested, but there is a general consensus that the Ghadr-F was tested. There is, however, inconsistent reporting on the other missiles (discussed below in the section on the Ghadr-H). Surprisingly, the UN Secretary General failed to mention any of the Ghadr platforms in his July 2016 report.

**Ghadr-H (two missiles)**

• **Reported test date:** March 8 or 9, 2016

• **Types:** Liquid-fueled MRBM

• **Sources and comments:** The Persian-language *Fars News Agency* reported that an unnamed Ghadr (which we assume is the Ghadr-F) was flight-tested the day before two Ghadr-H’s were launched in early March. That same *Fars* report notes that two Ghadr-Hs were the ones that bore an anti-Israel slogan uttered by former Supreme Leader Ruhollah Khomeini. Persian-language Iranian sources also note that two Ghadr-H’s were fired in early March during an Islamic Revolutionary Guard Corps (IRGC) drill. The missiles were pictured together at the location in central Iran from which they were fired.

• **Incorrect reporting in English-language media:** The English-language *Iranian Diplomacy* reported that the Ghadr-F and H were both fired on March 8. The English-language *Mehr News Agency* reported that Iran fired four missiles, one Ghadr-F, one Ghadr-H, one Shahab-1, and one Shahab-2. The arms control website *Iran Watch* also listed the same four missiles, drawing from the *Mehr* report. English-language reports alleging that Iran tested an extremely old projectile (the Shahab-1), however, appears to be incorrect. The Shahab-1 is a Scud-B missile, which Iran first procured during the Iran-Iraq War. We assess that it is highly unlikely Iran would test the obsolete Shahab-1.

20. For instance, also noted in: “Iran test-fires two ballistic missiles during large-scale drills,” *Press TV* (Iran), March 9, 2016. (http://www.presstv.com/Detail/2016/03/09/454681/iran-irgc-ballistic-missile-)


25. As seen in this image: http://media.farsnews.com/media/Uploaded/Files/Images/1394/12/19/13941219000209_PhotoL.jpg


30. This was originally called the Scud-B. See: “Scud B (Shahab-1/Hwasong-5),” *Military Edge*, accessed February 1, 2017. (http://militaryedge.org/armaments/scud-b/)
**QIAM-1**

- **Reported test date:** March 8 or 9, 2016
- **Type:** Liquid-fueled SRBM
- **Source and comments:** The Persian-language Fars News Agency reported that Iran fired a Qiam missile during its March drills. The Qiam-1 is explicitly mentioned, though not pictured, in the ballistic missile section of the UN Secretary General’s summer 2016 report on Security Council Resolution 2231. The Qiam-1 is an upgraded (and finless) Shahab-2/Scud-C with a different warhead. We deduce that the Mehr report from March 9, 2016 and the arms control websites summary of Iran’s March tests likely intended to refer to the Qiam-1, an upgraded version of the Shahab-2.

**SHAHAB-3**

- **Reported test date:** March 8 or 9, 2016
- **Type:** Liquid-fueled MRBM
- **Source and comments:** The Shahab-3 is explicitly mentioned and pictured in the ballistic missile section of the UN Secretary General’s summer 2016 report on UNSCR 2231. A Shahab (which we assess to be the Shahab-3) is also listed in the Fars report as having been tested during the March 2016 drills.

**SIMORGH**

- **Reported test date:** April 19, 2016
- **Type:** Space-launch vehicle (SLV)

---

32. "Iran's Missile Message was Transmitted in 'Hebrew': Fars News Agency (Iran), March 9, 2016. (http://www.farsnews.com/newstext.php?nn=13941219000316)
37. "Iran's Missile Message was Transmitted in 'Hebrew': Fars News Agency (Iran), March 9, 2016. (http://www.farsnews.com/newstext.php?nn=13941219000316)
• **Source and comments:** Defense and news outlets reported the Simorgh’s launch in April 2016. We include this as part of our ongoing collecting of reported missile tests. Indeed, Iran's satellite program is a mask for its intercontinental ballistic missile program. For example, a 2013 National Air and Space Intelligence Center report noted that this launch vehicle “could serve as a test bed for developing ICBM technologies.”

**Unknown Ballistic Missile**

• **Reported test date:** April 2016
• **Type:** Unknown, but likely MRBM or intermediate-range ballistic missile (IRBM)
• **Source and comments:** In May, the Associated Press (citing the Iranian press) reported that Iran tested another ballistic missile in late April, but did not provide any data other than the stated range, in addition to reporting that Iran was confident of the missile's margin of error. According to more recent analysis, the missile allegedly featured “North Korean … construction or design,” and an unnamed U.S. official said that it was similar to the missile Iran tested in January 2017. According to other Western media sources, Iran’s minister of defense denied the April 2016 test.

**BM-25 Musudan**

• **Reported test date:** July 11 or 12, 2016
• **Type:** Liquid-fueled IRBM
• **Source and comments:** Fox News' Lucas Tomlinson had the exclusive story that drew on “multiple intelligence
officials” who told him that Iran had tried to test-launch the BM-25 Musudan. Although the story did not get picked up elsewhere, given the journalist’s sources – and later reporting discussed in the section below on Khorramshahr – it is believed to be credible.

**Zulfiqar (aka the Zolfaghar)**

- **Reported test date:** September 2016
- **Type:** Single-stage, solid-fueled SRBM
- **Source and comments:** Iranian outlets claim this missile has a submunitions warhead, and carried video and images from the flight test.

**Shahab-3**

- **Reported test date:** December 6, 2016
- **Type:** Liquid-fueled MRBM
- **Source and comments:** On January 31, 2017, Lucas Tomlinson and Jennifer Griffin cited “two U.S. military officials” confirming Iran’s flight test of the Shahab-3 MRBM on December 6, 2016.

**Khorramshahr**

- **Reported test date:** January 29, 2017
- **Type:** Unknown, but likely MRBM
- **Source and comments:** On January 30, Tomlinson and Griffin were the first to break this story and cited “U.S. officials” as their source. This story was picked up several hours later in other Western media outlets, which

---


51. Jeremy Binnie, “Iran claims Zolfaghar missile has 700 km range,” *IHS Jane’s* (UK), September 26, 2016. (http://www.janes.com/article/64149/iran-claims-zolfaghar-missile-has-700-km-range)


Policy Implications, Recommendations, and Conclusion

Understanding how many ballistic missiles tests Iran has conducted is highly relevant to U.S. national security and the security of U.S. partners in the Middle East – as well as the viability of the nuclear agreement and the UN Security Council resolution that enshrines it. The U.S. has considerable policy options – diplomatic, informational, military, and economic – at its disposal to respond. Questions of how Washington can combat, deter, or roll back Iran's ballistic missile capabilities are beyond the scope of this memo.

Looking forward, the administration needs to make public more information, and in a timelier manner, than did its predecessor. The National Defense Authorization Act for Fiscal Year 2017 requires the Director of National Intelligence to submit quarterly reports to Congress on confirmed Iranian ballistic missile launches. This will provide an important baseline, but must be complemented by additional public information as soon as the Pentagon and intelligence community can confirm that a test has occurred.

Flight tests, even failed ones, teach Iran a great deal about the deficiencies in its missile arsenal. These missiles also bolster Iranian deterrence, providing Tehran with an umbrella of impunity that it uses to further its aggressive regional designs. Even though the nuclear agreement itself does not directly address ballistic missiles, Iran's actions violate the UN Security Council resolution endorsing the JCPOA. While experts may debate the quality and quantity of Iran's post-deal missile tests, the actual number should have been zero.