# Libyan Missiles

Libya has land- and sea-launched short range anti-ship cruise missiles that it purchased from Soviet and European sources. Many of the systems are old and likely are suffering from maintenance problems. Libya had a theoretical capability of delivering weapons of mass destruction in the form of Scud and FROG missiles and missiles delivered by medium-range Tu-22 bombers. Libya also has a variety of fighter aircraft, some old bombers, helicopters, artillery, and rockets available as potential means of delivery for NBC weapons. Libya used transport aircraft in its attempt to deliver chemical agents against Chadian troops in 1987.

Despite the UN embargo, Libya continued to aggressively seek ballistic missile-related equipment, materials, and technology from a variety of sources in Europe, the former Soviet Union, and Asia. The imposition of UN sanctions impeded Libyan efforts to obtain foreign assistance for its longer-range missile programs.

Libya wanted longer-range missiles, even beyond the No Dong class medium-range missile. Tripoli would be likely to continue to try for longer-range systems to increase the number of US and NATO targets it can hold at risk. If a missile were offered with a range sufficient to strike 2,500 kilometers into Europe, Libya would try to obtain it. Libya's paths to obtaining an ICBM over a 15-year period probably would be to purchase a complete missile system or to set up a foreign assistance arrangement wherein the scientists and technicians went to Libya, developed the infrastructure, and developed the missile right there.

According to the Rumsfeld Commission report, Col. Gadhafi said of his adversaries in a 1990 speech: "If they know that you have a deterrent force capable of hitting the United States, they would not be able to hit you. If we had possessed a deterrent - missiles that could reach New York - we would have hit it at the same moment [as the 1986 U.S. air strike on Libya]. Consequently, we should build this force so that they and others will no longer think about an attack." Then in late 1995, Col. Gadhafi said "As things stand today, I would attack every place from where aggression against Libya was being planned. I would even be prepared to hit Naples, where there is a NATO base."

On 19 December 2003 Libya agreed to destroy all of its chemical, nuclear, and biological weapons. The surprise announcement followed nine months of secret talks between Libyan, American, and British officials. Libya agreed to allow for immediate inspections and monitoring, and to eliminate ballistic missiles traveling more than 300 kilometers with a 500 kilogram payload.

A team of American and British intelligence officers spent about two weeks Libya in October and again in December 2003. During the visits, the team of US and UK inspectors went to 10 sites related to Libya's nuclear effort, chemical stockpile and missile program [other accounts suggested that the team was taken to dozens of sites]. Inspectors had learned that Libya had a supply of Scud-C ballistic missiles made in North Korea. Libya agreed to eliminate the North Korean Scud-Cs, but not Scud-Bs, which have a 300 km range.

### Scud-B / SS-21 Scarab / Frog-7

Libya obtained Scud-B and Frog-7 missiles from the Soviet Union in the mid-1970s. Libya's inventory of ballistic missiles consists of some 80 Scud B SRBM TELs and 40 FROG-7 artillery rockets TELs. It is believed that Libya possessed at least three times as many missiles as launchers. Libya continued to maintain a SCUD missile force, although that force is aging and suffers from maintenance problems. Some reports indicated that Libya could not successfully operate the Scud B system, and that many of the launchers and missiles had been sold to Iran. The Russian-made SS-21 Scarab SRBM has a 70 km range and 480 kg payload, and the Frog-7 has a range of 40km.

On 15 April 1986, Libya fired two or three Scuds at the US Coast Guard navigation station on the Italian island of Lampedusa, in retaliation for the US bombing raid on Tripoli. The missiles landed in the sea short of the island, and cause no damage.

### Scud-C

Libya is reported to have the North Korean Scud-C Short-Range Ballistic Missile (SRBM) variant with a 550 km range and 500 kg payload. The Scud-B has a 300 km range and 985 kg payload. The CIA reported in August 2000 that Libya had continued its efforts to obtain ballistic missile-related equipment, materials, technology, and expertise from foreign sources.

One example was the attempt in 1999 to ship Scud-related parts as "automotive parts" from a firm in Taiwan which were intercepted in the UK. In January 2000, the 32 crates of missile parts disguised as auto parts were discovered at London's Gatwick Airport on a British Airways flight bound for Tripoli via Malta. Libya is believed to have been the purchaser of the large shipment of missile-related technology aboard the North Korean-flagged freighter *Kuwolsan*, intercepted by Indian customs officers in June 1999 at the port of Kandla. The ship carried hundreds of missile components, machine tools, and detailed plans for variants of the Scud-B and Scud-C missiles.

**Orbital Transport-und-Raketen Aktiengesellschaft (OTRAG)**

The West German firm Orbital Transport und Raketen Aktiengesellschaft (OTRAG) shifted its development of a commercial space launch rocket from Zaire to Libya in 1979 and apparently had one or two rather unsuccessful tests there in 1981. A test flight was reported from either the Sebha Oasis or the Jarmah Oasis on 01 March 1981, at which time OTRAG announced that many tens of moduls were currently in production in its manufacturing facility near Munich/Germany. OTRAG claimed that it was working on a nonmilitary rocket to enable Third World countries to launch satellites cheaply. OTRAG became inactive in late 1984, and this effort soon collapsed. Although the Germans withdrew formally under pressure from the Bonn government in 1981, the latest test occurred in 1987. This may be explained by other reports that the head of OTRAG, Lutz Kayser, remained in Libya until the mid-1980s. A London report further claimed that, in October 1989, about 100 German engineers were working on a 500-750-km missile system, code-named "Ittisalt," in a desert camp about 100 km from Sebha, the site of the earlier OTRAG work and also the location of an alleged second Libyan chemical weapons complex. The missile work was reported to be in the research and development stage.





**Condor 2 / Al Fatah**

Libyan efforts to develop its own missile have met with only limited success. Its Al Fatah missile program has remained in a preliminary stage. This developmental effort uses a rocket with a fairly small payload. Libya's lack of progress with its missile program is directly related to its inability to gain adequate foreign assistance for its efforts, again partly due to UN sanctions.

The Condor 2 program was initiated by in Argentina in 1982. A two stage, solid-fuelled missile intended to carry a 450 kg payload (possibly a nuclear warhead) at least 900 km, the project attracted co-funding from Egypt in 1984 and Iraq in 1985. In April 1990, under pressure from the United States, the Argentinean government announced that the project had been shelved. Iraq continued its development of the missile, known as the Badr 2000, until 1990.

The involvement of Globesat, another West German company, in a separate Libyan missile project was investigated by the Munich public prosecutor in January 1989, but the case was dropped, apparently without an indictment. One report asserted that a West German company called Technical Oil Production (TOP) was set up in 1984 as a front for missile component acquisitions for a missile project code-named al-Fatah ("the conqueror") and that TOP had exported rocket valve controls for that project. The firm was found guilty and fined.

A Serbian company known as JPL Systems in July 1996 was reported to have signed a $30 million contract with officials of Libya's Al Fatah missile-development program to provide technical support.

Israeli intelligence sources claimed that the al-Fatah is a 1,000-km range system being developed under the management of a number of foreign experts, some of whom have been identified by Israel as having worked on a Libyan missile program in the 1970s. According to the article, in 1990, the liquid-fuel rocket motor of the al-Fatah was in the static test phase of development. In 1993, Libya was reported to have tried to obtain 80 tons of ammonium perchlorate from Russia, via Ukraine, to produce solid propellants. The Ukrainians, under US pressure, impounded the shipment.

In 1995, reports appeared suggesting that Iraqi technicians were working in Libya to revive the program or to integrate it with Libya's Al Fattah program. Ater more than 15 years of development, the al-Fatah was still not operational.

Chinese technicians have been linked to the Al-Fatah missile program as early as June 1998. It is reported that the state-run China Precision Machinery Import-Export Co. and the Libyan government reached an agreement in March 1999 to help develop Libya's long-range Al-Fatah missile. Chinese technical assistance has reportedly included a hypersonic wind tunnel to be used for modeling and simulation.

In 1999 US imagery intelligence satellites photographed Libyan efforts to enlarge a missile test facility as part of the Al-Fatah development program. The indigenous 1,000-km range Al-Fatah missile, which as of early 2000 was claimed to be in the late stages of development, has not been flight tested.

In February 2002 London-based A-Sharq Al Awsat reported that Iran and Libya were negotiating a deal for the production of Iranian missiles in Libya. The deal was reported to call for Iran to establish a missile production line of Iran's Fatah solid-fuel missile in Libya. The project would enable Libya to produce missiles with a range of 1,500 kilometers, which can reach Israel and much of Europe.

**MB/EE-150 / MB/EE-600**

Libya may have attempted to purchase ballistic missiles from Brazil, but MTCR restrictions and US pressure probably closed off that source. In the mid-1980s, the Brazilian Orbitas consortium developed the solid-fuel the MB/EE 150 road-mobile SRBM, with a range of 150 kilometers. A 600 km-range version of the system may also have been under development. In 1988, reports suggested that an MB/EE-type system was tested over a range of 650 km in the Libya desert.

### SS-23 Spider / SS-12 Scaleboard

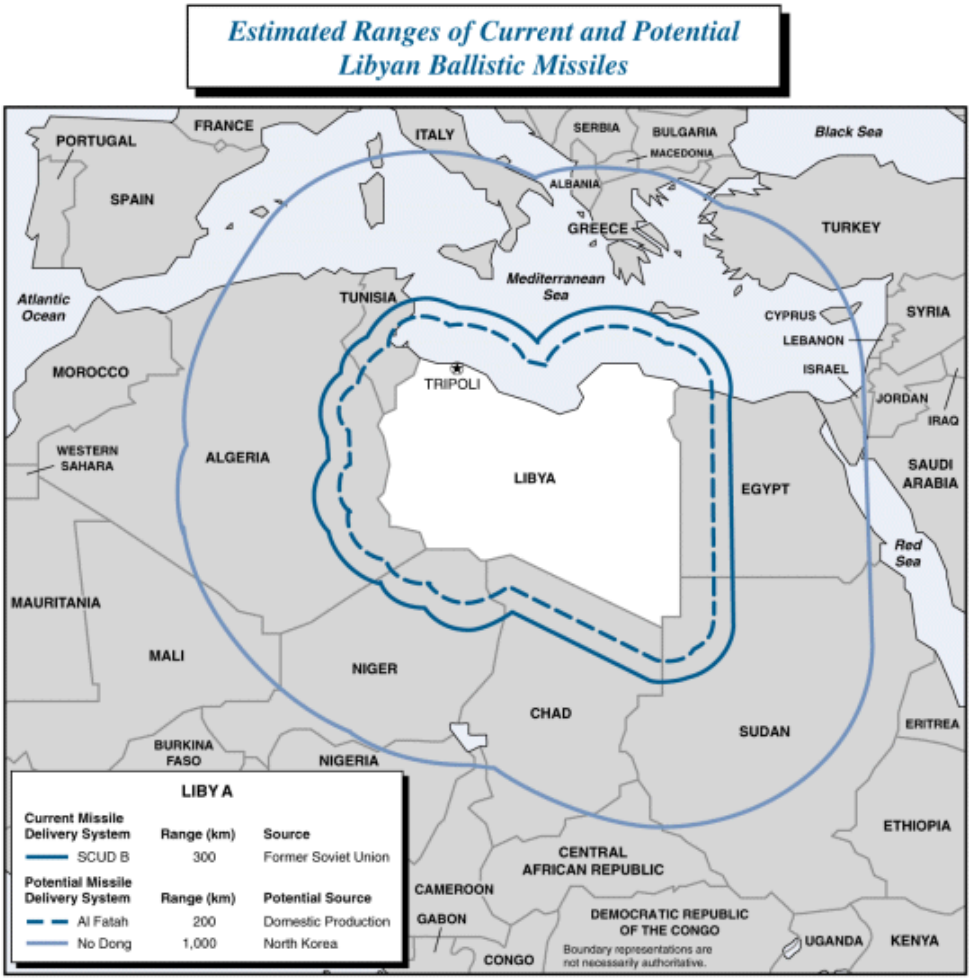
In the 1980s, Libya reportedly sought to purchase obsolete 900 km-range SS-12 Scaleboard MRBMs that had been banned under the INF Treaty, as well as SS-23 Spider SRBMs (range 500 km), from the Soviet Union.

### M-9 / CSS-2

Reports often cite Libyan interest in acquiring the Chinese M-9 or CSS-2, but to date no transfers of these missiles to Libya have been verified. US intelligence reports in December 1999 indicated that China had agreed to supply Libya with a hypersonic wind tunnel.

### No Dong

Libya's strategy has been to acquire or develop long range missiles (greater than 1,000 kilometers), but it has made little progress in recent years. For example, Libya's efforts to acquire the North Korean No Dong missile have been unsuccessful. Such a missile would allow Libya to threaten Egypt, Israel, NATO countries in southern Europe, and US forces in the Mediterranean region.



Should Libya receive long range missiles from North Korea, or develop its own, it could threaten a much wider area.