

Augmentation of Turkey's Air Defence

NATO has been augmenting Turkey's air defence capabilities since January 2013.

In response to Turkey's request, NATO Foreign Ministers decided on 4 December 2012 that NATO would augment Turkey's air defence capabilities in order to defend the population and territory of Turkey against threats posed by missiles from across its border with Syria.

Since January 2013, five Allies have contributed missile batteries to augment Turkey's air defence: Germany, Italy, Spain, the Netherlands, and the United States. Currently, Spain and Italy provide one Patriot missile battery and one ASTER SAMP/T battery each to the deployment, which is under NATO command and plugged into NATO's air defence system.

NATO's Supreme Allied Commander, General Scaparrotti, has operational command responsibility for the missiles deployment. He has delegated responsibility to Allied Air Command, Ramstein, which is in charge of NATO's air defence, and to NATO military commanders on the ground. Currently AIRCOM Ramstein is commanded by General Frank Gorenc, US Air Force.

The first battery became operational under NATO command on 26 January 2013.



NATO Secretary General Jens Stoltenberg visits the US PATRIOT deployment at Gaziantep on 10 October 2014

Missiles Deployment Overview

The PATRIOT is a surface-to-air guided air and missile defence system currently in use world-wide, including in several NATO countries (Germany, Greece, the Netherlands, Spain and the United States). PATRIOT stands for "Phased Array Tracking Radar to Intercept on Target".

The SAMP/T is a land-based air defence system effective against high-speed threats such as tactical ballistic missiles, cruise missiles, combat aircraft and unmanned combat air vehicles. SAMP/T stands for "Sol-Air Moyenne Portee Terrestre."

The Syrian regime has used and continues to use ballistic missiles. Since 2012 we have detected several hundred ballistic missile launches within Syria. This emphasizes the need for effective defence of our Ally Turkey.

History

The first PATRIOT air defence systems were deployed by U.S. Forces in the mid-1980s. During the first Gulf War, it was used to defend against the Iraqi Scud missile threat. The PATRIOT system has evolved over the years as the threat has changed and technology has advanced. The current PATRIOT variants are equipped with advanced interceptor missiles and high performance radar systems.

The full-scale development of the Aster 30 missile and the SAMP/T started in 1990. Qualification firing trials began in 1999. Operational acceptance tests were concluded with the Italian Army and the French Air Force in 2013.

Role

The role of the missile batteries deployed to Turkey is to defend Turkey against the threat posed by Syrian Ballistic Missiles. Notable characteristics of the PATRIOT system include a short response time, the ability to engage multiple targets simultaneously, good ground mobility, and the ability to resist electronic jamming.

The SAMP/T is effective against a wide range of air threats, such as tactical ballistic missiles, cruise missiles, combat aircraft and unmanned combat air vehicles. It is characterized by a high degree of tactical and strategic mobility as it can be transported by air, land, and rail. Aster 30 SAMP/T has the capability to intercept targets at altitudes from 50 metres to 15 kilometers. Against aircraft targets the maximum range of the ASTER 30 is 100 kilometers.

System Description

PATRIOT systems have four operational functions: communications, command and control, radar surveillance and missile (interceptor) guidance.

A battery has six major components: a power plant, radar set, an engagement control station, launcher stations, the antenna mast group, and the interceptor missiles themselves.

- The Radar Set provides detection and tracking of targets as well as fire control. The phased array radar helps guide interceptors to their targets and is resistant to jamming.
- The Engagement Control Station calculates trajectories for interceptors and controls the launching sequence. It communicates with the launcher stations and other PATRIOT batteries. It is the only manned station in a PATRIOT fire unit.
- The Launcher Stations transport and protect the interceptor missiles and provide the platform for the physical launch of the missile.
- The Antenna Mast Group is the main communications backbone for the PATRIOT unit.
- The Interceptor Missiles: PAC-2 is a proximity fusing missile, whereas PAC-3 has been specifically designed to intercept and destroy missiles by impacting them directly with kinetic energy - "Hit-to-Kill" technology.

Target Engagement

Once the PATRIOT missile is launched, it is tracked by the phased array radar set. As the interceptor missile approaches the target, its active seeker will steer the missile to the target. A PAC-2 Patriot missile will detonate in the vicinity of the threat missile whereas a PAC-3 will seek to impact the warhead of the threat ballistic missile.

Specifications

Variant: PAC-2 and PAC-3

Defended area: 15-20 Km against ballistic missiles

Missiles per launching station: 4 PAC-2, 16 PAC-3

Radar Range: 150+ Km

Speed: 5,000 Km/h

Flight Ceiling: 20+ Km

Missile Length: 5.2 m

Diameter: 25 cm

Weight: 320 Kg

SAMP/T surface-to-air missile battery

System description

A typical SAMP/T battery includes two command and control vehicles, Arabel radar and up to six launcher stations. The launcher stations could be dispersed to launch sites located up to 10 kilometers from the Arabel radar (via radio link) and up to 1 kilometer via optical fiber cables.

The weapon system consists of the following components:

- the Engagement Module (EM), where to conduct the tactical control of the system;
- the Command Module (CM) that provide all the support functionalities to the Command of the battery;
- multifunctional Radar ARABEL 90 and IFF (MRI);
- the Power Generator Module (MGE) which give power to the MRI;
- the Launcher Stations (MLT: "Module de Lancement Terrestre"), each of them carrying 8 vertical ready to launch missiles;
- Reload Terrestrial Module (MRT): it is used for reloading missiles by operating an integrated crane.
- ASTER 30 missile: vertical launch missile, active seeker with terminal guidance.



Target Engagement

The Arabel multi-function radar acquires and tracks the targets. The command system evaluates, prioritises and designates the targets. The data on primary and secondary targets is downloaded to the missile launchers and seeker and data link frequency channels are allocated. The missile is launched and as it turns over in flight towards the target, the target's position and velocity data are transmitted via the uplink channel at one second intervals. The system can track up to 100 targets simultaneously and manage the uplink transmission of command update data to 16 missiles simultaneously. The standard Arabel radar operates at 150kW peak power and has a range of 80km.

Specifications

Variant: ASTER 15 – ASTER 30

Defended area: 150 Km² against ballistic missiles

Missiles per launching station: 8

Radar Range: 80 km

Speed: Mach 4.5

Flight Ceiling: 0 - 15 Km

Missile Length: 4.9 m

Diameter: 380 mm booster, 180 mm kill vehicle

Weight: 450 Kg at launch, 110 kg kill vehicle

Batteries Deployment Locations

Italy: Kahramanmaras

Spain: Adana



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