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Israels Anti-Missile Defense Concept

Israel kennt seit seiner Gründung keinen Frieden. Kein Wunder, dass seine Streitkräfte zu den besten der Welt gehören. Seit den Angriffen durch irakische SCUD-Raketen 1991 wird der Raketenabwehr in Israel sehr hohe Bedeutung zugemessen. Ihr Arrow-System ist wahrscheinlich das beste implementierte Raketenabwehrsystem der Welt. Der israelische Fachjournalist David Eshel beschreibt im folgenden Artikel das aktuelle Raketenabwehr-Konzept der israelischen Armee. Lä

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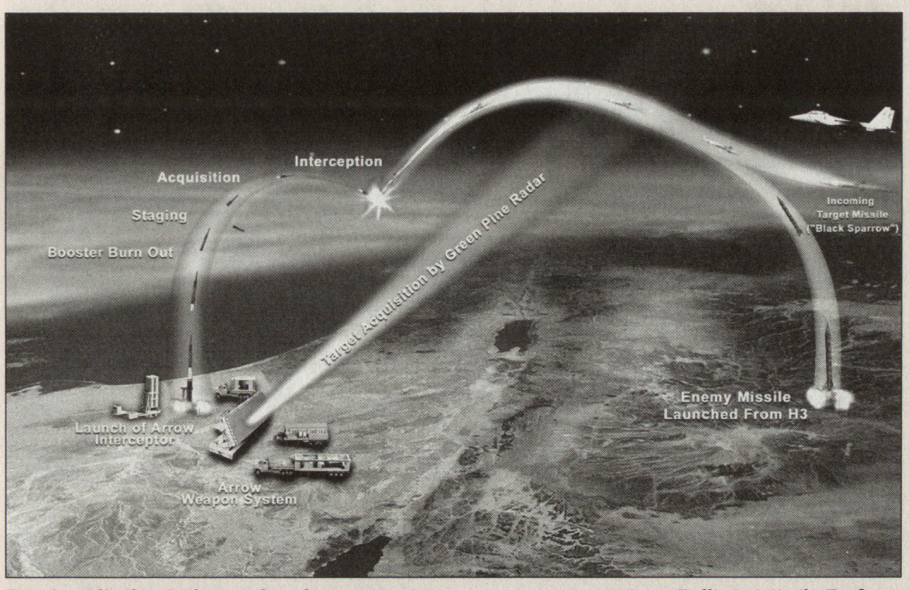
Based on the assumption that even after a peace agreement with its immediate neighbors, Israel will continue to face up to existential threats from rejectionist Arab/Iranian nations and thus will be facing a new dimension of threat perceptions, which will require a viable counter-threat or a new set of deterrent factors sufficient to curb or deter those hostile nations from implementing their deadly threat. This places the Israeli defense community before its perhaps greatest technological and operational challenge involving the entire scientific national asset in order to design, develop and field operationally a completely new operational infrastructure to defend its homeland. A most complex and costly issue, which will require not only huge funding but also a great deal of confidence in unorthodox measures, which sometimes could be envisaged as utopic exotic or even, impractical methods, by skeptics here and abroad.

The basic concept of the present Israeli antimissile defense is the national HOMA project, which envisages a layered active defense based on three elements:

- Endo-Atmospheric Interception – Close to the target defense
- Exeo-Atmospheric Interception – Mid-trajectory attack
- Interception at the launch Phase – Boost or Ascent Phase Intercept

The defense close to the target area includes an improved HAWK belt, which is intended to intercept incoming enemy missiles at an altitude lower than 10,000 Meters. It can be augmented in future by rapid firing electro-magnetic multi-guns defending vital point targets. Second in line are the PATRIOT PAC-2, originally designed as aircraft intercept mode, upgraded and now allegedly capable in intercepting missiles at a radius of 10 km from target. Although the system, which was deployed in missile defense during the 1991 Gulf War, failed miserably in its task. Considerable modifications have been made since. These include new Joint Tactical Ground Stations (JTAGS) consisting of a set of antennas that receive data directly from the Defense Support Program (DSP), space based Infrared Satellites in high orbit (SBIRS high orbit). Still the PAC-2 system is limited in range. The same would apply to its successor PAC-3 which does have an increased range and an onboard terminal radar guidance system, which can smash right into the incoming missile. However it is doubtful wether PAC-3 has overcome the unique corkscrewing effect of the Iraqi Al-Hussayin SCUD, which virtually disintegrated on re-entry, which mostly kept the warhead, as the smallest particle intact from PATRIOT.



Das israelische Raketenabwehrsystem Arrow. Foto: Ballistic Missile Defense

Also in this category can be placed the Tactical High Energy Laser, or NAUTILUS, a project now undergoing tests in the US and later to follow in Israel. Originally intended to destroy Katyusha rockets at short ranges, some assessments indicate, that later modification, if successful could apply to ballistic missile defense in some operational profiles.

The mid-trajectory phase attack would include the Israeli ARROW which is the most advanced anti-missile project soon to become operational. The ARROW system's L-band radar GREEN PINE has a 500 km range which will allow very early detection of incoming enemy missiles launched within that sphere, which could include Syria and Iraq (but not Iran). It can discriminate between the real missile warhead and debris or decoys. Its associated fire control system CITRON TREE is capable of battle managing up to fourteen separate intercepts simultaneously. The ARROW-2 missile flies at almost 2,5 km/sec, twice as fast as PATRIOT so that intercepts could be made at 90–100 km from Israeli targets.

The ARROW warhead is designed as proxy explosion mode, so that even a near miss will destroy the enemy warhead, this in contrast to the US THAAD concept, which requires direct impact to destroy the missile, which is much more difficult to achieve under most operational conditions.

Intercept at the launch phase is still very much in its initial conceptual design stage, although it offers perhaps the most lucrative solution to anti-missile defense methods. The principal idea is to destroy the missile during its most vulnerable stage of its launch, during which it is presenting a highly distinct target and due to its low speed and devoid of maneuverability is relatively a sitting target. There are two methods involved a Boost Phase Intercept (BPI) and Ascent Phase Intercept (API). Both differ by the time of attack during the early launch stage before rocket booster burn out and the missiles entry into its ballistic trajectory orbit.

Whereas BPI, ARROW are mainly Israeli concepts for Ballistic Missile Defense. Airborne Laser and API are entirely US projects, which could, under certain conditions be integrated into a combined BMD project with Israel. This method could be enhanced trough the introduction of a an electronic interface known as «ARROW Link 16» upgrade (ALUC). This system will allow the Israeli ARROW and US Systems to communicate with each. ■

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