

Soviet Air Defence Missiles. By Steven J. Zaloga. London: Jane's Information Group, 1989. 384 pp.

Well-known weapons analyst and theoretical physicist Norman Friedman has described this book as "remarkable" and for good reason. It is the most detailed account of Soviet air defence missilery in print to date.

The book covers both land and sea-based systems and is compartmentalized into three conceptual sections, covering Strategic Air Defence, Tactical Air Defence, and Air Defence Radars. Within the first two sections, individual missile systems are described and analysed in depth. Unlike other books devoted to weapons systems, the author does not develop his analysis in a vacuum, but rather in the context of the actual combat performance of the missile systems as, for example, in Vietnam and Lebanon.

The book is usefully illustrated with photographs and line-drawings of the various missile systems, deployment patterns of selected systems, the organizational structure of individual missile units, and the like. The impressive amount of detail one is struck by is further buttressed by tables covering technical and operational data. There is even such difficult-to-find data as the total number and types of Soviet surface-to-air missile (SAM) launchers in use in no less than 47 countries which, incidentally, indicates a current deployment of 200 SA-2 and 180 SA-3 launchers in Vietnam. (In its *Military Balance*, the London-based International Institute for Strategic Studies does not provide as comprehensive a listing as might be expected.) Not surprisingly, therefore, all the tables are unattributed, giving evidence of the many years of painstaking research that went into putting together this volume. In other words, the author is the source for much of the new material revealed here.

A glimpse of the intensity with which the Soviets have proceeded with their weapons modernization effort, even in the era of *perestroika* and reduced international tensions, is provided through an examination of the SA-12 Gladiator/Giant tactical SAM, the SA-13 Gopher tactical SAM, and the experimental SA-X-15 tactical SAM systems. The chapters on Soviet anti-ballistic missile and anti-satellite missile systems, which include forward projections of missile production and deployment patterns, provide further evidence of both the robustness of the Soviet weapons research and development effort and the substantial resources devoted to it, notwithstanding the USSR's current economic malaise.

On a related note, though the book does not mention specific SAM area deployments in the Soviet Far East, U.S. intelligence agencies have widely reported the continued strengthening of the *Voyska PVO* (Homeland Air Defence Force) land-based missile defence screen in that theatre, and the further integration of *Voyska PVO* systems with that of the Navy

as part of an overall combined arms effort. In fact, new deployments of anti-tactical ballistic missile systems around the key Soviet Pacific Fleet base of Petropavlovsk were reported to have commenced in January 1990. The new tactical SAM systems are expected to complement the continued heavy deployment of fourth generation air defence fighters like the MiG-31 Foxhound and the Su-27 Flanker to coastal installations in the Far East. It is assumed that both the land and air-based systems will be linked to command and control posts such as the Il-76 Mainstay, an aircraft which saw its first appearance in the Far East in December 1988.

The versatility of Soviet air defence missilery is perhaps best highlighted by the mobility of the land-based launch platforms, epitomized in the SA-4 Ganef, SA-6 Gainful and SA-8 Gecko systems, in addition to the three newer systems cited above. By not being static in nature, Soviet SAM battalions can move across terrain in quick order to secure area air defence for Soviet Army units on the advance. Along the Sino-Soviet border, the three-tiered Soviet air defence curtain provides a formidable challenge to the antiquated fighter and bomber aircraft of the Chinese air force. Indeed, in 1984 one Soviet officer from the *Voyska PVO* went so far as to say that in the event of Sino-Soviet hostilities, Soviet mobile SAM units could penetrate deep into Chinese territory. Operating from there, these units could assist in defeating the Chinese air force before it could play any significant combat role. Though this seems a tall order, it is perhaps symptomatic of the technological strides the Soviets have made in their SAM development programmes.

Zaloga's *Soviet Air Defence Missiles* is undoubtedly a valuable reference work. Both the bibliography and index are just as comprehensive as the text itself. The book is to be highly recommended to the student of Soviet military affairs, and to all those specializing in weapons-systems analysis.

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