

SEMAPHORE

NEWSLETTER OF THE SEA POWER CENTRE AUSTRALIA

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AUSTRALIA'S NEEDS FOR MARITIME AREA AIR DEFENCE

Any operation undertaken by the ADF will necessarily rely heavily on Sea Power and maritime transport to move, protect, project, support and sustain troops and equipment, both in transit and when in an area of operations. This clearly requires the ADF to be able to gain and maintain Sea Control and Control of the Air to allow us to use an area for our own purposes for a period of time and, if necessary, to deny its use to an adversary. As an island nation, this control will be critical for *all* ADF operations offshore and even for most operations on Australian territory.

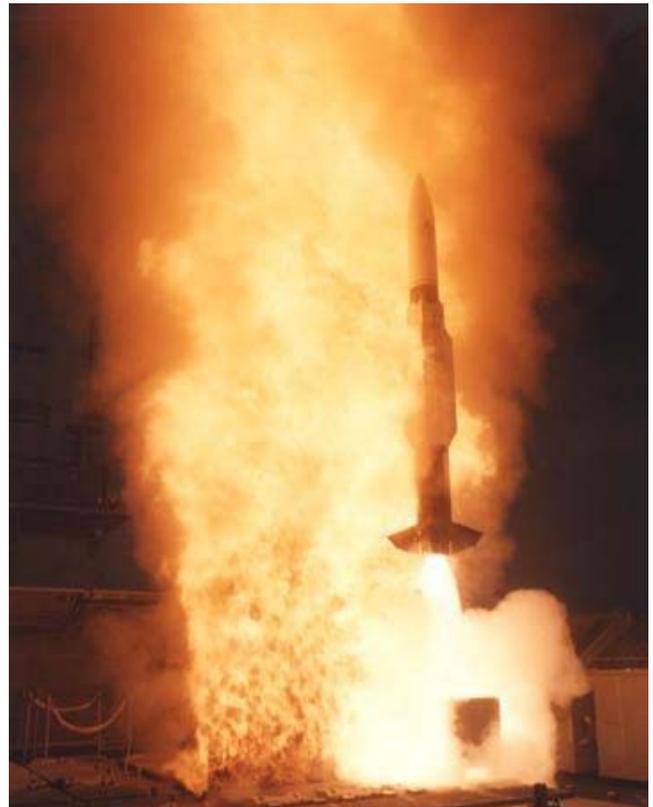
Control of the Air is defined as that ability to use the third dimension and the surface below it, without being threatened or attacked by an opponent's air power. It is the prerequisite for successful military operations, both in attack and defence, in the presence of a hostile air threat.¹ *Sea Control* is that condition that exists when one has freedom of action to use an area of sea for one's own purposes for a period of time and, if required, deny its use to an adversary. This includes *the air space above*, the water mass and seabed below, adjoining land areas, and the electromagnetic spectrum.²

The current Surface-to-Air Missile (SAM) systems in RAN ships are no longer capable of ensuring Control of the Air, nor of defending against most modern Anti-Ship Missiles (ASM). RAN warships can provide only limited protection for themselves, and offer little ability to provide air defence for other high-value assets such as amphibious/sealift ships carrying Australian troops. There are a number of highly capable and modern combat and weapon systems that do provide an excellent air defence capability over a much wider area. It is essential that such a capability be included in the Navy's new destroyers if the ADF is to develop the ability to successfully operate away from Australian shores.

To provide complete protection from an air threat, there is a clear requirement to be able to engage a threat as far away as possible. Protecting other dispersed units from air attack at long range is known as 'Area Air Warfare', as distinct from 'Anti Ship Missile Defence' which refers to the close range protection (within 20 km) of one's own ship. The RAN introduced an Area Air Warfare capability with the *Perth* class guided missile destroyer (DDG) in the 1960s, however these have all now decommissioned.

The *Adelaide* class guided missile frigates (FFG) currently in service use the same Standard SM1 missile as the DDGs. First developed in the 1960s, the SM1 has a nominal range of 50km. Modern regional anti ship missiles can now be fired from aircraft well outside that range (in excess of 120km) and many can out-maneuvre the SM1

missile. Additionally, the FFG can only engage two air targets simultaneously, whereas many countries increasingly have the ability to program multiple missiles, fired with impunity from outside SM1 range, to arrive simultaneously and swamp a ship's defences.



RIM-66M-2 Standard SM2-MR surface-to-air missile

Furthermore, the SM1 missile requires a dedicated Fire Control radar to illuminate the target throughout its flight, which provides warning to the aircraft that it is being targeted and gives the pilot time to evade. In addition to these technical limitations, the SM1 missile is no longer in production and consequently the system has a limited support life.

There are a number of future ADF capabilities being developed to facilitate Control of the Air. These include the new destroyer (the so called 'Air Warfare Destroyer'), the Joint Strike Fighter (JSF), new Air-to-Air Refuelling (AAR) aircraft, Airborne Early Warning and Control (AEW&C) aircraft, Over the Horizon Radar (OTHR), and new generation Army Ground Based Air Defence (GBAD)



