

DEFENCE NOTES



Satellite Reconnaissance and the Gulf War

■ Over the past twenty-five years both the Soviet Union and the United States have come to rely increasingly on satellite reconnaissance for strategic warning and assessment of the size and character of a ballistic missile attack. Other satellites play a key part in communications and navigation. Both countries have also used satellites to monitor military deployments and verify compliance with arms control agreements. In the Gulf, a variety of advanced US satellite systems are being used to assess damage, provide intelligence on Iraqi military activities, and give warning of attacks by mobile Iraqi *Scud* missiles.

Initial detection of *Scud* launches has been the responsibility of the United States Air Force Space Command, operating at least two satellites equipped with infra-red telescopes. These satellites have been manoeuvred into geosynchronous orbits to permit maximum viewing of *Scud* firing points. Some sources indicate that the rotation of the telescope permits viewing of Iraq every twelve seconds, a time lag which would be decreased if more than one satellite is involved. Although the infra-red telescopes were designed to detect and image the much larger heat plumes from Soviet ICBMs, they appear to be able to both detect and provide approximate tracking data for the relatively short-range *Scuds*.

At the outset of the Gulf War, warning data from the satellites was transmitted both to a ground station at Alice Springs, Australia, and Space Command Headquarters at Colorado Springs. After analysis at both locations, trajectory and impact data was then sent

via satellite communications to *Patriot* batteries in Israel and Saudi Arabia. Out of a total *Scud* flight time of six to seven minutes, the determination of the impact area took 120 seconds, and the alerting of the defences another two to three minutes, thus providing at first around ninety seconds notice to the defending *Patriot* batteries. Subsequently, Air Force Space Command has been able to directly link the detection satellites with the *Patriot* batteries, thus extending the warning time to between four and five minutes.

The United States was reported also to have repositioned advanced reconnaissance satellites to view Iraq and Kuwait. One of these, the *Lacrosse*, produces imagery using radar rather than visible light photography, and is capable of all-weather imagery. Several "Keyhole" satellites are also in place, which are able, in theory, to identify objects about six inches in size.

Together with navigation and communications satellites, these space-based systems give the US and its coalition partners a decisive intelligence and battlefield advantage. Aerial reconnaissance and targeting have also involved the most advanced US systems. At the end of January, two advanced target selection aircraft were also en route to the Gulf. The E-8A Joint Surveillance Target Attack Radar System (J-STARS) is designed to detect low-flying helicopters, surface ships and tanks at a range of 200 kilometres and to direct attacks by friendly aircraft.

The enormous advantage conferred by satellite systems, however, has raised broader questions about access to satellite intelligence. Canada is in a special situation because our participation in the NORAD combat operations centre at Colorado Springs provides access to some but not all data from US military satellites. Others are not so fortunate.

The Europeans, for example, are overwhelmingly dependent on the US for satellite intelligence, but have been reluctant to fund the deployment of an independent system. Recent proposals for a satellite system owned and operated by a consortium of news and media outlets may also be reinforced by the decision of the French commercial SPOT satellite system to withhold photographs of Kuwait and Iraq. In addition, the increasing reliance on satellite systems indicates the military value of anti-satellite weapon systems, which are not currently constrained by arms control agreements and are relatively easily deployed by both the United States and the Soviet Union.

Patriots and Star Wars

■ Close on the heels of the *Patriot* successes in the Gulf War, on 29 January, the US Department of Defense conducted a successful test of an anti-ballistic missile. The interceptor – the Exo-atmospheric Reentry Vehicle Interceptor System (ERIS) – was fired from Kwajalein Island in the Pacific and intercepted a *Minuteman* dummy warhead about 160 kilometres into space. Although there is very little connection between the task of the *Patriot* and that of ERIS – an intercontinental ballistic missile flies about five times faster than the *Scud*, and the reentry vehicle presents a much smaller target – it seemed clear that together the twin successes would provide a boost to the Strategic Defence Initiative (SDI). This appeared to be confirmed in President Bush's State of the Union message on 31 January, when he called for renewed emphasis on SDI research aimed at protection against small-scale ballistic missile attacks "no matter what the source." As opposed to the massive strategic exchange which a full-blown ballistic missile defence would be required to defeat, a number of prominent spokesmen in the US

have proposed that SDI concentrate on a limited protection against accidental launch or "third party" attack. About twenty nations are expected to have ballistic missiles by the turn of the century.

Renewal of NORAD

■ With attention focussed on the Gulf War, the impending renewal of the North American Aerospace Defence Agreement has received relatively little attention in Canada and none in the United States. However, there may well be a new development to add to the agenda. In late January, US media reports, subsequently confirmed by officials from Canada's Department of External Affairs, indicated that the Pentagon is considering a drastic restructuring of its major military commands. One consequence of this would be the disbandment of the current Unified Space Command, of which NORAD is one element, and its replacement by a "strategic force command." This would combine the surveillance assets and interceptor defences, to which Canada contributes under the NORAD agreement, and the offensive forces now under Strategic Air Command (SAC). If the restructuring proceeds, the place of Canada in such a revised command system would be the subject of considerable discussion and debate.

Old But Useful Ships

■ Despite their age, the three Canadian naval vessels in the Gulf made their mark before hostilities began. More than twenty-five per cent of all naval interceptions to enforce sanctions were carried out by the Canadian vessels. Since the outbreak of hostilities, the Canadian commander of the Naval Task Group has been responsible for the coordination of allied combat logistic supply ships, and controls the allied destroyers and frigates designed to protect the supply ships. □

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