

certainty. Furthermore, radar can be used during the day or night because it is an active sensor, providing its own illumination.

Radars use radiation with wavelengths roughly two orders of magnitude longer than those used by photographic and thermal infrared systems. The long wavelength radiation provides imaging radars with their all-weather capability. It also means that the spatial detail which can be recorded is much less than that which can be recorded with optical sensors.

To the uninitiated, radar imagery may appear to be similar to black and white aerial photographs. However, the physical reasons for tones, textures and other features in radar images can be radically different than those for conventional photographs. Figure 18 shows a radar image of a military airfield. Some aircraft are visible on the tarmac as nicely aligned, bright "blobs." Figure 19 shows a radar image of some tethered destroyers (near the bottom of the image) and an urban area with residential neighbourhoods, commercial and industrial areas and an airport.

Airborne synthetic aperture radars are very expensive. A commercial system will cost about \$5 million to \$6 million. A SAR with a ground receiving station for real-time delivery of data will cost from \$8 million to \$10 million. Airborne acquisition of SAR imagery can also be contracted for about \$15,000 to \$20,000 per day, assuming a 3 person crew flying in a SAR-equipped Cessna Conquest.¹

3 THE PLATFORMS

A wide range of aircraft may be used as reconnaissance platforms. Many of these, however, will not be well suited to the Open Skies context. Special-purpose military

¹ *Ibid.*