

wavelengths and the sensitivity ranges for various sensing systems. The visible light to which our eyes are sensitive includes a small portion, from 0.4 μm to about 0.7 μm , of the full electromagnetic spectrum.

Imaging Satellite Systems

Three potential sources of commercially available satellite imagery might be considered for arms control or peacekeeping applications. The French SPOT Image Corporation markets imagery acquired by the SPOT satellite system. Imagery from the U.S. Landsat satellite system is marketed by EOSAT, the Earth Observation Satellite Company. Imagery acquired by several Soviet imaging satellite systems is being marketed by Soyuzkarta.²

SPOT

The French SPOT-1 (Satellite pour l'observation de la terre) satellite has two High Resolution Visible (HRV) sensors, which provide three-channel multispectral images with a resolution of about 20×20 m or single-channel panchromatic images with 10×10 m approximate resolution on the ground.

Table 1 outlines characteristics of the SPOT HRV sensors. The panchromatic mode is intended for users requiring fine geometric detail. The bands provided in the multispectral mode were optimized for analysis of vegetation, which will typically have a response peak in the green band, strong absorption in the red band and a pronounced response in the near-infrared (IR) band.

The HRV sensors have the capability to operate over a range of look angles out to 27° from vertical. A strip-selection mirror for each sensor can be instructed from the ground to observe areas of interest that are not directly beneath the satellite, providing a 950 km-wide observable corridor centred on the satellite's ground track. The width of the imaged area on the ground will vary from 60 km if the area was directly beneath the satellite to 81 km if the image was acquired obliquely (Figure 2). Lengths of the imaged scenes remain constant at about 60 km.

	Panchromatic	Multispectral
Swath width	60 – 81 km	60 – 81 km
Spatial resolution	10 – 13.5 m	20 – 27 m
Spectral bands	0.51 – 0.73 μm	0.50 – 0.59 μm (green) 0.61 – 0.68 μm (red) 0.79 – 0.89 μm (near IR)
Radiometric resolution	64 gray levels	256 gray levels

Table 1

**Characteristics
of the SPOT
Sensors**