

Airborne Versus Space-Based Remote Sensing

Some may wonder why airborne surveillance, as proposed in Open Skies, is relevant in the 1990s, given that an effective space-based remote sensing capability now exists. These two types of systems constitute quite different capabilities, however, and should not be seen as mutually exclusive. There are, moreover, a number of advantages to airborne reconnaissance systems, some of which are listed below.

Technical Flexibility

Airborne surveillance offers the following technical advantages:

— the scale of the imagery can be varied by changing, for example, the focal lengths of lenses or the flying height of the aircraft;

— the effective ground resolution of the imagery can be controlled, providing either very high resolution, if re-

Aircraft can collect data at specific times or on short-notice

quired, or coarser resolution, possibly limiting sensitivities regarding the intelligence potential of the data;

— sensors can be specifically adjusted to monitor a particular situation, for example, by using particular wavebands in a multispectral scanner;

— aircraft, if stationed locally, can collect coverage at specific times or on short notice (for satellites, this is more difficult or not possible), provided suitable weather conditions prevail;

— real-time data can be provided using a downlink; alternatively, data can be recorded on tape or film and be

available in a period of several hours or several days;

— aircraft and airborne sensors can be repaired and replaced more easily than satellite-based reconnaissance systems;

— airborne reconnaissance systems do not require the same degree of specialization in equipment as do satellite sensors. They can use ordinary commercially-available aircraft and sensors. There are likely to be fewer problems associated with factors such as survivability in a potentially hostile environment.

Political Acceptability

Airborne surveillance offers the following political advantages:

— the capability is within the technical competence of a relatively larger number of countries than is a space-based capability;

— the ability to restrict overflight coverage may make airborne imagery more politically attractive for some states in a multilateral/international context. It would be less difficult to demonstrate that the coverage was restricted to specified areas;

— host-country personnel can be placed onboard an airborne platform to ensure that illicit data collection does not take place;

— civilian technology or non-sensitive military technology can be used since it should not be necessary to operate from excessive stand-off distances, or at the high speeds that might be required for reconnaissance of hostile territory;

— multilateral agreements are made more verifiable and acceptable for all concerned by reducing the requirement for national satellite-based systems.

Reconnaissance Capability

Airborne surveillance offers the following advantages in reconnaissance capability:

— countries without their own satellite systems could develop an airborne reconnaissance capability over which they have control. They could do so independently or cooperatively;

— the possession of such a reconnaissance capability by a number of countries would likely relieve pressures on countries with their own national satellite-based capabilities to make data available;

Airborne coverage cheaper

— an airborne capability working in an Open Skies framework would provide an opportunity for those countries that have a space-based capability to direct their limited satellite-based assets elsewhere.

Cost-Effectiveness

Airborne surveillance offers the following cost advantages:

— states are more likely to be able to build up an indigenous airborne capability than a satellite-based capability;

— airborne coverage is likely to be cheaper than satellite-based coverage when the costs of the infrastructure for satellite construction, launching and control are factored in;

— for example, an airborne capability to meet surveillance requirements in Central Europe is estimated to cost approximately 1/20 the amount of a space-based system. ■