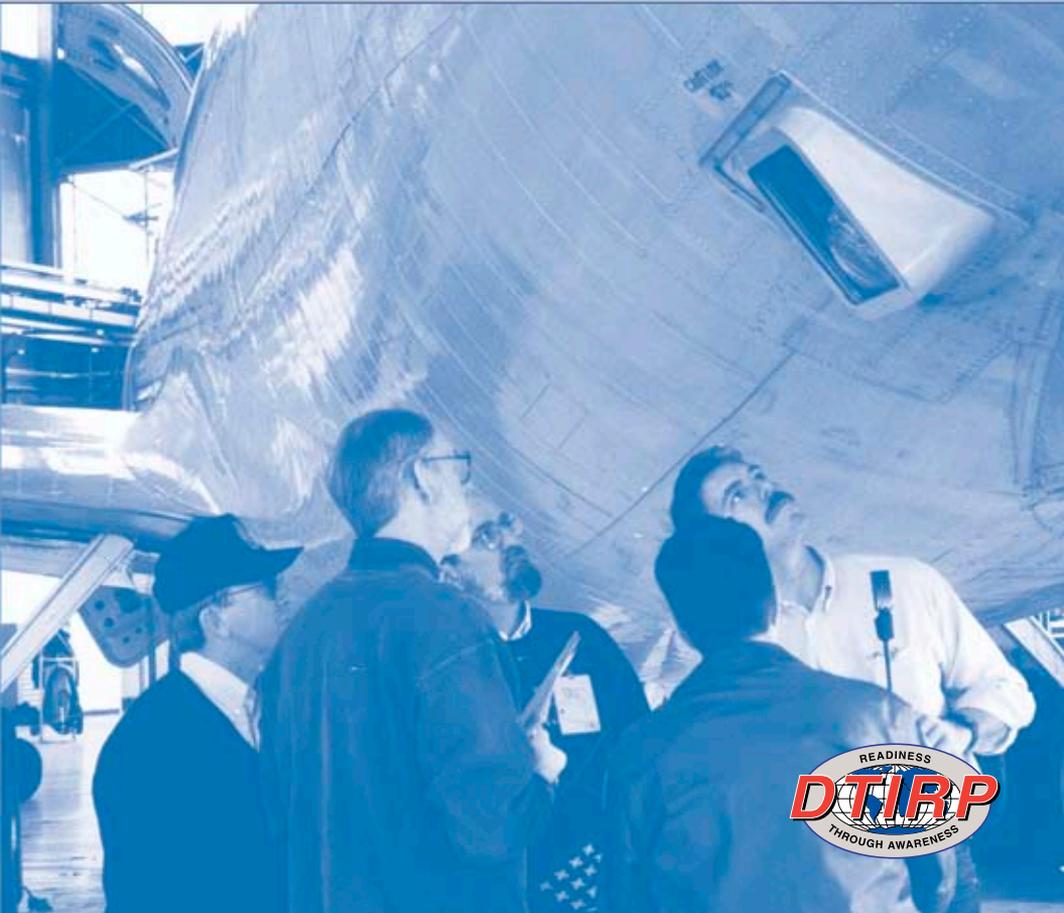


# the impact



T R E A T Y O N O P E N S K I E S

Product No. 302P



This pamphlet was prepared by the Defense Treaty Inspection Readiness Program (DTIRP) to increase **Readiness Through Awareness** throughout the Department of Defense (DoD) and defense contractor community. Additional copies of this pamphlet as well as other information and materials on the Treaty on Open Skies and other arms control security-related topics are available through the DTIRP Outreach Program Coordinator.

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# INTRODUCTION

The Treaty on Open Skies permits any State Party to fly over the entire territory of other States Parties using unarmed aircraft equipped with a variety of specified imaging sensors. The imagery collected during these flights may be obtained by any other State Party. The combined effect of multiple sensors operating simultaneously could potentially reveal sensitive information about your facility and its operations that would not otherwise be available.

This pamphlet provides a brief introduction to the Treaty on Open Skies and its potential impact on U.S. facilities. It also provides information about the advance notification system established by the Department of Defense (DoD) and operated by the Open Skies Division at the Defense Threat Reduction Agency (DTRA). This system keeps subscribed facilities informed about impending observation missions and the status of on-going observation flights.

## ABOUT THE TREATY

The Treaty on Open Skies entered into force (EIF) on January 1, 2002. It is designed to strengthen peace, stability, and security among the participating states of the Organization for Security and Cooperation in Europe (OSCE). Open Skies observation mission flights serve as confidence and security-building measures, which promote greater openness and transparency regarding the military activities conducted traveling eastward “from Vancouver to Vladivostok.”

The States Parties to the Treaty on Open Skies include the United States, Russia, Canada, and 31 other OSCE countries (34 total). To achieve its aims, the Treaty provides each State Party with the right to fly observation imaging flights over the entire territories of other States Parties. These flights are flown using specially certified unarmed Open Skies aircraft equipped with a suite of treaty-approved imaging sensors.

The Open Skies Consultative Commission (OSCC) is the international forum established by the Treaty to coordinate and facilitate treaty implementation. The OSCC convenes monthly plenary meetings in Vienna, Austria, and is empowered to approve the accession of any state which, in the judgment of the Commission, is able and willing to contribute to the objectives of the Treaty. The OSCC is also responsible for determining the number of observation flights each State Party is obligated to receive and may conduct during the upcoming year.

For information about the current status of treaty implementation, see the Treaty on Open Skies synopsis in the Treaty Information Center on the DTIRP Website at: <http://dtirp.dtra.mil/TIC/synopses/os.cfm>



## OBSERVATION FLIGHTS

The observation flights conducted under the Treaty on Open Skies are valuable confidence and security-building measures. They help to promote peace and stability throughout the European security framework by:

- improving openness and transparency regarding military force positions, stockpiles, and other military activities;
- monitoring the effectiveness of arms control agreements; and
- strengthening conflict prevention and crisis management capabilities.

Although observation flights are conducted for the purposes described above, the possibility of observation flights being used to collect military and economic intelligence cannot be overlooked.

The maximum number of observation flights each Party is obligated to accept over its territory each year is specified as the Party's "passive" quota in Annex A to the Treaty. A Party's "active" quota is the number of observation flights the Party is entitled to fly over other States Parties. The United States and Russia each have an annual passive quota of 42 observation flights.

The *actual* number of observation flights each Party is obligated to receive is determined annually by the OSCC. Although this number may be less than the Party's passive quota, it may not exceed the passive quota limit specified in Annex A.

During observation flights over the United States, any portion of U.S. territory may be overflown. There is no right of refusal except in the case of a legitimate flight safety concern. However, the flight path must satisfy International Civil Aviation Organization safety standards and national flight clearance practices. In addition, once the flight begins, the Open Skies aircraft is required to follow the flight path agreed by the observing and the observed Parties. However, in certain situations, the Treaty allows for deviations of up to 50 kilometers along either side of the flight path.



Shortly after the observing Party arrives in the host country, it is obligated to submit a proposed mission plan to the observed Party. The observed Party has the right to propose changes in accordance with Treaty provisions, and both Parties must agree to the mission plan, including the flight path, before the observation flight can begin. If agreement cannot be reached within the allotted time, the mission will be cancelled.

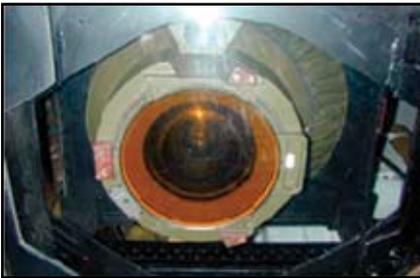
For training purposes, the United States regularly participates in joint training flights (JTFs) with its treaty partners. JTFs permit U.S. personnel to test and operate Open Skies aircraft and sensors in a variety of situations. These flights also allow the States Parties to practice mission procedures and sensor operations, which builds confidence among the States Parties and enables them to implement the Treaty more efficiently.

## PERMITTED SENSORS

Under the Treaty on Open Skies, certified Open Skies aircraft may be equipped with the following four types of imaging sensors:

- optical panoramic and framing cameras;
- video cameras with real-time display;
- infrared line-scanning devices; and
- sideways-looking synthetic aperture radar (SAR).

Each of these sensors has unique imaging capabilities. However, infrared line-scanning devices and synthetic aperture radar are not currently being used by any State Party. In the future, additional sensors, such as environmental sensors, could be added.



Certified Open Skies aircraft are currently equipped only with optical wet film panoramic and framing cameras, and with video cameras with real time display. Four optical cameras may be installed on an Open Skies aircraft. One framing camera may be positioned to take pictures directly below the aircraft while two others take oblique pictures on either side of the aircraft.

The vertical and oblique pictures can then be overlapped to provide a stereographic image of the photographed area. This process is capable of revealing the height and size characteristics of objects on the ground. A fourth panoramic camera may also be used to take a series of pictures, which will render a wide view of the photographed area.

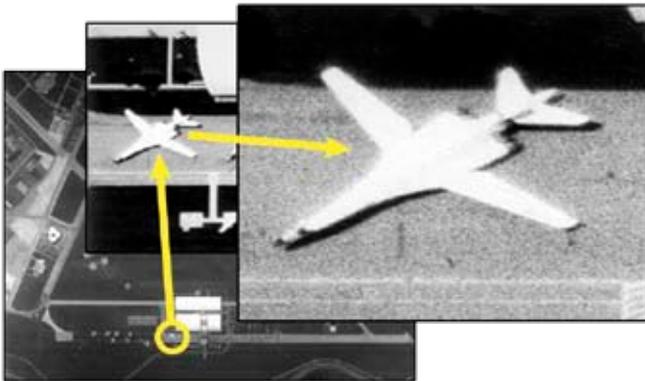
Although no Open Skies aircraft are currently equipped with infrared line-scanning devices or SAR, infrared line-scanning devices are capable of detecting relative temperature differences between imaged objects. SAR images look more like a picture than a radar image regardless of weather or darkness. On these images, buildings are recognizable, large and small aircraft can be detected, and analysts may be able to confirm the presence or absence of large numbers of vehicles in a parking lot, for example.

## SENSOR RESOLUTION

Each sensor's ability to collect useful data depends on its permitted ground resolution limits. These limits are specified in the Treaty. The permitted ground resolution for both optical and video cameras is 30 centimeters. This resolution enables analysts to detect groups of people engaged in a variety of activities and to identify industrial equipment and vehicles. It also allows analysts to detect some modifications to equipment or structures.

The ground resolution limit set by the Treaty for infrared line-scanning devices is 50 centimeters. This resolution could enable analysts to detect both operating and recently-operated vehicles and industrial equipment. It could also reveal fuel levels inside storage tanks and enable analysts to identify aircraft and vehicles.

The ground resolution for SAR can be no better than 3 meters. SAR imagery can reveal the presence of very large equipment or buildings, but it could not be used to identify individual pieces of equipment.



Open Skies Imagery

## IMAGERY COLLECTION

The imagery collected during Open Skies observation flights provides a significant amount of intelligence information that could not be acquired by commercial satellite sensors. Open Skies imagery primarily reveals information about outdoor activities such as those associated with research, development, testing, evaluation, or modification programs.

Plant or facility layouts are readily observable. New construction, power sources, ventilation systems, physical security arrangements, external storage areas, shipping containers, material handling equipment, parking lots, roads, cooling ponds, and pollution affecting waterways and vegetation can also be observed.

Information about indoor items located near large, open doors could be detected by obliquely-mounted framing cameras. In addition, in the event infrared sensors are used, thermal images could reveal information about production activities and processes. This could include information about the level and scope of heat-generating activities occurring inside a building.

Specific provisions in the Treaty on Open Skies are designed to guard against covert intelligence activities and the use of sensors which have collection capabilities exceeding treaty limits. When the United States is the observed Party, U.S. government experts inspect the Open Skies aircraft and its sensors prior to the observation flight.

The purpose of this pre-flight inspection is to ensure the absence of clandestine sensors and that all authorized sensors adhere to treaty-specified ground resolution limits. U.S. government escorts remain onboard the Open Skies aircraft throughout the observation flight to ensure that all sensors are operated in accordance with treaty provisions. U.S. escorts also ensure that the aircraft follows the agreed flight path and adheres to the altitude restrictions associated with each sensor's resolution limits.

The data collected during Open Skies missions is available to all States Parties. For many countries this may be an opportunity to acquire a considerable amount of information about the United States that would otherwise not be available. Countries that have had to rely on commercial satellite imagery from sources such as the SPOT (Satellite Pour l'Observation de la Terre) earth observation system in France, are able to purchase copies of the data collected during any Open Skies observation flight.



This information could, potentially, increase a State Party's knowledge and understanding of your facility. For example, collected imagery might enable an analyst to create an intelligence mosaic of an overflow facility and its operations. Certain information could also be valuable for filling in missing pieces of an intelligence picture created from information obtained from other sources. Security concerns such as these are particularly important to U.S. facilities using advanced, proprietary, and dual use technologies.

Although the Treaty prohibits the distribution of Open Skies data to non-States Parties, the possibility exists that this information could find its way to countries not party to the Treaty.



Open Skies Imagery



## SELF-ASSESSMENT

DoD and defense contractor facilities should carefully assess the potential risks posed by Open Skies observation flights. It is essential to determine whether classified, sensitive, or advanced technologies and processes could be exposed. National security, proprietary, and other sensitive information will need to be appropriately protected against inadvertent disclosure. When conducting a self-assessment, it is important to remember that a skilled analyst will be capable of combining and exploiting the imagery available from multiple sources.

## ADVANCE NOTIFICATION

The Open Skies Division at DTRA provides advance notification and flight status messages to subscribed facilities during observation flights. As soon as it is available, DTRA personnel enter the Open Skies mission flight path information into the Passive Overflight Module (POM), which is part of the Open Skies Management and Planning System (OSMAPS). This system allows DTRA personnel to identify the subscribed facilities located along the flight path.

The POM generates appropriate notification messages, which are transmitted from the 24-hour DTRA Operations Support Center via the Defense Messaging Service (DMS) and Telephone Notification System (TNS). As needed, these messages can be in the form of email, fax, pager, and voice telephone call messages.

The first message is an initial 72-hour advance notification message informing all subscribed facilities of a State Party's intent to conduct an observation mission flight over the United States. At this point, the flight path is not yet known.

As soon as flight path information is available, proposed and final mission plan messages are sent to those subscribed facilities that may be within range of aircraft sensors. Takeoff, interim landing, and mission complete messages are sent to update facilities

about the status and location of the Open Skies aircraft throughout the observation mission. Miscellaneous messages may also be sent as required.

U.S. officials estimate that facilities located along the flight path will have a maximum of 24 hours to prepare for being overflown and, potentially, imaged. During this short period of time, facilities will be able to implement protective measures to prevent or minimize any adverse impacts an observation flight may have on their schedules and activities. Conversely, facilities will also be able to take actions necessary to prevent or minimize any adverse impacts their schedules and activities could have on the observation flight.





## CONCLUSION

This pamphlet has provided a brief introduction to the Treaty on Open Skies and to the potential security concerns facing U.S. facilities during observation flights. To help facilities meet these arms control security challenges, the pamphlet also described DTRA's advance notification messaging system. This system keeps subscribed facilities informed about when they may be within range of the Open Skies aircraft's imaging sensors.

To receive advance notification and flight status messages, contact the Open Skies Division at DTRA by calling 703-767-0802 or DSN 427-0802. You may also send a fax to 703-767-0505 or DSN 427-0505.

For more information about the Treaty on Open Skies and about protecting your facility's security during observation flights, contact the DTIRP Outreach Program Coordinator at: 1-800-419-2899, or send an email to: [dtirpoutreach@dtra.mil](mailto:dtirpoutreach@dtra.mil)

Additional arms control treaty and security awareness materials are available on the DTIRP Website at: <http://dtirp.dtra.mil> Direct links to Website sections of particular interest are provided below:

- Treaty Information Center:  
<http://dtirp.dtra.mil/TIC/index.cfm>
- DTIRP Outreach Products:  
<http://dtirp.dtra.mil/Products/index.cfm#OS>
- Bi-Weekly Treaty Review:  
<http://dtirp.dtra.mil/WTR/index.cfm>

You may also contact your local Defense Security Service (DSS) Industrial Security Representative or your U.S. government sponsor.

## LIST OF ACRONYMS

<b>DMS</b>	Defense Messaging Service
<b>DoD</b>	Department of Defense
<b>DTIRP</b>	Defense Treaty Inspection Readiness Program
<b>DTRA</b>	Defense Threat Reduction Agency
<b>EIF</b>	Entry into force
<b>JTF</b>	Joint training flight
<b>OSCC</b>	Open Skies Consultative Commission
<b>OSCE</b>	Organization for Security and Cooperation in Europe
<b>OSMAPS</b>	Open Skies Management and Planning System
<b>TNS</b>	Telephone notification system
<b>POM</b>	Passive overflight module
<b>SAR</b>	Synthetic aperture radar

## RELATED MATERIALS

*To order, contact the DTIRP Outreach Program Coordinator  
by phone at: 1-800-419-2899 or by email at: [dtirpoutreach@dtra.mil](mailto:dtirpoutreach@dtra.mil),  
or visit the DTIRP Website at <http://dtirp.dtra.mil>*

### **Pamphlets**

Treaty on Open Skies: Questions (305P)  
Open Skies Notification System (315P)  
Guide for Treaty on Open Skies Observation Overflights (314P)  
Arms Control Agreements Synopses (408P)  
Arms Control Security Glossary (941P)

### **CD's**

Arms Control Treaties Information (407C)  
The Arms Control OPSEC Process (930C)

### **Videos on CD**

The Treaty on Open Skies and Its Impact on U.S. Facilities (304W)  
The Treaty on Open Skies Sensor Capabilities (308W)  
The Technical Equipment Inspection (TEI) Process (950W)

### **Articles & Bulletins (available only on the DTIRP Website)**

Joint Training Flights under the Treaty on Open Skies (316A)  
Facility Observation Overflights (301B)

### **Brochures**

DTIRP Brochure (911M)  
Why TEI? (954T)



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