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The Open Skies Treaty: Observation Overflights of Military Activities

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Summary

On March 24, 1992, the United States, Canada, and 22 European nations signed the Treaty on Open Skies. The United States officially ratified the treaty on November 3, 1993. The treaty has not yet entered into force, however, because Russia and Belarus have not yet ratified it.

President Bush revived the Open Skies concept in May 1989. At the time, the United States believed that the Open Skies concept would reduce the chances of military confrontation and build confidence in Europe by providing participants with the ability to collect information about the military forces and activities of others in the treaty. In addition, even though the United States and Russia can collect this type of information with sophisticated observation satellites, Open Skies observation flights will provide nations who do not have their own satellites with a way to participate in the data collection and confidence-building process.

The parties to the Treaty on Open Skies have agreed to permit unarmed aircraft to conduct observation flights over their entire territories. The United States Air Force has modified three C-135 aircraft for this purpose. Open Skies aircraft can be equipped with four types of sensors: optical panoramic and framing cameras; video cameras; infrared line-scanning devices; and sideways-looking synthetic aperture radars. These sensors must be based on off-the-shelf technology that is available to all participants in the treaty. The treaty includes quotas that specify maximum numbers of observation flights that can occur within each nation each year and the maximum number of observation flights each nation can conduct each year. For the United States, these quotas are 42 flights per year; however, only 4 flights will occur over U.S. territory in the first year that the treaty is in force. In addition, the United States will conduct only 9 observation flights during the first year of treaty implementation; 8 over Russia and Belarus and one, in conjunction with Canada, over Ukraine.

When the Senate reviewed the Open Skies Treaty in 1992 and 1993, Members raised several concerns about the implications of the treaty for the United States. For example, some were concerned that the costs of outfitting and operating the U.S. Open Skies aircraft would outweigh the benefits that the United States would receive by participating in the treaty. As a result, the Senate suggested that the United States restrict its participation, conducting fewer than the 42 permitted observation flights per year. Some were also concerned about potential risks to U.S. security from observation flights that would gather information on U.S. military forces and activities. If the Open Skies Treaty remains in force for many years, the United States could host dozens of visits by other participants, with foreign military aircraft equipped with sensors flying over U.S. territory. Virtually all observers agree, however, that these flights will pose no security threat to the United States.

Contents

List of Tables

The Open Skies Treaty: Observation Overflights of Military Activities

Introduction

On March 24, 1992, the United States, Canada, and 22 European nations signed the Treaty on Open Skies.[1] This Treaty had grown out of a May 1989 proposal by President George Bush; he envisioned an agreement that would promote cooperation and build confidence *between* the two Cold War blocs — NATO and the Warsaw Pact. But the Warsaw Pact dissolved before the Treaty was completed, so it emerged as an agreement *among* European nations, the United States and Canada (rather than as a treaty between two opposing alliances). The Open Skies Treaty has not yet entered into force, however, because Russia and Belarus have not ratified it.

Each of the parties to the Treaty on Open Skies will permit unarmed aircraft operated by any other party to fly over its territory to observe military forces and activities. By allowing the participants to gain insights and understanding into the military capabilities of potential adversaries, the treaty can, according to its supporters, build confidence, reduce the chances of military confrontation, and encourage cooperation among the nations of Europe. Under the terms of the Treaty, observation aircraft from the other participants can conduct up to 42 flights over U.S. territory each year. (Russia, too, will be subject to 42 flights; the other participants will host between 2 and 12 flights each year.) Consequently, if the Open Skies Treaty remains in force for many years, the United States could host dozens of visits by other participants. Virtually all observers agree that these flights will pose no security threat to the United States. However, questions about the presence of foreign military aircraft and the purpose of the observation flights may come up when the observation flights occur.

This report provides basic information about the rationale for the Open Skies Treaty, the provisions that govern its implementation, and the capabilities of the aircraft and sensors that will be used during the observation flights. This information can help Congress review the implementation of the treaty; it may also help Members respond to concerns that constituents may raise about the presence of Open Skies aircraft and observation flights around the country. The first section of this report briefly reviews the history of negotiations on Open Skies. The second discusses key provisions of the 1992 treaty. The third reviews the current status of the treaty and its implementation.

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[1] The parties to the treaty are listed in the Table at the end of the report. The Text of the Treaty can be found in U.S. Congress, Senate, Treaty on Open Skies, Message from the President of the United States, Treaty Doc. 102-37, Washington, 1992.

Background

The idea for a treaty on Open Skies first appeared in 1955, when President Eisenhower suggested that the United States and Soviet Union permit aerial observation flights over each other's territories. In principle, aerial observation flights would permit the two nations to reduce their reliance on worst-case estimates of the other side's military capabilities and to demonstrate that they were willing to cooperate with each other to ease tensions. At the same time, in the era before the development of observation satellites, aerial observation flights were only way for the United States to gain needed intelligence information about military forces and activities inside the Soviet Union. According to the Bush Administration, the Eisenhower proposal "would have dramatically changed the quantity and quality of our knowledge of the Soviet Union."[2] The Soviet leadership rejected President Eisenhower's proposal, arguing that the observation flights would simply legalize espionage.

President Bush revived the Open Skies concept in May 1989. At the time, as the Cold War was ending, the United States believed increased transparency in Europe would reduce the chances of military confrontation and build confidence. According to Secretary of State James Baker, Open Skies "would promote and consolidate the international trends towards openness already in train."[3] The Bush Administration also viewed Open Skies as a test of Soviet willingness to move forward in a cooperative relationship with the United States. According to President Bush, "Such unprecedented territorial access would show the world the true meaning of the concept of openness. The very Soviet willingness to embrace such a concept would reveal their commitment to change."[4]

Unlike the bilateral 1955 version of Open Skies, the negotiations that began in February 1990 included all of the members of NATO and the Warsaw Pact.[5] The United States sought a pact-to-pact treaty, with the United States and NATO conducting observation flights over the Soviet Union and Warsaw Pact nations, and vice versa. However, as the negotiations proceeded, it became evident that the Eastern European nations were not only unwilling to rely on Soviet technology to

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[2] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing, 102d Congress, 2nd Session. September 22, 1992. Washington, G.P.O., 1992. p. 40.

[3] U.S. Congress. Senate. The Treaty on Open Skies. Message from the President of the United States, 102d Congress, 2nd Session. Washington, G.P.O., 1992. p. viii.

[4] Remarks at the Texas A&M University Commencement Ceremony in College Station, Texas, May 12, 1989. Weekly Compilation of Presidential Documents, v. 25, May 22, 1989. p. 702.

[5] The United States won the support of its NATO allies in consultations that began in August 1989; Canada took a particularly active role in advancing the negotiations. See Tucker, Jonathan B. Back to the Future: The Open Skies Talks. Arms Control Today, v. 20, October 1990. p. 21.

collect data, but were also interested in conducting their observation flights over Soviet territory.[6]

As a result, after the abortive Soviet coup in August 1991, the participants altered their approach and produced a treaty *among* nations rather than a pact *between* alliances. Each of the parties to the treaty can collect information about and improve its understanding of the military forces and activities of any of the other participants. As Secretary of State Baker indicated when the treaty was submitted to the Senate, "The Treaty on Open Skies represents the widest-ranging international effort to date to promote openness and transparency of military forces and activities."[7] But the treaty would do more than just build confidence and reduce the risk of conflict. Many viewed the treaty as a symbol of the new Europe. According to Thomas Graham, the acting Director of the Arms Control and Disarmament Agency, "By strengthening the environment of security and confidence, such measures increase the ability of our new partners in Europe to fill their commitments as participants in the CSCE and to ensure that democratic change is irrevocable. They also facilitate further security cooperation within a more stable and predictable international environment."[8]

Key Provisions of the Treaty on Open Skies

Objectives

The primary objective of the Open Skies Treaty is to reduce the risk of conflict by providing participants with the ability to collect information about the military forces and activities of others in the treaty. In particular, "information derived from Open Skies flights can contribute to participating states' national efforts to address a range of military and civil issues. These could involve observing known military facilities and large-scale force deployments, determining the presence — but not the detailed composition — of major military forces or large, possibly military-related construction activities. As such, Open Skies flights could contribute to recognizing the scope of excess military preparedness or unusual military activity."[9] This information can help a nation make informed assessments about the military capabilities of its neighbors, provide early warning of threatening military activities or, conversely, information that could dispel concerns about ongoing military activities.

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[6] See the prepared statement of Ambassador John Hawes in U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5, 103d Congress, 1st Session. Washington, G.P.O., 1993. p. 157.

[7] U.S. Congress. Senate. Treaty on Open Skies. Message from the President of the United States. p. vii.

[8] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5. p. 151.

[9] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing, 102d Congress, 2nd Session. September 22, 1992. Washington, G.P.O., 1992. p. 39.

Most observers agree that the Open Skies Treaty will add little to U.S. knowledge of Russian military forces and activities and little to Russian knowledge of U.S. or NATO forces and activities. The United States and Russia each operate sophisticated observation satellites that can provide information without any cooperation from the other side.[10] Nonetheless, many have noted that the observation flights will provide nations who do not have their own satellite systems with a way to participate in the data collection and confidence-building process. As Ambassador John Hawes, the U.S. representative to the Conference on Open Skies, noted, "the treaty offers each of the participating states, regardless of size or level of technological development, the opportunity for direct involvement in the observation of military forces and activities of concern on the territory of other participating states. For most of the participating states ... Open Skies will provide the first opportunity they have had to acquire this kind of hard information relevant to their security."[11]

Provisions Governing Observation Flights

Territorial Coverage. The parties to the Open Skies Treaty have agreed to make *all* of their territory accessible to overflights by unarmed, fixed wing aircraft. The only limitations on the flights would be those required for reasons of flight safety.

The United States and its NATO allies proposed unrestricted access for Open Skies observation flights when the negotiations began. By the end of the first round of negotiations in February 1990, the East European participants had agreed to this proposal. The Soviet Union, on the other hand, sought to exclude large areas of its territory from the observation flights for "national security reasons." It also sought to limit the duration of observation flights and to require that flights over some areas, such as nuclear power plants and densely populated urban areas, occur at a minimum altitude of 10,000 feet.[12] When the negotiations resumed in November 1991 (after the failed coup in Moscow), the Soviet Union announced that it would accept full territorial coverage *if* flights over Soviet territory were conducted with Soviet aircraft carrying Soviet sensors.[13] This would allow Soviet officials to confirm that observation aircraft were not carrying unauthorized sensors that could collect sensitive information. Although the other participants preferred to use their own aircraft in observation flights, they accepted this compromise.

Flight Distances and Airfields. According to the Treaty, to ensure that observation flights cover the entire territory of participating nations, each party to the

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[10] In the arms control context, these satellites are known as "national technical means" of verification (NTM).

[11] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing, September 22, 1992. p. 4.

[12] For a description of the opening negotiating positions on Open Skies, see Tucker, Jonathan B. Back to the Future: The Open Skies Talks. Arms Control Today, v. 20, October 1990. pp. 21-23.

[13] See the prepared statement of Michael L. Moodie in U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing, September 22, 1992. p. 9.

Treaty must specify the location of airfields that observation flights can originate from and the maximum distance that flights from these airfields can travel. Every part of the participant's territory must be accessible to a flight that originates from one of the airfields and travels no more than the specified maximum distance.

The United States has designated Travis Air Force Base in California, Elmendorf Air Force Base in Alaska, Dulles International Airport outside Washington D.C. and Lincoln Municipal Airport in Nebraska as its Open Skies airfields. The maximum distance for flights originating at Travis and Elmendorf Air Force bases are 4,000 kilometers (2,455 miles) and 3,000 kilometers (1,841 miles), respectively. The maximum distance for flights originating at Dulles and Lincoln Municipal airports are 4,900 kilometers (3,007 miles) and 4,800 kilometers (2,946 miles), respectively. Travis Air Force Base and Dulles International Airport will also serve as the Points of Entry for Open Skies aircraft and crews that come to the United States for inspections. All flights must land at these facilities first, even if they plan to conduct their observation flights from other Open Skies Airfields.[14]

Time Lines. The Open Skies Treaty specifies that a nation seeking to conduct an observation flight must inform the observed nation of its intentions 72 hours before the observation team arrives at the Point of Entry (Dulles or Travis AFB, in the U.S.). This notice is designed to ensure that the host country has enough time before the observation begins to suspend any sensitive military exercises or activities that it would not want observed during the flight. The observation flight can begin as soon as 24 hours after the observation team arrives in the host country. Because the host nation will not know precisely which areas will be covered by the observation flight until the team arrives at the point of entry, it would not have enough time to conceal large formations or concentrations of military forces in that area. The observation flight must also conclude no longer than 96 hours after the team arrives at the Point of Entry. This is designed to ensure that the visits do not disrupt exercises or activities in the host country for an undue amount of time.

Mission Plans. The Treaty states that an observation team must present the host with its mission plan when it arrives at the Point of Entry. This document indicates what area of the host nation's territory will be covered by the flight. It must specify such details as the airfields the flight will use, the starting time and duration of the flight, the distance the flight will travel, and a flight plan that specifies the route and altitude for the flight.[15] The host nation can propose changes to the mission plan, for example, if weather conditions would affect flight safety, but it cannot deny the observation team access to any area of its territory. The two parties must agree on a plan within 8 hours of the time when the observation team arrives at the Point of Entry.

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[14] Open Skies aircraft can also land at Honolulu International airport, Malmstrom Air Force Base, Phoenix-Sky Harbor Airport in Arizona, General Mitchell International in Wisconsin, and McGhee Tyson airport in Tennessee if they need to refuel.

[15] Thomson, David B. The Treaty on Open Skies. Briefing, Center for National Security Studies, Los Alamos National Laboratory v. 5, July 1994. p. 15.

The Open Skies Treaty specifies that Open Skies observation flights will take precedence over regular air traffic in the air traffic control system. If another aircraft plans to fly along the same route at the same time as the Open Skies aircraft, the other aircraft must alter its route. This is because a change in flight path or altitude of the Open Skies aircraft could enhance or degrade the sensors operating on the aircraft and, therefore, undermine the objectives of the observation flight.

The U.S. Federal Aviation Administration (FAA) has stated that giving precedence to Open Skies aircraft will pose no threat or inconvenience to civil air traffic in the United States.[16] It frequently gives precedence to specified aircraft — such as the President's airplane, Air Force One — without passengers on other aircraft knowing that their altitude or flight path has been altered. In addition, the Air Force has concluded a formal agreement with the FAA that establishes a policy for giving precedence to Open Skies flights. According to the Air Force, these policies worked well during numerous Open Skies training and demonstration flights.[17]

The Open Skies Treaty contains several provisions to ensure that observation flights do not pose an undue burden on the host nation. For example, nations can be subject to only one observation flight at a time. This limit precludes both excessive demands on the personnel who must implement the Open Skies provisions and an unacceptable burden on national air traffic control system when it manages the flights of the aircraft. The Treaty also specifies that an observation flight can not pass repeatedly over the same spot or circle around a single area. This precludes efforts to focus too much attention on a single facility or military activity.

Annual Quotas for Observation Flights

The Open Skies Treaty lists the number of flights that each nation must accept over its territory each year — a passive quota. The passive quota is generally related to the size of a nation's territory. Each nation also has an active quota — a number of flights that it can conduct each year. The Treaty specifies that no nation will be allowed to conduct more flights over other nations' territory than it is *required* to receive over its own territory; i.e. the active quota for a nation cannot exceed the passive quota for that nation. The Open Skies Consultative Commission (OSCC) is charged with allocating the flights among the participating nations — i.e. each year it prepares a list that specifies who will conduct flights over whom. The treaty states that, when the OSCC allocates fights, no nation may conduct more than half of the flights permitted by its active quota over the territory of one single party to the treaty and no nation must receive a number of observation flights from a single nation that equals more than half of the flights required by its passive quota.[18]

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[16] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 61.

[17] Discussion with Air Force National Security Negotiations Division, October 18, 1995.

[18] There is no requirement in the treaty for the *actual* number of flights conducted by a nation to be equal to the number conducted over its territory. The actual number of flights will depend on the requests of the other participants. If few participants seek flights over a (continued...)

Determining Passive and Active Quotas. Prior to the Open Skies negotiations, analysts in the U.S. Defense Department and the intelligence community concluded that, with sufficient notice, the United States could host one observation flight per week without putting sensitive military activities and facilities at risk.[19] Hence, when the negotiations began in 1990, the United States indicated that it would be willing to accept 52 observation flights per year over U.S. territory. Because the Soviet Union had more than twice the land mass of the United States, the United States proposed that the Soviet Union accept 110 observation flights per year. In response, the Soviet Union proposed that each *alliance* — NATO and the Warsaw Pact — host 30 flights per year, with no more than half the flights occurring over any one nation in the alliance.

When the participants abandoned efforts to devise a treaty between the two opposing alliances in late 1990, the United States accepted a NATO proposal to allocate quotas for observation flights on a national basis. At that time, the United States suggested that the Soviet Union accept 52 flights per year, as the United States was willing to do. The Soviet Union refused, but it did raise the number of flights it was willing to receive from 15 to 25. After the abortive coup in Moscow in 1991, the Soviet Union agreed to accept 52 flights per year. After the December 1991 demise of the Soviet Union, Russia stated that it would accept 40 flights per year, based on its relative size compared to the Soviet Union.[20] The negotiators reached agreement at 42 flights per year for the United States and Russia. (Russia has formed a group with Belarus, so these 42 flights will cover both of those two nations.) The other participants will receive between 4 and 12 flights per year, depending on the size of their territories.

Allocation of Observation Flights Among the Parties. Open Skies observation flights will be allocated on an annual basis by the Open Skies Consultative Commission (OSCC). Each of the parties to the treaty will submit a list of the observation flights it wishes to conduct during the coming year. If the parties request more flights over a particular nation than allowed by that nation's passive quota, the OSCC will divide the number of permitted flights among the requesting parties. As a result, all participants may not be able to conduct all of their requested flights. At the same time, the treaty permits two or more nations to join together on observation flights and essentially "share" the passive quota of observed nation. This will allow nations to participate in more observation flights without exceeding the passive quota of the observed nation. In addition, all parties to the Open Skies Treaty can purchase data collected during any nation's observation flights. Hence, all nations will have access to information about the other parties' military forces and activities, even if they do not conduct their own observation flights.

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[18] (...continued)
nation's territory, so that its passive quota is not filled, that nation can still conduct the full number of flights permitted by its active quota.

[19] Tucker, Back To the Future: The Open Skies Talks, p. 21.

[20] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearings. p. 40.

Passive and Active Quotas for the United States. The Open Skies Treaty gives the United States a passive quota, and therefore, an active quota, of 42 observation flights per year. These are the maximum number of flights the United States could conduct or receive each year. However, when nations requested flights for the first year of treaty implementation, only one party to the treaty — the group of Russia and Belarus — requested flights over the United States. And this group requested only 4 flights over the United States. The United States submitted a request for its maximum permitted number of flights over other parties, but it requested flights over many of the same nations that other participants wanted to visit. As a result, when the OSCC allocated flights for the first year of treaty implementation, the United States received only 8 flights — over Russia and Belarus. It will also conduct one flight jointly with Canada over Ukraine. Because the OSCC will reallocate flights each year that the treaty remains in force, the United States may be granted a greater number of its requested flights in future years.

Permitted Aircraft

The Open Skies Treaty specifies that observation flights must be conducted by unarmed, fixed-wing aircraft. These aircraft can be provided by either the observing party or the observed party, if the observed party requests to use its own plane. The parties cannot use helicopters for their observation flights.

During the negotiations, the United States and NATO proposed that the nation conducting the observation flight provide the aircraft for the flight. The Soviet Union, on the other hand, proposed that the nation hosting the observation flight provide its own aircraft, or that all nations rely on the same fleet of dedicated Open Skies aircraft.[21] This proposal reflected Soviet concerns about the quality of data that could be collected by aircraft using Western sensor technologies and Soviet concerns about the possible presence of illicit sensors on observation aircraft. The participants from Eastern Europe also sought a common pool of aircraft because they did not want to rely on Soviet technology for the observation flights. The United States and NATO argued, however, that a common pool of aircraft would be costly and difficult to maintain. Nonetheless, they agreed that the Soviet Union could provide its own aircraft for flights over Soviet territory in exchange for Soviet agreement to open all its territory to observation flights. In addition, nations can borrow or lease aircraft from other parties to the treaty so that all parties can conduct Open Skies observation flights even if they cannot afford their own aircraft.

U.S. Aircraft. The United States is planning to equip 3 aircraft specifically for Open Skies observation flights. The first is already operational; it is based at Offut Air Force base in Nebraska and is used to conduct testing and training flights for Open Skies personnel. Once the treaty enters into force, this aircraft will be used for training flights and as a backup aircraft for observation flights. The other two aircraft were reached full operational capability during 1996, one by the middle of the year and the second by the end of the year.

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[21] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 42.

Permitted Sensors

Open Skies aircraft can be equipped with four types of sensors: optical panoramic and framing cameras (cameras for still photography) with a ground resolution of 30 centimeters (around 1 foot); video cameras with a ground resolution of 30 centimeters (around 1 foot); infrared line-scanning devices with a ground resolution of 50 centimeters (around 20 inches); and sideways-looking synthetic aperture radars (SARs) with a ground resolution of 3 meters (around 8 feet). According to U.S. officials, these sensors will be able "to recognize major pieces of military equipment. This has been characterized, for example, as the ability to tell the difference between a tank and a truck... This level of capability is not sufficiently detailed to reveal technical information about the major items of equipment, nor would it permit identification of particular models of a category of equipment in most instances."[22]

The United States and NATO initially proposed that the Open Skies Treaty impose no restrictions on the capabilities of the Open Skies sensors, with the exception of a ban on "signals intelligence" sensors that could eavesdrop on electronic communications.[23] The sensors that NATO wanted to employ — including still and video cameras, infrared line scanning devices, synthetic aperture radars, spectrometers and air-sampling devices — would have permitted the collection of both photographic data on visible activities and scientific data on activities inside facilities (such as the manufacture of chemical agents). The Soviet Union, on the other hand, wanted the treaty to permit only optical cameras. The United States, NATO, and Eastern European participants rejected the Soviet approach because it would have severely limited the quantity and quality of information collected during the observation flights. The Soviet Union eventually agreed that the participants could use infrared sensors and synthetic aperture radars; in exchange, NATO dropped its proposal for the use of a wider variety of sensors.[24]

During the negotiations, the participants also disagreed about the resolution that would be permitted on the sensors and determining the level of detail the data would show. NATO proposed that optical cameras provide a ground resolution of 7.5 centimeters (about 3 inches); the Soviet Union suggested 30 centimeters (about 1 foot). For the synthetic aperture radar,[25] NATO sought a resolution of 3 meters (about 8 feet); the Soviet Union suggested 10 meters (about 30 feet). The two sides

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[22] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 44.

[23] Tucker, Back to the Future: The Open Skies Talks, Arms Control Today, v. 20, October 1990, p. 23.

[24] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 41.

[25] A synthetic aperture radar is capable of looking "around" clouds and, therefore, can collect data regardless of weather conditions on the ground.

eventually agreed to use the Soviet proposal for optical cameras and the NATO proposal for SARs.[26]

Sensor Quality. The Open Skies Treaty specifies the sensors must be derived from "off-the-shelf" technology available to all the parties. This responds to the Eastern European nations' concerns about being at a disadvantage if they had to rely on Russian technology for their data collection. Off-the-shelf sensors may collect a lower quality of data than the state-of-the-art technologies NATO had hoped to use. At the same time, the use of off-the-shelf technology made it possible for all nations to share the data collected by any nation during an observation flight.

The treaty contains a provision that allows the parties to approve the use of improved sensors and additional types of sensors on observation flights. This provision not only allows the participants to take advantage of technological advances, but would allow them to expand the objectives of the treaty into areas such as monitoring air quality for environmental protection. The Open Skies Consultative Commission would have to approve proposals for new sensors; if any participant objected, the sensors would not be used.

The treaty contains several provisions to address concerns about the possible presence of unauthorized sensors on board Open Skies Aircraft. First, at Russian insistence, the treaty permits any nation to request that its own aircraft be used for observation flights. Second, the treaty permits the nation hosting the observation flight to fully inspect the observing nation's aircraft to ensure that it does not carry covert sensors and to conduct calibration exercises to ensure that sensors do not have capabilities in excess of those permitted by the treaty. Finally, when the nation conducting the observation flight prepares its mission plan, it must make sure that the aircraft's altitude throughout the flight, when combined with the calibration of the sensors, is consistent with the limits on sensor resolution; cameras would have better resolution if the aircraft flew closer to the ground.

Treaty Participation

The original 25 signatories of the Open Skies Treaty include all of the members of NATO and the former Warsaw Pact, along with Russia, Ukraine, and Belarus from the former Soviet Union. The other newly independent states from the former Soviet Union, including the Baltic states, can join the pact at any time; Georgia and Kyrgyzstan have already done so. All other European nations who are members of the Organization on Security and Cooperation in Europe can apply to join the treaty during the first six months after the treaty enters into force.

The Open Skies treaty also contains provisions to expand beyond Europe, the United States, and Canada. After the treaty has been in force for six months, the Open Skies Consultative Commission can consider a request to join from any other nation that it considers able to contribute to the objectives of the treaty. Because the

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[26] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 41.

OSCC must make its decisions by consensus, a nation's application to join the treaty will be rejected if any one of the current participants objects.

Current Status and Implementation Plans

Status of Treaty Ratification

U.S. Ratification. President Bush presented the Open Skies Treaty to the United States Senate on August 12, 1992. The Senate Foreign Relations Committee held hearings on the Treaty in September 1992 and March 1993. The Senate Armed Services and Intelligence Committees also reviewed the treaty. The full Senate gave its consent to ratification of the Treaty in August 1993. The United States officially ratified the treaty on November 3, 1993.

In their reports, the three Senate committees that reviewed the treaty highlighted several concerns about the costs of implementation and the possible implications for U.S. security. All three were concerned about the cost of a fleet of three fully-equipped aircraft, which the Department of Defense believed it needed to conduct all 42 observation flights each year. The committees noted that the United States would collect little new information during these flights and, therefore, might not need to conduct 42 flights.[27] The committees also expressed concerns about the addition of new sensors to Open Skies aircraft; they noted that these sensors might not only add to the costs of Open Skies implementation but might also eventually put U.S. national security at risk.[28]

The Senate attached two conditions to its resolution of ratification for the Open Skies Treaty. First, the Senate found that "United States interests may not require the utilization of the full quota of allowed observation flights or the procurement of more than one or two observation aircraft."[29] As a result, the Senate called on the President to submit a report after the first year of treaty implementation that reviewed the operation of the Treaty and provided an analysis estimating the number of annual observation flights and aircraft that the United States would need for the duration of the Treaty. Second, the resolution stated that the President should provide the Senate with prompt notification of proposed improvements to Open Skies sensors and should not provide U.S. approval to the proposed changes until 30 days after the Senate received the notification.[30] This time period would presumably be used to assess the costs of the new sensors and possible implications for U.S. security.

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[27] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5. p. 15.

[28] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5. p. 14.

[29] The Resolution of Ratification in reprinted in Congressional Record, v. 139, August 2, 1993. p. S10106.

[30] Congressional Record, v. 139, August 2, 1993. p. S10106.

Ratification by Other Parties. The Open Skies Treaty has been ratified by all the participants except Russia, Belarus and Kyrgyzstan. The Ukrainian parliament voted on the treaty three times without reaching consensus, but eventually did so and Ukraine ratified the treaty on March 2, 2000. Reports indicate that the delay in these nations can be attributed to their concerns about the cost of implementation. Each of these nations is facing economic difficulties. Officials in Russia, Ukraine, and Belarus have complained about the costs of implementing arms control agreements, such as the Strategic Arms Reduction Treaty (START I) and the Conventional Armed Forces in Europe Treaty (CFE). The treaty cannot enter into force until Russia and Belarus approve its ratification.

Planning for Implementation in the U.S.

Interagency Participation. Policy decisions affecting the implementation of the Open Skies Treaty will be addressed in an interagency committee with representatives from the Department of Defense, the Department of State, and the intelligence community.[31] This group will address questions about a number of issues, including the number of observation flights the United States should request over specific nations and the areas of those nations that should be covered by each flight.

The United States Air Force and the On-Site Inspection Agency (OSIA), which is now a part of the Defense Threat Reduction Agency, will take the lead in implementing Open Skies observation flights for the United States. The Air Force will own, operate, and maintain the U.S. Open Skies Aircraft. Representatives from OSIA will operate the sensors during U.S. observation flights and participate as escorts and observers in observation flights other nations conduct over U.S. territory.

Open Skies Aircraft. The United States had initially planned to deploy 3 fully operational observation aircraft to support 42 observation flights per year. However, in response to congressional concerns about the cost of these aircraft, the Air Force now plans to outfit only two aircraft with the full suite of sensors needed to conduct observation flights. The third aircraft, which is currently conducting testing and training flights for Open Skies personnel, is equipped with only the optical cameras permitted by the treaty. It will not be modified to carry the infrared sensor or synthetic aperture radar.

The United States Air Force, which will operate the Open Skies Aircraft, is modifying existing C-135 airplanes for the Open Skies mission. Similar in size to civilian 707 aircraft, these modified OC-135 airplanes will seat 38 people, including the Air Force flight crew and maintenance crew, representatives from the country that is hosting the U.S. observation flight, and crew members from the On-site Inspection Agency who will help with mission planning and operate the aircraft's sensors. Because the Air Force has decided to modify existing aircraft, there will be no expense associated with the purchase of new aircraft. Nonetheless, the Air Force is spending around $62 million to equip the aircraft with sensors and other equipment needed for Open Skies observation flights. It also plans to spend an additional $7.3

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[31] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 62.

million on research and development for new sensors and integration of sensors and aircraft.

Trial and Training Flights. The United States has participated in more than 50 training and trial flights since 1993. Crews assigned to the aircraft at Offut Air Force Base conduct, on average, two training flights per month to maintain their proficiency in operating the aircraft. U.S. crews have also participated in trial flights to certify that the aircraft and sensors operate in accordance with U.S. and treaty requirements and to support ongoing OSCC discussions about procedures that will be used during official observation flights.[32]

The United States has also conducted several flights in cooperation with other parties to the treaty. These flights carry participants from both nations and are used to test the procedures for mission planning and mission implementation. In June 1998, the United States conducted training flights over Ukraine. This effort was designed not only to exercise U.S. mission procedures, but also to demonstrate these procedures to officials in Ukraine, in part to show that these procedures would not be too costly or intrusive to implement.

Other treaty signatories have also conducted trial inspection flights. For example, in June 1995, the German Open Skies aircraft conducted trial flights over U.S. territory. This was the first time that a foreign military aircraft had ever had unrestricted access to U.S. airspace.[33] Russia has also conducted a training mission over the United States, with its aircraft visiting U.S. territory during August 1997. Russia also conducted a training flight over Bulgaria in April 1998, and hosted a training flight over Russian territory in August 1998. The German crew used a Russian aircraft for its observation flight. In July 1998, Germany had announced that it would no longer use its own aircraft to participate in Open Skies flights.[34] The first aircraft that it modified for this purpose had crashed in 1997 and it suspended plans to modify a second aircraft. Analysts were uncertain as to whether the German decision would affect the ratification and implementation of the Open Skies Treaty.

When the treaty enters into force, the Department of Defense has estimated that it might cost the United States $20-25 million per year to conduct and host observation flights. Some have estimated that it could cost the United States $25,000-$35,000 to host an Open Skies observation flight and $165,000-$170,000 to conduct an observation flight using the U.S. aircraft.[35] These are primarily the costs of training and employing the personnel needed to operate the aircraft and the sensors and the actual costs of flying the aircraft.

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[32] Discussions with the Air Force National Security Negotiations Branch, October, 18, 1995.

[33] Information provided by the On-site Inspection Agency, October 20, 1995.

[34] Defense Ministry Withdraws from Control Flights. Main Frankfurter Allegemeine. July 9, 1998. Translated in FBIS-WEU-98-190.

[35] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report, 103-5. pp. 170-172.

Implications for the United States

Most analysts and observers agree that the Open Skies Treaty can play a valuable role as a confidence building measure among the nations of NATO and the former Warsaw Pact. At the same time, some have questioned U.S. participation in the Open Skies regime. These questions have focused on two key areas: the value of the information the United States might collect during Open Skies observation flights and the cost to U.S. security of the information that others might collect during flights over U.S. territory.

Value of Information

Several analysts and some Members of Congress have noted that the United States does not need to bear the costs of equipping and operating Open Skies aircraft to acquire information about the military forces and activities of other nations. It already operates expensive photo reconnaissance satellites that serve the same purpose. Some have proposed, therefore, that the United States conduct few observation flights and limit its participation in the treaty.[36]

Most supporters of the Open Skies regime have acknowledged that the United States will not acquire much new information during its Open Skies observation flights. Nonetheless, as Ambassador John Hawes, the U.S. representative to the Open Skies Conference, noted during his testimony before the Senate Foreign Relations Committee:

> For most of the other participants, however, the ability to utilize the Open Skies sensor suite to observe the full territory of the other participating countries will represent a new and very significant enhancement in their ability to gather security-related information. The United States will ... be a major indirect beneficiary of this increase in knowledge, confidence, and security of the participants.[37]

The treaty's supporters have also noted that the United States might acquire information during Open Skies observation flights that is more useful than satellite data for international relations purposes. For example, the United States is often wary of releasing satellite photographs that could reveal secret information about U.S. satellite capabilities. But similar information acquired during Open Skies flights could be used in the international arena.[38]

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[36] This point is made in the report of the Senate Select Committee on Intelligence. See U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5. p. 137.

[37] U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Report 103-5. p. 157.

[38] See the prepared statement of Thomas Karas, Office of Technology Assessment, in U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 35.

Security Concerns

Although most analysts acknowledge that Russia, like the United States, does not need to participate in the Open Skies Treaty to collect information about military forces and activities in the United States, some have expressed concerns that nations who currently lack access to satellite data could use Open Skies observation flights to collect sensitive information about the U.S. military or U.S. industry. Some have also expressed concern about the possibility that treaty participants could transfer information collected during Open Skies observation flights to others, including rogue nations or terrorists, who might use the information in planning operations against the United States. These concerns would be heightened if the Open Skies regime allowed the use of more sophisticated sensors or if the treaty were expanded to permit participation by nations who remain hostile to the United States.

Officials from both the Bush and Clinton Administrations insisted during testimony before the Senate Foreign Relations Committee that information collected during Open Skies flights would not place U.S. national security at risk.[39] A number of factors would limit these nations' ability to collect sensitive information. For example, the treaty requires advance notice before flights begin and prohibits flights from circling or returning to a specific area repeatedly during the flight.[40] The advance notice would allow the United States to cease any sensitive activities before an observation flight began. The ban on repeat visits during a single flight would complicate an observing nation's effort to focus extra attention on a single facility or military activity.

U.S. officials have also emphasized that the resolution of sensors permitted by the Open Skies Treaty will not be sufficient to allow the collection of sensitive intelligence about U.S. military forces and activities.[41] The sensors will lack the capability to identify the capabilities of weapons systems or the types of activities occurring in closed structures. In addition, information about the size and location of most major military installations in the United States is already available to the public at large. Because the Open Skies observation flights would not provide any additional information about activities occurring inside buildings, the flights would do little to help those seeking targets for attack in the United States. Finally, it is unlikely that the Open Skies Treaty would expand to include any nation that might use Open Skies data to threaten a current participant. The Open Skies Consultative Commission must approve all applications for admission. The treaty states that, if

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[39] According to Brig. Gen. Teddy E. Rhinebarger, who represented the Joint Chiefs of Staff at the Senate hearings, "... the scope of the Open Skies regime was carefully considered, and the overflight access Open Skies provides does not place sensitive facilities at risk." see U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 16.

[40] See the prepared statement of Thomas Karas in U.S. Congress. Senate. Committee on Foreign Relations. Treaty on Open Skies. Hearing. p. 33.

[41] "The resolution limit of 30 centimeters for optical sensors establishes a level of intrusiveness commensurate with the Treaty's goal of openness and transparency in military forces and activities while effectively safeguarding legitimate national security interests." See U.S. Congress, Senate, Committee on Foreign Relations, Treaty on Open Skies, Hearing. p. 44.

any one of the current parties to the treaty objects to an applicant, the OSCC would have to reject the application.

Conclusion

The primary benefits of the Open Skies Treaty will accrue to its European participants. These nations will not only be able to acquire information about military forces and activities in neighboring nations, they will also be able to collect this information themselves, without relying on the observation satellites of other nations.

Some observers believe the United States should limit its participation in the Open Skies regime to reduce the costs of equipping and operating observation aircraft. However, even if the United States reduces its own participation, it must remain willing to host up to 42 observation flights from other countries each year. If the first year's plans are any indication, this should not create an undue burden; only Russia and Belarus showed an interest in conducting flights over U.S. territory and they only requested 4 flights.

Still, if the Open Skies Treaty remains in force for many years, the United States could host dozens of visits by other participants, with foreign military aircraft equipped with sensors flying over U.S. territory. Virtually all observers agree that these flights will pose no security threat to the United States.

Table 1. Parties to the Treaty on Open Skies

NATO Members	Eastern European Participants
United States	Russia
Belgium	Belarus
Canada	Czech Republic (a)
Denmark	Georgia (b)
France	Hungary
Germany	Kyrgyzstan
Greece	Poland
Iceland	Romania
Italy	Slovak Republic (a)
Luxembourg	Ukraine
Netherlands	
Norway	
Portugal	
Spain	
Turkey	
United Kingdom	

NOTES:
(a) The Czech and Slovak Republics each signed after they separated on Jan. 1, 1993.
(b) Georgia signed in 1992.
(c) Kyrgyzstan signed in February 1993.