In: IFSH (ed.), OSCE Yearbook 2004, Baden-Baden 2005, pp. 369-380.

Hartwig Spitzer

The Treaty on Open Skies – Status Quo and Prospects

Introduction

The Treaty on Open Skies is the most wide-reaching and advanced instrument for military and security-related confidence building in the OSCE area. It opens the entire airspace between Vancouver and Vladivostok to co-operative observation overflights,[1] including the vast expanses of North America and Siberia, which are not open to inspections under the CFE Treaty and the Vienna Document.

When the Treaty was signed in 1992, one of its main aims was to support and verify efforts to reduce massed offensive capabilities (troops and heavy military equipment). The specifications of sensors were defined accordingly: photographic cameras with a ground resolution of 30 cm, night-vision-capable thermal-imaging sensors with a ground resolution of 50 cm, and radar-imaging devices with a resolution of three metres.

At the same time, however, the Treaty already contained several elements that were *highly progressive*:

- Establishing the rights and responsibilities of the States Parties to the Treaty irrespective of membership of existing or former military organizations
- Providing all States Parties with equal access to the image data generated by inspection flights
- Planning and performing observation flights co-operatively.

Today – twelve years after the Treaty was signed – the States Parties find themselves in a fundamentally transformed security environment:

- The threat potential within Europe has been enormously reduced.
- The danger of destabilization in most transition countries has been eliminated by their integration into NATO and the European Union.

At the same time, there is growing awareness of risks associated with developments outside the OSCE area but with repercussions for Europe. This includes phenomena such as the destabilization of states in Africa and the Middle East, the proliferation of weapons of mass destruction, terrorism and conflicts over natural resources. Within the OSCE area itself, trouble spots remain in the southern Balkans, the entire Caucasus region, and Central Asia. It

1 The only exceptions are the territories of the USA not situated on the continent of North America.

is thus necessary to ask what *role* the Treaty can play in this changed environment and what *options* exist for adapting the way it is implemented. Before doing so, however, I shall first summarize the Treaty's central provisions and the events that have occurred since it came into force on 1 January 2002.[2]

The Central Provisions of the Treaty

The Treaty was signed in March 1992 by all of NATO's then 16 member states, and by many of the transition countries and successor states of the Soviet Union (Belarus, Bulgaria, The Czech and Slovak Federal Republic, Georgia, Hungary, Kyrgyzstan, Poland, Romania, Russia, and the Ukraine). All but Kyrgyzstan have ratified the Treaty. Each state is required to allow a certain number of overflights of its territory per year (known as its passive quota) and may carry out a number (generally the same number) of flights over other states (the active quota). For example, Russia (together with Belarus) and the USA each have a passive quota of 42 flights per year (75 per cent of that in the first three years). Smaller countries have passive quotas of between two and twelve flights per year. Each year, the Open Skies Consultative Commission (OSCC) allocates each state's passive quota among countries interested in performing overflights.

Alongside the sensor technologies already mentioned, video cameras with a ground resolution of 30 cm may also be used. *Certification* ensures that the ground resolution of the sensors at the proposed flight altitude complies with the Treaty. Behind these somewhat technical stipulations lies the ability to observe security-relevant installations throughout the Treaty's entire area of application and, in particular, to identify large pieces of military equipment located outdoors, such as tanks and aircraft. In other words, the

2 The following publications contain descriptions of the treaty negotiations and the preliminary implementation phase, and critical evaluations of the treaty: Pál Dunay/Marton Krásznai/Hartwig Spitzer/William Wynne/Rafael Wiemker, *Open Skies*, UNIDIR, Geneva 2004; Klaus Arnhold, *Der Vertrag über den Offenen Himmel: Ein Konzept zur Aktualisierung des Vertrags* [The Treaty on Open Skies: A Proposal for Modernization], Stiftung Wissenschaft und Politik, Berlin, June 2002; Ernst Britting/Hartwig Spitzer, The Open Skies Treaty, in: *Verification Yearbook 2002*, London 2002, pp. 223-238; Pál Dunay, The Treaty on Open Skies in Force: European Security Unaffected, in: Institute for Peace Research and Security Policy at the University of Hamburg, *OSCE Yearbook 2002*, Baden-Baden 2003, pp. 289-310; Rüdiger Hartmann/Wolfgang Heydrich, *Der Vertrag über den Offenen Himmel* [The Treaty on Open Skies], Baden-Baden 2000; Peter Jones/Marton Krásznai, Open Skies: Achievements and Prospects, in: John B. Poole/Richard Guthrie (eds), *Verification Report 1992*, London/New York 1992; Peter Jones, Open Skies: A Review of Events at Ottawa and Budapest, in: John B. Poole (ed.), *Verification Report 1991*, London/New York 1991; Peter Jones, Open Skies: Events in 1993, in: John B. Poole/Richard Guthrie (eds), *Verification 1993*, London/New York 1993; Sergey Koulik/Richard Kokoski, *Conventional Arms Control – Perspectives on Verification*, SIPRI, Oxford 1994; Michael Krepon/Amy E. Smithson (eds), *Open Skies, Arms Control, and Cooperative Security*, New York 1992.

activities carried out under the terms of the Treaty serve to create *transparency* and *openness*.

Events Since the Treaty Came into Effect

The Treaty finally entered into force on 1 January 2002 after considerable delays in ratification on the part of Russia and Ukraine. The entry into force was proceeded by a ten-year period of preliminary implementation, during which time nearly 400 test flights were carried out to check and optimize procedures. The certification of aircraft from 16 states was completed rapidly by July 2002. A further three planes, one each from Russia, Sweden and Turkey, were certified in early May 2004.[3] Quota flights began on 1 August 2002. The allocation of quotas was renegotiated for 2004 (see table 1). In view of the heavy demand for flights over Russia, Ukraine, Georgia, and Bosnia and Herzegovina, many states agreed to carry out their inspections jointly.[4] Nevertheless, it is worth noting that many states do not make use of the full number of flights they are entitled to.

Although, in general, the Treaty is neither a focus of public attention nor a priority for policy makers, nine additional states have applied for accession since 2002 (Bosnia and Herzegovina, Croatia, Cyprus, Estonia, Finland, Latvia, Lithuania, Slovenia, and Sweden). Bosnia and Herzegovina, Croatia, Finland, Latvia, Slovenia, and Sweden have already ratified the Treaty, thereby acceding to the Open Skies regime. Cyprus's application has so far been blocked by Turkey's veto. The other countries have not yet ratified the Treaty. Implementation has generally proceeded smoothly and has made a lasting contribution to achieving the Treaty's aims. The image data gathered has mostly been used to verify the CFE Treaty and the Vienna Document,[5] occasionally also to support verification of other arms-control agreements (such as the Chemical Weapons Convention), and, in general, to raise transparency and to share knowledge of countries' military strengths.

The practical activities that have been carried out under the terms of the Treaty also illustrate well how the intelligent selection of basic structural principles – in this case, co-operation and openness – can shape the conduct of the individuals charged with carrying them out. A culture of openness and co-operation that ignores political boundaries has been established among the officers involved in implementation activities – a new experience for many.

3 Ten of the States Parties are collectively known as the "pod group". They have jointly purchased a (single) container for sensors (pod), which can be affixed under the wing of transport aircraft from these countries.

4 Four of Germany's six active quota flights in 2004 are joint flights: with France over Ukraine, with Hungary over the "Group of States Parties" Russia/Belarus, and with Turkey over Bosnia and Herzegovina and Georgia.

5 Open Skies flights are often used in preparation for or to complement on-site inspections. Approximately 30 objects of verification can be observed in the course of a single flight over a medium-sized country such as Germany.

The Treaty thus strikes a balance between confidence building and careful double checking via territorially unrestricted observation flights.

Nevertheless, it is important to critically examine the extent to which Open Skies can effectively support current and future security needs and can withstand competition from commercial observation satellites.

Technical Capabilities Compared to Satellites

When the Treaty was signed in 1992, only the USA had reconnaissance satellites whose ground resolution (of ca. 10 cm) was superior to the 30-cm resolution of the Open Skies sensors.[6] One of the USA's political goals at that time was thus to use Open Skies to provide its allies with images of an equivalent resolution.

Today, however, the skies have become significantly more open thanks to the launch of commercial satellites and improvements by other countries to their space-based military reconnaissance capabilities.

Three US consortiums (Space Imaging, Digital Global, and Orbital Sciences) operate satellites capable of delivering digital images with a ground resolution between 0.6 metres and one metre. The area captured on the ground typically measures ten by ten kilometres. Although the images generated are less detailed than those produced by Open Skies overflights by a factor of two or three, they still allow large pieces of military equipment to be detected, if not identified by type. The images can be acquired by anyone, including the world's intelligence services. There are only a few recorded cases of the US government blocking the sale of such commercial satellite-imaging data.

In the area of radar imaging, a European consortium (DLR and Astrium) will begin operating a commercial satellite with a ground resolution of one metre in 2006. Numerous countries, including France, Germany, India, Israel and Japan, already operate or are in the process of developing optical or radar satellites with a ground resolution of one metre or less.

Can Open Skies compete under these conditions? In fact, this question is fundamentally flawed, as it does not compare like with like. The enormous political benefits gained through the highly symbolic opening of national airspace to foreign observers and the co-operation this entails in practice could *never* be achieved by the use of satellites. In this respect, the Open Skies Treaty is unique and irreplaceable.

6 Here, "resolution" corresponds to sensor pixel size (ground sampled distance).

Table 1: Allocation of active flight quotas for 2004. The countries overflown and the number of flights in each case are given in brackets.

Belarus and the Russian Federation Total: 25.5, maximum possible acc. to Treaty: 31 (Germany 2, France 2, UK 2, Norway 2, USA 2, Turkey 2, Benelux 1, Bulgaria 1, Canada 1, Denmark 1, Spain 1, Finland 1, Georgia 1 [joint flight with the UK], Greece 1, Italy 1, Poland 1. Portugal 1, Romania 1, Sweden 1, Czech Republic 1)
Benelux Group Total 2.33, maximum possible acc. to Treaty: 4 (Belarus and the Russian Federation 1, Georgia 1 [joint flight with Greece and Spain], Bosnia and Herzegovina 1)
Bosnia and Herzegovina Total: 0, maximum possible acc. to Treaty: 3
Bulgaria Total: 0.5, maximum possible acc. to Treaty: 3 (Bosnia and Herzegovina 1 [joint flight with Spain])
Canada Total: 2.5, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 2, Ukraine 1 [joint flight with the USA])
Czech Republic Total: 0.5, maximum possible acc. to Treaty: 3 (Ukraine 1 [joint flight with Spain])
Denmark Total: 0, maximum possible acc. to Treaty: 4
Finland Total: 3, maximum possible acc. to Treaty: 3 (Belarus and the Russian Federation 1, Germany 1, Sweden 1)
France Total: 3, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 3 [of which 1 with Portugal], Ukraine 1 [joint flight with Germany])
Georgia Total: 0, maximum possible acc. to Treaty: 3
Germany Total: 4, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 3 [of which 1 with Hungary], Georgia 1 [joint flight with Turkey], Ukraine 1 [joint flight with France], Bosnia und Herzegovina 1 [joint flight with Turkey])
Greece Total: 1.83, maximum possible acc. to Treaty: 3 (Belarus and the Russian Federation 3, Georgia 1 [joint flight with Benelux and Spain], Ukraine 1 [joint flight with Italy])
Hungary Total: 2, maximum possible acc. to Treaty: 3 (Belarus and the Russian Federation 2 [of which 1 joint flight with Germany and 1 with the USA], Ukraine 1)

Italy Total: 3.5, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 2, Sweden 1, Ukraine 1 [joint flight with Greece])
Lithuania Total: 0, maximum possible acc. to Treaty: 3
Norway Total: 2, maximum possible acc. to Treaty: 5 (Belarus and the Russian Federation 2)
Poland Total: 3, maximum possible acc. to Treaty: 4 (Belarus and the Russian Federation 2, Finland 1)
Portugal Total: 0.5, maximum possible acc. to Treaty: 1 (Belarus and the Russian Federation 1 [joint flight with France])
Romania Total: 4, maximum possible acc. to Treaty: 4 (Bulgaria 1, Hungary 1, Greece 1, Ukraine 1)
Slovakia Total 0.5, maximum possible acc. to Treaty: 3 (Belarus and the Russian Federation 1 [joint flight with the USA])
Spain Total: 1.33, maximum possible acc. to Treaty: 3 (Georgia 1 [joint flight with Benelux and Greece], Ukraine 1 [joint flight with the Czech Republic], Bosnia and Herzegovina 1 [joint flight with Bulgaria])
Sweden Total: 3, maximum possible acc. to Treaty: 5 (Belarus and the Russian Federation 1, Finland 1, Poland 1)
Turkey Total: 5, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 2, Georgia 1 [joint flight with Germany], Ukraine 2, Bosnia and Herzegovina 1 [joint flight with Germany])
Ukraine Total: 9, maximum possible acc. to Treaty: 9 (Germany 2, Bulgaria 1, Greece 1, Hungary 1, Italy 1, Poland 1, Romania 1, Slovakia 1, Turkey 1)
United Kingdom Total: 4.5, maximum possible acc. to Treaty: 9 (Belarus and the Russian Federation 3, Georgia 1 [joint flight with Belarus and the Russian Federation], Ukraine 1)
USA Total: 7.5, maximum possible acc. to Treaty: 31 (Belarus und Russian Federation 8 [of which 1 joint flight with Hungary and 1 with Slovakia], Ukraine 1 [joint flight with Canada])

Source: The German OSCE Delegation, Vienna

Where meaningful comparison can be carried out is in terms of image resolution, availability, and cost:

a) Image Resolution

Table 2 compares Open Skies aircraft with commercial and military reconnaissance satellites in terms of the ground resolution of their photographic, thermal-imaging, and radar sensors. The optical sensors used under the Open Skies regime are generally as good as or even better than those of military and commercial satellites. However, the three-metre resolution foreseen under Open Skies rules for radar sensors will soon also be surpassed by commercial satellites. In the area of thermal imaging, however, Open Skies has unique capabilities not even equalled by the USA's most advanced military satellites.[7]

Table 2: Ground resolution of photographic, thermal-imaging, and radar sensors on Open Skies aircraft and satellites

Sensor	Photograph. camera	Mid-wavelength infrared	Thermal-imaging device	Radar
Open Skies	0.3 m	-	0.5 m	3 m
Commercial satellites	0.6 -1 m	-	(60 m)	1 m (2006)
Reconnaissance satellites (USA)	0.1-0.5 m	0.6-0.9 m (?)	-	0.6-0.9 m

Source: Pál Dunay et al., Open Skies, UNIDIR, Geneva 2004.

b) Availability and Access Time

Open Skies flights can be announced and carried out with a minimum of 72 hours advance notice. A mission plan with a detailed flight plan is filed 24 hours before the start of the actual observation flight. This means that – in crisis situations – data can be collected via Open Skies flights just as quickly as via commercial satellites. In practice, Open Skies flights are generally agreed upon three months in advance. Open Skies flights are also generally more flexible: Unlike satellites, their flight paths can be chosen freely and cloud cover higher than 1,500 metres can be underflown.

c) Cost

A typical Open Skies flight covers around 30 separate military sites. Achieving comparable coverage using space-based systems would require the

7 Thermal-imaging sensors detect heat radiation, which makes it possible to observe, by day and night, whether vehicles and equipment are in use. The information they provide thus goes beyond that delivered by photographic means.

purchase of 30 separate satellite images. A full costing shows that the price per military installation of Open Skies flights is around half that of buying satellite images.[8]

In general, therefore, using Open Skies to capture image data of military installations is more flexible and less expensive than buying satellite images or indeed deploying one's own satellites.

Meeting Contemporary Security Challenges

The States Parties to the Treaty are faced with a variety of existing and emerging challenges, including regional crises, terrorism, and arms proliferation.

a) NATO-Russia Relations

The complexity of the Russian Federation and the relative weakness of Russian democracy suggest that the long-term stability of the multi-ethnic federation remains uncertain. For its part, Russia has voiced concerns at NATO's eastwards enlargement. Open Skies flights provide Russia with valuable information on the military strength and troop deployments in NATO countries, and this contributes to stabilizing NATO-Russian relationships.

b) Regional Crises in Europe and Central Asia

The territory of the former Yugoslavia, Moldova, the Caucasus, and Central Asia remain potential sources of crisis. Open Skies flights are currently contributing to détente and stabilization in Bosnia and Herzegovina and Georgia. The Treaty's potential for crisis prevention would be raised yet further if the remaining OSCE States could be persuaded to accede to it (Serbia and Montenegro, Macedonia, Albania, Moldova, Armenia, Azerbaijan, and the Central Asian republics). The Treaty's unique potential for crisis prevention and post-conflict rehabilitation rests on, among other things, the fact that representatives of mutually hostile groups have to co-operate in performing joint observation flights and can establish a shared corpus of image data. There is no reason why observation should be limited to military sites; flights can also be undertaken to observe civilian objects, such as refugee movements or camps.

c) Proliferation of Weapons of Mass Destruction

Open Skies flights equipped with photographic cameras and thermal-imaging devices can be used in combination with other sources of information to monitor undeclared facilities for the manufacture of chemical weapons and

8 Cf. Pàl Dunay et al., *Open Skies*, cited above (Note 2), section 9.

fissile material within the Treaty area. Out-of-area deployment of Open Skies aircraft for such purposes requires a separate mandate, as in the case of the Iraq inspections.

d) Trafficking in Human Beings, Arms and Drug Dealing

Trafficking in Human Beings and the illegal trade in arms and drugs represent a growing threat to security and human rights. Open Skies aircraft can be used to monitor the more remote and mountainous border regions in the south and east of the Treaty area, but, owing to the limited number of available flights, are limited to performing spot-checks in support of other information-gathering activities. However, it would be possible to agree on additional flights, possibly by means of an OSCE mandate.

e) Terrorism

In general, Open Skies flights are poorly suited for monitoring terrorist threats. Open Skies' great strength – its co-operative approach – renders it powerless when faced with actors that are utterly unwilling to co-operate. Other means of intelligence gathering are more relevant here.

f) Open Skies Outside the OSCE Area

In principle, any state in the world can apply to join the Open Skies regime. Accession requires the agreement of all existing members. At present it is unlikely that the USA would agree to accession applications from states outside the OSCE area. Separate Open Skies agreements could be concluded in other regions of the world, should the political will exist.[9]

Review Conference 2005

The Open Skies Treaty makes provision for a Review Conference to be held three years after its coming into effect and at five-year intervals thereafter. The first of these conferences will take place from 14-16 February 2005 under the chairmanship of Germany. The Conference provides a good opportunity to lend new momentum to the implementation process and to strengthen the will to continue in the spirit of the preamble. This is a welcome opportunity, since the position of some governments towards the Treaty has turned out to be "lukewarm".

In the first place, it would be desirable for the number of *treaty members* to be increased by the successful conclusion of the ratification process in two accession states. The Conference will also take stock of the implementation activities carried out so far.

One issue that could prove extremely divisive is the question of *quota allocation*. The Treaty is based on the principle of equity among all States

9 Cf. ibid., section 8.4.

Parties. However, an agreement between NATO states not to make observation flights over each other's territory stands in the way of balanced and fair implementation. In the meantime – following the accession of nearly all the states of Eastern Europe to NATO – this has become a political obstacle to the implementation of Open Skies. When quotas are allocated in Vienna, the NATO states tend to single-out the non-NATO states Russia, Belarus, Ukraine, Georgia, and Bosnia and Herzegovina. There is a considerable imbalance in the number of passive-quota overflights carried out and the volume of data gathered over certain countries.

The established tendency of the NATO states to act as a bloc could, for example, be overcome by requiring each State Party to the Treaty to fly a minimum number of missions (however small) over every other State Party – whether or not they belong to the same alliance. This would provide an excellent opportunity to encourage multinational co-operation in the pooling of quotas.

The most interesting questions for the further development of the activities performed under the terms of the Treaty are given in the preamble. As well as the creation of transparency and openness in the service of verification, it mentions three further areas, whose potential has so far been underexploited or completely ignored:

1. Co-operating with the OSCE and other relevant international organizations
2. Strengthening capabilities in the areas of conflict prevention and crisis management
3. Extending Open Skies to environmental protection.

Several states are examining these questions in as much detail as possible prior to the Conference so that the event itself can be used to formulate declarations of intention. The Treaty grants the States Parties and the Commission extensive powers to reach agreement on matters of implementation without making changes to the text of the Treaty (e.g. the addition of new categories of sensor).

Co-operation with International Organizations

The preamble allows for the possibility of carrying out missions aimed at conflict prevention and crisis management under the aegis of the CSCE (now the OSCE) and other appropriate international structures. These could include the United Nations, multilateral verification organizations, such as the IAEA, and regional organizations whose mandates include security. The text of the Treaty does not address concrete procedures for such co-operation, and it will be necessary to clarify this.

The core of the Treaty sets down the rights and duties of the States Parties for overflights of each other's territory. These rights cannot simply be transferred to international organizations. It is possible, however, for international organizations to request technical assistance in the form of information from Open Skies States Parties either as individuals or as a collective body. For example, the OSCE Conflict Prevention Centre needs up-to-date aerial images to support OSCE field missions.

The following options for co-operation with international organizations should be considered:

(a) *Making the image data from Open Skies flights available to international verification organizations* (IAEA, OPCW, the Preparatory Commission for the Comprehensive Test-Ban Treaty).[10] A precondition for this is the agreement of the states to be overflown.

(b) *Carrying out observation flights for an international organization* that requests this of a state possessing an Open Skies aircraft. Once more, this requires the agreement of the state to be overflown. The costs of such flights would be met by the organizations requesting the flights. Alternatively, where such a request concerns a flight over a state within the Treaty area, the state receiving the request could make use of one of its active-quota flights to fulfil the international organization's request – at its own expense. The Open Skies Consultative Commission is ideally suited to play the role of a clearing house in this process. It will be necessary to establish rules governing the transfer of image data. Up to now, Open Skies images have only been available to the governments of States Parties to the Treaty.

(c) *Requests from international organizations to observe specific sites during Open Skies flights*. International organizations could approach individual States Parties with requests for specific inspection targets to be visited within the course of the state's active quota flights. Even if the state that is subject to inspection were to refuse to allow the image data to be passed to the international organization, the state performing the observation could present its conclusions to the organization as technical assistance. The IAEA already makes considerable use of national support in verifying the NPT. The OPCW has also received conclusions based on Open Skies image data in a number of cases.

10 The Chemical Weapons Convention does not provide for aerial inspections, although it does allow for support activities by individual states, which could be based on aerial images. For its part, the Comprehensive Test-Ban Treaty allows the use of aerial observation in support of on-site inspections.

Conflict Prevention and Crisis Management

Flights that contribute to conflict prevention and crisis management are possible within the Treaty area as things stand and have already been carried out in connection with the 1999 war in Kosovo. It is also conceivable that flights of this kind be carried out outside the Treaty area, as was done in Bosnia and Herzegovina before it acceded to the Treaty (1997-2001). For example, an international organization or a state threatened by a crisis could ask a country that possesses an Open Skies aircraft to carry out such a mission. Once again, this would require the co-operation of the state to be inspected. It remains to be determined whether such flights could be made according to standard Open Skies rules (taking priority over all "regular" air traffic). The added bonus of such flights is that they would be performed on a co-operative basis – i.e. with the participation of all local conflict parties.

Environmental Missions

The majority of Treaty members possess sufficient civilian airborne capacities and access to satellite data to perform regular environmental monitoring. The bilateral or multilateral deployment of Open Skies aircraft can only be of interest in two situations:

(a) Short-notice deployment in response to environmental and humanitarian disasters
(b) Deployment to tackle cross-border environmental problems.

The institutional problems that need to be resolved before these types of deployment can take place have been described in detail elsewhere.[11]

Summary

The Open Skies Treaty has proved its worth as a means of confidence building and conflict prevention. It is one of the peacekeeping instruments of European and Transatlantic security policy. As a consequence, it is rarely the focus of political and public attention. But this should come as no surprise in a political and media culture where preventive, non-violent measures receive considerably less attention and support than the use of force, whether preemptive or reactive. Nonetheless, political representatives and the community of experts are called upon to bring new momentum to the Treaty and to grasp the chance to adapt its implementation to today's changing security requirements

11 Cf. Dunay et al., *Open Skies*, cited above (Note 2), section 7.3.