

The Open Skies Treaty as a transparency regime

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Summary

The Treaty on Open Skies is a comprehensive but still limited political-military transparency measure. It is comprehensive in that it opens the complete territory of the 34 states parties for cooperative observation flights. Major military equipment, which is in the open, as well as military and civilian infrastructure can be observed. The intrusiveness of observation though is limited in a threefold way: (i) by limiting the resolution of the optical cameras to 30 cm, (ii) by establishing a mandatory time period of about 24 hours between disclosure of the flight plan and the begin of the actual flight and (iii) by the fact, that flights, at least so far, have been carried out during daytime only.

Annually some hundred flight missions are being conducted, 42 of which cover the territory of the Russian Federation and Belarus. In return, Russia performs 42 flights over virtually all NATO states. The flight activities have been stalled in 2018 because of a failure to reach consensus on the assignment of flight quotas for 2018. In particular, Georgia refused to support any quota distribution, which would include an overflight of Georgia requested by Russia. Again a regional status conflict has hampered the implementation of a multilateral security agreement. The flight activity will be resumed in 2019. Consensus on a slightly modified quota distribution was obtained in the Open Skies Consultative Commission on 22 October 2018. Remarkably, both the Russian Federation and the United States, are heavily investing in the modernisation of their Open Skies aircraft and sensors.

Origin and purpose

The Treaty on Open Skies of 1992 opens the full territory of the 34 state parties to cooperative observation flights. It covers most of the northern hemisphere from “Vancouver to Vladivostok”. The treaty was proposed in May 1989 by U.S. President George H. Bush in response to arms control and disarmament initiatives put forward

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by General Secretary Mikhail Gorbachev². The treaty was intended to include all member states of NATO and the Warsaw Treaty Organisation. The treaty was negotiated from January 1990 to March 1992, parallel to the Treaty on Conventional Forces in Europe (CFE), as a transparency measure and verification tool. The treaty entered into force on 1 January 2002. Its design is quite different from that of the CFE Treaty and the Vienna Document on Confidence and Security Building Measures (VD). While the verification and transparency tools of the CFE Treaty and the Vienna Document rely on extensive data exchanges and localised on-site or regional ground inspections, Open Skies opens the complete territory for aerial observation³. The images taken are shared between the observing and the observed state.

Built-in strengths of the treaty

The treaty provides unlimited territorial access. While this also applies for satellite-based observation, opening up the complete national air space is a political gesture in itself and is worldwide unique. The agreed resolution limits for film or digital cameras of 30 cm match the resolution of the most advanced commercial observation satellites - with the added value that Open Skies aircraft can fly underneath clouds and choose flexible flight paths. Furthermore, a resolution of 50 cm, accessible to (future) Open Skies thermal sensors, will be much superior to the resolution of commercial thermal imaging satellite sensors (of several ten meters). Another unique feature of the treaty is the high degree of built-in cooperation: Joint teams are on board. The processing of film or digital image data is done jointly. The mutually controlled data taking and processing provide the resulting images with a high degree of authenticity (protection against falsification), which is unmatched in comparison to satellite imagery.

Limits of transparency

The mutual openness has limits. The negotiating parties (in 1990-1992) wanted to allow for the general identification of military land vehicles, aircraft and infrastructure through 24h- all-weather imaging but not permit the reconnaissance of technical details like the antenna of a tank. That is why the sensor categories of the treaty have verified resolution limits

- (i) Film and video cameras at 30 cm ground sampled distance⁴
- (ii) Thermal infrared imaging sensors at 50 cm ground sampled distance
- (iii) Synthetic Aperture Radar (SAR) sensors at 3 m resolution

² Gorbachev had proposed the complete disarmament of the tactical nuclear weapons of the US and the USSR.

³ According to its preamble, the purpose of the treaty is, “the possibility of employing such regime to improve openness and transparency, to facilitate the compliance with existing or future armscontrol agreements and to strengthen the capacity of conflict prevention and crisis management in the framework of the Conference on Security and Co-operation in Europe.....”

⁴ The resolution of optical sensors is defined in Decision 3 of the OSCC as “the width of a single bar in the smallest group of bars (in a calibration target of black and white bars) which can be distinguished as separate bars”.

Another limitation of openness is the time period between disclosure of the flight plan and the beginning of the observation flight. After arriving in the state to be observed, the team of the observing state has to declare the intended flight path about 24 hours before take-off for the actual observation flight. This leaves the observed state enough time to alert its high security sites and to cover up sensitive equipment.

Everything in the open remains visible. Open Skies flights can thus monitor all kinds of vehicles which are left exposed. However, tactical short time reconnaissance is beyond the scope of Open Skies. Open Skies is designed to monitor static military inventory and infrastructure, like missile sites, air fields, naval ports or barracks, and their changes over longer periods of time.

Open Skies flights have been occasionally used during crisis situations. For instance, after the beginning of military conflict in the Donbas region of Eastern Ukraine some twenty Open Skies flight missions by Western states were conducted in the Russian region along the Ukraine border between April and July 2014.

It should be noted, that the implementation of Open Skies has continued in the Ukraine and Russia in 2014 despite the Russian annexation of Crimea and the war in Eastern Ukraine. War zones, however, are inaccessible to the unarmed Open Skies aircraft. The territory of Crimea is no longer overflown because no other party recognizes Crimea as Russian territory. Other states parties refused to accept the Russian offer in May 2014 to overfly Crimea as part of flight missions in Russia.

Flight activity in 2017

The treaty establishes rights and obligations for all of the parties, regardless of any membership in an alliance or regional group. Each party has the right to conduct flights over other states within a framework of set annual quotas (active quota). Equally, each party is obliged to receive the same number of flights (passive quota) over their territory. E.g. both, the Russian Federation and the United States, have an annual quota of 42 active and passive missions. Canada, France, Germany, Italy, Turkey, Ukraine and United Kingdom have active and passive quotas of 12 flights each, other parties to the treaty have less.

After entry into force on 1 January 2002, the actual flight activity developed in a less balanced way. NATO member states have committed themselves not to fly over each other's territory by an internal agreement initiated by the U.S. administration⁵. By 2002 the spirit of detente, which had prevailed in the early 1990's, was gone. NATO states concentrated their flights on the Russian Federation and Belarus, plus a few flights over non-allied states like Bosnia-Herzegowina, Georgia and Ukraine. In return, Russia uses its complete active quota to overfly most NATO states routinely.

In 2017 Russia performed 42 flights over 28 NATO states, including seven flights over the USA. The U.S. performed 16 flights over Russia and Belarus. Ukraine performed eight flights over Western states (Denmark, Hungary, Lithuania, Poland, Romania, Sweden, Slovakia, and Turkey) and three shared flights over Russia (with US, Canada and Sweden as lead nation).

⁵ Hungary and Romania even had to terminate their bilateral Open Skies agreement of 1991 after joining NATO.

In total some 100 flight missions were carried out in 2017, several of the flights shared between two or three observing parties in order to save costs.

Benefits of Open Skies flights

The benefits of and the value attributed to the implementation of the Open Skies Treaty 26 years after its signature are manifold. First of all, the treaty architecture offers some flexibility by including provisions for accession of additional parties as well as for modernisation of aircraft and sensors. Eight states acceded the treaty between 2002 and 2005: the three Baltic States, Bosnia-Herzegovina, Croatia, Finland, Slovenia and Sweden. Modernisation of aircraft and sensors is going on (see below).

Why do parties continue to adhere to the treaty? All parties value the confidence-building aspect of the cooperative practice. Some smaller states, like the Benelux countries, participate only for this reason by facilitating being observed but not actively flying. Other states situated in proximity of Russia are primarily interested in the information provided by the images taken. This holds true in particular for states without access to reconnaissance satellites of their own, like the Baltic States, Finland, Norway, Poland, Sweden, Turkey and Ukraine. Poland naturally is interested in Russian force deployments in the oblast of Kaliningrad. The Baltic States conduct their annual active mission over the nearby Russian military district. Medium powers like France, Germany, Italy and the UK value Open Skies as a channel for security cooperation and dialogue with Russia in presently tense times. They also use Open Skies images to complement their national satellite reconnaissance of Russia and Belarus.

The big nuclear powers, Russia and the U.S., have adhered to the treaty so far and have invested in new aircrafts and sensors. Both states are hostages under the threat of the others nuclear arsenals. They use Open Skies inter alia for regular monitoring of missile and missile defence sites as a complement to their own satellite reconnaissance capabilities. Russia shows its flag by overflying virtually all NATO states on a regular basis.

In summary, parties see the treaty as an instrument for cooperation and transparency with limited but still noted value. This appreciation, however, is restricted to branches of government and some parliamentary and scientific circles. Open Skies works mostly below the attention of the general public and the media.⁶

Modernisation of aircraft and sensors

Initially – in the trial implementation phase from 1992 to 2001 - parties exclusively used already existing aircraft, mostly of older vintage and equipped with wet film cameras⁷.

⁶ Only Russian media like TASS and Russia Today as well as a few select U.S. media cover Open Skies occasionally.

⁷ For details see e.g. Pal Dunay et al., Open Skies – A Cooperative Approach to Military Transparency and Confidence Building, UNIDIR, Geneva, 2004, accessible via <http://unidir.org/files/publications/pdfs/open-skies-a-cooperative-approach-to-military-transparency-and-confidence-building-319.pdf>.

Modernisation of Open Skies aircraft and sensors has been an issue since the treaty's entry into force (2002). The commercial aerial observation industry began replacing their photogrammetric film cameras by digital cameras as early as 2000. It took the Informal Group on Sensors of the Open Skies Consultative Commission (OSCC) several years to pave the way for a transition to digital aerial cameras. The group had to develop and test authenticated procedures to determine the applicable flight altitudes at 30 cm resolution for optical sensor systems. In May 2010, the OSCC decided on rules for the introduction and certification of digital cameras with up to five colour channels (red, green, blue, near infrared and panchromatic).

Russia was the first state to have its digital sensor system OSDCAM 4060 certified in 2014. Digital flight missions by Russia began in July 2014. Since then all Russian Open Skies aircraft have been equipped with digital cameras⁸ in contrast to the aircraft of other states (Canada, France, Hungary, Romania, Sweden, Turkey, Ukraine and the US).

The US has begun to equip its two existing Open Skies aircraft with digital cameras. The certification of the first modernized aircraft is expected in 2019. Romania is in the process of acquiring three medium format digital aerial cameras for operation at three flight altitudes. Canada, Sweden and Turkey have also initialized programs for camera modernization, these are further behind.

Overall, the fleet of Open Skies aircraft is ageing. Acquisition and introduction of new aircraft has become an issue. Again Russia took the lead. Already in 2006 the first portion of the budget for the acquisition of two new aircraft of type Tupolev 214 was approved. The rollout of the first aircraft occurred in 2011. The certification event for both the first and second aircraft and their digital cameras was held from 2.-11. September 2018 in Kubinka near Moscow, Russia. Signatures of all attending parties are required before the aircraft can be used for observation missions. The heads of all attending delegations signed the final document, with the exception of the U.S. delegation. The U.S. administration announced only on 19 September that it was prepared to sign the certification document.⁹

Germany was second to decide on a new aircraft. Germany had lost its first Open Skies aircraft, a Tupolev 154, in 1997 because of a mid-air collision. It took 18 years until the Bundestag approved a budget for the acquisition of a new aircraft of type Airbus A319 CJ in November 2015. This aircraft will have a range sufficient both for flights in the European and the Asian part of the Russian Federation. Certification is

See also: Gordon Petrie und Hartwig Spitzer, [Open Skies: Aerial Observation to Help Prevent Conflicts Between Countries](#), *GeoInformatics*, Vol. 10, No. 5, p. 24-29. 2007. Accessible via <http://www.petriefied.info/pubs.html>
-> Publication Nr. 116

Hartwig Spitzer, News from Open Skies - A co-operative treaty maintaining military transparency, Verification Technology Information Centre (VERTIC), London, VERTIC Brief no.8, Feb 2009, 16 pp. accessible via www.vertic.org

⁸ Russia operates up to five AN30 aircraft, one Tupolev 154. Some of the older AN30 aircraft will be replaced by two new TU 214 aircraft after their certification.

⁹ The reasons of the delay have not been made public.

expected for 2020/21. The aircraft will be the first one to have a thermal infrared camera on board in addition to digital aerial cameras¹⁰.

The two existing Open Skies aircraft of the U.S. of type OC 135 (modified Boeing 707) were built in the 1960's. Recently, several missions had to be terminated early due to technical failures. Secretary Mattis of the U.S. Department of Defense was introduced to the workings and value of the Open Skies Treaty. He decided to aim for parity of U.S. Open Skies assets with Russia. In consequence, the U.S. administration requested a budget of 222 Million USD from Congress for the acquisition of two new long-range Open Skies aircraft. The budget was approved by Congress in the National Defense Authorization Act (NDAA) for Fiscal Year 2019 despite some parliamentary opposition in July 2018. With President Trump's signature on 13 August 2018 the budget became law.¹¹

However, the NDAA contained language which was misinterpreted by some media as blocking the funding for the U.S. Open Skies modernisation program.^{12, 13} Section 1242 of the Act indeed prohibits spending of funds in fiscal year 2019 for both the U.S. sensor modernisation and for the acquisition of new Open Skies aircraft UNLESS the President (or the Secretary of State) certifies that "*the President has imposed treaty violation responses and legal countermeasures on the Russian Federation for its violation of the Treaty*".^{14, 15} At the OSCC session on 26. September 2017 the United States already had announced, that it intends to impose as of 1 January 2018 some restrictions on flight length and use of airfields in the western USA as "*Treaty compliant measures to encourage the Russian Federation to return to full compliance with its Treaty obligations*". It can be expected that the U.S. administration will refer to these countermeasures in order to lift the funding prohibitions for fiscal year 2019.¹⁶

The NDAA also contains a restriction on the future introduction of thermal infrared and SAR sensors. Republican Congressmen and senators have introduced language that funds cannot be used for participation of U.S. representatives in voting or approving decisions of the OSCC on introducing infrared and SAR sensors, UNLESS the President certifies that "*the Russian Federation is in complete compliance with its*

¹⁰ The thermal cameras will provide a resolution of 85 cm when flown at a low altitude of about 1500 m.

¹¹ H.R.5515 - John S. McCain National Defense Authorization Act for Fiscal Year 2019

<https://www.congress.gov/bill/115th-congress/house-bill/5515/text>

¹² "What is the Open Skies Treaty? Trump blocks funding for surveillance program that includes Russia." Newsweek Online, 14 August, 2:15 pm

¹³ "Trump signs Defense Bill suspending funding for Open Skies." Moscow Times, 14 August 2018.

¹⁴ Section 1242, Limitation on availability of funds relating to implementation of the Open Skies Treaty, H.R.5515 - John S. McCain National Defense Authorization Act for Fiscal Year 2019

<https://www.congress.gov/bill/115th-congress/house-bill/5515/text>

¹⁵ The US and other parties see Russia in non-compliance of the Open Skies Treaty by the Russian imposition of a 500 km flight length limitation over the oblast of Kaliningrad. In addition, the Russian veto to flights in a 10 km border zone adjacent to Abkhazia remains a violation from the US perspective until one country has verified the lifting of the 10 km limit.

¹⁶ Republican House members had introduced much stronger prohibitive language in the draft version of Sec. 1242. The Senate removed requirements related to "Russian aggression and malign influence" that were described (by the Senate) as unrelated to treaty violations. See "NDAA sought to derail Open Skies & New START Treaties with Russia" posted by Mashal Khailakbar, The Voice Times, 14 August 2018.

*obligations under the Open Skies Treaty*¹⁷. President Trump has reacted to these certification requirements in Sec. 1242 (and elsewhere in NDAA FY 2019) on 13 August 2018 by declaring “*that these types of provisions encompass only actions for which such advance certification or notification is feasible and consistent with the Presidents exclusive constitutional authorities as Commander in Chief and as the sole representative of the Nation in foreign affairs*”.¹⁸ Through this the President has emphasized his authority to eventually waive the submission of the above certifications. This is of relevance for the German modernization program, which eventually will need a certification of its thermal infrared sensor.

The failure to agree on a flight quota decision for 2018 - A stalemate over an unsolved territorial status conflict

The annual assignment of flight quotas is usually negotiated in an informal working group under chairmanship of Germany in early October of the preceding year. If a consensus can be reached there, it is formally decided by the OSCC later on. October 2017 was different. Like in several previous years, Russia had asked for a flight quota over Georgia. Georgia refused to give its consent to the full package of quota distribution and has continued to do so. Since 1 January 2018 no flight missions have been performed at all. State parties keep the required flight practice of their teams alive by training flights, many of them bilaterally.

Again the implementation of a multilateral treaty has been obstructed by an unsolved territorial status conflict.¹⁹ This time it is the dispute between Georgia and Russia over Russia’s recognition of Abkhazia and South Ossetia as independent states in 2008. Georgia and all other Open Skies parties apart from Russia consider Abkhazia and South Ossetia still as part of Georgia’s national territory.²⁰

¹⁷ Section 1242, Limitation on availability of funds relating to implementation of the Open Skies Treaty, H.R.5515 - John S. McCain National Defense Authorization Act for Fiscal Year 2019
<https://www.congress.gov/bill/115th-congress/house-bill/5515/text>

¹⁸ Statement of President Donald J. Trump on H.R. 5513, issued August 13, 2018. The White House, Washington D.C., https://www.whitehouse.gov/briefings-statements/statement-president-donald-j-trump-h-r-5515/?utm_source=twitter

¹⁹ The Open Skies parties have seen this before. The OSCC was prevented from taking any decisions from January 2011 to July 2012 because of a disagreement over the agenda. Greece insisted that the application of Cyprus for accession to the treaty should be mentioned explicitly in each agenda with reference to the accession application document of 2002. Turkey objected this request, arguing that the application had found no consensus (by a veto of Turkey) in 2002 and thus should no longer be included in the agenda.

²⁰ For details of the 2008 conflict and its historical roots see: Independent International Fact Finding Mission on the Conflict in Georgia (IIFMCG/EUSR), Report, Vol. I, September 2009, in particular pp. 10-11 (Nr. 2, 3), 19 (Nr. 14), 22-23 (Nr. 19, 20).

https://www.echr.coe.int/Documents/HUDOC_38263_08_Annexes_ENG.pdf (last access 10 September 2018); Benedikt Harzl, *Der Georgisch-Abchasische Konflikt*, Nomos, Baden-Baden, 2016, pp. 380 ; Ronald Asmus: *A Little War that Shook the World: Georgia, Russia, and the Future of the West*, German Marshall Fund, Jan. 2010.

For a discussion of the different political positions, perceptions and narratives see also:

Uwe Halbach, *Bilanz einer »Farbrevolution« Georgien im politischen Wandel 2003–2013*, SWP-Studie 2013/S 24, December 2013, 28 pages,

Uwe Halbach, *Ungelöste Regionalkonflikte im Südkaukasus*, SWP-Studie 2010/S 08, März 2010, 36 pages

Georgia acceded the Open Skies Treaty in 1998 by depositing an instrument of ratification with the depository states of Canada and Hungary. At that time like today Georgia considers Abkhazia and South Ossetia as part of its territory.²¹ Interestingly, since its entry into force (2002) Open Skies flights by other states over Georgia never covered the breakaway territories of Abkhazia and South Ossetia.

Initially Russia and Georgia did co-operate in the Open Skies framework. From 2004 to 2011(!) Russia performed one annual flight over Georgia, shared with the United Kingdom. In return, Georgia conducted one flight over Russia in 2007, shared with Norway, and another flight in 2008, shared with the USA (28 – 31 July), shortly before the August war.

In May 2010 Russia underlined its point of view on the independence of Abkhazia by rejecting the flight plan of a joint U.S.-Romanian flight over Southern Russia which would have entered a 10 kilometre zone adjacent to the border of Abkhazia.²² The rejection was heavily criticized in the OSCC. On 17 October 2011, the Russian Federation confirmed in the OSCC, that it would continue its denial of access for any future flights on the noted grounds.

Georgia went a step further. The head of the Delegation of Georgia to the OSCC, Ambassador Gaprindashvili, submitted a letter to the Chairperson the OSCC on 4 April 2012 declaring

- (i) *“Georgia will not allow any observation flights that include participation by the Russian Federation over the territory of Georgia” and*
- (ii) *“Georgia will not conduct observation flights over the territory of the Russian Federation”.*

The letter accused the Russian Federation of non-compliance with Treaty provisions by imposing flight restrictions on the U.S.-Romanian flight of May 2010 close to the border of Abkhazia (literally: *“certain regions of Georgia assessing that those regions constituted states, that were non-parties to the Treaty”*).

De facto, Georgia has suspended the implementation of its obligations and rights under the Treaty towards Russia, a unilateral step, which is not foreseen in the Treaty²³.

Two attempts of Russia to get a flight quota assignment over Georgia in 2016 and 2017 failed or were withdrawn. The moment of truth came in October 2017, when neither Russia nor Georgia were willing to step back from their position concerning a Russian flight over Georgia in 2018. The Georgian position on seeing Abkhazia and

²¹ The entities of Abkhazia and South Ossetia had broken away from Georgia in two bloody secession wars (1991-94). Only after the 2008 August war between forces of Georgia, Russia and South Ossetia the Russian Federation recognized Abkhazia and South Ossetia as independent states. See e.g. Bruno Coppieters: Four Positions on the Recognition of States in and after the Soviet Union, with Special Reference to Abkhazia. In: *Europe-Asia Studies*, 70:6, S.991-1014. <https://doi.org/10.1080/09668136.2018.1487682>
Today Abkhazia and South Ossetia are also recognized by four other UN member states: Venezuela, Nicaragua, Nauru, and Syria.

²² According to the treaty (Article VI) the full territory of a party is accessible apart from a 10 km strip along the border of non-parties. Russia sees Abkhazia as a non-party.

²³ Article II of the treaty states: „Each State Party shall be obliged to accept observation flights over its territory in accordance with the provisions of this Treaty”.

South Ossetia as an integral part of Georgia was supported by the U.S., UK, Canada and others in the OSCC. Thus, the bilateral dispute has developed into a multilateral one between the Russian Federation on the one side and Western states on the other side.

What can be done? First of all, the co-operation of Georgia and Russia in the Open Skies regime from 2004 to 2011 should be honoured. Secondly, it is unrealistic to assume that the separatist entities of Abkhazia and South Ossetia could be encouraged to re-join Georgia by a blockade of Russian flights over Georgia and the Open Skies flight activities at large. It is also unlikely, that Russia will withdraw from supporting Abkhazia and South Ossetia in view of Georgia's attempts to join NATO. A status-neutral approach needs to be found, maybe along the lines argued by Thomas Frear²⁴. One option might be to explore a flight in co-operation with the OSCE according to Annex L of the treaty.^{25,26} Some creative regional confidence building measures would also be helpful.

In the end, considering their interest in the Treaty and the heavy investment of both sides in new treaty hardware, the game changers are sitting in Moscow and Washington. Indeed the game was changed on 22 October 2018 when the OSCC agreed on the quota distribution for 2019. Russia had refrained from requesting a quota for a flight over Georgia. Open Skies flight missions can be resumed in 2019.²⁷

²⁴ Thomas Frear: A Status Neutral Approach for Georgia and Russia, European Leadership Network, Policy Brief, 29 August 2017

²⁵ Annex L, Sec III, 1. of the Open Skies Treaty indicates the procedural architecture of such agreements: 'The Consultative Commission (OSCC) shall consider requests from the bodies of the OSCE authorized to deal with respect to conflict prevention and crisis management and from other relevant international organisations to facilitate the organisation and conduct of extraordinary flights over the territory of a State Party with its consent.'

²⁶ A detailed discussion of the potential and limits of status neutral approaches in the region can be found in: Sergi Kapanadze, Ulrich Kühn, Wolfgang Richter and Wolfgang Zellner, Status-Neutral Security, Confidence Building and Arms Control Measures in the Georgian Context, CORE Working Paper 28, Centre for OSCE Research, Hamburg, January 2017.

²⁷ A first indication of a turn was the participation and optimistic outlook address of the head of the Russian Nuclear Threat Reduction Center, General Ryzhkov, in the final dinner of the certification event at Kubinka on 11 September 2018. The Center handles implementation of arms control treaty verification for the government of the Russian Federation.