

JOINT AIR POWER
COMPETENCE CENTRE
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GERMANY



CENTRE DE COMPÉTENCE
DE LA PUISSANCE AÉRIENNE
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**Record of Discussion from the
NATO Space Workshop
22 April 2008**

The purpose of the workshop was to obtain feedback from NATO Staffs and other organizations on the draft NATO Space Operations Assessment that the JAPCC is preparing for ACT. The workshop provided a forum to discuss the gaps and recommendations in the Assessment and to exchange information and ideas. This was an important first step for developing Space Power in NATO.

The workshop was held at the JAPCC Conference Centre in Kalkar, Germany. The format consisted of background briefings, provided by the JAPCC, followed by four discussion panels. The panels consisted of one or two guest presentations followed by group discussion. The agenda is included at Attachment 1. The workshop included more than 50 people from over 30 different organizations. A complete list of participants is included at Attachment 2.

The workshop started with a welcome from the JAPCC's Assistant Director of Capabilities. The JAPCC then gave an overview briefing on Space Operations and provided a moderator for the event. Chatham House rules were used; therefore, no individuals or organizations are attributed to comments in these minutes.

There were two actions from the workshop:

Action for participants: Deadline for inputs on the paper, Friday 2 May

Action for the JAPCC: to find out from ACT to future actions the timeline for those actions on the Assessment for the rest of the year and share with the community of interest

Panel 1, titled "The Need for NATO Space Governance," included briefings from the European Space Agency (ESA) and the European Space Policy Institute (ESPI). The ESA briefing covered their current activities related to security and defence. ESPI presented thoughts on what a space policy would be used for and introduced questions to be answered in order to arrive at a space policy. There was general consensus that a long term plan for Space was needed by the Alliance. It was pointed out that it will be a significant task for NATO to establish a Space Policy, as it will require political involvement by the nations. Part of a long term plan for Space is tied to programs and funding. Without overarching guidance, it is difficult to secure funding and compete against other priorities. Discussions will have to occur at the Military Committee (MC) and the International Military Staff (IMS) level. The "Ops" organizations must get involved in determining the need for integration of Space capabilities. A

fundamental question to be answered is if a NATO nation requests space support, what is the process and how can NATO support that request?

While it will be challenging in the near-term to have a over-arching Space Policy, there exists other avenues to integrate Space. Existing space-related guidance, doctrine and programs should further address the need for integration of Space capabilities. **A recurring comment was the need to immediately begin incorporating space activities into exercises and training events.** Training objectives related to Space should be standardized and implemented at the Joint Warfare Centre (JWC) and the Joint Functional Commands (JFCs). Along this theme, a concern was raised that **without standards and guidance, how can the member nations train their staffs to a proper level with regard to space?**

Part of the long term guidance that is needed is areas for investment in time, money and people. There is a need to engage on many fronts. Training and exercises at the lower levels. Program management, policy and guidance must be addressed at the highest levels. Since the nations provide space systems and capabilities, there must be political direction to translate warfighter needs into programs that deliver effects. In the short term, NATO must document current capability shortfalls, lessons learned and increase awareness and education. Mid-term, NATO needs to determine what future capabilities are needed and achieve cohesion so efforts are moving in the same direction. **Space in NATO is fragmented into stovepiped areas; until there is policy, strategy and guidance, we will continue to work in an ad hoc way.**

Panel 2, titled “Determining NATO’s Space Capability Requirements,” included a briefing by the National Security Space Office (NSSO) from the United States. The NSSO laid out a framework for addressing the space mission area and the process for translating policy into warfighter effects. It was stated that “If you mass, you’re dead. But we need the space and information systems for precision engagement. Space allows us to do it in a way we’ve never been able to do before.” Questions such as: “Do you want your SATCOM protected? Is agility important? Is communications on the move important? Will you be in an austere environment? What will you do about your adversary using space? How will we plan to support operations and how do we assure those capabilities?” were posed to the participants for discussion. Additionally, it was suggested that we want to use new technology to be better at what we do, but how to organize and allocate resources to get there? What’s the vision/policy for space (long term)? There should be enough policy/ guidance to move forward, but that doesn’t mean we can’t move forward without it. NATO should consider what are the operational concepts and plans needed to pull the capabilities together to deliver the effects and how do we resource them?

A generic construct is: Policy > Concepts > Capabilities > Effects. What do we want to be able to do, what do we need to be delivered for capabilities to achieve effects? Part of the solution is the need to also invest in a Space cadre: the people to integrate and operate. For NATO, how do we leverage and protect capabilities? NATO has three options for space systems: it could own its own space capabilities, nations can allocate capabilities, or if you have a global system, NATO could buy one more to be integrated for the use by NATO.

A point was made that if you can't make the case for the need for a policy, then why do you need it? For example, what happens when you face an adversary that takes away your space capability? What constitutes an attack on a space system? How are you going to deal with it? NATO needs to have a coordinated, integrated approach between the nations; this is how a policy helps you accomplish your mission. If a nation turns to NATO for help, after national capabilities have been exhausted, how will NATO respond? NATO needs to look at all national space policies and see what's needed. Additionally, for NATO/ISAF missions, chains of command and responsibilities are not clear. There are several layers to consider: bilateral, multi, and NATO relationships. **There needs to be a foundational level of space support, no matter the operation, nation or location. How do we do it, and what are the requirements?**

A concern that was repeated was the need to protect and defend various space systems. There are various political sensitivities for Space programmes, but it was generally agreed that determining who is responsible for defending space systems is important. The nation or company providing the system is responsible, but it is much more complex than that, such as, who would pay to protect commercial SATCOM or imaging systems being used by NATO? How can we support the decision makers and warfighters? Rules of Engagement will have to be developed.

There has been some great work done on programmes so far, however, what's needed is a policy as over arching cover for all the individual programmes. Once you have overarching direction, priorities and guidance, then you can have CONOPS and other documents. What about the feedback mechanism? What about lessons learned? None are documented on shortfalls of Space for ISAF. Some units get great support, some get none. **A policy will define how you can use your assets. Policy helps to define how you use the provided capability. Where will NATO be in 2030? There is a need to plan for space today due to long lead times and expense. What are the priorities for Space?** Is it SATCOM, or is it ISR? We have limited resources that needed to be applied. We may need to have a NATO common system. An option is to do an additional buy for global connectivity and access. For example, the Australians recently purchased a WGS satellite from the US which provides them national capability and access to the entire network for a greatly reduced cost to them trying to develop it on their own. NATO could potentially solve its EHF needs by purchasing an AEHF satellite.

NATO must better utilize existing capabilities, but it is not clear what can be provided by Space to the forces. How do we want to use what's out there today? In other more mature communities, like logistics, there is understanding of the mission requirements, systems and the direction needed; and it's being implemented. ACT should create a map for where we are going. For example, an area for concern is assured access to space. There are increasing needs for national security and there are competing demands to share warfighting capability with NATO.

Several comments were made relating to missile warning and defence. In light of the recent Bucharest Summit, it was suggested that the JAPCC address early warning systems and space support to missile defence.

Training and educating personnel on space capabilities was again raised as an issue. Forces must have an appreciation for space, but what is the best way to build that expertise. It is different from training a space cadre to operate space systems, NATO and most of the member nations don't have space systems. To build staff officers smart on space will be challenging. If you pull an officer out for a special duty assignment in space, what is their career/progression? Hard to pull out for a single space tour and then go back to their nations. However there should be training at the low level for a quick win. At the JFC J7 level, they can incorporate space training activities today. Our commanders are smart. **They need to be challenged to solve problems during exercises**, such as dealing with SATCOM and GPS outages and attacks on space systems. This will help change the emphasis on space at the operational level.

As a final thought, it was pointed out that the NAFAG (NATO Air Force Armaments Group) has some place holders for Space, defined as "aerospace" capabilities. There is a May meeting on Space ISR. How space can influence NAFAG? NATO needs to educate the HQs and train the warfighters. The politicians need to be educated so they understand the need for a space policy.

Panel 3, titled "Integrating National Space Capability," included a briefing from the United Kingdom's Hq Air C2 branch on space integration. The European Union Satellite Centre (EUSC) provided an overview briefing. The UK is developing a Concept of Employment for a Space Operations Coordination Centre (SOCC), with an estimated stand-up date of 1 Aug 08. Key to development of Space Power is to find a high ranking sponsor and then establishing a space working group for oversight. The UK has created a virtual space community across many organizations. They have looked at how other policies/strategies are being developed, for example cyberspace. How are they formulating their policy? The SOCC is basically a translation function, taking space information and translating it into warfighter capabilities and effects. Foreign disclosure has been and continues to be difficult; meaning releasability of space products from the US. NATO should look at inter-service exchanges, not just international and engage with industry as well. There is a need for command and staff training at all levels. The RAF has opened postings at the Fylingdales radar to their other services. A comment was made that the general public needs to understand space at a broad base level. Space can be marginalized, you can't just put in space control activities; space is an enabling medium, so you need to provide benefits today. However, if Space is important to your forces it must be addressed. If you want space after fighting starts, we need to put in space control to ensure them later.

A comment was made on whether NATO should have a Space CoE separate from JAPCC or to stand-up a **NATO Space Component Command**. Space is another aspect that commanders have (and need). We must figure out how to exchange the products provided by the nations. Interoperability problem and products must be in standard format or converted to a NATO format. An Intelligence person planning collection must know what's available from the nations. We need to develop TTPs and collaborate more. We need to know who has what and who needs what. Space is another source of information, which the Commander has to be educated to use. The customer must know the capabilities and know what to ask for. We have to start with

training. **We need to add space expertise to existing boards and processes**, for example, NATO probably does not need a separate space coordination board.

A comment was made that feedback from ISAF is that they get zero space support. Is this where we want to be in the 21st century? It's a formal Alliance, not a coalition, so we need proper guidance, support and direction. Need a short, medium and long term vision. We are still operating in an ad hoc fashion. We need to determine what is not available to ISAF/NATO. What space capabilities are available to the ISAF troops on the ground? Where is the list of national space capabilities that ISAF can call upon? Space capabilities are usually not on the CJSOR. Deployed individuals are left to their own means to get space support.

Again the issue was raised on how to train personnel and develop space expertise. An example was used that it is reasonable to expect a pilot to be put into an Air Operations Centre and “pick it up,” but it isn't reasonable to expect them to quickly pickup Space expertise. Creating exchange positions between member nations and the US and putting them in Joint space positions would be very challenging. It will be easier if space is integrated into existing NATO operations centres. **All the nations should have an expectation that their forces have some knowledge of space capabilities. This shouldn't be only a NATO responsibility.** This is one area where a Space Policy/Strategy would be helpful.

Panel 4, titled “Conducting Combined Space Operations,” included slides sent from HQ ISAF on space planning, issues and successes. The JAPCC covered the briefing on behalf of a space planner in Afghanistan. A comment was made that NATO should focus on force enhancement capabilities, that space control often gets too much attention. National capabilities should focus on protecting the domain rather than developing NATO capability to defend satellites. **It is more important for NATO to focus on what are the gaps, and how can we help the troops on the ground.** Additionally, space control is where many of the political sensitivities and releasability issues are. However, NATO should address space control as it relates to attacking command and control, ground terminals, buying imagery, etc, but not attacking satellites. Another comment was made to not dismiss NATO doing space control. Ground systems, both military and civil must be protected. Guidance is clearly needed to address this mission area.

There was discussion on the need for a **NATO space coordination centre**, a one stop shop to help users ask the right questions. This would be a node with the knowledge, to go work missile warning, GPS, etc. The centre would do the reachback and pushing forward of information. The US Director of Space Forces is that node in USCENTCOM. NATO needs a central point of contact. The best bang for the buck will be a small core of experts to work on the behalf of the rest. NATO should keep existing J2/J6 processes. A suggestion was made for the **need to have an Allied desk at the US Joint Space Operations Centre (JSPOC) and potentially at the UK SOCC.** It was suggested that NATO could stand up a separate Space centre, but that was not recommended. It could be co-located within another operations centre or could be integrated in the CAOCs as the US has done. It was generally agreed that there should be a central node to consolidate space requirements from the expeditionary warfighter. Precedence as been established with the Special Operations

Centre in SHAPE as a central coordination centre for the nations. **Policy must address the need for reachback and to coordinate in theatre as well.**

An example was presented from personal experience in ISAF. In ISAF 7, they had minimal communications, no airborne relay, no VSAT (Very Small Aperture Terminals) terminals, no beyond line of sight communications. They didn't have the C2, there were outages. Then, in ISAF 10, they had lots of C2 platforms and capabilities, now, the problem was which one to use?! What will be the NATO standard? As the guy on the ground, they don't know what space can do for them. Every out of area, expeditionary operation will be different, but space enables them all when you first hit the ground. **What's needed first is for space personnel on the component staffs, to train and provide capabilities info.** The RCs don't know what they can do and need help learning what to ask for. Space personnel need to sell the capability and most importantly, prove that they can deliver support. Air Power was proven by precise engagement, flying shows of force, shaping operations, etc. Space will need to prove it can provide help and that it works. **We have to man NATO with the right people, and this includes the space position in HQ ISAF,** it should be filled with NATO personnel, not someone deployed from the US with no NATO experience.

There were discussions on creating new exchange officer positions in nations and to create new NATO space billets. **It was generally agreed that during the PE reviews, the space personnel positions should not be deleted.** The question was asked if there might be support from the nations to have space exchange officers. It was pointed out that the US helped build air expertise: by sending our experts out to the Allies. There are existing exchange officer positions, perhaps it should be evaluated if some of them can be converted from pilots to space personnel. Liaison officers are not as effective since releasability and classification issues are harder than exchange officers. Another option is to have imbedded Allied personnel in places like the JSpOC or other space centres. NATO could have staff officers at ESA and the EUSC. It was generally agreed that it makes sense to have a central focus on space expertise. NATO needs to manage its space expertise better and have one place for commanders to go to for advice on space. At the senior level, they need exposure on Space. There should be "Space days" at all staff colleges. They need to be trained to start asking questions. NATO needs to provide top cover by asking nations to support.

The JAPCC provided some closing remarks. The JAPCC is starting the process with the Space Operations Assessment and thus is drawing attention to Space in NATO. NATO has become too reliant on Space for the focus/efforts to stop. NATO must make steps forward. **It was overwhelmingly agreed that NATO must get space into exercises.** NATO needs to develop space training objectives. ACT is focused on support to the warfighter. We need to help determine what part space contributes and we need to work with SHAPE to get those operations requirements for space defined. Additionally, NATO needs some expertise in JALLC to capture those lessons and requirements. Developing space requirements is hard; you don't know what you don't know. We need to start with what are the warfighter effects needed. What needs do I have? Focus first on the effects. This will be a long process to develop Space Power in NATO. Some practical solutions were discussed during the workshop. We must keep taking steps forward.

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Attachment 1 – Agenda

Begin	End	Event
0850	0900	Admin Remarks
0900	0910	Opening Remarks
0910	0930	Space Operations Overview
0930	1045	Panel 1 - The Need for NATO Space Governance Presentations by ESA and ESPI
1045	1100	Break
1100	1215	Panel 2 - Determining NATO's Space Capability Requirements Presentation by NSSO
1215	1330	Lunch
1330	1445	Panel 3 - Integrating National Space Capability Presentation by UK HQ Air and EUSC
1445	1500	Break
1500	1615	Panel 4 - Conducting Combined Space Operations Presentation from ISAF
1615	1630	Wrap-up
1900	2100	Informal Dinner – Ratskeller, Kalkar

Note: There was an icebreaker event held at the Hotel Cleve the evening of 21 April.

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Attachment 2 – Participants

Total Organizations Represented: 36

Total Registered Participants: 49

Total Participants: 55 (including JAPCC national representatives)

Nationalities present: 14

1. ACT
2. AFSPC/A8I
3. ALCC HQ Heidelberg
4. ALTMBD PO
5. ARRC
6. EMA (LO by BMVg)
7. CC-Air Ramstein
8. DEU MoD
9. DLR
10. EADTF (Heidelberg)
11. ESA
12. ESP Intel Centre
13. ESPI
14. European Space Liaison - USAF
15. European Union Satellite Centre
16. GAF Transformation Centre
17. HQ SACT EO ICT
18. IABG mbH
19. JAPCC
20. JFC – Brunssum
21. JFC-B J3/CJOC
22. JFC-N J5
23. MCC-Northwood
24. NATO Defence Investment Div.
25. NC3A
26. NSSO
27. RTO
28. US SAF/IA
29. Secure World Foundation
30. SHAPE J3 TMD
31. UK HQ Air
32. US Air Staff
33. USAFE DS4