

***AIR, SPACE, AND CYBERSPACE POWER IN THE 21<sup>ST</sup> CENTURY***  
***38<sup>th</sup> IFPA-Fletcher Conference on National Security Strategy and Policy***

***January 20 – 21, 2010***

**DAY TWO**

**INTERNATIONAL PERSPECTIVES:  
DEVELOPING GLOBAL PARTNERSHIPS  
10:00 – 12:00 NOON**

**General Stéphane Abrial**

**DR. JACQUELYN DAVIS:** --As we and our allies face increasing defense planning constraints, whether they be in the form of budget contractions, forward operating base access, environmental considerations, or as a result of changing threat perspectives. In Afghanistan, and before that in Iraq, United States is operating and did operate closely with its principal allies. Through NATO and in the context of its bilateral relationships, the US has fostered interoperability and combined training, concept development and even, lately, forces rationalization to meet common objectives.

We have two speakers here today who are part of the NATO organization and who, I suspect, will offer an alternative analysis of the continuing promise of NATO as an organization—especially in the context of current efforts to update NATO’s strategic concept to identify and address current and emerging security challenges.

Our first speaker today, General Stephane Abrial, is very well positioned to speak to us about NATO transformation and air, space and cyber issues. General Abrial, as you know, is the first non-American to hold a strategic command portfolio in NATO, that of SAC-T, Supreme Allied Commander Transformation. And with Admiral Jim Stavridis,



power partnership, but that it is rightly moving forward, making sure its air collaboration remains as relevant as ever—and developing cooperation in those other decisive environments, space and cyber.

Air power has always been central to NATO.

The glue that has made NATO different from other organizations, that has made it the most successful military alliance in history, is the Article 5 of the Washington Treaty, its unambiguous commitment to collective defense. And still, today, one of the most concrete testimonies of this collective defense - its backbone, according to some - is our common air policing, in which we jointly and collectively preserve the integrity of NATO air space.

This integration goes far and deep. For example, the NATO E-3 AWACS component is not only our Alliance's largest deployable unit—it is the world's only integrated multinational flying unit. Another prominent example of how far this goes is the role NATO air forces play in policing the Baltic air space since 2004.

Indeed, since their independences, the Baltic States have not recreated full-capability air forces and have entrusted our Alliance with part of their air-space security, at least until 2014. The French Air Force took responsibility for one rotation in 2007, when I was its Chief. And just two weeks ago it sent four Mirage fighter jets and 150 military on another four-month tour there.

I believe there is much to learn from this mission. With well over a dozen NATO countries having taken up this duty in the last six years, it is both a tangible proof of solidarity and a very interesting testing ground for concrete cooperation between the host nations and the deployed elements.

This is one of the collaborations that are day after day transforming our air forces, notably helping many new members reach NATO standards in record time. Another

impetus is provided by the NATO Response Force, our joint quick-reaction force, which includes an air component able, for example, to provide 200 combat sorties a day.

My own experience has shown me that this component is not only on paper. In 2005 I happened to be the Air Commander for this NATO Response Force when hurricane Katrina struck a part of this country that I knew well, and I was put in charge of deploying the air bridge that NATO had decided to assist the region in dealing with the aftermath of the cyclone. And immediately after, we deployed another air bridge as part of a relief operation for the victims of the earthquake in Pakistan.

Throughout the last 60 years, NATO Air Forces have never stopped training in a very close way and with a higher degree of integration than our Maritime or Land forces.

This has been of tremendous value, since I strongly believe that training is an essential element of Transformation. And, indeed, in today's operations, NATO is reaping the benefits of these years of collective effort. It has reached a degree of interoperability it would not have attained if it were not for this bedrock of collective defense. Another, less obvious, link with current operations is that many of our nations will contribute to out-of-area operations only if they feel secure at home - which is the case thanks in no small part to the air policing that lends credibility to our Article 5 guarantees.

However, this conference has highlighted the challenges current operations represent for the use of air power. My most specific concern is how these issues play out in the case of an alliance or a coalition.

The first, obvious, challenge is the question of air space management and control. Such coordination has always called for close attention in coalition operations, but more so today with the added complication, for example, of integrating UAVs controlled by different forces or agencies. In total, the number of users in the Afghan air space has increased 50% between 2004 and 2009, so we have to constantly improve the way we manage such complexity.

Other issues are even more sensitive. The kinetic use of air often raises the question of the difficult balance between a necessary restraint and the risk to friendly forces. Multinational situations, which are the rule rather than the exception, make this even trickier, since you have to balance the risk to a land force from one country and intervention by air assets provided by another.

Such operations bring together nations that have different sensibilities regarding the use of air power and different levels of sensitivity of their public opinions. Strategic and joint commanders must be aware of this diversity or risk seeing the political support unravel. Collateral damage impacts both the local population and popular support in not one or two, but dozens of troop-contributing nations - which are all the more reasons for procedures throughout the multinational force to help avoid them to the largest extent possible.

And, of course, working in a coalition poses the very real question of the sharing of intelligence. Operations in Afghanistan have shown the difficulties arising from an insufficient ability to do it. Not accessing national intelligence justifying a target being placed in a Joint Prioritized Effects List has kept whole nations outside much of the targeting process. On the other hand, some nations will not automatically share intelligence that could result in kinetic actions.

NATO is moving forward in making its forces even more relevant in facing the current threats. One important project it is pushing forward is its coming Air C2 Concept some of you may have worked on. And if you have questions, please don't direct them to me but to my good friend General Roger Brady, Commander of the Ramstein Air Component Command, who is working on it. It will provide a powerful, long-term framework for moving from our current state of coordination to one of real collaboration. Many in this room have probably experienced from their own tours in Afghanistan that our air resources there could be used more efficiently. We expect this concept to enable our deployed air assets to be engaged more productively and more responsively, even in smaller numbers.

In NATO, developments in Air interoperability have often led the way for progress in other environments. Likewise, looking at this concept with the eyes of a joint commander, I would like to see it become a blueprint for collaboration in other components.

Our common experience in Afghanistan is also pushing us forward on other fronts. For example, one air force can have a very best operational picture of its own nation's ground forces – but that is of little avail if half the land units to which it provides fire support belong to another nation equipped with a system that is not interoperable. We have therefore launched, two years ago, a fratricide prevention initiative aimed at making ground-to-air, friendly forces tracking systems interoperable in the near term.

NATO is thus vigorously confirming that it is for its members not one of many configurations in air partnerships, but their preeminent air alliance. This gives it a responsibility to make sure that we keep our guard up. Today it sometimes seems that achieving air dominance is in a certain way the easy part of operations and almost goes without saying. But potential adversaries don't necessarily see it that way, even in counter-insurgency operations: for example, a notorious Lebanese militia has fielded UAVs as early as 2004. We must therefore work together in developing a full spectrum of future air capabilities to ensure that we continue to enjoy the dominance we might take for granted - and in doing this, it is essential that we both control costs and ensure future interoperability. Multinational initiatives can help find adequate solutions, while in addition bolstering solidarity.

But there is another crucial environment in which I believe our nations' current and future needs call for our Alliance to assume a more active role in fostering partnership: space. Most of the reasons that make our convergence in air power necessary also apply, and sometimes to an even greater degree, in matters of space. Without space assets, our NATO operations in Afghanistan would basically grind to a halt. Our time-sensitive targeting, for example, relies on a seamless continuum of air and space -

some would even say space and air - and often land. And I could give examples in all fields, from communications to ISR.

The question, therefore, is of what need there is for increased Alliance partnerships in providing our troops with these necessary capabilities. One could argue that the current system, resting on national assets, is satisfactory, but I don't believe many people would agree any more. Intelligence sharing is, once again, the first concern in the current arrangement. In contrast, shared assets would lift many of the roadblocks that we encounter when relying on purely national means.

And, of course, it will also be necessary to look into the mechanisms of cost sharing. The issue of critical mass that I mentioned about air power applies even more forcefully to space. Many countries will either share the costs in a common program or not carry any part of the burden at all. But with the rising costs of satellite programs and under the current budgetary pressure, this issue of cost sharing speaks to all nations. I therefore believe the time has come for NATO to reinvest in a real space policy, and I expect to contribute to initiatives to this end in the coming months.

Before closing, I will touch, but only very briefly, upon the third environment at issue today: that of cyber. This is taken very seriously in NATO, and I believe it is also a field all our nations need to look into together because of the very nature of cyberspace and cyber warfare, in which borders count for little, and the weakness of one ally can make us all vulnerable. Our NATO-accredited Cyber Defense Center of Excellence in Tallinn, Estonia, is spearheading our efforts to ensure that this essential part of the "global commons" is kept free and safe. We are working very hard on this issue.

Above and beyond this initiative, let me in closing bring together these different threads in partnerships in interoperability: in today's joint environment, they don't stand separate from each other, or from land and sea. NATO has therefore developed a holistic vision for network enabled capabilities, which we call NNEC and which my command is promoting vigorously. It is not in itself a project, but a force for reaching a full coherence among various NATO programs. At its core is a vision on moving our military cultures



same weight. And we have to acknowledge the fact that cyber is very close to precise national interests. And some nations are not yet ready to make this step forward.

My hope is that we can develop concepts and ideas, which make the case to the nations that we can develop a real NATO capability. I cannot guarantee that we will be successful, at least in the short term.

**DR. DAVIS:** General, just a small clarification on the question if I might. As you discussed and as you described, the debate over the new strategic concept includes whether cyber should be considered an Article 5 challenge threat or not. I wonder what your personal views were on that and how we might bring together the two sides of the debate into NATO to get a responsible language in the strategic concept on cyber?

**GENERAL ABRIAL:** It is a very good question. [Laughter] I'm not surprised you asked it. My feeling is that, contrary to what had been proposed at the beginning, there is no longer any question to modify Article 5. The people who put together these very few words were very clever. We could never do better today. So my impression is that there will be no change in the wording of Article 5. The very important factor is that all nations have a common understanding of what it means, which I might argue is maybe not the case today.

The other aspect is, what exactly do we understand? Today we have these very easy words. Article 5 deals with armed attack. What is an armed attack today? Would nations agree that a cyberspace attack could be considered as armed? Then the logical deduction would be that it is considered also within the framework of Article 5. But I don't know whether we can agree.

My feeling is that cyber is not brand new, but is a new domain, which has not been explored so far. What we have to deal with in ACT, in its think tank function, is working hard on this problem, this question. And as an aviator sometimes I was thinking that if

you have a bunch of aircraft trying to attack you, it may be better to defeat them by cyber, rather than having to launch a counterforce and using kinetic means.

So in my very personal view, yes, cyber is a central topic. Now, should it be recognized as an Article 5 issue? I think it is a more political decision.

**DR. DAVIS:** Thank you. Next question. Right there.

**ROGER BRADY:** Roger Brady, US Air Forces Europe and Commander Air Component Command, Ramstein. Several of my NATO friends here might take a crack at this but General Abrial, who had discussed air command and control with me on several occasions, will soon host a round of discussions on NATO's new strategic concept. And it's my understanding, Stéphane, that they will include addressing any need for change in NATO organizations.

As we talk about things like AGS that was mentioned by Brigadier Mans, the heavy airlift wing, a couple of other things that are going to happen, French reintegration—and, also, the latest new child on the block, which everyone is going to get very interested in is ballistic missile defense. Does this provide impetus for a discussion of the more unified air command and control structure? By the way, as most people know, none of these capabilities that I mentioned are part of the NATO air command system.

**GENERAL ABRIAL:** Thank you. Now, I face a difficulty, since I said that I would redirect any C2 question to General Brady. But since he asked the question, I have a problem now. [Laughter] Well done, Roger! Yes, we have many changes ahead. You just mentioned, rightly, we will be co-hosting the fourth and last strategic concept seminar in Washington, D.C. in the NDU next month. And those issues you have been mentioning will be on the agenda. I don't know how the speakers who are going to be in the panels will talk of these issues. And I don't know yet, of course, what the group of experts will take from them. Because these seminars are for their benefit, for them

having heard all of this, having thought on all these issues, for them to make a proposal to Secretary General on what could be, or even what should be, the Strategic Concept.

On the air side, I do believe that we have a level of integration inside NATO, which is higher than other services, other components. It is probably due to the nature of our third dimension elements. But I also think that we can do better. I think that we need to integrate more. I think that we need to continue working on how to have flexible, reliable, deployable aspects of our Air C2 elements, on which we are working very hard as you know. We all work together. We need to have a vision, which helps us face today's challenges in the air domain and prepare for tomorrow.

My personal experience is that we should envisage all the possibilities to integrate, if there is a will there. Or at least be able to interface the best possible effective and also efficient, cost-effective way, then we may help the Alliances' nations to make good progress. So I hope that these difficult questions will be raised and will find some answers next month. And, again, my very personal view will be in favor of more interfacing and as much integration as possible.

**DR. DAVIS:** Air Vice-Marshal Hillier, do you want to say anything on these points, because the UK, of course, is very deeply involved in the strategic concept discussion?

**AIR VICE-MARSHAL HILLIER:** I mean I'm not personally sort of involved in those discussions ...(inaudible) perhaps offer a personal very. And I touched on it a little bit in my presentation about command and control. And I think it is just making sure that command and control works for us, rather than us working for command and control—and that it is based on what you need to get the job done rather than geography, for example. And need to make sure that command and control isn't judged as remote from the wars that we are in at the moment.

So I think I would just simply say that, you know, whatever we are looking for, it needs to be that agile, adaptable, and relevant for what we are doing. So that is a personal

view. That is to say, it is not something I'm involved in, in terms of the mechanics of how it is going to work through.

**DR. DAVIS:** Yes. There is a question here.

**CAITLIN HARRINGTON:** Hi. I'm Caitlin Harrington with *James Defense Weekly*. My question is for Commodore Steele and Vice Admiral Hillier. There has been a lot of talk in the US in the past few days about the joint strike fighter program. It looks like there is going to be some delay on flight testing, which could impact the unit price of the early production orders of that aircraft. And for Australia and the UK, I'm wondering what the sense is in your air forces? Is there any concern there about the unit cost going up? Will that affect how you are thinking about your purchases as you move forward?

**DR. DAVIS:** Stephen?

**AIR VICE-MARSHAL HILLIER:** Well, again, I mean I'm not familiar with all the detail of the UK's approach in the F-35 program. But clearly, as a major acquisition program for the UK it's of great relevance. I think what the UK would be looking for is from F-35 that it has got to be capable to do what we require it to do, to be adaptable. It's got to be able to fit the full spectrum of conflict and not just a niche capability.

And it's got to be affordable. I think the affordability works in two ways. It's got to be value for money within the program itself. And it's got to be affordable in relation to defense priorities. And so where does the F-35 sit, again, in the context of the UK's defense review? It will be considered, I'm sure, against those benchmarks of capable, adaptable and affordable. But I wouldn't pick F-35 out and say that, therefore, somehow it is a particularly special focus. Every part of UK defense has to be able to justify itself against those sort of parameters in any defense review. So I don't see it as an exceptional case.

**DR. DAVIS:** I guess, Stephen, you don't want to wade into the debate that occurred over the weekend, reported in the *Telegraph* and the *Guardian* between our good friend Mark Stanhope, First Sea Lord, and David Richards about aircraft carriers and what they may carry and how many there may be?

**AIR VICE-MARSHAL HILLIER:** No. Wade into four-star debate. [Laughter] I will perhaps only tip my toe in rather than wade in. But I think I mentioned in my presentation, is that there is a debate going on in the United Kingdom at the moment looking at this defense review. I think that is entirely healthy. And one of the key parts of the debate is, what is the balance between high and low end capabilities? What are the most likely conflicts we will be in? What are the most dangerous conflicts? And what are the risks associated with taking particular courses of action.

And it is just an assessment of choices and risks, which will ultimately be political decisions. So I don't think that we should read in that the UK is going in a particular direction as a result of these speeches, which were made. It is simply healthy debate as part of the run up to the defense review.

**DR. DAVIS:** Air Commodore Steele?

**AIR COMMODORE STEELE:** Thanks. I think the Australian government has taken a cautious approach to acquisition of JSF. It was timely, their decision to sign up to acquiring the first 14. And from the previous government as well, I think the hedging strategy of acquiring the 24 Super Hornets as a bridging air capability, combat capability is again, shows that cautious approach.

We, obviously, are very interested in the schedule and cost because our F-11s are going to be withdrawn as classic Hornet fleet is getting old. We want to have a networked, truly fifth generation force early in this 21<sup>st</sup> century. So we are keeping ourselves apprised of, particularly a schedule and cost as more information comes through to the surface.

**DR. DAVIS:** General Abrial, it is perhaps not fair but I'm going to exercise the prerogative of the Chair, again, to ask you a belated question, with respect to JSF. Because General Schwartz and the United States has a decision and it has to do with the nuclear capable variant, wiring the JSF to be nuclear capable. And that has to do with the DCA mission in NATO. And I wonder if you could say something about your thinking about the future of DCA deployments in Europe as you think about the changing deterrents landscape in Europe and globally?

**GENERAL ABRIAL:** Again, this is an issue that is part of the Strategic Concept debate. And it is an issue, which will be dealt with next month, in and around the Fourth seminar. I must say I have not studied it so far because it is not exactly in ACT's portfolio. The only experience I have is in my previous capacity. And this, I think—I'm still somebody who thinks that we do need both visible commitment and capabilities in this field. And the link that we have established through the years is very important to the global position in the Alliance.

**DR. DAVIS:** Thank you. Next question. Yes. Right here.

**BOB TAYLOR:** Bob Taylor, the Commander of Air Force Space Command. And this is for the entire panel. We have long histories of collaboration between our forces, either bilateral history or through alliances. I think each of you at some level mentioned about the importance of space to us, both operationally and in terms of our overall national security. Could you comment on where you see opportunities for us to collaborate? I know, General Abrial, you mentioned this specifically in your remarks.

But for each of you, could you comment on where we might have some opportunities to improve our cooperation, collaboration regarding space activities?

**DR. DAVIS:** General Hokazono, would you like to start?

**GENERAL HOKAZONO:** Thank you very much for your question. As you know, Japan is one of the leading countries of the space development. But mainly the responsibility is conducted by the Ministry of Education, Culture, Sports, Science, and Technology. And three years ago Japan established a law, the basic space law, which allows us to use space for the defense of the nation. So, it was the start for the Japan Self-Defense Force, to be involved to the space matters.

At this moment, in the Ministry Of Defense, we don't have a specific project. But as the Air Self-Defense Force, we have two main areas to develop. One is space communication. And the second is space surveillance. They haven't been funded officially yet, but we are studying those issues now. Regarding the cooperation with the United States at this moment, the MOD is thinking about sending personnel to your basic space education program in order to gain the knowledge from the United States about space activities. We will go forward step by step. Thank you.

**DR. DAVIS:** General Abrial, do you wish to add to that?

**GENERAL ABRIAL:** I can just say that space, as you know, is a very sensitive issue. Not everybody has a similar understanding of what we could or should do in space and the nations have various points of view—which is probably why NATO has not been further than it is today in this domain. It is one of the new domains, which ACT is working on very hard. It's always an issue, which is very close to sovereignty matters, displaying to others what type of capabilities you need, where and when you need to look at things. It can be very hard to share with others.

On the other hand, maybe communications could be easy to share because your very specific nation's devices can be on the ground somewhere and space could just be the vehicle to make sure that he gets the information you want or need. On that matter I think that it will be difficult to get a unified NATO position but I see some future in multinational initiatives, like the NSCC, which has been briefed here, like the helicopter initiative, like the C-17 initiative—where some nations might want to share with each

other a few of these aspects, as just mentioned. And this will also help smaller nations with smaller budgets to jump into the fray. Whereas alone, we could never do it.

So I think that the way we should look at the issue is, try to find what are the areas in which groupings of nations within the Alliance could work.

**DR. DAVIS:** Air Commodore Steele, do you want add to that?

**AIR COMMODORE STEELE:** Thank you. I guess ten years ago I would have said that Australia ...(inaudible) the Royal Australian Air Force, in particular, the Australia Defense Force is not a space force. But that would be patently wrong now. Now though we don't actually put assets on orbit, we are inherently involved in day-to-day business in the space game. When we think about space, I just think about it as a medium to conduct operations. That's all. It's an asset that we need to use.

The Chief of Air Force in the Australian Defense Force is the coordinating capability manager for space. But space spreads across the whole spectrum of our defense force. We are investing in wideband global satellite, investing in the SIC(?) satellite to go on orbit. So we are involved in that constellation. We are involved in UHF SATCOM that is going over the Indian Ocean. And because of our relationship with the US in particular, space is just another medium for sharing information.

We understand there are opportunities for us to contribute to the space situation awareness that we all need to look out of our atmosphere into the other world ahead—as well as look down on the globe. And we believe there are some opportunities that Australia could contribute in the SASA(?) environment as well.

**DR. DAVIS:** Thank you very much. Unless there is a last burning question—it remains to me to thank our panel members and close this session and let us show our appreciation.

[Applause]

END OF SESSION