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Chair

Mr. Stephen Fuhr

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•(0845)

[English]

The Chair (Mr. Stephen Fuhr (Kelowna—Lake Country, Lib.)): Welcome everybody. We're missing a couple of members, but we have a quorum, so we can get started.

I would like to welcome our guest, Lieutenant-General Pierre St-Amand. Thank you very much, sir, for coming here to discuss our defence of North America and, more specifically, the aerial readiness of the Canadian NORAD region.

You have 10-plus minutes.

LGen Pierre St-Amand (Deputy Commander, North American Aerospace Defense Command (NORAD), Department of National Defence): Thank you, Mr. Chair.

[Translation]

Mr. Chairman, members of the committee, let me first thank you for the opportunity to appear before you and discuss NORAD. I also would like to extend the greetings of the NORAD commander, Admiral Gortney, who looks forward to your visit to the NORAD-USNORTHCOM headquarters in early May.

[English]

On May 12, 2016, NORAD will be 58 years old. Our story has been characterized by success and great service to both the United States and Canada. Our commander likes to remind us all that NORAD was born out of the Cold War and expanded to an internal threat focus after the events of 9/11.

The events of 9/11 were a turning point in our history. NORAD was able to evolve and adapt in the same way that we have always been able to do so in the presence of developing security concerns that affect North America, either directly or indirectly.

We do not operate in isolation. The nature of our operation demands a high level of coordination with law enforcement and domestic security agencies on both sides of the border. Our high level of integration with our U.S. twin command, U.S. Northern Command, and coordination with the Canadian Joint Operations Command produces continental effects that far surpass NORAD's current primary mandate of protecting North America's airspace.

Our perspective is unique in the sense that we deliberately watch for and anticipate potential security issues for the homelands, and our area of interest is global in nature. As such, we see much that is of concern and deserves our attention. The spectrum of threats and potential threats to our security range from traditional nation state

military capabilities to individuals with access to increasingly destructive technologies.

Great power competition is back. This is now a prominent view in the United States. Potential adversary behaviour and continued efforts to develop advanced military capabilities, especially those that can reach North America, are a matter of critical importance for us. For example, Russia was able to deploy long-range, conventionally armed cruise missiles comparable to western systems this year. Indeed, this capability was on display as Russia employed heavy bombers, surface vessels, and a submarine to launch advanced conventional cruise missiles at targets in Syria. When combined with a high level of long-range aviation activity in the vicinity of our air defence identification zones in the last few years, we take notice.

We're also concerned about violent extremists and the enduring threat they represent to general and commercial aviation. We're concerned about ballistic missiles and related capability developments.

Our current missions include aerospace warning and aerospace control, and maritime warning in the defence of North America. In concert with our sister commands, we're observing threat streams that force us to adjust our aperture and pay attention to other domains, such as cyber.

I don't want to be perceived as crying wolf, of course, but while a worst case scenario of a direct conventional attack against North America remains unlikely, it is the responsibility of the commander of NORAD, on behalf of both governments, to plan for the eventuality and contribute to the deterrence of such an attack. The way we deliver our NORAD missions is through a spectrum of most likely to most dangerous courses of action.

We take pride in being as effective as possible, given our means and capabilities, when dealing with the most likely. Those are the operations that we conduct daily in the three NORAD regions: Alaska, Canada, and the continental United States. They include the part of Operation Noble Eagle that defends against 9/11-type scenarios and against any act attempting to use general or commercial aviation to threaten our security. They also include monitoring our maritime approaches, in concert with our partners, and the deliberate control of air traffic approaching or entering our air defence identification zones on the outside perimeter of North America.

[*Translation*]

The resources allocated routinely to the NORAD missions vary by region, but given intelligence and command assessment of developing operational requirements, regional commanders have the ability to scale up or down, as required, and relocate resources across their region to better respond to developing situations.

NORAD maintains very high readiness forces throughout the continent. To deliver effective operations, we have come to rely on a sophisticated system of systems, which allows us to fully exploit a spectrum of engagement, which includes indicators and warnings, detection, identification, and if necessary, the deployment of fighter aircraft to intercept and engage airborne tracks.

Our first defence, of course, resides in the multitude of men and women in uniform from both nations who have the honour of defending our nations and our citizens right here at home.

● (0850)

[*English*]

To be able to deploy and sustain any number of fighter aircraft vast distances away from their main operating bases requires the choreography and coordination of many parts of a system. Whether it is training, command and control nodes, our infrastructure, air-to-air refuellers, airborne early warning platforms, ground-based radars or fighter aircraft, we need to be able to communicate and have command and control over the entirety of the defended area. Each of these components must be as capable as possible and must be able to network with each other. This requirement to connect parts in a system will be a fundamental characteristic of future defensive systems for any domains.

NORAD's current structure of main operating bases, forward operating locations, and the north warning system was designed to counter a threat perceived in the late 1970s. At that time, ballistic missiles and Soviet long range aviation armed with first-generation cruise missiles were essentially the only systems capable of reaching North America and, given hostile intent, become a threat.

The north warning system was built between 1986 and 1992. As of now, the newest parts of the system are already 24 years old. We expect the system to last until around 2025, at which point we will be looking for modern solutions to replace its capabilities. We have to look forward to modernize the principal elements of the capabilities that constitute NORAD today, and that includes material solutions, of course, and non-material solutions such as the way we command and control our forces and the way we are organized to defend our nations.

Given all the above, we are actively pursuing a problem definition phase of the requirements for NORAD's evolution. Our commander will be providing advice to both his chains of command, to the Secretary of Defense on the U.S. side and to the Chief of the Defence Staff on the Canadian side, for consideration. As such, we are very early in the thinking about the future, but our work is timely.

To conclude, NORAD is a mature, bi-national command benefiting from a very well-developed network of partners. We are ready to face our most likely threats, and have plans to address our most dangerous scenarios.

North America is facing new threats, including increased nation state competition and the proliferation of advanced military capabilities that are challenging our ability to successfully defend Canada and the United States.

[*Translation*]

I thank you for your attention.

I look forward to answering any questions you may have.

Thank you.

[*English*]

The Chair: Thank you very much, General.

We're going to go to our first round of seven-minute questions.

Mr. Spengemann, you have the floor.

Mr. Sven Spengemann (Mississauga—Lakeshore, Lib.): Good morning, Lieutenant General St-Amand. Thank you very much for being with us this morning. We're grateful for your insights.

I think I speak on behalf of all my colleagues when I say that we very much look forward to our visit to NORAD headquarters in early May to learn more.

I'm wondering if I can take you right to the edge of what we might consider to be the new or emerging threats that you've touched upon in your presentation. Before I do that, I wonder if you could just outline for the committee and Canadians the distinction between what is seen under NORAD as a common threat, and those types of threats where we in Canada and the United States are on our own in managing them. What's the intersection between those two and what's the differentiation?

LGen Pierre St-Amand: I have to go back in history, I think, to differentiate what could constitute a threat to the United States and perhaps not to Canada, and vice versa.

In 1957 when NORAD was formed, there was an implicit recognition of the fact that as far as air defence was considered, it was better to deliver air defence with a continental point of view. This is how both nations joined forces and started to defend our air responsibility with the capability of a conventional air defence system of that time.

As we move through history—and maybe I'll go back to that later—the initial threat was Soviet long-range aircraft with gravity bombs. I might talk about how we defended against those later. Afterwards, we had ballistic missiles, the ICBMs that showed up, which became a threat to North America. Afterwards, we still had the long-range aviation with the first generation of cruise missiles. Now what we see is a new generation of cruise missiles, with very long-range and low observability, which are really challenging our way to prosecute, if you want, any approaches to North America.

From my perspective, it's very difficult to isolate a threat to the United States from a threat to Canada, and vice versa. If we talk about the cruise missiles, the advanced long-range cruise missiles that we have observed are not only still a threat in the aerospace domain but also in the maritime domain, because they are now being launched from submarines and surface vessels. So the maritime domain now is becoming a domain of interest that is really challenging us to think in terms of continental defence, as opposed to only from a perspective of U.S. or Canadian defence. So there I would say it's a common concern.

Ballistic missiles have been around for a long time, including short-range and medium-range ones. There are a lot of technical advances out there in the world. They are here to stay. The intercontinental ballistic missiles are the ones that we see. If you look at the latest manifestation of developments out of North Korea, the truth of the matter is that country is working very hard to develop this capability, despite its missile test last week being a failure.

With respect to the ballistic missiles themselves, it is very difficult for me to imagine that a single shot that hit a U.S. city, for example, Seattle, would not have any implications for Canadian sovereignty, the Canadian economy, and survivability. Even the threat itself, I find difficult to separate as far as being a U.S. threat only or a Canadian threat only.

• (0855)

Mr. Sven Spengemann: General, I wonder if I could take you to a second threat. This committee received testimony that the threat of domestic terrorism is probably the most likely one of the top threats that we should be concerned about.

In the context of Operation Noble Eagle, I wonder if you could tell the committee, if there were an incident somewhere on the west coast akin to 9/11, how long would it take the Canadian Air Force as part of NORAD to deploy and to potentially intercept or engage that threat?

LGen Pierre St-Amand: The answer is that it really depends. I referred in my opening remarks to the fact that we have a system of commanders. The commander of the Canadian region and also the commander of the continental U.S. region, who would be concerned also for that scene, which is at our border in that area on the west coast, would react with intelligence. Given intelligence, the commander of the Canadian region would have the ability and authority to move his forces appropriately. That's given some type of a heads-up.

Given no heads-up, or a surprise situation, then the commander of NORAD and the commander of the Canadian region would use whatever assets were available and in the best position to respond to

the event or incident. From that perspective, it could be either U.S. or Canadian forces.

Mr. Sven Spengemann: Does NORAD consider domestic terrorism to be a rising, if not a serious or significant, systemic threat?

LGen Pierre St-Amand: It is a systemic threat, something that is going to be enduring. Since 9/11—I mentioned this was a historic turn—we used to be looking outside, and we have now developed a system to look internally to our borders, in fact, to counter this type of threat. We've been very successful thus far alongside our partners, because we're not alone. When I talk about the system, we have the RCMP, CSIS, and NavCan. On the U.S. side we have the FAA, FBI, NSA, all the three-letter acronyms you can imagine to contribute to the way we deliver that mission.

Mr. Sven Spengemann: Just to return to the specific question I had—I may return in the second round to ask some more follow-up—if we were facing a threat in Vancouver and you had to deploy without notice from Cold Lake, how long would that take?

LGen Pierre St-Amand: It would be a matter of minutes, less than 30 minutes, but it's more than likely that those would be Portland fighter aircraft.

Mr. Sven Spengemann: Okay.

LGen Pierre St-Amand: Now, I want to clarify that although those fighters would come from the United States—they would be U.S. fighters—within the continental region of the United States, which would initially command these fighters, we have a Canadian who is a deputy air component commander. So we have a Canadian in the chain of command in the U.S., and as soon as those fighters cross the border, they would come under the command of the Canadian commander located in Winnipeg. This is the beauty of the bi-national aspects of NORAD. This is how the commanders can sit back and really apply the correct forces at the right time, those that are best positioned to counter anything that happens in our area of responsibility.

• (0900)

The Chair: All right, we'll move on to another seven-minute round on the other side.

Ms. Gallant, you have the floor.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): The last time we had someone from NORAD testify before this committee was in the spring. In looking at the cyber-domain then, it was mentioned that if it were agreed that we needed bi-national co-operation in having joint protection in that dimension—because that has been put forth as one of the dimensions, in addition to maritime and air, that we should be paying attention to—rather than creating another bi-national agency, NORAD would be the natural entity to go to.

Now we know that the United States has Cyber Command. How interconnected are NORAD and Cyber Command with the U.S.?

LGen Pierre St-Amand: The way things work in Colorado Springs, as I mentioned, is that we have this twin U.S. command that is called Northern Command. The commander of Northern Command is the same admiral who commands NORAD. He's charged with the protection of networks. So NORAD benefits from NORTHCOM's protection, because we're all co-located physically and NORTHCOM has a relationship with Cyber Command. Cyber Command reports to another organization that is called Strategic Command, and NORAD really is not directly related, other than benefiting from the protection of the networks as provided by the commander of U.S. NORTHCOM. The commander of U.S. NORTHCOM will tell you that he has no role in anything other than protecting his own networks. That's on the U.S. side.

On the Canadian side it's the same thing. The commander of the Canadian region in Winnipeg is responsible for protecting his own networks, and that is provided on the Canadian side via organizations through the VCDS, the vice-chief of the defence staff.

Mrs. Cheryl Gallant: You're referring to protecting the infrastructure and the connectivity of our defence systems. But as we've seen, especially as it pertains to eastern Europe, we can have attack on soft targets, for example, the electricity system, which can quickly impact our defence. So it starts off as a civilian attack, and then after drawing our attention to it, it then becomes a military issue. So that's the interconnectivity that I'm asking about, connectivity between civilian network protection and defence.

LGen Pierre St-Amand: Yes. NORAD does not have a direct role in that. Again, on the U.S. side, there will be NORTHCOM. When you come and visit in Colorado Springs, you'll have a briefing that will show you that we have some 80 agencies that are represented at the headquarters itself. Now that is on the U.S. side, and this is why the headquarters is so strong. We have those relationships with most agencies that would be concerned about something like that.

So there is that dialogue that exists. On the Canadian side, CJOC, our Canadian Joint Operations Command, will be the equivalent of the U.S. NORTHCOM on the U.S. side.

I did mention very briefly the fact that NORAD, NORTHCOM, and CJOC work together to create effects on the continental level in all domains. Cyber is one of those, although I must say that cyber is probably the least mature in terms of international co-operation between our two nations. There's still work to do, and as far as evolving into domains, this is probably the one that will take more time, because the policies and attribution are not clear. There are difficulties with the domain itself from a military point of view but also from a civilian protection point of view that are not very clear yet, but it's being done.

Mrs. Cheryl Gallant: Then the United States has a component they can draw upon to have the civilian situational awareness. After 9/11 we were at NORAD, and we were told that Canada desperately needed somebody from the critical infrastructure community to be present there. It took years of pushing before we got somebody there, so they would recognize, if there were a threat incoming to Canada, what needed to be fortified.

Do you believe it would be beneficial to have a Canadian representative of the civilian cyber-community, the agency or

protective agencies, present at NORAD, so that should things start falling into place in that kind of attack, we would have situational awareness for Canada in that room?

• (0905)

LGen Pierre St-Amand: So your question is whether it would more valuable to have somebody physically present as opposed to relying on a communications network, I think yes, but I'm not sure we would be prepared to entertain some type of solution like this, because there are some barriers that exist in the cyber world, and those are very national. I'm not sure if we would gain that much more at this point, but if you look in the future, I think there's potential there.

Mrs. Cheryl Gallant: There has been increased talk about the threats of an electromagnetic pulse and how that would impact everything. Is NORAD safeguarded sufficiently so it can continue on its mandate should North America suffer from one of these EMPs?

LGen Pierre St-Amand: Yes, ma'am. The general military requirements usually will address this issue, and our systems will be as protected as can be.

Mrs. Cheryl Gallant: The infrastructure is already in place for the detection and the sensing of these threats. They're all protected against EMP, okay.

LGen Pierre St-Amand: They're not all protected. Nothing is perfect, ever. I don't want to leave you with the wrong impression, but we do the most we can.

Mrs. Cheryl Gallant: You mentioned the infrastructure is in place for detection and monitoring, and it should last until 2025. Are you suggesting we need something ready to go to replace this at 2025, or we don't have to go shopping until 2025, because we've seen with helicopters that it can take 22 years?

LGen Pierre St-Amand: We have left the cyber-domain now, and we're now talking about the warning system.

Mrs. Cheryl Gallant: Yes, now we're talking about something else.

LGen Pierre St-Amand: I mentioned that system was put in place as a result of a threat as perceived in the late 1970s. There are some capability challenges out there we can mitigate operationally, but from a capability point of view, we have to look at something else. With respect to sustainability of the system, it is supposed to last until 2025. At that point, in order to replace it, I'll have to refer to the commander of RCF, who's in Canada and who is the one who represent NORAD's requirements. When we talk about complicated systems like this, they don't fall off the earth at a certain point. There is a graceful degradation. We can plan to replace equipment in time, and we're starting the work now to replace it, but absolutely, there's going to be a requirement to take a look at new things closing into 2025.

The Chair: We'll move on to Mr. Garrison. You have the floor for seven minutes.

Mr. Randall Garrison (Esquimalt—Saanich—Sooke, NDP): Thank you very much, Lieutenant-General, for being here this morning. As the minister has clearly said, everything is on the table in terms of this defence review. I want to back up a bit, and talk about NORAD in general. Of course, there's no doubt of its success in its main mission, which was set up for airspace warning and control, and with very efficient operations. It's very successful. Since the U.S. Northern Command and the Canadian Joint Operations Command were set up, it seems like we're moving away from joint operations to bilateral coordination. I wonder if you have any comment on that change, because things seems to become more murky once those two commands are set up.

LGen Pierre St-Amand: I think it was when USNORTHCOM and Canada Command were formed and then eventually CEFCOM, which became CJOC, there was clearly an effort to try to protect North America from more than just the aerospace domain. At that point, the question of NORAD was discussed.

Since then, in 2006, the NORAD agreement was renewed forever, in perpetuity, and therefore we have been working in the aerospace domain and with maritime domain from a maritime domain perspective. The practical execution of continental defence now, if you want to call it this, is performed in our domains through NORAD but also performed with a combination of the operational output of NORTHCOM, CJOC, and NORAD. The three commands have tried to recommend staff talks about how we make progress on our agenda now, because we are working very closely together and we are producing joint effects. Let me give you an example, which also illustrates a little of the difficulties.

If you have a submarine approaching North America, that submarine is a problem for the maritime component commander in Canada under CJOC and then for NAVNORTH in the United States, which is their maritime component commander under the command of NORTHCOM. How to address that submarine approaching is done through a joint task force. Bilaterally we join forces, maritime patrol aircraft, surface ships, and so on, and we will pursue the target as it arrives.

As soon as that submarine launches a cruise missile, the cruise missile becomes a NORAD responsibility, which is perfectly in line. For that matter, it's a bit difficult but, ultimately, the point I want to make here is that as we prosecute the submarine bilaterally through a combined joint task force, which is fully under the command of the commander of NORTHCOM who is also the commander of NORAD, at the end of the day, it arrives back in Colorado Springs anyway.

This is how, as we look at the future under tri-command, we are now starting to challenge ourselves with questions such as whether the aerospace domain is sufficient to defend North America or whether we should think about going into a binational as opposed to bilateral approach. That's very important for us. Binational means that we're integrated and Canadians have a say; bilateral means that you arrive at what you have and that very often you're not in the command chain. Is it a better construct to defend North America? This is the advice of commanders now preparing to craft for both chains of command and look to the future, again with the common objective of providing in a NORAD type of construct, so binational,

a continental defence perspective. I don't know if a solution is going to come out of it, but this is what we're preparing to craft.

• (0910)

Mr. Randall Garrison: Thanks for that response because I think it's quite important. It's a question that needs to be front and centre in the review. It's not just a question for the commands but for Canadian policy-makers. Do we see Canadian interests better served by the bilateral or a binational approach. So I think that's a very important question you've just raised.

Some people would argue that with NORAD looking at additional capacities like maritime warning, there's a danger of duplication, that Northern Command and CJOC have grown functions and capacities that are like NATO, and now NORAD is growing some functions that are like things that already exist in the others.

Can you comment on that?

LGen Pierre St-Amand: This is another reason why we have to ask ourselves the same question. In rationalizing the command and control we have organized, are we as efficient as we could be with the common purpose of defending North America? This is one of the very critical factors that would be a part of the advice to both chains of command.

Mr. Randall Garrison: Turning to the question of threats, when you responded, you talked about not being able to imagine threats to the U.S. that aren't also threats to Canada. But I want to turn that on its head. One of my concerns is that I can imagine threats to Canada that the U.S. does not perceive as threats to it, particularly in the Arctic. I've raised this question before.

So my question, focusing a little more narrowly on aerospace functions, is whether those joint agreements apply in a case where we perceive there is a threat to our sovereignty, for instance in the Northwest Passage where the United States differs on our territorial claims.

LGen Pierre St-Amand: That's a difficult policy question. NORAD is only in aerospace. From a maritime warning point of view, where we might see something wherever, if it is in the maritime domain, we have a mission to report to both national chains of command. So it would not apply. It would not stop the commander of NORAD from delivering the mission that has been given to him by virtue of the agreement.

Mr. Randall Garrison: You are saying that the maritime warning function would continue and Canada would be provided the information, despite the fact the U.S. might not see that as a joint threat to North America.

LGen Pierre St-Amand: Yes, that would be my experience.

Mr. Randall Garrison: That is reassuring.

The second part of that would be, if an air response were required to a perceived threat from perhaps even a military ship or submarines moving through the Northwest Passage, would the joint command of NORAD apply to that response?

LGen Pierre St-Amand: I would say yes, sir.

Mr. Randall Garrison: In terms of budget, one of the things we haven't really talked about is what we actually commit to NORAD, because a lot of the resources remain with the national commands. Do you have any idea—or does anybody before us have any idea—of what we are spending for the NORAD function itself?

• (0915)

LGen Pierre St-Amand: It is a difficult question to answer because.... NORAD is a force employer. We benefit from forces that are presented to us from both the United States and Canada. Other than for specific pieces of equipment, such as north warning system radar, something that is really specific to NORAD, it is difficult. In the case of the RCAF, for example, General Hood will be providing the aircraft-ready crew and the bases from which to operate in Canada. I don't have a number; that is the bottom line. It would be complex, but if this is something that you would like to see, I can always ask for some data.

Mr. Randall Garrison: I think it is of interest to the committee to know what we are actually spending for what we are getting back.

Related to that is the question of the north warning system. I think everyone makes reference to the fact that it is reaching the end of its useful life. Who in NORAD would be responsible for preparing recommendations, in terms of what is needed and how we replace that system, and to what government would they go? Do we replace that system, or is there an alternative?

LGen Pierre St-Amand: As per the agreement, the commander of NORAD is responsible for delivering or executing his mission. Once in a while—actually, on a monthly basis—we get readiness reports, where regions and units, and whatever agency is responsible, or stakeholders in the NORAD mission, will state that we have capability deficiencies in this area, and so on.

Those capability deficiencies are then tabled, requirements are compared vis-à-vis our operation plans, and then we file those operational requirements, those mission requirements, to both national chains of command. The same data goes up to the U.S. as it does to Canada through the chief of the defence staff. It lands here in Ottawa somewhere, and it is prosecuted. It is managed in the same way that our capital programs are usually managed here in Canada. Our main partner in the elaboration of mission requirements and replacement of equipment in our case is General Hood with the RCAF. He receives those capability requirements and will make sure that they are acknowledged and taken into consideration in whatever project goes forward.

Mr. Randall Garrison: As raised by Ms. Gallant and the Conservatives, I think that in terms of procurement, 2025 is fast approaching. So if we were going to try to replace that—

LGen Pierre St-Amand: Yes, sir.

Mr. Randall Garrison: —we would need some kind of recommendations—or not. That is the question about the north warning system, whether we need to replace that system with something else that might perform the same functions more cheaply.

The Chair: We will have to circle back on that because we are out of time. I am sure there will be a lot of time today, with only one witness, but we have to move on.

Ms. Romanado, you have the floor for the last seven-minute question.

[*Translation*]

Mrs. Sherry Romanado (Longueuil—Charles-LeMoine, Lib.): Thank you, Mr. Chair.

Mr. St-Amand, thank you for being here today and for your service to our country.

[*English*]

We heard a little bit about the control part of surveillance. We've been talking a little bit about surveillance. I'm going to ask the question about the elephant in the room. As parliamentarians we have a responsibility to our citizens for their safety, and also a fiduciary responsible.

In terms of procurement, we've been hearing a little bit from witnesses about replacing our fighter aircraft and interoperability. Regarding current infrastructure in Canada, our landing strips in the north and so on and so forth are not currently long enough for certain aircraft.

We've heard that our tanker refuelling capacities are currently working very closely with our CF-18s. We've heard in the news recently that the U.S. Congress is split over funding the air force base in Alaska. I understand that for their F-35s, they are going to have to spend \$500 million to retrofit the base in Eielson. We've heard that Australia is expecting to spend \$1 billion for its base in Williamtown.

In your expert opinion, how important is it that any replacement fighter jet, whatever it may be, is able to work with our current infrastructure? In the event that something is chosen that cannot work with our current infrastructure, how many more millions, if not billions, will be required to retrofit our current infrastructure?

• (0920)

LGen Pierre St-Amand: That's a two-part question, Madam, if I understand correctly.

The first one is about interoperability and the use of our current infrastructure. Perhaps the best indication that our current infrastructure might not be a good base of reference is to look at the structure. For example, the way NORAD is structured, our main operating bases are probably going to be permanent, but the four operating locations date back to a threat that was perceived in the 1970s. I can't say that the latter structure would be totally adequate for what's to come, especially if we're thinking about next 30 to 40 years. That's one comment.

The second comment is that interoperability is absolutely critical. When you think of what NORAD does, just image a triangle with fighter aircraft at the tip. That fighter aircraft, of course, is critical to control. This is how we control the airspace. It relies on a system which has platforms, long base radars, airborne early warning which can communicate data link, people that are qualified, the training system, the standards, and so on and so forth.

It is better to take a look at the tip as the result of the whole triangle and in the triangle, of course, you have the infrastructure. There's no doubt in my mind that changes may be required no matter what replaces the F-18. It may or may not be required because it's not only a matter of runway, operation, or base location, it's the whole system here. It involves the sensor to sensor ability to communicate, man-machine interface, the weapons that would be used, and so on and so forth.

It's a very difficult question to answer now. With respect to the amount of money that would be required, again, it would depend on which platform the Government of Canada decides to purchase. At this point, I would deflect the answer to Gen. Hood because I really have no idea.

Mrs. Sherry Romanado: If I'm understanding correctly, we're talking about something that can increase significantly in terms of costs based on whatever is chosen to ensure that it is capable to work within the system that we currently have.

Switching gears a little bit, in terms of the NORAD Next initiative, I'd like to get your thoughts on include "all-domain" awareness. Should we be focused strictly on maritime and aerospace, or should we be looking at land and cyber as well?

LGen Pierre St-Amand: I could describe NORAD's evolution in four ages.

The first age was Soviet long-range aviation with gravity bombs, in such a way at that time in the late fifties that the air battle was going to take place just north of our border. That's how the air defence system was designed. Really, the only threat was in the aerospace domain. That was the only thing that was capable of reaching North America. Later, we talked about the introduction of ICBMs. That threw NORAD into a bit of a self-questioning mode. Was a conventional air defence system useful at that point given another domain, really, a ballistic missile flying through space? After much debate, there was a conclusion by both nations that in fact a conventional air defence system as a deterrent was a part of the deterrence to such an attack, so NORAD survived.

The second age came about as a result of the first generation of cruise missiles. That forced us to push forward to the north and defend further up north, where the battle zone, if you will, was pushed to our northern perimeter and into Alaska. Again, still the only domains that were really capable of being used to attack North America were aerospace and, in space, ballistic missiles.

The third age, 9/11, made us look inside. We know the story there.

We're now in the fourth age. The fourth age is the age of these advanced cruise missiles, with their very long range, which is challenging our ability to intercept and kill those vehicles before they can cause us harm. They can be launched now by our maritime platforms. Maritime avenues and maritime approaches are now a domain that is more prominent than ever before in terms of a threat to North America or a capability to reach North America. That is a big change.

While all this is going on, of course, you have cyber, which is happening every day. While I can't go into more detail, it is apparent that this is something that we're all concerned about from a continental point of view, starting from the national point of view.

As I get into this description of what we see from Colorado Springs, then certainly the maritime domain is something that we should look at expanding into.

Again, cyber is very complicated. I am not sure that we could reach a binational one on cyber, other than just co-operation and the exchange of information. We're still probably not mature enough to envisage a continental defence against cyber. It is very national in nature, and there are a lot of sensitivities and so on and so forth.

From the land perspective, while it's probably the last domain, we still don't see a current threat. I'm not talking about counterterrorism, which is something that is totally different, but a traditional symmetric threat to the land domain is probably something that we're not totally concerned about yet.

To summarize: aerospace domain, maritime domain, cyber, and land, and there are more as far as evolution is concerned.

• (0925)

Mrs. Sherry Romanado: Do I have more time, Mr. Chair?

The Chair: That's your time. Thank you for the question.

We're going to move to five-minute questions now.

Mr. Gerretsen, you have the floor.

Mr. Mark Gerretsen (Kingston and the Islands, Lib.): I want to talk briefly about our north warning system. Some experts have been saying that it's reaching the end of its life and that we're either going to have to extend it or replace it. Would you agree with that?

LGen Pierre St-Amand: Yes, sir, for both questions or issues of capabilities and issues of sustainability.

Mr. Mark Gerretsen: You've said that "Russia was able to deploy long-range, conventionally armed cruise missiles comparable to western systems this year". Given the fact that the threats are changing and the fact that NORAD is continually evolving, what does that mean for that detection system in terms of its evolution, not just through the technology, but what about the physical locations? Are they far enough north? Given the fact that the Arctic seems to be opening up, do we need to reposition that kind of stuff? Do we need to move our forward operating locations?

LGen Pierre St-Amand: It's a great question, and the answer—

Mr. Mark Gerretsen: I know. That's why I asked it.

Voices: Oh, oh!

An hon. member: He only asks great questions.

LGen Pierre St-Amand: That's fantastic.

The answer is still being developed.

You're actually right, in that I think it would be a mistake to assume that radars are going to be replaced one by one at exactly the same locations. I talk about a system of systems, and it may be that we're going to find ourselves in the configuration where we're going to have advanced technology with sensors and radars that can be further south but that will be able to look way further out in the north.

That's what I mean by replacing a capability with a modern capability. It's not necessarily a one-for-one replacement. It's not necessarily about using the same location. Really, it's about exploiting the latest technology in order to improve our way to sense, detect, and track whatever is coming.

Mr. Mark Gerretsen: I'm trying to understand.

Are you suggesting that they should be further north, or are you suggesting that it's possible that they can stay where they are because the technology has advanced in such a way that they don't need to be further north?

LGen Pierre St-Amand: What I'm suggesting is that we need systems that can look further north. Whether this is going to materialize in the form of radar sites further north or other technology, I am not sure.

Mr. Mark Gerretsen: When do you expect that replacement to occur?

LGen Pierre St-Amand: It's all based on the 2025 date, or thereabouts, I have to say, because it's never clear. Again, it's not a cliff; it's a graceful degradation. It could be an option where we'll be looking at extending the radar if there's not a solution that's apparent immediately. Those are always complex issues to deal with, and the commander RCAF will be our champion in that matter.

From a NORAD perspective, we are married to mission requirements. We submit our mission requirements, both in the United States and in Canada, and then the force generators produce the material that we need to meet those operational requirements.

Mr. Mark Gerretsen: You made a comment that I found interesting. You said that our response to cyber threats is the least mature and there's a lot more work to do on that. Obviously I understand that cyber is newer than some of the other threats.

Could you expand on what's required to bring it to a more mature state in terms of our understanding of it, our ability to react?

LGen Pierre St-Amand: It's a matter of knowledge. It's a matter of equipping ourselves and training ourselves. It's also a matter of policy.

From a NORAD perspective, I always refer to the fact that we should be working with the United States. If the policies nationally are not mature, if the capabilities are so sensitive that we can't share, it's difficult to join hands other than on a basic level of information sharing. That's what I mean.

• (0930)

Mr. Mark Gerretsen: So when do you think we'll be at that stage?

LGen Pierre St-Amand: It's a good question. I don't have an answer for that, sir.

Mr. Mark Gerretsen: Okay.

How much more time do I have?

The Chair: You have a couple of seconds, but I don't think it's long enough for a question and answer.

We'll move to Mr. Paul-Hus for four to five minutes.

[*Translation*]

Mr. Pierre Paul-Hus (Charlesbourg—Haute-Saint-Charles, CPC): Thank you, Mr. Chair.

First, is it possible for the committee to get a copy of Admiral Gortney's report when it is submitted to the Chief of the Defence Staff?

[*English*]

The Chair: When we get it, we can. Sure.

[*Translation*]

Mr. Pierre Paul-Hus: Thank you, General.

Since we began this study, we have often had exhaustive discussions about the question. Our committee has heard people in the past who told us about threats. Lieutenant-General Michael Hood appeared before our committee last week to talk about Canada's air capacity.

One of the objectives of the current defence policy review is to guarantee Canada's sovereignty. There is close collaboration with the United States within NORAD, certainly. However, if the American capacity were to be removed overnight, would Canada have the means to guarantee its sovereignty?

LGen Pierre St-Amand: Are you talking about guaranteeing our air sovereignty on our own, without NORAD support?

Mr. Pierre Paul-Hus: Yes.

LGen Pierre St-Amand: That always depends on the threats. I hesitate because some scenarios are considered. In peacetime, we could, but not in the context of an international emergency. It depends on what type of threat is involved.

Mr. Pierre Paul-Hus: If we consider threats that might come from Russia or North Korea, we do not have the equipment we need to handle them, certainly.

As for other threats, Canada's air fleet, which is currently composed of F-18s that we are going to replace in the short and medium terms, cannot guarantee our sovereignty? Is that impossible at present?

LGen Pierre St-Amand: Once again, it depends on the nature of the threat.

For example, in the case of NORAD, we have complete control of what we do in our own airspace in peacetime. The commanders are Canadians, the military controllers are Canadians, the aircraft are piloted by Canadians.

We were talking about a response on the west coast. Having an agreement with NORAD enables us to respond very quickly, but that does not mean that we do not have sovereignty, since Canadians are involved in the decisions.

In terms of the most probable scenarios, we are capable of completely defending ourselves. If there were an international emergency, for example, a scenario where the extreme right set off a third world war, we would have to join forces with our allies to deal with the threat.

Mr. Pierre Paul-Hus: What concerns do our partners in the United States have about our commitments to replacing our aircraft and our detection equipment? There must surely be concerns.

LGen Pierre St-Amand: They are watching the situation closely. Our commander calls it recapitalization. Certainly, our equipment is aging, but that does not mean it is not effective for the missions assigned to us.

In addition, the Americans have a global perspective. They do not have the same considerations as we do. So when an event occurs in the world, they can decide to commit forces, when we will not do so. There are American forces engaged more or less everywhere in the world, while the scope of our work is more limited.

In the event of a series of extreme threats, there is no certainty that all their forces would be available to defend North America. That is why they are observing us closely.

Mr. Pierre Paul-Hus: Let us come back to the replacement of some of our aircraft. With Lieutenant-General Hood, we talked about interoperability. Do our American colleagues really think the F-35 is the best choice?

• (0935)

LGen Pierre St-Amand: No, in fact, as much energy is put into debating it in the United States as here.

[English]

At NORAD, we're married to mission requirements. We're platform-agnostic.

[Translation]

We will be satisfied as long as the plane that replaces the F-18 has the capacities we need for NORAD missions.

Mr. Pierre Paul-Hus: In terms of maritime detection, I assume you use a network of satellites.

Two South Korean ships came to Canada a few months ago. I do not know whether you heard about this. They entered the St. Lawrence River. Because battleships are not required to have their transponders working, they did not communicate with the St. Lawrence pilots and made their way deep into the channel.

If enemy vessels approached our shores, or if civilian vessels deactivated their transponders, could you detect them ordinarily?

LGen Pierre St-Amand: NORAD does not own any maritime detection systems. We have a network of partners who do have these detection systems, so they are who give us the information. We merge the information and we distribute it to all of the binational agencies in Canada and the United States.

In the case you referred to, we would have had no role to play. If the agencies, including the intelligence agencies, had decided there was no danger to Canada or the United States, we would not have heard about it.

Mr. Pierre Paul-Hus: Lastly, you have confirmed that it is important that NORAD and all of the agencies connected with it receive information from everywhere.

On the question of the South Korean ships, the agency that handles maritime detection dropped the ball. You were not informed.

If there had been a terrorist attack or some other attack, you would have been blamed for not detecting it, but it is not your role to do that. This brings September 2011 to mind.

LGen Pierre St-Amand: This system functions so well that I have to propose a hypothesis. This is not a subject I am very familiar with. Given that we did not receive any information about the presence of the ships, I assume that the agencies responsible for surveillance had determined that they did not represent a threat. It was perhaps simply a maritime traffic problem rather than a threat.

[English]

The Chair: That's your time up.

We're going to move over to Mr. Rioux. You have the floor for five minutes.

[Translation]

Mr. Jean Rioux (Saint-Jean, Lib.): Thank you, Mr. Chair.

Thank you for being here.

I am going to come back to a subject we discussed earlier. Yesterday, security expert Richard Fadden was quoted in *La Presse*. His comments translate as follows:

...cyber-attacks today represent a threat that is at least as concerning for Canada as terrorism may be, but the threat is often ignored, even though the potentially harmful consequences are significant.

Mr. Fadden was the director of the Canadian Security Intelligence Service and national security advisor to two prime ministers.

This raises a number of questions that you have answered in part.

Given the fact that the Canadian Army is responsible for protecting our territory, what is NORAD's mandate in relation to possible cyber-attacks?

The article I am referring to pointed out that the hydroelectric utility computer systems were the least protected, including both Hydro-Québec and Hydro One in Ontario.

Does NORAD have overall responsibility for this?

LGen Pierre St-Amand: NORAD has no mission in relation to cybersecurity, except when it comes to protecting our networks.

Concerning the idea that all systems should be connected, I think we are in a good position. As I described, in the United States, there are 80 representatives of agencies that are concerned about these matters, that are represented in Colorado Springs.

In Canada, the system is different. The Canadian Joint Operations Command is in charge of the network, and I do not really know how advanced it is, but certainly we at NORAD rely on other commands to obtain the cyber network services we need.

Once again, we protect our networks. Our mandate is not to counter attacks, to be combative, or to take any other action in that regard.

• (0940)

Mr. Jean Rioux: Should that be in your mandate?

LGen Pierre St-Amand: As I explained earlier, it should be in our mandate only if we think there are benefits to the continental approach. I assume that it could be developed, eventually, but for the moment, it is a bridge that is yet to be crossed and that will take a lot of work. For the moment, I would say no.

Mr. Jean Rioux: I am going to address another subject.

For 11 years, Canada has not participated in the missile defence shield. Does that mean that Canadian territory is not protected, that we are not part of the system, and that it is limited to protecting American territory?

LGen Pierre St-Amand: That is exactly right. I have nothing to add.

Mr. Jean Rioux: Should we be part of it?

LGen Pierre St-Amand: That is a complicated question, because there are military and political aspects.

The responsibility for giving military advice lies with the Chief of Defence Staff, who handles the entire military aspect.

I have observed three things that might help you in your discussions.

First, there are the ballistic missiles.

[*English*]

The missiles are here to stay.

[*Translation*]

I am not talking only about the intercontinental missiles, but also the short- and long-range missiles. In the future, we will perhaps see Canadians in theatres of operation that will be under threat of short- or medium-range ballistic missiles. We will be defended by coalitions and by NATO, so things are fine in that regard.

Some countries, notably North Korea, are working very hard to develop the capacity to attack North America. So ballistic missiles are here to stay. I think this is a threat that will continue to exist.

The second thing I have observed is this.

In terms of the approaches in North America, command and control are a little complicated in Colorado Springs. NORAD is responsible for assessing an attack or identifying a missile that might approach North America. The Canadians can tell NORAD that it is an attack on North America, but as soon as a decision is made, or a missile is identified, the defence is entirely up to the Americans.

The command of NORTHCOM and NORAD is somewhat separate for the same mission. For that same ballistic missile that is approaching, one element is under NORAD and the other element, under NORTHCOM, which is American only. If the missile came back into the atmosphere, NORAD would again be responsible for determining whether there is a nuclear explosion.

For NORAD and NORTHCOM, the command and control are complicated. We ask that decisions be made in the space of a few minutes, to defend against or to assess an attack. It is a bit complicated. If we were part of the missile defence shield, that would enable the binational commands to simplify command and control for that threat.

The third thing I have observed is this.

Given that Canada is not part of the system, it does not have access to the technology or to the strategy and planning, and it certainly has no influence on the decisions made. I am going to say the expression in English, because it is not coming to mind in French.

[*English*]

The United States doesn't have a need to share, and we don't have a right to know.

[*Translation*]

Anything we have, we have out of good will.

Certainly they cooperate with us. We have been very close allies for a long time, but we simply are not part of that mission.

The three things I have described give me the impression that it is an important matter to revisit. That is all I can say.

● (0945)

[*English*]

The Chair: Thank you for your answer. I let that one go because I thought it was very insightful and appreciated what you were saying, but I'm going to have to give the floor to Mr. Bezan.

You have five minutes.

Mr. James Bezan (Selkirk—Interlake—Eastman, CPC): Mr. St-Amand, it's great seeing you again, and we're looking forward to visiting you down in Colorado Springs as well.

I'm wondering about NORAD's feeling right now about Russia, considering that last week we saw the Russian Air Force take a whole new aggressive approach in dealing with the Americans in the Baltic Sea, first buzzing the USS *Donald Cook* on successive days, coming within 30 feet of the ship, buzzing it with two fighter jets at a time, and then at the end of the week we saw a Sukhoi Su-25 intercept a U.S. Air Force reconnaissance plane and barrel-roll above it. I'm wondering if we're seeing similar types of increased aggression against NORAD command's fighter jets, whether they're U.S. Air Force or Canadian CF-18s, or other aircraft for that matter, as we patrol our aerospace region.

LGen Pierre St-Amand: We're not seeing the same level of aggressiveness, that is very clear. But what we are seeing, if you look at the last, say, three years, is a peak in intrusions into our air defence identification zone. They have a right, of course, to operate there; it is international airspace. But at the same time, we have declared those identification zones so that we know what's coming towards America. So we have seen a peak, especially in 2014, and a difference in the degree of sophistication in how they approach us. Of course, at NORAD we are concerned about the behaviour of Russia as a whole, thinking about Crimea, thinking about Ukraine, thinking about even Syria.

This is why I said in my opening remarks that our area of interest is global for many reasons, and I characterize the reasons for that in this way: We should never let an adversary think even a second that North America is soft. Therefore, everything that we do, everything that is visible, our infrastructure in the north, our operations, this is all very visible, and there is a deterrence value to it.

We care about what's going on in the world; we haven't talked about China, for example, and the South China Sea. We're also concerned about it at NORAD. Now it's very far away, but what are the repercussions back to North America, both the U.S. and Canada, of what the U.S. is going to decide to do in that area? We're not sure.

So again, to summarize, there's been a peak in activity—although in 2015 there was a lull as a result of a crash, so the fleet was grounded for a few months. We expect the activity to peak again, but no aggressiveness in same way that we saw in the media.

Mr. James Bezan: Nevertheless, that may be a precursor to increased aggression here. It's something I'm hoping that NORAD is monitoring closely, because it was unbelievable what happened there.

When you're talking about the north warning system, something I've been concerned about for some time is that, when you really look at it, we do not have any surveillance of the Arctic archipelago. It's strictly continental-based. As Ms. Gallant and others have mentioned, we are expecting the north warning system to be at the end of its lifespan by 2025.

Has NORAD, and Canada in particular, started looking at what the options are, such as increasing RADARSAT, the whole RADARSAT Constellation mission of getting more satellites up there, and also looking at high altitude UAVs as possible ways to provide better surveillance?

LGen Pierre St-Amand: Absolutely. The art of command is something I want to mention. We are given the equipment we're given. So the commander is responsible to execute his mission, and his contingency plans—the way in which we execute the mission—will be highly dependent on the capabilities and the gaps that we have. Therefore, we have plans to mitigate whatever deficiencies we may have.

Of course, however, we are looking to the future and have tabled those capability requirements already with respect to what we see as an emerging or required system, a system that would take us through the next 50 years. That is being taken into consideration by authorities both in the United States and Canada with respect to buying something. And, of course, if we had a high altitude UAV for NORAD, we would be very interested in whatever intelligence surveillance or reconnaissance information we could get from it. That would be a platform that, if Canada decided to purchase in whatever form it would come in, would be of great benefit to us.

• (0950)

Mr. James Bezan: When you were talking about Russia and Syria, the one thing that they demonstrated there was their new cruise missiles and how they have not only range but accuracy, and we've talked about this today and at other meetings. I understand that they have some cruise missiles now that can fire over 3,000 miles. What do we need to put in place to do early detection on that, especially in the Arctic?

LGen Pierre St-Amand: You've heard the expression “left of launch”. Admiral Gortney has talked about this quite a bit. So wherever we are now, we are looking with the current north warning system.... The [*Inaudible—Editor*], if you will, would have occurred a few hundred miles north of that north warning system.

In order to counter this new threat, which is not fully mature though they have declared some type of operational capability now, we have to push our ability to intercept even further north, which means that we have to invest heavily in our ability to look deep, to look north, and move our forces north, including our airborne sensors, ground-based sensors, and our fighters, which need to be air-to-air refuelled. We need to be able to command and control the north, so the communications aspect in the north is not a simple matter; it's very difficult. There is technology out there that we're looking at in order to make sure that our crews are able to communicate with whatever airborne sensors would be out there. Again, whatever is going to come out in the future, we'll be able to draft plans for and address this problem as required.

The Chair: We will move on to Mr. Fisher. You have the floor for five minutes.

Mr. Darren Fisher (Dartmouth—Cole Harbour, Lib.): Thank you very much for being here, sir. I apologize if there's any overlap because there seem to be a lot of people around the table with similar questions.

We've heard a lot of testimony that Canada and the U.S. are seamless when protecting North America. We've also heard that we are responsible for our own sovereignty. When we talk about participation in BMD, while we may risk protection, with potential BMD participation do we forfeit some of our sovereignty? Is that something that you wish to comment on? Do the benefits outweigh the negatives?

LGen Pierre St-Amand: I'm not sure of that, in the sense that it seems to me this would be a policy matter as opposed to a military matter. The defence review, I am told now, will explore that subject, and there are good questions to ask, from my perspective from where I sit, and again, I only have a piece of the pie. The totality of the problem is way bigger than the NORAD requirements.

I don't know. I can't answer whether or not, but if the level of ambition for Canada, should we decide to opt in, is such that sovereignty is a concern, I would expect there would be discussions and negotiations that would mitigate as much as possible whatever those concerns would be.

Mr. Darren Fisher: This conversation about BMD has ramped up just recently. What's really changed to bring back this debate again? Is it because we're doing a review?

LGen Pierre St-Amand: I think that militarily nothing has changed much from the last time we looked at things. Militarily I think the advice has been constant, or at least has been in the same direction. Again, the advice this time would be rendered by the Chief of the Defence Staff, not me. I only have a part of this. Other than North Korea, which has visibly progressed their own development of their own ballistic missiles, Iran has an intercontinental missile capability, not nuclear, but an ICBM, that can reach North America. I'm not sure if that was in place 10 years ago, but we have seen proliferation of those missiles. That probably is what has changed lately.

Mr. Darren Fisher: Do you feel that there's any pressure on us to participate in BMD?

LGen Pierre St-Amand: No.

Mr. Darren Fisher: So you suggest that, if we continue not to participate, that's not going to affect any Canada-U.S. relations.

LGen Pierre St-Amand: No, I'm not suggesting that, sir, at all.

Mr. Darren Fisher: Okay. So intercepting cruise missiles is certainly different than shooting down a ballistic missile, but to any extent can a BMD protect from cruise missiles as well? Is there any overlap there?

LGen Pierre St-Amand: Right now there's none. They are two very different vehicles. One flies through space at a very high speed. The other one is an air-breathing type of vehicle, which means it needs oxygen to operate. The sensors are very much different; the speeds are different, and the weapons to counter these missiles are also very much different. So it's a different problem to prosecute.

• (0955)

Mr. Darren Fisher: I don't want to put words in your mouth, but you said something along the lines of cruise missiles not going away. I read somewhere that our defence strategies for cruise missiles are lagging behind ballistic missile defence. Do you concur with that?

LGen Pierre St-Amand: Yes, I concur with that. Just going back to the current configuration of our warning system, configured for first-generation cruise missiles, we're now facing the latest generation of cruise missiles with longer ranges and low observability. That is challenging us. We have to catch up.

Mr. Darren Fisher: Do I have a couple of seconds left?

The Chair: You have about 55 seconds for a question and an answer.

Mr. Darren Fisher: I'll ask you a really quick one that I had asked, and didn't really get an answer to, last week or the week before.

The Russian presence near North American airspace died out after the Cold War. It has ramped up again since 2007. I looked for a number in past weeks and I wasn't able to get it. How often do Russian aircraft come close to Canadian airspace?

LGen Pierre St-Amand: On average, five times per year.

Mr. Darren Fisher: Five times per year.

LGen Pierre St-Amand: It peaked at about 10 times in 2014.

The reason it's difficult is that some of that is classified. This is what is publicly available.

Mr. Darren Fisher: Thank you. I appreciate that.

Thank you, Mr. Chair.

The Chair: You're right on time.

We'll go to a three-minute question.

Mr. Garrison, you have the floor.

Mr. Randall Garrison: I want to return to the ABM question here. We seem to have the Conservative government moving toward a reconsideration, and now there's some reason to believe that the new Liberal government is doing that. We had a Senate committee, with a majority of Conservatives appointed, who actually recommended that we participate, and we have a former minister of defence who's part of the defence review expert panel that seems to favour participation. I think it's important that we look at the threats here and we distinguish, in that fuzzy language sometimes, about a threat to Canada and a threat to the United States.

I believe you and others have said that when it comes to ABMs and even cruise missiles, these are really beyond the capacity of anyone but state actors. What is the ABM threat to Canada, as opposed to the threat to North America or the United States, for ballistic missiles? Is there a realistic threat to Canada? We had an implication in one of the questions that we were somehow undefended, but we might be undefended against a non-threat.

LGen Pierre St-Amand: There's nothing specific that I can talk about. However, when you take a look at the behaviour of nation-states, and when you take a look at great power competition, we are part of an alliance. You can envisage a scenario where, for example, one of our allies would intervene in Europe, and then we have....

I'm not sure if you have seen or read about the doctrine of escalating to de-escalate. From that point of view, all the allies are subject to some type of threat from ballistic missiles in order to affect the decision of another great power with whom we could be allied. It's very indirect. It's very soft. But the fact that we have signed up to a certain alliance, to NATO for example, and we are closely aligned with the United States, means that we are in a sphere where we could be targeted.

Mr. Randall Garrison: We talk about state actors like North Korea. Has North Korea threatened Canada? Not to my knowledge. They're threatening the United States.

LGen Pierre St-Amand: That's right. None of them were—

Mr. Randall Garrison: So in terms of finding any direct threat, other than just saying everybody is threatened by ballistic missiles, which I appreciate and to some extent agree with, there doesn't seem to be a credible threat on the list to Canada for ballistic missiles.

LGen Pierre St-Amand: Nothing declared that I would be aware of, sir.

Mr. Randall Garrison: When it comes to the delineation of responsibilities, it seems again we're getting into a fuzzy area when it comes to ABMs with NORAD and the U.S. capabilities. Can you comment a little bit on the challenges that presents with the United States having a separate capacity from NORAD?

LGen Pierre St-Amand: Right. It makes the chain of command....

In military terms, if you're going to prosecute a mission, you like to have the same chain of command responsible for all aspects of the mission. When you talk about a single vehicle or a single ballistic missile coming in, NORAD would have a portion of that mission—detection and attack characterization. USNORTHCOM would have the defence part. Then, if anything was to land in North America, NORAD would pick up the assessment and the detection of a nuclear detonation if there was anything happening.

That describes the complexity when you go from one command to the other, and go back to a command, in order to prosecute the same vehicle that is now flying through space and approaching North America. That gives a sense of the complexity.

• (1000)

The Chair: That's your time. Thanks for the question and answer. We have kind of free questioning now.

Mr. McKay, did you have a question you wanted to ask?

Hon. John McKay (Scarborough—Guildwood, Lib.): I'm looking at a paper by—

Mr. Randall Garrison: I have a point of order, Mr. Chair.

Allowing the department's parliamentary secretary to ask a question would require the consent of the committee—

Mr. James Bezan: Oh, yes.

Mr. Randall Garrison: —which I am prepared to give.

The Chair: All right. Let's do that, then.

Mr. Randall Garrison: But it would require consent.

The Chair: Do we have the consent of the committee to allow the parliamentary secretary to ask a question?

Mr. James Bezan: This one time, he could ask.

Voices: Yes.

Hon. John McKay: I'll try to ask a nice question.

The Chair: Thank you for the correction.

Mr. McKay, you have the floor.

Hon. John McKay: I'm reading from a paper “NORAD does not need saving” by Joseph Jockel and Joel Sokolsky. A couple of questions arise as I'm reading this paper. The first one is this. He's talking about whether NORAD needs saving versus what's in Canada's interest. It feeds off Mr. Garrison's question. He says—and I'll try to be as succinct as possible—

Moreover, there are plenty of screens in the NORAD/USNORTHCOM operations centre that the Americans keep the Canadians, even in their privileged position, from viewing.

Can you give an example of that, or several examples?

LGen Pierre St-Amand: There's only one screen that we're not allowed to see, and it's the BMD screen. That's it.

Hon. John McKay: When he says “screens”, as far as you're concerned, he means “screen”, singular.

LGen Pierre St-Amand: I would say so.

Hon. John McKay: Thank you.

The other question arises out of this strange position that we're in, the ballistic missile defence versus the cruise missile defence. If, in fact—and we'll use Russia as an example—Russia wants to hit Vancouver or Seattle with a ballistic missile, there is a choice to be made. If Russia wants to hit Vancouver or Seattle with a cruise missile that's launched from a jet, there's no choice to be made. In other words, we are at one with the U.S. on a cruise missile, but we are, in theory at least, differentiating ourselves when a ballistic missile is launched.

LGen Pierre St-Amand: That's accurate. Yes, sir.

Hon. John McKay: All right. Dead is dead. I just wanted to clarify.

The other point he makes in the article is that there are only 34 interceptors. Is that correct?

LGen Pierre St-Amand: It's in the ballpark.

Hon. John McKay: It's in the ballpark.

Forgetting Iran and Russia, possibly China, we have 34 possible interceptors.

LGen Pierre St-Amand: But it is the system. The Americans will tell you that it is designed for a missile from North Korea or Iran; it's not designed for a country like China or Russia. It is a limited system to control those rogue states that might launch one or two and still cause vast devastation to our population centres.

Hon. John McKay: So it's really a system designed for rogue states rather than a system designed for peer-to-peer war.

LGen Pierre St-Amand: Absolutely.

Hon. John McKay: That's not something I've understood before.

I wanted you to talk a bit about the new maritime domain awareness issue. With global warming, the opening up of the north, the “northern approaches”, shall we say, I've been told that the real worry is that some ship going up into the north might be able to launch missiles. This brings, in effect, the border much closer to Canadian, and thus North American concerns. Could you speak about that, as to the emergence, if you will, of this possibility?

LGen Pierre St-Amand: In the context of NORAD, we've always looked north and we look at the Arctic as being an avenue of approach as opposed to a base of operation. We operate from the Arctic to do our job, but it's an avenue of approach for us. In the maritime domain, we have this mission, which is maritime warning, in which case we would know about a scenario like you just described, if we have the proper detection and the proper intelligence. We would get the information and therefore advise both governments of a threat in the north. But our role would be limited to that.

In that case, our role is simply to advise of something that will be coming in, but if that ship were undetected, of course, were to end up in the Northwest Passage or in our Arctic and was able to launch a cruise missile, that cruise missile would then become our problem. It's a NORAD problem because it is an air-breathing threat. So that would characterize the way NORAD would be concerned with the north.

Here is another aspect of the north. While our Arctic, our maritime approaches, say, close to 12 nautical miles north of our land mass, may or may not be melting, depending on which side of the argument you find yourself on, you have to look on the other side. The Russian northern maritime lines of communications are melting way faster, and for us that is a concern, because they could position capabilities there. They could put stuff there that could act as a deterrent, and when you have a deterrent that could affect North America, we take notice. Now it starts to affect our freedom of execution, freedom of manoeuvre, and so forth. That's why I say, from a NORAD perspective, our area of interest is global. We look further than our borders, and we really look far north in this case.

I'm not sure I answered the question, but that's the limit of our operation—

• (1005)

Hon. John McKay: That's about as far as you can go.

LGen Pierre St-Amand: That's the other question.

Hon. John McKay: Do I have any more time?

The Chair: No, that's your time.

Hon. John McKay: Okay, well, that was three months worth of questions right there.

The Chair: I'd like to give the floor to Ms. Gallant. You have five minutes.

Mrs. Cheryl Gallant: Further to what Mr. Rioux was talking about and the cyber-attacks on dams, we know that a number of cyber-attacks have occurred and that so far they've been mitigated. However, I can think of at least one military base that is just a little bit downriver from a major dam in Canada. I'm not sure about any NORAD installations, but the point he made does speak to the necessity to have more of a cyber component situational awareness present at NORAD.

You mentioned the South China Sea and how that is becoming an increasing area of concern for NORAD. Now, prior to Putin's invasion of Crimea, the United States was pivoting toward the Pacific, which had Europe all worried. What measures does Canada need to take in terms of infrastructure or equipment to address this emerging concern over a possible threat from that region?

LGen Pierre St-Amand: I'm afraid that's out of my lane, Madam. With respect to NORAD, what we are doing is watching and thinking about the implications for North America of something bad happening in that area. On the rest, I'm not really qualified to provide an opinion or an answer.

Mrs. Cheryl Gallant: Okay. You did raise the issue of the threat from that area, so what is the threat? Is there a concern that there will be incoming missiles?

LGen Pierre St-Amand: Think of a scenario where the behaviour of a state is causing the U.S. to react, and all of a sudden we have something going on here. We have to think about these things. In an extreme scenario where it could go to [*Inaudible—Editor*] in that area, it is not unlikely that North America could be targeted as a way to deflect or to de-escalate something that's going on somewhere else in the world. That's what I mean by the fact that we are interested, we are monitoring, and we are thinking about scenarios that may in fact impact the security of North America, just because of activity that might happen in this area.

I'm not sure if I'm clear. It's a very indirect thing. It's soft. It is unlikely. It is to the right of arc in the scenarios, but it does cross our minds.

Mrs. Cheryl Gallant: Okay, so it's not a matter of there being a direct threat to North America or the United States, recognizing, as you had said before, that even a hit on the United States would have reverberations in Canada, as we saw after 9/11. We saw the stock market go down, and the lack of certainty caused jobs to be lost. When your economy takes a hit, eventually security takes a hit as well, because defence seems to be the first thing governments like to go after when they're trying to balance budgets.

In terms of the ballistic missiles and the cruise missiles, you mentioned there's no direct threat to Canada. I think Mr. Fisher asked the question about sovereignty. I'd like to look at the flip side of that, because Mr. McKay aptly pointed out that there's a screen that Canadians aren't allowed to look at, and that's the BMD screen. Mr. Fisher contends that if we're a part of BMD, then perhaps we'd lose a sense of our sovereignty. If there is something incoming over Canadian territory and the Canadian representative at NORAD is not allowed to know about this, we don't have input about what happens in our airspace.

Would you clarify this from your military perspective. Is sovereignty an issue one way or the other?

• (1010)

LGen Pierre St-Amand: For the ballistic missile threat, it will fly through space as opposed to airspace, and there's a big difference. If the impact point is close enough to the Canadian border, there may be some portion that is within our airspace, so to speak. It is a space trajectory. From that perspective, I'm not aware of sovereignty issues for space vehicles. That takes care of that one.

I forget the second part of your question.

Mrs. Cheryl Gallant: That was mainly the question.

What does Canada need to do to have the detection and surveillance in place to safeguard against cruise missiles and ballistic missiles? What do we need to do? Give us a shopping list.

LGen Pierre St-Amand: A shopping list would be sensors and a means to track, detect, and engage a cruise missile. If we had a shopping list and unlimited resources, that also means point-defences, for example with a ground-based defence system that would protect our most important sites within the Canadian land mass, which we don't have now. From a ground-based or defence point of view, this is something we don't have. That might be the biggest difference from the configuration we currently have.

Mrs. Cheryl Gallant: Okay, from—

The Chair: I'm going to cut you off there. That's six minutes. I've been a little generous with the time.

Mrs. Cheryl Gallant: Thank you.

The Chair: I'll tell you what we'll do. We'll go to Mr. Gerretsen, and you can split your time if you want. Then we'll go over to Mr. Garrison, and we'll come back to your side, if that works for you guys—Mr. Paul-Hus, in this regard.

Mr. Gerretsen, you have the floor.

Mr. Mark Gerretsen: Going back to a discussion that you were having with Randall, we talked about threats versus non-threats. Without getting too philosophical, there is something to say about the fact that having the proper equipment or proper defence in place is in itself a deterrent to threat, correct? I want to get you on the record as either agreeing or disagreeing.

LGen Pierre St-Amand: I totally agree, sir.

Mr. Mark Gerretsen: Okay, good.

Going back to my earlier question about the bases and their current locations, if we were to become aware of a threat on the west coast, for example, what would be involved in our response to that? How long would it take? Where would be the jets be scrambled from? Can you give some clarity on that? Is it sufficient?

LGen Pierre St-Amand: With some warning, or without warning?

Mr. Mark Gerretsen: With some warning.

LGen Pierre St-Amand: With some warning, the Canadian commander of the Canadian region would relocate F-18 forces, possibly to Comox, in that case.

Mr. Mark Gerretsen: Oh, sorry, my apologies. When I said “with warning”, I meant “limited warning”, so in that regard, it's without warning.

LGen Pierre St-Amand: In that regard, what would happen is that we would have a detection, and we would receive in Colorado Springs and in Winnipeg, which again is Canadian region headquarters for NORAD, the information that there is a problem.

Given that we would not have the time to relocate Canadian assets... The primary reaction is always to ask if have the time to take our F-18s wherever they are located, because they are not

always in one location. We rotate them. We train on different bases. We go to Comox regularly to train the folks there.

Depending on where the forces are, there would be a determination of whether or not these aircraft are in position to react. If they are not, the commander of NORAD, in concert with the commander of the Canadian region NORAD, would determine the best assets—where they would come from in the least amount of time. Again, it really depends on where that threat would manifest itself. So I can't pinpoint a base or anything like that for you. We would commit the best assets possible for that particular threat to address whatever problem needs to be addressed.

•(1015)

Mr. Mark Gerretsen: In that regard, do you feel as though we are able to exercise our sovereignty, in the sense that if a threat came without warning, we could respond to it? Or are we depending too much on the American side of things?

LGen Pierre St-Amand: No, sir, I think it's absolutely adequate in the sense that right now, as we sit here today in Ottawa, we have a certain threat level. The commander of the Canadian region has positioned his aircraft in a way that caters to that situation. If we have a warning, we have Canadian commanders in command.

As I mentioned earlier, there is a deputy commander in the continental region in Tyndall who is a Canadian one-star general. More often than not, this commander is in charge of all of the U.S. forces south of the border. He commands those forces.

He would commit the U.S. forces across the border and the Canadian commander of Winnipeg, and Winnipeg would take command of those forces, and although the platforms would be American, the mission would be delivered by Canadian authorities. So for me, that tells me we're in good shape from that point of view.

Mr. Mark Gerretsen: I have one last question in regard to ballistic missile defence. My understanding, and correct me if I'm wrong, is that we have access in the sense of understanding and knowing about the threat, but not with respect to what the recourse is.

Is that correct?

LGen Pierre St-Amand: Yes, that's very correct, sir.

Mr. Mark Gerretsen: Why don't we have access to that one screen then?

LGen Pierre St-Amand: When I say we don't have access, we don't have Canadians sitting in the ballistic missile defence section.

When you visit Colorado Springs, you will see that in the operations centre there is an air domain, a maritime domain, and the FAA is there, and so on and so forth. There is a ballistic missile defence domain, and you will see that there are no Canadians there. There are no Canadians sitting in that row.

Mr. Mark Gerretsen: So how do we become aware?

LGen Pierre St-Amand: When we step back, you will see there is a command desk where I'm sitting here as a NORAD officer to characterize a threat, and to my right is going to be a NORTHCOM officer who will be charged with delivery of the mission.

When I characterize a threat so I know there is a missile coming in, there is a conference that is called. The CJOC, the commander here in Star Top, is a part of that conference, and this is how the information will come to Canada. There is something coming in; there is an attack on North America and Canada will be advised.

With respect to the defence itself, we'll know there is going to be an action taken, because we're sitting in a room, but it's just because we're there. We're a silent observer, if you will, just because we have a mission that will pick up after the engagement if there is anything that falls towards North America. It's a bit complicated, and this is why I think it's so good that the committee will come to Colorado Springs to see and experience all of this.

Mr. Mark Gerretsen: Thank you very much for those answers, and thanks for coming today. I found your testimony to be extremely candid, and I appreciate that.

The Chair: Very good.

I'm going to give the floor to Mr. Garrison. You have five minutes.

Mr. Randall Garrison: I want to echo those comments. I do appreciate your contributions today.

In your presentation you mentioned that the choreography of resources, as I guess I would call it, is really something that NORAD is concerned with. We're now facing a situation where we had the commander of the Royal Canadian Air Force here saying that for the Aurora long-range planes, they would now have to limit hours to extend their life, and we may be facing that same problem of limiting the hours of flight of F-18s in order to extend their life until we get a replacement aircraft.

Is that kind of factor going to limit the capacities of NORAD as we move along here?

LGen Pierre St-Amand: I don't think so because throughout the history... It happened also in the United States with their own platforms. However, NORAD has always been protected in terms of what we needed for training our crews and the hours of flight time for whatever platforms to deliver the mission. It is a priority.

I think General Hood would have told you that search and rescue in NORAD is the first priority and it is the way that is executed, so I am not concerned.

Mr. Randall Garrison: I'm going to ask a more speculative question now. You referred to the fact that NORAD is 58 years old, which is a time when a lot of people begin to think about whether retiring is a good idea, and that NORAD was created for a different threat environment.

If we didn't have NORAD now, would we think NORAD is the solution to the current threats we face? I have my doubts that we would

• (1020)

LGen Pierre St-Amand: Or something like NORAD.

Mr. Randall Garrison: Or something like NORAD, and what is that capacity that we're gaining out of this? What's the gain, given the threats we face now?

LGen Pierre St-Amand: The perspective of a continental defence is what would probably surface nowadays. It's kind of a

declaration of the fact that North America is a single security space. We can't detach ourselves from each other. Something happening in the U.S. will affect us; something happening here will affect them.

In this continental defence perspective, as opposed to a national defence perspective, the current debate is in what domains it makes sense. It is evolving as a result of evolving capabilities. I'm reminded of the Battle of Britain which took place 75 years ago and we celebrated last year. In the years prior to the start of World War II, Great Britain discovered that the English Channel was no longer the longest tank ditch in the world, in the sense that for years, they were immune to invasion. Then air power started and we saw the Battle of Britain, and we know what history brought.

In many ways in North America, we are finding ourselves now facing threats, ballistic missiles, of course, but long range cruise missiles as well. This means that the Arctic, the Atlantic, and the Pacific may no longer be sufficient. They are still formidable barriers, but as far as a nation out there that would like to cause us harm, we are now facing something new from different domains, cyber being one of those, which the oceans do nothing in stopping that nefarious activity.

If NORAD did not exist, we wouldn't be having this debate now. You're right, maybe it would be too expensive. Maybe we couldn't afford it, but since we have it and can [*Inaudible—Editor*].

The Chair: Mr. Paul-Hus, for five minutes.

[*Translation*]

Mr. Pierre Paul-Hus: Thank you, Mr. Chair.

General, I am going to come back to more practical considerations: the hostile incursions that Canada has experienced in the last five years, whether military or civilian. The word "hostile" may be a little strong when we talk about the civilian element, so we will instead say unannounced incursions.

Can you provide us with some figures in that regard?

LGen Pierre St-Amand: We have not experienced any hostile incursions.

If we are talking about penetration of our air defence identification zone, we again have to specify that Russian aircraft are entitled to travel in international airspace. The identification zone allows for control of traffic entering North America. That is what we ask. Those planes, which are government-owned, are not required to provide us with flight plans.

It might be interesting to visit the Canadian Air Defence Sector in North Bay. You will see on the scope that all aircraft entering North America have flight plans, with the exception of one or two planes that come from the northwest Arctic or the Alaska North Slope. Those are the cases when the planes have to be identified, and it is that need to identify them that requires that we still do immediate takeoffs.

In short, there have been no hostile incursions in the last five years.

Mr. Pierre Paul-Hus: Military planes have no flight plans, but does it happen often that Russian military aircraft overfly Canada?

LGen Pierre St-Amand: Some do, under the Open Skies Treaty, for example, following a flight plan, but that happens only in that context.

Mr. Pierre Paul-Hus: Right.

You spoke briefly about our air fleet. I would like to know how many jets we need just to meet minimum NORAD standards.

LGen Pierre St-Amand: That is classified information, and so I cannot talk about it, unfortunately. I can tell you, however, that we have the number of planes we need.

Mr. Pierre Paul-Hus: Pardon me?

LGen Pierre St-Amand: We have the number of planes we need to deal with all scenarios.

Mr. Pierre Paul-Hus: I imagine the answer to my third question will also be classified information.

Because I was part of the military system for 22 years, I understand your position. When you are in the military, you always wait for the government's decision. We here try to assess the real needs.

If you were to put aside the fact that you are a lieutenant-general and consider the question based on your experience, what would your wish list be? What essential resources would you like the government to give you, in the short term?

• (1025)

LGen Pierre St-Amand: In terms of NORAD?

Mr. Pierre Paul-Hus: Yes.

LGen Pierre St-Amand: We are talking about the number of planes, of radar equipment?

Mr. Pierre Paul-Hus: What would you like the government to give you, in the short term?

[English]

LGen Pierre St-Amand: There's no commander in the world that's satisfied with all the resources he has. That's all I can say. We mitigate as much as we can. We make plans.

[Translation]

We do not ask ourselves that question.

[English]

The Chair: We'll go back to this side of the table, but I want to ask a question, and then, depending on how long the answer is, I can split my time with somebody else. Then we'll go back to my left side, and then down to Mr. Garrison, if he has a question.

There's only one mission in this country that has a higher priority than NORAD and that's our own sovereignty. A lot of time there's a line blending between our Canadian sovereignty with NORAD, and that mission kind of merges together. Then, of course, we move to NATO and coalition operations. We have a budget and a certain infrastructure in place right now, and I understand our need to be interoperable with the U.S. It's critical in maintaining NORAD. However, given the fiscal and infrastructure limitations we face, we can slip very quickly from being interoperable to being dependent, depending on how we manage ourselves and our budget and our infrastructure. We could focus too much on the second line, which is

NORAD, and not make careful decisions moving. How concerned are you about our ability to do our number-one job, which is sovereignty, independent of the United States?

LGen Pierre St-Amand: This goes to the binationality of the command. Canadians are integrated into the command decisions with respect to the execution of the NORAD mission. Whether it's in Alaska, in Canada, or the United States, there is a Canadian general officer who is a part of the command, if he or she is not the commander per se—just as in Canada.

The Chair: Say we want to conduct Canadian-only operations, and we don't want to rely on the U.S. for anything. We might have an operation we want to do in our Arctic and we don't want to have to depend on the U.S. for anything.

LGen Pierre St-Amand: For as long as NORAD has existed, there has always been a U.S. twin command. This has been beneficial for Canada in the sense that the U.S. has had the means and command to execute unilateral action without dragging Canada into their business. That is one clear benefit.

We have the 1 Canadian Air Division, which is double-hatted at a minimum with the Canadian regions. There is a chain that exists in NORAD. But the officer in command is also the joint forces air component commander for CJOC. So he has the ability to conduct unilateral, national sovereignty operations without reliance on others, without seeking authority from anyone, other than the Canadian chain of command.

On the Canadian side, the JFAC concept is new. It comes back to the CJOC formation and Canada Command formation. But on the NORAD side, the U.S. twin has been there from the outset. It was not called USNORTHCOM at that time. It was Continental Air Defence Command, CONAD, in 1957-58, but it's always been there. So we have means to detach ourselves to do our own thing.

The Chair: On the command and control side, that was what I understood to be the case. But at the end of that command and control comes the teeth, and we're going to need equipment to exercise our own will within our borders. If we run down the road of upgrading a whole host of things for NORAD, and we don't make careful decisions based on our budget and infrastructure, at the end of that command and control chain, which I understood had a separate parallel path to being sovereign in our own nation, could we end up in a situation where we buy things that we may not be able to operate within our own borders?

Take air-to-air refuelling. Right now we can do that. In the future, depending on what we purchase, we may not be able to do it. Given the size of the country and that air-to-air refuelling is an incredibly large-force multiplier, what are your thoughts on that?

LGen Pierre St-Amand: I understand where you are coming from, Mr. Chair. We have to live within our fiscal capabilities. At the end of the day, commanders will do what they can with what they have. But this risk is a policy risk. It is not for the military to decide. It is for the Chief of the Defence Staff, perhaps, to render military advice, but in the end it's the government that decides the risks to be taken in those matters.

• (1030)

The Chair: Okay, thank you for that.

We will move over to Mr. Bezan. Did you have a question?

Mr. James Bezan: I want to follow up on that discussion on where we're at, especially on fighter jets and the infrastructure to support them. The CF-18s are going to be around until 2025. When is the expected end-of-date service for the Polaris?

LGen Pierre St-Amand: I think the precise answer would be better delivered by General Hood who has the control and the full visibility on that, but I think it's about the same time. That is a good thing in the sense that to replace our Airbus, for example, we first need to know what the next fighter is going to be. I don't see those numbers; that is not a CF matter.

Mr. James Bezan: To look at where the U.S. is heading, they're going with an F-35 fleet, including in Alaska. I understand that two squadrons of F-35s will be stationed up there. When we are doing northern surveillance now are we only using Canadian air refuelling, or are we also using American air-to-air capability?

LGen Pierre St-Amand: We have two strategic air-to-air refuellers on standby at all times. They're located in the United States, both on the west coast and the east coast. They are provided for us to use whenever we need them, especially when we have to travel long distances to go north and intercept and take a look at a track of interest. More often than not—because I was also the commander in Winnipeg for the Canadian region—whenever we deployed up north, we would bring RC-130 tactical refuellers to the same location to help out, and when it's available we would use our Airbus as well. However, you will understand that we have been busy in the Forces in the last few years and our tankers have been very useful within the coalition, as they are now. So it depends. If they're available we'll take them. Sometimes they're not available, but we have support from the United States to do our mission.

Mr. James Bezan: When we're running joint exercises with the Americans in Canadian airspace, do we host U.S. fighter jets at our bases on occasion or frequently?

LGen Pierre St-Amand: Yes, sir.

Mr. James Bezan: Would that include our four operating bases in the Arctic?

LGen Pierre St-Amand: We do, but not frequently. When we host U.S. fighters, they are NORAD-apportioned U.S. fighters, and we'll do it in the context of a NORAD exercise for FOLS.

Mr. James Bezan: So if the U.S. goes strictly to an F-35 fighter jet fleet, would we have to look at upgrading our runways and facilities at our four operating bases to accommodate them, especially in a NORAD context?

LGen Pierre St-Amand: They would be for that aircraft, and for that matter there would be some security requirements that we would have to abide by for any aircraft of that generation that would follow

the F-18. I'm not sure that we would have mandatory infrastructure costs related to the aircraft, but these security requirements, by the way, are applicable to the current generation of aircraft when F-15s are deployed up north, for example. We have to provide security at Goose Bay, Inuvik, and Frobisher Bay. If these aircraft show up, we have to do something different from what we do with our own F-18s.

Mr. James Bezan: As we move forward and the government has to make a decision on what we replace the CF-18 with—and we talked about interoperability—and the U.S. is going to an F-35-only platform, wouldn't it be advisable in a NORAD context that Canada operate on the same platform?

LGen Pierre St-Amand: We are married to mandatory mission requirements. So what's important for us—and I understand the debate—is that for the NORAD part of the mission requirements, we need an aircraft that has advanced sensors to detect, track, and support the engagements of advanced threats. We need an aircraft that has the ability to network within a system of systems that currently is in place, but also a future system of systems. We have to have the man and machine interface that comes with modern fighter aircraft. Those requirements are factored into the command of RCAF requirements for the replacement of the F-18, and for that matter we have to remain agnostic with respect to what Canada would provide in a platform.

Mr. James Bezan: I respect that.

Thank you, Mr. Chair.

The Chair: We're going to go back to this side of the table.

I thought two people wanted to ask questions: Ms. Romanado and Mr. Spengemann. You have the floor for two and a half minutes.

• (1035)

[Translation]

Mrs. Sherry Romanado: I am going to ask my question in French.

You said that we currently have the number of fighter aircraft we need.

In the 1980s, we bought 138 fighter jets and modernized perhaps 80. At present, 77 fighter jets remain. We have heard that we are going to purchase 65 fighters to replace our CF-18s. I wonder whether that is sufficient, given training needs and attrition.

[English]

I am concerned. If we are buying only 65 fighter aircraft, and we currently have 77, aren't we going to be exposed somewhere?

LGen Pierre St-Amand: With respect to the NORAD requirements, 65 is adequate, as NORAD only uses some of the 65. I am satisfied that the numbers required for NORAD—and, again, those numbers are found in plans that we have—and the need for NORAD mission requirements are addressed adequately.

When we talk about the numbers and the quality, of course, the quantity has a quality by itself, for sure. I acknowledge that, but again, with respect to whether Canada would need more aircraft, that is for the RCAF to determine. When I turn to General Hood and say, “We need this number of aircraft for NORAD” and he comes back and says, “You will have your numbers, and, by the way, the total number is this”, I have to say, “Okay. You manage the rest, but as long as you guarantee me these aircraft that I need for this mission, I am satisfied.” That is the only answer I can give you for that.

Mrs. Sherry Romanado: Do I have any more time?

The Chair: You have 30 seconds.

Mrs. Sherry Romanado: In terms of our RADARSAT Constellation of three satellites scheduled to launch in 2018, we heard from a witness that it is very likely we will actually need five. Can you comment on that?

LGen Pierre St-Amand: I am not following that project, so I can't comment.

Mrs. Sherry Romanado: Thank you.

The Chair: Mr. Spengemann, you have the floor for two and a half minutes.

Mr. Sven Spengemann: Very briefly, I would like to take you back one more time to Operation Noble Eagle on the west coast. On the distinction between main operating bases, deployed operating bases, and forward operating locations, I wonder if you could tell the committee under what circumstances and for what duration the base in Comox has been used as a deployed operating base for our western fighter assets.

LGen Pierre St-Amand: I would have to come back to you with the specifics and numbers. I don't have them available now, but I will take note of it, sir, and will make sure that you get the information.

With respect to the FOLs, they are part of our NORAD configuration to counter a threat in the north. Again, the numbers there may be getting into classified information as well.

I apologize for the non-answer. I just don't have the data.

Mr. Sven Spengemann: Yes. If there is information that is not classified, I think it would be helpful if you could make it available.

LGen Pierre St-Amand: Of course.

Mr. Sven Spengemann: Thank you.

The Chair: Very good.

Mr. Garrison, you have the floor, for a couple of minutes.

Mr. Randall Garrison: Actually, my questions are going to be for you, at this point. We raised the question of the budget for NORAD, and Lieutenant-General St-Amand said that we could get those figures. My request is that we be given, either through NORAD or through our analyst, some kind of information sheet or briefing sheet on the budgeting for NORAD.

The Chair: Okay. We will make that request.

Mr. Randall Garrison: The second thing is that we agreed to give priority to this study of North American air readiness, but we also agreed at this committee that we would hear from Lieutenant-General Christine Whitecross and the CSEC director. We have certainly given priority to this study. I am wondering whether we will have an opportunity to hear from them soon, because we are about to take a week and go to Colorado, and various other things are coming up. I am concerned that this study not be at the expense of those two other things that we agreed to do as a committee.

The Chair: We can certainly take that up in committee business, which we can do just before we depart.

Are there any more questions for the witness?

Mr. Randall Garrison: I'll pass on future questions.

The Chair: Does anybody else have a question for Lieutenant-General St-Amand?

Mr. James Bezan: I am looking forward to seeing you down in Colorado Springs.

The Chair: Sir, thank you very much for your time. We appreciate your coming today, and we look forward to seeing you in a few weeks.

I'll suspend for two minutes, and then we can go on with committee business.

[Proceedings continue in camera]

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