

# NATO's New Eyes in the Sky

By Michael C. Sirak, Executive Editor

The Alliance has long had a shortage of non-US ISR capability. Here's the plan to address that.

**I**n 2017, NATO is scheduled to have in place its first-ever Alliance asset for collecting strategic intelligence: the Alliance Ground Surveillance system. The fleet of five Global Hawk remotely piloted aircraft will carry a sophisticated radar capable of monitoring the situation on the ground from high overhead, including the movement of objects of interest such as military vehicles.

The Global Hawks will transmit synthetic aperture radar images—which look like photographs—and tracking data on the moving objects down to NATO intelligence analysts. These specially trained personnel will then create intelligence products for the Alliance's political leadership and military commanders, down to the tactical level, quickly enough to be relevant. This information will provide insight into topics such as the position of combat forces, battle damage sustained by a target, or devastation caused by a natural disaster.

Alliance officials have said NATO's operation to protect civilians in Libya in 2011 demonstrated the importance of this situational awareness. To date, NATO has had to rely on the national assets of its members, especially the United States, for this type of capability, making the AGS acquisition truly groundbreaking.

"AGS is indeed a kind of game changer," said a NATO official during an interview at Alliance headquarters in Brussels, Belgium, in late June. "It changes the dynamic within the Alliance to have access to that kind of information."

Half of NATO's 28 members are procuring AGS: the United States, Bulgaria, Czech Republic, Denmark, Estonia, Germany, Italy, Latvia, Lithuania, Luxembourg, Norway, Romania, Slovakia, and Slovenia. Poland is poised to join this group, expected to formally become the 15th procuring nation before year's end.





All Alliance members will contribute to AGS operations and support costs—or provide some “assistance in kind” in the case of Britain and France. Over its life cycle, AGS is expected to cost Alliance members some 2.2 billion euros in base year 2011 calculations.

### Rules to Respect

Every member state will also have the opportunity to contribute its nationals to the force of some 600 military and civilian personnel who will operate and maintain AGS out of Sigonella air base on Sicily in Italy and run the training schoolhouse there.

NATO has collectively procured and operated military systems before. For decades, it has operated a fleet of E-3 Airborne Early Warning and Control aircraft to watch Alliance airspace and direct defending aircraft.

However, AGS represents a new degree of capability that will require deeper integration and interoperability among Alliance members, bringing with it opportunities as well as challenges.

“The system feeds into the political-strategic level, military-strategic level, operational level, tactical level,” making connectivity between members’ militaries all the more important, said the NATO official. Accordingly, “if you want to be part of the network, there are some rules to be respected here, both in terms of security, but also in terms of interoperability.”

The Alliance leadership wants the AGS architecture to build upon the gains NATO has made in information sharing in recent years, such as the Afghanistan Mission Network that allows members’ deployed forces “to share information and intelligence up to a level that we have never done before in terms of consulting each other’s databases,” said the official. (NATO policy doesn’t allow identification of officials.)

“That, we believe, should become a permanent capability for the Alliance,” said the official. “This requires an important change of mentality, mindset, but also needs for us to put into place the procedures to do that, the technology to do that, and so on. ... The challenge will be to bring as many nations up to that level. We are not there today yet.”

The five Northrop Grumman-built Global Hawk Block 40 air vehicles will house the Multiplatform Radar Technology Insertion Program (MP-RTIP) radar sensor that will survey the ground over a wide area. While similar to the US Air Force’s Global Hawk Block 40 configuration, the AGS aircraft will have some modifications based on the US Navy’s Broad Area Maritime Surveillance model.

“The difference in configurations is due to the fact that we have different communication requirements for the NATO Global Hawks,” said the official.

Sigonella, the AGS fleet’s beddown site, is already home to US Global Hawk operations. The Italian base will also host AGS’ main ground control element, imagery exploitation center, and the training

***An artist’s concept of a NATO Global Hawk—one of five NATO will operate with the MP-RTIP.***

schoolhouse for the Global Hawk pilots, sensor operators, and the imagery analysts.

“We [will operate differently] from the US in the sense that everything is concentrated in a main operating base, so both launch and recovery and analytical capabilities are all concentrated, whereas in the US, there is a more decentralized system,” said the NATO official.

The Global Hawks will be capable of flying for extended periods at considerable standoff distances and in any weather or light condition. They will feed their SAR imagery and data on the moving targets via line-of-sight data links or satellite connectivity into the processing, exploitation, and dissemination element at Sigonella. The analysts will then exploit the SAR imagery and ground moving target indicator (GMTI) data and channel it in near-real time through the NATO command chain.

There will also be mobile and transportable AGS elements to support the NATO Response Force or other Alliance troop packages with data-link connectivity, data processing, and exploitation capabilities.

### Bringing In All 28 Nations

Those stations will “capture directly the images from the Global Hawks and do a local analysis in direct support of the deployed commander,” said the official.

NATO’s Supreme Allied Commander, Europe, will task the AGS assets and NATO Allied Air Command at Ramstein AB, Germany, will oversee their operations.

Northrop Grumman is expected to deliver the first AGS Global Hawks in 2016. The company is also providing the Global Hawk command and control equipment at Sigonella. AGS is scheduled to be fully operational in 2017.

European industry will supply the mobile and transportable ground elements and provide the mission operations support at Sigonella. Continental contractors include companies such as Germany’s EADS Cassidian, Italy’s Selex Galileo, and Norway’s Kongsberg.

“This is mainly a US system we are buying, but there is also [European] industrial cooperation which may also have spin-offs in Europe later on,” said the official.

The 600-member AGS force will comprise 522 military members and 78 civilians. Since only a few member countries have experience in such operations, the learning curve for some members’ militaries will be steep.

“We are organizing a training program to bring those nations that don’t have that experience up to speed so that they also will be in a position to provide military personnel,” said the official. “We want this to be an Alliance capability to which all 28 nations can contribute.”

Since NATO is adopting a Global Hawk version closely related to an already-tested US configuration, and since Global Hawks already operate from Sigonella, NATO believes the process of certifying the AGS aircraft for airworthiness will be manageable.

“We are not saying there is no challenge out there. There certainly is,” said the official. To mitigate it, “we will rely as much as possible on existing procedures.”

NATO intends to operate the Global Hawks in “segregated airspace,” meaning separated from civil air traffic.



Northrop Grumman illustration

“Now these systems operate at 60,000 feet—well above civilian or commercial airliners—so if you manage to get it through a segregated airspace up to a certain altitude, then you deconflict with civilian traffic,” said the official.

NATO expects there will be “a permanent rotation, on an annual basis, of about 90 students” who go through AGS-specific training for imagery analysis at Sigonella, “do their three- or four-year rotation at Sigonella, and then go back to a national position,” said the official.

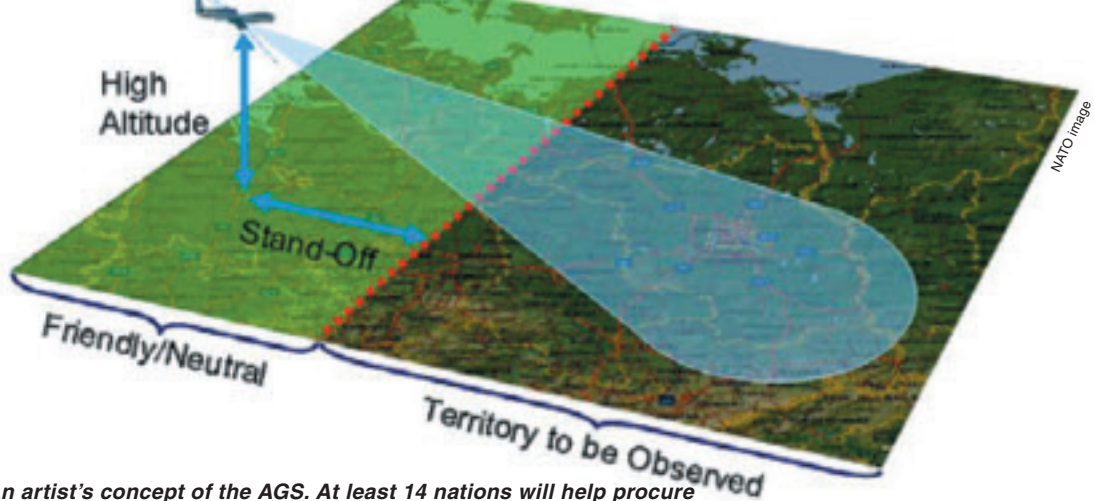
“Not many nations have the required skill sets to be able to train to synthetic aperture radar and GMTI,” said a second NATO official. “So what we are trying to do is understand the training need ... and then establish in the fairly short term a training package which will be for image analysts which will bring them then to a standard which the AGS force requires.”

The desire is for personnel from the member nations with more experience in this realm to train their Alliance partners, “so those nations which don’t have those analysts can still be part of the AGS force,” said the official.

AGS had its genesis in the early 1990s when Alliance members expressed the desire to acquire an overhead capability for joint intelligence, surveillance, and reconnaissance. In 2001, the Alliance defined a cooperative AGS program that included a mutually developed sensor called the Trans-Atlantic Cooperative AGS Radar (TCAR).

In 2004, NATO adopted a mixed-fleet approach for AGS, with Airbus A321 manned aircraft and the Global Hawk Block 40s identified to carry TCAR. However, due to declining European defense budgets, the Alliance axed the mixed-fleet idea three years later and opted to go forward with only the Global Hawks. Alliance members

*An artist's concept of the fleet of AGS Global Hawks at Sigonella, Italy.*



**Left:** An artist's concept of the AGS. At least 14 nations will help procure it, while others will give "in kind" support to the program. **Above:** An illustration of the AGS wide-area standoff ground surveillance capability.

also decided then to acquire the already-in-development Northrop Grumman-Raytheon MP-RTIP in place of TCAR.

In 2009, AGS program members signed the program memorandum of understanding that outlined the system's procurement. At its Lisbon summit in Portugal in 2010, NATO reaffirmed the need for AGS. In February 2012, Alliance members approved the approach to collectively cover the costs for operating AGS, paving the way for the signing of the AGS procurement contract that May on the margins of NATO's summit in Chicago. The contract is valued at 1.2 billion euros (base year 2007).

Denmark, which withdrew from the AGS program in 2010, rejoined following the contract signing, bringing the group of procuring nations back up to 14. Poland, in April of this year, announced its intent to join the AGS program and is now in the final stages of negotiating its role.

"This is a process, not just an event, because it involves discussions on industrial participation," said the first NATO official. "We believe that by October-November, Poland

will be a full member of the group of nations procuring the system."

The AGS procurement contract covers what NATO calls the AGS "core": the five Global Hawks; the Sigonella-based ground segment to operate them, capture their data, and analyze that information; the deployable processing stations; a logistical element; and the training.

The contract does not cover the AGS infrastructure—the buildings, hangars, and warehouses at Sigonella—the satellite bandwidth that AGS will require, or the costs of AGS operations and support over the system's life cycle—spare parts, fuel, and civilian manpower, for example.

All 28 Alliance members will collectively fund the infrastructure, all but France will contribute to the satellite bandwidth costs, and all but Britain and France will provide money for operations and sustainment.

In place of funding AGS operations and sustainment, Britain and France intend to provide overhead SAR/GMTI contributions-in-kind to support NATO operations. The British have said they would make their Sentinel R.1 airborne standoff radar aircraft available, while the French have yet to commit to a platform.

France does not plan to contribute to the satellite communications costs because it wants to use its own bandwidth when it contributes in kind, said the official.

The British government has yet to resolve the fate of its Sentinel fleet. Identified for retirement in Britain's 2010 defense white paper, the government is re-examining those plans after Sentinels demonstrated their worth in support of NATO operations in Libya in 2011 and, more recently, in the French military intervention in Mali.

If the British and French contributions-in-kind do not materialize, then both nations are expected to provide their share of the funds to cover AGS operations and sustainment.



Northrop Grumman illustration



US Southern Command photo

that you make the best use of that capability if there are no ongoing operations,” said the official. “The debate has been brought to the table.”

As such decisions play out, Northrop Grumman continues development of the AGS Global Hawks to meet the schedule for first delivery in 2016. The company will produce the five air vehicles in consecutive order on its assembly line.

Northrop Grumman officials are also working with Denmark and Poland—the newest AGS member and aspirant, respectively—to identify opportunities for their industries to participate in the program. ■

Questions remain for AGS, including when the Alliance will have enough AGS hardware in place and sufficient personnel trained to declare the system initially operational.

### To the Table

“We know what the end state is going to be. But the question is: At what point in time can SACEUR declare an initial operational capability and make that available to the Alliance? That is being worked on right now,” said the official. There is also the issue of whether AGS should be available to member states to support national requirements—a scenario like the French military involvement in Mali, for example—if the system is not engaged in a NATO activity.

“I think we are moving towards such ... an arrangement that will allow that,” said the official. “We have something already for AWACS where if there is a need to reinforce national air surveillance capabilities, that nation can request NATO to provide AWACS to support that event. There is a mechanism to do that.”

Use of AGS for a member’s particular national need would bring up issues, such as how to handle the imagery and data.

“Would that information also be made available to NATO as a whole or not? How would it be managed in terms of the operators, the analysts? Because you have a multinational capability doing the analytical part,” said the official.

“I think it makes sense certainly in the current economic environment

*Above: Imagery of the National Cathedral in Haiti, destroyed in a 2010 earthquake, taken by a USAF Global Hawk. NATO planners hope AGS Global Hawks will send back imagery like this to provide situational awareness. Below: An artist’s concept of the new system.*



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