

RECONNAISSANCE

While the Air Force seems to be laser-focused on combat operations in the Middle East, it still must keep watch on global military activities. Operating intelligence, surveillance, and reconnaissance aircraft is a mission that never ends, and these systems—and the tactics they employ—must be constantly modernized to react to a perpetually evolving world environment.

“There’re always things going on,” said Col. Mohan S. Krishna, commander of the 55th Operations Group, which includes the majority of Air Combat Command’s special reconnaissance

and special mission aircraft. “Most of the times when you see things in the paper, we probably already knew about it, because we were probably tasked against it.”

The 55th Operations Group, at Offutt AFB, Neb., includes the C-135 derivatives carrying out signals intelligence, radar intelligence gathering, treaty verification, and sniffing out evidence of ballistic missile tests and nuclear tests. In the past three years, attention to the Middle East has been joined by a rising emphasis on the Pacific, along with an increasing need to keep close watch on Europe, as Russia’s incur-

sions into Ukraine have changed the dynamics on the continent.

The Defense Department has begun to appreciate that “the rest of the world needs our services,” Krishna said in an interview with *Air Force Magazine*.

The workhorse of the Offutt inventory has been the RC-135V/W Rivet Joint, a 17-strong fleet tasked with collecting signals intelligence around the globe. Last September, the type surpassed 24 years of service in the Middle East. Between June 2014 and May 2015 alone, it flew 2,281 combined flying hours over 218 missions in that region.

USAF’s airborne recon capabilities evolve in the face of constantly changing threats.



NEVER SLEEPS

By Brian W. Everstine, Pentagon Editor

While they have been busy, the tasking has actually dropped. During earlier years of the wars in Iraq and Afghanistan, the 55th had six of its eight Rivet Joint crews in the desert. Now, Krishna said, that's down to three. The freed-up aircraft have been grabbed by other regional commands.

"It seems to be spreading us thinner, but it gives us more opportunities to not be blindsided and to understand the whole world," Krishna said.


Combatant commands, especially in the Pacific and Europe, have increased their use of the Rivet Joint and their understanding of how it fits in their

plans. Over the past three years, the aircraft deployed 19 times, flying 400 mission sorties, and more than 3,400 flight hours. RC-135Us, WC-135Ws, and RC-135Ss have, combined, flown more than 300 operations and more than 2,600 flight hours between 2013 and 2015, 55th Wing officials said in November.

The intense focus on the Middle East caused the enterprise to lose "our balance on PACOM and on EUCOM," Krishna said. That became evident "in the last couple years because of different threats popping up in those different areas."

North Korea's testing of nuclear weapons and long-range missiles has heavily tasked the WC-135W Constant Phoenix—which collects effluent and dust in the atmosphere to examine for evidence of nuclear tests—and the RC-135S Cobra Ball, which collects ballistic missile test data. Both have been on continuous deployment to the Pacific. Both types are very small fleets—there are just two WC-135Ws and three RC-135Ss—challenging aircrew and maintainers to keep the jets healthy and not over-deploy the crews.

It's also getting more than a little risky. With an increasing operating



A U-2 comes in for a landing for an air show at JB Andrews, Md. USAF plans to retire the aging Dragon Lady fleet in 2019, replacing its capabilities with an upgraded Global Hawk.

tempo in contested areas such as the Baltics and the South China Sea, RC-135 and other reconnaissance airplanes have seen more close intercepts—the types characterized by the Pentagon as “unsafe.” Chinese fighters have repeatedly intercepted Rivet Joints and Navy P-8s; one of the the most recent was June 7.

“Every now and then you’ll see an incident in the air that we may judge to be unsafe,” US Pacific Command Commander Adm. Harry B. Harris Jr. said June 4 at the Asian security summit, Shangri-la Dialogue, in Singapore. He said that “over the course of time” such dangerous intercepts are “rare.”

The US and China have a bilateral Military Maritime Consultative Session to discuss these cases, and “that’s an opportunity for us and China to work through these incidents that we

experienced on the high seas and in the air,” Harris said.

Russian fighters flew within 50 feet of an RC-135 in April, performing a barrel roll over the top of the jet, the Pentagon said.

While Air Force reconnaissance crews have seen an uptick in these types of provocative moves, they haven’t affected operations, Krishna said. US pilots are careful to remain in international airspace and “make sure we are always in the right,” he said.

OPEN SKIES TREATY

“As we fly more—and our peers are noticing we fly more—our adversaries are going to fly more in reaction,” he said. “It’s all going to ratchet up. There will be more intercepts,” and a greater number will turn “unsafe and unprofessional.”

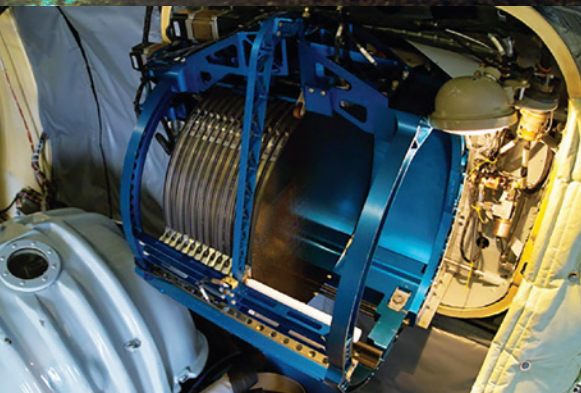
Russia and the US have remained professional regarding Open Skies Treaty flights, where reconnaissance aircraft from each country regularly fly over the other to monitor each nation’s nuclear weapons programs.

The US flies about 10 Open Skies missions per year over Russia, while two different Russian aircraft fly over the US at about the same pace. Adm. Cecil D. Haney, head of US Strategic Command, said the US has had “ample access” to review Russia’s nuclear arsenal, with another 18 inspections each year in addition to the flights. “That transparency is important,” he said.

Russia’s approach to the flights is changing, though. It has moved away from wet film cameras to digital imaging systems on its aircraft. In February, it requested permission to fly with digital cameras and said it would share all of



USAF photo by SSgt. Andy M. Kin



USAF photo by MSgt. Steven Clark

Top: USAF maintenance technicians perform a preflight inspection of a Global Hawk in Southwest Asia. Northrop Grumman recently flew the first demonstration flight of an RQ-4 Global Hawk loaded with the Universal Payload Adapter, a 17-point system that will permit the remotely operated aircraft to carry multiple sensors. **Above:** Part of the WC-135 aircraft’s equipment that allows it to collect effluent and dust from the atmosphere to be tested for evidence of nuclear tests. **Right:** A flight line expediter inspects a Global Hawk in Southwest Asia.



USAF photo by TSgt. Christopher Boltz

its photographs with the US after the flight, the Pentagon said.

The US is lagging behind Russia on the shift to digital, releasing a request for proposals in May 2015 on replacing the wet film sensor with a digital suite on the OC-135 fleet. The Air Force “still has plenty of film” to use in the meantime and expects to have the digital suite in place in 18 months’ to two years’ time, Krishna said.

Like the C-135 airframes they’re based on, most of the 55th Wing’s reconnaissance and special mission fleet is old. Unlike the KC-135 tankers, however, they get lots of special attention.

The fleet is managed under USAF’s Big Safari program office, tasked with sustaining and modifying special mission aircraft so they remain relevant and capable, even as the service looks to replace KC-135s with KC-46 tankers.

The C-135 derivatives in the fleet all received new engines more recently than the tanker fleet, extending their service lives, Krishna said. Big Safari takes each aircraft into depot every four to five years and completely strips it for inspection. Lately, these teardowns have revealed new corrosion problems that can be fixed in depot.

The wing expects its fleet to remain relevant until 2040. The oldest tail on the Offutt flight line was produced in 1962, meaning it could reach nearly 80 years of service.

“The air hasn’t changed. We don’t do drastic maneuvering or anything,” Krishna said. “The airplane remains relevant” and was “well-designed.”

While Offutt is the hub for much of the service’s reconnaissance and special mission surveillance fleet, Beale AFB, Calif., has the bulk of the service’s high-altitude surveillance aircraft. These, too, have been heavily tasked and face a modernization crunch in the near future. The base’s U-2s and RQ-4 Global Hawks are constantly answering an insatiable demand for ISR from combatant commanders, to the tune of a 1,000 percent increase in sorties in the Pacific, Beale officials told *Air Force Magazine* earlier this year. U-2s and Global Hawks are also deployed to the Middle East and are increasing their flights against ISIS, Defense Secretary Ashton B. Carter

USAF photo by MSgt. Scott Wagers



Lt. Col. Doug Sachs (l) and 1st Lt. Beth Brockshus monitor equipment aboard an RC-135 Rivet Joint. Middle East taskings have recently declined, but other combatant commands have increased their C-135 taskings.

said during a visit to the United Arab Emirates in April.

Meanwhile, USAF plans to retire its entire U-2 fleet by 2019 and upgrade its Global Hawks to match the capability of the venerable Dragon Lady’s sensors. Northrop Grumman in February flew the first demonstration of a Universal Payload Adapter, a 17-point system on the belly of a Global Hawk that will permit the remotely operated aircraft to carry multiple sensors, such as the Senior Year Electro-Optical Reconnaissance System. Later this

year, the U-2’s Optical Bar Camera and an MS-177 multispectral sensor will fly on the Global Hawk.

Once the U-2 is retired, its builder and depot maintainer, Lockheed Martin, believes USAF will have a shortage of strategic air-breathing reconnaissance capacity and capability. The company is studying development of a follow on to the U-2, calling it the TR-X. Lockheed’s strategic reconnaissance business manager, J. Scott Winstead, said in February the company is preparing a formal pitch

ELITE AWARD

The RC-135 crew Elite 72 came from four squadrons, one of them an RAF unit. On Christmas Day 2014, the crew was flying a Rivet Joint over Iraq and Syria, providing support for combat search and rescue aircraft trying to find a downed Jordanian pilot taken captive by ISIS.

On station, the crew developed a track to provide the best coverage of the area, considering the threat from Syrian aircraft and anti-aircraft systems.

After three hours on station, the crew found information that could have led to the pilot and relayed it to command and control, which, according to the Gen. Jerome F. O’Malley Award citation, “ordered a complete focus of ISR activities on the [rescue] event” and requested the aircraft to refuel and stay on station.

While refueling, the aircraft “reacted to threats from enemy ground entities” and alerted other coalition forces. The crew also worked with a joint terminal attack controller to begin the combat search and rescue phase. Throughout the flight, the joint US and UK crew issued more than 130 reports, identifying gaps in coalition tactics and gathering intelligence on how ISIS forces responded to coalition actions.

Although the pilot was not rescued, “the intelligence gathered during this mission proved to be invaluable as it underlined enemy reactions to coalition operations and enabled CSAR forces to hone their procedures in a dynamic and effective manner,” the award citation stated.



to the Air Force of the concept. It calls for a new, unmanned airframe featuring advanced low-observable/stealth technology, reuse of the U-2's GE F118 engine—deemed by Lockheed to have substantial remaining service life—and reuse of the U-2's existing sensors. The aircraft would operate at about 70,000 feet; Winstead characterized this as “the sweet spot” for strategic recce work. With aerial refueling, the TR-X would be able to fly missions of about 40 hours. The U-2, by contrast, is limited by the endurance of the pilot, typically about 11 to 12 hours at most.

When sequestration hit Air Combat Command in 2013, it struck fighter squadrons hard. More than a dozen were forced to stand down and large-scale exercises were canceled. The 55th Wing was largely spared, because its capability was “so ubiquitous, so required across the world,” Krishna said. However, the wing was unable to plan exercises due to the budget cuts. Since these exercises have resumed, the Air Force has shifted its reconnaissance focus. For years, the main event was Green Flag, using recce assets in the counterterrorism role.

“Over the last couple years, we’ve gone back into focusing on larger scenarios,” Krishna said.

RC-135s are training in anti-access, area-denial scenarios and practicing against more lethal integrated air defenses. The air war in Iraq and Afghanistan “was easy” because there was no airpower to fly against, Krishna observed. Now, crews are learning to fight major wars in large exercises such as Red Flag. There they practice to face an enemy with a similar capability, he said.

GROWING CAPABILITY

The changes mean more simulator work and new tactics. An example of this is the recently developed reachback capability on RC-135s. Advancements in technology and bandwidth have allowed an RC-135 to be more capable and less dependent on crew size.

“If something happens ... [and] we need a skill we didn’t anticipate, we are able to add that,” Krishna said.

With reachback, an airman on the ground can plug into a console and take over the aircraft’s sensors or intelligence-gathering systems in real time. The capability began in 2007, but the technology in the past couple years has matured to where there’s no latency and the additional capability can sharply increase the aircraft’s capability. As the aircraft become more

The RC-135 Rivet Joint has served 25 years in the Middle East, collecting signals intelligence.

powerful, there will be a need for more analysts than can fit on the airplane.

Beyond growing the capability of the RC-135 fleet, the aircraft’s global presence is increasing. The UK’s Royal Air Force now has three of its own RC-135s. The UK received its second aircraft, dubbed Airseeker, in July 2015 and deployed one to the fight against ISIS. The UK has exchange aircrew members at Offutt training on US aircraft and flying with American aircrews, including in real-world operations.

“It’s more than just the UK purchasing aircraft; it’s about a cooperative mission,” Krishna said.

One of these joint deployments (see box, p. 45) was recognized last year with the Air Force Association’s Gen. Jerome F. O’Malley Award for best Air Force airborne reconnaissance crew.

The growth of the fleet to 20, including the three RAF aircraft, and crews flying more missions like these together will “be a great story for the future, of how well our two countries have been able to keep the reconnaissance platforms and be able to use our capabilities throughout the world,” Krishna said. ★