DEPARTMENT OF DEFENSE BLOGGERS ROUNDTABLE WITH LIEUTENANT COLONEL JON TALBOT, AERIAL WEATHER RECONNAISSANCE WEATHER OFFICER; MAJOR CHAD GIBSON, CHIEF OF PUBLIC AFFAIRS FOR THE AIR FORCE RESERVE'S 403RD WING, KEESLER AIR FORCE BASE VIA TELECONFERENCE SUBJECT: THE AIR FORCE'S HURRICANE HUNTERS IN THE MIDST OF THREE ACTIVE HURRICANES/TROPICAL STORMS IN THE ATLANTIC OCEAN TIME: 9:00 A.M. EDT DATE: FRIDAY, SEPTEMBER 5, 2008

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CHARLES "JACK" HOLT (chief, New Media Operations, Office of the Secretary of Defense for Public Affairs): Okay, let me get everything set here. I believe we've pretty much got everybody on the line. We may have one or two more that join us as we get started. But we can roll them in as we start to go.

And for those of you on the line, when it comes into the question and answer, be sure and identify yourself and your publication so that we know who we're talking to here, all right? So thank you very much. And Colonel Talbot, welcome to the Blogger's Roundtable here this morning -- and Major Gibson as well -- and the floor is yours, sir, if you've got an opening statement for us.

MAJ. GIBSON: Well, this is Major Gibson.

I just -- I appreciate everyone with their interest in the 403rd Wing. We are an Air Force Reserve Wing. It's comprised of two flying squadrons: that is the 815th Airlift Squadron, the Flying Jennies; and the 53rd Weather Reconnaissance Squadron, which are also known as the world famous Hurricane Hunters.

This year has been a little bit more active than what we saw last year, but one of the things I wanted to bring out about the Hurricane Hunters is we have a threefold mission: We have the capabilities of doing tactical airlift and the WC-130J model aircraft, built by Lockheed Martin. The original cost around $72 million per copy. We're capable of flying tactical. We also fly winter storms during the winter months, obviously; and of course, what we're famous for, which is hurricane reconnaissance.

We're all made up of Air Force Reservists -- citizen airmen that come up from over 36 different states. And of those states -- they travel as far away as Alaska to come down to serve with the 403rd Wing as Reservists. So they're citizen airmen and of just the 53rd, there are 24 aircrews. Half of them are what we call full-time Air Reserve technicians. They are civil servants and citizen airmen. And then the other half are what we call traditional Reservists. Those are citizen airmen that live all across the country that have full-time jobs and balance their full-time jobs, families and serving their country.

The aircrew serves approximately 120 days per year in addition to full-time jobs. So there's quite a commitment with this mission here with the Hurricane Hunters and we're very proud to do that.

The data we collect increases the accuracy of the forecast by 30 percent for the National Hurricane Center. We're at a cost of approximately $1 million per mile of coastline to evacuate. You can imagine -- if you took that warning bubble and expanded it by 30 percent -- just how much money it would cost communities to start planning. You know, you need about three to five days to start planning for a hurricane. So the fact that we can reduce that bubble by 30 percent saves millions of dollars in every flight that we fly. And also, because the forecast is more reliable from the National Hurricane Center, indirectly our mission saves lives.

So that's an overview for an opening statement. And like I say, Colonel Talbot, if you have anything to add to that?

COL. TALBOT: No. I'm good. I'll be just happy to answer any questions you guys have. MR. HOLT: All right, very well.

Well, Grim, you were first online so why don't you get us started.

Q Well, Colonel, I don't have a specific question. I just called in to hear your stories, because I'm sure you must have a few good ones. So if you wouldn't mind obliging our readers by telling us some of the better memories you have of doing this kind of thing, I'd like to hear about it.

COL. TALBOT: Actually, you know, all of us probably have some great stories. And the nice -- the neat thing is each one of these storms are different. There isn't one that's like the other. And these darn things, you know, they change hour-to-hour and pretty much minute-by-minute. So they're kind of like, you know, we kind of think of them as maybe a living entity, because they're always changing.

And when our guys get out there, you know, you never know what you're going to run into. And I can remember a flight back -- this was many years ago back in the -- probably the mid '90s -- there was a hurricane called Hurricane Louise. And it was just north of Puerto Rico. And we were flying what we called a fixed mission into it and that's the -- well, the idea behind that is to find out where the actual center of the storm is. And you know, you have to fly through the eye wall of the hurricane, obviously, to get into the center. So when you do that, the plane actually flies downhill. And the reason behind that is because we're flying at what we call a constant pressure surface. And the pressure inside of a hurricane is low, so the plane flies downhill into the eye.

And that storm was very memorable, because going through the eye wall of that thing, the plane was shaking, you know, just rattle-type shaking so bad I'm think, you know, I hope the darn rivets hold this thing together. And that was one of the first instances I thought, you know what, is this smart thing to do? But since that, it's obviously, you know, I'm still around and we do it very safely.

But that brings back a lot of memories, because I just remember that airplane shaking. I remember the two pilots upfront talking to each other and I had a hard time understanding what they were saying, because you know, things

were just shaking so much -- and luckily only lasted about 30 seconds and we got out into the eye and then there we were, you know, in this nice big eye of a hurricane and flew out the other side and it wasn't quite as bad.

But we get experiences like that every once in awhile, and there's always one or two that you remember -- whether it's your first one or one that maybe scared you a little bit or one that was really beautiful inside. When you, you know, you don't see a lot of these hurricanes that have just perfectly clear, blue skies in the middle. And sometimes you run into that and it's pretty much a neat sight to see. MR. HOLT: All right. Jennifer.

Q Hi, this is Jennifer Ladd from the Jacksonville Daily News.

I was just wondering what kind of -- and this is probably dumb -- but what kind of stuff do you see out there that helps the forecasters?

COL. TALBOT: Oh, that's a perfect question, Jennifer. We see lots of things.

One of the things we're doing is looking out the window, obviously, and we can see the ocean surface sometimes. And when we can see the ocean surface, we give them estimates of what the winds are on the ocean's surface. That's actually been replaced this year by a new instrument -- the idea of having to look out the window and look at the ocean's surface has been replaced by a new instrument called the stepped-frequency radiometer. And that instrument actually directly measures those winds on the surface. But you see things like that.

Inside the eye, you can -- you see structure -- things in a hurricane that like the forecaster at the National Hurricane Center would be interested in knowing about. All of us are trained meteorologists that do this particular job on the plane.

So we're in contact with the forecaster at the Hurricane Center via a satellite link. All our data flows over that link and we can text back and forth, very similar to e-mail, to the guys there at the hurricane center.

So when we get inside the storm and if we see structural changes that to us look significant; that maybe would be of interest to them and hint at maybe the storm either strengthening or weakening, we pass that onto them.

Things that we're looking at our radar visually, since we can't transmit a radar digital image yet, we can take a visual look at it and pass that information along to the forecaster. And then, we see some really cool things sometimes inside of the eye. Sometimes you'll see lots of birds. It's funny how these ocean birds get stuck in the eye and then you'll see birds all over the place.

Just here when Hurricane Gustav came ashore in Louisiana the other day, we had all these ocean frigate birds here that I'm sure got caught up in Gustav and ended up here on the northern Gulf Coast. So yeah, you do see a few interesting things from time to time.

Q Lieutenant Colonel Talbot, this is Lieutenant Colonel Magnus (sp), could you please -- and it's kind of in response to Jennifer's question: But would you mind sort of outlining the different positions that fly on the plane and the equipment that you guys utilize to actually get a lot of technical

information that flows up through you guys through your equipment and that you pass to the Hurricane Center? I don't think a lot of people know that.

COL. TALBOT: Sure, no problem.

We have a basic crew of five people. We have two pilots. We have a navigator whose job is to keep his head in the radar to make sure that we don't run into something that's bad out there -- bad weather; although, obviously, we're flying through a lot of bad stuff, but the real bad stuff.

We have a meteorologist on the airplane and his job is to act kind of like a -- he has a twofold job: He acts as a mission director where he's kind of an overseer of everything that's going on and he's responsible to make sure the airplane gets to the center of the hurricane. He's also running a data communications system that collects data from the altitude the airplane's at, and also collects data from the drop-sound system, which is a cylindrical instrument that we drop out of the airplane into the eye and various other places.

And we have loadmaster whose job is to actually run that drop- sound equipment. He's the guy that actually puts the instrument in a little tube we have in the airplane and launches it and actually gets the data feed from that instrument.

So those are the five people on the airplane. The WC-130J is basically a computerized C-130. If all you are familiar with what C- 130s look like, the J-model looks similar to any other C-130 with the exception of it has a six-bladed composited propeller versus a four- bladed aluminum propeller. And internally, the airplane is run by computers. Everything is digital. All your instrumentation is digital. It's basically on video screens. And we take advantage of a lot of that sensor information that the airplane already has to collect things like temperature, pressure, humidity, wind speed and wind direction. And do that at the level the airplane's at.

We also have the instrument I mentioned a little bit earlier that's called the stepped-frequency microwave radiometer. And this is the passive instrument that measures the energy emitted by the ocean. And that energy is related to wind speed on the ocean's surface. Funny enough, when you have waves on the ocean, they create white caps. Those white caps emit what we call long microwave radiation. They emit energy in certain wavelengths that this instrument is sensitive to seeing. So the more waves you have on the surface, and the more white water you have -- spray and so forth from higher and higher winds -- this instrument reads that as a higher and higher signal, which is converted into a wind speed.

And then we also have the drop-sound system, which is a separate system that collects data from the drop wind sound instrument, which is about a foot long, about four inches around tube that is dropped from the aircraft on a parachute. And it takes a vertical profile of the atmosphere. It's exactly like a weather balloon that's launched thousands of time every day around the world, but it does it job in opposite. We drop it from the aircraft and it goes down. And it gets temperature, pressure, humidity, wind speed, wind direction and surface pressure, which is obviously one of the most important pieces of information. It actually is the instrument we use to measure the pressure on the surface of the ocean right inside the eye of a hurricane.

So that instrument -- all the data we collect through those various sources is all compiled on a computer system that the meteorologist is running. And that stuff is fed to the National Hurricane Center in just about real time, via a satellite link. And we have a ground station there in Miami, at the Hurricane Center, that's getting this information from the aircraft. And it flows out to the forecast desk and it goes into their computers there and is used in the forecasts and is used in the computer models that figure out, you know, where these things are going to go and how strong they're going to be.

So that's kind of an easy one-two summary of kind of how we do our job and what we use to do it.

MR. HOLT: All right. Thank you, sir.

Colin.

Q Good morning, Colonel.

This may ruffle your feathers a little, but I understand that NOAA is looking at potentially increasing use of UAVs to do -- to help you guys do your job. And I was hoping to get some insight as to whether you guys -- I know some UAVs have flown in hurricanes now, and I'm wondering how you guys work with them. If they do their job separately from you, how it works? And how you see them supplementing your work?

COL. TALBOT: Absolutely. And no, it doesn't ruffle our feathers.

In actuality, there hasn't really been much in the way of unmanned aircraft flying through hurricanes. We have one system out there that's been tested the last few years. It's called the Aerosonde. It's a very small, about an eight-foot wingspan. It almost looks like a mode airplane type-size instrument that is launched from a car. And it can fly about 24 hours or so. And it flies automated based on, you know, how it's programmed.

The problem with UAVs -- eventually on some day, that's the way we will monitor hurricanes, absolutely. And right now the Aerosonde is a very slow-flying instrument. It flies about 60 knots. So to give you an example, last year they flew it into one of the storms -- I believe it was Noel off the East Coast -- late it the year, and they actually never got the instrument into hurricane-force winds, but they did fly it on the periphery of the storm. And it took about 15 hours to get out to where the actual storm was. So it's unfortunately not a timely instrument yet. You know, it takes it a long time to get where it's going. Once it got out there, though, it flies, you know about 1,000 feet or less below -- just above the ocean surface and it collects the exact same things that we collect, but at a much lower level: temperature, pressure, humidity, wind speed, wind direction, where it's at in the world and so forth. And you know, we're very interested to see if it can actually, in fact, get into a major hurricane, because the problem is it does fly so slow that, you know, it has to spiral its way in. And they tried that out in Guam, and I believe they were successful with one of the instruments, but it ran out of -- it didn't have enough range to get back to land so it ran out of gas and they splashed it in the ocean. And the same thing with the one off the East Coast last year. It took so long to get out there that it didn't have enough fuel to make it back.

So you know, they will be valuable here at some point in the future and probably larger. You know, I would expect that someday you'll see an instrument

maybe like a Predator or Global Hawk-sized, large, you know, UAV that will be able to remotely sense a lot of this stuff. But I think we're still many years away. And you know, obviously, there will be benefits to that type of aircraft.

How do we fly with them? Well, right now they're basically automated. So we know from the guys at the Hurricane Center that there would be one out there. And since they're preprogrammed to stay at low altitudes and we're typically flying up around 10,000 altitude in a major hurricane, it's typically not a problem. They do have a kind of a kill switch on them that if they do have a problem and if they aircraft rises to a certain altitude, then they just shut of the engine off and they put it in the water.

That's the kind of the state-of-the-art of that instrument right at the moment.

Q Do you know if there have been -- I know NOAA's looking at tripling or quadrupling the UAV budget over the next couple of years. Do you know if there's actually been much discussion of fielding Predators or Global Hawks for this mission? Because if you had a man in the loop, you might be able to, you know, task it more intelligently and that sort of thing.

COL. TALBOT: Yeah, I don't really know what -- I haven't been involved in any of it. I just read a lot of stuff in the journals and magazines and so forth.

MAJ. GIBSON: And for a point of clarification, because I know there's often times some confusion about even the term "Hurricane Hunters", because -- and let me just briefly touch on that.

The Hurricane Hunters here with the Air Force Reserve, here at the 53rd, have been using the title Hurricane Hunter since 1946, since the first flight into a hurricane was in 1943 by Colonel Joe Duckworth. Back in the early '90s, NOAA started using the term Hurricane Hunters, and they play a very important role as well. They do mainly research. So they're there -- they have two P3s and a G4. And their purpose is to do research missions to help try to make those forecast models better. So they're doing it at different levels out there for specific information. And occasionally, they can fly an operational mission, but mainly we're the operational reconnaissance for the storm, but we both use the term "Hurricane Hunters", but that's an important note to delineate between the two, because it can be confusing.

If you want more information, too, about some of the NOAA programs, such as the UAV, you can contact David Miller, who's up in D.C. He's the public affairs officer for NOAA that would cover that program.

Q Okay, thanks.

MR. HOLT: All right. I've got Will from Steeljaw Scribe who was unable to make the call this morning, but he did send me a couple of questions he'd like to see if he could get some insight on.

Talking about giving -- given the flight missions that you've gotten normally, people seek not to fly into thunderstorms and bad weather -- but Just as a matter of course, are there any unique pre- flight planning that you do prior to making that you've got the appropriate data and make sure you can come back in one piece?

COL. TALBOT: Yeah, that's a good question. We get that a lot. We also get the question, hey, is your airplane structurally different somehow? And the answer is, no.

Well, we do a lot of preflight planning, and we get information on where the storm is. Obviously, you know, we look at it; we look at where the worst weather is out there; we get reports from the last aircraft that was out there. But since these things are dynamic and they're changing all the time, really, there's not a whole lot of preplanning you can do. We rely a lot on the experience of our aircrews that have done this a lot, you know, to react to whatever they need to react to when they're out there.

And as an example, there was a tropical storm down near Jamaica years ago -- and I forget the name of it -- but I remember flying into it and it was at night. And it was really a nothing storm. I mean, it wasn't bothering anybody and the winds, you know, forecasted out there were maybe 40 miles and hour. It wasn't really a strong storm.

Well, we got out there and, of course, it's the middle of the night. And about, you know, 100 miles away from this storm we started seeing a lot of lightening. And I mean, lightening that was, you know, flashing every second. And it's an amazing sight to see, but experience would tell us that when you see a lot of that, the storm is going through some type of radical change -- either it's weakening or it's intensifying. And in this case, the storm was intensifying.

So we get out there and sure enough, there was this big glob of thunderstorms around the center of this thing and just lightening everywhere. And we ended up flying into this thing -- we found a hall very, very carefully; we talked about it a lot -- and we ended up going into this and experiencing 80-mile-an-hour winds versus the 35 we thought were out there. And then, the darn storm -- that hall that we flew through on radar to get into the center area that was free of precipitation actually closed up. So now we were stuck with quandary, you know, how do we get out of this thing?

Well, you know, using the radar we picked the weakest area that we could see and flew through that. And you know, the whole airplane kind of went sideways and it's kind of an odd feeling, because you're not used to going sideways in the air. You're used to going forward or backwards or up or down.

So you know, we rely a lot on the experience of our crews of seeing situations that they have seen in the past and recognizing situations that could be dangerous to them or situations that, oh, I've seen that before. That doesn't look too bad. So we rely on a lot of experience and it's work very, very well. We train our guys very, very well and we spend a lot of time with them before we let them go out on their own. And you know, we have been very safe and we're probably one of the most accident-free units, I would say, in the Air Force Reserve these days. We have not had an incident, as far as I can remember -- and I've been doing this since 1985.

So hopefully that gives you a little insight into, you know, how we kind of make sure we do things safely.

MR. HOLT: Right. Well -- and you touched on the other question that he had, was the structural -- are there any structural changes or flight mods that have been made to the aircraft? COL. TALBOT: Not structurally. This is airplane is exactly the same as the C-130J tactical aircraft. The only

difference is the software that we use that operates our radar. Our radar software is slightly different and it's optimized for the environment we fly in to see through precipitation a little bit better and show that stuff a little bit better than the non-optimized radar. And then our propellers have a little bit of extra protection on the leading edge of the propeller to help with range erosion and so forth, because most guys don't fly through a lot of this stuff. They just go around it. And since we fly through it, it tends to -- we need to have that little extra protection on our props.

MR. HOLT: Okay. Does anybody else have any follow-up questions?

MAJ. GIBSON: Well, one thing, real quickly, to add to that too: Our weather equipment is palletized, so in a matter of about an hour- and-a-half, that equipment can be taken off the aircraft and that aircraft can be completely a tactical bird, just like the Flying Jennies or any other J-model in the Air Force inventory. So it's quite versatile to fly this mission and tactical missions for a good use of taxpayers' money.

MR. HOLT: All right. Excellent!

Anybody else? Any other follow-up questions?

Q Yeah. This is Colin again.

I'm curious, Colonel, I know there's been something of a revolution in radar over the last, say, three to five years. I'm wondering how much you guys have been able to incorporate some of that actually onto the plane. I assume you don't have AESA yet.

COL. TALBOT: No, I our radar is called an APN-241 and it's a standard radar that would be used by tactical airlifters and so forth. It does a very, very great -- good job at high-resolution ground mapping so if we get near islands and things, we can see where we are. But it has the other benefit of being integrated into the mission -- (inaudible) -- so we can overlay anything on the radar. We can overlay our flight plan, we can overlay a moving map display -- a digital moving map display over it.

Q Gotcha.

COL. TALBOT: But it's a standard x-band radar that's been optimized for this mission, and the way it's optimized is through software. So you can see places where turbulence is. We can see all kinds of stuff that you wouldn't on the standard radar. So it's optimized more for our mission.

But in the way of new technology, basically no. We use what is out there and what's available and it does an excellent job the way it is right now. And I know there's some research stuff out there, and that's the type of stuff you would find on the NOAA P3.

Q Oh, all right.

MR. HOLT: All right.

Q One technical question for you, I'm just curious: My understanding was that heavy rain degraded x-band fairly substantially.

COL. TALBOT: Well, you're absolutely correct, it does. But through software wizardry, you can take some extra information from the actual signal you're getting and it, you know, maybe provides you with a few extra miles of visibility through that heavy rain. And that's kind of what our radar does.

And it does degrade at times and actually, so does the c-band radar. It just depends on the actual conditions you're in.

Q Right, okay.

COL. TALBOT: But the whole idea is to look at what you're going to fly through you prior to you getting there and making a good decision of a different course or whatever through that area, based on what you see prior to running into that -- that precipitation.

Q So is it the P3s that actually gather -- I've seen these radar maps of the hurricanes.

Are they ones that actually gather that data or is that combined from you two? Or -- I have no idea.

COL. TALBOT: Well, there are several -- (audio interference) -- they do a radar display that's probably from a P3 research flight, because they to transmit some of that information. And, you know, that's coming in the future here that we'll be able to do that.

Q Okay.

COL. TALBOT: There's another product that's called an H-wind analysis. And basically, it's a wind analysis of what's actually going on in the hurricane. And we provide them with SFMR information that goes into that, flight level information from our airplanes, from the P3s, from whoever else is out there -- any source they can get it from.

MR. HOLT: All right. Thank you.

Q All right, thank you.

MAJ. GIBSON: There's a great picture of a radar shot during Gustav that the Associated Press took. I know it's listed on the Charlotte Observer website. But that's a great little snapshot to see of that that was just taken recently.

Q Okay. I also wanted --

Q Excuse me. This is Lorraine Brooks from Coast Guard Atlantic Area with Vice Admiral Papp. Are we online for the Bloggers Roundtable?

MR. HOLT: Yes, ma'am. And we will get started with that in just a second. We were just finishing up with Air Force Lieutenant Colonel Jon Talbott with the -- he's the chief of the Aerial Reconnaissance Weather Officer for the 53rd Weather Reconnaissance Squadron out at the Keesler Air Force Base.

And Major Gibson, do you want to go ahead and finish your statement, and then we'll move with Vice Admiral Papp.

MAJ. GIBSON: Yes. The only thing I was going to say, for a lot more technical details and fact sheets regarding the wing, the squadron and the equipment we use, I encourage you to go to our website. That is www.403wg.afrc.af.mil. And if by chance you weren't able to copy all that, go to Google and type in "403 wing" -- w-i-n-g -- and it'd be one of the first websites you get.

But if you look under the library tab, you'll see all of our fact sheets. Also, in the homepage you'll see current news and events regarding the Hurricane Hunters and flying into storms, as well as the rest of the wing.

Q Excellent. Thank you.

MR. HOLT: All right. Thank you very much, gentlemen, for joining us here for the Bloggers Roundtable this morning, and of course, Lieutenant Colonel Jon Talbott with us and Major Gibson from the 403rd Wing out of Keesler Air Force Base. Thank you very much for joining us.

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