Missions for America
Semper vigilans!
Semper volans!

The Coastwatcher

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CADET MEETING

17 January, 2017
submitted by
Lt Steven R. Deignan-Schmidt & Maj Scott Farley

C/CMSgt Austin Eichelberg gave a safety briefing on driving in precautions to take in winter weather conditions.

The video entitled "Shackleton's Antarctica Adventure," A WGBH Educational Foundation Production was shown.

Ernest Shackleton was one of the dominant figures during the heroic age of Antarctic exploration. Just as World War I was starting, his ship, the Endurance, was trapped in the pack ice of
the Weddell Sea and destroyed. Shackleton led his 27 man crew during an epic survival struggle. By dint of his moral and physical leadership, all 27 men survived.

After viewing the film, the cadets split into two groups and discussed the facets of leadership exhibited by Shackleton during a time in which his subordinates suffered extreme physical and psychological stress.

SENIOR MEETING

17 January, 2017
submitted by
1st Lt. Douglas Campbell

Squadron Commander Farley led the group in a seminar about the purpose of the new "Ice Patrol" mission and the employment of the VIRB data acquisition system.

The four part program consisted of a demonstration of the equipment operation, a review of the operations plan, a study of the imagery acquired by the Squadron during a practice mission, and the methods used to transmit the data acquired to the Coast Guard and Connecticut's Department of Emergency Management and Homeland Security.

The schedule requires five flights each week so qualified mission pilots, observers, aerial photographer and scanners should contact Maj Farley and make you availability known.

VIRB TRAINING

Seven members of TRCS were among the 50 trainees who attended the first VIRB training session at Brainard Airport on January 14th.

The Connecticut Department of Emergency Management and Homeland Security Connecticut (DEMHS) has funded the Connecticut Wing for a new mission, an extension of the Long Island Sound Patrol. The primary purpose of the new assignment will be to survey and photograph riverine and coastal icing in Connecticut's navigable waterways. Reports will be made to U.S. Coast Guard Sector Long Island Sound and images will be sent to interested customers. The frequency of flights will be five per week. A secondary application is to survey and assess damages which result from natural disasters, accidents, and any other incident desired by the customer.

Col Kenneth Chapman, Connecticut Wing Commander, delivered the welcoming comments and noted that Lt Col Darren Cioffi, Vice Commander-Operations, played a pivotal role in initiating the mission.

The Garmin VIRB is the new piece of equipment which makes this missions possible. VIRB is basically a controllable camera system which uses wireless technology to transmit the imagery to a tablet operated by the aircraft observer. It is mounted on the wing of the aircraft and points straight down, enabling it to gather imagery directly below the aircraft.

The camera and associated electronics was studied in the lecture hall and then the meeting shifted to the flight line. There, Capt James Whitesell demonstrated how the camera will be attached to the aircraft.

Returning to the lecture hall, Col Chapman used a power point presentation prepared by Capt April Krason to both describe the equipment, illustrate documentation, and a variety of "ice" pictured.

At the conclusion of the meeting, five VIRB sets were issued to squadrons based at Oxford, Meriden, Hartford, and Groton.

TRCS attendees were Lt Cols Richard Doucette and Stephen Rocketto, Majs Scott Farley, Paul Noniewicz, and Keith Nelson, and Lt Steven Schmidt and SM Steven Heard.

Maj Noniewicz Describes Features of the Camera

WHAT IS THE MEANING OR ETYMOLOGY OF "VIRB"?

One of the questions which emerged during the day is what does "VIRB" stand for? The Garmin website is no help. The best guess is that, given the capitalization, it is an acronym and the "V" and "I" are the initial letters of "vertical" and "image" or imagery. But no one could come up with words for the "R" and "B."

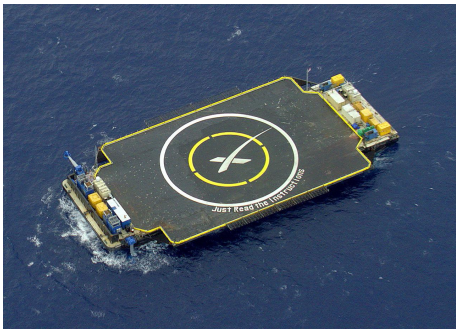
Adrian Masiello posted the following on www.gadgetguy.com

> *Garmin has now made it's entry into the market with the VIRB and if you're wondering what in the world that stands for, we can only assume that it's a play on words referring to a 'verb,' or a word that conveys an action, for anyone who didn't pay attention in English class.*

Since the VIRB is billed as an action camera, this is plausible if someone at Garmin has a sense of humor. Any suggestions?

CURRENT EVENTS

On Saturday, SpaceX successfully launched, delivered a payload, and recovered a Falcon 9 rocket. The two stage vehicle lifted off from California's Vandenberg Air Force Base with a payload of Iridium Communication Company satellites. Iridium's plans are to replace all of its current satellites with 70 new ones.



The ASDS Just Read the Instructions

The first stage was then recovered in a vertical landing on the SpaceX Autonomous Spaceport Drone Ship, (ASDS) *Just Read the Instruction.* The football field sized barge was located southwest of Vandenburg and is home-ported in Los Angeles.

A landed Falcon 9 on the Florida based ASDS Of Course I Still Love You.
(Photo Credits: SpaceX)

AEROSPACE HISTORY

The Other U.S. Air Forces

The United States Air Force and the air arms of the Navy, Marines, and Coast Guard are familiar to most of the general public. Less familiar are the aerial assets of other U.S. government agencies. The estimates of aircraft owned by these agencies number over 1,000, but does not include rentals, leases, charters, contract hires, or aircraft bailed from the military. If combined, these aircraft would be the tenth largest in the world and comparable to United Airlines, the third largest U.S. airline. The General Accounting Office (GAO) admits difficulty in assessing the size or cost of the federal aircraft program due to an unreliable data base. Cost probably exceed a billion dollars a year.

Let's take a peek at some of the lesser known "Air Forces" starting with the pointed end of the spear, the aircraft employed by our security and law enforcement forces.

Our Paramilitary "Air Force"

The Central Intelligence Agency

Best known but least public is the multitude of aircraft operated by the Central Intelligence Agency (CIA). They are under the Air Branch of the CIA's Special Activity Division. They are employed for airborne intelligence missions, the transportation of "sensitive cargo," and the covert insertion and extraction of CIA personnel.

The Agency has operated an eclectic collection of aircraft, from the Lockheed A-12, the lesser known cousin to the SR-71 to a variety of drones. Aircraft which are known to be in the CIA include DeHavilland of Canada's Twin Otter and Dash 8, the Lockheed L-100, the civilian version of the Hercules, a number of business and airline

class planes, and some Russian aircraft, notably the Antonov AN-22 and Mil and Hip helicopters.

Most of the aircraft are registered to "front companies," which while appearing as legitimate businesses are wholly owned by the CIA. Best known is Air America, the Cold War airline which heavily supported the U.S. war in Indochina. Southern Air Transport and Intermountain Aviation are also former Agency assets whose aircraft might be found in some of the more exotic regions of the world.

Today, contractors seem to be the core of CIA activities. First and foremost might be Academii, the adopted name for what was called Blackwater USA. Another is Aero Contractors, Ltd., founded by the legendary aviator Jim Rhyne.

A Blackwater CASA 212 in Mali. Note the lion in the background. *(Photo Credit: Erik Prince)*

Our Law Enforcement "Air Forces"

Homeland Security and Border Protection

A number of federal law enforcement agencies operate air fleets. The Customs and Border Protection of the Department of Homeland Security list about ten aircraft types which they fly: Beech King Airs, the Cessna 206, the Cessna 550 Citation, the DHC-8, Pilatus PC-12, and four types of helicopters manufactured by Sikorsky, Bell, and Airbus. The primary duties of the aircraft seem to be the detection and interdiction of narcotic smugglers.

Department of Justice

The U.S. Marshals which are under the Department of Justice have been made famous by the film Con Air. The Marshals operate which is called the Justice Prisoner and Alien Transportation System and utilize around ten transport category aircraft, the DC-9 series and Boeing 737s. They transport about 350,000 prisoners each year.

Federal Bureau of Investigation

The Federal Bureau of Investigation is the primary U.S. law agency and is charged with security services and domestic intelligence. The duties range from counter-intelligence and anti-terrorism to a range of federal crimes from kidnapping to racketeering. Their number is difficult to assess since most are operated by front companies such as Silver Creek Aviation Services which has 25 Cessna 206s registered The FBI also utilizes the Sikorsky Blackhawk, the CASA 212, and the Cessna Citation and the best estimate is a fleet of 100 aircraft.

A Cessna 182 registered to PDW Services in Loundon, Virginia. Note the surveillance pod under the N number. *(Photo Credit: Chris Kennedy)*

Drug Enforcement Agency

About 100 aircraft of 15 different types are operated by the Justice Department's Drug Enforcement Agency and about 100 Special Agents serve as pilots. Their base is in Fort Worth Texas and they operate all of the Americas and Afghanistan. The types include the Hughes OH-6, Bell UH-1, and Cessna 182 but also include larger turbo-prop and jet aircraft.

The ATR-42 and the subject of a General Accounting Office investigation concerning the misappropriation of funds. *(Photo Credit: AFP-Alain Julien)*

U.S.Park Police

And finally, the U.S. Park Police (USPP) is the law enforcement operated by the National Park Service of the Department of the Interior. They have jurisdiction in the National Park System, the environs of District of Columbia, New York City and northern New Jersey area, and San Francisco and Marin and San Mateo County, California.

US Park Police Bell 412 over the White House
(Photo Credit: USPP)

Department of State

The Bureau of International Narcotics and Law Enforcement Affairs Office of Aviation known as the INL Air Wing operates under the aegis of the U.S. Department of State. Most seem to be contractors such a DynCorp and may be found in central and South America and Southwest Asia employed in the "War on Drugs." They operate the Basler turbine powered DC-3, the BT-67, the Alenia C-27A Spartan, Blackhawks, and the DHC-8. Their headquarters is at Patrick Air Force Base in Florida and they have about 175 aircraft.

Chinook bears what might be a standard DOE livery (Photo Credit: US Army)

Many of the other agencies mentioned below have law enforcement functions as secondary duties. Air space violations, poaching, and fisheries protection might be enforced by one or more of the agencies noted below. NASA even has a SWAT team.

Our Scientific, Technical Research and Applied Use "Air Forces."

Federal Aviation Administration

Not only federal law enforcement agencies employ aircraft. The Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) are obvious but the Department of Commerce, Department of Agriculture, Department of the Interior, Department of Energy, Department of Health and Human Services, National Science Foundation, and the Tennessee Valley Authority also own or use contracted aircraft.

The FAA has a block of "N-numbers from N1 to N96 but some of these registration numbers are place-holders and some of the aircraft have been deregistered. N1 is a Gulfstream G-IV used as an executive transport. The FAA flies a flock of Beech King Airs, Learjets, two Convair 440s and a Bombardier CL-600, most used as part of the flight inspection service which checks integrity of

the national navigation system and airport landing systems. The FAA has two major bases. Most FAA aircraft are based at headquarters, Will Rogers Airport at Oklahoma City. Atlantic City International Airport houses the FAA facility dedicated to technical research.

Some FAA aircraft-The requisite executive Citation is in the foreground and an Aero Commander, King Air and Bell are mid-range and two Convair 440's are in the rear.
(Photo Credit: FAA)

National Aeronautics and Space Administration

A number of Northrop T-38A Talons are used for flight proficiency and transports of astronauts. Aircraft such as the Boeing 377 Super Guppy carry outsized cargos. Two Martin WB-57F Canberras and a couple of ER-2s find employment in upper atmosphere sampling and ground truth photography. A host of Pipers, Cessnas, and drones, most based at Langley serve as aeronautics research vehicles. Experiments include crash worthiness and design and control studies

The bulk of the fleet held by NASA can be found at Edwards in California, Wallops Island Flight Center and Langley Research Center, both in Virginia and Ellington Field outside of Houston, Texas. Generally they carry NA suffixes as part of their registration number.

NASA's 747SP is The Stratospheric Observatory for Infrared Astronomy (SOFIA) carries a 2.5 infrared telescope to 41,000 feet, above most of the atmospheric water vapor which attenuates the infrared wave lengths. *(Photo Credit; NASA)*

Department of Commerce

The National Oceanic and Atmospheric Administration, part of the Department of Commerce is one of the seven uniformed services. Their officers fly two Lockheed WP-3D Orions hurricane hunters and about a half dozen lighter aircraft, based at McDill AFB in Florida. These aircraft fly a multitude of missions: coastal mapping, fishery surveys, marine mammal research, and water resource management to name a few.

NOAA WP-3D Orions *(Photo Credit: NOAA)*

Department of Energy

The Department of Energy has their manned and drone aircraft based in Albuquerque's Sandia National Laboratory. They fly a DC-9 and a Cessna 550 and contracted aircraft. Missions include transportation of nuclear materials, power line patrols, and installation protection. The drones are used for atmospheric research.

This Gulfstream I carries scientists for the DOE and the Pacific Northwest National Laboratory to study how wildfires and agricultural burns effect atmospheric aerosols.

National Science Foundation

Studies of global climate, atmospheric structure and chemistry and support of polar programs all fall within the purview of the National Science Foundation (NSF). They fly a Gulfstream and a Hercules. Their Antarctic research stations are supported by the ski-equipped LC-130 Hercules of the 109th Airlift Wing, New York National Guard. Canada's Kenn Borek Air supplies Twin Otters and Basler BT-67s. Petroleum Helicopters, Lafayette, operates helicopters on transport and rescue missions.

Climate and weather are studied by the NSF funded National Center for Atmospheric Research in Boulder (NCAR), Colorado. Their High-performance Instrumented Airborne Platform for Environmental Research is a Gulfsteam V modified to get to 51,000 feet and fly 7,000 miles. Its specific task is to track atmospheric particles. NCAR also operates a C-130 in cooperation with the National Science Foundation which is used as a platform for atmospheric experiments and data acquisition.

A contracted Petroleum Helicopters Bell 212 working with the NSF Antarctic Science Section doing logistics support, transportation of personnel, and search and rescue.

Department of the Interior

The Department of the Interior (DOI) is responsible for the National Parks, Bureau of Land Management, Geological Survey, and Fish and Wildlife Service. Their aircraft are used for wildlife management, fire fighting, and scientific research. Most of their aircraft are commercial hires. The Fish and Wildlife Service operates about 50 aircraft, mostly high wing Cessnas, Pipers, and a turbine Beaver on floats.

The largest DOI air operations are governed by the U. S. Forest Service which can raise a force of on-call and contracted aircraft to fight forest fires. Although DOI aircraft can be used, the aerial firefighting forces are supplemented by private companies and dedicated National Guard units. Coulson of Canada, Aero Union out of California and Neptune Aviation, a Missoula Montana company are three of the big names. National Guard aircraft are C-130s equipped with the Modular Airborne Fire Fighting System or MAFFS, a self-contained unit which can be quickly installed in a Hercules when needed.

During the fire season, 1,000 aircraft may be in action or on alert. The planes run from very large tankers such as the DC-10 to AT-802 single engine air tankers. Specialized amphibious aircraft such as the Bombardier 215 and 415 can skim a lake and load up with water “on the fly.” Helicopters can replenish their water supply by dipping buckets or using a snorkel while hovering

over a body of water.

A USFS owned Short SD3-30 used to drop smokejumpers.

Neptune Aviation BAE 146 Air Tankers

Department of Agriculture

The Department of Agriculture supports both The Animal and Plant Health Inspection Service and the Agricultural Research Service. The are involved in pest control, aerial imagery of crops and the development of remote sensing systems. Record indicate that they rely on about 20 Piper, Beech, and Cessna general aviation aircraft.

Super Cub of the DOA's Animal and Plant Health Inspection Service.

Tennessee Valley Authority

The Tennessee Valley Authority (TVA) is a century old corporation owned by the federal government. Congress chartered it during the Great Depression to provide navigation, electrical generation, and flood control to foster economic development in the Tennessee River valley. The TVA flies about a dozen helicopters from Bell, Eurocopter, and McDonnell-Douglas as well as the requisite Citation 580L and Beech King Air for executive transport.

TVA Bell 206 *(Credit: SnugBug*

Civil Air Patrol

Although partially funded by the USAF, CAP is a civilian organization of volunteers. CAP's air fleet consists of over 500 aircraft, mostly single engine Cessnas, about the size of the Italian or Israeli Air Forces. CAP carries out a variety of tasks for federal, state, municipal and non-governmental organizations. These tasks include but are not limited to search and rescue, photography or disaster effected areas, youth flight training, support of Air Force missions, and reconnaissance contributing to public safety.

CAP Cessnas at Brainard Airport

In summary according to the GAO, as of July 2016, 11 civilian agencies have federally-owned aircraft totaling 495 airplanes, 414 helicopters, 14 unmanned aircraft systems, and one glider. The average 275 flight hours per year. About ten percent of the aircraft are not airworthy and will be cannibalized, set up on display, or scrapped. The Department of State has the most aviation assets, 248, and the National Science Foundation is at the bottom of the pack with three. The reported cost was approximately $650 million in 2015 excluding depreciation and not counting leased, rented, chartered, contracted or aircraft involved in black operations.

GONE WEST

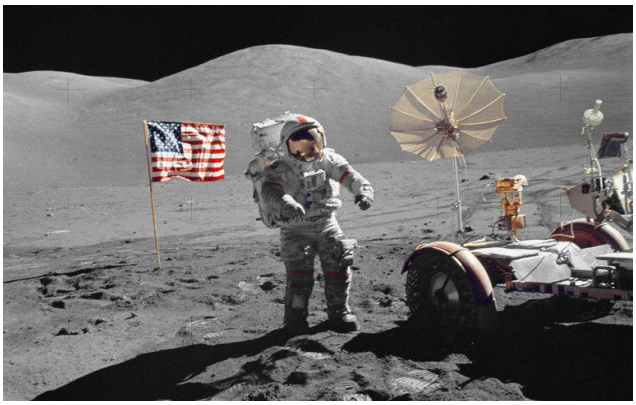
Eugene Cernan
Naval Aviator and Space Explorer

Eugene Cernan in the Lunar Modular \(Photo Credit: NASA)

Capt Eugene A. Cernan, 82, U.S Navy (ret'd.), the last man to set foot on the Moon, died in Houston on January 16th.

Cernan was educated at Purdue University from which he received a degree in electrical engineering. and earned a master's degree in aerospace engineering from the Navy Postgraduate School. An ROTC graduate, his primary naval assignment was as an attack pilot flying the North American Fury and the Douglas Skyhawk.

In 1963, he was selected by NASA for the third class of astronauts and flew in space three times. On his first mission, Gemini 9, he became the second American to perform an extra vehicular activity as the crew practiced techniques for spacecraft rendezvous. On his second mission, he commanded Apollo 10 a rehearsal for the Apollo 11 moon landing and flew the lunar landing module LEM) to within nine miles of the moon's surface. On the last last moon mission, Apollo 17, Cernan and geologist Dr. Harrison Schmitt used the lunar rover to collect samples of the materials which constitute the lunar surface.



Cernan on the Moon (Photo Credit: Harrison Schmitt-NASA)

Cernan has a reputation for unusual and prankish behavior. He once slid down a bannister while visiting the White House. NASA pilots had a history of aircraft crashes. While training for lunar landing commander, he crashed a Bell 47 helicopter into the Indian River. Rumor has it that he was chasing a dolphin. Deke Slayton stood up for him and saved his career. While skimming the moon in Apollo 10, the LEM has control problems and his “salty” language was heard by millions.

Cernan believed that curiosity was “...the essence of human existence and exploration has been a part of humankind for a long time. The exploration of space, like the exploration of life, if you will, is a risk. We've got to be willing to take it.” He lived this creed.