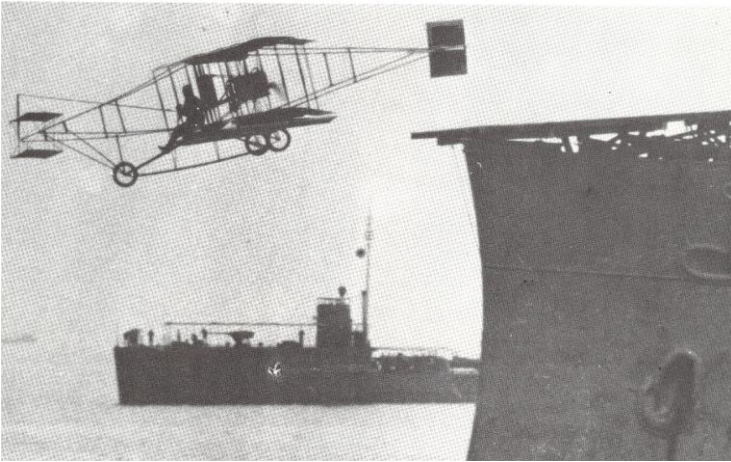




A Mini-History of Naval Weather & Oceanography Rev: 6-22-07

Since the turn of the century enlisted weather observers and forecasters have been an invaluable support to the success of Naval aviation. The roots of naval weather were in LT Matthew Fontaine Maury's first marine temperature, wind and current chart in 1846. The Aerographers Mate rating celebrates its 73rd year of official service on 1 July 1997. With scientific breakthroughs in theory & instrumentation, two world wars and internal realignment Aerographer's Mates find their role to be more vital than ever.



The First Naval Aviator – Eugene Ely made Naval Aviation history on 14 Nov, 1910 when he launched his aircraft from the deck of USS Birmingham, anchored at Hampton Roads, Va. Naval aviation was born. The aviators, confident, cocky and daring, soon became the stuff of legends as they took to the skies in their flimsy "flying machines."

A Science Emerges - As the fledgling community grew, new breeds of Navy men emerged to support it. One of these was another type of aviation man whose specialty would prove to be a science as new and exciting as flight itself. It was a science based on knowledge of the atmosphere and upper air weather patterns surrounding and supporting the airborne structures. It was a science so different that a name was coined to describe it, aerography. The terms aerography and aerographer for Naval Officers were widely used thereafter, until Aerologist replaced them, in Nov 1919, when the terms Aerology replaced aerography and Aerographer referred to technical weather personnel rather than those of a professional status.

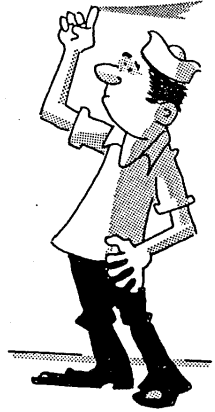
Such is the American penchant for larger than life heroes that the Naval aviator became immortalized on recruiting posters and Hollywood celluloid. They were bona fide matinee idols in their flowing silk scarves, leather bomber jackets and goggles. The Navy weatherman, on the other hand, was relegated to a decade of relative obscurity. Known variously as aerologists, meteorologists, or derisively, as "weather guessers" and/or "balloon chasers". It would be more than 12 years from that first flight and six years after the creation of a weather officer specialty before enlisted naval personnel would have a rate to call their own.

It's a Gas - On 26 July 1917 the Army-Navy Airship Board endorsed a proposal for the experimental production of helium. Production of helium in this country gave us a virtual monopoly while other nations were forced to use the more dangerous hydrogen gas for lighter than air craft and for upper air soundings. At this point the gas was a "lab curiosity" which cost \$2,500 per cu. foot.

First Weather Related A/C Accident - On 17 Sept 1917 a basket borne observer in a kite balloon launched

from USS Huntington was threatened by an onrushing squall. Strong wind gusts caused a hard, uncontrolled contact with the sea despite frantic efforts to haul in the balloon the observer was suddenly underwater in the rigging. Quick action saved this first weather related aircraft accident from being a fatality.

Greens - On 7 Sept 1917 A forestry green winter flying uniform, of the same design as the summer (khaki) uniform was authorized for all officers assigned to aviation duty.



"Wheels" with Wings - The enlisted forerunners of aerographer's mates were quartermasters with an aviation specialty for the most part. Formal instruction in aviation-related courses for the Navy was first carried out by Dr. Alexander G. McAdie of Harvard University's Blue Hill Observatory. He insisted that the course work be conducted at the post-graduate level in Aerography rather than meteorology for his second class Petty Officer students. "The distinction between meteorology and aerography may not ineptly be illustrated by saying that the former is a study of the atmosphere from the standpoint of the automobilist while the latter is from the viewpoint of the aviator," he noted (quote from America's Weather Warriors, by Charles C. Bates and John F. Fuller) McAdie's friend, then Secretary of the Navy, Franklin D. Roosevelt, got McAdie a naval commission as an LCDR so that he might institute a navy aerography course. The Navy Aerological Organization was created with

McAdie's enrollment on 1 Feb 1918.

Birth of the Pibal - On 28 Nov 1917 tests began at Fort Omaha NE which entailed the observation of an ascending balloon and subsequent plotting to determine **winds** aloft. Tests were concluded on 17 Dec 1917 and judged to be a success. The procedure was labeled a pibal.

Whence Mustangs - During the mobilization of 1917 to 1918 engendered by World War One CPOs, WOs & CWOs were advanced to Warrant Chief, Warrant Ensign, LTJG & LT grades temporarily. They carried the letter "T" after their rank & were part of the Mustang program. Yes, our government produced acronyms in those days as well. The derivation was Men Under Service Temporarily Assigned Gold Stripes.

Aerographic Allowance List - On 26 Feb 1918 In recognition of the importance to flight operations of weather phenomena in the upper atmosphere and on the recommendations of LCDR McAdie the Chief of Naval Operations established an allowance list of Aerographic equipment for overseas air stations.

Over There - The Navy, now embroiled in World War One ultimately planned to man aerographic stations with two officers and enlisted men to provide winds aloft measurements bi-hourly, particularly at blimp bases. To ready the new personnel, LT William F. Reed Jr., on loan from the Weather Bureau, began offering aerological training to Quartermaster strikers and officer candidates at Pelham Bay Park, Long Island, quartermaster school in January 1918. On April 16, the first detachment of trained aerologists, consisting of nine officers and 15 enlisted men, departed for duty in Europe. By war's end there were 25 aerological stations in Europe with 18 in France, five in Ireland and two in Italy as well as domestic stations at Key West, Pensacola, Miami, Florida, Cape Cod, Mass, Long Island, N.Y, Anacostia Naval Base, Washington D.C. and San Diego, Calif.

First Weather Recon Flight - LT W. F. Reed reported to NAS Pensacola, Fla. in April 1918. On 4 May of that year, he made the Navy's first recorded weather reconnaissance flight over the Gulf of Mexico in an R-6 aircraft. By June, he began a regular series of pibals to provide upper wind velocity and direction data for navigational training flights. Supplementary kite balloons suspended Robinson anemometers and wind registers

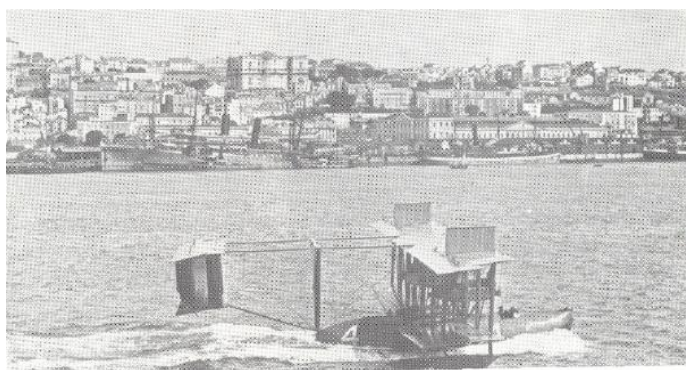
at altitudes of 425 feet, 2375 feet and 2700 feet. The procedure was later streamlined to six daily soundings at 1000 feet. Recording instruments were carried aloft by a kite balloon. Weather charts were plotted and analyzed on blackboards at the south entrance of the flight school. In Aug of 1918 the NAS Pensacola weather office commenced sending observations to Miami, FL; Hampton Roads, Va; Cape May, N.J.; and Blue Hill Observatory of M.I.T., MA.

New Labels - On 23 November 1918 the CNO authorized the use of the title, "Aerographic Officer", to identify qualified officers in the Naval Air organization. The following month a booklet titled, "Aviation Meteorology", was submitted to the Superintendent of Aeronautics. The book was prepared by LT W.F. Reed (with suggestions from LT H.F. Farr, Naval Instructor, Royal Navy).

Riches to Rags - At the peak of WW1 hostilities the Navy boasted 53 CNO designated Aerological Officers and 200 enlisted men with aviation specialties. After the war, the Aerological Section became depleted. The entire section numbered a mere five officers and three enlisted men.

Armistice - World War One ended in Europe on 11 Nov 1918. In light of the recent victory, world peace and the allegedly diminished importance of aerological support, the section was removed from the aviation community and relegated to the back room of the Bureau of Navigation along with photographers and messenger pigeons.

Pibals - On 20 Jan 1919 NAS Pensacola FL commenced taking upper air observations using pilot balloons inflated with hydrogen gas. They used a system developed in Camp Omaha, Nebraska in late 1917. It consisted of plotting pilot balloon positions as recorded by a theodolite and would be called a pibal. On 9 Feb 1919 NAS Pensacola began the submission of aerological data to the U.S. Weather Bureau for use in coordinated study of weather condition.



Trans-Lant - The last act of aerological glory for some time was to provide weather information for the first mass trans-Atlantic flight from the U. S. via Portugal to a final destination at Plymouth, England. Three Navy Curtiss NC flying boats, nick-named "Nancies", departed NAS Rockaway, NY at 8 May 1919 on the first leg of their flight. On 16 May NCs 1, 3 and 4 departed Trepassey Bay, Newfoundland on the long overwater flight to the Azores. The Navy created a chain of 49 destroyers at 50 NM intervals from departure point to the Azores and Lisbon, Portugal. Some would later

reform to cover the Portugal to Plymouth leg. Met data was provided by European collectives and offered to the U.S. Weather Bureau via the British Met Office. Surface weather obs were made by merchant vessels, five strategically located battleships and meteorological equipment aboard ten of the on-line destroyers. Seaplane tenders also carried forecasters including LT McAdie and Ensign Reichelderfer. The two slower aircraft, hampered by bad weather and thick fog were forced to give up the journey midway due to landing damage to NC-3 and towing damage to NC-1. Only the NC-4 piloted by Lt.Cmdr Albert C. Read, made it all the way to Plymouth on 31 May 1919. Her total flying time for the entire route was 53 hours, 58 minutes over a 23 day period.

Early "Atta-Boy" - On 13 June 1919 the Director of Naval aviation commented on the accomplishments of the

NAS Pensacola Aerological office as follows: "The Aerographic personnel is of inestimable value to this station in its warnings of approaching squalls and general storms for use in the protection of aircraft and floating property. The early preparation each day, of charts, showing the general conditions of weather over the country, the Gulf of Mexico, and the western Caribbean Sea, and issuance of special bulletin on expected weather and winds has an important bearing on the general flight work of the station. The forces of wind with direction obtained up to 5000 feet during flight hours for seaplane and airship navigation, and special advices are given the seaplane and airship school by the Aerographic Officer when long flights are used."

The AEROGRAPH Takes Off - NAS Anacostia D.C. performed tests on the early Aerograph during June of 1919. One Aerograph was sent to Pensacola in the following month and on 23 July 1919 Pilot LTJG Mason and Observer LT W.F. Reed made the first Aerograph flight in an N-9 aircraft. Only a slight broadening of the trace, due to vibration, was noted. Thermometers were also calibrated and installed.

Pensacola Weather Schools Open - On 1 Nov 1919 an aerological school was opened whose first class consisted of 4 Naval officers and one Marine officer. One month later an enlisted school opened its doors and provided inter-service training by including Army personnel.

The **Naval Aerological Service** was established on a permanent basis in 1919. On the 8th of Nov 1919 the terms Aerology and Aerologist were noted in Pensacola logbooks for the first time. Aerography and Aerographer for Naval officers were used exclusively prior to this.

Progress in the Twenties - During the 1920s it became evident that the Navy needed a more active Aerology branch in peacetime as well as war. Plans to broaden the effort included placing aerological units at the dozen or so Navy and Marine Corps naval air stations, as well as the carrier USS Wright and seaplane tenders of the Atlantic and Pacific Fleets. A four month meteorological course was initiated for officers and enlisted ratings at Pensacola on 1 Nov 1919. The first class opened with one Marine and four naval officers. At the Secretary of War's request, six Army men were enrolled in the enlisted course in aerography which convened on 1 Dec. Officers continued their education with an additional weather forecasting course at the Weather Bureau's Washington Office

Night Pibals - On 2 April 1920 NAS Hampton Roads VA reported that successful night pilot balloon soundings had been taken since January using candle lighted free balloons to plot wind conditions aloft.

A Historic Name Emerges - In 1921, Francis W. Reichelderfer converted to the regular Navy and took over the aerological desk whose rosters now listed 15 officers and 23 enlisted men with an additional six in training. Air mass analysis techniques were adopted by the Aerological Service. Manpower was still on the wane since our Pensacola trained observers drifted into other programs or out of the Navy altogether almost as quickly as they could be trained.



The Navy's First Carrier - USS Langley, CV-1, was commissioned on 20 March 1922. MM1 (A) with aviation duties R.L. "Bob" Welles was a plank owner.

Hydrogen Accidents - A series of tragic airship accidents in the early 1920s led to experimentation using helium in the blimp C-7.

A Maiden Flight Using Helium - On 4 Sept 1923 ZR-1, Shenandoah, launched on a 55 minute flight using

helium as the lifting agent despite the still high cost of \$120 per 1000 cu. feet and the fact that the entire U.S. supply was used. Cost and availability would continue to be a problem. Shenandoah was fated to be torn apart in a severe squall line on 3 Sept 1925. 14 crewmen were killed including the CO, LCDR Zachary Lansdowne. Among 29 survivors was Aerologist LT J.B. Anderson.

Destroyer Disaster - On 23 Sept 1923 seven destroyers ran aground off Point Honda CA in a dense fog. With no radar for navigation purposes each ship followed the next to disaster on the rocks. On the 5th of the same month Mr. B.R. Coad reported in a letter from Tallulah, LA to CDR McAdie of an experiment to disperse ground fog with electrically charged dust from a crop duster aircraft. The fog was 25 feet thick and the plane flew 15 feet above a cotton field. The fog began to dissipate immediately where the dust was dispensed.



Aerographer Rating Genesis – Circular letter 99 dated 23 December 1923 created a formal rating, effective 1 July 1924. Annual Training classes increased to three and the school moved from Pensacola, FL to Anacostia, DC. Lured by the promise of quick promotions, strikers from a wide variety of backgrounds applied for the new rating. In June of 1924 Chief Quartermaster (CQM) John Dungan was converted to Caerog, thus becoming the very first Chief Aerographer's Mate. Ralph P. Darr was

selected on 10 Feb. 1932 to become the first Caerog to rise through the ranks as an aerographer.

Enlisted Pilots - On 13 March 1924 the AP, Aviation Pilot, rating was established.

Aerog Cadre Become Airlines cadre - During the early days, up to about 1925, the branch accepted transfers of men having almost any rating, providing they were adaptable, trainable and had desirable personality traits. This was done to build up seniority in the rating structure. Thus; Al Francis, R.J. Brown and I (R.L. Welles) were converted MM 1/c (a) Aviation; Bob Currie was a CQM; Tommy Thomas a Signalman; E.M. Brown a Chief Yeoman; J.B. Chamberlain a BM 1/c and so on. These and others formed the nucleus of the branch as it developed. Perhaps a notation on later activities might be of interest. Francis left after 16 years to become Chief Meteorologist (later Chief Navigator) and then Night Operations Manager for PanAm Pacific, then became Operations Manager for China National. Bob Currie became Chief Meteorologist for American Airlines. R.J. Brown was Chief for PanAm South American Division, while Thomas became Chief for PanAm Atlantic Division. I was Chief of United Western Division and then Western Division Station Manager at Oakland. Being Fleet Reservists, all except Francis were recalled prior to WWII. So you can see that the NAVY had a lot to do with development of commercial air lines (weatherwise) not to mention pilots, which is another story." *The two previous paragraphs are excerpts from a May 1975 "Pappy" Welles letter to Neil O'Connor printed in an early 1980s Aerograph.

Aerographs become Routine - In mid April 1925 daily weather flight to an altitude of 10,000 feet were instituted to obtain weather data and to test upper air sounding equipment. Early in 1926 the schedule was expanded to include weekends and holidays and flight extended to 15,000 feet.

Weather School Moves - On 15 May 1924 the Aerological school was moved From NAS Pensacola FL to NAS Anacostia, D.C. Instructors at the school included Caerog R.J. Brown. Aerological support services continued to support the aviation commands at Pensacola.

Polar Front - In Jan 1925 the Navy began use of the Polar Front theory of air mass analysis.

Radiosondes - The routine use of radiosondes (or radio-meteorographs as they were then called) to obtain upper atmosphere data was initiated at NAS Anacostia, D.C. in mid April 1925. By year's end USS California, BB-44, and USS Lexington, CV-2, were also outfitted to use radiosondes.

Caerogs As Pilots - In the mid 1920s LT Reichelderfer decided that every air station should have a Chief Aerographer who was also a pilot in order to make AEROGRAPH flights. Caerogs R.L. Welles, known as "Bob" or "Pappy", and Jerry Barber were selected to attend flight school. Upon graduation the two aviation pilot-aerographers were informed by BuAer directive that they would be Chief Aviation Pilots and be assigned to general aviation duty. Only the intercession of BuAer, RADM W.A. Moffet, a good friend of Aerology, brought Chief Welles back "into the fold" (this is an excerpt from a "Pappy" Welles letter to Neil O'Connor printed in part in an early 1980s Aerograph & may be in error. It may be that CPOs were qualified to monitor an aircraft borne Aerograph Sounding.

More Pibals for BUAER - On 3 October 1925 BuAer requested that aircraft squadron flagships take twice a day upper air soundings when at sea in order to accumulate upper air data for improved weather forecasting.

Horizontal Weather Depiction - The Hydrographic Office of the Bureau of Navigation produced a surface analysis for Charles A. Lindbergh's solo trans-Atlantic flight. A brief description shows a low pressure system over the Canadian Maritimes with a high pressure ridge extending from Florida northeasterly to 50 Deg. North, then eastward to France. This chart is on display at the Naval Aviation Museum in Pensacola. The analyst is unknown.

Naval Air Power - In late 1927 USS Lexington and Saratoga, CVs 2 and 3 respectively, were commissioned. Their hulls were those of battle cruisers stricken to comply with an international pact on fleet strength.

Alma Mater Moves - On 1 Dec 1928 the Navy Aerography School relocated from NAS Anacostia, D.C. to NAS Lakehurst, N.J. Instructors were LT T.J. O'Brien, LT Thornton, Caerog John Dungan and Aerog 1/c Lyle. Aerology Class # One graduated 15 June 1929. Graduates in order of standing; 1. PVT A.B. Bowman USMC, 2. PVT M. Caruso USMC, 3. S 1/c J.W. Reams, 4. S 2/c N.D. Garrow, 5. S 2/c W.A. Robertson, 6. S 1/c T. J. Bliss, 7. PVT M.F. Brouillet USMC, 8. S 1/c G.R. Mills & non-graduate student S 1/c R.L. Chase

Willy Gruber, Aerog 1/c (AP) - a 1927 Primary school graduate with Class #5 was the first Aerographer's Mate graduate of Pensacola Flight training. William "Barney" Barnard CAPT USN Ret would become the 2nd Aerographer to complete Pensacola flight training and a place among the "Silver Eagles" in 1941 "Barney" is an NWSA member and a member of Primary Class #13 of 1937, the "Hindenburg Class". "Dick" Ryan Captain USMC RET, a Marine Aerographer, and a Hindenburg class member earned his wings shortly after Captain Barnard.

The Norwegian Influence - In Jan 1929 the Navy published a report on Norwegian methods of analysis.

Lexington Lights Tacoma WA - A city power failure brought USS Lexington to the rescue providing power to that city over a 30 day period ending on 16 January 1930. 4, 251,160 kilowatt hours were provided by the carrier turned city power plant.

USS AKRON Disaster - On 4 April 1933 the rigid airship USS AKRON, ZRS-4, crashed in a severe storm off Barnegat Light, N.J. Among the 73 fatalities were BuAer Chief William A. Moffet; AKRON CO, CDR Frank C. McCord, Caerog Earl G. Hackett and Aerographer first class Lyle. These two men were the first members of

the aerographer community lost in the line of duty. Other dirigible disasters during this era finally led to the demise of this type of aircraft in the Navy.

Ranger joins the fleet - On 4 June 1934 USS Ranger, CV-4, is commissioned. She is the first US carrier built from the keel up as a carrier.

The USWB commences **Radiosonde upper air observations** in the mid 30s.

AG Manual is a HIT - During his tour as a Primary school instructor, Aerog 1/c LaVeree Cowell authored the Aerographer's mates "Bible" with a little help from his freinds. Primary Class #12 would be the first to use it during their training syllabus.

Airborne Inferno at Lakehurst - On 1 May 1937 students of both the Primary Aerographer's Class #13 and Parachute Riggers made up a line handling party for the pride of Nazi Germany's dirigible fleet, the Hindenburg. It was approximately 1800 and there were showers and thundershowers in the area. Onlookers were stunned as Hindenburg burst into a flaming pyre and was consumed in less than a minute. There were 36 fatalities including 22 crew members, 13 passengers and one ground crewman. 61 passengers and crew survived no little thanks to sailors and Marines of the line handling crew. The late Frank J. Leone of Class #13 found eight passengers huddling in a semi crushed area that the flames had not reached and led them to safety. Two instructors of the "Hindenburg class" were Aerog 1/c "Hal" Kimberly (NWSA member, LCDR USN Ret) and the late TSGT Leo S. Maddy, Primary Class graduate in 1927, Advanced Class 1933, who would retire as a COL USMC. Class members were G.E. "Red" Fielder, "Jim" W. Tenbrink, NWSA member, CDR USN Ret, Robert H. Shaw, John M. Fulton, E. J. Rudesill, William J. "Barney" Barnard, a "Silver Eagle", NWSA member, AP, CAPT USN Ret, Walter J. Courter Jr, S.L. Danforth, Donald T. White, "Red" Hilgefard, A.W. Lewis, Max C. Coleman USMC, Bill Wise, Richard "Shady" Lane, G.B. Ward, Frank J. Leone, August W. "Bill" Hovland, NWSA member AGC USN Ret, George W. Banes, J.T. Sullivan USMC, Louis P. Halloran, Jack R. Ingram, G.B. Ward, William C. "Willie" House (who would be captured at Kiska during WW2 by the Japanese), Charles K. Reynolds Jr and Richard J. Ryan (NWSA member, Naval aviator, Capt USMC Ret). Aerographer line handlers received commendations signed by then Colonel Herman Goering

Weather Codes - In Jan 1938 brevity encoding of Upper Air data started. The encoding of surface observations commenced one year later.

Reichelderfer Departs - On 15 Dec 1938 CDR F.W. Reichelderfer leaves the Navy and his assignment as XO of the battleship USS Utah at the behest of FDR's Scientific Advisory Board and assumes control of the U.S. Weather Bureau bringing in another Bjerknes "believer" in Carl Gustav Rossby. Reichelderfer had studied under Bjerknes in the early 1930s.

The first Navy WEATHER CENTRAL was established in Washington DC in 1940.

CPOs in Khaki - In 1941 CPOs are authorized to add the same khaki uniform worn by officers to their seabag to replace denim dungarees worn by lower ranking sailors.

Pre-War Advanced Class - On 10 Oct 1941 the last advanced class before WW2 graduated. Graduates were; Ackerly (M), Paul Bean (M), Lyle D. Blakeley, Richard W. Camp, S.L. Danforth, Dunn, Jesse E. Grow, L.P. Halloran, Laskowski (M), A.W. Lewis, M.L. Lewis, Joseph A. Leahy, Richard "Shady" Lane, Murphy (M), Frederick A. Nelson, Boyd A. Omang, Pingree, Don T. White and Bill Wise. (M) indicates USMC. School

Officer was LT Barber USNR. Instructors were ENS Melowicz USNR, Carlton G. Cole (M), Robert L. Gray (M) and Bob Case.



A Day of Infamy - On 7 Dec 1941 Japanese carrier based aircraft made the sneak attack on Pearl Harbor which brought the United States into a widening conflict. The Pacific fleet's battleship force was decimated and aircraft carriers assumed the role of capital ships. Stationed at Ford Island Fleet Weather Central were; LCDR Marty Burns, LT John Ballard, ENSs F.G. Robinson, past NWSA President, James Garret and Sam Hanaway; Caerogs VanDomelien and Cowell, Aerog 1/c Ford and S 1/c Dallas Rouleau. AGC Ret Lloyd Bellinger (of Aerograph Bellinger list fame) was stationed aboard USS California. Then S 1/c Dic Husted was stationed aboard USS Oklahoma. USS Indianapolis was steaming toward Johnston

island at the time with LCDR Oberholtzer, Caerog Duke Chamberlain, Aerog 1/c James Tenbrink and Aerogs 2/c Charlie Thompson and Kelly Harp.

Assault on the Philippines - Fleet Weather Central Cavite was destroyed in initial Japanese attacks requiring a move to the Manila observatory. On 24 Dec 1941 weather personnel moved to Corregidor and continued the fleet broadcast. LCDR Denys Knoll was evacuated via USS Spearfish to Australia by orders of the President. CDR Tarnowski commented that LCDR Knoll was the finest Naval Officer that he ever worked for. LT S.W. Denham and Caerog Harry S. Campbell were evacuated earlier in USS William B. Preston, AVP-20.

Corregidor Falls on 6 May 1942 - According to CDR Tarnowski there were no weather men in the Bataan Death March since they had all moved to Corregidor. The March apparently consisted of men who were captured on the mainland. TSGT (weather) "Bob" Evans USMC, assigned at MCAF Tsan Kou, outside Tsingtao, China in 1948 and 1949, was reputed to have survived the Bataan Death March. Aerog 1/c Jimmy Mullen, Zemo Tarnowski and Harry Cook, Aerog 2/c Don W. McConn and Aerog 3/c Barton F. Pinson were all POWs. S 1/c William A. Menna, Harold R. Payne and Lloyd R. Rhine were all assigned to the Navy Ground Defense Force and were captured and made POWs. Harry Cook and Harold R. Payne were reported as killed while on a working party while confined at the Cabanatuan Prison Camp, Palawan Island. Data in this paragraph comes from CDR Zemo Tarnowski.

Early Reverses - On 10 Dec 1941 the island of Guam surrendered to invading Japanese troops. Aerological personnel on board included Caerog Luther Jones who was beheaded by Japanese troops along with RM1 Weed when the men were captured in the jungle. Aerog 1/c William H. Sager, Aerogs 2/c Norman D. Bircher and Robert W. Jones were captured.

Wake Island Surrender - on 23 Dec 1941. Aerological personnel captured were Aerog 1/c Walter Cook, who would return to Lakehurst as a commissioned Meteorology instructor in the mid 1940s, Aerog 3/c Howard D. Miller and S 1/c Floyd A. Dixon. Two marine aerographer's mates and A school class 22 classmates of S 1/c Dixon were also on the island according to X-AGC Paul Carrigan. No information on their fate is available.

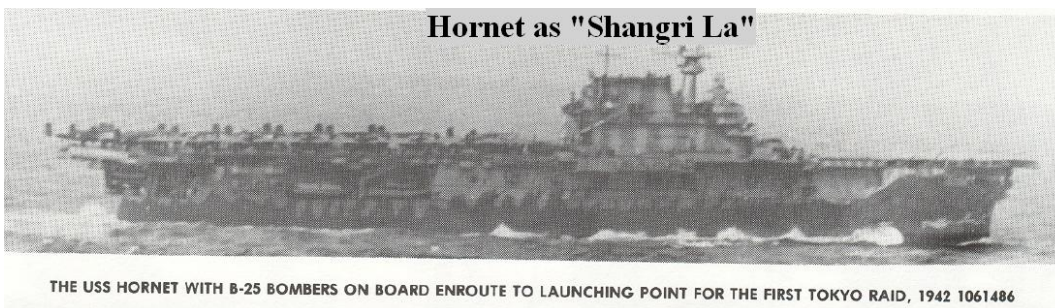
Saratoga hit - On 11 Jan 1942 USS Saratoga, CV-5, was hit by a torpedo from the Japanese submarine I-6. Saratoga was able to steam to port but was out of action for four months for repair. On board were Aerog 2/c R.W. Echols, Aerog 3/c R.T. Daniels and S 1/c R.C. VanWyche.

On the Attack - On 1 Feb 1942 the carriers Yorktown and Enterprise, CV-5 and CV-6, approached under cloud cover which hampered enemy aircraft and attacked the Gilbert and Marshall islands. Aerographers on board were; LCDR H.E. "Hubie" Strange, Aerog 1/c August W. "Bill" Hovland, Aerogs 2/c Alex Abel and Robert Sheehan, Aerogs 3/c Luther Corn and Robert Humphrey and Seamen Joseph Dorion, Robert Martin, Joseph Ramsey and Daniel Zaffarino.

Air raid Down Under - On 19 Feb 1942, while at anchor in Darwin harbor, Australia, USS William B. Preston, AVP-20 (WW1 destroyer conversion), was hit portside on the after deck house by a 550 lb bomb. An ensuing fire caused a ready service magazine to detonate and damage primary steering. The XO manned secondary steering and managed to get underway and avoid falling bombs and ships in distress. Weather staff aboard included; Lt S. W. Denham and Caerog Harry S. Campbell.

A Tale from USS Houston - On 28 Feb 1942 USS Houston, CA-30, was hit by 4 torpedoes and numerous shells from IJN cruisers and destroyers in Sunda Strait. She sank in 45 minutes. Aerog 1/c Walter G. Lee was drowned. Sulo Suomi swam for 8 hours in shark infested waters before being picked up by a Japanese ship. He was sent to a POW camp in Molmein, Burma (as in "by the old Molmein pagoda looking eastward to the sea...etc Kipling). Sulo Suomi and fellow POWs were conscripted to build a railroad which was to run to the bridge on the River Kwai. Sound familiar? Many remember the movie of the same name in which William Holden played a sailor masquerading as a CDR in order to obtain better treatment in prison camp. Sulo recounts that the model for Holden's role was a Houston sailor who had opted to go to a POW camp for British troops since he had made many friends during port visits in British Singapore. Impersonating an officer was a figment of Hollywood hype, according to Sulo.

Murder Most Foul in the Philippines - On 15 Oct 1942 Aerog 1/c, Harry Cook was executed by machine gun fire after being forced to dig his own grave with others in a POW working party at Palawan, P.I. Gasoline was poured into the grave with their bodies and set afire. Cook had developed the method of intercepting Japanese weather reports at the Monkey Point Comm Station and incorporating them into his far east weather maps while serving as section leader at Fleet Weather Central Cavite.



Shangri La -On 18 April 1942 USS Hornet launched 16 B-25s of the 17th AAF Air Group, LTCOL Jimmie Doolittle commanding, for the first raid on the Japanese homeland during WW2. Hornet had sortied from Alameda on 2 April,

made rendezvous with Enterprise and other ships of Task Force 16, VADM W.F. "Bull" Halsey, north of the Hawaiian Islands and proceeded to the launch point, 650 miles from Nippon without making port. LDO LT USN ret. George Bernstein, then a S 1/c, "waved off" the raid as a flight deck man.

Battle of the Coral Sea - From 4 to 8 May 1942 the first naval battle was fought without the opposing ships making visual contact and with all action between air and sea forces. USS Yorktown, CV-5, and Lexington, CV-2, engaged IJN carriers Shokaku and Zuikaku. It was a pyrrhic victory in that Lexington was lost and Yorktown damaged but operational. Our a/c sunk the light carrier Shoho and damaged Zuikaku. The Japanese retired from action and their attempted occupation of Port Moresby put off. Lt Raring and Aerog 1/c Chester

A. Beason were USS Lexington weathermen.

Nazis Stung by (USS) Wasp - In mid April of 1942 USS Wasp, CV-7, on special ferry duty, out of Glasgow, Scotland, entered the Mediterranean Sea and launched 47 RAF Spitfires to the beleaguered island of Malta. When the operation was repeated on 9 May, Britain's Prime Minister, Winston Churchill, sent the message, "Who says a Wasp cannot sting twice?", Wasp's weather crew was Lcdr "Gus" Lentz, Caerog Leo A. Lee, Aerog 2/c Don Cruse and Ken Fairbrother, Aerog 3/c Jim Black, Perry Bruce and Jim Morgan.



Weather Training Expands - In early 1942, classes at the Naval Training School, Aerography, at NAS Lakehurst, N.J. increased in size and scope to instruct 75 sailors and 7 Marines in a 12 week course. The school was moved to the former Newman school in Lakewood, NJ which consisted of five primary buildings. A former Catholic Prep school on 180 acres served to provide an additional area for messing and berthing.

Hit & Run raids in Alaska - A Japanese carrier force launched diversionary raids on Dutch Harbor from 3 to 4 June. Navy PBVs located the force but AAF bombing attempts were unsuccessful.

Battle of Midway, a Turning Point - Broken codes and good intelligence work enabled a much smaller American carrier force to defeat a strong Japanese task force bent on capturing Midway. RADM F.J. Fletcher in USS Yorktown, CV-5 and RADM R.A. Spruance with USS Enterprise, CV-6 and USS Hornet, CV-8 along with land based Navy, Marine and Army air from Midway took on the IJN from 3 to 6 June 1942 and sent them away with heavy losses totaling two heavy and two light carriers, one heavy cruiser, 258 aircraft and a large percentage of their experienced carrier pilots. US losses were Yorktown, torpedoed while damaged and under tow, and the destroyer Haman. Aerological personnel aboard Yorktown were; LCDR H.E. "Hubie" Strange, Aerog 1/c August W. "Bill" Hovland, Aerogs 2/c Robert Sheehan, Alex Abel and George Wright; Aerogs 3/c Luther "Gus" Korn and Robert Humphrey and Seamen 1/c Harry Whidden, Joseph Doiron, Robert Martin, Daniel Zaffarino and Joseph Ramsey. S 2/c Edward Snopkowski was stationed on Midway.

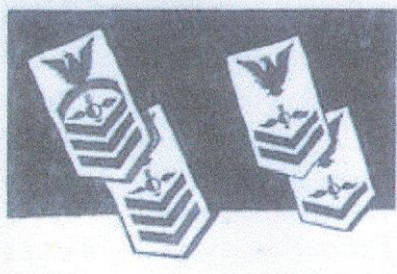
Attu & Kiska siezed by Japanese - On 10 June 1942 patrol planes of PatWing 4 discovered that Japanese troops had seized Attu and Kiska. WO Walter Winfrey was WIA at Kiska by machine gun fire and captured as was Aerog 2/c James Turner. Caerog "Willy" House evaded capture for forty nine days but was finally forced to surrender in a condition of near starvation. PBVs operating from the seaplane tender Gillis in Nazan Bay, Atka Island hit ships and enemy positions in an intense 48 hour attack which exhausted their gasoline and bomb supply but was not successful in driving out the Japanese.

Flying (Aerographer) Tigers - On 24 July 1942 three Navy Aerographers mates were released from active duty to report to the Central Aircraft Manufacturing Co. of New York. These three personnel along with two Army weather observers became the Aerological branch of the American Volunteer Group, better known as the "Flying Tigers". They were Aerog 2/c D.A. Whelpley, Aerog 3/c A.W. Fritzke and Aerog 3/c R.S. Richardson.

Guadalcanal - From 7 Aug to 9 Feb 1942 US forces fought to take Guadalcanal. The First Marine division made the first Marine amphibious landing in force of WW2 with air support from the carriers Saratoga, Enterprise and Wasp, RADM Noyes, and by Navy, Marine and Army units of Aircraft South Pacific under

RADM J.S. McCain. Lcdr Irwin Forest Beyerly forecast for the landings.

Battle of Savo Island - On the evening of Aug 7th VADM Mikawa, Japanese CinC at Rabaul, New Guinea, assembled five heavy cruisers and two light cruisers and set off for Guadalcanal. The Japanese ships slipped thru "the slot", a narrow gap between the two chains of the Solomons and approached Savo Island in the evening. RADM Fletcher had just withdrawn the U.S. carriers due to a low fuel state and a low level of available fighters. Allied cruisers and destroyers had taken up precautionary positions for the night but co-operation and watch keeping were poor and Mikawa caught both northern and southern groups by surprise and within an hour was turning back thru the slot leaving four of five allied cruisers sunk or sinking and a fifth badly damaged. Savo Island was one of the worst defeats for our Navy during the war and it is fortunate that Mikawa did not follow up his advantage and attack the mass of transport and supply ships lying defenseless at Lunga Roads. After the war VADM Mikawa would become a civilian tugboat skipper at Harbor Master Pier, Yokosuka Naval Base and work for a BMC U.S. Navy.



Aerogs become Aerms - On 8 Aug 1942, the aerographer rating was changed to Aerographers Mate by Circular Letter 113-42. Aerogs became Aerms.

Battle of Eastern Solomons - From 23 to 25 August USS Saratoga and USS Enterprise battled IJN Carriers Zuikaku, Shokaku, and Ryujo. Enterprise required a two week stand-down to repair bomb damage. "Sara" a/c sank Ryujo but she was torpedoed on 31 August by the submarine I-26.

Saratoga's Air Group Three flew to Guadalcanal and continued the fight while the "Big E" was out of action for a three month's repair stint.

Warrant Officers Established - Chief warrant officer and warrant officer pay grades were established at this time. Warrant Officer, AEROGRAPHER, selectees listed in the Army and Navy Journal on 12 Sept 1942 were; Caerogs Charles R. "Chuck" Barron, John R. Dungan (the FIRST Chief Aerographer, a former QM), Walter S. ("Shorty") Hassel, Raymond J. Brown, Charles S. Elston, Robert L. Welles (the reluctant aviator), Francis A. Barbot, William G. Lindeman, Ned H. Walker, John A. Shirley, Fred W. Berry, Ralph P. Darr (the first Caerog to be an Aerographer from the first), Bloxham S. Brigman, Clarence G. Ellington, William R. Livingston, W.G.A. Funk, Edmund A. Oliver, William E. Skrym, Robert L. Currie, Clarence A. Kelly, Mason O. Erwin, Fred B. Chase, Everette G. Lewis, George R. Mills, James I. Shelton, Richard W. Camp, Okay R. Castner, Warren L. Price, Johnnie W. Reams, Jack A. Odbert, Harold L. Kimberley and Zemo Tarnowski. Aerogs 1/c selected were; James W. Winchester, Frank A. McGill and James W. Tenbrink.

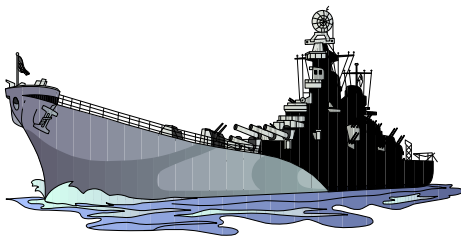
Aerographer POWs - Many U.S. service personnel were killed, wounded or taken prisoner during the early days of the war including several Aerographers. Perhaps the most famous aerographer POW of them all was Aerog 1/c Zemo Tarnowski who was among seven aerological personnel captured by the Japanese when U.S. and Philippine forces surrendered the island of Corregidor on 6 May, 1942. During Japan's three month campaign, the weather unit did not miss a single broadcast in support of fleet units in the southern islands. The broadcasts often included decoded data lifted from Japanese military weather units. After the island fell, the enemy submitted Tarnowski to three days of interrogation and two trips before a firing squad in an attempt to discover his source of the coded Japanese weather data. Tarnowski was elected prisoner camp commander at two POW camps. In Sept of 1946, he awoke as a CPO, was retroactively appointed Warrant officer at 1000AM, as of 1942. By 1100 he advanced to Ensign and LTJG as of 1943 and 1945. He retired with the rank of Commander in 1965.

Waves at War - On 30 July 1942 the WAVES, Women accepted for voluntary emergency service were instituted. Six years later Congress passed the Women's Services Integration Act, bringing women into regular military service. By 30 June 1945 sixty five women had graduated as aerographer's mates third class from Lakehurst. They numbered in the hundreds by the war's end. There were scores of distaff Aerologists on duty as well many of whom had participated in training programs at highly respected Universities such as M.I.T. The last class of WWII female aerographer's mates commenced on 1 Sept 1945. Already reduced quotas for women were eliminated completely after they graduated in November.

Wartime Training Heats Up - On 1 Sept 1942 "OUR NAVY" reported that the three year course for officers in Aerology has been slashed to one year. Nine hundred enlisted men are to undergo training in a 12 week course at Lakewood, NJ. One hundred officers will undergo training at one of five Universities. They are Cal Tech Pasadena, CA; Chicago University, M.I.T. Cambridge, MA, N.Y.U., New York, NY and the University of California at Los Angeles. A special class in advanced principles of Meteorology was started at the Post Graduate school U.S. Naval Academy

Wasp is Lost - On 15 Sept 1942 USS Wasp, CVE-7, was hit by three torpedoes from the Japanese submarine I-19. USS Lansdowne, DD-486, fired five torpedoes into her side when it was determined she could not make it back to port. Aerological office personnel aboard were; LCDR "Gus" Lentz (KIA), Caerm Leo Lee, Aerms 2/c Don Cruse and Ken Fairbrother, Aerms 3/c Jim Black, Perry Bruce and James Morgan.

Hornet is Lost - Hornet and Enterprise engage an Imperial Japanese Navy carrier force in the battle for Santa Cruz Islands. On 27 Oct 1942 Hornet is hit by three 550 lb bombs, 2 torpedoes and by two Kamikaze style attackers. She was abandoned dead in the water as enemy destroyers approached for the coup de gras with four torpedoes. The Hornet weather crew included LCDR Arthur Cumberlandge and Aerm 2/c Wayne Self.



Heavies Duel - From 14 to 15 Nov 1942 USS Washington, BB-55, and USS South Dakota, BB-57 and four destroyers engage the IJN "battleship" Kirishima, two heavy cruisers, one light cruiser and nine destroyers. After a two hour battle the Japanese had lost Kirishima and one destroyer while the U.S. had lost two destroyers. South Dakota was the most damaged American battleship since Pearl Harbor with 1-14" hit, 17-8" hits, 5-6" hits and 1-5" hit. Aerm 2/c Wayne Morris was a South Dakota crewman.

Operation Torch - The North Africa landings were directed by VADM Henry Kent Hewitt from USS Augusta, CI-31. As the invasion force approached the coast on 6 Nov 1942 heavy seas were reported and the HQ met forecast for the 8th was for prohibitively high surf which would make landings impossible. Staff Aerologist, LCDR "Dick" Steere, called for the storm in question to move off producing favorable surf conditions for the landing. On the 7th the sea began to subside and on the 8th it was calm with only a moderate ground swell. Surf conditions were at the lowest level of the month for the invasion. Vichy French resistance, however, was fierce and Augusta's guns sunk two destroyers, badly damaged and forced another to beach while assisting in damage to a heavy cruiser and another destroyer. Augusta Weather office crew included: WO "Chuck" ("Red") Barron, Caerog Burl Clark Champ, Aerogs 1/c Arliss Jones and Johnnie Reeves; Aerog 2/c Paldunas and S 1/c Israel Geller who was an expert at decoding Axis weather reports. This same unit went on to take part in all of the remaining amphibious operations in the "Med" during WW2. LCDR Steere would be promoted to CDR and transferred to forecast surf and swell for Operation Overlord at D-Day. WO Barron would continue with the

amphibious staff and forecast for the remaining WW2 amphibious landings in the "Med" such as Anzio, Salerno and the south coast of France..

GCA Saves the Day - On 1 Jan 1943 Ground Control Approach equipment is called into emergency use for the first time at NAS Quonset Point when a snow storm closed down the field 30 minutes before a flight of PBV seaplanes was to arrive. The GCA crew located the incoming a/c on radar and talked them down safely using the control tower to relay instructions. Their action took place only 9 days after the first successful, but still experimental, demonstration of GCA.

Fleet Weather Pearl moves - On 2 January 1943 Fleet Weather Central Pearl Harbor was moved from Ford Island to a location on "Kam" Highway (King Kamehameha Highway) in the dependant housing area outside the main gate of Pearl Harbor Naval Station..

A False Alarm - On 24 February 1943 USS Nassau, CVE-16, lowered a bathythermograph into the sea for seawater temperature measurements. USS Sterret, DD-407, sent the Task Group to General Quarters almost immediately with a sonar contact. Aarms hurriedly retrieved their instrument. The contact disappeared and ships in company resumed a normal state of readiness. The same situation developed seven times prior to the Task Group's return to port. It was later determined that the sub contact was, in fact, the attempted BT soundings by the Nassau Aerology Crew.

Commissionings - USS Core, CVE-13, 10 Dec 1942. Plank Owner; Aerog 3/c Floyd C. West. USS Princeton, CV-23, 25 Feb 1943. Plank owners: LT Norman Schuyler, Aarms 3/c John H. Mislinski, William C. Nopper and James F. Hurley; William J. Graves and William H. Crane. USS Mobile, CL-63, on 24 March. Plank owner Aerm 2/c Albert Smith. CV-10, USS Yorktown, on 15 April. Plank Owner Aerm 1/c August W. Hovland. USS Monterey, CVL-26, on 17 June. Plank owner LCDR Harry Choun. USS Liscombe Bay, CVE-56, on 7 Aug. Plank owners: WO Lyle Blakely, *Aerm 1/c Don Cruse, *Aerm 2/c Ken Fairbrother and *Aarms 3/c William D.E. Morgan, Perry L. Bruce, Robert Pinder, Larry Rickert and Russell Mahood. *denotes Wasp survivors. USS Guadalcanal, CVE-60, on 25 Sept. Plank owners: Caerm August F. Mayer, Aerm 1/c Eugene R. Alexander, Lowell P. Riggs, Michael Manko and Paul Culpin. USS Midway, CVE-60, on 23 Oct. Plank owners: LTJG Clarence W. Reynolds, Aerm 1/c Wesley Morris, Aarms 2/c William F. Suerstedt and James DuBois; S 1/c A.D. Seale and S 2/c Clarence J. Offerman and Joseph Pisaro. USS Kalinin Bay, CVE-68, on 27 Nov. Plank Owners: LTJG Don Johnson, Aarms 3/c John J. Agans, James E. Schwantner and James L. Stephens. USS Fanshaw Bay, CVE-70, on 9 Dec. Plank owner: Aerm 3/c Frederick A. Earle USS Gambier Bay, CVE-73, on 28 Dec. Plankowners: LTJG Rannie L. Odum, Aerm 1/c John Ammon (WIA), Aerm 2/c Reynders and Aerm 3/c Harry Rouse.

More New Ships - USS Rudyard Bay, CVE-81, on 25 Feb 1944. Plank owner: LT Joseph P. Meehan. USS Cape Esperance, CVE-88, on 9 April. Plank owners: Aerm 1/c David J. Adams, Aerm 2/c Forrest B. Price and Aerm 3/c George A. Foust. USS Hancock, CV-19, on 15 April. Plank owners: LT Eldon Grimm, Aarms 2/c John K. Akers and Kenneth M. Slocum; Aarms 3/c Richard J. Kalish, William J. Rathell and Harold V. Thompson and S 2/c Bruce N. Brown. USS Bennington, CV-20, on 6 Aug. Plank owners were: LCDR Ralph E. Frank, Caerm Roger M. Lyons; Aarms 2/c Vincent D. Clark, Eugene K. Dillon and Basil J. Neptune and Aerm 3/c Tinsley A. Lee. USS Randolph, CV-15, on P Oct. Plank Owners were LCDR Bernie Crawford, Aerm 3/c Walter L. Timmons, Phil Kanofsky, L.J. Flaherty, B.E. McCutcheon and W.T. O'Connor.

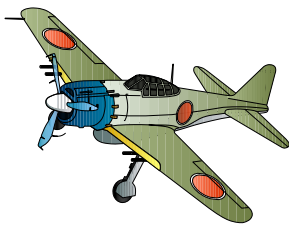
Blimps on the Northwest Coast - In Nov 1943, Aerm1/c Joe Zaffino's name was on the flight schedule for Squadron ZP-33's aerial coverage of the Northwestern corner of the U.S. He made and issued the morning

forecast for an approaching storm which would bring increasing southerly winds. Having briefed the crew he slept for 3 pre-watch hours as K-71 flew toward their patrol area (expecting that a patrol area consistent with his forecast would be chosen). He would regret not having asked where their patrol area was located. On waking he asked the Navigator where they were and when shown he groaned, asking, "How the hell do we get back?" After a brief discussion with the airship commander they turned for home facing a very strong southeast wind for a return to Tillamook OR, their home station. They made poor headway but did manage to move eastward toward the coast. As they neared the coast their radar went down and since it was wartime the coast was blacked out. At about 9PM they were challenged by blinker from a ship. The blimp signalman responded and found their challenger to be the Columbia River light ship. They were well off course and far north of Tillamook. They turned nearly due south but winds had increased to fifty knots which put them at a near stand still. To compound their problems the star board engine caught fire but they could not afford to shut it down and lose the power it represented. K-71 turned north hoping to make the auxiliary field at Astoria, OR on the south coast of the Columbia River. It was fogged in despite the high winds (not uncommon in northwest waters or in Alaska). They passed over a light which was determined to be the North Head lighthouse on the north side of the river. Fuel supply had become critical when they spotted a small beach area and they decided to land at the next suitable sandy beach sighted. The Coast Guard had been alerted and a landing party was arranged by blinker messages thru a signalman in a jeep. They put full power on their engines and headed at the beach but a heavy gust caused a starboard roll and one propeller dug into the sand. Aerm 1/c Zaffino was aft at the "rip cord" when the pilot cut power. He ordered Zaffino to "rip the bag" and for all hands to jump. The crew escaped uninjured as the bag collapsed around them after an 18 hour and 30 minute flight.

Deja Vu for X-Wasp Aerms - On 24 Nov 1943 USS Liscombe Bay is torpedoed and sunk by IJN submarine I-175 during the invasion of the Gilbert Islands. All weather personnel survive. X-Wasp sailors Cruse, Fairbrother and Morgan have their second ship "shot out from under them". Ironically the second USS Wasp, CV-18, is commissioned on this date. Crew member Don Cruse will later become the first Limited Duty Officer of the Weather Service to attain the rank of Commander.

Guadalcanal Gets a Prize - On 4 June 1944 USS Guadalcanal, CVE-60, Captain Dan Gallery and a Hunter-Killer group of and five destroyer escorts attacked and forced the Nazi submarine U-549 to the surface where it was boarded, captured and towed to port as a "prize of war".

D-Day, the 6th of June - Allied forces carry out the massive 1944 invasion of Europe at the Normandy beachheads. Aerm 1/c Floyd West is a crew member of USS Arkansas, BB-33, which is part of the bombardment group.



The Thousand Mile War - Weather was the dominating force in the Aleutian campaign of WW2. This placed the Aerms in vulnerable positions at the forefront of all operations. They experienced combat on land, in the air, at sea and under the sea. Many Aerogs "flew the weather" much the same as the more recent day "hurricane hunters". A handful of them in PatWing 4 were the first men in the Navy to receive pre war training as aerial gunners. As in other theaters of the Pacific, Aleutian Aerogs took part in battles. They fought in a savage climate over 1000 miles of scattered islands with steaming volcanos, snow capped peaks, innumerable fiords and tortuously rugged terrain. The names were Dutch Harbor, the Komandorskis and Attu. Early days of this campaign marked the only capture of US soil within the continental limits. Japanese troops had landed on the doorstep of the Pacific Northwest. Navy weathermen flew thru heavy "flak" on bombing missions, tangled with fighters, flying boats and "Bettys", exchanged fire with land and sea targets, survived crash landings, were

bombed, strafed on land and at sea, depth charged and torpedoed. Firsts accomplished in the Alaskan theater of war were the capture of a flyable AGM-2 "Zeke" model Zero fighter, a "Rufe" model of the Zero in a float plane arrangement, an intact Japanese torpedo and a Mark IV contact mine. Five Japanese prisoners were believed to be the first to arrive in the continental United States. It was the first theater victory for the United States.



Aerographers suffered one man KIA, in Jack Parlier Jr. who was lost on a PatWing 4 PV-1 bombing mission in the Paramashiro-Shimushu area of the Kuriles. Ironically Parlier had flipped a coin to determine if he or a squadron mate would take the PV-1 mission or a PBY seaplane patrol. Tokyo Rose recited names and ranks of the missing crewmen a few days later. There were two WIA including WO Frank Kilmer whose PatWing 4 PV-1 was hit by shrapnel, and he in the posterior, when an unidentified submarine's deck gun scored a lucky hit on a Kuriles mission.

WO Walter Winfrey was hit in the thigh with a machine gun round during the Japanese invasion of Kiska and later captured. Aerog William C. "Willy" House and Aerog 2/c James L. Turner were also captured at Kiska, some 650 miles from the nearest help, and made POWs.

"The Flying Fighting Weathermen" - There were outstanding individuals and more than a normal share of colorful, bona fide characters but they were not a rare breed. Time, place and the circumstances dictated that they be flying, fighting weathermen. They were a breed apart from today's public image of the weatherman as viewed on nightly TV newscasts. There are too many names to recite but for each there was a story of action in wartime Alaska. One time AGC and NWSA shipmate, the late Paul Carrigan wrote an excellent book of the Alaskan campaign titled "The Flying, Fighting Weathermen".

"Terry and the Pirates" - There are many tales told of World War Two and the men and women who served but one of the more interesting was that of SACO, the Sino-American Co-operative Organization. CNO ADM Ernest King hand picked VADM USN Ret (then CAPT) Milton E. "Mary" Miles as CO Captain giving him verbal orders to "help the Navy and harass the Japanese". The then CDR Irwin Forest Beyerly, RADM USN ret, reported as Aerologist & would later "fleet up to SACO Commanding Officer when illness invalidated then Commodore Miles to CONUS. From a small start came a 50,000 man guerilla army, most of which was Chinese, and a large network of weather reporting stations providing up-wind data to our down-wind fleet fighting the war. The movie, "Destination Gobi", with Richard Widmark dramatized SACO and included an improbable battle between American and Japanese junks which actually occurred and proved to be the final "naval battle" of WWII. Yes, the SACO junks won the day and the Japanese CO turned his sword over to Junk Captain, LT Livingston "Swede" Swentzell USNR. War lords and genuine pirates were enlisted into the fight including one lady pirate who was the prototype for the "Dragon Lady" of "Terry and the Pirates" by Milton Caniff who later wrote and did the art work for "Steve Canyon" comics. SACO forces killed, wounded or captured 33,000 Japanese, destroyed 209 bridges, 84 locomotives and 141 ships and river craft. They also rescued nearly eighty pilots and air crewmen during the last years of the war.

A friend is lost - WO William E. Skrym was lost on a flight in the Canton- Johnston Island area.

Guam is Retaken....The Turkey Shoot - Task Force 58, VADM Mark Mitscher, with a center piece of 7 heavy and 8 light carriers opened the campaign with a fighter sweep that destroyed one third of defending Japanese air forces. Operations would extend from 11 June to 10 August 1944. When Guam was secured the Task Force had accounted for 110,000 tons of enemy shipping 1223 enemy aircraft. The late CDR Paul Bloom, XO of

FWC Yokosuka in the late 1950s, discussed this campaign with a WW2 Japanese aviator turned FWC surface map plotter and in the course of the conversation determined that he, CDR Bloom, may have shot down the former Japanese aviator during the campaign.

The Fighting Fifth Fleet - USS Indianapolis with the 5th Fleet Flag, RADM Raymond Spruance, took part in the entire Marianas campaign Staff Weather personnel: CDR "Marty" Burns, LT Harold Cheshire, Aerog 1/c James Bergen, Jack Fry and Ross Wichern; Aerog 2/c Ed Alvey, ship's co. and Robert Goss; Aerog 3/c Phil Cali and S 1/c Leroy Dry. "Indy" and 5th Fleet continued thru the Battles of the Philippine Sea. Iwo Jima and Okinawa where they experienced a "**Kamikaze nightmare**" with 59 attack days during a 62 day action. On 31 Mar 1945 Indianapolis was knocked out of action by a Kamikaze carrying a 500 lb bomb. The flag moved to USS New Mexico, BB-40, as "Indy" returned to Mare Island shipyard for repairs where Ed Alvey married his high school sweetheart, Matti Lou. Only six weeks later New Mexico was hit by a pair of Kamikazes and returned to Guam for repairs. There were 62 dead and 120 injured. The entire weather gang survived the attack uninjured.

"With the Help of GOD and a few Marines", MacArthur returned to the Philippines" - on 31 August 1944. simultaneous landings by Central and Southwest Pacific Forces on the islands of Palau and Morotai. The landings are supported by four carrier groups of Task Force 38, VADM Mark Mitscher Commanding. Paragraph title from an irreligious Marine poem

Leyte is Next - On 10 Oct 1944 the opening blows of the battle for Leyte are carried by 17 carriers of Task Force 38. Japanese airfields are hit from the Ryukus south to occupied areas of the Philippines. 438 Japanese aircraft are shot down and 366 destroyed on the ground over a five day period. Three elements of the Japanese fleet converged on Leyte Gulf from as many directions. On 24 Oct 1944 USS

Princeton, CVL-23 was severely damaged by aircraft bombs in the battle for Leyte Gulf. Internal explosions and fire rendered her uninhabitable and unable to make port for repairs. She was scuttled by USS Reno, CLAA-96, which fired 4 torpedoes into her. Weather crew: LT Norman Schuyler and Aerms 3/c John Henry Mislinski, William C. Nopper, William J. Graves and William H. Crane. Earlier on the 24th fast carrier a/c attacked the central element of the attacking Japanese fleet in the Sibuyan Sea sinking the 63,000 ton battleship Musashi and a destroyer. The Japanese southern force was hit in Surigao Strait of the Sulu Sea by surface elements of the 7th Fleet of the 25th of October. In a brief but intense action before daylight the Japanese force retired after losing two battleships and three destroyers.



Escorts in the Battle off Samar - Also on the 25th the Japanese central force made a night passage thru the San Bernardino Strait and attacked six escort carriers and their screen of TG 77.4. In a three hour action, Gambier Bay, CVE-73, two destroyers and a destroyer escort were sunk as the "small boys" placed themselves in harms way to protect the slow, under gunned escort carriers. Gambier Bay received 14 hits ranging from 4" to 14" rounds from an IJN battleship. No weathermen were lost (Crew list in prior paragraph). Kalinin Bay and Fanshaw Bay received 14" and 8" (mostly 8") hits and St. Lo, White Plains and Kitkun Bay were straddled repeatedly but not hit. Carrier a/c sunk 3 Japanese heavy cruisers in this action. Later in the day Kamikaze pilots off Leyte made the first PLANNED suicide attacks of the war sinking St. Lo, CVE-63, and damaging escort carriers Sangamon, Suwanee, Santee, White Plains, Kalinin Bay and Kitkun Bay. St. Lo crew: LTJG Clarence Reynolds, Aerm 1/c Wesley R. Morris, Aerms 2/c James E. Dubois (WIA) and William F. Suerstedt,

Aerm 3/c Arthur A. Seale (WIA), S 2/c Joseph Pisaro and S 2/c Clarence J. Offerman (WIA).

A win at Cape Engano - On the same day as the Samar battle, a/c of the fast carrier force met the Japanese northern force in the Battle off Cape Engano, sinking the heavy carrier Zuikaku, light carriers Chiyoda, Zuiho and Chitose with the assistance of cruiser gunfire. As remnants of the Japanese Fleet limped homeward thru the central Philippines carrier a/c sank a light cruiser and four destroyers to bring Japanese battle losses to 26 major combatants totaling over 300,000 tons. Kamikazes struck carriers Intrepid (29 Oct), Franklin and Belleau Wood (30 Oct), Lexington (5 Nov) and Essex, Intrepid and Cabot (25 Nov). Two CVs required shipyard repairs.

In the Eye of the Storm - On 18 Dec 1944 LCDR Bill Meyers passed uncomfortably close to and reported on a Pacific typhoon during an ASW reconnaissance in a Philippine Islands based PB4Y-1 "Privateer". The storm caused extensive damage to Third Fleet and Task Force 38 ships. This same Naval aviator later served as an Aerologist with VPW-1, Weather Squadron One, and as Commanding officer of VP-23, Patron 23, flying Atlantic hurricane reconnaissance.

Franklin Holocaust - USS Franklin, CVE-13, was hit by two 550 lb bombs off the coast of Japan on 18 March 1945. The bombs were well placed causing fires and internal explosions which decimated the crew. 832 are killed and 300 wounded. Franklin suffers the heaviest damage of any surviving American ship and her crew was likely the most decorated. She steamed to the U.S. under her own power.

Upper Air Changes - Aerology Bulletin number 8 of 9 April 1945 instituted constant pressure vs constant level upper air analysis. Pensacola would be the first station to prepare such a chart.

Kamikazes Hit the Fleet - USS Bunker Hill, CV-17, is hit by two Japanese Kamikaze aircraft on 11 May 1945. Damage escalated when armed and fueled a/c on deck exploded and burned. 539 men were killed and 380 wounded. Aerm 3/c Scollan was a Bunker Hill crewman. On 14 May 1945 USS Enterprise, CV-6, is hit on the forward elevator by a Kamikaze and the "Big E" is knocked out of the war for the last time.

Late war losses - Just prior to war's end on 14 July 1945, two aircraft were lost. One was an F6F fighter and the other a TBM torpedo bomber, of the type flown by former President George Bush. The a/c launched on a weather reconnaissance mission from USS Bataan in the vicinity of Hokkaido, Japan and never returned. Among the missing was Caerm, (Air Crewman, William Rufus Browning aboard the TBM Avenger. It is unknown whether the planes met with enemy aircraft or went down in a storm.

WW2 is OVER - On 14 Aug. 1945 Japan agreed to surrender. The formal surrender was signed on USS Missouri in Tokyo Bay on 2 Sept 1945 marking VJ Day and the end of World War Two.

First Hurricane Hunters - Newly commissioned VPB-114, Patrol-bombing squadron 114, based in Lajes, Azores in the summer of 1945 was tasked to carry out operations against the enemy but with a collateral assignment to observe and report weather conditions. VE Day left the squadron available for other duties and on 26 May 1945 it was transferred to the Commander Gulf Sea Frontier for "hurricane reconnaissance" to commence on 15 June 1945. On 31 May a 6 plane "det" was established at NAS Boca Chica, Key West FL. The first Aerologist to report for flying duty was LCDR Earl O'Dell USNR. In Nov, at the end of the hurricane season, the "det" rejoined their parent squadron at NAS Edenton, N.C.

Sad Ending for "Indy" - Repairs to Kamikaze damage completed, Indianapolis returned to the war zone, on a secret mission, carrying "fat boy", the Hiroshima atomic bomb to Tinian and "Enola Gay". At midnight on 31

July 1945, while enroute to Leyte, Indianapolis was hit by two torpedoes and sunk in about 8 minutes. Radiomen were unable to send distress calls and 883 men died. Newlywed Aerog 1/c Ed Alvey was not one of the 316 survivors.

The First Weather Recon Squadrons - Weather Reconnaissance squadron 114, VPW-1, was commissioned on 15 Nov 1945 at Camp Kearney, CA. VPW-2 was commissioned at the same base on 1 Dec 1945. An intensive training syllabus was completed using specially modified PB4Y-2M "Privateers". In February of 1946 Aerological officers were assigned to these squadrons and undertook an extensive ground school syllabus of instruction which included aerial navigation, radio communications, aircraft structures, aircraft engines, radar, ditching procedures and survival. The training was intended to qualify them as flight aerologists with full flight status similar to that of Electronic observers and navigators. VPW-3 was commissioned on 17 May 1946 and received aircraft from VPW-2. This was the first use of specially trained personnel and planes specifically equipped to perform this assignment. Aerologists initially assigned included LT R.W. Sanborn, LT E.B. Rinard, LT C.L. Riegger, ENS W.J. Remillard, ENS W.S. Tatlock and Caerm R.I. Taylor.

AG numbers decline as peace "breaks out" - At the time of the attack on Pearl Harbor there were 600 Aerographers mates. The period late in WW2 is recognized as the "high water mark" of the Naval Aerological Service with 6500 officers and men distributed around the world to approximately 1400 stations or units. Numbers subsided quickly after the war. On 16 July 1945 the monthly quota for sailors at the Aerographers mates school plunged from 64 to 12.

Duty in Siberia? - In Sept 1945 the U.S. Navy formed a cooperative meteorological network with the Soviet Union immediately after the war to support extensive mine sweeping operations. Sixty five enlisted personnel were assigned to the Weather Centrals at Khabarovsk and Petropavlovsk in Siberia. The arrangement was short lived and they returned Stateside after less than five months.

Bikini and The Bomb - On 1 July 1946 an atomic bomb was exploded by airburst at Bikini atoll. This was to be the first of many such tests for which Aerologists and Aerographers mates would provide environmental services.

Admiral Byrd in Antarctica...Again - On 29 Jan 1947, the Philippine Sea, CV-47, launched the first of 6 R4D "Gooney Birds" (ferried from Norfolk) from a position 660 miles off the coast of the Antarctic continent to Little America. CDR William Hawkes was the pilot and his famous passenger was RADM Richard E. Byrd

AGs arrive - The Aerographer's mate rating abbreviation, Aerm, was changed to AG by Circular Letter 106-48 on 9 June 1948. S 1/c, S 2/c and AS became AN, AA and AR.



AGs depart - On 15 April 1949 Fleet Weather Central Shanghai was disestablished as Chinese Communist forces took over the country. Personnel from Fleet Weather Central and the Kang Wan airfield joined Com Nav Wes Pac staff personnel and ship's company in USS Eldorado to make it one of the largest known groups of AGs on any ship. Captain Paul Droulihet USN, Com Nav Wes Pac Staff Aerologist was the senior Weatherman present. Capt Droulihet had relieved Capt Irwin Francis Byerly who had been the last CO of SACO. FWC Shanghai: CO CDR K.F. Lafferty, XO LCDR E.H. Potter, LT R.G Terwilliger, LTJG R.C. Parker,

WO Willard W. VanBuskirk, AGC Arthur "Red" Thomas (X-SACO), AG1s Marvin White and Jimmy Whittemore; AG2s Robert R. Collins, E.J. Freed, , L.M. Rodney Homan, Cal Marder and Don R.Wise; AG3s H.D Camp, B.F. Ellis, R.H. Houtalen, M.W. Thomas, J.R. Young, M.E. Pope, E.J. Ed Rousseau, "Willy" Thompson and J.V. Stice. Kang Wan Airfield: AG3s Frank Bailey, McCaffrey and Tarnow. ComNavWesPac staff and USS Eldorado crew: AGC Jack Tanner, AG2 Fred Farnsworth, AG3 Frank Baillie, AGANs Bill Willis and Leocaido Galang. Aerographers mates "took a number" in order to do weather work while enroute to Tsingtao.

MCAF Tsan Kou, just inland from Tsingtao, had already evacuated including the Weather unit with MSGTs Paul Bean, NCOinC & Ed Mitros, TSGT Bob Evans, SGTs Lee Rubenstein, Bert Kline, "Peevy" P.V. Gardner and Paul Black. AG3 Frank Baillie & AGAN Bill Willis were TAD to the Marines from the ComNavWesPac, now 7th Fleet, Staff to allow 24 hour watches.

"The Peace Dividend" - By 1949 Secretary of Defense, Louis A. Johnson, and the Truman administration had taken advantage of the "peace dividend" by cutting defense expenditures drastically. Ships & aircraft were idles late in the quarter when optar funds had been depleted. Weather men literally didn't know where their next pink pearl was coming from and personnel of some units brought toilet paper from home late in the fiscal year.



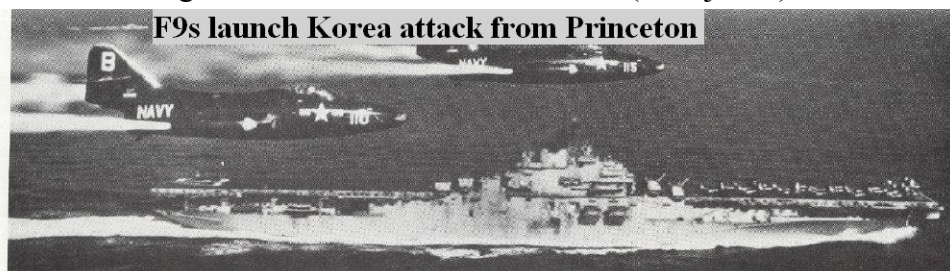
A CPO as Seventh Fleet Aerologist - AGC Joe Zaffino, fresh out of advanced AG "B" School, reported aboard the 7th Fleet Flag in Sangley Pt. P.I. as the Staff Aerologist. It was a billet normally assigned to a full Commander or even a "four striper" since it served the senior Naval officer in the western Pacific, in this case VADM Arthur D. Struble. Peacetime made for a "quiet, comfortable" tour and Joe was happy with an AG3 as his only assistant.

Korea goes to GQ - In the early morning hours of 25 June 1950, North Korean artillery announced the onset of hostilities and the cold war went white hot as North Korean troops poured across the 38th parallel. VADM Struble's Fleet consisted of his flagship, the cruiser Rochester, the cruiser Toledo, their only carrier, Valley Forge and eight destroyers. Navy weather broadcasts did not reach the Korean operating areas and a skimpy broadcast from the USAF weather central in Tokyo was Joe's major data source. Bad weather and or mountainous terrain could and would cut off or garble incoming data. Later Captain John Tatom would arrive in Tokyo to set up a Navy Weather Central. Despite his problems Chief Zaffino was able to produce reliable forecasts and the Admiral, whose wont was to rely on his own staff members above all others, depended on his output despite the presence of a LCDR in USS Valley Forge as the Task Force ranged up, down and around the Korean peninsula with air strikes and shore bombardments. There was no other forecaster aboard for consultation or relief which placed the heavy load squarely on Chief Joe Zaffino.

Korea escalates - In late June of 1950 President Truman authorized a blockade of North Korea and air strikes by American forces. The first combat test for AD attack a/c and F9F "Panther" jet fighters took place on 3 July 1950 in a strike on Pyong Yang N.K. LTJG L.H. Plog and ENS E.W. Brown's VF-51 "Panthers" shot down two Red YAK-9s. The "inactive" reserves were called to the colors.

Iffy Strike Weather - On 21 July 1950 a typhoon, just south of Japan's southern most islands, was moving north and posing a dilemma for Admiral Struble and a difficult forecast for Chief Zaffino whose force was in the Sea of Japan. They could run northeast to safety or make a fast night run into the Yellow Sea ahead of the storm launching strikes from the lee of Saishu To (Chedju Do) to hit North Korean armies which were rushing

to pinch off the remaining U.N. forces in the shrinking Pusan



F9F PANTHER JETS DUMP RESERVE FUEL BEFORE LANDING ON PRINCETON UPON RETURN FROM AIR STRIKE OVER KOREA 429191

perimeter.

A Momentous Decision - Admiral Struble gambled on AGC Zaffino's forecast and turned his force westward at high speed risking the only U.S. carrier in the theater to typhoon damage. HMS Triumph was active in the Yellow Sea. The forecast held and air strikes were successful. A thirty car munitions train, two key bridges and other targets were hit hard and served to halt the North Korean advance. Chief Zaffino continued as Staff Aerologist until a week after the Inchon invasion.

Reinforcements - On 22 July 1950 Badoeng Strait, CVE-116, arrived in Yokosuka, with the 1st MAW (Marine Air Wing). The buildup continued as Phillipine Sea, CV-47, reported to the 7th Fleet at Buckner Bay, Okinawa having made a speed run thru the Panama Canal to the Far East in May of 1950. "Phil Sea" crew members: CDR Robert Mottern, AGC Willie Duke Flournoy ("Jungle Jim" or "mad bomber" of SACO who blew up Japanese facilities during WW2 in China), AG1 Atwell and Stoy; AG3 M.S. "Bud" Scott and Bill Willis; Agan Murray, Bonetti and Graham. On the 3rd of Aug USS Sicily, CVE-118, arrived carrying VMF-118, a Marine fighter squadron.

Bronze Star for Joe Zaffino - In Sept 1950 the 7th Fleet Flag was shifted to USS Missouri and later in the month CDR Floyd Thompson and five AGs reported aboard to relive Joe Zaffino and his assistant. Joe would receive the Bronze Star for his efforts with accolades from SecNav Dan A. Kimball for his "ceaseless efforts" as Staff Aerologist U.S. Seventh Fleet.

An End Run to Inchon - The Joint Typhoon Weather Central predicted a typhoon directly in the track of the Inchon invasion force. The supply "train" ships had turned back for cover. Radm "Doby" Doyle, affectionately called "Father" by staff members, called his Aerologist, Lcdr "Chuck" ("Red") Barron to his stateroom at two AM. "Stormy. What the hell are we going to do?" was the question. "Chuck" was an old hurricane hunter with a good handle on the vagaries of tropical storms and his advice was to continue on the planned course which he forecast to be rough but on the edge of the system. The train turned to join the fleet and USS Mt McKinley, carrying General MacArthur and his staff, continued to Inchon. As the Task Force neared their landing site on 15 Sept 1950 a night pibal managed to wrap itself around an antenna. A Marine sharpshooter was called out immediately in a vain attempt to shoot out the tiny bulb. Two supporting carriers struck the objective and supply routes to it on 12 Sept. Escort carriers joined the fray on D-Day Minus One and the Boxer arrived on D-day. Battleships and LSMRs (rocket launchers) poured a withering fire into Wolmi Do Island before elements of the First Marine Division hit the beach. Mt McKinley crew member, AG2 Merlin Watts, would later describe watching 16" rounds sail over head on their trajectory to Wolmi Do island. He would later serve as an Army WO3 helo pilot with two tours in Viet Nam surviving at least one shoot down only to meet his Maker while training students at Fort Rucker, AL in the late 1960s.

On the next high tide a second landing was made on the Inchon mainland. One interesting sidelight of the operation was the huge tidal fluctuation in the Inchon area. An LST was slow in a move to deeper water and was left high and dry in the mud. Staff Aerologist and Asst. Intelligence Officer, LCDR Chuck "Red" Barron, was awarded the Bronze star for his part in the invasion.

Fighter Pilots of Korean War - On 9 Nov 1950 LCDR W.T. Amen flying an VF-111 "Panther" downed a MIG-17 to become the first Naval aviator to shoot down a jet a/c. On 11 July 1953 Major John F. Bolt USMC downed his fifth and sixth MIGs, while operating with the 5th AF in Korea, becoming the first Naval Aviator to attain five victories in jet aerial combat.

Korean Air War - In comparison to the forces engaged in WW2, Korea was a much smaller war. At no time were more than four carriers engaged at one time. In three years of war, Navy and Marine a/c flew 276,000 combat sorties, dropped 177,000 tons of bombs and expended 272,000 rockets. These figures are within 7000 sorties of WW2 totals in ALL THEATERS. They exceeded bomb tonnage by 74,000 tons and the number of rockets by 60,000. The fact that the useful load capacity of the AD-4, "Skyraider" (affectionately called the



Spad,) exceeded the gross weight of the airplane helped in this regard. The AD was affectionately called the "SPAD" (taken from the WW1 French fighter) by attack pilots and, in the early days of its service life, "Ensign killer" due to the high torque levels produced by the powerful engine which would produce a roll at inopportune moments for the unwary. During WW2 Navy and Marine air flew 10% of all combat sorties while those figures climbed to 30% during Korea.

Birth of OP-38 - The 1950s were a decade of change and acknowledgement for the entire weather community. In 1957 the Naval Aerology Branch, Op-533, was given status as the Naval Weather Service Division OP-58. Two years later the division was moved out of the department's air section and into fleet operations and readiness as a reflection of the NWS's broadening scope of responsibility and the increasing importance of weather information to naval operations. During 1950 the U.S. Navy sponsored the first computer generated weather forecast.

Hurricane Hunters - On 15 Nov 1952 VJ-2, the Hurricane Hunters, is established for weather reconnaissance and specifically for Hurricane location and tracking.

Visibility Obs improve at Alameda - On 21 January 1954 Fleet Weather Central Alameda obtained an M-7 range finder from the Army on loan. It was installed by AGC Emil V. Beer and utilized to improve the estimates of visibility at NAS Alameda.

Cold War Heats Up - Whatever fragile thread of US-Soviet camaraderie remained snapped completely a few years later when Soviet planes fired on a P2V Neptune patrol aircraft of VP-6 during a routine mission over international waters near Siberia on 6 Nov 1951. All crewmen were listed as lost and presumed dead.

Bergy Bits and Growlers - The Navy Ice observation program began in 1951 when DOD civilians set up an Ice Central in the Hydrographic Office. In the two years following Hydrographic office personnel, in conjunction with Canadian researchers flew out of Kodiak, AK using a/c of the resident Patrol squadron "Det" and Lancasters of the RCAF.

Ice Observers Matriculate - On 24 March 1954 the first two month Ice Observer class at the Hydrographic office graduated. LT A.J. Tait graduated with honors. AG1 L.L. Martin graduated with second honors. Class members were: Moises R. Gonzalez AG2, James D. O'Connor AG2, Kenneth S. Colaw AG1, Robert F. Ryan AGC, Richard P. Scherpf AG2, William A. Dotson AG1, Loren T. Cope AG1, William A. Conlon AG1, John G. Rodriguez AG1, Dudley E. Boatman AG1, Carl R. Remscheid AG1, James W. Scruggs AG1 and Arlen B. Jensen AG1.

On 8 April 1954 a PB4Y-2B, "Privateer" (single tail version of the WW2 B24 "Liberator") departed Argentina, Newfoundland on what is believed to be the first Navy ice observation flight. AGC Ret (then AG1) John Rodriguez was the air crewman ice observer. Two flights were scheduled for 16 April. AG1 L.L. Martin

switched assignments with Rodriguez in order to fly with a good friend. All hands were lost on Petty Officer Martin's flight which crashed at Paget Pt. Ellesmere Island, Northwest Territory, Canada. Eleven years later another member of that first Ice Observer class 5401, LT "Willy" Dotson, was killed when an ice observation flight went down in Alaska. In later years the number of ice observers diminished as more expertise was gained using satellite imagery.

A Look at Computers - In 1954 the Navy, Air Force and Weather Bureau formed the Joint Numerical Weather Prediction Group at Suitland MD to look into the feasibility of computerized predictions.

Robot Observers - On 11 Oct 1955. Automatic meteorological stations, developed by the ONR, Office of Naval Research and BuAer, the Bureau of Aeronautics were set adrift in the hurricane "Ilanes" north of Puerto Rico and provided continuous weather data on Tropical Storm Janet.

South Pole Revisited - On 31 Oct 1956 an R4D "Skytrain" ("Gooney bird") touched down at the South Pole. The 7 Navy men on board, including RADM, G.J. Dufek USN, Com Nav Sup For Antarctica, who alit to be the first persons standing on that spot since Captain Robert Scott in January of 1912. During their 49 minute stay they installed navigation aids and scientific observation equipment.

Naval Weather Service...Arriving - The Naval Aerological Service became the Naval Weather Service in 1950.

Up, Up and Away - A Navy strato-lab balloon manned by LCDRs Malcom D. Ross and M.L. Lewis bettered the existing world altitude record by soaring to 76,000 feet over the Black Hills of South Dakota on a flight designed to gather meteorological, cosmic ray and other scientific data necessary to improve safety at high altitudes. The men were awarded the 1957 Harmon International trophy for Aeronauts. On 27 June 1957 LCDR Malcolm D. Ross and Charles B. Moore of the Arthur D. Little Co. successfully completed a balloon flight into a towering cumulus cloud over Mt. Washington in Socorro, N.M. to further thunderstorm research. The flight was under the auspices of the ONR and BuAer.

Trans-Pacific Balloons - On 30 June 1957 the first transosonde balloon was released from NAS Iwakuni, Japan. It was set to float at 30,000 feet carrying instruments to record pressure and temperature every two hours with a terminal point just short of the European coast.

MOETLOs Named - On 6 March 1958 Officers involved in the installation, test and repair of meteorological and oceanographic equipment are formally designated as MOETLOs, short for Meteorological and Oceanographic Equipments and Technical Liaison Officers.

Lebanon Landing - On 15 July 1958 USS Saratoga, CVA-60, and USS Essex, CVA-9, provide air support for the landing of 1800 Marines in Lebanon responding to the Suez crisis. Essex crew members: LT Thomas T. Davenport, AGC Vernon E. Riggal, AG2 Richard Fitterling, AG3s Charles W. McClain, John R. Hilderman, R. Franklin and Gary Miller; and AGANs Harold E. Slingerland, Robert W. Sanaom, Paul W. Sansom, Bruce J. Rubins, Thomas F. Williams, Donald E. Clark and George E. Soderberg.

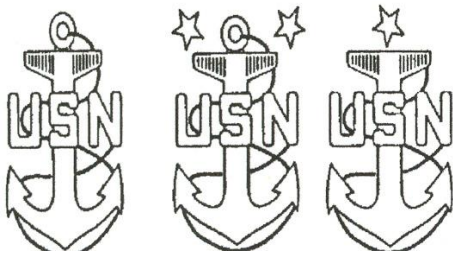
Sea water temps - The first bathymetric swath system is employed in 1958.

Cloud Creation and Destruction - From 23 to 31 July 1958 Dr. Florence Van Straten of the Naval Weather Service Division, OP-58, directed tests off the Florida coast to examine the feasibility of creating and/or

destroying clouds with the use of air dropped carbon black. VW-4, CDR Nicholas Brango Commanding, was the vehicle for her test.

Computers rear their heads - In October 1958 NANWEP, Navy Numerical Problems Group was formed in Washington, D.C. to focus on marine weather prediction in support of naval operations. Captain Paul M. Wolff, chairman.

Navy Meteorologists - On 10 Oct 1958 the terms "aerology" and "aerological officer" were replaced with "meteorology" and Meteorological officer" as directed by the Secretary of the Navy. Aerographer's mates retained their name and their rating abbreviation of AG.



Super CPOs - A 1958 Amendment to the career compensation act of 1949 created two new senior enlisted paygrades for all U.S. military services effective 1 June 1958. E8 eligibility required at least 10 years service. E9 applicants were required to have 6 years service as CPOs and 13 years total service. The Navy created 922 senior chief petty officers (E8) "one star CPOs" and 149 master chief petty officers (E9) "two star CPOs" on 16 Nov 1958. Among them was the late Lee O'Rork who was our first Master Chief Aerographer's Mate. (Data from the office of the Master Chief of the

Navy a "THREE star CPO").

Optimum Ship Routing - On 25 Aug 1958 the mission of Fleet Weather Facility Alameda was expanded to include a new service called OTSR or Optimum Ship Routing which provides recommendations for minimum time, minimum fuel consumption routes for the U.S. Navy and other selected vessels.

Computing Moves West - NANWEP moved to NPGS, the Naval Post Graduate school in 1959 and in the following year struck a bargain with the school to utilize the CDC -1604 computer at night in return for assuming maintenance responsibility for the unit.

An Eye in the Sky - On 13 Oct 1959 the U.S. placed its first dedicated meteorological satellite into orbit, Explorer VII was intended for research and development only. Experiments conducted included an infra-red radiometer to test feasibility of its use in detecting meteorological phenomena. With the emergence of the U.S. space program and its subsequent growth into the 1960s, the Navy's weather community was aided by imagery relayed to Earth via meteorological satellites. Development in this area would later cause a stand-down of Hurricane Reconnaissance squadrons and a cut back in the Ice Observation program.

We Are Transferred - On 15 January 1960 the Naval Weather Service Division was transferred from the office of the DCNO (Operations and Readiness) to the staff of the Vice CNO and an office of the U.S. Naval Weather Service was set up as a field activity under the management control of the CNO.

Another eye in the SKY - On 1 April 1960 Tiros I is launched from Cape Canaveral. Although it went out of operation in only two months it did prove our ability to use satellite imagery as an operational tool.

Computer Interface - In July of 1960 NANWEP made its first computer to computer data transmission to the Pacific Missile Test Center.

Fleet Numbers Debut - In February of 1961 NANWEP was re-designated as FNWF, Fleet Numerical Weather

Facility, Captain Paul M. Wolff, Commanding. He would remain in this post for eleven years in what must be a record for longevity in a post for the Oceanographic and Meteorological service. In August of that year FNWF purchased its own CDC-1604 computer

The following quote from "America's Weather Warriors" captures the growth and reasons for growth in military numerical prediction programs. "Numerical weather prediction specialists learned their trade during the 1950s and by the mid-1960s began to dominate forecasting in the Air Force and in the Navy. This shift was based on five factors: the computer industry changed almost overnight from analog to digital sending, transmission, processing, plotting and storage of numerical data; digital data could be transmitted at megabit, millions of bits, per minute, and even globally via communication satellites; improvements in mid latitude weather predictions required expanded geographic coverage; meteorological satellites could fill in global weather gaps, and electronic computers had improved by a factor of 200 between 1955 and 1965".

Bye Bye Blimps - On 31 Oct 1961 Patrol Squadrons ZP-1 and ZP-3 of Fleet Airship Wing One, the last LTA , lighter than air, units were decommissioned.

45 Years of LTA - On 31 Aug 1962 The final flight of a Navy airship marked the end of service for two blimps kept on to conduct various experiments. VADM Charles E. Rosendahl USN Ret, an LTA pioneer and ardent advocate was among the passengers. LTA men came from all parts of the country to observe and to lend a hand in this final docking of a Navy airship.

Cuban Quarantine - On 24 Oct 1962 USS Enterprise (CVAN-65), USS Independence (CVA-62), USS Randolph (CVS-15) and USS Essex (CVS-9) got underway to establish a "Quarantine" of the island of Cuba as directed by the President of the United States. Service tours of officers and men were extended indefinitely. On 20 Nov the quarantine was disestablished and fleet units resumed normal operations. The tour extension order was cancelled.

Tropical Twins - On 29 Oct 1962 a V-1 a/c set a record by holding Typhoons Gilda and Ivy on their radar at one time. In August of 1963 a CDC- 160A was installed at FleWeaCen Pearl Harbor marking the beginning of the Naval Environmental Data Network.

Karen Hits Guam - In Nov of 1962 weathermen of FWC/JTWC, Fleet Weather Central-Joint Typhoon Warning Center, looked at their charts and saw a tropical system with a huge closed isobar pattern which covering the area from the Phillippines to the International Date Line and from a point near the Aleutians south to the equator. Enormous! As it neared Guam, wind speeds of 185 knots with gusts to 220 knots, were found near the center. Micro-barograph charts had to be changed twice to show the precipitous drop in pressure. FWC anemometer cups blew away from their mast at 90 knots gusting to 120 as flying debris flew thru the air and structural damage to buildings mounted. It was estimated that sustained winds reached 155 or 160 knots. In the dependant housing area air conditioning units blew out of the windows as a result of inside-outside pressure differential in buildings closed against the storm. Wind driven rains put several feet of water in lower levels of the FWC building. After damage control efforts FWC personnel sanitized classified vault spaces and took shelter there. Damage to the building put FWC out of action for several days. Damage to dependent housing and other considerations sent many dependents to CONUS (continental limits of USA). Other later storms were even more destructive what with many more buildings on the island. In the case of slow moving Typhoon Dot there was destructive wind over a longer period so that duration of high wind weakened and then destroyed structures. Karen, nevertheless, was a storm to remember.

NEDN Established - The first dedicated Navy weather communications system, NEDN (Naval Environmental Data Network) is established allowing dissemination of FNWF products to major Naval Weather Service activities.

The View from Space - On 21 Sept 1963 USS Saratoga, CVA-60, commenced an operational test by receiving satellite data while in-port. Tests continued thru Sept in port and at sea.

Ice Breakers "Down South" - USS Burton Island took an integral part in Deep Freeze 64. She broke open supply channels to McMurdo Sound Station and to Hallett Station and acted as an escort while breaking a path for cargo and fuel re-supply ships. She was required to take supply vessels in tow some 14 times during escort duty through the dangerous ice. Fueling, cargo handling, diving and helicopter operations also came under her purview. Crew members were: AG1 Bill Willis, AG3 L. Ramsayer and W. Norman; AGAN D. Tattum.

Alaskan "Good Friday" Earthquake - On 27 Mar 1964 FWC Kodiak experienced a destructive, "moderate sized" earthquake which registered an 8.4 on the Richter scale in Anchorage. Disruption of power and communications was experienced and FWC was forced to turn over forecast responsibilities to FWC Alameda for about 24 hours. 131 Alaskans lost their lives in this shaker. There were a series of 15 seismic waves over a 24 hour period the highest of which was 18.7 feet above mean low water and which penetrated to the second deck of the new upper air shack and over the ceilometer and transmissometer. Clean up began immediately and Salisbury Sound, AV-13 was deployed to provide power and repairs to the base.

Gulf of Tonkin Incident - On 2 Aug 1964 North Vietnamese Torpedo boats attacked the American destroyer Maddox in the Gulf of Tonkin in international waters. They were driven off by ship's gunfire, strafing and rocket attacks by aircraft from USS Ticonderoga. Three days later aircraft from USS Constellation and Ticonderoga staged retaliatory raids on 5 torpedo boat bases along the Vietnamese coast. Twenty five boats were sunk or damaged and fuel and storage buildings destroyed.

On 7 Feb 1965 in response to Viet Cong attacks in the Pleiku area aircraft from USS Ranger, Coral Sea and Hancock hit military barracks and staging areas near Don Hoi in Southern Viet Nam. Hancock OA Div. Personnel: LCDR B.W. Hallen, LTJG C.E. Barton, ENS H.P. Schaeffer, AGC F.M. Patrick, AG1 E.K. Bell and J.M. Lantagne; AG2 F.E. Kimball, AG3s R.H. Weaver, K. Blair, J.L. Phillips, C.H. Williams, T.J. Clemmer and AGANs J.W. Powell and R.A. Brooks. LDO LT "Ron" Picard USN, stationed at the new combined services weather school at Keesler AFB MS, was then an ABH2 working the flight deck, hanger deck and as a COD crew member while on his first cruise before broken service. Hancock's XO, CDR Herbert S. Mathews, made a record of sorts by flying combat missions in Viet Nam having flown fifty combat missions from England during WW2 and over Korea from USS Midway

On 8 Mar 1965 3500 Marines land without opposition at Danang in northern South Viet Nam with a helicopter squadron and support units. On 15 April 1965 7th Fleet aircraft commenced operations on Dixie Station of the coast of South Viet Nam in support of ground action in the south. On 12 May 1965 1400 3rd BN 3rd Marines landed at Chu Lai from USS Iwo Jima (LPH-22), an APA and an LSD (landing ship dock). On 1 June 1965 The Marine Corps expeditionary airfield at Chu Lai became operational as the first combat aircraft arrived and the first combat missions took off on strikes. On 17 June 1965 CDR L.C. Page and LT J.E.D. Batson flying VF-21 F-4Bs from USS Midway intercepted four MIG-17s shooting down one each to become the first Naval aviators to score air victories in Viet Nam. In Sept of 1965 elements of the First Cavalry Division with helicopters and light observation aircraft landed at Qui Non, South Viet Nam from USS Boxer which had carried them from Mayport FL via the Suez Canal.

Nam Duty - CDR Fred Martin USN, now CO Western Oceanographic Center Pearl Harbor HI, then LT, was

stationed at Danang in the late 1960s making surf and swell forecasts for a variety of activities. Individual Aerographers Mates made surf and swell observations at beaches such as Cua Viet, Tan My, Chu Lai and Cam Ranh Bay.

OASU Established - On 1 July 1965 the Navy's first Oceanographic Air Survey Unit, OASU, is established at NAS Patuxent River, MD. Tasks include aerial ice reconnaissance in the north Atlantic and polar regions and Operation Magnet which is concerned with world wide magnetic data observation and collection. In 1965 and 1966 FleWeaCens Norfolk, Guam and Rota installed CDC 3100 computers to become part of NEDN, Naval Environmental Data Network while FNWF upgraded their plant and hardware.

Upper Winds Critical - Fuel and ordnance loading for aircraft are determined by the wind factor but other factors make such forecasts critical. Oriskany Meteorologist (from 1966-1967) then CDR Conley R. "Dick" Ward put it this way; "One of the most critical forecasts I had to make was where the carrier should be at the start of its 12-hour period of flight operations and how strong the winds would be. Lots of wind translated into larger ordnance and/or fuel loads, or if the load remained constant, the carrier would require less speed thru the water. In such an instance, you might operate with six or less of the ship's eight boilers on the line. This was extremely valuable to the ship's maintenance force (Oriskany was 23 years old), for work could only be done in the boilers after 12 hours of cooling. Capt. Ward would become the Director of Naval Oceanography and Meteorology in another ten years.

First Master CPO of the Navy Named - On 13 Jan 1967 Master Chief Gunners Mate Delbert Black, a decorated WW2 veteran and Pearl Harbor survivor, became the Navy's first senior enlisted advisor.

First attacks in North Viet Nam - On 24 April 1967 7th Fleet aircraft from USS Kitty Hawk on Yankee Station in the Gulf of Tonkin made their first attacks on MIG bases in North Viet Nam.

A Step Up - The Office of the Naval Weather Service became Naval Weather Service Command, a "major claimant command", on 1 July 1967 and its missions modified to insure fulfillment of Navy meteorological requirements and Department of Defense requirements for oceanographic analyses; and to provide technical guidance in meteorological matters. On the same date the Naval Weather Service Division, OP-09B7, was disestablished and its functions assigned to the new command. There were approximately 1500 men and women in the rating in July of 1967.

Forrestal Fire - On 29 July 1967 USS Forrestal barely avoided total destruction in a shipboard inferno. Fires and explosions broke out aft during aircraft refueling and spread to the hanger decks. Casualties mounted to 134 dead and 62 injured. A berthing space aft occupied only two weeks prior by OA division Aerographers was devastated. Nearly everyone in the space was killed by exploding ordnance. Films later showed that a fully loaded aerial tanker located at a fueling station directly above the weather office was barely missed by rockets which "cooked off" during the fire. Senator, then CDR aviator, John McCain the noted former POW, was a member of the Air Group regularly briefed by Forrestal forecasters. Weather Office personnel included: (then) LT "Frenchy" Corbeille, (then) AGC Fred Baillie, AG1 Don Stetler and Dave Dunlap; AG2 Bill Blankenship, Dan Ford, H.A. Kelly, W.E. Ranft and George McMullin; AG3 R.M. Fleming; AGAN P.M. Almas, G.P. Carns, Dave Christensen, J.I. Davis, H.F. Groves, B.D. Henrich, Bill Hudson, M. Labatos, M.J. Smith, J.R. Spinella, J.M. Winchell and C.H. right.



"Fleet Numbers" is born - In May of 1968 FNWF was redesignated as the Fleet Numerical Weather Central, FleNumWeaCen. During that same year 10 to 30 day long range forecast guidance commenced based on analog techniques.

New Regs - On 1 July 1968 precedence of sailors by ratings is eliminated, so that paygrade and time in grade become the single means for determining the level of authority. The term "Leading Chief" now set the most senior chiefs above their peers. Congress had approved "new" Navy Regulations in 1863 which decreed the deck skills of Boatswain, gunner and quartermaster to have precedence unless otherwise directed by a CO.

Ooops - On 25 Oct 1968 V-1 a/c, WC-121-N, lost a starboard wing tip tank while penetrating tropical storm Judy. The a/c returned to Guam and made an uneventful landing.

NEL "Barn" is a park - On 6 Nov 1968 the NAS Lakehurst, N.J. lighter than air hanger was designated a National Historic Landmark by the National Park Service of the Department of the Interior.

"Birdseye" views - In March of 1969 Oceanic Development Squadron Eight, VXN-8, commenced gathering ice floe information for SS Manhattan during her historic voyage from the east coast thru the ice packed northwest passage to Alaska as part of Project Birdseye, the Arctic Ice Survey Mission.

ComNavWeaServ is a RADM - On 30 June 1969 Commander Naval Weather Service, Captain William Kotsch USN, was promoted to RearAdmiral USN. Weathermen had their first Admiral. His stay in weather from that point was to be a short one in that he was transferred within six months and assigned as Deputy Director for Operations, Joint Chiefs of Staff. The late Admiral Kotsch felt that his forecasts for "Operation

Ivy", the first hydrogen bomb test, were one of the most memorable parts of a memorable career in the weather-oceanographic service. RADM Kotsch retired on 1 July 1975.

Weather, the 2nd enemy in Viet Nam - In late Oct 1970 Typhoon Kate caused widespread damage and flooding over South Viet Nam.

"Rickover of Navy Computers" is Relieved - On 15 Nov 1970 Captain W.S. "Sam" Houston relieved Captain Paul M. Wolff, who could appropriately be called the Father of Environmental Computing in the Navy, after an eleven year tenure.

Nam air ops - On 21 and 22 Nov 1970, 200 Navy and Marine aircraft from USS Hancock, Ranger and Oriskany conduct protective reaction strikes south of the 19th parallel.

Rainmakers - On 17 February 1971 the pyrotechnic seeding device, WMU-1/B was approved for service use by the Weapons Systems Safety Review Board. The Unit consists of a silver iodide (catalyst) generator which became the first weather modification unit released for production and general use by the Navy. Later in 1971 the device was used to enhance rainfall over the island of Okinawa and served to replenish the island's water reserves.

Typhoon Hunters Call it a Day - On 1 July 1971 Airborne Early Warning Squadron One which was tasked with providing the western Pacific with weather reconnaissance, including tropical cyclone detection is disestablished.

"Fleet Numbers" does OTSR - In Aug of 1971 FleNumWeaCen assumed responsibility for OTSR, Optimum Ship Routing, from FleWeaCen Alameda. In Sept of the same year the NHPE, Northern Hemisphere Primitive Equation model became operational at FNWF.

It Never Rains in Southern California - In July of 1972 V-4 had conducted seeding operations in the Azores in an effort to relieve a severe water shortage. During early Feb 1973 V-4 aircraft participate in the Santa Barbara Project, a successful cloud seeding project in California.

Viet Nam Wind-Up - On 27 Jan 1973 the Viet Nam cease fire took effect. The final U.S. force departed on 29 Mar 1973 marking the last phase of Operation Homecoming when the final group of 148 POWs, were released by Hanoi. In all, 591 POWs were released. 566 were American and 144 were Navy pilots and crewmen.

You've come a Long Way, Baby! - On 22 February 1974 LTJG Barbara Ann Allen became the Navy's first designated female naval aviator when she received her wings of gold at a ceremony at NAS Corpus Christi TX.

Computers have another new job - The Spectral Ocean wave model became operational at FNWC in 1974.

Satellites replace Hurricane Hunters - On 30 April 1975 the Naval Weather Service bid farewell to the dauntless Hurricane Hunters of Weather Reconnaissance Squadron Four after 30 year's service. Satellite imagery took the place of their eye penetrating endeavors. V-4 was a major contributor to meteorological science and oceanographic research in cooperation with the National Weather Service and the Naval Weather Service.

Champ Storm Chaser - Of all the hunters in V-4's illustrious 30 year history, AGCM Robert F. Frazier topped

the list in flight time with (2447.9 total hours), with combat missions (91) and with one hundred eleven tropical storm penetrations.

Sailors in new uniforms (briefly) - On 30 June 1975 The traditional uniform of sailors was declared obsolete and temporarily replaced by a uniform similar to that of officers and CPOs.

NWSA Reunion Inaugural - On 15 and 16 August 1975 the Aerographer's Mates school at NAS Lakehurst NJ hosted the first annual NWSA, Naval Weather Service Association reunion.

A New Title - On 18 Feb 1976 Commander Naval Weather Service Command, Captain Conley R. "Dick" Ward USN, was redesignated Director, Naval Oceanography and Meteorology by OPNAVNOTE 5450 Ser 09B33/553022 as an echelon three command under the Oceanographer of the Navy.

Eye in the sky stuff - In April 1976 CDC Cyber 170/175, Satellite Processing Center, was installed at FNOC.

Bye-Bye Brown Shoes and Aviation Greens - On 30 June 1976 a naval aviation tradition came to an end when the forestry green winter flying uniform and brown shoes were stricken from the Officer's-CPO's sea bags. Greens distinguished "brown shoe" aviation personnel from "black shoe" surface or "bubble head" submariners.

An Air-Ocean Merger - Perhaps the greatest change of all was the realignment and consolidation of the Navy's meteorology and oceanography communities. The initial step was the establishment of the Director, Naval Oceanography and Meteorology in 1976. At this time the Navy's geophysical and oceanographic program moved to its present site at what is now the Stennis Space Center in Mississippi. The two sections were fully integrated two years later with the creation of the modern Naval Oceanography Command, CNOC.

A Matter of Semantics - The most immediate changes were those in vocabulary. Just as "meteorology" had replaced "aerology" in the naval lexicon some 20 years earlier, "oceanography" now became the term of choice when referring to the Navy's environmental sciences. Geophysics officers became oceanographers. Once more the aerographer's mates were spared a name change although there was some debate on the issue in the mid 1980s. AGs who came into existence to support the aviation community, now found themselves producing analyses, forecasts, satellite interpretations, acoustic predictions and other services once the usual domain of officers. While some felt that the term "geophysics technician" was a more professional and descriptive term for the modern AG others stubbornly clung to tradition. Tradition won.

The changes of the mid thru late 1970s can be shown by the job descriptions of AGCM "Ron" Palmer who was the last Master Chief of the Naval Weather Service Command, the first and last Master Chief of DNOM, Director Naval Oceanography, and the first Master Chief of CNOC, Commander Naval Oceanographic Command. During this same period, and extending into the 1980s, the numerical prediction community was endangered and at one point an attempt was made to remove the subject from the curriculum of the NPS, Naval Post Graduate School.

And All the Ships at Sea - The automated Product Request System became operational during 1976 allowing ships at sea to request and receive FNWC products via AUTODIN.

Inter-Service Togetherness - Navy, Marine Corps and Air Force weather training was consolidated and co-located at Chanute AFB in Rantoul, IL as a cost cutting measure in 1977. Consolidated forecasting courses

began on 1 Feb 1978. Under the new consolidation, students from all services entered jointly staffed basic meteorology-forecasting courses but then separated for their service-unique instruction after a few months. Chanute AFB was selected as the consolidated weather training site due to the relatively inexpensive cost of facility construction and the need for installation of a radar tower. The cost was \$89,000 for Chanute where Lakehurst was said to require an outlay of \$7,700,000.

Satellite Pix on the air - In the late 1970s FNWC commenced operational processing of satellite imagery via the DMSP system and distribution along with numerical products.

New Names to remember - On 1 Sept 1979 the title Director Naval Oceanography and Meteorology was changed to Commander Naval Oceanography Command. Fleet Weather Centrals became Oceanography Centers. FWC Norfolk became Naval Eastern Oceanography Center Norfolk. FWC Pearl Harbor became Naval Western Oceanography Center and FWF Suitland the Naval Polar Oceanography Center. FWCs Rota and Guam became Naval Oceanography Command Centers. Naval Weather Service Facilities became Naval Oceanographic Command Facilities or NOCFs. Detachments were renamed Naval Oceanography Command Detachments or NOCDs. The command mission remained the same.

OTSR spreads - In Oct 1980 OPARS, Optimum Aircraft Routing System became operational at 6 forecast sites for 4 aircraft types. By 1986 it would have expanded to 130 sites and 76 aircraft types. In Aug 1982 OTSR, Optimum Track Ship Routing, was shifted to Naval Western Oceanography Center Pearl Harbor.

NOGAPS On Line - On 3 Aug 1982 NOGAPS, Navy Operational Global Atmospheric Prediction System, began full operation on the computers of FNOC, Fleet Numerical Oceanography Center, Monterey, CA. NOGAPS replaced the Navy's earlier PE (primitive equation) system.

Lebanon...Again - Elements of BLT 2/8, Battalion Landing Team, from USS Guam (LPH-9) along with British, French and Italian forces landed in Lebanon on 25 Aug 1982 to provide separation between rival Moslem and Christian forces. USS Forrestal (CV-59), USS Independence (CV-62) and USS Dwight D. Eisenhower (CV-69) provided CAP (Combat Air Patrol). Guam crewmen: LT Peter Furze, AGC Shirl Smith, AG1 (AW) Richard W. Courtney, AG3s Larry Pratt, James Stewart, David Kinnaird, Edward Kidder, Ronald Humphries, and James Price.

Grenada - On 25 Oct 1983 Operation Urgent Fury is underway. Elements of the 2nd battalion, 8th Marines attached to the 22nd Marine Amphibious Unit invade the island of Grenada to prevent a Communist take-over. USS Guam, LPH-9, and USS Independence, CV-62 participated. Guam weathermen: LT Jeff Gledhill, AGC (AW) "Rich" Courtney, AG1 Wayne Edwards, AG2 Eric Buehl and Jim Stewart; AG3 Ken Nichols and Steve Livesay and AGAN Mike Varick. Independence weathermen are: LCDR Dale Leichty, ENS Lewis B. Gilpin, AGCs Barry Eisner and Ken Barnett, AG1s Mario Delgado-Medina, Gene Crain and Richard Gillingham; AG2s Robert Carlson and Andrew Lawhorn, AG3s James Beill, Gary Carpenter, Randy Culver, M. Darby, Kenneth French, James Guarnaccia, T. Harvey, Guy Lombardo, Roy Smalley and B. Wallace; AN Samuel Smith and AGAA Donald Weed.

World wide sea temps - The first digital bathymetric chart of the world was produced. in 1984.

The Matthew Fontaine Maury Oceanographic Library was dedicated in 1986.

Fortran Spoken Here - In June of 1986 ANSI Fortran was adopted as FNOCs standard programming

language. In April of 1987 Active/Passive RAYMODE ocean model was operational.

Sub-Regional Forecasting - On 1 May 1987 CNOC, Commander Naval Oceanography Command, instituted the Sub-Regional Forecast concept in anticipation of manning shortfalls and cutbacks by the CNO. Where it is possible forecast responsibilities are condensed during times of low work load, AG manning is cut back and billets are opened up for the AW, ST, and QM ratings. Twelve Dets are to be manned by TARs.

Computers do Ice - In Sept 1987 the Arctic Basin Polar Ice Prediction system model, PIPS, is operational.

The Last Warrant Officer - On 2 May 1988 AGC (AW) Richard W. Courtney was promoted to CWO2. He was the last person selected and promoted under the Chief Warrant Officer Program for Aerographers Mates. Future aspirants will be promoted under the LDO program.

Computers do seas - In July 1988 the hemispheric ocean model, OTIS, became operational.

NAVWINDS and More Computers - On 15 Sept 1988 NOCD Pensacola was the first CNOC unit to go operational with NAVWINDS. The system utilizes a Z-248 computer and a software program written by AGCM David Wenzelberger to transmit flight weather briefing information to remote sites. Also in Sept FNOC commenced transmitting Oceanographic/ Meteorological data to afloat units via the JOTS system.

Time Marches On - On 29 April, 1993 the new combined services weather school was dedicated at Keesler AFB MS by CNOC RADM J. E. Chubb and Keesler AFB Commander MajGen Clark Griffith USAF. For all practical purposes the forecasting part of the school had been operating since Dec. 1992 in their, as yet unnamed, 7.8 million dollar building. The final Chanute AFB observers class graduated on 5 May 1993 at which time the remainder of school personnel moved south. Cutbacks find only 5 students in satellites, 4 in tropical weather and 4 in current weather techniques. Observer and forecaster classes have about twelve students each with 3 or 4 students being sailors or marines. Modern technology has overtaken the "old style" weather business. Maps have been plotted and analyzed by computers for over 20 years. A vast array of forecast charts are now produced in the twinkling of an eye. It is no longer necessary to teach radiosonde soundings since it has become a one man operation in which the observer merely launches the 100 gram balloon and returns to other duties while the computer takes over, doing the computations, plotting and analyzing a Skew-T and preparing a coded message for transmission within a few minutes of balloon burst. There have been many other changes but you get the idea. They still need the trained AG to oversee the operation so we aren't out of business yet although post cold war cut backs by the Clinton administration will likely reduce AG manning levels.

The Desert Storm performance of AGs testified to the fact that they are more essential to the success of naval warfare than ever. Here's to another seventy three years....and many, many more.

Frank Baillie LT USN Ret, NWSA member, Northwest Chapter of NWSA

SOURCES - The 1991 CNOC NEWS AG history article by Cathy Willis was the starting point which became this mini-history & a part of the 1993 NWSA reunion booklet. It includes a heavy dose of Rich Courtney's NWSA weather service Chronology & Historical Data was lifted liberally from the NavAer Pub "U. S. Naval Aviation 1910-1980". "America's Weather Warriors" by Charles Bates and John F. Fuller may have included more AF data than Navy but was also a very good source. The CNOC NEWS-PAO Staff were generous with advice, with copies of previous articles, current publications and even some vintage photographs. A bundle of xeroxed pages of the book "Rice Paddy Navy" from Capt "Roby" Robinson via Bill Willis were a big help as was Cathy Willis's CNOC NEWS article on the same subject. There were many others who helped among our

NWSA shipmates but are too numerous to list here. Frank Baillie

I had other material, Fleet Weather Central in Russia etc etc, but insufficient time to include it.