

# AIR WEATHER SERVICE

1937-1977

AN ILLUSTRATED CHRONOLOGY



A I R W E A T H E R S E R V I C E

1937 - 1977

A N I L L U S T R A T E D C H R O N O L O G Y

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*The "father" of Air Weather Service, Capt Randolph P. "Pinkie" Williams (right) in balloon basket at Scott Field, Illinois, in April 1935. It was largely due to Capt Williams' efforts that the Army Air Corps Weather Service came into existence in 1937. In basket with Capt Williams is Capt Orvil A. Anderson, renowned balloonist who rose to rank of major general in the Air Force.*



To those in Air Weather Service who  
lost their lives in the line of duty.

## FOREWORD

This month marks Air Weather Service's fortieth anniversary. The mission of providing weather service to the Army air arm was transferred from the Army Signal Corps to the Army Air Corps on 1 July 1937--commonly accepted as AWS' birthdate.

To help commemorate the occasion, the AWS Historian, Mr. Fuller, assembled this illustrated chronology, which is really a condensed history of AWS, with an index to facilitate reference. As we enter our forty-first year, I think all of us in AWS should pause briefly and review this document's contents before making it a permanent reference work in our personal and professional libraries.

Newcomers entering AWS today represent third generation weathermen and weatherwomen in the Air Force. This chronology demonstrates for them that AWS is not a "Johnny-come-lately" organization without roots or traditions. Instead, it has a long and proud heritage, as most Air Force units go, etched in history with the sweat and blood of its people through three major wars and numerous contingencies.

Great strides have been made in military meteorology these past forty years, particularly in areas such as computer and satellite applications, and severe weather prediction. Tall in the ranks of the vanguard of those advances were men and women from AWS. But AWS' existence was not perpetuated by breakthroughs in technology or techniques. AWS came into being in 1937--and exists today--because military leaders recognized that their operations and resources could be destroyed by the elements. "Weather," as General "Hap" Arnold once wrote, "is the essence of successful air operations." As long as that tenet remains valid, as long as the "all-weather" military force remains fancy rather than fact, we can look to the future, just as our forebearers in AWS did, knowing that we play a vital role in the Army's and Air Force's plans.



BERRY W. ROWE

Brigadier General, USAF  
Commander, Air Weather Service

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## AWS Chronology

1 July 1937 - 1 July 1977

1937 War Department transferred responsibility for weather support of Army air arm from Army Signal Corps\* to Army Air Corps, and 1WS, 2WS, and 3WS activated, respectively, at March, Langley, and Barksdale Fields, July 1.

However, Army Signal Corps retained responsibility for research and development, procurement, issuance, installation, and major maintenance of weather equipment and supplies to Army Air Corps, and for communications needed by its weather service.<sup>1</sup>

First Chief, Weather Section, Office of the Chief of the Army Air Corps, Washington, DC, was 1/Lt Robert M. Losey, who reported directly to commanding general, Army Air Corps, and was responsible for operation of Army Air Corps Weather Service.

In addition to 100-odd Army Air Corps enlisted men on weather duty, 180 Army Signal Corps enlisted men were transferred to Army Air Corps Weather Service. They and twenty-two officers (ten of whom subsequently attained general officer rank) manned forty weather stations, thirty-five stateside and five overseas--two in Hawaii, two in Canal Zone, and one in Philippines.<sup>2</sup>

1937 Army Signal Corps' six-month school at Fort Monmouth, NJ, for training enlisted forecasters disbanded, and reestablished by Army Air Corps at Patterson Field, OH, September 1.<sup>3</sup>

1938 Army Airways Communications System (AACS, subsequently redesignated Air Communications Service, Airways and Air Communications Service, and then Air Force Communications Service--AFCS) established, November 15. Its mission included responsibility to transmit Army Air Corps Weather Service communications.<sup>4</sup>



*Capt Don McNeal and staff at Patterson Field forecaster school, 1937.*

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\* Organized weather elements in the Army dated to the War of 1812, and for a period (1870 to 1891) the War Department, through the Signal Corps, operated the national weather service. The golden fleur-de-lis in AWS' official emblem commemorates service by some 200-to-300 Signal Corps weathermen during World War I in France at such memorable battlegrounds as Chateau Thierry and Argonne Forest.

1939 First class of seven enlisted men enter first formal Army Air Corps weather observer school at Scott Field, IL, September. Course duration twelve weeks originally, later shortened to ten weeks.<sup>5</sup>

1940 1/Lt Arthur F. Merewether replaced Capt Losey as Chief, Weather Section, Hq Army Air Corps, January 18.<sup>6</sup>

1940 Army Air Corps ordered move of enlisted forecaster school at Patterson Field, and observer school at Scott Field, to Chanute Field, IL, where Air Corps Weather School was established, April 11. First observer class there entered in August; first forecaster class entered in September 1940.<sup>7</sup>



*First observer class and instructors, Scott Field, November 1939.*

1940 Capt Losey killed in Norway during German air raid while acting as U.S. military observer, April 21--first officer killed by enemy action while in service of U.S. during World War II.<sup>8</sup>

1940 First meteorological cadet class enrolled in three-month course at Massachusetts Institute of Technology, June. From that beginning, until its end in June 1944, the unique aviation meteorological cadet program (later lengthened to nine-month course leading to commission) was expanded to include other universities and eventually produced 5,000 weather officers.<sup>9</sup>



*Capt Losey with Mrs. Florence Jaffray Harriman, U.S. Minister to Norway, shortly before his death.*

1940 U.S. Weather Bureau transferred from Department of Agriculture, where it had been since 1891, to Department of Commerce, June 30.<sup>10</sup>

1941 First formal meeting of Defense Meteorological Committee, January 21. Established to coordinate wartime civilian and military weather activities, it became the Joint Meteorological Committee, Joint Chiefs of

Staff (JCS), in 1942 and, subsequently, Joint Meteorological Group, JCS.<sup>11</sup>

- 1941 Army Air Forces (AAF) established, June 20. Under command of Maj Gen Henry H. Arnold (Army Air Corps chief since September 1938), AAF composed primarily of Air Corps (responsible for providing equipment, supplies, and service), the Air Force Combat Command, and an Air Staff.

Weather Section, responsible for managing Army Air Corps Weather Service, became part of Training and Operations Division, Air Corps.<sup>12</sup>

- 1941 First official Army Air Corps Weather Service long-range (thirty day) forecast, and long-range forecast verification attempts, October 20.<sup>13</sup>

- 1941 Five 7WS enlisted men killed during Japanese attack on Pearl Harbor and Hickam Field, HI, December 7.<sup>14</sup>

- 1942 Approximately fifteen 5WS enlisted men, most killed or taken prisoner, among last-ditch defenders at Bataan and Corregidor, January 7-May 5. Captured also was 5WS' Lt James H. Cooke, reported to have died later in Japanese prisoner of war camp.<sup>15</sup>



*17WS weather station at Guadalcanal, WW-II.*

- 1942 Maj Don Z. Zimmerman, director, Weather Research Center, Bolling Field, Washington, DC, replaced Maj Merewether as Chief, Weather Section, Training and Ops Div, Air Corps, Hq AAF, January 8.

- 1942 AAF approved "General Meteorological Plan for the Army Air Forces," January 10. It included provisions for: AACS developing world-wide, AAF weather-communications system; establishing an inspection system for Army Air Corps Weather Service; and developing a forecast verification system.<sup>16</sup>

- 1942 Army Air Corps Weather Service began using mptying (analogues) technique in preparing long-range forecasts for various Allied invasion dates, March.<sup>17</sup>

- 1942 AAF reorganized, March 9. Air Corps and Weather Section abolished. Administration of Army Air Corps Weather Service transferred to Directorate of Weather, a subdivision of Directorate of Technical Services--the technical branch of AAF's Operations Staff which included, among others, besides Weather, Directorates of Communications, Photography, and Maps and Charts.

Col Zimmerman appointed Director of Weather, with job of supervising and directing AAF Weather Service. Assigned strength of Directorate of Weather staff was 16 (15 officers and a civilian),



excluding approximately 30 enlisted men assigned to Weather Research Center; figure grew to 143 (51 officers and 92 civilians) on July 10, 1942 (70 officers and 113 civilians) on August 31, and 246 (98 officers and 148 civilians) on September 30, 1942.<sup>18</sup>

- 1942 Staff formed to support AAF Weather Service, March 18--including eventually, among others, an Executive, Administrative, Climatological, Personnel, Operations, Equipment (to include Supply), and Plans function.<sup>19</sup>
- 1942 Test facsimile transmission of weather products on circuit from AAF Weather Service Weather Central in Washington to SWS station at Presque Isle, ME, conducted, June-December.<sup>20</sup>
- 1942 Army Regulation 95-150 officially designated the "Army Air Forces Weather Service," July 24. Other provisions indicated that: AAF Weather Service had technical control of all weather units, and was responsible for organizing, training, and equipping all weather units for combat operations; combat and theater commanders had operational control of weather units within their areas of jurisdiction; Army Signal Corps retained responsibility for research and development, procurement, issue, installation and major maintenance of all weather equipment, weather communications equipment, and supplies.<sup>21</sup>
- 1942 First weather reconnaissance squadron activated at Patterson Field, August 21. By 1943 it had moved, and, equipped with B-25s, began weather recce flights along North Atlantic ferry route.<sup>22</sup>
- 1942 Weather Training Center activated at Grand Rapids, MI, November 21. First class of meteorological cadets entered thirty-three week school on January 4, 1943. Effective April 1, 1943, enlisted forecaster school at Chanute moved to center, and another observer school opened there. Center officially closed October 15, 1943.<sup>23</sup>
- 1943 First radiosondes installed at AAF Weather Service units.<sup>24</sup>
- 1943 U.S. Weather Bureau's hurricane warning center at Jacksonville moved to Miami, FL, where Joint (Weather Bureau-Navy-AAF Weather Service) Hurricane Warning Central (subsequently designated National Hurricane Center) was established.<sup>25</sup>
- 1943 Lt Col Harold H. Bassett replaced Col Zimmerman as Director of Weather, March 9.
- 1943 AAF reorganized, March 29. With basic objective of transferring bulk of purely operational matters from Hq AAF to field and theater units, all directorates on Operations Staff, including Weather Directorate, were abolished.



*AAF Weather Service (2WRS) B-25D used for weather recce.*



Training, Climatological, Weather Central, and certain Supply functions of Weather Directorate were divided among five weather branches, sections, or units of three different Air Staff divisions. Most significant of new Air Staff weather organizations was the Weather Unit (headed by Col Bassett) assigned to the Office of the Assistant Chief of Air Staff for Operations, Commitments, and Requirements (AC/AS, OC&R).

Other former Weather Directorate functions, including parts of Operations and Plans, were transferred to Hq Flight Control Command, Winston-Salem, NC, also established on March 29, 1943, and given responsibility, among other tasks, of operating AAF Weather Service field units and AACS. All weather squadrons not assigned to theater commands (primarily those in Zone of Interior) were assigned to Flight Control Command effective March 29.<sup>26</sup>

1943 Short-range (24, 36, and 48 hours), forecast verification program inaugurated by AAF Weather Service, April.<sup>27</sup>

1943 Weather Wing, Flight Control Command, activated at Pentagon, April 14, under command of Lt Col William O. Senter. Weather Wing headquarters moved to Asheville, NC, effective May 3, and on May 19, 1943, those weather squadrons assigned to Flight Control Command (nine of the nineteen weather squadrons then in existence) were reassigned to Lt Col Senter's Weather Wing.<sup>28</sup>

1943 AAF requested ten AN/TMQ-1 transportable weather stations be service tested, May.<sup>29</sup>

1943 First AAF Weather Service facsimile net established to support six First Fighter Command bases in New York-New England area, July.<sup>30</sup>

1943 Weather Wing reassigned from Flight Control Command to Hq AAF (under immediate supervision of AC/AS, OC&R) and redesignated as Army Air Forces Weather Wing, July 6.<sup>31</sup>

1943 Position of Air Weather Officer created on Air Staff (under AC/AS, OC&R), July 10, and given responsibility of supervising AAF Weather Wing and overall AAF Weather Service. Assigned as Air Weather Officer was Col Bassett who, in effect, commanded AAF Weather Service.<sup>32</sup>

1943 First weather inspection system established under AAF Weather Wing Weather Inspector, July 15--authorized to coordinate and supervise inspection activities of all AAF Weather Service units.<sup>33</sup>



*Weather facsimile equipment at 2WS' Regional Weather Central, Mitchel Army Air Base, NY, July 1943.*

- 1943 First formal school for staff weather officers (two week course) established at AAF School of Applied Tactics, Orlando, FL, August. Course discontinued effective November 14, 1945.<sup>34</sup>
- 1943 In September 6WS began using harbor and air defense radars adjacent to Panama Canal for weather surveillance; by April 1944 a radar weather reporting net was in operation. A year later, using AN/APQ-13 radars from military aircraft, 10WS established a weather radar net in India. Last AN/APQ-13 weather radar in AWS inventory deactivated at Fort Sill, OK, on February 18, 1975.
- 1943 Air Staff's Air Weather Officer position discontinued, September 3, and replaced by Weather Division, AC/AS, OC&R, which assumed duties and responsibility for all other Air Staff weather branches and sections. Appointed chief of Weather Division was Col Bassett, whose responsibilities included supervision of AAF Weather Wing and operation of AAF Weather Service. Col Senter, commanding officer, AAF Weather Wing, reported to Col Bassett, who also served as staff weather officer to commanding general, AAF. AAF Weather Wing was an administrative headquarters for AAF Weather Service.<sup>35</sup>
- 1943 First ten WASP (Women Airforce Service Pilots) assigned to AAF Weather Service, November 26. Before program ended December 20, 1944, five more WASPs, used to free male pilots for combat, were assigned AAF Weather Service.<sup>36</sup>
- 1944 First B-17s and B-24s for weather recce purposes delivered to AAF Weather Service units.
- 1944 JCS approved first formal plan for aerial reconnaissance of hurricanes by AAF Weather Service and Navy aircraft, February 14. Operations, including eye penetrations, began that season.<sup>37</sup>
- 1944 On experimental basis, ten enlisted WAC (Women's Army Corps) observers entered enlisted forecaster course at Chanute, April 17. Only five graduated; experiment discontinued.<sup>38</sup>
- 1944 Three-station AAF Weather Service sferics net operational, June.<sup>39</sup>
- 1944 D-Day, Allied invasion of France, June 6--a date determined by weather forecast prepared with help of 18WS and 21WS personnel in England.
- 1944 At mid-year AAF Weather Service had over 19,000 military personnel assigned, AWS' largest population ever.



*AAF Weather Service WASPs, 1943.*

- 1944 Col Randolph P. "Pinkie" Williams (considered "father" of AWS for his pioneering work as a captain in 1936-37 in organizing the Army Air Corps Weather Service) killed in action when his photo reconnaissance aircraft was shot down over France, September 5.<sup>40</sup>



- 1944 Army transferred responsibility for research and development, maintenance and storage of weather communications equipment from Army Signal Corps to AAF, October 1. In addition, AACS was to provide weather communications support to AAF Weather Service, including acting on requests for service, equipment, and weather intercepts.<sup>41</sup>

*26WS' B-17 Weather Witch at Orlando, FL, 1944. Standing in back row (middle) is Capt William S. Barney, who eventually became AWS vice commander before retiring in 1967.*

- 1945 AAF B-24 weather recce squadron (forerunner of AWS' 55WRS) commenced operations from Guam, January. Its primary mission was target recce over Japan, but on a non-interference basis it also flew typhoon reconnaissance.

- 1945 Col Bassett appointed Director, Weather Services, United States Strategic Air Forces in Europe, January 9, replacing Col Donald N. Yates, who assumed Col Bassett's former job as Chief, Weather Division, of Air Staff's AC/AS, OC&R.<sup>42</sup>

- 1945 Col James W. Twaddell, Jr, deputy commander, AAF Weather Wing, replaced Col Senter as commander, AAF Weather Wing, March 15.



- 1945 Revised Army Regulation 95-150 gave AAF Weather Service responsibility for providing weather service to all U.S. Army components except those specifically exempted by War Department (i.e., artillery units and theater commands), and for meteorological technique research and development, May 19.<sup>43</sup>

*IWS' WAC Cpls Paula Eberstadt (left) and Evelyn Barclay making Pibal run at Minter Fld, Bakersfield, CA, 1944.*

1945 Air Staff's Weather Division (under AC/AS, OC&R) in Pentagon abolished, and AAF Weather Wing at Asheville redesignated as new command, the AAF Weather Service, July 1. All former Weather Division and AAF Weather Wing functions transferred to AAF Weather Service.

Col Yates appointed Chief, AAF Weather Service, and his office remained in Washington. As chief of the new separate command, he reported directly to, and served as staff weather officer for, commanding general, AAF. In time, the Office, Chief of AAF Weather Service, in Washington, became known as the Weather Service Liaison Office.

Hq AAF Weather Service at Asheville was headed by Deputy Chief, AAF Weather Service, Col Twaddell.

Although all Weather Division personnel were reassigned to Hq AAF Weather Service, all were not transferred to Asheville.<sup>44</sup>

1945 Age of atomic warfare opened with drop of first atomic bomb on Hiroshima, August 6--a date determined by weather forecast prepared by AAF Weather Service forecasters at Guam weather central.<sup>45</sup>



*The weather central at Guam, 1945--source of Hiroshima forecast.*

1945 War Department ordered all weather units outside continental U.S. in theater commands be assigned to, and come under operational control of, AAF, through AAF Weather Service, August 17. Last such unit assigned October 12, 1945, thus completing AAF Weather Service's world-wide organization.<sup>46</sup>

1945 Japan formally surrendered September 2, ending World War II.

As of early 1945, available records indicated that 64 AWS men (22 officers and 42 enlisted) were killed in action, excluding deaths of Capt Losey and Col Williams.

AWS ground and weather reconnaissance units earned minimum of 10 campaign streamers, 20 service streamers, and 9 other assorted awards and decorations.

1945 AAF Weather Service began around-the-clock forecasting support to AACS' Military Flight Service Center program, November.<sup>47</sup> MFSC program continued until 1962, when transferred to Federal Aviation Administration.

1946 AAF Weather Service units received first B-29s for weather reconnaissance mission.

1946 Hq AAF Weather Service moved from Asheville to Langley Field, January 7.

1946 AAF Weather Service redesignated AWS, and reassigned from Hq AAF to Air Transport Command, March 13.



*AWS WB-29.*

- 1946 Hq AWS moved from Langley to Gravelly Point, VA, June 14.
- 1946 AWS military population dropped to post-World War II low of 4,209, June 30.<sup>48</sup>
- 1946 First atomic bomb test at Bikini (Project Crossroads), June 30--a date determined by weather forecasts prepared with help of AWS forecasters and B-29 weather recce. During it and succeeding detonations at Bikini and Eniwetok over next two years, AWS perfected fallout forecasting techniques.<sup>49</sup>

During Bikini test of June 30, Maj Paul H. Fackler and his B-29 crew from AWS' 59th WRS were first to fly into an atomic cloud.



*Maj Fackler*

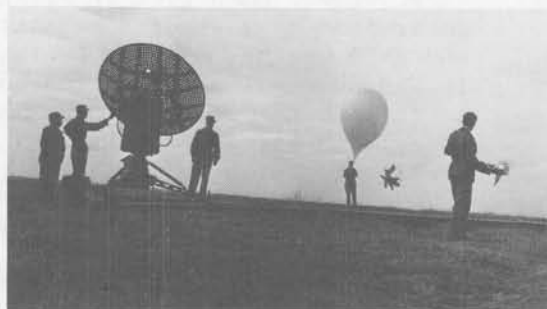
- 1946 War Department directed transfer of responsibility for field engineering, installation, and major maintenance of weather and weather communications equipment from Army Signal Corps to AAF (Air Materiel Command), July 1. Army Signal Corps retained responsibility for research and development, standardization, procurement, and supply of weather equipment for AAF (AWS).<sup>50</sup>
- 1946 Hq AWS formally advised Air Transport Command (ATC) that a Research and Development Division existed on its staff, responsible for research and development in both meteorological equipment and techniques, August 1.



R&D Division at Hq AWS was established March 15, 1946. ATC challenged legal basis for AWS assuming such mission in view of War Department and Army directives giving responsibility for weather equipment research and development to Army Signal Corps. AWS thus submitted staff study through ATC to AAF recommending that research and development in both meteorological techniques and equipment for AAF be transferred to AAF's Air Materiel Command. Hq AAF did so in letter of March 26, 1947--evidently having secured War Department and Army approval, although Army Signal Corps retained responsibility for unique Army weather equipment research and development requirements.<sup>51</sup> Transfer involved 81 AWS manpower authorizations--20 civilian and 61 military.

- 1946 First AN/GMQ-2 fixed-beam ceilometer installed at Langley Field, September.
- 1946 First flight over top of hurricane by AWS B-29, October 7.<sup>52</sup>
- 1947 UHF pilot-to-forecaster service established for AAF crews (VHF service established in 1955).
- 1947 Col Yates promoted to brigadier general, February 5--a graduate of West Point, class of 1931, and a pilot with a masters degree in meteorology from California Institute of Technology in 1939, Yates was first AWS commander to attain general officer rank.
- 1947 First AWS B-29 weather recce flight over North Pole, March 17. Labeled "Ptarmigan" after bird native to Arctic, North Pole track was standard mission for AWS crews for years.

- 1947 AAF transferred \$1 million to Army Signal Corps for procurement of first twenty-five AN/GMD-1 rawin sets for AWS, April 1. Delivery to AWS field units completed by June 1949.



*AN/GMD-1 at Sherman AFB, KS, 1952.*

- 1947 National Security Act signed into law by President Truman, July 26. Among other provisions, act abolished War Department and established Department of Defense; established Air Force as separate branch of service; and created National Security Council and Central Intelligence Agency.

First Secretary of Air Force administered oath of office September 18, and first Air Force chief of staff sworn in on September 26, 1947.

- 1947 First low-level and night penetration of hurricane by AWS RB-29, October 19.<sup>53</sup>
- 1948 AWS began testing "Minimal Flight" procedures for long range flights. Later referred to as "4-D Minimal Flight Planning," procedures eventually used in computer flight plans.<sup>54</sup>

- 1948 First tornado forecast issued by AWS at Tinker AFB, OK, March 15. AWS' Maj Ernest J. Fawbush and Capt Robert C. Miller pioneered efforts in U.S. to forecast severe weather.
- 1948 Military Air Transport Service (MATS) formed June 1, by combining Air Transport Command and Naval Air Transport Command elements. AWS assigned to MATS.
- 1948 "Operation Vittles," airlift of food and supplies to Berlin, commenced, June 16. Weather, the greatest single threat to seventeen-month Berlin Airlift, determined daily tonnage delivered.
- 1948 Phase I of first major, post-World War II AWS program to train and integrate Reserve forces personnel implemented, July 1.<sup>55</sup>
- 1948 First dropsondes delivered to AWS weather recce units for operational suitability tests, September. Tests completed July 1949 after which operational use began.<sup>56</sup>
- 1948 Hq AWS established Scientific Services function under Dr. Sverre Petterssen, September 29.<sup>57</sup>
- 1948 Hq AWS moved with Hq MATS from Gravelly Point to Andrews AFB, MD, December 1.
- 1949 Global Weather Central organized at Offutt AFB, NE, to support Strategic Air Command (SAC), March 1.
- 1949 Joint Army Regulation 115-10/Air Force Regulation 105-3 published, March 31. Superseding Army Regulation 95-150 of May 19, 1945, joint regulation held Army Signal Corps responsible for procurement, storage, and issue of weather equipment for Air Force and Army.<sup>58</sup>
- 1949 Policy Board established at Hq AWS, August. Composed of deputy AWS chief, chief of staff, and heads of each staff agency function, the Policy Board's charter was to advise and make recommendations to AWS chief in all matters related to development, implementation, and status of AWS



*Lt Col Fawbush (left) and Maj Miller after being presented the American Meteorological Society's (AMS) Meisinger Award in Wash, DC, in 1956 for their contribution to science of severe weather forecasting. Between them is AMS President, Dr. Robert D. Fletcher, who was also Hq AWS director of Scientific Services.*



objectives and policy.<sup>59</sup>

Eighteen years later, in November 1967, Hq AWS established AWS Council whose composition and charter were identical to defunct Policy Board's.

- 1949 U.S. confirmed that Russia had exploded its first atomic bomb, September 23--nuclear debris from which was first discovered by AWS RB-29 based at Guam.<sup>60</sup>
- 1949 Air Force formally established "Airman Weather Career Field" with publication of Air Force Regulation 35-425, December 28.
- 1949 AWS' inputs to Central Intelligence Agency's National Intelligence Summary increased from two to fifteen studies per year, December 31.<sup>61</sup>
- 1950 First use of dropsondes by AWS RB-29s in hurricanes.<sup>62</sup>
- 1950 Formal flight following and met-watch advisory service inaugurated in AWS, January 18.<sup>63</sup>
- 1950 Hostilities in Korea commenced, June 25. Within twenty-four hours an AWS RB-29 was flown on weather recce mission over Korea; and within forty-eight hours a weather detachment was airlifted from Japan to Taegu (the last AWS station had been withdrawn from Seoul in September 1949 when U.S. forces evacuated Korea) and began furnishing weather information to United Nations forces.
- 1950 AWS RB-29 piloted by 1/Lt Fred R. Spies (later awarded the first oak leaf cluster to the Distinguished Flying Cross for that and two other B-29 strikes) led first B-29 strike from Japan against targets in North Korea, July 13.
- 1950 Fletcher's Ice Island (as subsequently named, in honor of an AWS officer, Lt Col Joseph O. Fletcher) discovered in Arctic Ocean by AWS RB-29 weather recce crew, July 29.
- 1950 Col William O. Senter, deputy chief, AWS, assumed command of AWS from Brig Gen Yates, August 1.
- 1950 AWS mission amended to exclude weather recce "over areas where active enemy aerial resistance may be encountered," August 29.<sup>64</sup>
- 1950 Air Force authorized use of prefix "W" with AWS aircraft modified for weather recce mission, August 30--hence AWS B/RB-29s became WB-29s.<sup>65</sup>
- 1950 AWS suffered first casualty of Korean War, September 3. 1/Lt



*Lt Col Fletcher (left) on "his" ice island, 1953. At right is Capt Marion F. Brinegar.*

David H. Grisham, from Benton, LA, assigned to 20WS, was staff weather officer to 18th Fighter-Bomber Group at Ashiya AB, Japan. Also qualified as F-51 pilot, Grisham flew forty-five combat missions over Korea. On his forty-sixth, an F-51 mission from Japan to Korea on September 3, Grisham was reported missing in action. He was posthumously awarded Bronze Star Medal.<sup>66</sup>



*AWS' first Korean War casualty, 1/Lt Grisham, watches Pibal at forward base in Korea in late June 1950 while 20WS' 1/Lt John T. Gordon operates theodolite.*

1950 Capt Charles R. Cloniger, 514th Reconnaissance Squadron (VLR) Weather, of AWS' 2143d Air Weather Wing at Andersen AFB, Guam, awarded Distinguished Flying Cross for continuing and completing a typhoon reconnaissance mission in a heavily-loaded WB-29 with one engine feathered, September 8. Determination of typhoon's position and intensity was vital to U.S. forces then conducting loading operations at Kobe, Japan, in preparation for the Inchon invasion.<sup>67</sup> DFC believed to be a first in AWS for such missions.

1950 Testing of classified "customer's" Atmospheric Measuring Equipment (AME) aboard AWS WB-29s commenced, October 24.<sup>68</sup>

1950 Duration of tour for AWS personnel in Korea extended from sixty days to six months, November 28--excluding volunteers and key personnel, who could be retained in Korea up to one year. To handle turnover, personnel were rotated between 20WS in Japan and 30WS in Korea on basis of foreign service credits. Policy remained in effect until September 1, 1951, when Korean tours were lengthened to one year.<sup>69</sup>



*Capt Cloniger (second from left) in front of WB-29 Typhoon Goon at Andersen AFB, 1950.*

1951 Manpower Group formed on Hq AWS staff to establish manpower standards for all AWS squadrons, groups, and wings, January 22.<sup>70</sup>

1951 Severe Weather Warning Center established at Tinker AFB, February.<sup>71</sup>

1951 AWS representatives attended first session of U.N.'s newly-established World Meteorological Organization, March 19-April 28. WMO replaced International Meteorological Organization, originally formed in Vienna in 1873.<sup>72</sup>

1951 RAND Corporation issued report entitled *Inquiry into the Feasibility of Weather Reconnaissance from a Satellite Vehicle*, April.<sup>73</sup>

1951 AWS began field testing prototype SCM-19 Automatic Weather Station (developed by Army Signal Corps) installed at Amchitka, July. Every three hours station automatically transmitted, on two frequencies, precipitation, temperature, pressure, humidity, sunshine, and wind data.<sup>74</sup>

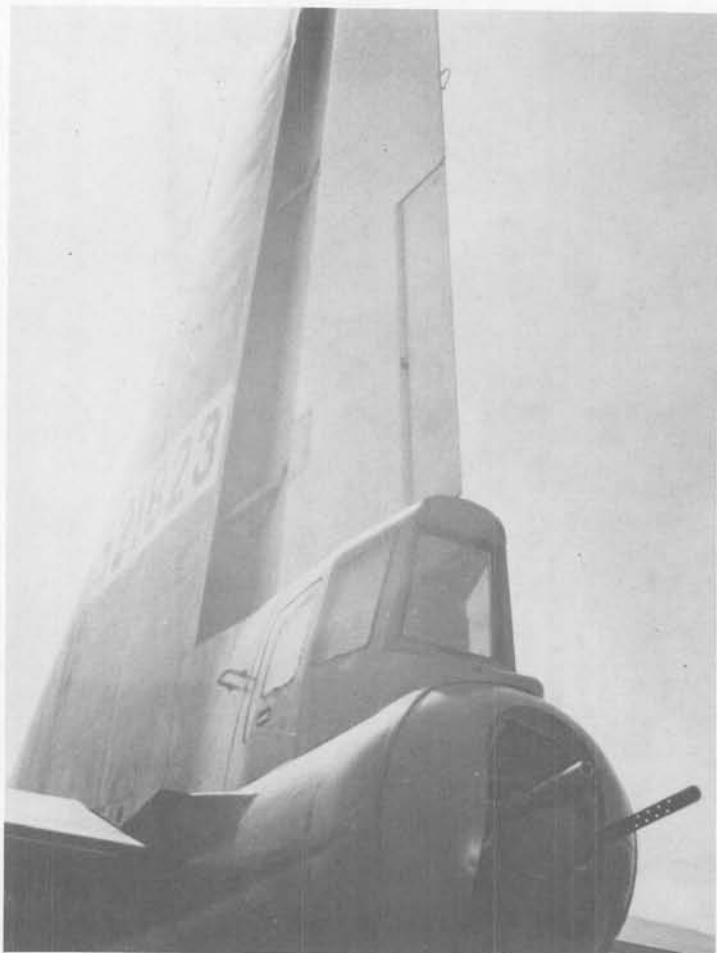
1951 Expanding concepts battle tested in World War-II, when tactical units used assigned aircraft for target weather recce, SAC and TAC (Tactical Air Command) revealed plans for using specially-instrumented aircraft, manned with AWS-trained personnel, for multi-purpose missions, including ECM (Electronic Countermeasures), photo reconnaissance and weather recce, July 11-12.



*The original AAF Weather Service weather station at a fighter strip on Amchitka. When activated on January 27, 1943, enemy Japanese forces were a mere 65 miles westward at Kiska Island.*



*20WS' 1/Lt Albert T. Watson, Jr, readying Pibal run at advanced F-51 strip in Korea, late June 1950.*



*"Business end" of AWS  
WB-29s flown on combat  
weather recce missions  
over North Korea: twin .50  
caliber machine guns.*

By 1954-56 period, SAC strategic reconnaissance units equipped with RB-36s, RB-47Ks, and RB-50s were flying weather recce missions, as were TAC units with WT-33s and WB-66Ds. Special weather equipment on some aircraft included drop-sonde chambers, psychrometers, AN/AMQ-7 temperature-humidity measuring sets, and radar altimeters.<sup>75</sup>

1952 First 56WRS WB-29 crews completed fifty combat missions over Korea and, under Air Force's rotation policy, were transferred back stateside, February.<sup>76</sup>



*Essentials at hand, AWS tail gunner on way to  
"office"--the "business end" of WB-29.*

1952 Brig Gen Senter, chief, AWS, promoted to temporary grade of major general, February 5--first two-star AWS commander.<sup>77</sup>



*Left to right are Col Senter, Brig Gen Yates, and Lt Col Jerome A. Pryber (the commanders, respectively, of the 43WW, AWS, and 20WS) at Hq 20WS, Nagoya, Japan, in April 1947. Yates was AWS' first general officer commander, and Senter became AWS' first two-star commander.*

- 1952 For first time, AWS began decentralizing its climatology service by placing climatology cells at selected field units, April.<sup>78</sup>
- 1952 AWS' Data Control Unit (Det 1, Hq AWS--the heart of its climatological function, which traced its roots to establishment of AAF Research Center's Statistical Section at Bolling Field on September 10, 1941) at New Orleans, LA, moved to Asheville, and redesignated Data Control Division, Hq AWS, April 10.<sup>79</sup>
- 1952 With publication of revised AWS mission directive, Air Force Regulation 20-2, April 18, AWS for first time had a definitive organizational and field maintenance mission--which was centralized under 6WG, activated at Wright-Patterson AFB and given responsibility for field maintenance support to all AWS groups and squadrons stateside.<sup>80</sup>
- 1952 At Gen Senter's instigation, AWS units completed major reorganization from geographic to functional support posture, May.
- 1952 For first time since day after Korean War began, WB-29 crews of AWS'



512RS (VLR) Weather/56WRS at Yokota AB, Japan, did not fly daily strategic weather recce missions over combat zone north of 38th Parallel, June 9. In logging approximately 750 combat missions since June 26, 1950, 512RS (VLR) Weather/56WRS was only Air Force unit to have an aircraft over enemy-held territory every day since war began.<sup>81</sup>

- 1952 Forerunner of Representative Observation Site program established, July 7. However, it was May 1956 before Air Force approved additional 234 observer spaces AWS needed to implement program, and authorized major air commands to construct necessary sites.<sup>82</sup>
- 1952 First formal AWS Objectives program inaugurated, July 15.<sup>83</sup>
- 1952 Unforecast tornado struck Carswell AFB, TX, causing estimated \$48 million in destruction, damaging 106 of SAC's B-36s and completely destroying another, September 1. "It caused an angry outcry in Congress," the AWS historian wrote of Carswell Incident, because "the main atomic striking force of SAC had been crippled."<sup>84</sup>
- 1952 First loss of AWS aircraft during regular hurricane or typhoon reconnaissance, October 26. All ten crewmembers killed in crash of 54WRS WB-29 making low-level penetration of Typhoon Wilma some 300 miles east of Leyte.<sup>85</sup>
- 1952 By December 31, first three stateside bases had Telautograph installed.<sup>86</sup>
- 1953 Hamilton AFB, CA, site of first test of Weathervision, January 12.<sup>87</sup>
- 1953 Brig Gen Richard E. Ellsworth, then assigned with SAC at Rapid City AFB, SD, killed in B-36 crash in Newfoundland, March 18. Ellsworth was assigned with AWS from 1942 to 1949, including stint as 10WS commander in China-Burma-India theater where he helped pioneer night flights across Himalayas' famed "Hump." Ellsworth AFB subsequently named in his honor.<sup>88</sup>
- 1953 Korean armistice signed, July 27.  
Six AWS men (five officers and one enlisted man) were killed in action.  
Retained by Chinese communists after armistice as political prisoner was Col John K. Arnold, Jr, a former AWS chief of staff, whose B-29 (he was then assigned to Thirteenth Air Force's 581st Air Re-supply and Comm Wg) was shot down near Yalu River on January 12, 1953. Convicted as a "spy" by a military tribunal in Peiping, Col Arnold was imprisoned 31 months before release by Chinese communists in August 1955.<sup>89</sup>
- AWS ground and weather reconnaissance units earned 18 campaign streamers 3 Republic of Korea Presidential Unit Citations, 2 Air Force Outstanding Unit Awards, and 4 service streamers.
- 1953 Russia exploded its first hydrogen bomb, August 12--nuclear debris from



*Colonel Ellsworth, 10WS  
Commander, 1944.*

which first detected by AWS WB-29s.<sup>90</sup>

- 1954 Brig Gen Thomas S. Moorman, Jr, AWS deputy commander, assumed command of AWS from Maj Gen Senter, April 23.
- 1954 First radar specifically designed for meteorological use, the AN/CPS-9, installed at Maxwell AFB, AL, June 20.
- 1954 Joint (AWS-Navy-Weather Bureau) Numerical Weather Prediction Unit activated at Suitland, MD, with AWS' Dr. George P. Cressman as director, July 1.<sup>91</sup>
- 1954 Weather Observing and Forecasting System (Project 433L) launched, August.
- 1954 First AN/GMQ-10 transmissometer installed/operational at Andrews AFB, August 26.<sup>92</sup>
- 1954 First weather teletype circuits stateside converted from 60 to 100 word-per-minute capability, August 26.<sup>93</sup>
- 1954 First AN/GMQ-11 surface wind set installed at Eielson AFB, AK, October.<sup>94</sup>
- 1954 First issue of AWS command newspaper, the *Observer*, published, November.
- 1955 Ground Observer Corps, formed in 1950 as air defense warning system, began 24-hour-a-day severe weather watch for AWS, January. Weather observations continued until GOC's disbandment in January 1959.<sup>95</sup>
- 1955 USAF Weather Central move from Andrews AFB to Suitland completed, January 11. The central, which traced its origins to establishment of Weather Research Center at Bolling Field in September 1941 (subsequently moved in 1943 to Pentagon, and commonly referred to as Pentagon, Army, or AAF Weather Central), was merged at Suitland with other Washington-area centrals--the joint WBAN (Weather Bureau-Air Force-Navy) and Navy Fleet Weather Central--to form National Weather Analysis Center.<sup>96</sup>
- 1955 IBM 701 computer installed at Joint Numerical Weather Prediction Unit, February. On May 6, 1955, JNWPU began daily production of regular computer-generated forecasts for North America



*Colonel Arnold, 1948*



*Dr. Cressman with USAF's highest civilian honor, the Decoration for Exceptional Civilian Service, awarded March 1958 for his work with JNWPU.*



in what meteorologists hailed as most significant advance in weather prediction in thirty years.<sup>97</sup>

1955 Prototype WB-50D delivered.<sup>98</sup> New equipment installed included AN/APN-82 doppler radar and AN/AMQ-7 airborne temperature-humidity indicators.<sup>99</sup>

1956 AWS' Severe Weather Warning Center moved from Tinker AFB to Kansas City, MO, January.<sup>100</sup>

1956 AWS submitted requirement to Air Force for high-altitude sounding system--rocketsonde--capable of reaching 250,000-foot level, January.<sup>101</sup>

1956 AWS tested special weather balloons at Albrook AFB, CZ, capable of reaching altitudes of 100,000 feet and higher, February.<sup>102</sup>

1956 Air Force issued general operational requirement for new

weather reconnaissance system, subsequently given program title of Weather Reconnaissance Support System, 460L, April.<sup>103</sup>

1956 Drafted and coordinated by IWG, and designed to consolidate several directives, SAC Manual 105-1, *Weather Support Procedures*, published, June--first such treatise, under AWS' functional support concept, for support of a major air command, which outlined weather support doctrine, concepts, and procedures for SAC operations in peace and war.<sup>104</sup>

1956 So-called "20 Minute Reporting System" for off-period, limited weather observations, operational, June 5--described as "one of the most important innovations in the annals of weather communications history."<sup>105</sup>

1956 Dept of Army sent Air Force its first formal and comprehensive statement of requirements for weather service since early 1946, August 30. It equated to seventy-four additional manpower spaces for AWS, most of which Air Force directed MATS to provide from MATS resources.<sup>106</sup>



*A/IC Catherine J. Joyce and SSgt Keith C. Blean at USAF Weather Central, Andrews AFB.*

1956 First crash of AWS (58WRS) WB-50D, August 31. Between then and January 17, 1957, there were three other major accidents with the trouble-plagued, AWS WB-50D program. Over thirty AWS crewmen lost their lives in the four mishaps--the worst rash of aircraft accidents in AWS history.<sup>107</sup>



1956 IBM 705 computer inaugurated at AWS' Data Control Division, Asheville, September 26--marking beginning of end of use by AWS since

World War II of high-speed, electronic accounting machines for processing climatological data.<sup>108</sup>

*First Moorman Award presentation, 1964, at Kansas City Centralized (Terminal) Forecast Facility (Det 42, 8WG). Left to right are: Lt Col Robert C. Miller, Det 42 chief forecaster and AWS' "Mr. Severe Weather"; Lt Col Edward J. Dolezel, Det 42 comdr; Lt Gen Moorman, PACAF vice comdr and former AWS comdr; and Brig Gen Roy W. Nelson, Jr., AWS comdr.*

1956 First AN/TMO-11 surface temperature-humidity measuring sets delivered, November.<sup>109</sup>

1956 First formal treatise on AWS doctrine, Air Force Manual 105-6, *Weather Service for Military Agencies*, published December 20--addressing topics such as AWS' capabilities and limitations.<sup>110</sup>

1957 Global Weather Central began using SAC's IBM 704 computer.

1957 First AWS Commanders Awards presented, June 7.<sup>111</sup>

1957 Task team convened at Hq AWS in first AWS-wide look at centralization--centralized terminal forecast--question, June 17. Team's final report, issued to field August 12, 1957, recommended establishing test centralized forecast facility at Tinker AFB. Site subsequently changed to AWS' Severe Weather Warning Center--Det 25, 6WS (Mobile)--at Kansas City, where pilot program began forecasting for five terminals on November 1, 1957. Facility merged with SWWC (subsequently referred to as Severe Weather Warning Facility) to form Kansas City Centralized (Terminal) Forecast Facility (formally Det 4, 4WG) which, on May 15, 1958, commenced issuing official (advisory only, not obligatory) forecasts for first block of twelve (number rose to thirty-five by January 1959) AWS detachments at Air Force and Army bases in central U.S.<sup>112</sup>

Air Force responsibility for providing, installing, and maintaining weather equipment at Army installations, while the Army was responsible for providing, installing, and maintaining necessary weather communications equipment, October 22.<sup>119</sup>

- 1958 Maj Gen Harold H. Bassett, deputy commander, Taiwan Defense Command, assumed command of AWS from Col Peterson, November 13.
- 1958 Most of new AN/AMT-6 dropsondes and related equipment delivered to AWS weather recce units by December 31.<sup>120</sup>



*B-47 assigned AWS in 1957 for National Hurricane Research Project.*

- 1959 First AN/GMQ-13 rotating beam ceilometers installed.<sup>121</sup>
- 1959 USAF strategic facsimile net established, connecting Global Weather Central with other selected weather centers and facilities stateside, February 15.<sup>122</sup>
- 1959 At Air Force's request, AWS forwarded first formal statement of requirements for meteorological satellite data, February 24.<sup>123</sup>
- 1959 U.S. Weather Bureau's National Meteorological Center commenced operation at Suitland, March.<sup>124</sup>
- 1959 Joint (Navy-Air Force) Typhoon Warning Center established at Navy's Fleet Weather Central facility, Nimitz Hill, Guam, May 1.<sup>125</sup>
- 1959 Due largely to AWS' initiative and preparation, MATS participated in operational test of numerical flight plans produced by Joint Numerical Weather Prediction Unit's IBM 704 computer, May 15. On December 14, 1959, MATS directed AWS to set up an operational system.<sup>126</sup>
- 1959 First AN/FMS-3 sferics equipment received by AWS, July.<sup>127</sup>
- 1959 First two weather squadrons (7WS at Heidelberg AI, Ger, and 16WS at Ft Monroe, VA) activated for exclusive support of Army, July 8.
- 1959 AWS Regulation 55-3, "AWS Centralization Program," published, October 1.

1957 IBM 701 computer at Joint Numerical Weather Prediction Unit replaced with IBM 704, July.<sup>113</sup>

1957 AWS began weather recce support of SAC and TAC air refueling areas, September.<sup>114</sup>

1957 In connection with U.S. Weather Bureau's National Hurricane Research Project (forerunner to Project Stormfury, which got underway in 1956 and to which AWS provided TB-50 support) AWS (55WRS) assigned a B-47, November.<sup>115</sup>



*First WB-50D received by 55WRS, 1955.*

1957 USAF Weather Central at Suitland closed, in effect, and its functions and resources combined with Offutt (Global) Weather Central (formally Det 1, 3WW) at Offutt AFB, December 11. In central's vacated space at Suitland, AWS united its Washington-area climatological functions into what became referred to as the Climatic Center (formally Det 3, Hq AWS).<sup>116</sup>

1958 First AN/GMD-2 rawin sets tested at Andrews AFB, January-March.<sup>117</sup>

1958 Col Norman L. Peterson, AWS deputy commander, assumed command of AWS from Maj Gen Moorman, March 28.

1958 Hq AWS moved from Andrews AFB to Scott AFB, June 23.  
Two, two-man offices created to fill AWS' liaison need in Washington area: the Office of the Assistant for Weather with the Air Staff's Operations staff agency (AWS had actually maintained a liaison officer in Pentagon since September 1955); and the AWS Washington Office.<sup>118</sup>



1958 While joint Army Regulation 115-10/Air Force Regulation 105-3 of March 31, 1949, was under revision, Air Force issued guidance for Army weather support, establishing

*IBM 705 computer recorded most of the climatological data on over 300 million punch cards filed in these and other drawers at AWS' Data Control Division.*

- It established AWS policy, including that of making Kansas City Centralized (Terminal) Forecast Facility forecasts obligatory, with few exceptions, for local terminal use after three-hour period.<sup>128</sup>
- 1959 Brig Gen Peterson, vice commander AWS, assumed command of AWS from Maj Gen Bassett, November 1.
- 1959 Naval Aerological Service, first established on permanent basis in 1919, redesignated as Naval Weather Service, December 15.<sup>129</sup>
- 1960 Data Control Division of AWS' Climatic Center (Det 3, Hq AWS) at Asheville redesignated Data Processing Division, February 8.<sup>130</sup>
- 1960 AWS finished placing all its weather reconnaissance units under control of 9WG, Scott AFB (moved to McClellan AFB, CA, in 1961 and redesignated 9th Weather Reconnaissance Group until July 8, 1965, when it became 9th Weather Reconnaissance Wing), March 18. First time since 1951 that all weather recce operations supervised by one field unit headquarters.<sup>131</sup>
- 1960 World's first weather satellite, TIROS I, launched, April 1.
- 1960 AN/TPQ-11 weather radar installed at Cape Canaveral, FL, for Category II and III testing, May.<sup>132</sup>
- 1960 U-2 piloted by Francis Gary Powers shot down over Russia, May 1.

U.S. originally denied Russian claims that aircraft was a "spy" plane, maintaining it inadvertently drifted off course while on a "weather reconnaissance" or "weather research" mission with NASA (National Aeronautics and Space Administration) and AWS instrumentation aboard. Based at Incirlik AB, Adana, Turkey, Powers' ill-fated flight originated from Peshawar, Pakistan. U.S. later admitted U-2s flew intelligence-gathering missions over Russia.

Ostensibly, Powers' U-2 belonged to Weather Reconnaissance Squadron, Provisional #2--one of three such squadrons organized and attached to Hq AWS in 1956 to "obtain high-level meteorological data in conjunction with the NACA (National Advisory Committee for Aeronautics)," the forerunner of NASA. AWS provided logistical and technical support to the NACA/NASA-marked U-2s, aboard which, among other gear, was the AN/AMQ-7 temperature-humidity measuring system. AWS and NACA/NASA interests were secondary to U-2's primary intelligence-gathering mission.<sup>133</sup>



AN/GMQ-11 at MacDill AFB, FL, 1955.



- 1960 Publication by Air Research and Development Command's Air Force Ballistic Missile Division of AFBMD Regulation 80-6, "Staff Meteorological-Geophysical Services," June 20, first clear delineation of AWS staff meteorologists' responsibilities and organization.<sup>134</sup>
- 1960 AWS Regulation 105-1, "Weather Modification," published, June 27. First directive addressing subject.<sup>135</sup>
- 1960 IBM 7090 computer installed at Joint Numerical Weather Prediction Unit, replacing IBM 704, July.<sup>136</sup>

1960 Hq AWS established in-house "Advanced Systems Program" for monitoring development of new weapons and command-and-control systems (such as B-70, Dynasoar, SAMOS, MIDAS, etc.) to ensure they considered environmental factors and means to support them meteorologically, July. Program instituted because AWS believed previous weapons/command-and-control systems (F-102, B-47, B-58, Matador, SAGE, etc.) suffered after becoming operational because environmental factors were overlooked or disregarded during development. Hq AWS appointed "Advanced System Project Officers" for each Air Force weapons system then under development.<sup>137</sup>

Twelve years later, with publication of AWS Regulation 800-2, Hq AWS established program with charter identical to defunct Advanced Systems Program's.

- 1960 Hq AWS' Det 3, the Climatic Center, inactivated and 2150th Air Weather Squadron, Hq AWS, established in its place at Washington, DC, designated as Climatic Center, USAF, July 1.<sup>138</sup>



- 1960 AWS formally proposed establishing Air Force weather satellite system, August 26.<sup>139</sup>

*Discussing new IBM 7090 computer at Global Weather Central on 24 Oct 60 are, left to right: Brig Gen Peterson, AWS comdr; Lt Col Roland Rogers, GWC; and Col Anthony T. Shtogren, 3WW comdr.*

- 1960 After SAC determined in 1959 that Global Weather

- Central could no longer share its IBM 704 computer, Air Force approved AWS' request for new IBM 7090 computer, which became operational at Global Weather Central, October 24.
- 1960 IBM 1401 computer installed at Global Weather Central, November--to transfer data in and out of IBM 7090.<sup>140</sup>
- 1960 MATS gave EASTAF (Eastern Transport Air Force) responsibility for numerical (computer) flight plan program AWS inaugurated, December 22.<sup>141</sup>
- 1961 U.S. Weather Bureau's SELS (Severe Local Storm) unit at Kansas City assumed from AWS' Severe Weather Warning Facility their responsibility for preparing severe weather warning advisories and amendments, and for preliminary severe weather outlooks, March 16.<sup>142</sup>
- 1961 Under Air Force's single manager concept for support aircraft, AWS field units transferred their support aircraft (mainly C-47s and C-54s) to host bases, June.<sup>143</sup>
- 1961 AWS submitted QOR (Qualitative Operational Requirement) to Air Force for mobile tactical meteorological van (subsequently designated AN/MMQ-2) for use as representative observing site to support tactical operations, July-December.<sup>144</sup>
- 1961 2150th Air Weather Squadron (a named activity designated as Climatic Center, USAF) Hq AWS, redesignated 1210th Weather Squadron, Hq AWS, Washington, DC, July 1.<sup>145</sup>
- 1961 Air Force expanded AWS' mission by designating it Defense Department single manager for aerial sampling, August (to be effective April 1, 1962). With expansion AWS gained unique B-57 and balloon sampling--with associated helicopter (six CH-21s) recovery activity--capability.
- 1961 World's first official clear air turbulence forecast issued by AWS' Kansas City Centralized (Terminal) Forecast Facility, November 1.<sup>146</sup>
- 1961 First duplicate, precision-approach, weather-observation facility (weather instrumentation at both ends of runway) installed at Suffolk



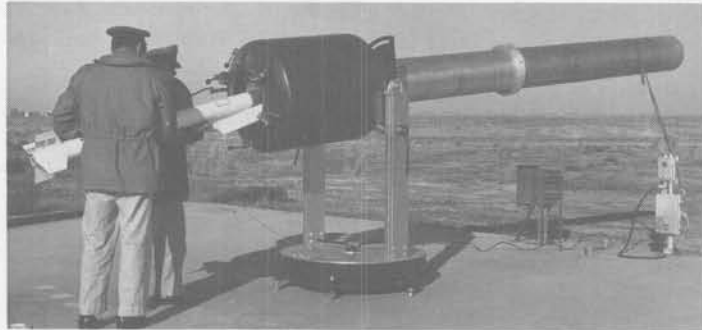
*Interior of Kansas City Centralized (Terminal) Forecast Facility showing, left to right in foreground: SMSgt Frank J. Brzeczek, Lt Col James A. Bunce, Lt Col Robert C. Miller, and Maj Neil B. Gardner. In background: CMSgt Claborn I. Gibson and 1/Lt Douglas F. Fenn.*



County AFB, NY, November 9.<sup>147</sup>

1961 Responding to PACAF (Pacific Air Forces) and Thirteenth Air Force requests, initial cadre of twenty-three AWS personnel deployed to Republic of Vietnam, December 27-29.

1962 Russia launched recoverable satellite which, among other missions, investigated "the distribution and formation of cloud patterns," March 20.<sup>148</sup>



*AWS crew preparing ARCAS-ROBIN met rocket for firing near White Sands Missile Range, NM, 1960.*

1962 AWS directed to implement a USAF meteorological rocket (rocketsonde) network, May 22. First simultaneous, four-station rocketsonde firing occurred November 7, 1962.<sup>149</sup>

1962 COMET (CONUS--Continental United States--Meteorological Teletype) system implemented, with automated weather relay center at Tinker AFB, August 28.<sup>150</sup>

1962 First AWS solar forecast issued by Hq AWS, October.

1962 First WC-130B configured for atmospheric sampling delivered to AWS, October 22.

1962 Air Force ordered Inspection function withdrawn from all MATS wings and groups, and centralized, in AWS' case, at Hq AWS, December 7.<sup>151</sup>



*AWS WC-130B*

1963 AWS implemented WBAWS (Weather Briefing Advisory and Warning System), March 1--whereby twenty-six stateside detachments provided severe weather warning service to Air Force and Army installations within specified geographical areas.<sup>152</sup>

1963 Brig Gen Roy W. Nelson, Jr, vice commander AWS, assumed command of AWS from Brig Gen Peterson on March 18.

1963 First of thirty-four WB-47Es (equipped with AN/AMQ-19 meteorological system) delivered to AWS, March 20.<sup>153</sup>

1963 Joint Meteorological Group, JCS, agreed to develop weather support concepts for WWMCCS (World-Wide Military Command and Control System), April 2.<sup>154</sup>

1963 1210WS, Hq AWS, at Washington, DC, re-assigned to 4WG at Andrews AFB, May 1. Squadron commander also served as Director, Climatic Center, USAF.<sup>155</sup>

1963 IBM 7090 computer at Global Weather Central converted to IBM 7094, May 31. IBM 7094 purchased in January 1964 for \$2,442,160.<sup>156</sup>

1963 Air Force awarded contract under Project 433L to Hamilton Standard for eighty-five AN/MMQ-2s and associated tactical equipment (AN/GVN-1 night visibility set, AN/TMQ-14 ceilometer, AN/TMQ-15 wind set, and AN/TMQ-20 temperature-humidity set), June.<sup>157</sup> First AN/MMQ-2 installed in Republic of Vietnam July 1, 1966; but AN/MMQ-2s subsequently proved unsatisfactory for tactical operations.

1963 AWS transferred responsibility for clear air turbulence forecasts from Kansas City Centralized (Terminal) Forecast Facility to 3WW forecast centers at March



*A/1C Peter T. Cromwell (left) and Sgt Angelo Marinosci, from 5WS' (of 1WW's 1WG) Combat Weather Team 1, pose with weapons in front of AN/MMQ-2 mobile met van at Long Giao AI, Rep of Vietnam, 1968.*



*Adjusting AN/GMQ-13 rotating beam ceilometer at U-Tapao RTNAS, Thailand, in 1969 are Sgts Raymond J. Metzge (left) and Robert W. Stalker from Det 30 of 1WG's (1WW) 10WS. In background is SAC B-52 on landing roll.*

and Westover AFBs, July 22.<sup>158</sup>

1963 First operationally ready APT (Automatic Picture Transmission) weather satellite readout installed at Offutt AFB and operated by 3WW, August 20.

1963 AWS transferred responsibility for terminal forecasting from Kansas City Centralized (Terminal) Forecast Facility (Det 42, 8WG) back to respective detachments and, due to dissatisfaction with service of U.S. Weather Bureau's SELS Unit, established a Military Weather Warning Center (MWWC) at Kansas City responsible for severe weather warning function of the twenty-six WBAWS detachments, September 15.<sup>159</sup>

1963 First major WB-47E accident, November 23. A 55WRS WB-47E crashed on landing at Lajes Field, Portuguese Azores.<sup>160</sup>

1964 Department of Commerce established Office of the Federal Coordinator for Meteorological Services and Supporting Research (commonly referred to as OFCM) January--headed by U.S. Weather Bureau chief, under which were two committees: ICMS (Interdepartmental Committee for Meteorological Services), and ICAMR (Interdepartmental Committee for Applied Meteorological Research).<sup>161</sup>



*AWS RB-57C (top) and RB-57F*

1964 Six CH-21s associated with AWS' balloon sampling activity--59WRS, inactivated May 8, 1964, when AWS consolidated all balloon support activities under Det 1 of 4WG's 6WS (Mobile)--and two other aircraft transferred to Air Rescue Service, January.<sup>162</sup>

1964 First of nineteen RB-57Fs delivered to AWS, June 18. Unit cost approximately \$1.5 million.

1964 IBM 7040 computer installed at Climatic Center USAF, August 13.<sup>163</sup>

1964 AWS transferred responsibility for clear air turbulence forecasting from 3WW centers at March and Westover AFBs to Global Weather Central, August 15.<sup>164</sup>

1964 Solar forecasting function transferred from Hq AWS to 4WW, Ent AFB, CO, August 31.<sup>165</sup>

1964 First production-model AN/TPQ-11 weather radar received, October 26.<sup>166</sup>

1964 First AN/FPS-77 weather radar delivered to Griffiss AFB, NY, for Category II and III testing, November 4.<sup>167</sup>

1964 Climatic Center, USAF, Washington, DC, redesignated Environmental Technical Applications Center (ETAC), USAF, a named activity, with continued

- assignment to 4WG's 1210WS, December 15.<sup>168</sup>
- 1965 First C-130E picked up at factory (Lockheed, Marietta, GA) and delivered to 53WRS, April 14. Aircraft was subsequently modified by Air Force Logistics Command team to WC-130E configuration.<sup>169</sup>
- 1965 Two C-135Bs transferred from MATS to AWS, April 22--first of ten eventually modified to WC-135B configuration. Tenth WC-135B received January 21, 1966.<sup>170</sup>
- 1965 Automated Weather Network--AWN--operational, July 1--linking weather centrals at Fuchu AS, Japan, and High Wycombe, England, and Global Weather Central with high-speed weather communications link via Tinker AFB switch.
- 1965 At direction of MATS, AWS manpower and organization function, and manpower (twenty-nine spaces), transferred to Hq MATS where a Management Engineering Team (MET)-1 was formed, July 1.<sup>171</sup>
- 1965 U.S. Weather Bureau became component of Commerce Department's newly formed ESSA (Environmental Science Services Administration), July 13.<sup>172</sup>
- 1965 First day of continuous operation of AWS' SOFNET (Solar Observing and Forecasting Network), September 1--based on reports of AWS solar observers and forecasters at Athens, Sagamore Hill, Sacramento Peak, Hawaii, and Manila.
- 1965 First Air Force DMSP (Defense Meteorological Satellite Program) weather satellite launched, September 10.<sup>173</sup>
- 1965 Last AWS WB-50D departed Yokota AS (56WRS) for eventual storage at "bone yard," Davis-Monthan AFB, AZ, September 14. In ten years with AWS, WB-50Ds experienced thirteen accidents, killing sixty-six crewmen.<sup>174</sup>
- 1965 Col Russell K. Pierce, Jr, 3WW commander, replaced Brig Gen Nelson as AWS commander, October 6.
- 1965 UNIVAC 418 computer for AWN installed at Global Weather Central, November 8. Effective June 1, 1967, when low-speed teletype input to ITT 7300/ADX was terminated, UNIVAC 418 became sole data source for Global Weather Central.<sup>175</sup>
- 1965 Global Weather Central began transmitting six analysis and forecast maps twice daily to Fuchu and High Wycombe centrals over AWN, November 22.<sup>176</sup>
- 1965 AWS mission regulation expanded to include weather modification, November 26.



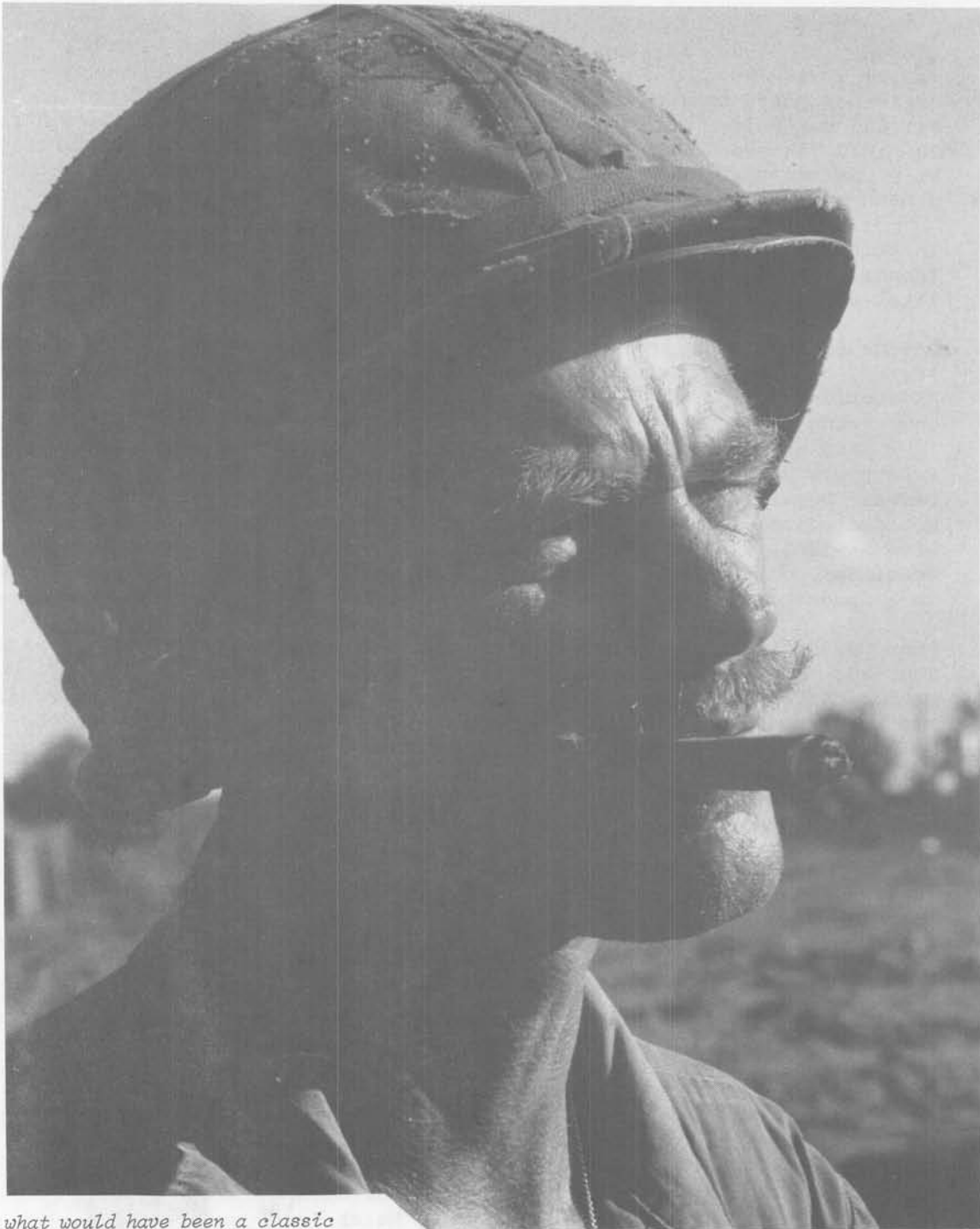
AWS WC-135B

- 1966 MATS redesignated Military Airlift Command (MAC), January 1--no change in status vis-a-vis AWS.
- 1966 AWS concluded its first operational test of dissipating cold fog, March 31. Using dry ice with tethered balloons, test deemed inconclusive.<sup>177</sup>
- 1966 Solar Forecast Facility (Det 7, 4WW) established at Ent AFB, CO, April 1. It was charged with operating a Solar Forecast Center (within the NORAD--North American Air Defense Command--Space Defense Center in Cheyenne Mountain Complex near Colorado Springs) and SOFNET.<sup>178</sup>
- 1966 Solar-geophysical teletype network operational, May 17.<sup>179</sup>
- 1966 To support widening U.S. combat effort, AWS expanded its Southeast Asia organizational posture from a squadron to a group and three squadrons, July 8.
- 1966 First AN/TKR-1 transportable weather satellite receiving station accepted, August 4.<sup>180</sup>
- 1966 First AN/FMN-1 for computing RVR (Runway Visual Range) installed at Westover AFB, MA, September 26-30.<sup>181</sup>
- 1966 Air Force approved establishment of Air Force Global Weather Central (AFGWC) at Offutt AFB, and installation of advanced computers there, October 7.<sup>182</sup>
- 1966 First major RB-57F accident, November 7. A 58WRS RB-57F crashed into Sandia Mountains approximately ten miles from Kirtland AFB, NM, killing both crewmembers.<sup>183</sup>
- 1966 World's first magnetometer network established by AWS, November 11.<sup>184</sup>
- 1966 AWS (Solar Forecast Facility--Det 7, 4WW) began mapping ionosphere, December 16.<sup>185</sup>
- 1967 AWS WC-130s commenced weather recce and rainmaking operations in Southeast Asia, March 17.<sup>186</sup>
- 1967 Seventh Air Force formally expressed immediate need for tactical, cloud-height measuring device for use by AWS combat weather teams for forward airstrips in Vietnam devoid of external power sources, March 22. On



*"Looking North"--is A/1C Ronald D. Marquardt (Det 9 of 1WG's 30WS), M-16 rifle ready and clad in flak vest, standing guard in 1968 near sand-bagged weather instrument shelter at Dong Ha AB, some six miles south of Demilitarized Zone (DMZ) in Rep of Vietnam.*





*In what would have been a classic pose for a Bill Mauldin "Willy-and-Joe" cartoon of WW-II fame, whisker stubbled, cigar smoking Sgt Michael Connell, a 39 year-old "lifer" from Loving, NM, assigned as a combat weather team chief to OL-2 of 5WS' Det 31 at Phuoc Vinh, wearing a helmet with the words "lover not fighter" scrawled over its burlap camouflaging, squints into the hot Vietnam sun one day in 1968. "We get a very deep sense of satisfaction working with the 'Cav,'" he was quoted when asked how it felt being stationed with 1st Cavalry Div (Airmobile) in 'Nam, "because it is a division noted for its success against the enemy" and "the information we obtain and pass on plays a vital role in the planning of each operation."*

- February 19, 1969, Air Force awarded contract to General Time Corp. (Rolling Meadows, IL) for twenty-five AN/TMQ-25 tactical ceilometers--estimated costs having risen in 1968 from \$127,500 to \$290,000, or \$11,600 per unit. Category III testing of four sets completed December 23, 1970, AWS declaring the AN/TMQ-25 "suitable for its intended function." First AN/TMQ-25s installed in Republic of Vietnam in November 1971, but proved unsatisfactory for tactical operations.<sup>187</sup>
- 1967 In television interview, Seventh Air Force commander, at Tan Son Nhut AB, Republic of Vietnam, Lt Gen William W. Momyer, said "this weather [satellite] picture is probably the greatest innovation of the war," May 4.<sup>188</sup>
- 1967 Office of Special Assistant for Environmental Services (SAES), JCS, established, June 1--with mission to "assist the JCS and Secretary of Defense in coordinating, reviewing and providing continuing broad policy guidance concerning environmental services of the Department of Defense."<sup>189</sup>  
SAES assumed Joint Meteorological Group's functions, ending over twenty-six years of that organization's existence. SAES also served as Defense Department interface with Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM--including, effective April 1, 1968, its Interdepartmental Committee for Meteorological Services, ICMS), thus ending, in effect, AWS' direct formal participation in a number of key interagency and international meteorological committees.
- 1967 Four UNIVAC 1108 computers selected as replacement for IBM 7094s at AFGWC, June 16. Acceptance testing of first system completed June 5, 1968; entire UNIVAC 1108 system officially operational June 1, 1969, reportedly representing "the largest meteorological data processing system in the world."<sup>190</sup>
- 1967 Naval Weather Service designated a separate command, the Naval Weather Service Command, July 1.<sup>191</sup>
- 1967 Det 1, 3WW, charged with operating AFGWC, inactivated and 2WS activated in its place with same mission, July 8.<sup>192</sup>
- 1967 ETAC reorganized as USAF ETAC, 6WW, concurrent with inactivation of 6WW's 1210WS, July 8.
- 1967 MAC transferred assignment responsibility for weather observers and weather equipment technicians back to AWS, August 1--giving AWS assignment control over all its enlisted and officer weather AFSCs (Air Force Specialty Codes).<sup>193</sup>
- 1968 AWS suffered first casualties of Vietnam war when two 5WS observers, SSgts James C. Swann and Edward W. Milan, were killed during enemy .82mm mortar attack on Ban Me Thout AI, Republic of Vietnam, March 4.<sup>194</sup>
- 1968 Inflight refueling modification completed on first AWS WC-135Bs, June 25.<sup>195</sup>
- 1968 AWS formally unveiled plans for Space Environmental Support System (SESS), November 20--consolidating several space metering and monitoring systems, including SOFNET.<sup>196</sup>



*SSgt Swann--AWS' first Vietnam War casualty.*

1968 Position of special assistant to AWS commander for airman affairs established at Hq AWS, December 23. Title subsequently changed to: Chief Master Sergeant of AWS; Senior Airman Advisor; and finally, Senior Enlisted Advisor.<sup>197</sup>



*AWS Ramey observatory, . . .*

1969 Under Air Force-directed reductions (Project 703) AWS lost all twenty-four of its WB-47Es, one weather recce squadron, a net of three ground weather squadrons, and 757 manpower authorizations (approximately seven percent of its total).<sup>198</sup>



*. . . its Razdow telescope, . . .*

1969 3WW's 2WS, charged with operating AFGWC, inactivated, and AFGWC activated as named, squadron-level organization and reassigned in place to Hq AWS, July 8.<sup>199</sup>

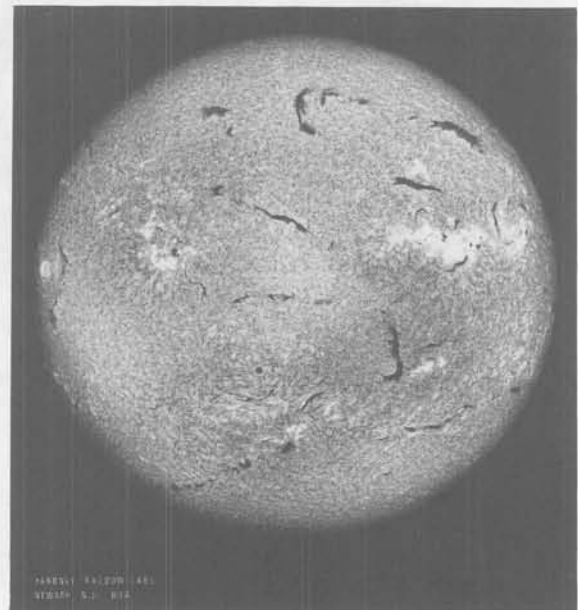
1969 Accountability for Razdow W-250-1 solar optical telescope at Ramey AFB, PR, transferred to AWS, August 8--first solar telescope possessed by AWS.<sup>200</sup>

1969 With official dedication of Automated Digital Weather Switch (ADWS) at Carswell AFB (equipped with dual UNIVAC 1108 computers), AWN's "hub" moved there from Tinker AFB, October 1.<sup>201</sup>

1970 Under Air Force and MAC Projects 72-B2, 72-B3, and 72-B3 "Plus," AWS reduced by 195 manpower authorizations (approximately two percent of its total) and two ground weather squadrons.<sup>202</sup>

1970 Military Weather Warning Center (Det 42, 7WW) at Kansas City inactivated and severe weather forecasting/warning function assumed by AFGWC, January 31.<sup>203</sup>

1970 As a result of Hurricane Camille of August 1969, first of eleven additional C-130Bs delivered to AWS, February 5--aircraft subsequently modified to WC-130B configuration.<sup>204</sup>



*. . . and the product: photograph of sun, July 15, 1968.*

1970 Revised AWS mission regulation (Air Force Regulation 23-31) published March 25, deleted reference to AWS as Defense Department single manager for aerial atmospheric sampling.<sup>205</sup>

1970 Announcement made that Air Force would purchase \$400,000 worth of Army's AN/TMQ-22 tactical meteorological measuring sets, March 27.<sup>206</sup> First six sets accepted by Air Force from contractor on November 11, 1974.<sup>207</sup>

1970 JCS' SAES redesignated as Deputy Director for Operations/Environmental Services (DDOES), April 1.<sup>208</sup>

1970 Solar Forecast Center (OL-10, Det 7, 4WW) in NORAD's Cheyenne Mountain Complex combined with Det 1, 4WW, and redesignated as Space Forecasting Branch of Aerospace Environmental Support Center, April 8.<sup>209</sup> AESC subsequently redesignated Aerospace Environmental Support Unit.

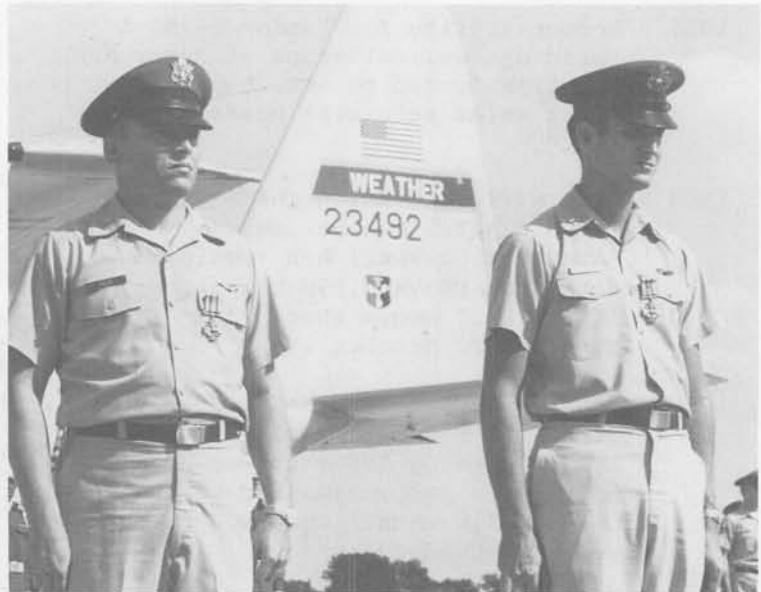
1970 April 15 *Air Force Times* indicated that AWS' Capts Marvin A. Lillie and Robert Y. Foerster, WC-130 pilots with 9WRW's 53WRS, were Air Force's nominees for coveted Harmon International Trophy for Aviator category, for their work during Hurricane Camille of August 1969. It was first time AWS aircrews were Air Force nominees for that award.<sup>210</sup>

1970 Automated Digital Weather Switch (ADWS) activated at Clark AB, thereby extending AWN to Philippines, July 1.<sup>211</sup>

1970 Directorate of Systems, Deputy Chief of Staff for Operations, Hq AWS, elevated to deputy-chief-of-staff status, July 1.<sup>212</sup>



*CMSgt William M. Gardner--first special assistant to AWS commander for airman affairs.*



*Capt Foerster (left) and Lillie at Scott AFB on September 12, 1969, with Distinguished Flying Crosses awarded them for their airmanship in Hurricane Camille. Each of their crewmembers received the Air Medal.*

1970 Maj Henry M. Dyches, Jr, a pilot with 9WRW's 56WRS, awarded Koren Kolligian, Jr, Trophy for 1969 for handling WC-135B emergency, July 8. It was first time an AWS crewmember won that award.<sup>213</sup>

1970 First mission analysis of AWS completed by Air Force Systems Command's Space and Missile Systems organization, July 15.<sup>214</sup>

1970 Brig Gen William H. Best, Jr, AWS vice commander, assumed command of AWS from Maj Gen Pierce, July 27. Brig Gen Best was first commander of AWS not to hold an aeronautical rating.

1970 MAC computer flight plan responsibility transferred from Suitland (Det 44, 7WW) to AFGWC, August 1.<sup>215</sup>

1970 AWS airborne supercooled fog and cloud dissipation techniques declared operational, September 25.<sup>216</sup>

1970 Commerce Department's NOAA (National Oceanic and Atmospheric Administration) established, replacing ESSA; and U.S. Weather Bureau redesignated National Weather Service and placed under NOAA, October 3.<sup>217</sup>

1970 Automatic Response to Query (ARQ) system operational at Carswell Automated Digital Weather Switch (ADWS), November 3.<sup>218</sup>

1970 Daring night raid by small U.S. force on prisoner of war camp at Son Tay, North Vietnam, November 20-21--a date determined by climatological study and forecasts prepared by AWS personnel. Overall raid commander later wrote that "as far as tactical considerations were concerned, weather was probably the most critical factor."<sup>219</sup>

1971 Last of AWS' (54WRS) three WC-130As used for rainmaking in Southeast Asia transferred to Air Force Reserve unit, January 7. Since their deployment to theater in 1967, WC-130As were flown on 1,435 combat and combat support missions.<sup>220</sup>

Using other model WC-130s 54WRS possessed, rainmaking operations continued in theater until July 5, 1972, when last mission was flown.<sup>221</sup>

1971 Air Force announced awarding \$4 million contract for production of a Tactical Weather System, February 5.<sup>222</sup>

1971 Air Force approved Chief Scientist position for Hq AWS, February 23.<sup>223</sup>



*Major Dyches*



1971 Air Force approved AWS request of November 21, 1970, for final increment of "hardware balance" (primarily increased core capacity and faster drums) for AFGWC's UNIVAC 1108 computers, April 16.<sup>224</sup>

1971 Air Force authorized MAC to redesignate all AWS RB-57s as WB-57s, July 19.<sup>225</sup>

1971 AWS' unique, high-altitude balloon sampling support of Atomic Energy Commission ended with inactivation of Det 31, 6WW, at Goodfellow AFB, TX, July 31.<sup>226</sup>

1971 AWS inactivated Latin American Forecast Center (Det 3, 15WS, 7WW) at Charleston AFB, SC, and transferred tasks to AFGWC, August 8.<sup>227</sup>

1971 Under Project Stormfury, designed to modify such storms, AWS WC-130Bs seeded Hurricane Ginger with silver iodide, September 26.<sup>228</sup>

1971 AFGWC's UNIVAC 418 computers phased out for disposition by Air Force Communications Service, October 31.<sup>229</sup>

1971 AWS launched Centralized Terminal Forecast Program for eventually issuing terminal forecasts for all stateside units from AFGWC, November 1.<sup>230</sup>

1971 Navy weather reconnaissance in Pacific ended, November 1.<sup>231</sup>

1971 Air Force approved AWS request to install UNIVAC 1110 computer at AFGWC, December 29. Performance and acceptance testing on UNIVAC 1110 at AFGWC completed October 30, 1972.<sup>232</sup>

1972 AWS unveiled plans for "Value Analysis" program, April 26--designed to demonstrate through selected case studies that AWS' support was economical. First major preview of initial Value Analysis studies presented at MAC commanders conference October 5, 1972.<sup>233</sup>

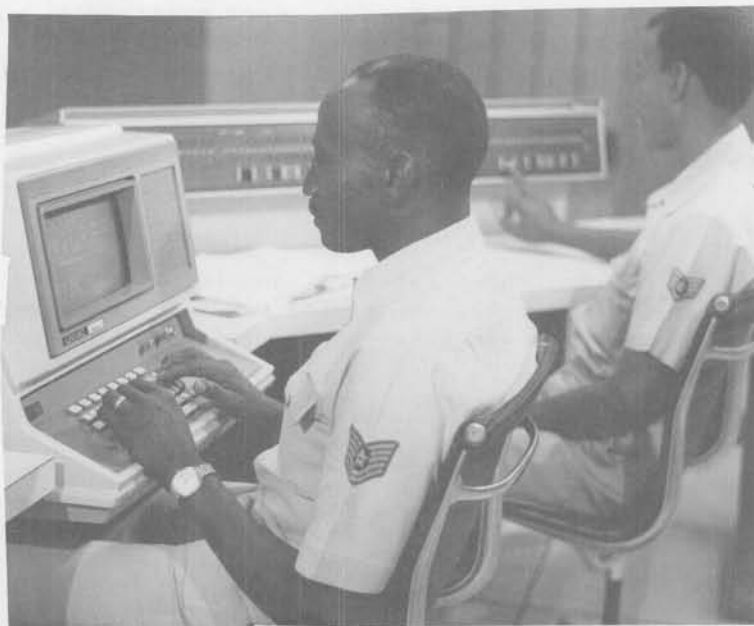
1972 OL-B, Hq AWS (AWS' "Washington Office") inactivated May 23.

1972 With no change in station, AFGWC reassigned from Hq AWS to 6WW, June 30.



*Maj Keith R. Grimes (center) with Son Tay raiders at Eglin AFB, FL, in 1970 during break in their highly intensive and secret training. Grimes, who spent most of his Air Force career as a forecaster in AWS, acted as weather advisor to raid force commander, and it was his work with climatological data which set raid's general date.*

- 1972 AWS mission expanded to include Air Force's residual aerial photomapping capability, June 30--adding a squadron, five RC-130As, and 276 personnel.<sup>234</sup>
- 1972 Air Force drawdowns and Southeast Asia withdrawals during fiscal 1972 reduced AWS by 2 wings, a group, 5 squadrons, 9 aircraft, and 2,315 manpower authorizations--the largest single-year manpower reduction in AWS (twenty-three percent of its total) since immediate post-World War II period. Additionally, Hq AWS' Plans, Comptroller, History, and Information functions transferred to Hq MAC.<sup>235</sup>
- 1972 Reductions in AWS manpower resulted in forecaster service being reduced by eight-to-eleven hours per day at thirty-five stateside units; seventeen others designated "Regional Briefing Stations," July 1.<sup>236</sup>
- 1972 AUTODIN (Automatic Digital--Communications--Network) operational at AFGWC, July 21.<sup>237</sup>
- 1972 Move of remote weather observation instrumentation from Representative Observation Site to base weather station at Yokota AB completed, September 26--the first of 109 such relocations directed by Air Force to save manpower. By 1977, all relocations had not been completed.<sup>238</sup>
- 1972 National Weather Service assigned liaison official to Hq AWS, October 1. Official remained in position until March 17, 1974, after which NWS declined to replace him.<sup>239</sup>
- 1972 AFGWC's fully automated, Vela satellite, proton event detection and warning system, "Velawatch," operational, November 1.<sup>240</sup>
- 1972 Air Force approved swap of fourteen Aerospace Rescue and Recovery Service (ARRS) HC-130Hs, modified to WC-130H configuration, for AWS' sixteen WC-130Bs, December 21. First WC-130H added to AWS inventory June 26, 1973.<sup>241</sup>
- 1973 Direct drive facsimile from AFGWC to Pacific and European theaters fully operational, January 3.<sup>242</sup>
- 1973 U.S. and North Vietnam agreed to ceasefire in Vietnam, January 27--and Secretary of Defense announced immediate halt and indefinite suspension



*1st Lt Leon W. Major (left) and SSgt Claude W. Kay at Carswell AFB AWN/ADWS "Hub."*

of drafting through Selective Service System. All U.S. combat forces withdrawn from Republic of Vietnam by March 30, 1973.

- 1973 On February 22 MAC commander directed transfer of Inspector General, Personnel, Administration, and Headquarters Squadron Section staff functions from Hq AWS to Hq MAC by July 1, 1973, thereby reducing Hq AWS to "operational" headquarters. Hq AWS left with Operations, Systems, Logistics, Aerospace Sciences, Safety, and Executive staff functions.<sup>243</sup>
- 1973 Last AWS unit in Republic of Vietnam (Det 1, 10WS at Tan Son Nhut AB) inactivated, March 3.<sup>244</sup>
- 1973 Defense Department announced tri-service agreement reached for joint use of Air Force's Defense System Applications Program (DSAP) weather satellites, June 11. AFGWC commander retained loading responsibility for system.<sup>245</sup>
- 1973 Brig Gen Thomas A. Aldrich, commander, U.S. Forces, Azores (and commander of MAC's 1605ABW at Lajes Field) assumed command of AWS from Brig Gen Best, July 30.
- 1973 AWS announced Sgt Vicki Ann Esposito's assignment as dropsonde operator, September 12. Reporting to WC-130 equipped 53WRS in December 1973, Sgt Esposito was first bonafide female weather reconnaissance crewmember in AWS history.<sup>246</sup>



*End of the line for AWS' unique WB-57Fs: the "boneyard" at Davis-Monthan AFB, AZ.*

- 1973 Acting on MAC commander's recommendation, Air Force on September 17 ordered storage of AWS' remaining thirteen WB-57Fs at Davis-Monthan AFB, AZ. On December 7, 1973, Air Force directed transfer of WB-57Fs' high-altitude aerial sampling mission to SAC. Completed by June 30, 1974, transfer eliminated one squadron--58WRS--and 221 manpower authorizations (approximately three percent of AWS' total).<sup>247</sup>
- 1973 Ground-based, liquid propane system at Elmendorf AFB, AK, for dissipating cold fog declared operational by AWS, October.<sup>248</sup>
- 1973 Special warfare weather team (primarily members of 2WG/5WW's Det 75) efforts in Laos, suspended temporarily from July 30 to September 1973, ended permanently on November 13. From 1965 on, team members worked

clandestinely in Laos, under dangerous conditions, on a nearly uninterrupted basis, to establish and maintain a weather observing and reporting net essential to combat air operations.<sup>249</sup>

- 1973 "Palace Weather" weather officer career management team operational at Air Force Military Personnel Center, Randolph AFB, TX, December 1.

One of fourteen officer management teams at AFMPC, Palace Weather, in conjunction with Hq AWS and major air command personnel staffs, handled assignments of all weather officers below rank of colonel. Concept expanded in 1976 to include enlisted weather personnel.<sup>250</sup>

- 1973 AWS transferred SESS forecast function from Aerospace Environmental Support Unit of 3WW's 12WS to AFGWC, December 15.<sup>251</sup>

- 1974 AWS launched program to qualify all enlisted weather personnel as both observers and forecasters by early 1980s.<sup>252</sup>

- 1974 Air Force ordered that, after July 1, 1974, AWS' WC-135Bs be used on atmospheric sampling missions only, not weather reconnaissance, February 6.<sup>253</sup>

- 1974 Col (brigadier-general select) John W. Collens, III, 9WRW commander,



*These special warfare--or commando--weathermen formed the nucleus of 2WG's Det 75 at Hurlburt Fld, FL, in 1964. Left to right are: A/1C Wayne L. Golding, A/1C Andrew V. Wilder, Capt Keith R. Grimes, A/1C James P. Williams, MSgt Thomas M. Watson, and A/1C Lloyd W. Mitchell, Jr. All but Williams and Golding eventually saw action in Laos and Cambodia; Wilder and Grimes barely escaped with their lives after firefights with North Vietnamese and Pathet Lao forces.*

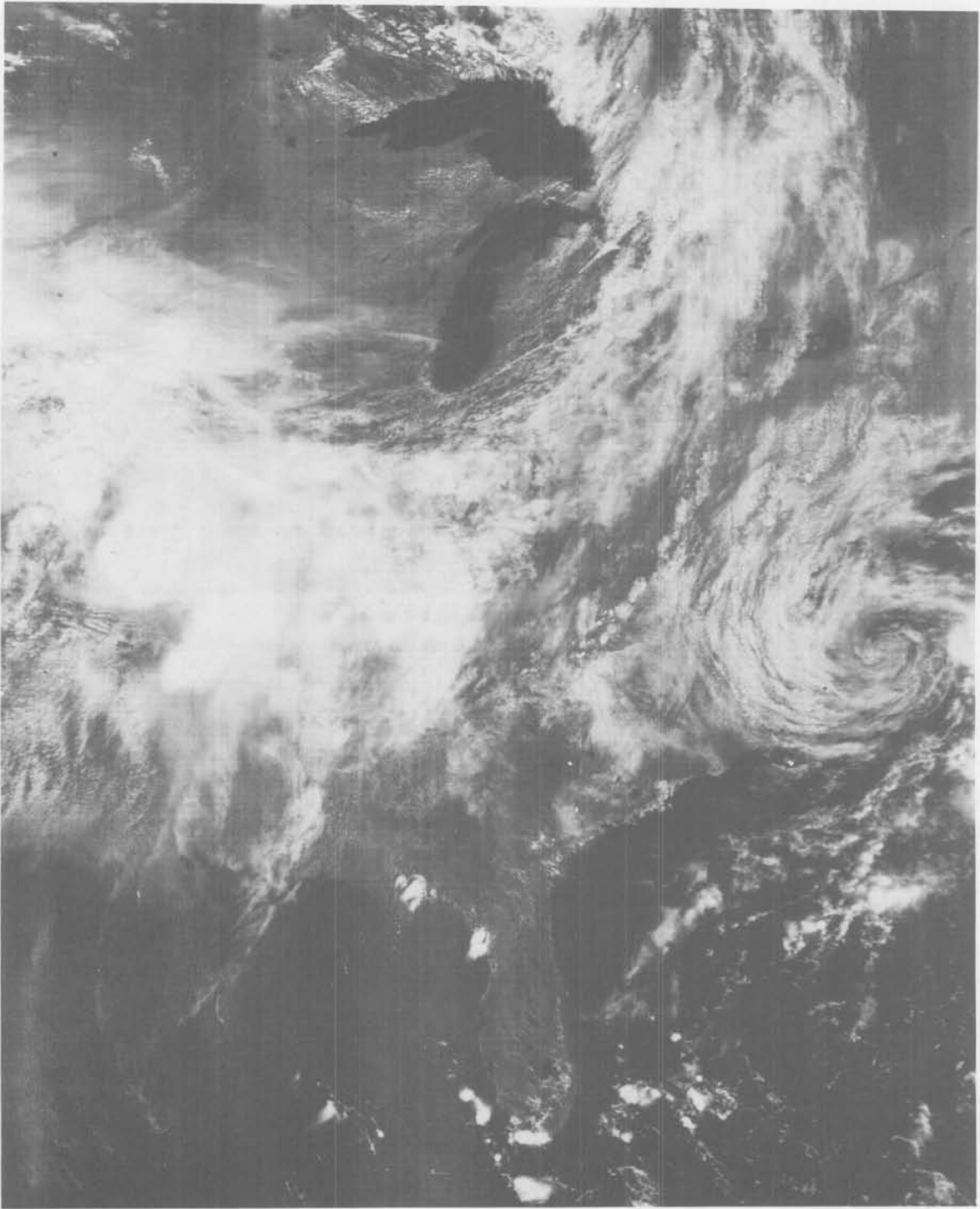


*Primary duty of special warfare weathermen in Laos was training friendly forces to take and report weather observations--a task MSgt Watson (left) and Capt Grimes (kneeling center, without glasses, facing camera) perform here in Laos, 1965.*



- assumed command of AWS from Brig Gen (major-general select) Aldrich, February 15.
- 1974 On March 15 Air Force ordered phase-out of AWS' aerial photomapping mission and resources by January 1, 1975. Last operational aerial photomapping sortie flown January 15, 1975; and AWS' fifth and last RC-130A associated with mission relinquished February 20, 1975.<sup>254</sup>
- 1974 Air Force approved AWS-MAC data automation request for computer at USAF ETAC to replace IBM 7044, March 28. Installation of IBM 360/44 at USAF ETAC completed August 25, 1975.<sup>255</sup>
- 1974 Air Force announced NASA's and NOAA's agreement to use Air Force-developed, Model 5D DMSP weather satellites as "basic bus" for their TIROS-N weather satellite series, July 23. NASA subsequently teamed with Air Force to buy twelve RCA (Radio Corporation of America) Model 5D satellites, three for Air Force and nine for NASA-NOAA TIROS-N satellites.<sup>256</sup>
- 1974 Defense Department suggested to Commerce Department formation of joint study group with OMB (Office of Management and Budget) to establish national policy on aerial hurricane reconnaissance, July 30. On August 23 Commerce agreed; first study group meeting held September 30, 1974. Based on group's findings OMB advised Defense on October 28, 1975, to continue its aerial reconnaissance support of National Hurricane Operations Plan, but that, commencing fiscal 1977, Commerce should reimburse it for "all directly attributable costs."<sup>257</sup>
- 1974 MAC sought Air Force's permission to transfer weather reconnaissance and residual aerial sampling mission, and resources, to ARRS, August 26. Air Force approval granted June 18, 1975; transfer made September 1, 1975--ending over thirty-three continuous years of organized weather reconnaissance in AWS. AWS reduced by a wing, three squadrons, its last twenty-seven aircraft, and 845 manpower authorizations (approximately eleven percent of its total).<sup>258</sup>
- 1974 AWS distributed white paper on its "capabilities and limitations," October 24.<sup>259</sup>
- 1975 With Phnom Penh's fall to communists on April 16; Saigon on April 30; recapture of *S.S. Mayaguez* on May 15; and evacuation of all Americans from Laos in late May, over thirteen years of involvement by U.S. military forces in combat in Southeast Asia concluded.  
 Last weather squadron in Southeast Asia (10WS at Nakhon Phanom AB, Thailand) inactivated September 30, 1975; last AWS unit (Det 30, 1WW at U-Tapao RTNAS) inactivated June 7, 1976. Last permanently-assigned AWS individual in theater departed Thailand May 21, 1976.  
 Four AWS enlisted men killed in action in Southeast Asia.  
 AWS ground units in theater (including detachments) earned outright or shared: 7 Presidential Unit Citations; 8 Republic of Vietnam Gallantry Crosses with Palms; 50 campaign streamers; 16 Air Force Outstanding Unit Awards; and 10 Air Force Outstanding Unit Awards with Combat "V" devices.<sup>260</sup>
- 1975 MAC advised AWS that, effective fourth quarter fiscal 1975, it would be authorized only one general officer billet, that of AWS commander, May 22. The AWS vice commander and 9WRW commander billets were converted to O-6 (colonel) slots.<sup>261</sup>





*There were heavy thunderstorms over south-central U.S., and a low-pressure area lay off the Virginia coast as this DMSP photograph was taken about noon on June 8, 1974. Three hours later a tornado struck Oklahoma City, OK.*

1975 First of five AN/FMQ-7 solar optical telescopes planned for AWS operational at Palehua, Hawaii, July 1.<sup>262</sup>

1975 AWS implemented centralized forecast verification program, July 1.<sup>263</sup>

1975 Last Navy weather reconnaissance unit (Weather Reconnaissance Squadron Four, VW-4, at Jacksonville NAS, FL) decommissioned, July 1.<sup>264</sup>



*Withdrawing from Southeast Asia--loading a DMSP weather satellite readout van aboard a MAC C-5A at Nakhon Phanom AB, Thailand, in September 1975 for shipment out of theater.*

1975 2WS assumed rocketsonde program management responsibility from Hq AWS, August 1.<sup>265</sup>

1975 Col Berry W. Rowe, AWS vice commander, assumed command of AWS from Brig Gen Collens, August 6.

1975 U.S. and Russia submitted joint draft accord for consideration by Geneva conference of U.N.'s Committee on Disarmament recommending environmental modification for hostile purposes be prohibited, August 21.<sup>266</sup>

1975 USAF ETAC moved from Washington, DC, to Scott AFB, August 30.<sup>267</sup>

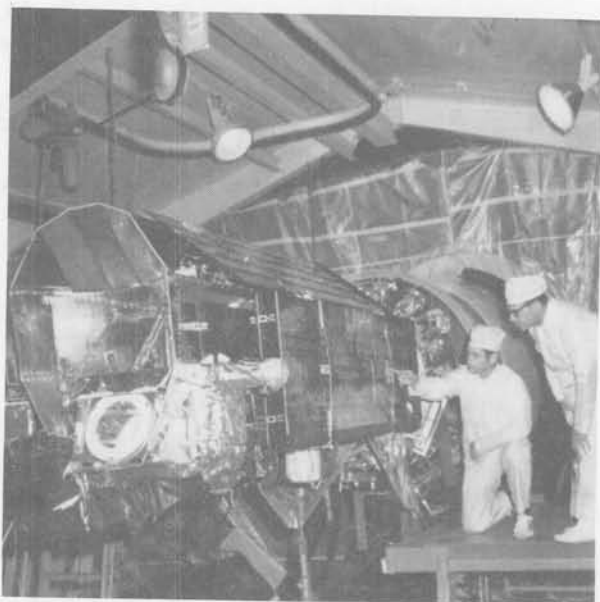
1975 For first time ever, no member of AWS command section (chief of staff, vice commander, or commander) held an aeronautical rating, September 1.<sup>268</sup>

1975 MAC commander ordered AWS to identify 1,900 AWS manpower spaces for elimination (400 in "near term" prior to October 1976, and balance thereafter) to "help alleviate continuing budgetary pressures" in Air Force, December 6. Nine months later, MAC and Air Force agreed AWS would eliminate 311 spaces in "near term" (approximately five percent of its total).<sup>269</sup>

1976 Air Force awarded \$4.091 million contract for procurement and installation of three AN/FRR-95 solar radio telescope systems for AWS, February 9.<sup>270</sup>

1976 Naval Weather Service Command redesignated, in effect, as Director Naval Oceanography and Meteorology, February 18--and its headquarters moved from Washington, DC, to Bay St. Louis, MS, October 1.<sup>271</sup>

- 1976 Acceptance testing completed February 29 on additional UNIVAC 1110 computer at AFGWC to be used primarily for processing weather satellite data.<sup>272</sup>
- 1976 Air Force awarded \$287,300 contract for manufacture of thirty-four AN/GMH-7 lightning warning (sferics) sets, March 30.<sup>273</sup>
- 1976 First COMEDS (CONUS Meteorological Data System) segment operational, July 1. Operating at 1,200 words per minute, COMEDS replaced COMET weather communications service.<sup>274</sup>
- 1976 Army notified Air Force it would assign liaison officer to Hq AWS, August 27.<sup>275</sup>
- 1976 AFGWC began issuing MSIs (Mission Success Indicators--probability that mission would have favorable weather) for aerial refueling operations, September 1.  
In AWS commander's opinion, use of MSIs "marked a significant turning point in the history of Air Weather Service" because it "signified the entry of centralized expertise and production capability into the area of tactical decision assistance with products delivered in an operationally tailored format."<sup>276</sup>
- 1976 Operation of AFCS' weather facsimile switching center at AFGWC commenced, September 8.<sup>277</sup>
- 1976 Memorandum of agreement issued on joint service management and operation of DMSP weather satellite program, November 11.<sup>278</sup>
- 1977 MAC became specified command, February 1--no change in status vis-a-vis AWS.
- 1977 Last warrant officer in AWS, CWO Billy G. Hance (Det 7, 24WS, 5WW, Mather AFB, CA) retired, March 1.<sup>279</sup>



*First Model 5D DMSP weather satellite undergoing final testing at Vandenberg AFB, CA, prior to launch.*



*First Model 5D DMSP weather satellite atop Thor booster at Vandenberg AFB shortly before launch on September 11, 1976.*

- 1977 Air Force ordered transfer of AWS' weather equipment maintenance mission and most associated manpower to AFCS, April 1. Officially opposed to transfer initially, AWS changed its position in late 1975 and 1976. Mission transfer, which was to become effective October 1, 1977, reduced AWS by 785 manpower authorizations (approximately fifteen percent of its total). Net savings to Air Force in AWS maintenance manpower was ninety-four spaces.<sup>280</sup>
- 1977 Full-duplex (send and receive), 1200-word-per-minute data circuit between AFGWC and USAF ETAC operational, June 15.<sup>281</sup>
- 1977 As of July 1, AWS' authorized population was 5,689--lowest since immediate post World War II period



*COMEDS terminal at Tinker AFB being operated by Senior Airman Dan Vial, Det 1 of 7WW's 15WS.*

## Footnotes

- <sup>1</sup>"Hist of the AAF Wx Svc," Vol. I, 1935-41, pp. 48-58.
- <sup>2</sup>*Ibid.*, 59.
- <sup>3</sup>*Ibid.*, 59-61.
- <sup>4</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 354-55; and Vol. VII, *Services Around the World*, p. 336, of Wesley F. Craven and James L. Cate, ed., *The Army Air Forces in World War II* (Chicago: U. of Chicago Press, 1958).
- <sup>5</sup>"Hist of the AAF Wx Svc," Vol. I, 1935-41, pp. 66-67.
- <sup>6</sup>*Ibid.*, 69.
- <sup>7</sup>*Ibid.*, 71-72, and "Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 313-14.
- <sup>8</sup>"Hist of the AAF Wx Svc," Vol. I, 1935-41, p. 69.
- <sup>9</sup>*Ibid.*, 76-84.
- <sup>10</sup>Patrick Hughes, *A Century of Weather Service: A History of the Birth and Growth of the National Weather Service, 1870 - 1970* (New York: Gordon and Breach, Science Publishers, Inc., 1970) p. 196. This source hereinafter cited as *A Century of Weather Service*.
- <sup>11</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 129-30.
- <sup>12</sup>"Hist of the AAF Wx Svc," Vol. I, 1935-41, pp. 88-91.
- <sup>13</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 41-43, 165-66.
- <sup>14</sup>*Ibid.*, 210.
- <sup>15</sup>*Ibid.*, 200-01.
- <sup>16</sup>*Ibid.*, 12-14.
- <sup>17</sup>*Ibid.*, 190, and "Hist of the AAF Wx Svc," Vol. V, 1943-45, p. 510.
- <sup>18</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 4-6, 19-20, 22, and 38; and Vol. I, *Plans and Early Operations*, pp. 264-65, of Craven and Cate, ed., *The Army Air Forces in World War II* (Chicago: U. of Chicago Press, 1948).
- <sup>19</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, pp. 19-26.
- <sup>20</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 208, 543.
- <sup>21</sup>"Hist of the AAF Wx Svc," Vol. III, 1941-43, p. 28.
- <sup>22</sup>*Ibid.*, 271-79.
- <sup>23</sup>*Ibid.*, 312-18, 339-40, and 344-45.
- <sup>24</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, p. 476.
- <sup>25</sup>*Ibid.*, 444-45, 447.
- <sup>26</sup>*Ibid.*, 6-15, 35.
- <sup>27</sup>*Ibid.*, 509.



- <sup>28</sup>*Ibid.*, 29, 34-35.
- <sup>29</sup>*Ibid.*, 488.
- <sup>30</sup>*Ibid.*, 207-12.
- <sup>31</sup>*Ibid.*, 41-42.
- <sup>32</sup>*Ibid.*, 15-17.
- <sup>33</sup>*Ibid.*, 43-45, 47.
- <sup>34</sup>*Ibid.*, 568-69, and USAF Historical Study No. 56, "Weather Training In the AAF: 1937-1945," (Maxwell AFB, AL: Historical Div, Air U., 1952), pp. 140-41.
- <sup>35</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 19-20.
- <sup>36</sup>Special Study No. 2, "Utilization of WASPs In AAF Weather Service," (Asheville, NC: Hq AAF Wx Wg, Feb45), pp. 1-6, on file in AWS hist archives.
- <sup>37</sup>Ltr Fuller to AF/PRW (Col Bennet), "Origins of AWS Hurricane Recce Support to the DOC," 26Apr74, filed as Tab 42 in Vol. I of the "Special Studies."
- <sup>38</sup>USAF Historical Study No. 56, "Weather Training In the AAF: 1937-1945," p. 46.
- <sup>39</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, p. 485.
- <sup>40</sup>See official Williams biography in AWS hist archives.
- <sup>41</sup>Craven and Cate, *Services Around the World*, p. 345; and "Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 540-42.
- <sup>42</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 43-45, 158, and 347.
- <sup>43</sup>AR 95-150, 19May45, included as Appendix 75 in "Hist of the AAF Wx Svc," Vol. VI, 1943-45.
- <sup>44</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 75-77, 168.
- <sup>45</sup>Vol. V, *The Pacific: Matterhorn to Nagasaki, June 1944 to August 1945*, p. 716, of Craven and Cate, ed., *The Army Air Forces in World War II* (Chicago: U. of Chicago Press, 1953); Brig Gen Paul W. Tibbets (USAF Ret), "Training the 569th for Hiroshima," *Air Force Magazine*, Vol. 56, No. 8 (Aug73), pp. 49-55.
- <sup>46</sup>"Hist of the AAF Wx Svc," Vol. V, 1943-45, pp. 171-72.
- <sup>47</sup>Hist Office, Directorate of Information, Hq AWS, "Military Flight Service Centers, 1945-1961," 7Jun68, included as Tab 23 in Vol. I of the "Special Studies."
- <sup>48</sup>"Hist of the Air Wx Svc," Vol. VII, 1945-46, p. 255.
- <sup>49</sup>*Ibid.*, 178-81; and Hughes, *A Century of Weather Service*, 133, 197.
- <sup>50</sup>"Hist of the Air Wx Svc," Vol. VII, 1945-46, p. 209.
- <sup>51</sup>Conflicts exist over this date. Appendix 17 to the 1949 AWS history puts research and development transfer at 6 March 1947. *Ibid.* establishes it at 13 April 1947 (pp. 59, 231). The actual Hq AAF letter (ltr Maj Gen Curtis E. LeMay, Dep Ch of Air Staff for R&D, to Comdg Gen, ATC, "Meteorological Research and Development Responsibilities in the Air Forces") is dated 26 March 1967, and is on file in AWS archives in the "1947" ("Unification" folder) documents.

<sup>52</sup>From caption on Maj Fackler's picture, and from 59WRS and 55WRS unit histories for period.

<sup>53</sup>See "Highlights of AWS Activities for 1947," pp. 4-5, on file in "1947" documents of AWS archives.

<sup>54</sup>"Hist of the Air Wx Svc," 1949, p. 115; and "Hist of the Air Wx Svc," Jan-Jun50, p. 84).

<sup>55</sup>*AWS Bulletin*, 15May50, on file in "1947" documents of AWS archives.

<sup>56</sup>"Hist of the Air Wx Svc," 1949, pp. 100-01.

<sup>57</sup>"Hist of MATS," 1948, p. 375.

<sup>58</sup>Included as Appendix 2 to "Hist of the Air Wx Svc," 1949.

<sup>59</sup>"Hist of the Air Wx Svc," 1949, pp. 10-11.

<sup>60</sup>"Hist of AWS," Jul-Dec59, p. 188.

<sup>61</sup>"Hist of the Air Wx Svc," 1949, p. 120.

<sup>62</sup>"Hist of the Air Wx Svc," Jul-Dec50, p. 74.

<sup>63</sup>"Hist of the Air Wx Svc," Jan-Jun50, pp. viii, 27.

<sup>64</sup>"Hist of the Air Wx Svc," Jul-Dec50, p. ix.

<sup>65</sup>*Ibid.*, 78.

<sup>66</sup>20WS Hist, Jul-Dec50, pp. 203-04.

<sup>67</sup>514 Recon Sq (VLR) Wx hist for Oct-Dec50 contains copy of Cloniger's DFC citation.

<sup>68</sup>"Hist of the Air Wx Svc," Jul-Dec50, p. 76.

<sup>69</sup>20WS Hist, Jul-Dec50, pp. 192-93; and 2143AWWg Hist, Jul-Sep51, p. 6.

<sup>70</sup>"Hist of the Air Wx Svc," Jan-Jun51, pp. 21, 28.

<sup>71</sup>"Hist of the Air Wx Svc," Jan-Jun52, p. 208.

<sup>72</sup>"Hist of the Air Wx Svc," Jan-Jun51, pp. 146-47.

<sup>73</sup>Philip J. Klass, *Secret Sentries in Space* (New York: Random House, Inc., 1971), p. 76; U.S., Congress, House, Committee on Govt Ops, Rprt #177, *Government Weather Programs: (Military and Civilian Operations and Research)*, 89th Cong, 1st Sess., 17Mar65, p. 86.

<sup>74</sup>"Hist of the Air Wx Svc," Jan-Jun52, pp. 227-32.

<sup>75</sup>*Ibid.*, 196-98. <sup>76</sup>56WRS Hist, Jan-Mar52, p. 1.

<sup>77</sup>"Hist of the Air Wx Svc," Jan-Jun52, pp. 35-36.

- <sup>78</sup>*Ibid.*, 257.                      <sup>79</sup>*Ibid.*, 258-63.                      <sup>80</sup>*Ibid.*, 25-26, and 174-80.
- <sup>81</sup>56WRS Hist, Oct-Dec51, p. 1, and 56WRS Hist, Apr-Jun52, pp. 2, 10.
- <sup>82</sup>"Hist of the Air Wx Svc," Jul52-Jun53, p. 236; "Hist of the Air Wx Svc," Jul-Dec56, pp. 191-92.
- <sup>83</sup>"Hist of the Air Wx Svc," Jan-Jun52, pp. 54-59.
- <sup>84</sup>"Hist of the Air Wx Svc," Jul52-Jun53, pp. 250-60.
- <sup>85</sup>*Ibid.*, 190-91.                      <sup>86</sup>*Ibid.*, 230.
- <sup>87</sup>"Hist of the Air Wx Svc," Jul53-Jun54, p. 195.
- <sup>88</sup>Fuller, "Richard E. Ellsworth: Air Weather Service, 1942-1949," May68, pp. 1-12, filed as Tab 40 in Vol. I of the "Special Studies."
- <sup>89</sup>*Observer* (Dec54), p. 1, and *Observer* (Sep55), p. 6.
- <sup>90</sup>See supporting documents to 2143d AWWg and 56SRS (M) histories for period Jul-Dec53, and "Hist of AWS," Jul-Dec59, p. 188.
- <sup>91</sup>"Hist of the Air Wx Svc," Jul-Dec54, p. 180.
- <sup>92</sup>*Ibid.*, 165.                      <sup>93</sup>*Ibid.*, 177.                      <sup>94</sup>*Ibid.*, 168.
- <sup>95</sup>*Observer* (Dec58), p. 1.
- <sup>96</sup>*Ibid.*, (Jan55), p. 1; and "Hist of the Air Wx Svc," Jul-Dec54, p. 59.
- <sup>97</sup>*Observer* (May55), p. 1.
- <sup>98</sup>59 Wx Recon Flt Hist, Jul-Dec55.
- <sup>99</sup>"Hist of the Air Wx Svc," Jul-Dec55, pp. 33, 77.
- <sup>100</sup>"Hist of the Air Wx Svc," Jan-Jun56, p. 203.
- <sup>101</sup>"Hist of the Air Wx Svc," Jan-Jun58, p. 77.
- <sup>102</sup>"Hist of the Air Wx Svc," Jan-Jun56, p. 159.
- <sup>103</sup>"Hist of AWS," Jul-Dec58, p. 304.
- <sup>104</sup>1WGP Hist Jan-Jul56, p. 8; and 1WGP Hist, Jan-Jun57, p. 9.
- <sup>105</sup>"Hist of the Air Wx Svc," Jul-Dec56, pp. 202-03.
- <sup>106</sup>"Hist of the Air Wx Svc," Jan-Jun57, pp. 96-101.
- <sup>107</sup>*Ibid.*, 163-69.
- <sup>108</sup>"Hist of the Air Wx Svc," Jul-Dec56, pp. 217-18.
- <sup>109</sup>*Ibid.*, 182.

- 110 Included as Sup Doc F in "Hist of the Air Wx Svc," Jan-Jun57.
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- 125 "Hist of AWS," Jul-Dec59, pp. 159-60.
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- 127 "Hist of AWS," Jul-Dec59, p. 322.
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- 129 Hughes, *A Century of Weather Service*, p. 201.
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- 150 "Hist of AWS," 1962, pp. 237-38.
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- 157 "Hist of AWS," Jul63-Jun64, p. 233.
- 158 *Ibid.*, 218; and "Hist of AWS," Jan-Jun63, pp. 130-31.
- 159 "Hist of AWS," Jul63-Jun64, pp. 200-07.
- 160 *Ibid.*, 143.                   161 *Ibid.*, 21-27.                   162 *Ibid.*, 148.
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- 164 *Ibid.*                   165 "Hist of AWS," Jul63-Jun64, p. 52.
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- 169 AWS Chronology, FY65, p. 10.                   170 *Ibid.*
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- <sup>173</sup>The "official" unclassified date authorized for use in 1977.
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- <sup>175</sup>*Ibid.*, 98; and AWS Chronology FY67, p. 10.
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- <sup>177</sup>*Ibid.*, 117-20.
- <sup>178</sup>"Hist of AWS," Jul66-Jun67, pp. 268-69.
- <sup>179</sup>"Hist of AWS," Jul65-Jun66, p. 102.
- <sup>180</sup>"Hist of AWS," Jul66-Jun67, p. 262.
- <sup>181</sup>*Ibid.*, 236.                      <sup>182</sup>*Ibid.*, 287.                      <sup>183</sup>*Ibid.*, 188.
- <sup>184</sup>*Ibid.*, 272.                      <sup>185</sup>*Ibid.*, 273.
- <sup>186</sup>*Ibid.*, 126-32; and U.S., Cong, Senate, Subcommittee on Oceans and International Environment of the Committee on Foreign Relations, *Hearings: Weather Modification*, 93d Cong, 2d Sess, 1974, pp. 88-123.
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- <sup>189</sup>"Hist of AWS," Jul67-Jun69, pp. 101-46.
- <sup>190</sup>*Ibid.*, 524-26, and 557-59.
- <sup>191</sup>Hughes, *A Century of Weather Service*, p. 201.
- <sup>192</sup>"Hist of AWS," Jul66-Jun67, p. 61.
- <sup>193</sup>"Hist of AWS," Jul67-Jun69, p. 205.
- <sup>194</sup>LWGp Hist, Jan-Jun68, pp. ii, 10.
- <sup>195</sup>"Hist of AWS," Jul67-Jun69, p. 443.
- <sup>196</sup>*Ibid.*, 47-52, 68-69.                      <sup>197</sup>*Ibid.*, 204.
- <sup>198</sup>"Hist of AWS," Jul69-70, p. 30.
- <sup>199</sup>"Hist of AWS," Jul67-Jun69, pp. 148, 162, and 172.
- <sup>200</sup>"Hist of AWS," Jul69-Jun70, p. 269.

- 201 "Hist of AWS," Jul67-Jun69, p. 567.
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- 208 "Hist of AWS," Jul69-Jun70, p. li.                    209 *Ibid.*, 266.
- 210 *Ibid.*, lii.                    211 *Ibid.*, liv.                    212 *Ibid.*
- 213 *Ibid.*, 177.
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<sup>234</sup>"Hist of AWS," Jul71-Jun72, pp. 98-106.

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<sup>236</sup>Ltr Lt Col William D. Roper, Directorate of Operational Eval, DCS Ops, AWS, to All AWS Units, "Implementation of Regional Briefing Station (RBS) Concept," 12May72, available in AWS archives.

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<sup>238</sup>"Hist of AWS," Jul71-Jun72, p. 248.

<sup>239</sup>"Hist of AWS," Jul72-Jun74, pp. 403-04.

<sup>240</sup>"AWS Staff Meeting Minutes," No. 44, 30Oct-3Nov72, p. 6.

<sup>241</sup>"Hist of AWS," Jul72-Jun74, pp. 438-43.

<sup>242</sup>Msg 6WW (DOB) to AFGWC (DO), 1WW (DOK) and 2WW (DOK), info AWS (SYCF), "Direct Drive Facsimile Effectiveness," 031700ZJan73, available in AWS archives.

<sup>243</sup>"Hist of AWS," Jul72-Jun74, pp. 99-106.

<sup>244</sup>MAC SO G-86, 12Feb73.

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<sup>246</sup>"Hist of AWS," Jul72-Jun74, pp. 456-58.

<sup>247</sup>*Ibid.*, 18-42.

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<sup>250</sup>AWS Chronology, 1973, p. 19.

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<sup>252</sup>"Hist of AWS," Jul72-Jun74, p. 179.

<sup>253</sup>*Ibid.*, 48.

<sup>254</sup>*Ibid.*, 185; and "Hist of AWS," Jul74-Dec75, pp. 229, and 238-39.

<sup>255</sup>"Hist of AWS," Jul72-Jun74, p. 335; and "Hist of AWS," Jul74-Dec75," p. 78.

<sup>256</sup>Msg CSAF (RDS) to AWS (SY--Col Mendez-Vigo) and AFSC (SDS--Col Johnston), info SAMSO (YD--Col Botzong), AFGWC (CC--Col Johnston), and 6WW (CC--Col Million),

"Coordination of Military and Civil Metsat Programs," 231939ZJul74, available in AWS archives.

- 257 "Hist of AWS," Jul74-Dec75, pp. 175-79.
- 258 *Ibid.*, 14-41.                      259 *Ibid.*, 52-55.                      260 *Ibid.*, 275-421.
- 261 *Ibid.*, 150-51.                      262 *Ibid.*, 169.                      263 *Ibid.*, 437.
- 264 *Ibid.*                      265 *Ibid.*, 438.                      266 *Ibid.*, 249.
- 267 *Ibid.*, 75-78.                      268 *Ibid.*, 440.
- 269 *Ibid.*, 4-6; and "Hist of AWS," 1976, pp. 1-16.
- 270 "Hist of AWS," Jul74-Dec75, p. 268.
- 271 "Hist of AWS," 1976, pp. 82-83.
- 272 Hq AWS "Staff Meeting Minutes," No. 8, 1-12Mar76, p. 3.
- 273 *Ibid.*, No. 10, 29Mar-2Apr76, p. 2.
- 274 *Ibid.*, No. 23, 6-9Jul76, p. 2.
- 275 "Hist of AWS," 1976, p. 81.
- 276 Msg 3WW (DO) to 9WS (DO), *et al.*, info 1WW (DO), *et al.*, "AFGWC MSI Forecasts for ARS," 162119ZSep76; and AWS Recurring Pub 105-1, *Operations Digest* (Dec76), p. 2.
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- 278 Ltr Col Hyko Gayikian, ch of staff, AWS, to AFGWC/CC, "MOA on the Joint Services Management and Operations of the DMSP," 14Jan77, available in the AWS archives.
- 279 USAF (322d Flying Tng Wg, ATC) News Release #76-12-9, 7Dec76.
- 280 "Hist of AWS," Jul74-Dec75, pp. 45-50; "Hist of AWS," 1976, pp. 16-20; and ltr Maj Gen Jack I. Posner, Dir of Manpower & Org, DCS Programs and Resources, Hq USAF, to AFCS (XP) and MAC (XP), "Consolidation of AFCS/AWS Ground Maintenance Functions (AFCS/MAC Programming Plan 1-76)," 1Apr77.
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# COMMANDERS



*Senter to Moorman, 1954*



*...to Peterson, 1958*



*...to Nelson, 1963*  
*..to Best, 1970*



*...to Pierce, 1965*



*...to Collens, 1974*



*...to Aldrich, 1973*



*...to Rowe, 1975*



COMMANDERS OF AWS

Capt Robert M. Losey	1 Jul 37 - 17 Jan 40
Maj Arthur F. Merewether	18 Jan 40 - 7 Jan 42
Col Don Z. Zimmerman	8 Jan 42 - 8 Mar 43
Col Harold H. Bassett	9 Mar 43 - 9 Jan 45
Brig Gen Donald N. Yates	10 Jan 45 - 31 Jul 50
Maj Gen William O. Senter	1 Aug 50 - 22 Apr 54
Maj Gen Thomas S. Moorman, Jr	23 Apr 54 - 27 Mar 58
Col Norman L. Peterson	28 Mar 58 - 12 Nov 58
Maj Gen Harold H. Bassett	13 Nov 58 - 31 Oct 59
Brig Gen Norman L. Peterson	1 Nov 59 - 17 Mar 63
Brig Gen Roy W. Nelson, Jr	18 Mar 63 - 5 Oct 65
Maj Gen Russell K. Pierce, Jr	6 Oct 65 - 26 Jul 70
Brig Gen William H. Best, Jr	27 Jul 70 - 29 Jul 73
Brig Gen Thomas A. Aldrich	30 Jul 73 - 14 Feb 74
Brig Gen John W. Collens III	15 Feb 74 - 5 Aug 75
Brig Gen Berry W. Rowe	6 Aug 75 -

## PERSONNEL

At left, Pfc Angela Michael, weather observer at Carlsbad AAF, NM, uses clinometer to measure cloud heights, 1944.



Above, Sgt Alice L. Hill, 18WS weather observer, enters latest observation, 1951.



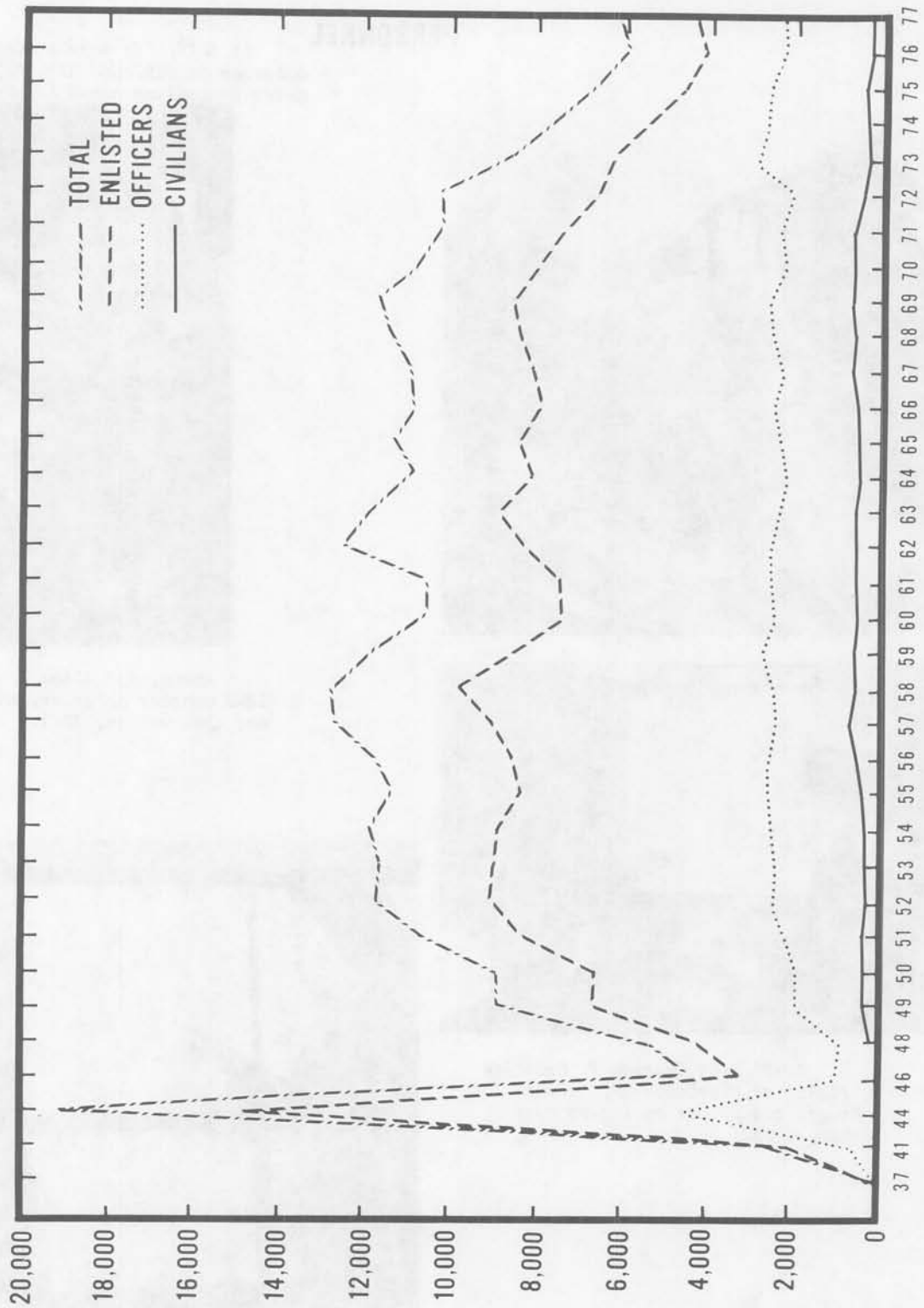
18WS' 1/Lt Charles V. Brantley (right) at Wiesbaden AB, Germany, briefs two pilots on latest weather, 1951.



2WW's Maj Valoris M. Olson briefing Brig Gen David C. Jones, USAF Inspector General, 1966.

# AIR WEATHER SERVICE PERSONNEL ASSIGNED

AS OF 30 JUNE (1937-1977)



AIRCRAFT







## GLOSSARY

AAB	Army Air Base
AAC	Army Air Corps
AACS	Army Airways Communications System/Airways and Air Communications Service
AAF	Army Air Forces
AB	Air Base
ABW	Air Base Wing
AC/AS, OC&R	Assistant Chief of Air Staff for Operations, Commitments, and Requirements
ADWS	Automated Digital Weather Switch
AESC	Aerospace Environmental Support Center
AFB	Air Force Base
AFBMD	Air Force Ballistic Missile Division
AFCS	Air Force Communications Service
AFGWC	Air Force Global Weather Central
AFMPC	Air Force Military Personnel Center
AFR	Air Force Regulation
AFSC	Air Force Specialty Code
AI	Army Installation
AME	Atmospheric Measuring Equipment
AMS	American Meteorological Society
APT	Automatic Picture Transmission
AR	Army Regulation
ARQ	Automatic Response to Query
ARRS	Aerospace Rescue and Recovery Service
AS	Air Station
ATC	Air Transport Command
AUTODIN	Automatic Digital Network
AWN	Automated Weather Network
AWS	Air Weather Service
AWSR	Air Weather Service Regulation
COMEDS	CONUS Meteorological Data System
COMET	CONUS Meteorological Teletype
CONUS	Continental United States

CWO	Chief Warrant Officer
DDOES	Deputy Director for Operations/Environmental Services
DFC	Distinguished Flying Cross
DMSP	Defense Meteorological Satellite Program
DSAP	Defense System Applications Program
EASTAF	Eastern Transport Air Force
ECM	Electronic Countermeasures
ESSA	Environmental Science Services Administration
ETAC	Environmental Technical Applications Center
GOC	Ground Observer Corps
IBM	International Business Machines
ICAMR	Interdepartmental Committee for Applied Meteorological Research
ICMS	Interdepartmental Committee for Meteorological Services
JCS	Joint Chiefs of Staff
JNWPU	Joint Numerical Weather Prediction Unit
MAC	Military Airlift Command
MATS	Military Air Transport Service
MET	Management Engineering Team
MFSC	Military Flight Service Center
MIDAS	Missile Detection and Surveillance
MSI	Mission Success Indicator
MWWC	Military Weather Warning Center
NACA	National Advisory Committee for Aeronautics
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Air Defense Command
NWS	National Weather Service
OFCM	Office of the Federal Coordinator for Meteorological Services and Supporting Research
OMB	Office of Management and Budget
PACAF	Pacific Air Forces
QOR	Qualitative Operational Requirement
RCA	Radio Corporation of America
RVR	Runway Visual Range
SAC	Strategic Air Command
SAES	Special Assistant for Environmental Services

SAGE	Semi-Automatic Ground Environment
SAMOS	Satellite and Missile Observation System
SELS	Severe Local Storm
SESS	Space Environmental Support System
SOFNET	Solar Observing and Forecasting Network
TAC	Tactical Air Command

## I N D E X

- AACS - See Army Airways Communications System
- AAF - See Army Air Forces
- AAF School of Applied Tactics, 6
- AAF Weather Central - See Weather Research Center
- AAF Weather Service - See Army Air Forces Weather Service
- AAF Weather Service Central - See Weather Research Center
- AAF Weather Wing, 5-8
- AC/AS, OC&R - See Assistant Chief of Air Staff for Operations, Commitments, and Requirements
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- Aerospace Environmental Support Unit, 34, 39
- Aerospace Rescue and Recovery Service (ARRS), 37, 40
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- AFGWC - See Air Force Global Weather Central
- AFSC - See Air Force Specialty Code
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- Air Corps Weather School, 2
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