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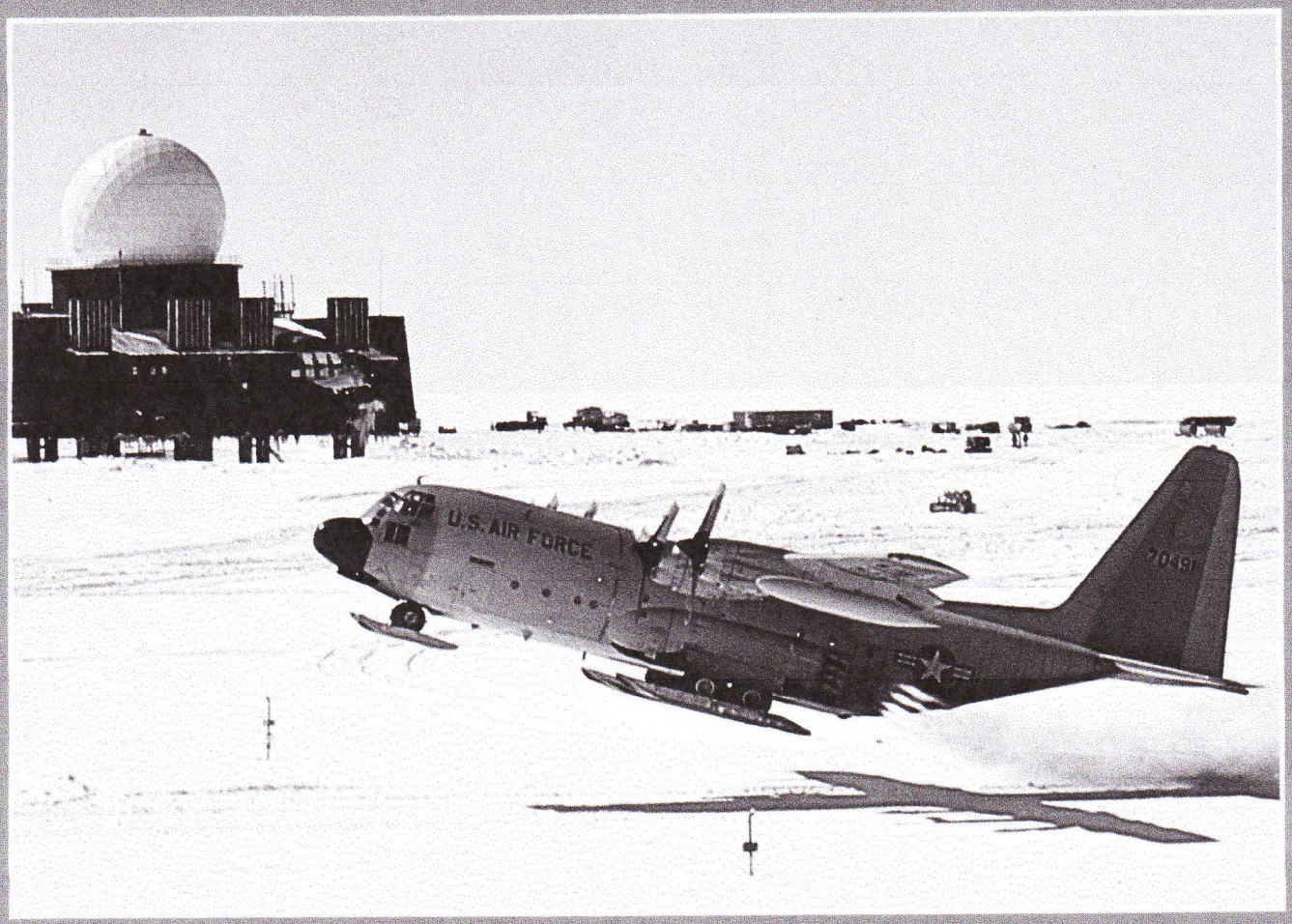


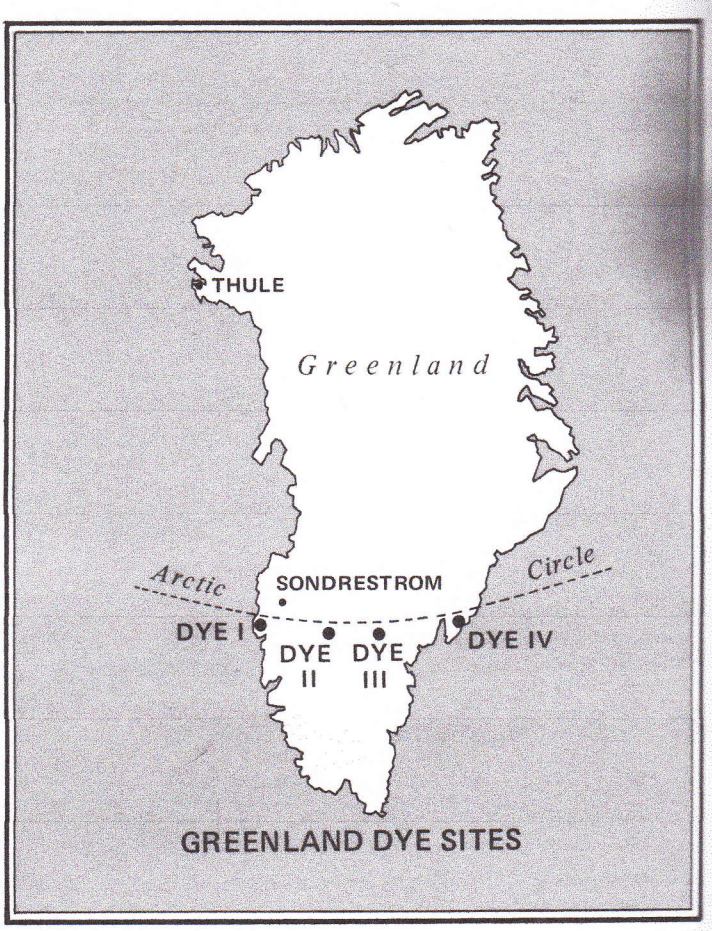
Skibirds on the Ice Cap

By John H. Cloe

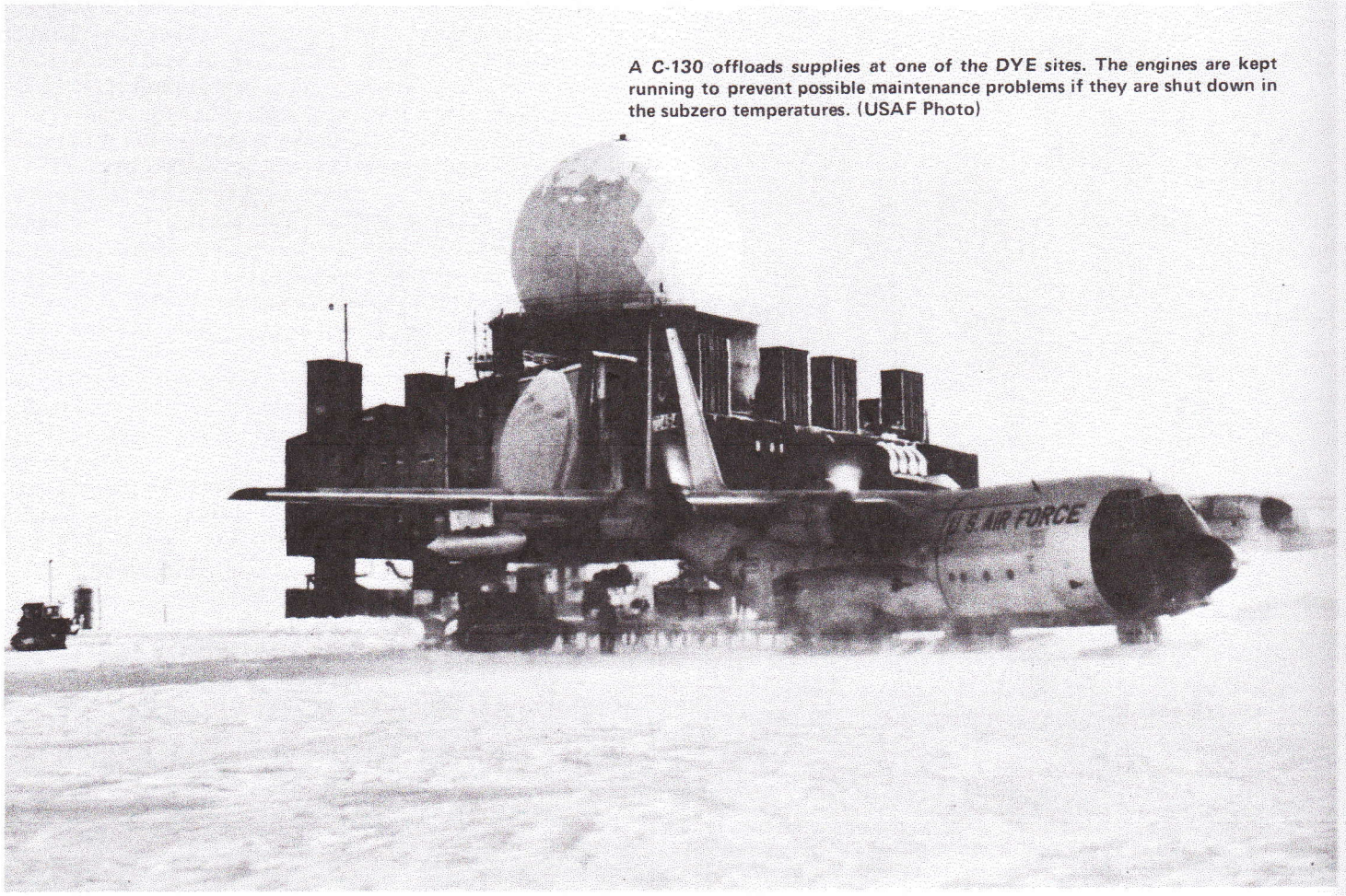
On June 19, 1975, a lone C-130D touched down at Elmendorf Air Force Base near Anchorage, Alaska. The return of 57-0490 from Sondrestrom Air Base, Greenland, marked an end of an era for the Elmendorf-based 17th Tactical Airlift Squadron which had, since 1961, deployed their C-130D skibirds across the Arctic Basin in support of two DEW Line radar sites, DYE II and DYE III, on the Greenland Ice Cap.

The Firebirds had flown their last Greenland Ice Cap support mission. Eleven days later, on July 1, the mission was officially transferred to the Air National Guard's 109th Tactical Airlift Group, Schenectady County Airport, New York.

With the transfer, the group became the third Air Force unit to fly support for the two DYE sites, and like their predecessors they were privileged to see one of the most incredible views on the earth—the lonely and vast expanse of the Greenland Ice Cap. They would also continue to fly the only ski-wheel C-130s in the Air Force inventory, the Lockheed C-130D Hercules.



GREENLAND DYE SITES



A C-130 offloads supplies at one of the DYE sites. The engines are kept running to prevent possible maintenance problems if they are shut down in the subzero temperatures. (USAF Photo)

The mission to support the two DYE sites and the C-130Ds was the result of one of the most monumental construction projects ever undertaken—the DEW Line, which was built across the high Arctic during the 1950s. Formally dedicated at Point Barrow, Alaska, on August 13, 1957, the DEW Line had been conceived from a growing post-World War II concern that North America was no longer immune from long-range bomber attacks, particularly from over the Arctic Polar regions.

In 1952 the Lincoln Laboratory of the Massachusetts Institute of Technology sponsored a "Special Summer Group" to consider ways to guard against such an attack. By the end of August the group submitted recommendations envisioning a line of radar stations across northern Alaska and Canada, connecting at both ends with the Alaskan Air Command (AAC) and Northeast Air Command (NEAC) radar networks. After debate and further study, the project was formally approved by President Eisenhower on February 24, 1954; and actual construction began in early 1955. Work was completed July 1, 1957; and one month later, the line was declared operational.[1]

In 1956 the Joint Chiefs of Staff authorized two extensions to the DEW Line. Plans for the Western extension called for six auxiliary radar sites in the Aleutian Islands. In the east, four auxiliary radar sites were to be built across Greenland.[2] Information, instructions and a directive to plan the Greenland extension were sent to NEAC by Headquarters USAF in May 1956. A construction completion date was set for "as early as possible in 1960."[3] Although NEAC, located at Pepperrell Air Base, St. Johns, Newfoundland, was scheduled for inactivation in early 1957, it was still responsible for planning, siting, programming, and funding the Eastern extension—obviously as long as the command continued in existence.[4] The extension planned stretched eastward from the already established main radar site (DYE Main) at Cape Dyea, on the east of Baffin Island, across Greenland (DYE I, II, III, and IV) to DYE V on Iceland which in turn was linked with the North Atlantic Radar System. In April 1957, NEAC was inactivated, and the Air Defense Command, later changed to Aerospace Defense Command (ADC), assumed responsibility for the Eastern sector through the 64th Air Division at Pepperrell. Ultimately, ADC was made responsible for the entire DEW Line.[5]

During the first half of 1957, Project Look See was carried out in two phases by the 64th Air Division to select the radar sites in Greenland. Phase One (August 8 through November 2) was a coastal survey by ship to select two coastal sites; Phase Two was an approximately six-hour C-54 aerial survey, flown September 25, over the southern half of the Ice Cap. Two potential sites in areas free of crevasses and serious snow melting were identified. Both locations afforded good radar and radio coverage. Since the areas had been used by several scientific expeditions, information on their characteristics were also available. The location of site one was approximately 100 miles due east of Sondrestrom Air Base, which was located at the head of Sondre Stromfjord, Greenland's second longest fjord some 33 miles above the Arctic Circle. Site two was 100 miles beyond site one and slightly south.[6] The following spring, a ground reconnaissance party made the final selections. Among its members was Colonel Bernt Balchen, the famed Arctic and Antarctic explorer, who had helped select the location for Sondrestrom AB and later played a leading role in its construction. Later, as its commander during World War II, he had led several difficult rescue operations on the Ice Cap.[7]

The final site selections from west to east were: DYE I, near Qayatagag on the west coast; DYE II, approximately 100 miles

A C-130D offloads fuel at one of the DYE sites. (USAF Photo)

The beginning of the Greenland Ice Cap. (Author's Photo)

east of Sondrestrom and 90 miles south of the Arctic Circle at an altitude of 7,600 feet; DYE III, approximately 100 miles east of DYE II and slightly south at 8,600 feet; and DYE IV, near Kulusuk on the East Coast. The four auxiliary radar sites took the DYE designation from the main radar site, DYE Main, at Cape Dyea.[8]

The sites chosen for DYE II and DYE III were on one of earth's most barren regions—the frozen desert-like waste of the Greenland Ice Cap. Its seemingly limitless expanse covered an area of 650,000 square miles, and was only exceeded in size and desolation by the Antarctic Ice Sheet. The average thickness of the ice was 4,800 feet, and in places, reached 10,000 feet. The great mass of ice formed during the Tertiary period, pressed down on a bowl-shaped island which once enjoyed a climate similar to the present-day Mediterranean area.

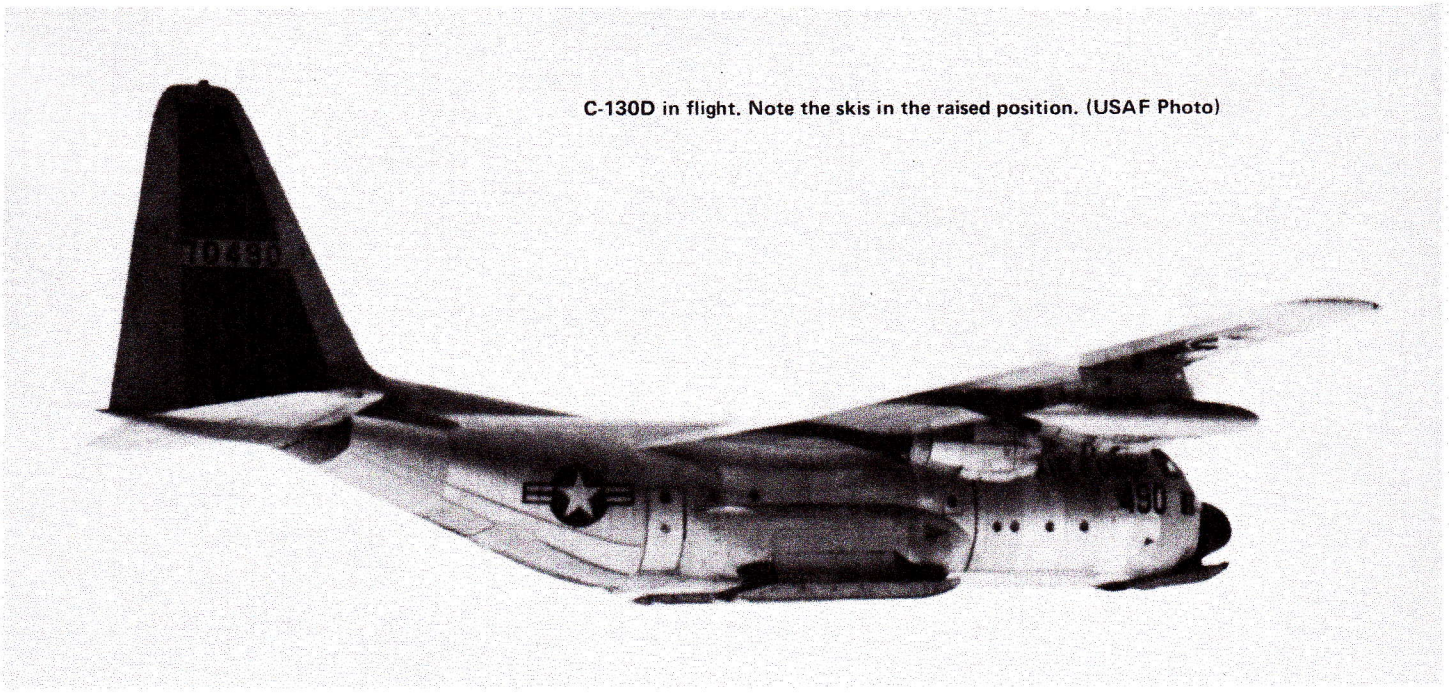
Only along portions of the northeast and northwest did the ice reach to the sea. The remainder of the sheet was blocked by the coastal mountain barrier. The growth of the Ice Cap had reached a static stage where the annual accumulation of snow matched the depletion due to glacial flow, surface melting and evaporation. While the inland ice was flat, stable and fairly safe to move on, the 75-mile-wide outer rim, called the marginal zone, was heavily crevassed, unstable and dangerous. It was a difficult, treacherous place to cross by surface means.

Up until the nineteenth century, the Ice Cap was avoided. The Eskimos who settled Greenland from nearby Ellesmere Island feared the ice and ventured onto it only when they had to. The Norsemen who came later, under the leadership of Erik the Red, also shunned the place. During the last half of the nineteenth century, however, there was an awakening of interest in glaciology, and expeditions began to explore the Ice Cap. In 1888 the Norwegian explorer Fridtof Nansen, with a party of five, after some effort, succeeded in crossing its lonely expanse in the vicinity of the present-day DYE sites. Since then, exploration has continued and expeditions have become fairly common.[9]

Like the earlier explorers, the planners of DYE II and III had to solve the problems of transporting their construction materials across the marginal zone; and once on the inland ice, building a place where men could comfortably live and work, protected from the harsh elements. Since the two sites were to be permanent, resupply on a sustained and regular basis was an important consideration. With the exception of areas near Thule on the northwest coast, the marginal zone had blocked all but the most determined efforts to cross it by surface means. Even in the Thule area, special roadways had to be constructed with some difficulty, and tracked vehicles had to be used to gain access to the inland ice.[10]

In 1958 the Army Operation King Dog was carried out to blaze a surface route from Sondrestrom through the marginal zone and onto the inland ice. With great difficulty, the party managed to cross the marginal zone and move 76 miles onto the Ice Cap before turning back.[11]

The obvious answer to the transportation problem was airlift. Aircraft had landed and taken off from the Ice Cap under emergency conditions during World War II. In 1947 the first deliberate landings and takeoffs were made with a ski-equipped C-47 during Project Snowman, an Air Force effort to determine feasibility of operating aircraft on the Ice Cap.[12] During 1957 and early 1958, the Air Force conducted extensive testing of a ski-wheel configured C-130A (Air Force S/N 55-0021) which could be operated from both conventional runways and snow or ice-covered surfaces.[13] The tests proved the Lockheed manufactured aircraft



C-130D in flight. Note the skis in the raised position. (USAF Photo)

could successfully do what had already been done by the C-47 and the C-123J. During 1958, 12 C-130As (57-0484 through 57-0495) were converted to ski-wheel equipped C-130Ds at Lockheed's Marietta, Georgia plant, and were accepted by the Air Force on the following dates:[14]

C-130D ACCEPTANCE

AIRCRAFT NUMBER	DATE	AIRCRAFT NUMBER	DATE
57-0484	13 Aug 1958	57-0490	23 Aug 1958
57-0485	19 Aug 1958	57-0491	3 Sep 1958
57-0486	15 Aug 1958	57-0492	10 Aug 1958
57-0487	20 Aug 1958	57-0493	Unknown
57-0488	4 Sep 1958	57-0494	11 Oct 1958
57-0489	12 Sep 1958	57-0495	Unknown

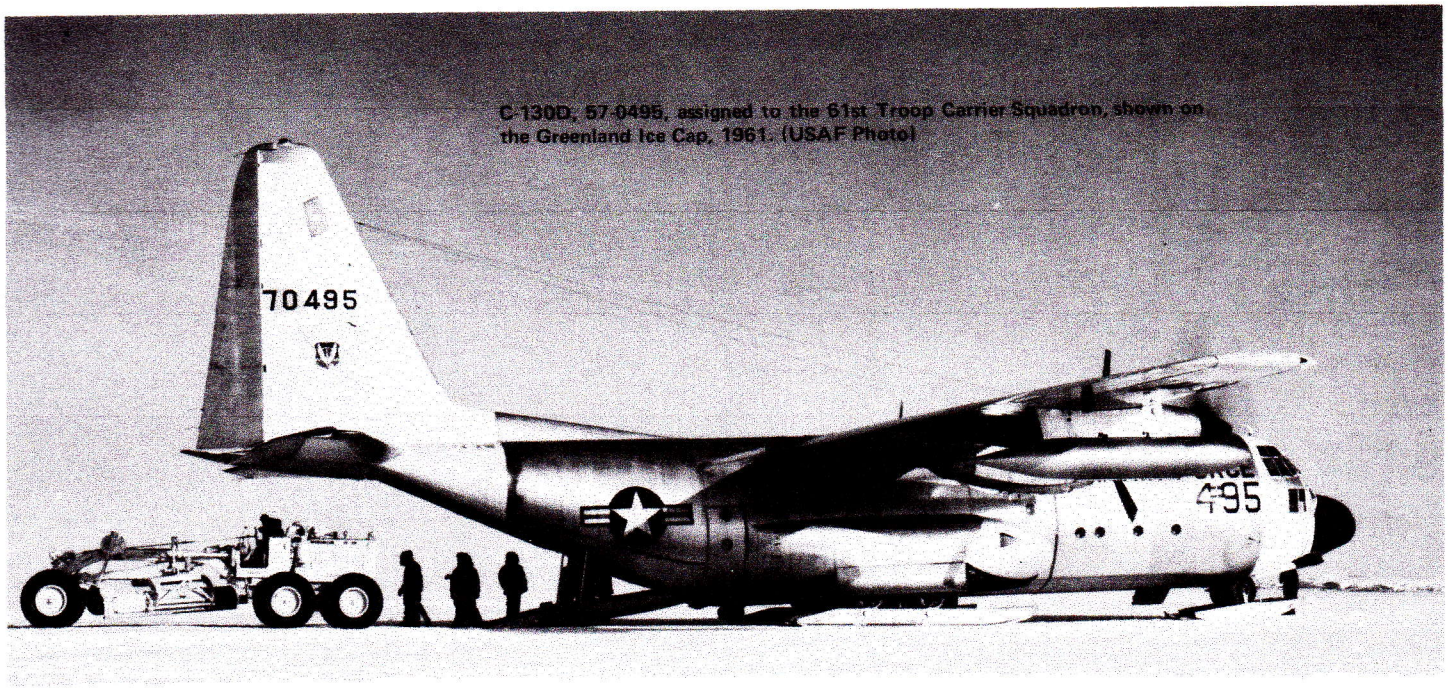
They were, and still are, the largest aircraft to be equipped with skis. The Ds were the only ski-wheel equipped C-130s built for the Air Force. The modification involved installation of a nose and two main skis fitted around the conventional landing gear. The nose ski measured 10 feet long and 5 feet 6 inches wide. The main skis were 20 feet long by 5 feet 6 inches wide. They had an 8° nose-up and 15° nose-down pitch to enable them to follow uneven surfaces. The undersides were coated with teflon to reduce surface friction and resist adhesiveness to ice and snow. The installation increased the aircraft weight by approximately 5,500 pounds.[15] Airspeed was reduced by about 20 knots. The ski installations and their associated hydraulic systems caused some unique maintenance problems. One problem caused normal time to change a tire to be increased from 45 minutes to 10 hours.[16] Because of the long distances the aircraft were expected to fly, two 450-gallon underwing pylon fuel tanks were installed, and provisions were made for two 500-gallon cargo compartment tanks.[17] Later, in 1966, two 450-gallon tanks were installed in the inboard wing dry-bay area.[18]

While the Air Force was developing the C-130D, the Army Corps of Engineers was planning and designing the two Ice Cap sites. Since they were to be permanent structures, new designs and techniques had to be developed to overcome the geological and environmental problems of the Ice Cap if the sites were to remain in operation for any length of time. The Air Force had had some experience with a permanent facility on the Ice Cap. In 1953 two radar sites, N-33 and N-34, were constructed near Thule AB to extend the base's radar capability. The structures were tubular-type and were below the surface of the ice. They were resupplied by ski-equipped C-47s. However, the two sites were constantly plagued with problems. The heat from the buildings caused the surrounding ice to melt; the drinking water assumed the taste and smell of diesel fuel; and the high elevation adversely affected power production. Finally the sites, which had been compared to submarines floating in the ice, deteriorated to a point where they had to be abandoned in 1957.[19]

The problems of N-33 and N-34 were considered in the construction of the two Ice Cap DYE sites. The selected location for the two DYE sites was in an area of relatively high precipitation where snow accumulated three to four feet annually. In addition, the snow constantly drifted piling up against anything in its path. Other factors considered by the engineers were the violent winds, an Ice Cap phenomenon which often reached 100 miles per hour, and the subzero temperatures. Temperatures of -40°F were considered normal during the winter months. Because the mission of the DYE sites demanded that the radar and radio antennas be free from obstructions and interference, the traditional below surface construction was ruled out. The Army's Cold Region Research and Engineering Laboratory (CRREL) ran a series of wind tunnel tests to determine the best type structure to overcome the difficulties while still providing the best radar and radio coverage.

The tests proved that, if the structure was elevated 20 feet above the surface, the drifting snow would pass underneath, and the little snow that did accumulate could easily be removed by a bulldozer. The problem of accumulating snow was overcome by installing two 350-ton jacks in each of the eight columns supporting the structure, or composite building, as it was called. In this manner, the composite building could periodically be lifted to maintain the proper 20-foot distance and adjustments made to compensate for the movement of the ice. The eight supporting columns rested on a raft-like grill originally buried some 30 feet below the surface. Interconnecting steel trusses below the surface connected the columns to prevent lateral movement of the structure caused by high winds.

The composite building, which measured 133 feet wide by 144 feet long, consisted of two stories and a mezzanine. Perched on top was a two-story radar tower and dome. Within the building



C-130D, 57-0495, assigned to the 61st Troop Carrier Squadron, shown on the Greenland Ice Cap, 1961. (USAF Photo)

were electronic equipment, shops, offices, a power room, a heating facility, a snow melter for water, living, dining, and recreational facilities for 24 men. Outside were sled-mounted survival and vehicle storage buildings. Sewage was pumped into a sanitary well some 500 feet from the sites. Heat retained in the sewage created a chamber under the ice which extended downward with continued use. Four 100,000-gallon, under-ice tanks were located near each site to store the approximately 350,000 gallons of arctic diesel fuel needed annually to run the six diesel engines used to provide electric power and heat.[20] Having solved the problems of transportation and construction, the Air Force and the Corps of Engineers were ready to proceed with the job of building the two sites.

On March 19, 1958, the U.S.-Danish agreement authorizing construction of the Greenland sites was signed.[21] That same year the Corps of Engineers awarded contracts for the procurement of materials and equipment. In the case of the two coastal sites, whose construction was similar to the other DEW Line sites, the materials conformed to the standards used throughout the DEW system. However, with the Ice Cap sites, it was a different story. No single item could exceed 9x9x41 feet in size or weigh more than 15 tons—the limitation of the C-130D.[22]

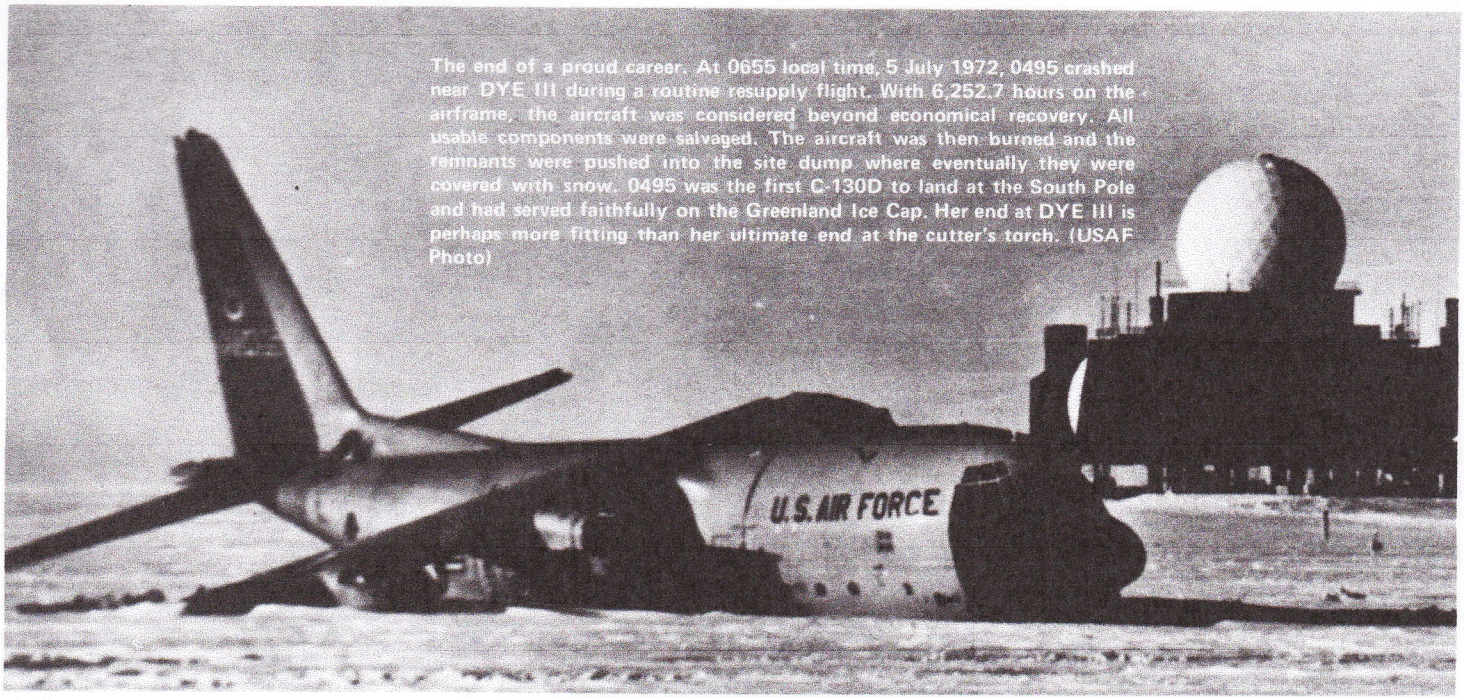
In February 1959, the 314th Troop Carrier Wing at Sewart AFB, Tennessee, was formally assigned the mission of airlifting construction materials and equipment to the two sites. The Wing, in turn, tasked one of its subordinate squadrons, the 61st Troop Carrier Squadron (61 TCS) to do the job. The squadron had already participated on a limited scale in some of the earlier Greenland site survey missions and had begun receiving its C-130Ds during the last half of 1958. Prior to deploying to Sondrestrom to begin the airlift, the TCS was sent to Bemidji, in northern Minnesota, for five weeks of training on the nearby frozen lake of the same name. There, they learned how to operate and maintain their new aircraft. Three aircraft were deployed to Bemidji and based at the local civilian airport. Each aircrew was sent to Bemidji for one week, during which they received a checkout in the C-130D, and attended a 24-hour survival school as part of their arctic indoctrination.

On March 19, the squadron began its movement to Sondrestrom. By April 1, the official start date, five aircraft were in place to begin the airlift, although the first operational mission had already been flown in March, when a C-130D landed near the site of DYE II. By May 2, all 12 aircraft had arrived.

During the first two weeks in April, three aircraft were disabled in rapid succession by accidents on the Ice Cap. Flight procedures were changed, and a 6,000 by 200-foot landing strip was cleared at each site. After that, the airlift operations went smoothly.[23] The crews flew their C-130Ds on an almost ceaseless schedule, having as many as 10 of the 12 aircraft airborne at a time. Flight operations usually began at 0400, and continued through the long hours of daylight. By the end of six months, approximately 127,985 tons of cargo had been hauled to the sites. Because of the approaching winter, operations were halted. The partially completed sites were closed for the season and left to the elements.[24]

When the squadron returned to Sewart AFB, Tennessee, in late 1959, it was directed to furnish support to the U.S. Navy's scientific project Deep Freeze 60 in the Antarctic on the opposite side of the world from Greenland. Since the 61 TCS and its aircraft would not be needed on the Greenland Ice Cap until March 1960, and the Navy needed immediate help to transport construction material to two of its scientific sites, the squadron was directed by Headquarters USAF to support the effort. Ten aircrews and seven C-130Ds were selected. After a period of training at Bemidji during December 7 through 11, 1960, in preparation for project Ice Flow, the name of the Antarctic support mission, the squadron, on January 7, began the 13,850-mile deployment across the Pacific Ocean to Christchurch, New Zealand. Ten days later, all seven C-130Ds and one support C-130A arrived. After a brief rest, the C-130Ds began the last leg of their flight to McMurdo Sound, leaving New Zealand in one-hour intervals on January 14. However, strong head winds forced their return, and it was not until January 23 that the squadron finally reached their destination.

Despite some initial coordination problems, marginal weather and inadequate ground navigational aids, between January 23 and February 15, the seven C-130Ds airlifted an impressive 400 tons of cargo from McMurdo to two research stations, Marie Byrd and Amundsen-Scott, the latter located at the South Pole.[26] Lieutenant Colonel Wilbert Turk, Squadron Commander in charge of the squadron operations, flew the first mission into Amundsen-Scott in C-130D, 57-0495, nicknamed "Frozen Assets." On board was



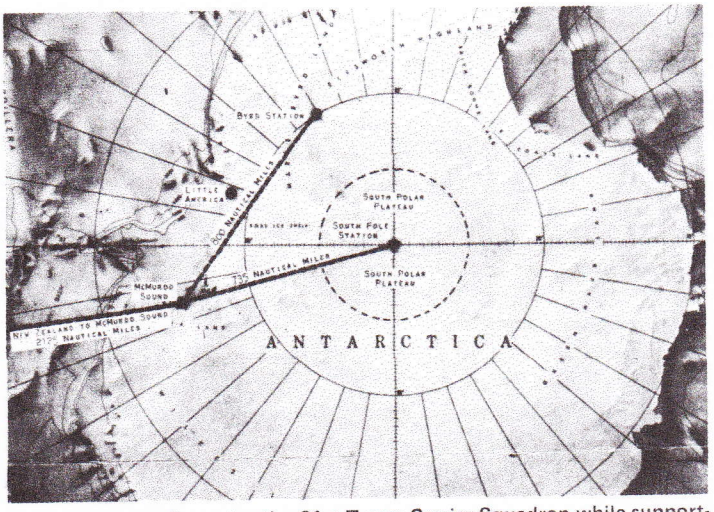
The end of a proud career. At 0655 local time, 5 July 1972, 0495 crashed near DYE III during a routine resupply flight. With 6,252.7 hours on the airframe, the aircraft was considered beyond economical recovery. All usable components were salvaged. The aircraft was then burned and the remnants were pushed into the site dump where eventually they were covered with snow. 0495 was the first C-130D to land at the South Pole and had served faithfully on the Greenland Ice Cap. Her end at DYE III is perhaps more fitting than her ultimate end at the cutter's torch. (USAF Photo)

Rear Admiral David M. Tyree, Commander, U.S. Naval Support Forces for Antarctica.[26] They carried with them the American Flag which had accompanied Admiral Richard Byrd on his historic flight over the North and South Poles. (Aircraft 57-0495 was later damaged beyond repair when it crashed near DYE III on June 5, 1972. It was the only C-130D of the original 12 to be lost to date.)

The C-130D operations proved to the Navy beyond doubt that time and money could be saved by using the large ski-wheel equipped aircraft. At the time the C-130Ds were in the Antarctic, the Navy had an order for four C-130Bs to be modified to ski-wheel LC-130Fs. These aircraft had greater range and lift capacity and a redesigned ski-wheel assembly.

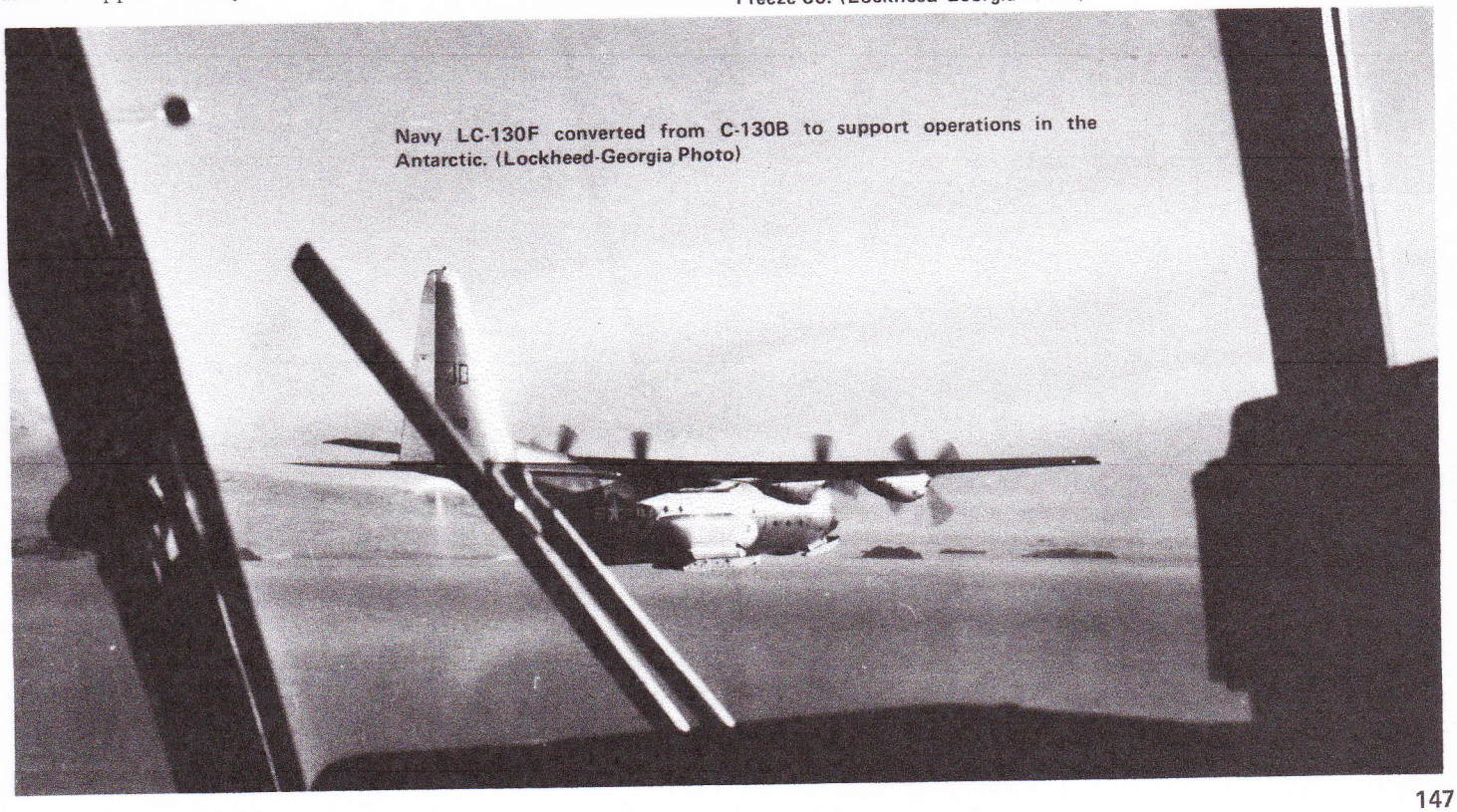
Up until that time, the Navy, who had pioneered the use of ski-wheel air transports, had used the ski-wheel C-47, which they had introduced in the Antarctic during Operation High Jump, in 1946-47. In preparing for Operation High Jump, the Navy decided to use six ski-equipped C-47s for exploratory flights from Little America. Because there was doubt about their range, plans were made to launch the aircraft from the carrier "Philippine Sea" at the edge of the ice pack. Since wheels were required for the launch and planning time was limited, the problem was solved by the simple expedient of cutting slots in the skis through which three inches of the wheels protruded. After the aircraft arrived at their destination, the wheels were removed. Later, the system was refined, giving the pilot the option of either skis or wheels.[27]

In mid-February 1960, the 61 TCS returned to Sewart AFB and on March 20th, they departed to begin the second construction season on the Ice Cap. After digging out the construction camp and the materials and equipment, work was begun on the interiors of the two sites, and numerous design changes were made. By late fall, the electrical and mechanical equipment had been installed. By December, the project was completed and plans were made for the turnover of the sites to ADC.[28] This was done officially on August 1, the following year, when the sites became operational.[29] During the second season, the squadron airlifted approximately 115,000 tons of cargo.[30]



Resupply routes flown by the 61st Troop Carrier Squadron while supporting U.S. Navy's Deep Freeze 60. (Lockheed-Georgia Photo)

THE OLD AND THE NEW—In the background is one of the C-130Ds from the 61st Troop Carrier Squadron which supported the Navy during Deep Freeze 60. (Lockheed-Georgia Photo)



Navy LC-130F converted from C-130B to support operations in the Antarctic. (Lockheed-Georgia Photo)

When the 61 TCS returned to Sewart AFB in late 1960, their association with Greenland was drawing to a close. On October 1, the 17th Troop Carrier Squadron (17TCS) had been activated at Dyess AFB, Texas, and began the process of organizing, which they achieved on February 8, 1961. Part of the new squadron's mission was the support of the two DYE sites. It inherited the 12 C-130Ds from the 61 TCS, which converted to C-130Bs.[32] Six of the Ds (57-0484 through 0489), no longer needed because of reduced requirements, were reconverted back during 1962 and 1963 to a wheels-only configuration with a model designation of C-130D-6.[32] On May 1, 1961, the 17 TCS assumed responsibility for the ongoing Greenland mission. The aircraft at Sondrestrom were transferred in place. Prior to that date, the 17 TCS had flown only two hours on the Ice Cap. By the end of the month, they accumulated an additional 143 hours and had, on May 29, evacuated a Danish National suffering from a brain concussion from Sondrestrom to Copenhagen. The emergency evacuation was to be the first of many search and rescue and emergency evacuation missions performed by the 17 TCS, as part of their overall Greenland mission. During June, the squadron flew another 372 hours in support of the preparations for getting the site operational by August. Every effort was made to qualify the squadron personnel in ski operations. The techniques the 61 TCS had developed were refined by the 17 TCS.[33]

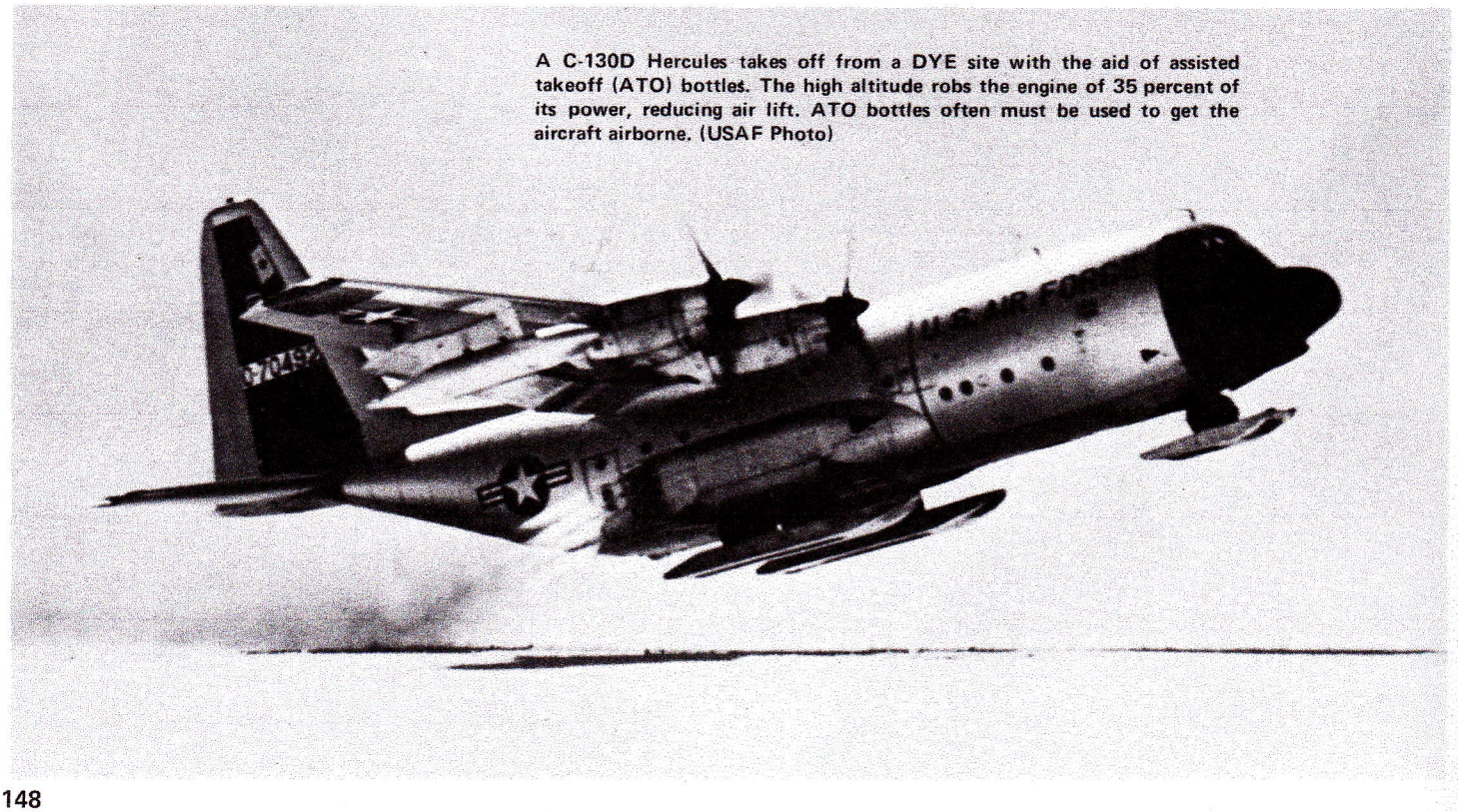
As with the 61 TCS, the recently activated squadron learned that flying the C-130D on the Ice Cap required special skills and techniques. At the high altitudes where the sites were located, the C-130D's engine performance was reduced by 35 percent. Lift also suffered at the higher elevations. Although ski landings were essentially the same as conventional landings, taxiing and takeoffs were a different matter. Skill was required to keep the aircraft lined up and from sliding sideways. Since the friction of the skis was considerably more than wheels, takeoffs were sometimes difficult, especially on warm sunny days when the surface was soft. Consequently, provisions were made for the installation of four assisted takeoff (ATO) bottles on each side of the aircraft. These were often used to literally blast the aircraft off the ice.[34]

The squadron learned to handle the various challenges of Ice Cap flying and quickly settled down into a routine. Two "rotator" C-130Ds were maintained at Sondrestrom on a year-round basis to fly back and forth. During the spring, the number was increased to around four to handle the annual fuel airlift. When enough snow had accumulated at the sites to warrant their being elevated to keep the 20-foot distance above the surface, additional aircraft were also deployed by the squadron to airlift the necessary construction materials.

The contracted civilian personnel who manned the two sites were completely dependent on the C-130Ds at Sondrestrom for their supplies and physical contact with the world outside. When they looked out the windows, they saw only a vast expanse of white which stretched endlessly into the horizon. They seldom went outside other than to perform the required outdoor chores, and when their contracts expired, many left without having ventured more than 100 yards from the sites. Inside the sites were all the modern comforts needed to sustain them. Working and living in the sites was very much like being aboard a large ship at sea.[35]

In late 1963, the 17 TCS learned they were to be transferred to Alaska. During December 1963 and January 1964, the plans were completed for the assignment of the 17 TCS from the Tactical Air Command (TAC) to the Alaskan Air Command (AAC). The official announcement was made January 21. Movement orders were published February 4, and the advance party arrived at Elmendorf AFB in April, followed by the main group in June. The rear party reached Alaska July 15. On May 1, the transfer of aircraft was begun and continued until August 7, when the last two of the 12 aircraft arrived. The squadron was relieved from assignment to TAC and assigned to AAC on June 15. By the end of the month, AAC assumed responsibility for the ongoing Greenland mission. The final shift at Sondrestrom was made when personnel and equipment still assigned to the 516th Tactical Airlift Wing, the former parent organization of the 17 TCS, were relieved and returned to Dyess AFB. Squadron personnel and aircraft at Sondrestrom remained in place.

The squadron quickly settled down to their operations in Alaska, which were flying supplies and equipment to AAC's remote sites and stations and participating in joint training exercises with

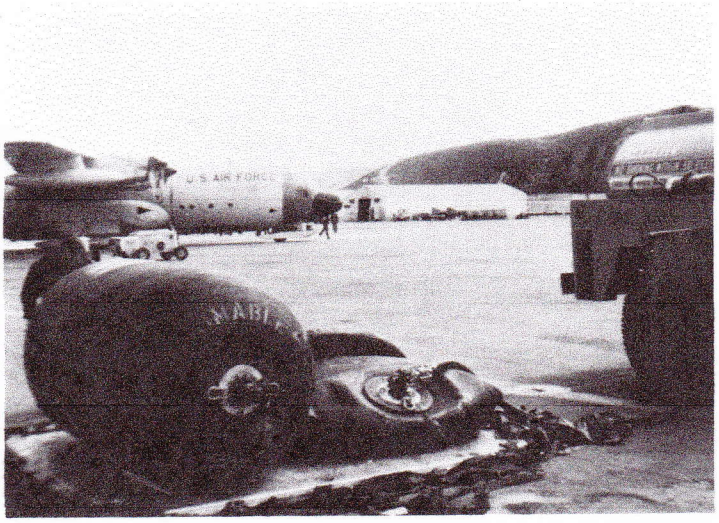


A C-130D Hercules takes off from a DYE site with the aid of assisted takeoff (ATO) bottles. The high altitude robs the engine of 35 percent of its power, reducing air lift. ATO bottles often must be used to get the aircraft airborne. (USAF Photo)

United States Army forces in Alaska. The squadron's C-130s also provided a much greater airlift and range capability than the C-123s AAC depended on prior to the squadron's arrival.

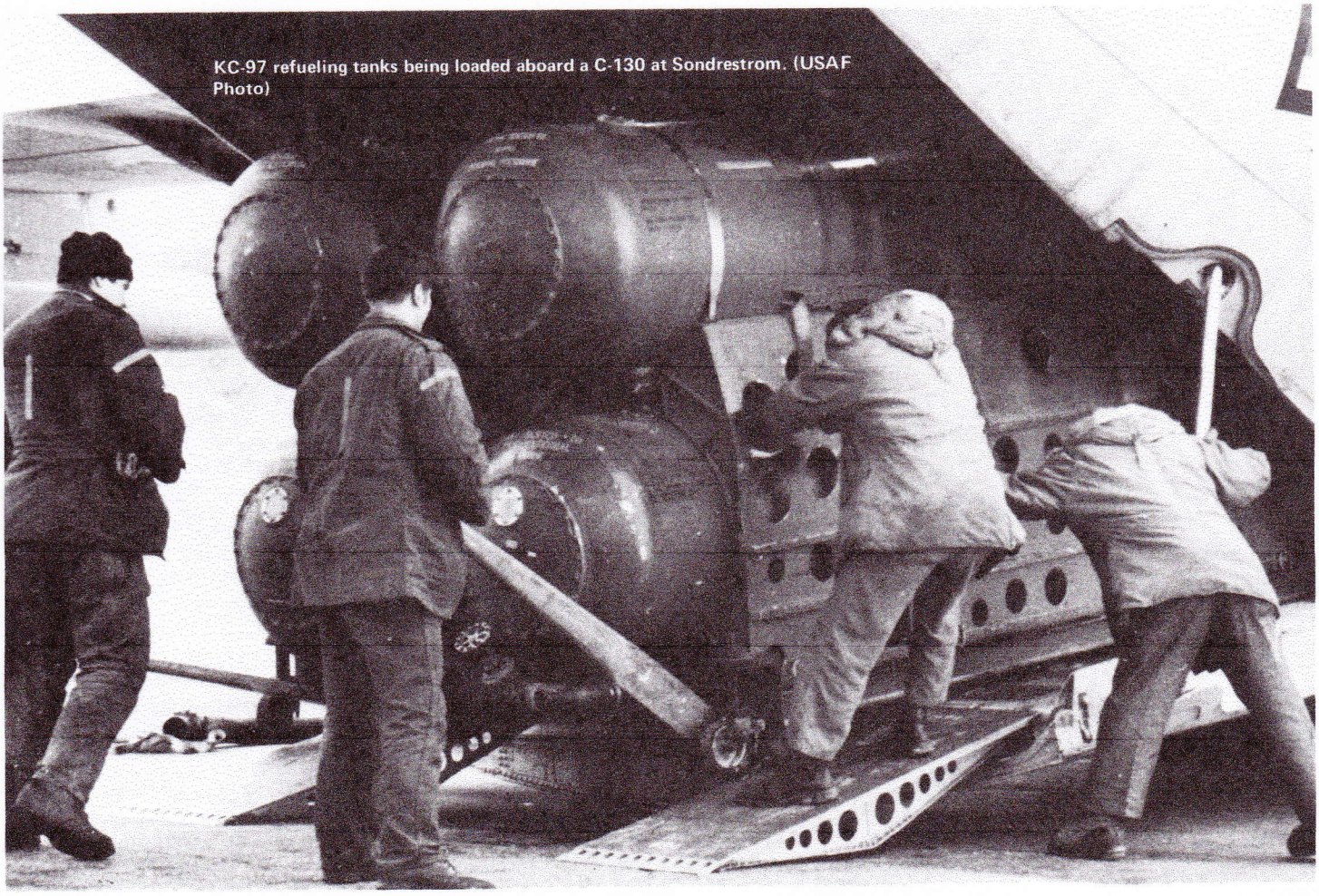
The Greenland mission, now firmly established, continued to be flown on a regular basis. Each Tuesday morning, a C-130D departed Elmendorf for the long flight across the Arctic Basin to Sondrestrom, where it relieved another C-130D. Two routes were used. One route, 2,221 nautical miles long, was by way of Yellowknife, in Canada's Northwest Territory; the other, 2,510 nautical miles, was direct to Thule AB, Greenland, then south to Sondrestrom. When the winds were favorable, the refueling stops were avoided, and the flight was made direct.

During the April-June period each year, the two "rotator" aircraft were augmented with additional personnel and aircraft to airlift fuel stored at Sondrestrom to the two sites. There, the fuel was used to run the diesel engines powering the sites. The annual spring refueling began the preceding summer when the fuel was brought by ship to Camp Loyd, near Sondrestrom. During the winter months, the fuel was allowed to "cool" so that when it was transferred to the under-ice storage tanks at the sites, it would not melt the surrounding ice.[37] Initially, the fuel was airlifted in 500-gallon collapsible bladders strapped to cargo pallets. The pallets constituted a load of about 3,000 gallons. At the sites, the pallets were dragged from the aircraft to a storage area where they were emptied into the under-ice storage tanks.[38] The empty bladders were back-hauled in the returning C-130Ds. This procedure proved to be time-consuming and posed many problems, particularly during offloading. During the 1967 refueling season, the bladders were replaced by KC-97 refueling tanks strapped to the aircraft's cargo bed. The fuel then could be emptied direct, by gravity, from the aircraft into the storage tanks.[39]

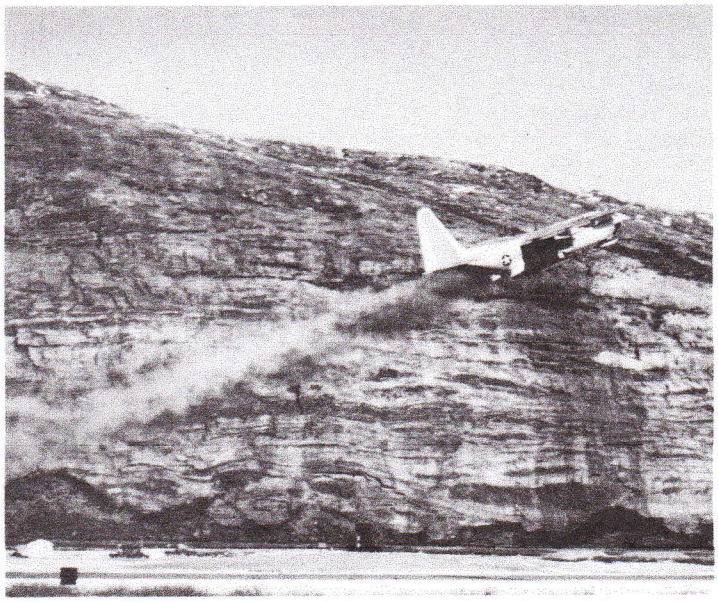


Before they switched to KC-97 fuel tanks, the Air Force used 500-gallon bladders to deliver diesel fuel to the sites. The bladders were strapped to pallets which were offloaded at the sites—a time-consuming job. (USAF Photo)

On July 8, 1966, the 17 TCS underwent another change in assignment when it became one of three flying squadrons (17 TCS, 317th Fighter Interceptor Squadron, and 21st Operative Squadron) assigned to the 21st Composite Wing on the wing's activation at Elmendorf.[40] The Greenland mission, then known as On Top and later changed to Cool DEW, was part of the transfer from AAC to the 21 COMPW.[41] The following year, September 1, the 17 TCS was redesignated the 17th Tactical Airlift Squadron (17 TAS).[42]

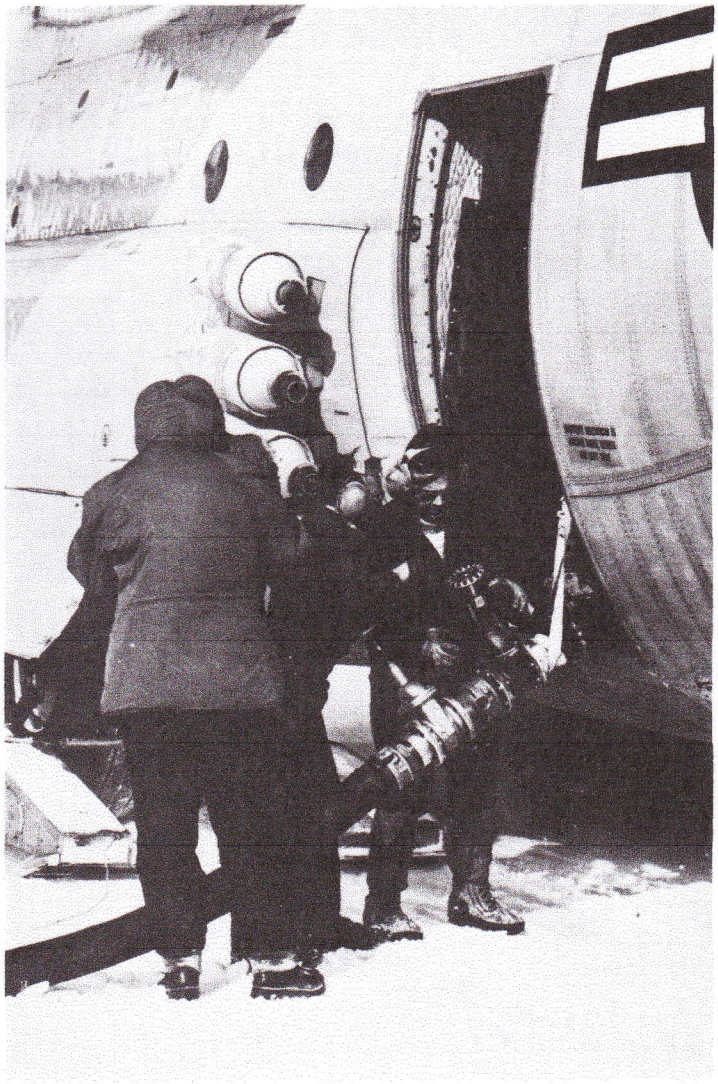


KC-97 refueling tanks being loaded aboard a C-130 at Sondrestrom. (USAF Photo)



A C-130D makes a practice ATO assisted takeoff from the Sondrestrom AB runway. The practice is to familiarize pilots who sometimes have to use the system to literally blast themselves off the Ice Cap. (Author's Photo)

END OF THE LINE—A 17th Tactical Airlift Squadron loadmaster and two DYE site personnel unload fuel from a C-130 Hercules. The fuel is drained from tanks strapped to the cargo bed of the aircraft into storage tanks buried beneath the ice. Assisted takeoff (ATO) bottles are attached to the aircraft just forward of the door. (USAF Photo)



During 1966-67, the 17 TAS was involved, in addition to the normal resupply and fuel airlift, in supporting USAF's Office of Aerospace Research Project Blue Ice, a seismological study. The Ice Cap was chosen for the study since it was one of the quietest areas on the earth. The squadron airlifted the scientists and their equipment during June 1966 to a site located approximately at the center of the Ice Cap. This site was named after the Danish seismologist, Inge Lehmann. Because results from the study were so good, a decision was made to keep Inge Lehmann open during the winter, and a small party remained behind. The following spring, the main party returned, after walking 400 miles from Camp Century. Enroute, they had stopped to take measurements along the route. When they reached Inge Lehmann, they decided to close that site.[43]

Blue Ice was one example of the 17 TAS and its predecessor's, the 61 TCS's, support of scientific efforts on the Ice Cap. In 1959, CRREL scientists had been airlifted to the inland ice to install benchmark systems and instrumentation for monitoring the long-term performance of the DYE sites. Support was furnished CRREL in 1960, 1963, 1969, 1971, 1972 and 1973.[44] In 1964 support was provided to the French Glaciological Project, a private research foundation project to study the growth and flow of the Greenland Ice Cap.[45] In 1971 the Greenland Ice Sheet Program (GISP) was begun to drill ice core samples in order to determine past climatic changes. It involved CRREL, as well as scientists from universities in America and Europe. Core samples of ice formed from snow which fell during the time of Christ were airlifted out by the squadron.[46]

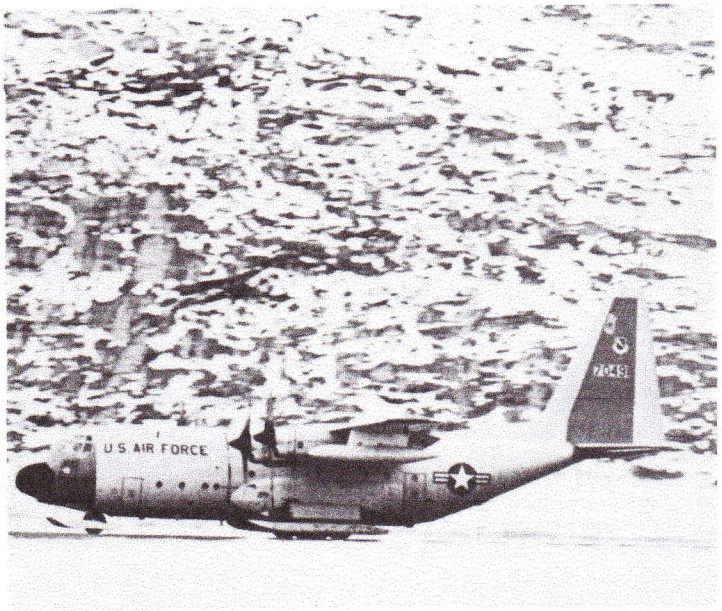
Search and Rescue (SAR) and emergency evacuation missions played a significant role in the 61 TCS and 17 TAS support efforts in Greenland. Because of the C-130D capabilities, the squadron was often called on to search for and pick up crash victims on the Ice Cap and fly long-range missions to evacuate the critically ill or injured. A typical SAR mission occurred in August 1967, when word was received that a British-owned, twin-engine light aircraft was overdue. The aircraft commander of a C-130D in the vicinity of DYE III was contacted. Using the last information of radar contact obtained from the site, the aircrew began their search. Fortunately, 30 minutes later the downed aircraft was sited. An open snow landing was made and two survivors were picked up. A third man could not be found. While another C-130 orbited overhead, the rescue aircraft, with the assistance of ATO, was able to take off and return to Sondrestrom.[47]

On July 1, 1974, a one-year test program was initiated to see if civilian contracted Twin Otters, small twin-turboprop engine transports built by DeHavilland of Canada, could handle the routine resupply requirements. The two "rotator" C-130Ds were reduced to one for providing backup support and SAR capability. Later, in February 1975, the requirement was eliminated altogether.[48] The 17th's association with the Ice Cap was drawing to a close. In 1974, AAC was notified that the squadron was to be equipped with C-130Es, and that it was to give up its older aircraft, including the five C-130Ds to Air Force and Air National Guard units. The squadron returned for the last time to Sondrestrom on April 2, 1975, to begin the annual fuel airlift. This time, personnel from the 109th Tactical Airlift Group (109 TAG), New York Air National Guard, were there to assist and train with the squadron. The group was scheduled to take over the C-130Ds and the Greenland mission.[49] By May 13, the airlift had been completed, with 665,000 gallons of fuel airlifted in 208 sorties. One C-130D was retained at Sondrestrom to support GISP requirements; on June 13, the 17 TAS flew its last mission and shortly afterwards, returned to Elmendorf, ending an era in the squadron's history. The five C-130Ds and six C-130D-6s were transferred to the 109 TAG during June and July.[50]

TRANSFER DATES[51]

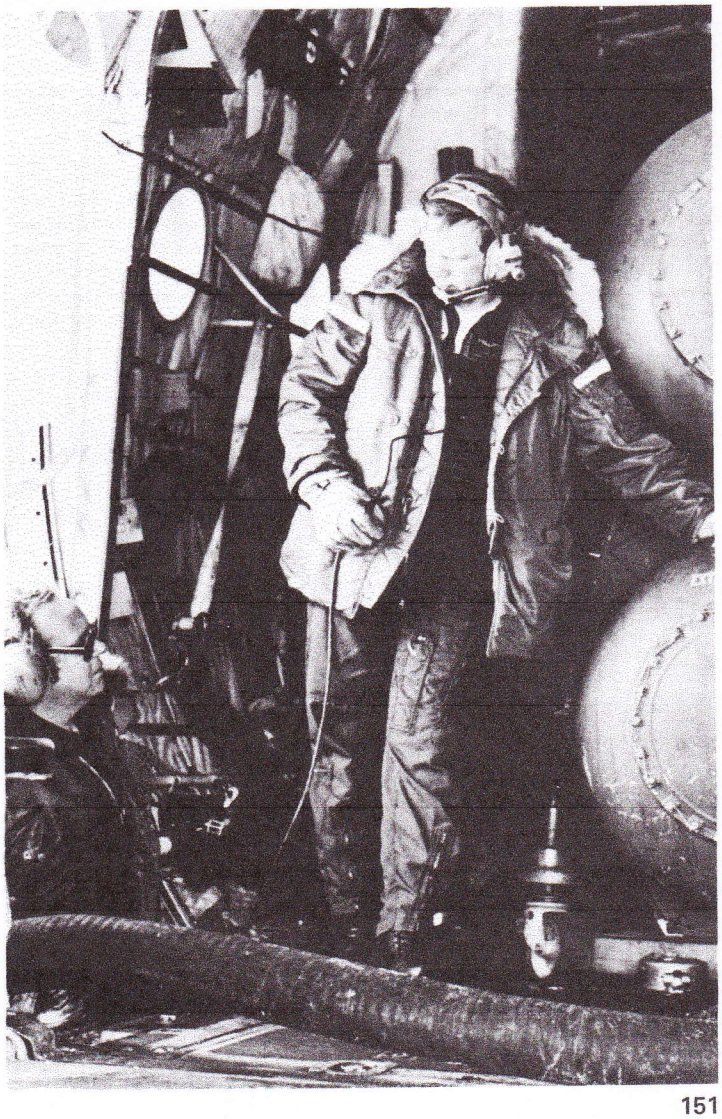
TAIL NUMBER	DATE TRANSFERRED	TAIL NUMBER	DATE TRANSFERRED
57-0492 D	2 June	57-0486 D-6	7 July
57-0493 D	6 June	57-0488 D-6	14 July
57-0485 D-6	19 June	57-0484 D-6	18 July
57-0491 D	20 June	57-0490 D	21 July
57-0494 D	21 June	57-0487 D-6	31 July
57-0489 D-6	30 June		

The transfer of responsibility marked an end of an era for the Alaska-based airlift squadron and a beginning of a new responsibility for the 109 TAG. The C-130Ds which have served so faithfully would still be flown over the Ice Cap, although on a somewhat reduced basis; the two sites would continue to function as they have since they first became operational, providing early warning against unfriendly aircraft and advisory service to friendly aircraft. The DEW Line has undergone changes since construction began 20 years ago. Only 31 of the original 75 sites remain. New technology and revised missions have had their effects. Whatever the future, the DEW Line, in general, and the two Greenland Ice Cap sites, in particular, represent one of man's successful endeavors to overcome the great difficulties of one of earth's most inhospitable areas.



The sheer cliff at Sondrestrom AB serves as a backdrop for a C-130D flown by the 17th Tactical Airlift Squadron as it prepares to take off for the Greenland Ice Cap. (USAF Photo)

This is an interior view of diesel fuel offloading operations at one of the DYE sites. Captain Delray "Lucky" Schultz, a 17th Tactical Airlift Squadron navigator, is resting his hand on one of the tanks used to transport the diesel fuel. (USAF Photo)



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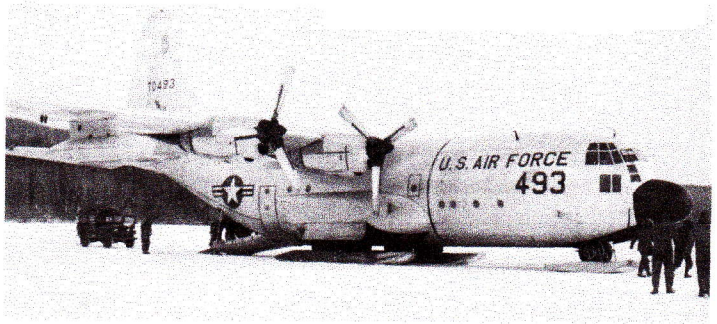

The C-130Ds were used for other operations. The one shown here on a frozen lake in Alaska supported the joint training exercise Polar Strike in 1964. (USAF Photo)

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The 21COMPW Histories and the attached 17TAS Histories furnish information about support of the two Ice Cap DYE sites. A short history of the DYE site support is included in the 21COMPW Apr-Jun 74 History.

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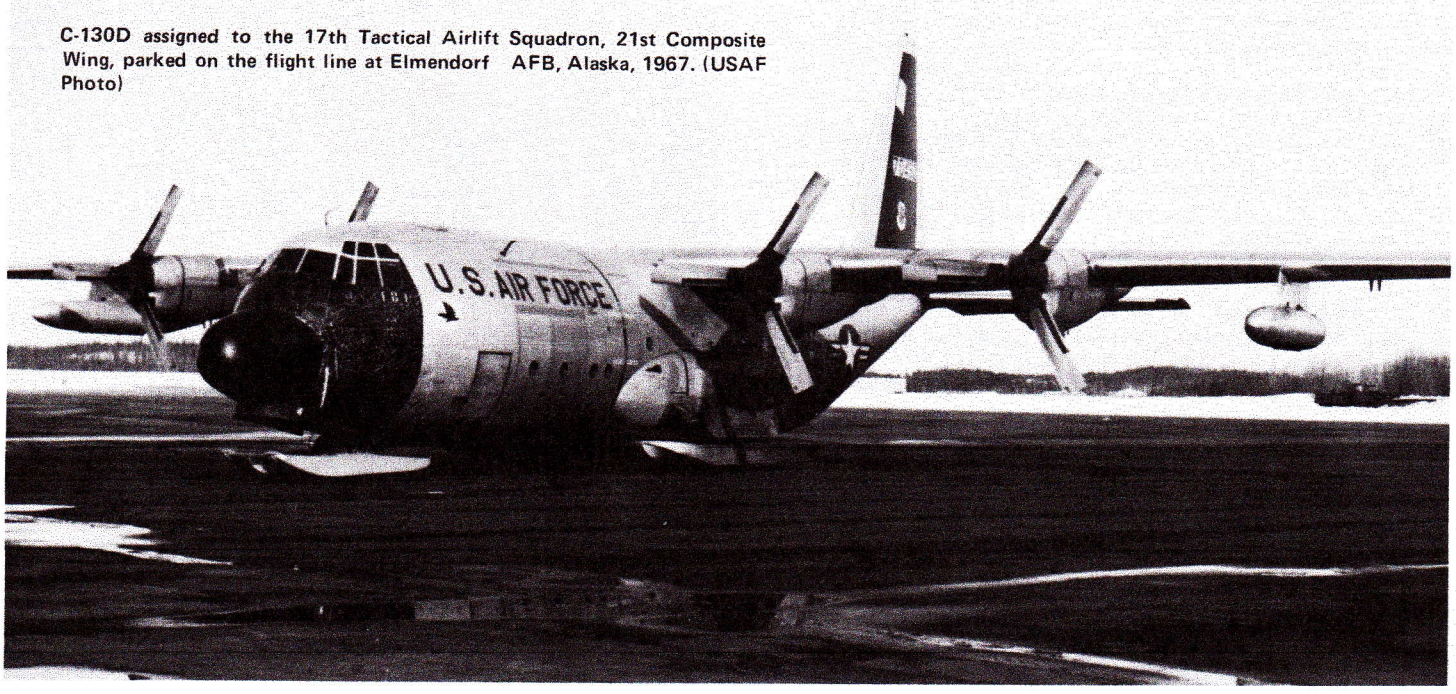
C-130D assigned to the 17th Tactical Airlift Squadron, 21st Composite Wing, parked on the flight line at Elmendorf AFB, Alaska, 1967. (USAF Photo)



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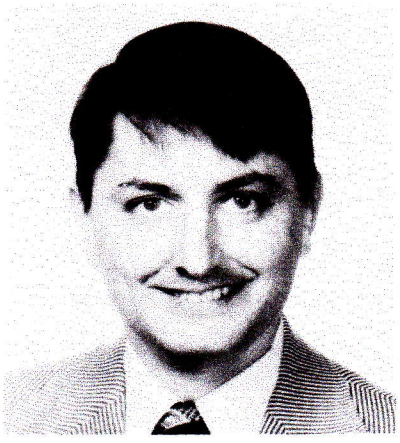

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John's hobby is researching and building model aircraft. He also holds a commercial pilot's license with 400 hours of flying time. His interest in Air Force history and aircraft is both professional and personal, and he says of the accompanying article, "[it was] written as a result of a trip to Greenland in April 1973 with the 17th Tactical Airlift Squadron which was part of the 21st Composite Wing, AAC—the outfit that I worked for as a historian. During my stay in Greenland, I was fortunate to fly on the flight deck of the C-130D while the 17th was hauling fuel to the DYE sites. It left a lasting impression on me, of the nerve and skill of the aircrews who routinely operated in one of the world's most desolate and hostile places."