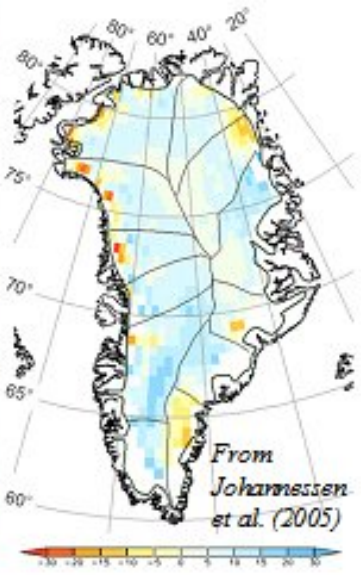
Ice Core Sites In Greenland Show Snow Levels Rising

Though the ice may be melting around the edges of the Greenland Icecap in recent years during the warm mode of the AMO much as it did during the last warm phase in the 1930s to the 1950s, snow and ice levels continue to rise in most of the interior. Johannessen in 2005 estimated an annual net increase of ice by 2 inches a year.

Greenland ice grows 2 inches a year

"Colours indicate ice-sheet elevation change rate in cm/year … from … satellite altimeter data, 1992-2003. The spatially averaged *increase* is 5.4 ± 0.2 cm/year."



(Recent Ice-Sheet Growth in the Interior of Greenland, Ola M. Johannessen, Kirill Khvorostovsky, Martin W. Miles, Leonid P. Bobylev, Science *Express on 20 October 2005* Science *11 November 2005: Vol. 310. no. 5750, pp. 1013 – 1016, DOI: 10.1126/science.1115356)*

A Canadian Icecap emailer noted during the cold war there were two massive radar sites built on the Greenland icecap now abandoned. They are called Dye-2 and Dye-3. When built they sat high above the snow, recent pictures show how the snow is building up around them, proving the snow build-up in recent times. This might demonstrate this snow accumulation.

Dye-2 and 3 were among 58 Distance Early Warning Line radar stations built by America between 1955-1960 across Alaska, Canada, Greenland and Iceland at a cost of billions of dollars. Their powerful radars monitored the skies constantly in case Russia decided to send bombers towards America.

After extensive studies in late 1957, the USAF selected sites for two radar stations on the ice cap in southern Greenland. Dye-2 was to be built approximately 100 miles east of Sondrestrom AB and 90 miles south of the Arctic Circle at an altitude of 7, 600 feet, and Dye-3 was to be located approximately 100 miles east of DYE II and slightly south at an elevation of 8,600 feet.

The selected locations for the new radar sites were found to receive from three to four feet of snow fall each year. Since the winds were constantly blowing with speeds as much as 100 mph, this snow accumulation constantly formed large drifts. To overcome this potential problem, it was decided that the Dye sites should be elevated approximately twenty feet above the surface of the ice cap.

Dye-3

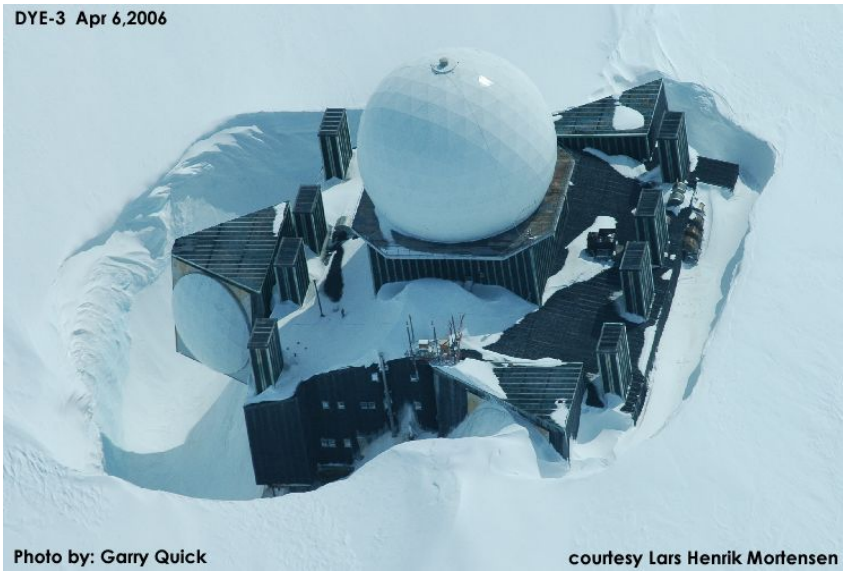
Dye 3 was built in 1960. From a distance the structure, with its onion-shaped dome, looks like a Russian orthodox church. Dye 3 was an ice core site and previously part of the DEW line, located at (65°11′N 43°49′W) in Greenland. *(The Distant Early Warning (DEW) Line: A Bibliography and Documentary Resource List Arctic Institute of North America, Page 23)*

As a Distant Early Warning line base, it was disbanded in years 1990/1991. The Dye 3 cores were part of the GISP (Greenland Ice Sheet Project initiated in 1971) and, at 2037 meters, was the deepest of the 20 ice cores recovered from the Greenland ice sheet as part of GISP.

Samples from the base of the 2km deep Dye 3 and the 3km deep GRIP cores revealed that high-altitude southern Greenland has been inhabited by a diverse array of conifer trees and insects within the past million years. (*Eske Willerslev, et al. (2007) Ancient Biomolecules from Deep Ice Cores Reveal a Forested Southern Greenland Science **317** 111-114)*

The first image below is a winter photo from 1972.

Here it is at the end of the winter of 2006.



Dye-2

This DYE 2 photo is from 1966.

Here is Dye-2 in 1998

The slowly shifting icecap and the accumulating snow caused changes to be made including lifting building numerous times and shifting then to new support beams as the ice movement stresses and accumulating snows caused steel beams and wooden support braces to shatter or warp.

Table 1. DYE-2 milestones.

Year	*Event*
1959	Original construction on Greenland ice cap
1962	Building raised 1.8 m Truss enclosure extended up
1965	Building raised 2.7 m Truss enclosure extended up
1967	Building raised 3.2 m Truss enclosure extended up
1970	Building raised 7.6 m Subsurface truss added Truss enclosure extended up
1976	Building raised 8.2 m Subsurface truss extended up Truss enclosure and column A1 modified
1982	Building moved to new footings Above-snow trusses constructed
1983	Building raised 8.2 m Column enclosures constructed
1987	Building leveled Column bases jacked and leveled Footings strengthened
1988	Site closed

In a visit to the DYE 2 site in July, 2003, Michael Lamendola wrote about the last staff to leave the site. “Terry Wambolt worked as a console operator at Dye-2 in the 1980s and remembers the site's last days. "I woke up one morning to a lot of noise in the hallway. I walked out of my room to see everyone packing their belongings," said Wambolt, who now works in Venezuela. The staff, Americans and Danes under private contract with the Air Force, were told the building was in danger of collapsing and had to leave immediately. They took only their personal belongs and kept the station going until the last second. Wambolt said he was talking with a Canadian military official "when we pulled the plug on the link."

He returned two weeks later with a crew that dismantled the equipment and was literally the last person to leave Dye-2. "We were very busy during this time and I was sad to see it end. I remember thinking of all the waste," he said. The site is slowly disappearing into the snow. Its outbuildings are no longer visible and drifting snow will consume it completely one day, but that day appears to be decades away.”

Due to the snow accumulation, the building seems to sink in the ice cap.