Airship Safety in Northern Weather Conditions

Airships to the Arctic VI
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Editor, NOON BALLOON

AIRSHIPS VS. SUBMARINES

BY RICHARD G. VAN TREUREN
Men have been concerned about safe buoyant flight in the Arctic since 1897. The balloon *Omen* (Eagle) set off for the North Pole on July 11 of that year.
*Omen* iced up, so the aeronauts had to land many miles short of their goal.
The aeronauts made for an island where they had stashed supplies.
Shooting an attacking polar bear, they had a fresh meat dinner.
All three aeronauts died from trichinosis.

So, to operate an airship safely in the Arctic, Remember: DO NOT EAT THE BEARS!
Questions?

Be sure to visit our website,

www.airshiphistory.com
The airship safety question in the Arctic – and everywhere else – is clouded, because:

History Is Written
By The Winners.
Why are airplanes seen in context of their success, while airships are primarily remembered for their failures?
2011 celebrates the 100th Anniversary of US Naval Aviation.

Eugene Ely was the first to fly onto and launch from a prepared deck of a US Navy ship.
The part they don’t punch in the highlights -

Eugene Ely was killed in an aeroplane the following year.
Eugene Ely was not the first Naval Aviator. NA #1 was actually Theodore Ellyson. Most histories neglect to mention Ellyson was also lost to an air crash.
1911 also saw the first crossing of America by aeroplane. Histories state Cal Rogers flew the “Vin Fiz” across America in 82 hours flight time.
Why bother to note it actually took 49 days... only one rudder and a single wing strut remained from the original aircraft by the end of the flight. Rogers was killed in this crash 5 months later.
More than 1,000 people were killed in aeroplane crashes before World War One.
Florida is gearing up for the 100th Anniversary of the scheduled (airplane) airline. At least our FAHS sometimes mentions both the Janus brothers were killed by airplanes, and their mechanic had to dive from the flaming flying boat.
In the wake of American Airlines’ Chapter 11 filing, CBS News announced that day the net profit from all airlines combined, since 1951, was negative $34 billion. “In other words, the entire airline industry hasn’t made a nickel throughout its history.”
1904-14, Americans were flying “Rubber Cows” for fun and profit.
To our knowledge there were no passenger fatalities, and less than one-tenth the contemporary airplane overall losses.
No matter the basic physics,

History Is Written
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“Airplane crashes are statistics; airship crashes are disasters.” – C. E. R.
DELAG Accident Record:

Operations 1909-1939

• 175+ Atlantic Crossings
• Tens of Millions of Passenger Miles
• Total of 13 passenger fatalities, all owing to jumping out before landing
“Disasters” of airships ZRS-4, LZ-114, R-101, R-38, LZ-129, Roma, ZPG-3W and Shenandoah in which 73, 50, 48, 44, 36, 34, 18 and 14 were lost respectively, would today not be classified as major accidents.
In fact, adding up all airship fatalities since 1852 - even ground handlers – would still be less than the 520 killed in this one airplane.
Newcomb logically concluded “If, therefore, we are ever to have aerial navigation with our present knowledge of natural capabilities, it is to the airship floating on the air, to which we are to look.”
Inherent Safety of LTA

In 1906 Simon Newcomb pleaded,

... would you go to sea on a ship that depended on engine thrust for flotation?

CALVIN AND HOBBES by Bill Watterson
History, even in the Arctic, was written by the winners.
American Walter Wellman tried to reach the North Pole in 1906.
History books only mention Richard Byrd first reaching the Pole by airplane.
Fact is, first to the Pole and across the top of the world: an Italian airship.
While few airships have operated in the Arctic, documentation and artifacts exist.
Seemingly harsh conditions are surprisingly non-corrosive.
Early airships achieved some control over icing by rising and dropping to levels of different temperatures.
Hugo Eckener considered the Arctic to be a natural environment for airships.
Eckener concluded a large cargo-carrying dirigible could bring supplies to isolated Arctic regions more cheaply and with greater ease than any other way.
Eckener pointed out increased buoyancy was provided by the cold dense air, and there was little wind during late spring and summer months.
The continuous Sun offers a uniform buoyancy, unlike the daylight - dark cycles of temperate latitudes.
The US Navy worked with Canada in a single experiment to test operation of a modern anti-submarine airship above the Arctic Circle for scientific purposes during the IGY.
The ZPG-2 was about 345 feet long and about 75 feet diameter. Its 7000 yd² of fabric enclosed a bit more than 1,000,000 ft.³ of helium.
Picking up about three tons dynamic lift, it could fly at a maximum gross weight of about 65,000 pounds.
Bureau number 126719, the fourth production ZPG-2, had been banged up in a Cuban landing accident. Overhauled at Lakehurst, it was assigned to NADU at NAS S. Weymouth, Massachusetts.
Late summer 1958, the sonar and sonobuoy equipment were removed. Its compass was modified for use with the autopilot in areas of no magnetic compass operation. An additional compass and navigation electronics were installed.
It masted at Churchill, Manitoba for refueling, and again at Resolute Bay before overflying ice station T-3 on the 9 AUG 58.
Snow Goose skipped Resolute Bay homebound.
Upon return to South Weymouth on 12 August, 6200 miles of been covered.
“Snow Goose” proved a production ASW airship with few modifications could carry on Arctic operations. Icing was not encountered and has obviously been a concern since 1897.
ZPG-2 BuNo 126561, the first production ship, was tested with recording television mounted topside forward and aft. Flights revealed prop anti-icing was effective in removing damaging ice.
CDR Charles Mills wrote during an “...airship test project on icing ZPG-2s were operated from three 150 ft wide runways - no landing mat or field."
“Landings were made on the runway nearest to the wind, sometimes necessitating a "crab" angle over 40 degrees. Never in the two years that I ran the project did a ship drift or get blow off the runway, even with over 40 knots of wind.
CDR Mills wrote, "On one flight, intentionally ascending and descending through freezing rain, about 3000 lbs of clear ice were accumulated. At no time were control or flight characteristic changed, except for the static heaviness, and the crew become adapted to flying in icing conditions."
Ice pack and snow accumulation proved a non-problem in flight, instead posing a substantial damage risk while masted. Various techniques were developed in answer.
The airships' X-configuration tail grouping once accumulated such a snow load that, upon takeoff, the airship was flown for several hours with an extremely high pitch angle.
Two major US Navy exercises offer the most experience in near Arctic conditions. ‘Project Lincoln’ and ‘Operation Whole Gale.’
The Lincoln Labs Project sought to perfect AEW hardware. Described by All Hands, “…five airships manned an AEW station continuously for 10 days…

Weather was the area’s worst in years, with combinations and variations of ice, snow, rain, fog and 60-knot winds…”
“One airship flew in continuous icing conditions for 32 hours; another was airborne under similar conditions for 56 hours…”
Takeoffs and landings were made with ceilings under 100 feet during snowstorms, and with winds from 30 to 50 knots...
“Conclusion? Blimps could relieve each other on station during a period when weather had grounded [all] other types of military and commercial aircraft.”
“Even though field conditions at Weymouth were rigorous, the operations were conducted off a mobile mast, the test ship was hangared only once for a regular maintenance check.
Operation “Whole Gale”…

taken on as a challenge or dare. ASW was to be performed in the worst winter months, February and March…
The mission was to maintain at least one airship over a wide area, starting 25 miles offshore, 24 hours a day for the entire two months.
Operations began on 1 February 1960. One crew set a record of on-station patrol time, almost 73 hours.
Another crew remained on station for 95.5 hours. No submarine got through.
Obviously an airship designed for sustained Arctic conditions would have better waste line heating, care with ballast water in fuel lines, etc., however…
Buoyant flight, with its inherent independence from forward speed to defy gravity, has built-in safety for Northern conditions.
Airships, today equipped with modern technology for navigation and synthetic vision, are ready to take on the Arctic.