across North America spring has sprung

as the mercury rises the winter snow seems like ancient history not so for

NASA's operation IceBridge scientists who continue to brave arctic temperatures at tule air base in northern Greenland since mid-march the ice bridge dc-8 aircraft has flown the equivalent of one and a half times around the earth logging more than 60,000 kilometers and 100 flight hours the purpose of ice bridge is to provide data about the Earth's polar regions allowing us to monitor change in ice
cover IceBridge scientists accomplished this by measuring the ice with a variety of instruments aboard the fully equipped dc-8 aircraft a typical flight day for ice bridge begins at 6am the ground and maintenance crews meet at the hangar to power up the plane and ensure it is a successful 8-hour flight once the dc-8 is towed out to the ramp the ice bridge pilots and team of research scientists prepare for takeoff throughout each flight scientists manage seven state-of-the-art science instruments aboard the dc-8
several instruments such as the airborne

topographic mapper or ATM utilize laser

altimeter technology to measure the

surface of the ice 3 radar instruments

from University of Kansas measure the

vertical profile of the snow and ice the

K you band and snow radars measure the

depths of snow and ice on and near the

surface the multi-channel coherent radar

depth sounder or M cords can penetrate

the upper layers of snow and ice to

reach the bedrock below telling

scientists the thickness of the ice the

digital mapping system or DMS is

00:01:28,129 --> 00:01:32,989
00:01:30,950 --> 00:01:36,079
00:01:32,989 --> 00:01:37,849
00:01:36,079 --> 00:01:40,730
00:01:37,849 --> 00:01:42,829
00:01:40,730 --> 00:01:44,719
00:01:42,829 --> 00:01:48,170
00:01:44,719 --> 00:01:50,629
00:01:48,170 --> 00:01:52,460
00:01:50,629 --> 00:01:54,170
00:01:52,459 --> 00:01:56,780
00:01:54,170 --> 00:01:59,030
00:01:56,780 --> 00:02:01,040
00:01:59,030 --> 00:02:02,659

00:01:25,939 --> 00:01:30,950
00:01:30,950 --> 00:01:36,079
00:01:36,079 --> 00:01:40,730
essentially two cameras mounted on the belly of the plane capturing images every 10 seconds while the plane is inflated new to ice bridge and the dc-8

this year is Columbia University's gravimeter the gravimeter can distinguish the difference in gravity between rock water and ice to map what we can't see finally the land vegetation and ice center referred to as Elvis is best suited for high-altitude work from 30,000 feet and higher Elvis scans a two kilometer wide laser swath to provide a comprehensive map of surface characteristics
perhaps the most impressive piece of equipment is the plane itself dc-8 production was discontinued in the early 1970s but NASA continues to utilize it for a variety of earth science missions like ice bridge this for engine workhorse can fly at 40,000 feet for over 12 hours at a time though the aircraft was not originally designed for low altitude flying it performs beautifully below 1500 feet for ice bridge instruments after a long day of flying the ground crew meets the aircraft on the icy runway and prepares
for another flight day at the evening
debrief researchers and crew analyzed
the forecast for the following day and
prepared to do it all over again ice
bridges nearing the halfway point of the
Arctic 2010 campaign next week the dc-8
will return to Dryden Flight Research
Center in California where it will
remain until this fall when it resumes
ice bridge flights over Antarctica for
the remainder of the Arctic campaign in
Greenland NASA's p3b airplane will
deploy from Wallops Flight Facility in
Virginia to sonderstrom air base in
southern greenland science instruments

aboard the p3 be will complete the remaining flights for this installment of ice bridge

you