Compacting Snowy Phoenix

A new runway in Antarctica helps passengers and supplies reach McMurdo Station.

By Gideon Grudo, Digital Platforms Editor

Building a runway in Antarctica isn't easy, but that's exactly what the National Science Foundation had to do when its Pegasus Airfield was set to retire.

NSF decided to make its own compacted-snow runway, which is exactly what it sounds like. Based atop an ice shelf, the new Phoenix Airfield is one of a kind: It supports wheeled C-17 aircraft. USAF's 62nd Airlift Wing and the 446th AW operate a majority of these mission aircraft.

The latest C-17 airlift season into Antarctica's McMurdo Station ran from Sept. 28, 2016, to March 28, 2017. Airmen ferried nearly 3,000 passengers to the station, using both the Pegasus Airfield and the new Phoenix runway.

SNOW

Snowfall

The approximate annual snowfall in the area is **18 inches.**

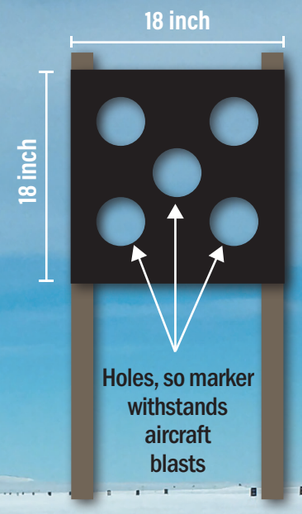
Density

0.65 g

1 cubic cm

The desired density of the runway snow is **0.65 grams per cubic centimeter,** able to support C-17s with maximum weights of **585,000 pounds.**

THE RUNWAY



The outline

Since painting on snow won't work, Phoenix uses above-ground markers to line the runway. **Ten red** ones mark the beginning and end of the runway, and **three black** ones mark the body of it in **500-foot intervals.**

Marker anatomy

Two wooden stakes hold each **18-by-18-inch marker** in the ground. The whole thing is four feet tall, and the marker itself, made of fabric, has **five large holes** in it to withstand aircraft blast.

Compacting

Tractors pulling weight-carts maintain the runway before, during, and after operations.

Human components

Seven to eight crew members, including pilots and loadmasters, rotate out of Phoenix C-17 operations during the active seasons every seven to eight weeks.

Pushing together a runway

It cost approximately **$2.3 million** to create the Phoenix runway.

Civilian flights

Phoenix can handle **Boeing 757s,** and some are expected to fly in from countries such as New Zealand or Australia.

Photos: Courtesy Air Mobility Command and National Science Foundation; Mike Lucibella/NSF; Jack Green/NSF; Mike Lucibella/NSF