



Ferrar Glacier

1
00:00:05,420 --> 00:00:03,350
isolated and icy Antarctica is among the

2
00:00:08,540 --> 00:00:05,430
most challenging natural laboratories to

3
00:00:10,910 --> 00:00:08,550
access getting to Antarctica isn't easy

4
00:00:13,039 --> 00:00:10,920
and landing a plane on McMurdo stations

5
00:00:14,839 --> 00:00:13,049
sea ice runway can give even the most

6
00:00:17,960 --> 00:00:14,849
seasoned researcher an adventurous

7
00:00:19,760 --> 00:00:17,970
arrival each year researchers from

8
00:00:21,830 --> 00:00:19,770
around the globe braved the frigid

9
00:00:24,759 --> 00:00:21,840
conditions in order to obtain critical

10
00:00:27,950 --> 00:00:24,769
field measurements on the ice sheet

11
00:00:29,810 --> 00:00:27,960
luckily remote sensing scientists have

12
00:00:31,669 --> 00:00:29,820
dedicated time to developing detailed

13
00:00:34,360 --> 00:00:31,679

accurate imagery of this frozen land

14

00:00:37,970 --> 00:00:34,370

from a far more hospitable vantage point

15

00:00:39,709 --> 00:00:37,980

this new image mosaic seen here is known

16

00:00:42,410 --> 00:00:39,719

as the Landsat image mosaic of

17

00:00:43,819 --> 00:00:42,420

Antarctica or Lima the spatial

18

00:00:46,639 --> 00:00:43,829

resolution of this satellite image

19

00:00:48,500 --> 00:00:46,649

you're seeing is 15 metres per pixel the

20

00:00:52,760 --> 00:00:48,510

most detailed satellite mosaic of the

21

00:00:54,560 --> 00:00:52,770

rugged continent ever created a hearty

22

00:00:56,660 --> 00:00:54,570

few have ventured here but as you can

23

00:00:58,459 --> 00:00:56,670

see this new image mosaic makes it

24

00:01:00,770 --> 00:00:58,469

possible for anyone to explore this

25

00:01:04,509 --> 00:01:00,780

remarkable region without ice axes

26

00:01:07,340 --> 00:01:04,519

crampons or the risk of frostbite

27

00:01:09,530 --> 00:01:07,350

throughout history this mysterious land

28

00:01:11,450 --> 00:01:09,540

has captivated researchers adventurers

29

00:01:14,060 --> 00:01:11,460

and those drawn to the most remote

30

00:01:15,140 --> 00:01:14,070

corners of the earth Antarctica is a

31

00:01:19,010 --> 00:01:15,150

land of extremes

32

00:01:23,460 --> 00:01:19,020

the highest driest coldest windiest and

33

00:01:29,010 --> 00:01:26,640

as we approach the mainland of

34

00:01:30,690 --> 00:01:29,020

Antarctica we can see how far the ice

35

00:01:33,180 --> 00:01:30,700

shelf extends off the coast of the

36

00:01:35,910 --> 00:01:33,190

continent roughly the size of the United

37

00:01:37,950 --> 00:01:35,920

States and Mexico combined Antarctica is

38

00:01:40,650 --> 00:01:37,960

almost completely covered by a thick

39

00:01:43,590 --> 00:01:40,660

layer of ice the virtual journey of

40

00:01:45,450 --> 00:01:43,600

Antarctica provided by Lima is due to a

41

00:01:48,860 --> 00:01:45,460

compilation of more than a thousand

42

00:01:52,170 --> 00:01:48,870

Landsat images acquired between 1999 and

43

00:01:54,450 --> 00:01:52,180

2001 to create the images data

44

00:01:56,250 --> 00:01:54,460

visualizers combined actual field data

45

00:01:58,710 --> 00:01:56,260

measurements and Leamas satellite

46

00:02:02,400 --> 00:01:58,720

imagery over a digital elevation model

47

00:02:04,080 --> 00:02:02,410

to give a three-dimensional effect as we

48

00:02:06,270 --> 00:02:04,090

move further inland you can begin to see

49

00:02:08,340 --> 00:02:06,280

that Antarctica is much more than an

50

00:02:09,749 --> 00:02:08,350

endless plain of snow you might be

51
00:02:14,010 --> 00:02:09,759
surprised to learn how to verse the

52
00:02:15,900 --> 00:02:14,020
terrain actually is the ground beneath

53
00:02:18,630 --> 00:02:15,910
the Antarctic Ice Sheet is a mixture of

54
00:02:20,760 --> 00:02:18,640
mountains Plains and ocean basins and

55
00:02:29,560 --> 00:02:20,770
the tallest mountains raise their rocky

56
00:02:34,250 --> 00:02:31,940
among Antarctica's most prominent

57
00:02:37,250 --> 00:02:34,260
features arts mighty glaciers like those

58
00:02:39,500 --> 00:02:37,260
seen here as we move over the Ferrar

59
00:02:41,570 --> 00:02:39,510
glacier we noticed that lima reveals

60
00:02:43,580 --> 00:02:41,580
some areas of bare ground where

61
00:02:46,010 --> 00:02:43,590
blistering winds has swept valleys clean

62
00:02:47,960 --> 00:02:46,020
of their snow cover glaciers are

63
00:02:50,380 --> 00:02:47,970

essentially slow-moving rivers of ice

64

00:02:53,090 --> 00:02:50,390

and they gradually deform over time

65

00:02:54,980 --> 00:02:53,100

these masses of ice form when snow

66

00:02:57,560 --> 00:02:54,990

accumulates in a stretch of land over

67

00:02:59,720 --> 00:02:57,570

thousands of years the snow eventually

68

00:03:02,630 --> 00:02:59,730

compresses enough to form dense glacial

69

00:03:05,510 --> 00:03:02,640

ice as the thickness of glacial ice

70

00:03:08,090 --> 00:03:05,520

increases its slowly succumbs to gravity

71

00:03:12,350 --> 00:03:08,100

and flows downhill or spreads out across

72

00:03:14,570 --> 00:03:12,360

flat lands moving glaciers forced by

73

00:03:18,680 --> 00:03:14,580

gravity sculpt the land as they erode

74

00:03:22,010 --> 00:03:18,690

the underlying rock Antarctica is a

75

00:03:24,140 --> 00:03:22,020

glacial hub 90% of the world's 33

76

00:03:31,380 --> 00:03:24,150

million cubic kilometers of glacial ice

77

00:03:35,670 --> 00:03:33,630

the tell-tale signs of glaciers are

78

00:03:37,560 --> 00:03:35,680

there flow stripes which you can see in

79

00:03:42,180 --> 00:03:37,570

the many smaller glaciers feeding into

80

00:03:43,860 --> 00:03:42,190

the large Ferrar glacier few people have

81

00:03:46,230 --> 00:03:43,870

the chance to experience a glacier

82

00:03:48,030 --> 00:03:46,240

firsthand in their lifetime and even

83

00:03:50,850 --> 00:03:48,040

fewer can access a bird's-eye view of

84

00:03:52,980 --> 00:03:50,860

these icy Giants Lima gives us an

85

00:03:55,500 --> 00:03:52,990

opportunity to soar above this unique

86

00:03:57,660 --> 00:03:55,510

landscape and experience a mesmerizing

87

00:04:02,690 --> 00:03:57,670

view of Antarctica's extraordinary

88

00:04:07,559 --> 00:04:05,550

this region's relentless and powerful

89

00:04:09,660 --> 00:04:07,569

winds are responsible for one of

90

00:04:13,559 --> 00:04:09,670

Antarctica's most fascinating features

91

00:04:15,959 --> 00:04:13,569

blue ice ice absorbs a small amount of

92

00:04:17,400 --> 00:04:15,969

red light but snow crystals are too

93

00:04:20,400 --> 00:04:17,410

small to show this light absorption

94

00:04:22,800 --> 00:04:20,410

effect however blue ice is comprised of

95

00:04:26,159 --> 00:04:22,810

larger ice crystals which makes the red

96

00:04:28,650 --> 00:04:26,169

light absorption more obvious an article

97

00:04:30,320 --> 00:04:28,660

is a fascinating natural laboratory but

98

00:04:32,730 --> 00:04:30,330

the continents frigid temperatures and

99

00:04:35,400 --> 00:04:32,740

inaccessibility have historically made

100

00:04:37,110 --> 00:04:35,410

it a difficult place to study now armed

101

00:04:39,150 --> 00:04:37,120

with a Landsat image mosaic of

102

00:04:41,040 --> 00:04:39,160

Antarctica researchers hope to get a

103

00:04:42,450 --> 00:04:41,050

better view of Antarctica and to