

Landsat Image Mosaic of Antarctica

SeaWinds Imagery

08/05/2004



1
00:00:15,959 --> 00:00:13,530
though cold and often remote the icy

2
00:00:19,230 --> 00:00:15,969
reaches of the Arctic Antarctic and

3
00:00:23,860 --> 00:00:19,240
other frozen places affect the lives of

4
00:00:23,870 --> 00:00:29,700
we start our tour in Antarctica where

5
00:00:36,490 --> 00:00:33,490
they meet the sea mountains of ice crack

6
00:00:42,130 --> 00:00:36,500
and crumble the resulting icebergs can

7
00:00:48,070 --> 00:00:45,040
ice shelves surround half the continent

8
00:00:51,160 --> 00:00:48,080
they slow the relentless march of ice

9
00:00:54,360 --> 00:00:51,170
streams and glaciers like dams hold back

10
00:00:57,430 --> 00:00:54,370
rivers but the region is changing as

11
00:01:00,700 --> 00:00:57,440
temperatures increase we see a growing

12
00:01:03,850 --> 00:01:00,710
number of melt ponds as this heavy

13
00:01:06,219 --> 00:01:03,860

meltwater forces its way into cracks ice

14

00:01:10,900 --> 00:01:06,229

shelves weaken and can ultimately

15

00:01:14,109 --> 00:01:10,910

collapse after twelve thousand years the

16

00:01:16,800 --> 00:01:14,119

Larsen B Ice Shelf collapsed in just

17

00:01:24,070 --> 00:01:21,130

offshore sea ice forms when the surface

18

00:01:27,730 --> 00:01:24,080

of the ocean freezes pushing salt out of

19

00:01:30,880 --> 00:01:27,740

the ice the cold salty surface water

20

00:01:33,670 --> 00:01:30,890

starts to sink pumping deeper water out

21

00:01:36,880 --> 00:01:33,680

of the way powering global ocean

22

00:01:42,940 --> 00:01:36,890

circulation these currents influence

23

00:01:45,340 --> 00:01:42,950

climate worldwide most ice exists in the

24

00:01:48,370 --> 00:01:45,350

cold polar regions but we see glaciers

25

00:01:54,940 --> 00:01:48,380

like these in the Andes all over the

26
00:01:57,640 --> 00:01:54,950
world most are shrinking here in North

27
00:02:00,430 --> 00:01:57,650
America millions of people experience

28
00:02:03,399 --> 00:02:00,440
the cryosphere every year eastward

29
00:02:07,030 --> 00:02:03,409
moving storms deposits snow like thick

30
00:02:10,389 --> 00:02:07,040
paint brushes Mountain snow packs store

31
00:02:12,490 --> 00:02:10,399
water snowmelt provides three-quarters

32
00:02:28,910 --> 00:02:12,500
of the water resources used in the

33
00:02:34,740 --> 00:02:31,259
substantial winter snows produced a

34
00:02:37,470 --> 00:02:34,750
green Colorado in 2003 but drier

35
00:02:40,170 --> 00:02:37,480
conditions the previous year limited

36
00:02:46,280 --> 00:02:40,180
vegetation growth and increase the risk

37
00:02:51,229 --> 00:02:48,679
in the Rocky Mountains there are patches

38
00:02:54,770 --> 00:02:51,239

of frozen ground called permafrost that

39

00:02:57,410 --> 00:02:54,780

never thaw these regions are unusual in

40

00:02:59,990 --> 00:02:57,420

the mid-latitudes but farther north

41

00:03:02,600 --> 00:03:00,000

permafrost is more widespread and

42

00:03:04,160 --> 00:03:02,610

continuous covering nearly a fifth of

43

00:03:09,140 --> 00:03:04,170

the land surface in the northern

44

00:03:15,110 --> 00:03:09,150

hemisphere sea ice varies from season to

45

00:03:16,940 --> 00:03:15,120

season and from year to year data show

46

00:03:19,849 --> 00:03:16,950

that Arctic sea ice has shrunk

47

00:03:23,149 --> 00:03:19,859

dramatically in the last few decades the

48

00:03:26,059 --> 00:03:23,159

effects could be profound as polar ice

49

00:03:29,330 --> 00:03:26,069

decreases more open water could promote

50

00:03:32,629 --> 00:03:29,340

greater heating more heating could lead

51
00:03:36,140 --> 00:03:32,639
to faster melting reinforcing the cycle

52
00:03:38,839 --> 00:03:36,150
if this trend continues the Arctic Ocean

53
00:03:45,289 --> 00:03:38,849
could be ice-free in the summer by the

54
00:03:48,759 --> 00:03:45,299
end of the century these changes in ice

55
00:03:51,650 --> 00:03:48,769
cover are not limited to oceans

56
00:03:55,789 --> 00:03:51,660
Greenland's ice sheet contains nearly

57
00:03:58,699 --> 00:03:55,799
10% of the Earth's glacial ice glaciers

58
00:04:02,569 --> 00:03:58,709
in western Greenland produce most of the

59
00:04:04,069 --> 00:04:02,579
icebergs in the North Atlantic after

60
00:04:07,099 --> 00:04:04,079
decades of stability

61
00:04:09,050 --> 00:04:07,109
Greenland's Jakob saw an ice stream one

62
00:04:11,360 --> 00:04:09,060
of the fastest flowing glaciers in the

63
00:04:14,000 --> 00:04:11,370

world has changed dramatically

64

00:04:18,189 --> 00:04:14,010

the ice has thinned and the front

65

00:04:21,589 --> 00:04:18,199

retreated significantly between 1997 and

66

00:04:30,030 --> 00:04:21,599

2003 the glaciers flow rate nearly

67

00:04:35,500 --> 00:04:33,010

these are just some of the cryosphere ik

68

00:04:38,220 --> 00:04:35,510

processes that nasa satellites observe

69

00:04:41,230 --> 00:04:38,230

from space continued observation

70

00:04:44,020 --> 00:04:41,240

provides a critical global perspective

71

00:04:48,850 --> 00:04:44,030

as our home planet continues to change