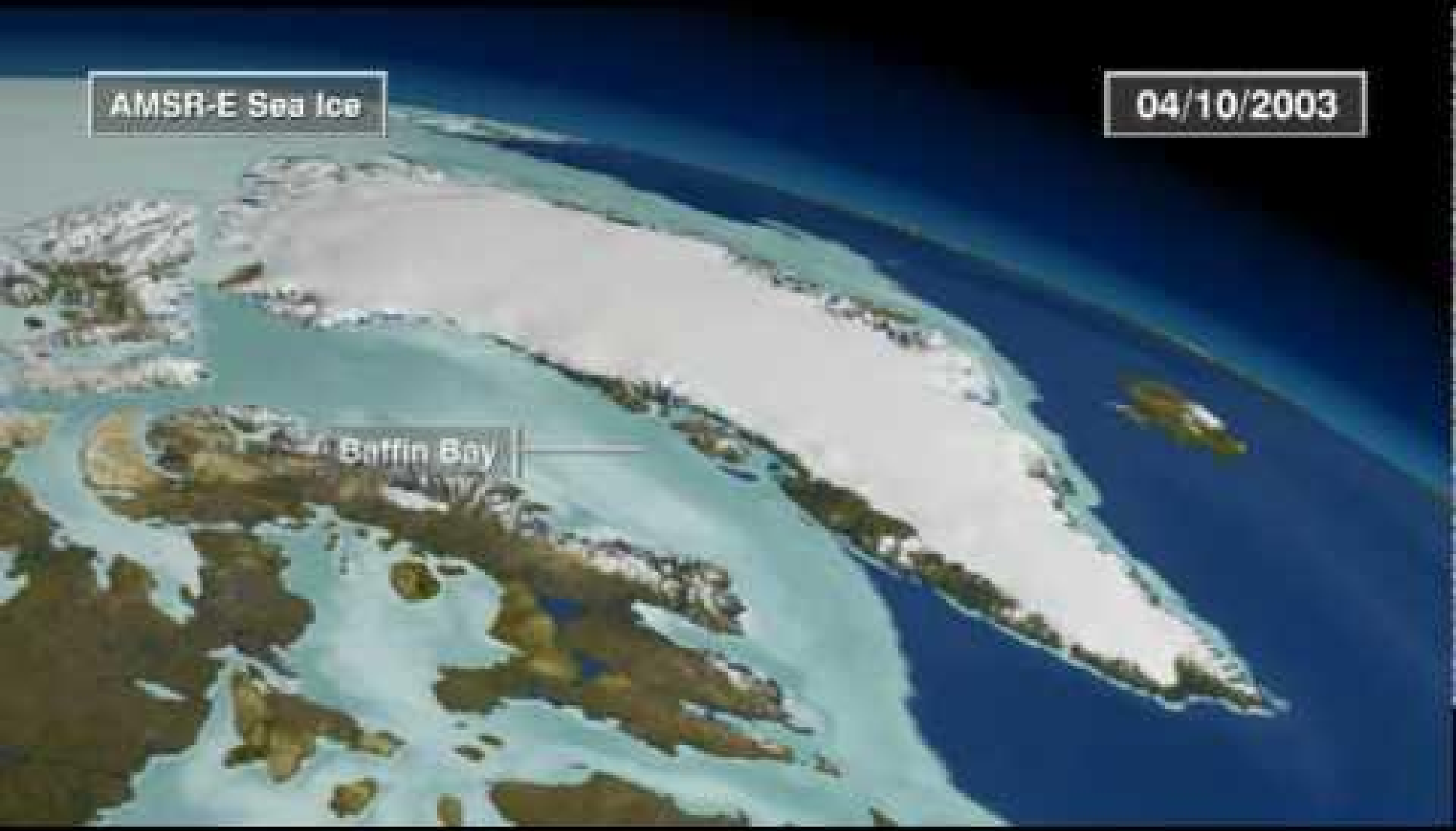
AMSR-E Sea Ice
04/10/2003
Baffin Bay

1
00:00:16,000 --> 00:00:13,540
though cold and often remote the icy

2
00:00:19,210 --> 00:00:16,010
reaches of the Arctic Antarctic and

3
00:00:25,840 --> 00:00:19,220
other frozen places affect the lives of

4
00:00:31,530 --> 00:00:25,850
everyone on earth we start our tour in

5
00:00:35,020 --> 00:00:31,540
Antarctica where they meet the sea

6
00:00:41,760 --> 00:00:35,030
mountains of ice crack and crumble the

7
00:00:48,100 --> 00:00:45,040
ice shelves surround half the continent

8
00:00:51,160 --> 00:00:48,110
they slow the relentless march of ice

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

10
00:00:57,280 --> 00:00:54,370
rivers but the region is changing as

11
00:01:00,700 --> 00:00:57,290
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
00:01:10,450 --> 00:01:06,229
shelves weaken and can ultimately

15
00:01:14,109 --> 00:01:10,460
collapse after 12,000 years

16
00:01:17,309 --> 00:01:14,119
the Larsen B Ice Shelf collapsed in just

17
00:01:24,279 --> 00:01:21,130
offshore sea ice forms when the surface

18
00:01:27,730 --> 00:01:24,289
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
00:01:31,809 --> 00:01:30,890
starts to sink pumping deeper water out

21
00:01:35,440 --> 00:01:31,819
of the way

22
00:01:40,600 --> 00:01:35,450
powering global ocean circulation these

23
00:01:46,130 --> 00:01:43,580
most ice exists in the cold polar

24
00:01:50,210 --> 00:01:46,140
regions but we see glaciers like these

25
00:01:56,150 --> 00:01:50,220
in the Andes all over the world most are

26
00:01:58,250 --> 00:01:56,160
shrinking here in North America millions

27
00:02:01,310 --> 00:01:58,260
of people experience the cryosphere

28
00:02:04,690 --> 00:02:01,320
every year eastward moving storms

29
00:02:08,690 --> 00:02:04,700
deposits snow like thick paint brushes

30
00:02:10,969 --> 00:02:08,700
Mountain snow packs store water snowmelt

31
00:02:28,920 --> 00:02:10,979
provides three-quarters of the water

32
00:02:34,720 --> 00:02:31,270
substantial winter snows produced a

33
00:02:37,449 --> 00:02:34,730
green Colorado in 2003 but drier

34
00:02:40,149 --> 00:02:37,459
conditions the previous year limited

35
00:02:46,270 --> 00:02:40,159
vegetation growth and increase the risk

36
00:02:51,220 --> 00:02:48,670
in the Rocky Mountains there are patches

37
00:02:54,790 --> 00:02:51,230
of frozen ground called permafrost that

38
00:02:57,400 --> 00:02:54,800

never thaw these regions are unusual in

39
00:02:59,950 --> 00:02:57,410
the mid-latitudes but farther north

40
00:03:02,620 --> 00:02:59,960
permafrost is more widespread and

41
00:03:04,150 --> 00:03:02,630
continuous covering nearly a fifth of

42
00:03:09,160 --> 00:03:04,160
the land surface in the northern

43
00:03:15,130 --> 00:03:09,170
hemisphere sea ice varies from season to

44
00:03:16,960 --> 00:03:15,140
season and from year to year data show

45
00:03:19,410 --> 00:03:16,970
that Arctic sea ice has shrunk

46
00:03:23,140 --> 00:03:19,420
dramatically in the last few decades the

47
00:03:26,050 --> 00:03:23,150
effects could be profound as polar ice

48
00:03:29,350 --> 00:03:26,060
decreases more open water could promote

49
00:03:32,650 --> 00:03:29,360
greater heating more heating could lead

50
00:03:36,160 --> 00:03:32,660
to faster melting reinforcing the cycle

51
00:03:38,830 --> 00:03:36,170
if this trend continues the Arctic Ocean

52
00:03:45,280 --> 00:03:38,840
could be ice-free in the summer by the

53
00:03:48,750 --> 00:03:45,290
end of the century these changes in ice

54
00:03:51,640 --> 00:03:48,760
cover are not limited to oceans

55
00:03:55,780 --> 00:03:51,650
Greenland's ice sheet contains nearly

56
00:03:58,690 --> 00:03:55,790
10% of the Earth's glacial ice glaciers

57
00:04:02,560 --> 00:03:58,700
in western Greenland produce most of the

58
00:04:04,210 --> 00:04:02,570
icebergs in the North Atlantic after

59
00:04:07,090 --> 00:04:04,220
decades of stability

60
00:04:09,039 --> 00:04:07,100
Greenland's Jakob saw an ice stream one

61
00:04:12,310 --> 00:04:09,049
of the fastest flowing glaciers in the

62
00:04:14,530 --> 00:04:12,320
world has changed dramatically the ice

63
00:04:19,900 --> 00:04:14,540

has thinned and the front retreated

64
00:04:22,900 --> 00:04:19,910
significantly between 1997 and 2003 the

65
00:04:30,330 --> 00:04:22,910
glaciers flow rate nearly doubled to 5

66
00:04:35,490 --> 00:04:33,000
these are just some of the cryosphere ik

67
00:04:38,210 --> 00:04:35,500
processes that nasa satellites observe

68
00:04:41,219 --> 00:04:38,220
from space continued observation

69
00:04:44,010 --> 00:04:41,229
provides a critical global perspective

70
00:04:48,870 --> 00:04:44,020
as our home planet continues to change