1
00:00:01,390 --> 00:00:06,390
[Music] Narrator: On July 7th, 2019 the skies around Anchorage Alaska were thick with smoke.

2
00:00:06,390 --> 00:00:10,000
Across the Cook Inlet,

3
00:00:10,000 --> 00:00:12,000
the Swan Lake Fire had spread over nearly

4
00:00:12,000 --> 00:00:16,000
79,000 acres and was still growing.

5
00:00:16,000 --> 00:00:19,000
This was just one of over 400 fires that

6
00:00:19,000 --> 00:00:22,000
burned in Alaska so far in 2019.

7
00:00:22,000 --> 00:00:26,000
In the Arctic, fires can help rejuvenate

8
00:00:26,000 --> 00:00:33,000
ecosystems and make way for new growth.

9
00:00:33,000 --> 00:00:35,000
However, Arctic and boreal regions

10
00:00:35,000 --> 00:00:38,000
are warming at a faster rate than anywhere else

11
00:00:38,000 --> 00:00:40,000
on Earth, and hotter and drier summers are leading

12
00:00:40,000 --> 00:00:44,000
to accelerated fire cycles and more intense burns.

13
00:00:44,000 --> 00:00:47,000

Elizabeth Hoy: Fires in boreal forests are different

14
00:00:47,000 --> 00:00:51,000
than in other areas of the world, such as those in the western United States.

15
00:00:51,000 --> 00:00:54,000
One of the main differences is they have these really thick

16
00:00:54,000 --> 00:00:57,000
organic soils layers and these soil layers burn.

17
00:00:57,000 --> 00:01:01,000
And so you’re not just getting fires in the trees or in the canopy,

18
00:01:01,000 --> 00:01:04,000
you’re getting fires below the tree itself, like in that soil layer and

19
00:01:04,000 --> 00:01:08,000
that is really when you get a lot of these carbon emissions.

20
00:01:08,000 --> 00:01:11,000
Narrator: Wildfires release large amounts of particulate matter

21
00:01:11,000 --> 00:01:15,000
which is transported across and beyond the region following

22
00:01:15,000 --> 00:01:18,000
wind patterns. This means that a fire burning in the Arctic

23
00:01:18,000 --> 00:01:22,000
can impact people living thousands of miles away.

24
00:01:22,000 --> 00:01:26,000
Elizabeth Hoy: Because there are these thick stores of organic material

25
00:01:26,000 --> 00:01:29,000
in the soil, when they burn, they are

26
00:01:29,000 --> 00:01:33,000
releasing huge amounts of carbon into the atmosphere, which is then causing

27
00:01:33,000 --> 00:01:36,000
more warming. And that warming isn’t just going to happen in the

28
00:01:36,000 --> 00:01:40,000
Arctic, we’re going to see climate change happen throughout all of the world.

29
00:01:40,000 --> 00:01:43,000
Narrator: NASA is studying how a changing climate is

30
00:01:43,000 --> 00:01:47,000
contributing to more frequent and powerful Arctic fires,

31
00:01:47,000 --> 00:01:50,000
and what that means for ecosystems and our health.

32
00:01:50,000 --> 00:01:53,000
Elizabeth Hoy: ABoVE is the Arctic - Boreal Vulnerability Experiment. And

33
00:01:53,000 --> 00:01:57,000
it is a large-scale field campaign that NASA has

34
00:01:57,000 --> 00:02:01,000
designed to study many aspects of the ecosystem

35
00:02:01,000 --> 00:02:04,000
of the Arctic and boreal regions in Alaska and western Canada.

36
00:02:04,000 --> 00:02:07,000
In addition to field observations, NASA satellites

37
00:02:07,000 --> 00:02:11,000
give researchers the ability to track large-scale

38
00:02:11,000 --> 00:02:13,000

changes to the Arctic over a period of time.

39
00:02:13,000 --> 00:02:18,000
And it’s not uncommon for these Earth-observing satellites to be the first to detect wildfire,

40
00:02:18,000 --> 00:02:23,000
especially in the remote Arctic regions.

41
00:02:23,000 --> 00:02:25,000
Elizabeth Hoy: NASA does a really good job of putting

42
00:02:25,000 --> 00:02:30,000
all these different pieces together. That’s the benefit of having a large agency like NASA

43
00:02:30,000 --> 00:02:32,000
do this type of study.

44
00:02:32,000 --> 00:02:35,000
Narrator: On the ground and in the air, NASA is working to better understand