1
00:00:00,027 --> 00:00:05,840
Vuyovich: NASA SnowEx is a is a multi-year\h
field campaign to test a number of different\h\h

2
00:00:05,840 --> 00:00:11,120
remote sensing technologies that might get\h
launched from space or in preparation for\h\h

3
00:00:11,120 --> 00:00:18,160
some planned satellites. In past years we've had\h
you know a lot of people from all over the place,\h\h

4
00:00:18,160 --> 00:00:24,240
even internationally, come together to collect\h
observations and conduct a several week-long\h\h

5
00:00:24,240 --> 00:00:30,320
campaign. This year we really had to change the\h
design of that, and now we're focusing a lot more\h\h

6
00:00:30,320 --> 00:00:36,560
on local teams. So we have local research groups\h
who have you know maybe been using a study area\h\h

7
00:00:36,560 --> 00:00:42,800
for a number of years, continuing to collect\h
observations and following the SnowEx protocol.\h\h

8
00:00:42,800 --> 00:00:48,160
So at all these sites they're collecting the same\h
observations on the ground, while the different\h\h

9
00:00:48,160 --> 00:00:54,240
planes fly overhead. One of our sites is in\h
Idaho is being led by Boise State University,\h\h

10
00:00:54,240 --> 00:01:00,120
and a number of graduate students are going out on\h
a weekly basis to collect observations. Marshall:\h\h

11
00:01:00,960 --> 00:01:06,400
I think one of the things that makes Boise State\h
really unique in terms of snow research, one of\h\h

12
00:01:06,400 --> 00:01:12,160
the big ones is how accessible the mountains are.\h
We're only 15 miles from the campus, and so we can\h\h

13
00:01:12,160 --> 00:01:19,600
get folks into the winter environment relatively\h
easily. Snow impacts both Boise and Idaho because\h\h

14
00:01:19,600 --> 00:01:26,320
in this part of the world our water supply comes\h
primarily from the seasonal snow cover. About 70\h\h

15
00:01:26,320 --> 00:01:30,560
of our water each year comes from the snow that\h
falls in the mountains, and that's important\h\h

16
00:01:30,560 --> 00:01:35,600
both for water resources, for recreation, a lot\h
of people use our river systems, so it's a big\h\h

17
00:01:35,600 --> 00:01:40,400
part of the economy, for agriculture. And then\h
also for hydropower. And then predicting the\h\h

18
00:01:40,400 --> 00:01:44,400
amount of snow that we have in the mountains\h
is important for flood forecasting as well.

19
00:01:47,880 --> 00:01:55,040
Kraft: We are digging a snow pit. So we\h
dig one in the open and one in the forest,\h\h

20
00:01:55,040 --> 00:02:00,080
and within the snow pit we measure\h
the different layers of the snowpack,\h\h

21
00:02:00,880 --> 00:02:04,720
and then in each layer we look\h
at the snow crystal types,\h\h

22
00:02:04,720 --> 00:02:10,160
as well as the size of the snow crystals.\h
And then we measure the density of the snow\h\h

23
00:02:10,720 --> 00:02:16,080
and measure the liquid water content. So we're\h
looking at how much water is in the snowpack.

24
00:02:17,880 --> 00:02:23,600
Marshall: So a lidar system measures the\h
height of the snow, and this specific system\h\h

25
00:02:23,600 --> 00:02:29,360
we're working with Silverhawk Aviation out of\h
Caldwell, and it's allowing us to very quickly\h\h

26
00:02:29,360 --> 00:02:35,200
integrate that instrument and then fly on about\h
24 hours' notice. What we're really finding is\h\h

27
00:02:35,200 --> 00:02:41,280
that the solution to the snow problem is going to\h
require field measurements like we're doing today,\h\h

28
00:02:41,280 --> 00:02:46,160
remote sensing like the helicopter that flew\h
over today and the satellites that are timed\h\h

29
00:02:46,160 --> 00:02:50,800
to overpass our site, and combining the models,\h
the remote sensing and the ground measurements.\h\h

30
00:02:50,800 --> 00:02:58,720
All three of those pieces are very critical. Snow\h
is a relatively new science and so a lot of the\h\h

31
00:02:59,280 --> 00:03:05,360
problems that we tackle are questions that that a\h
lot of people haven't actually looked at before.\h\h

32
00:03:05,360 --> 00:03:11,600
And what that means for I think students is that\h
it's much easier to make an impact than in some\h\h

33
00:03:11,600 --> 00:03:15,440
of these other fields that have been studied\h
for hundreds and hundreds of years. Vuyovich:\h\h

34
00:03:15,440 --> 00:03:21,120
NASA’s interest in in studying snow, there are a\h
number of different objectives. So you know from\h\h

35
00:03:21,120 --> 00:03:26,480
the water resources side, snow is in incredibly\h
important. And in the western United States,\h\h

36
00:03:26,480 --> 00:03:33,200
a lot of the water resources come from snow. In\h
other areas, it's hydropower. It provides some\h\h

37
00:03:33,200 --> 00:03:40,240
infiltration into the soil, so for agriculture. It\h
also feeds into some climate change questions. How\h\h