1
00:00:00,610 --> 00:00:05,800
[chimes]

2
00:00:06,820 --> 00:00:12,010
In 1972, a satellite was launched which will help to manage world agriculture:

3
00:00:12,030 --> 00:00:16,050
Landsat, the Earth Resources Satellite.

4
00:00:16,070 --> 00:00:20,070
Narrator: Today, over seven billion people and their use of technology

5
00:00:20,090 --> 00:00:24,100
create drastic changes to the land surface and how resources are applied.

6
00:00:28,140 --> 00:00:32,150
In four decades, Landsat satellites have revolutionized

7
00:00:32,170 --> 00:00:36,190
remote sensing by collecting the longest historical archive

8
00:00:36,210 --> 00:00:40,200
of land change images worldwide.

9
00:00:43,230 --> 00:00:48,230
Launching LDCM and continuing the Landsat mission is critical

10
00:00:48,250 --> 00:00:55,240
for the large number of government and private data users worldwide.

11
00:01:00,300 --> 00:01:04,340
For the Robert Mondavi Winery in Napa Valley, California,

12
00:01:04,360 --> 00:01:09,360
Landsat plays a major role in monitoring 400 acres of land.

13
00:01:09,380 --> 00:01:15,410

The raw satellite data gets processed extermally as a weekly report.

14
00:01:15,430 --> 00:01:20,450
The Landsat imagery and data in the report show color coded comparisons

15
00:01:20,470 --> 00:01:24,470
of water usage, leaf growth, stress levels,

16
00:01:24,490 --> 00:01:27,500
and other measurements from the current and past years

17
00:01:27,520 --> 00:01:32,820
as well as detailed graphs with the condition of each vineyard block.

18
00:01:32,840 --> 00:01:36,560
Based on this information, managers can plan care

19
00:01:36,580 --> 00:01:41,480
for the vines now and also in the years ahead.

20
00:01:41,500 --> 00:01:44,610
Daniel Bosch: The Landsat image allows us to understand

21
00:01:44,630 --> 00:01:48,640
and quantify how many leaves there are in a vineyard.

22
00:01:48,660 --> 00:01:52,370
Once we know that, then the people we are working with,

23
00:01:52,390 --> 00:01:55,710
they can make calculations of how much water that is.

24
00:01:55,730 --> 00:02:00,240
We can compare it to other vineyards; are we using too much or too little,

25
00:02:00,260 --> 00:02:02,370
are we applying it at the right time.

26
00:02:02,390 --> 00:02:04,800
Narrator: One of the major advantages for the winery

27
00:02:04,820 --> 00:02:10,840
is the use of continuous data to help make long-term decisions in planning.

28
00:02:12,880 --> 00:02:19,190
Among many other uses, Landsat data is applied in managing millions of acres of timberland.

29
00:02:20,750 --> 00:02:25,010
Using a specially designed tool, workers at American Forest Management

30
00:02:25,030 --> 00:02:30,980
are able to analyze satellite data and estimate the Leaf Area Index.

31
00:02:31,000 --> 00:02:37,110
This index shows the concentration of needles on pine trees.

32
00:02:37,130 --> 00:02:41,730
Ben Graham: Once we've processed the raw product, we are able to create maps for clients,

33
00:02:41,750 --> 00:02:46,150
which allow them to analyze the data

34
00:02:46,170 --> 00:02:49,000
look at stands that have high or low Leaf Area Index.

35
00:02:49,020 --> 00:02:53,220
Based off that number they are able to make management decisions

36
00:02:53,240 --> 00:02:57,830
whether it's beneficial to fertilize or possibly do some hardwood control

37
00:02:57,850 --> 00:03:03,250
on a stand to make it grow stronger, faster, healthier.

38
00:03:04,000 --> 00:03:09,300

Narrator: Landsat provides a quicker solution to pinpointing problematic areas,

39
00:03:09,320 --> 00:03:12,330
so they can be further analyzed on the ground.

40
00:03:12,350 --> 00:03:16,200
In contrast, collecting data on the ground or by airplane

41
00:03:16,220 --> 00:03:21,420
involves more manpower, it is slower, and comes at a much higher cost