1
00:00:20,810 --> 00:00:18,800
in 2008 the world experienced what has

2
00:00:24,259 --> 00:00:20,820
been referred to as a perfect storm of

3
00:00:26,960 --> 00:00:24,269
both natural and human events droughts

4
00:00:29,870 --> 00:00:26,970
and grain producing nations increased

5
00:00:32,150 --> 00:00:29,880
demand for meat the lowest reserve of

6
00:00:34,459 --> 00:00:32,160
food stocks on record and rising fuel

7
00:00:38,750 --> 00:00:34,469
prices led to what is referred to as the

8
00:00:39,290 --> 00:00:38,760
2008 global food crisis in the United

9
00:00:41,180 --> 00:00:39,300
States

10
00:00:43,490 --> 00:00:41,190
the results were $4 per gallon gasoline

11
00:00:45,680 --> 00:00:43,500
and higher costs for food staples in

12
00:00:48,549 --> 00:00:45,690
some regions of the world people saw

13
00:00:51,560 --> 00:00:48,559

their cost of food double or even triple

14
00:00:56,119 --> 00:00:51,570
how did a world so rich with food end up

15
00:00:59,000 --> 00:00:56,129
with such a vast problem to uncover the

16
00:01:02,940 --> 00:00:59,010
answers it pays to step back far back

17
00:01:05,700 --> 00:01:02,950
and get a global perspective

18
00:01:07,680 --> 00:01:05,710
NASA satellites monitoring our planet

19
00:01:17,300 --> 00:01:07,690
from space are in the perfect place to

20
00:01:21,960 --> 00:01:19,770
agriculture the process of growing food

21
00:01:23,670 --> 00:01:21,970
and fuel is usually far more complex

22
00:01:27,660 --> 00:01:23,680
than simply growing something and

23
00:01:30,200 --> 00:01:27,670
getting it to market because it's an

24
00:01:35,130 --> 00:01:30,210
integrated system now and we have to tie

25
00:01:38,010 --> 00:01:35,140
markets economies food aid political

26
00:01:40,080 --> 00:01:38,020
issues and yes making sure we have a

27
00:01:42,240 --> 00:01:40,090
stable economy and we have enough food

28
00:01:46,219 --> 00:01:42,250
to eat here all those things tied

29
00:01:49,530 --> 00:01:46,229
together require us to have a very good

30
00:01:52,200 --> 00:01:49,540
system of being able to monitor crops

31
00:01:54,480 --> 00:01:52,210
and food supply when you bring together

32
00:01:56,040 --> 00:01:54,490
the all the actors the people in the

33
00:01:58,170 --> 00:01:56,050
local communities the national

34
00:02:00,780 --> 00:01:58,180
governments the international actors all

35
00:02:02,580 --> 00:02:00,790
the NGOs and you bring them into a room

36
00:02:04,859 --> 00:02:02,590
the thing that everyone can really agree

37
00:02:12,160 --> 00:02:04,869
on the most is the remote sensing

38
00:02:16,789 --> 00:02:14,809

one of the best ways to gauge world food

39
00:02:18,979 --> 00:02:16,799
production at any given time is to

40
00:02:23,390 --> 00:02:18,989
monitor from space literally how green

41
00:02:25,390 --> 00:02:23,400
food producing regions are by looking at

42
00:02:27,530 --> 00:02:25,400
the greenness of a particular area

43
00:02:30,110 --> 00:02:27,540
scientists are able to tell how much

44
00:02:31,940 --> 00:02:30,120
photosynthesis is occurring therefore

45
00:02:34,879 --> 00:02:31,950
providing an indicator of how lucrative

46
00:02:36,500 --> 00:02:34,889
the harvest will be if you look at the

47
00:02:37,069 --> 00:02:36,510
terabytes of data that come out of the

48
00:02:40,849 --> 00:02:37,079
sky

49
00:02:43,970 --> 00:02:40,859
every day the most commonly used index

50
00:02:46,490 --> 00:02:43,980
is the vegetation index this indicator

51
00:02:48,619 --> 00:02:46,500
developed in the late 1970s by dr.

52
00:02:50,689 --> 00:02:48,629
Compton Tucker and his team at the NASA

53
00:02:52,399 --> 00:02:50,699
Goddard Space Flight Center is the

54
00:02:55,520 --> 00:02:52,409
normalized difference vegetation index

55
00:02:57,500 --> 00:02:55,530
or NDVI when you have these data you

56
00:02:59,059 --> 00:02:57,510
also are able to look at where you have

57
00:03:01,459 --> 00:02:59,069
better conditions for plant growth and

58
00:03:04,369 --> 00:03:01,469
worse conditions and this is where these

59
00:03:06,110 --> 00:03:04,379
data become really useful to look at

60
00:03:08,479 --> 00:03:06,120
agricultural production agricultural

61
00:03:10,610 --> 00:03:08,489
shortfalls because you have this history

62
00:03:12,770 --> 00:03:10,620
over many years and you know these were

63
00:03:14,569 --> 00:03:12,780

good years these were bad years the

64
00:03:17,689 --> 00:03:14,579
present year is somewhere in between so

65
00:03:19,819 --> 00:03:17,699
on and so forth it's really interesting

66
00:03:22,490 --> 00:03:19,829
indicator because it lets us see the

67
00:03:25,699 --> 00:03:22,500
health and the the productivity of

68
00:03:27,740 --> 00:03:25,709
plants and a wide variety of scale what

69
00:03:29,479 --> 00:03:27,750
it does is opens up to all those

70
00:03:33,199 --> 00:03:29,489
decision-makers who have to make

71
00:03:35,300 --> 00:03:33,209
decisions about their crops now they can

72
00:03:39,030 --> 00:03:35,310
be now serviced a lot better with us in

73
00:03:44,399 --> 00:03:41,220
but NASA looks at more than just how

74
00:03:46,530 --> 00:03:44,409
green our planet is day to day in the

75
00:03:48,869 --> 00:03:46,540
remaining five episodes of this video

76
00:03:51,149 --> 00:03:48,879
series we will examine in depth how

77
00:03:52,470 --> 00:03:51,159
remote sensing satellite data gives us a

78
00:03:55,349 --> 00:03:52,480
clearer picture of how our fragile

79
00:03:56,789 --> 00:03:55,359
natural resources such as rainforests

80
00:04:00,509 --> 00:03:56,799
are being affected by changing

81
00:04:03,059 --> 00:04:00,519
agricultural practices how communities

82
00:04:05,879 --> 00:04:03,069
facing disaster famine or human strife

83
00:04:07,710 --> 00:04:05,889
may be able to get access to food how

84
00:04:10,500 --> 00:04:07,720
precious water resources are being used

85
00:04:12,149 --> 00:04:10,510
around the world and even how our change

86
00:04:15,809 --> 00:04:12,159
in climate might alter the future of

87
00:04:17,640 --> 00:04:15,819
food in the wake of the recent crisis by

88
00:04:20,039 --> 00:04:17,650

using satellites to better understand

89
00:04:21,599 --> 00:04:20,049
how agriculture works today we're better

90
00:04:23,339 --> 00:04:21,609
prepared to face the challenges of

91
00:04:26,219 --> 00:04:23,349
climate change and increasing population