1
00:00:11,209 --> 00:00:08,780
seeing things like a hurricane develop

2
00:00:12,860 --> 00:00:11,219
in its earliest phases getting a much

3
00:00:14,810 --> 00:00:12,870
better idea of its strength than we can

4
00:00:17,510 --> 00:00:14,820
from flying one or two planes through it

5
00:00:30,950 --> 00:00:17,520
we can map the entire surface effect of

6
00:00:33,350 --> 00:00:30,960
a tropical storm in one pass the ISS

7
00:00:35,299 --> 00:00:33,360
rapidscat is a mission to bring a

8
00:00:37,240 --> 00:00:35,309
payload to the International Space

9
00:00:40,160 --> 00:00:37,250
Station and from there we will observe

10
00:00:42,290 --> 00:00:40,170
the Earth's oceans and be able to map

11
00:00:44,360 --> 00:00:42,300
the speed and direction of winds near

12
00:00:46,670 --> 00:00:44,370
the surface rapidscat is scatterometer

13
00:00:49,130 --> 00:00:46,680

it's a radar it sends out little bits of

14
00:00:51,290 --> 00:00:49,140
energy towards Earth's surface that then

15
00:00:53,299 --> 00:00:51,300
get reflected back if the ocean is flat

16
00:00:55,400 --> 00:00:53,309
most of that energy from the radar it

17
00:00:57,920 --> 00:00:55,410
just scatters away the stronger the wind

18
00:00:59,810 --> 00:00:57,930
the rougher the surface will be the more

19
00:01:02,209 --> 00:00:59,820
energy will be returned to the radar and

20
00:01:04,100 --> 00:01:02,219
then we can convert that energy into a

21
00:01:06,469 --> 00:01:04,110
measurement of the wind and that'll help

22
00:01:08,810 --> 00:01:06,479
us do things like track and predict

23
00:01:10,460 --> 00:01:08,820
severe storms and also learn about the

24
00:01:12,469 --> 00:01:10,470
ocean atmospheric interface especially

25
00:01:13,660 --> 00:01:12,479
over the tropical regions which are of

26
00:01:16,310 --> 00:01:13,670
great interest to the United States

27
00:01:18,410 --> 00:01:16,320
because most of the tropical hurricanes

28
00:01:27,789 --> 00:01:18,420
that hit the United States come from

29
00:01:30,920 --> 00:01:27,799
those regions we're launching on a

30
00:01:33,050 --> 00:01:30,930
SpaceX Falcon 9 rocket the Dragon

31
00:01:35,210 --> 00:01:33,060
capsule separates from the Falcon 9 in

32
00:01:37,069 --> 00:01:35,220
orbit and after orbiting Earth a couple

33
00:01:40,640 --> 00:01:37,079
of times the International Space Station

34
00:01:43,580 --> 00:01:40,650
robotic arm reaches out and gently grabs

35
00:01:46,010 --> 00:01:43,590
the dragon as the dragon you know slowly

36
00:01:48,350 --> 00:01:46,020
approaches the ISS about two days later

37
00:01:50,810 --> 00:01:48,360
ground controllers bring the robot arm

38
00:01:52,670 --> 00:01:50,820

over the robotic arm then reaches into

39
00:01:55,249 --> 00:01:52,680
the trunk and grabs the instrument and

40
00:01:57,410 --> 00:01:55,259
plugs that on to the International Space

41
00:01:58,940 --> 00:01:57,420
Station and everything mates robotically

42
00:02:00,260 --> 00:01:58,950
we hook these pieces together then we

43
00:02:07,880 --> 00:02:00,270
get to stay on the outside of the space

44
00:02:10,130 --> 00:02:07,890
station for a couple of years the space

45
00:02:11,869 --> 00:02:10,140
station came and asked what relatively

46
00:02:13,580 --> 00:02:11,879
inexpensive payloads we could put up on

47
00:02:15,440 --> 00:02:13,590
the space station we had this hardware

48
00:02:17,360 --> 00:02:15,450
sitting there doing nothing collecting

49
00:02:18,890 --> 00:02:17,370
dust for the last 13 years we might as

50
00:02:20,660 --> 00:02:18,900
well try to put it to use what if we

51
00:02:22,339 --> 00:02:20,670
took some of the existing hardware and

52
00:02:23,780 --> 00:02:22,349
tried to fly it in the simplest way

53
00:02:26,180 --> 00:02:23,790
possible we've put them through

54
00:02:28,490 --> 00:02:26,190
extensive testing electrically tested

55
00:02:30,500 --> 00:02:28,500
them vibration tables thermal vacuum

56
00:02:32,780 --> 00:02:30,510
chambers and that leftover hardware

57
00:02:34,250 --> 00:02:32,790
meant to be got to save about 80 percent

58
00:02:35,690 --> 00:02:34,260
of the cost in terms of being able to

59
00:02:37,699 --> 00:02:35,700
reuse the hardware instead of building

60
00:02:40,130 --> 00:02:37,709
new and we've added the necessary

61
00:02:41,990 --> 00:02:40,140
adjustments needed for this new orbiting

62
00:02:43,550 --> 00:02:42,000
platform that will be on the space

63
00:02:45,770 --> 00:02:43,560

station was built out we know what the

64
00:02:47,210 --> 00:02:45,780
external capabilities are we know we can

65
00:02:48,740 --> 00:02:47,220
put science instruments in different

66
00:02:50,869 --> 00:02:48,750
places we're taking something with a

67
00:02:52,790 --> 00:02:50,879
very small team a very small budget in a

68
00:02:55,600 --> 00:02:52,800
very short schedule and turning it into

69
00:02:58,460 --> 00:02:55,610
something with very real science value

70
00:03:00,830 --> 00:02:58,470
the global coverage of the earth is

71
00:03:02,420 --> 00:03:00,840
probably right now one of the greatest

72
00:03:04,280 --> 00:03:02,430
priorities that people should have in

73
00:03:05,869 --> 00:03:04,290
mind when they think about the

74
00:03:09,229 --> 00:03:05,879
importance of the space program the

75
00:03:11,330 --> 00:03:09,239
earth is a very dynamic very complex

76
00:03:14,000 --> 00:03:11,340
system and because the role that winds

77
00:03:16,130 --> 00:03:14,010
play it's a fundamental part of that

78
00:03:18,050 --> 00:03:16,140
whole story and we need people's

79
00:03:20,750 --> 00:03:18,060
awareness and understanding of the