



1
00:00:19,700 --> 00:00:17,330
it's known for its beauty and grace but

2
00:00:21,950 --> 00:00:19,710
from a scientific point of view what

3
00:00:24,490 --> 00:00:21,960
makes Bermuda unique amongst the world

4
00:00:27,200 --> 00:00:24,500
islands is that it's relatively flat

5
00:00:30,650 --> 00:00:27,210
only the ant holes in the Pacific have

6
00:00:33,770 --> 00:00:30,660
similar elevations this means no local

7
00:00:36,110 --> 00:00:33,780
clouds form over the island cloud cover

8
00:00:38,180 --> 00:00:36,120
in Bermuda is the same as in the ocean

9
00:00:40,250 --> 00:00:38,190
surrounding which is why Charles

10
00:00:42,319 --> 00:00:40,260
Whitlock in his college from NASA's

11
00:00:44,840 --> 00:00:42,329
Langley Research Center in Virginia are

12
00:00:47,060 --> 00:00:44,850
here working at the NASA tracking

13
00:00:49,310 --> 00:00:47,070

station on the northeast part of the

14

00:00:51,350 --> 00:00:49,320

island they are conducting the first

15

00:00:54,049 --> 00:00:51,360

global surface radiation budget

16

00:00:56,180 --> 00:00:54,059

experiment to determine if climate

17

00:01:00,439 --> 00:00:56,190

models based on satellite information

18

00:01:02,869 --> 00:01:00,449

are accurate one significant variable in

19

00:01:06,469 --> 00:01:02,879

climate modeling is the height the ocean

20

00:01:09,560 --> 00:01:06,479

clouds these satellite soundings give us

21

00:01:11,990 --> 00:01:09,570

information on the cloud top altitudes

22

00:01:14,210 --> 00:01:12,000

because it sees the top but it can tell

23

00:01:15,980 --> 00:01:14,220

us nothing about how thick the clouds

24

00:01:19,070 --> 00:01:15,990

are and how close they are to the

25

00:01:22,190 --> 00:01:19,080

surface of the earth scientists must

26

00:01:24,469 --> 00:01:22,200

estimate these factors and to test the

27

00:01:26,270 --> 00:01:24,479

precision of their calculations the

28

00:01:29,210 --> 00:01:26,280

Langley team has converted an old

29

00:01:32,510 --> 00:01:29,220

observation dome into a laser laboratory

30

00:01:35,010 --> 00:01:32,520

a narrow green beam is pulsed from the

31

00:01:36,929 --> 00:01:35,020

control room into the sky

32

00:01:39,240 --> 00:01:36,939

amount of light bouncing off the clouds

33

00:01:42,029 --> 00:01:39,250

back into the instrument very accurately

34

00:01:44,520 --> 00:01:42,039

determines cloud heights measurements

35

00:01:48,149 --> 00:01:44,530

are taken at four very specific times a

36

00:01:50,399 --> 00:01:48,159

day we wanted to take the meteorological

37

00:01:52,410 --> 00:01:50,409

data at the exact instant that the

38

00:01:55,889 --> 00:01:52,420

satellite was passing over to improve

39

00:01:58,859 --> 00:01:55,899

accuracy a visual record of cloud

40

00:02:00,959 --> 00:01:58,869

conditions is also produced a small

41

00:02:03,719 --> 00:02:00,969

camera in this protective metal housing

42

00:02:06,120 --> 00:02:03,729

is aimed at a reflective dome the

43

00:02:08,550 --> 00:02:06,130

resulting images recorded along with

44

00:02:14,430 --> 00:02:08,560

dates and times provide more ground

45

00:02:16,620 --> 00:02:14,440

truth information instrument packages

46

00:02:19,650 --> 00:02:16,630

weighing about 40 pounds are also being

47

00:02:21,539 --> 00:02:19,660

used in the study these measure the

48

00:02:24,600 --> 00:02:21,549

amounts of solar and thermal radiation

49

00:02:30,270 --> 00:02:24,610

reaching the ocean surface important

50

00:02:34,190 --> 00:02:30,280

factors in climate model up to four

51
00:02:36,479 --> 00:02:34,200
weather balloons are prepared each day

52
00:02:38,580 --> 00:02:36,489
devices attached to the balloons

53
00:02:41,309 --> 00:02:38,590
obtained temperature and humidity

54
00:02:43,590 --> 00:02:41,319
readings through the atmosphere again

55
00:02:51,559 --> 00:02:43,600
launch times coincide with satellite

56
00:02:57,300 --> 00:02:54,809
the surface radiation budget experiment

57
00:02:59,849 --> 00:02:57,310
is part of a world climate research

58
00:03:01,949 --> 00:02:59,859
program similar ground truth

59
00:03:04,369 --> 00:03:01,959
measurements are being made at sites

60
00:03:07,500 --> 00:03:04,379
around the globe with this information

61
00:03:11,130 --> 00:03:07,510
will be able to better predict ocean

62
00:03:15,720 --> 00:03:11,140
warming ice melt prop growth as well as

63
00:03:18,170 --> 00:03:15,730

long term climatic past the global

64

00:03:20,699 --> 00:03:18,180

surface radiation budget experiment