1
00:00:07,510 --> 00:00:04,309
[Music]

2
00:00:10,629 --> 00:00:07,520
a mangrove forest is a forest made out

3
00:00:13,749 --> 00:00:10,639
of trees that grow in areas where

4
00:00:15,829 --> 00:00:13,759
land meets sea so these are essentially

5
00:00:19,189 --> 00:00:15,839
wetland forests

6
00:00:22,310 --> 00:00:19,199
that are only present in tropical or

7
00:00:25,189 --> 00:00:22,320
subtropical regions worldwide

8
00:00:27,429 --> 00:00:25,199
my name is dr lola fatouyenbo and i'm a

9
00:00:30,390 --> 00:00:27,439
research scientist in the biospheric

10
00:00:31,990 --> 00:00:30,400
sciences lab

11
00:00:33,830 --> 00:00:32,000
mangroves are important for a whole

12
00:00:36,549 --> 00:00:33,840
number of reasons they provide what we

13
00:00:38,470 --> 00:00:36,559

call ecosystem services to humans

14
00:00:41,830 --> 00:00:38,480
and some of those services that they

15
00:00:45,910 --> 00:00:41,840
provide are storm surge protections the

16
00:00:48,630 --> 00:00:45,920
protection from waves and erosion of the

17
00:00:51,350 --> 00:00:48,640
coast they're also really important for

18
00:00:54,869 --> 00:00:51,360
water filtration and for

19
00:01:01,430 --> 00:00:59,510
so in 2017 when hurricane irma hit

20
00:01:04,630 --> 00:01:01,440
southern florida we were really

21
00:01:07,429 --> 00:01:04,640
interested in getting a better idea of

22
00:01:08,310 --> 00:01:07,439
how resilient mangrove forests would be

23
00:01:13,270 --> 00:01:08,320
to

24
00:01:16,070 --> 00:01:13,280
expecting with changes in climate

25
00:01:18,469 --> 00:01:16,080
we worked with an airborne instrument

26
00:01:21,429 --> 00:01:18,479
suite called g-light this is the goddard

27
00:01:24,950 --> 00:01:21,439
lidar hyperspectral thermal instrument

28
00:01:27,830 --> 00:01:24,960
which is a small pod that has multiple

29
00:01:30,710 --> 00:01:27,840
instruments set up together that you can

30
00:01:33,429 --> 00:01:30,720
essentially attach to an airplane

31
00:01:35,510 --> 00:01:33,439
what we found was that actually the main

32
00:01:38,550 --> 00:01:35,520
cause of permanent die off in mangrove

33
00:01:41,109 --> 00:01:38,560
forest is when you have these really

34
00:01:44,789 --> 00:01:41,119
high storm surge that come into areas

35
00:01:47,510 --> 00:01:44,799
and result in ponding of water in these

36
00:01:50,789 --> 00:01:47,520
basin mangrove areas so essentially

37
00:01:52,789 --> 00:01:50,799
areas where salt water becomes stagnant

38
00:01:55,190 --> 00:01:52,799

and when that water becomes stagnant it

39
00:01:57,830 --> 00:01:55,200
gets a really high concentration of

40
00:01:59,830 --> 00:01:57,840
nutrients and the salt leading to a

41
00:02:02,310 --> 00:01:59,840
permanent die off of these mangrove

42
00:02:04,789 --> 00:02:02,320
areas which is in some ways becoming a

43
00:02:06,709 --> 00:02:04,799
vicious cycle because in those areas

44
00:02:08,869 --> 00:02:06,719
because they're basins you're not able

45
00:02:11,510 --> 00:02:08,879
to grow new mangroves that are then

46
00:02:14,070 --> 00:02:11,520
accumulating more soil and so you end up

47
00:02:15,670 --> 00:02:14,080
with mangroves dying the peat collapsing

48
00:02:17,589 --> 00:02:15,680
and that peak collapse

49
00:02:20,300 --> 00:02:17,599
not allowing for new mangroves to come

50
00:02:21,510 --> 00:02:20,310
in and resulting in permanent die off

51
00:02:23,510 --> 00:02:21,520
[Music]

52
00:02:25,589 --> 00:02:23,520
so i think the greatest takeaway from

53
00:02:27,110 --> 00:02:25,599
the study is that even though mangroves

54
00:02:29,350 --> 00:02:27,120
are often thought as being really

55
00:02:31,509 --> 00:02:29,360
resilient and resistant to harsh

56
00:02:33,430 --> 00:02:31,519
conditions they are still really

57
00:02:35,670 --> 00:02:33,440
vulnerable and we need to make sure that

58
00:02:37,990 --> 00:02:35,680
we are able to maintain the natural

59
00:02:40,550 --> 00:02:38,000
conditions and hydrology that they grow

60
00:02:41,430 --> 00:02:40,560
in for them to continue to protect us

61
00:02:46,690 --> 00:02:41,440
from