1
00:00:03,430 --> 00:00:07,570
[Bird sounds] Researcher: You hear it kind of chirping?

2
00:00:07,590 --> 00:00:11,650
Like a bird? Oh yeah -- got it.

3
00:00:11,670 --> 00:00:15,730
[bird and insect sounds]

4
00:00:19,830 --> 00:00:23,880
Fatoyinbo: So we're about to go do an airborne campaign called AfriSAR.

5
00:00:23,900 --> 00:00:28,000
And the goal of our campaign is to go and measure

6
00:00:28,020 --> 00:00:32,040
cosystem structure -- specifically forest structure forest height,

7
00:00:32,060 --> 00:00:36,140
forest carbon storage. We're really excited to be going to

8
00:00:36,160 --> 00:00:40,290
Gabon because as it turns out, Gabon is the second-most forested

9
00:00:40,310 --> 00:00:44,330
country in the world and they have some really dense tropical

10
00:00:44,350 --> 00:00:48,350
forests that has not really been studied, extensively, especially from a remote

11
00:00:48,370 --> 00:00:52,470
sensing perspective. So remote sensing is what we do when we use satellites

12
00:00:52,490 --> 00:00:56,610
sensing perspective So remote sensing is what we do when we use satellites or airborne instruments to explor

13
00:00:56,630 --> 00:01:00,770

So what's really exciting in Gabon is that they've been setting up all these

14
00:01:00,790 --> 00:01:04,810
field plots where they have very intensive measurements of

15
00:01:04,830 --> 00:01:08,870
forest structure of the species composition of a forest,

16
00:01:08,890 --> 00:01:12,900
of the age the forest, of how it's growing, and so now we can compare our airborne

17
00:01:12,920 --> 00:01:16,970
measurements with the measurements that they've been collecting in the field.

18
00:01:16,990 --> 00:01:21,030
Saatchi: My name is Sassan Saatchi and

19
00:01:21,050 --> 00:01:25,120
my role would be to collect some data on the ground

20
00:01:25,140 --> 00:01:29,150
to validate and verify what we observe

21
00:01:29,170 --> 00:01:33,220
with our instruments on the aircraft.

22
00:01:33,240 --> 00:01:37,380
This is one of our plots, it's one hectare. It goes

23
00:01:37,400 --> 00:01:41,420
100 meter this way and 100 meter that way. So in one hectare of the land,

24
00:01:41,440 --> 00:01:45,520
in the rainforest, you can find more than 400-500 different

25
00:01:45,540 --> 00:01:49,640
species, packed. So it's extremely interesting

26
00:01:49,660 --> 00:01:53,810
and it's hot

27
00:01:53,830 --> 00:01:57,850
and it's humid, and it's all the -- water is available

28
00:01:57,870 --> 00:02:01,880
sunshine is available, so it's one of those places in the world

29
00:02:01,900 --> 00:02:05,940
that life actually constantly regenerates in different forms.

30
00:02:05,960 --> 00:02:10,020
So it's very much interesting to go. And especially since it's

31
00:02:10,040 --> 00:02:14,030
connects so much to our climate and to the whole

32
00:02:14,050 --> 00:02:18,160
Earth system, and has one of the largest impacts on the Earth system,

33
00:02:18,180 --> 00:02:22,250
both in terms of its carbon, regulating weather and water

34
00:02:22,270 --> 00:02:26,390
So it's important for us to be there.

35
00:02:26,410 --> 00:02:30,420
Fatoyinbo: One of the questions that we're really interested in at NASA is we really want to

36
00:02:30,440 --> 00:02:34,480
be able to balance the global carbon budget. So we know

37
00:02:34,500 --> 00:02:38,540
much carbon is stored in the oceans, we know how much carbon is stored in the

38
00:02:38,560 --> 00:02:42,630

atmosphere, and we know how much is emitted through fossil fuel burning

39
00:02:42,650 --> 00:02:46,760
for example into the atmosphere, but we don't have a good idea of how

40
00:02:46,780 --> 00:02:50,930
much carbon is actually emitted into the atmosphere from forest fires

41
00:02:50,950 --> 00:02:54,980
and land use change. And we also don't really

42
00:02:55,000 --> 00:02:59,030
have a good estimate of how much carbon is being

43
00:02:59,050 --> 00:03:03,110
taken up from the atmosphere and where it is stored, because

44
00:03:03,130 --> 00:03:07,190
most of that carbon gets stored by forests. So what we're doing now by

45
00:03:07,210 --> 00:03:11,270
our AfriSAR campaign in Gabon is going to an ecosystem that is

46
00:03:11,290 --> 00:03:15,340
representative of a larger ecosystem in the Congo basin or tropical forests