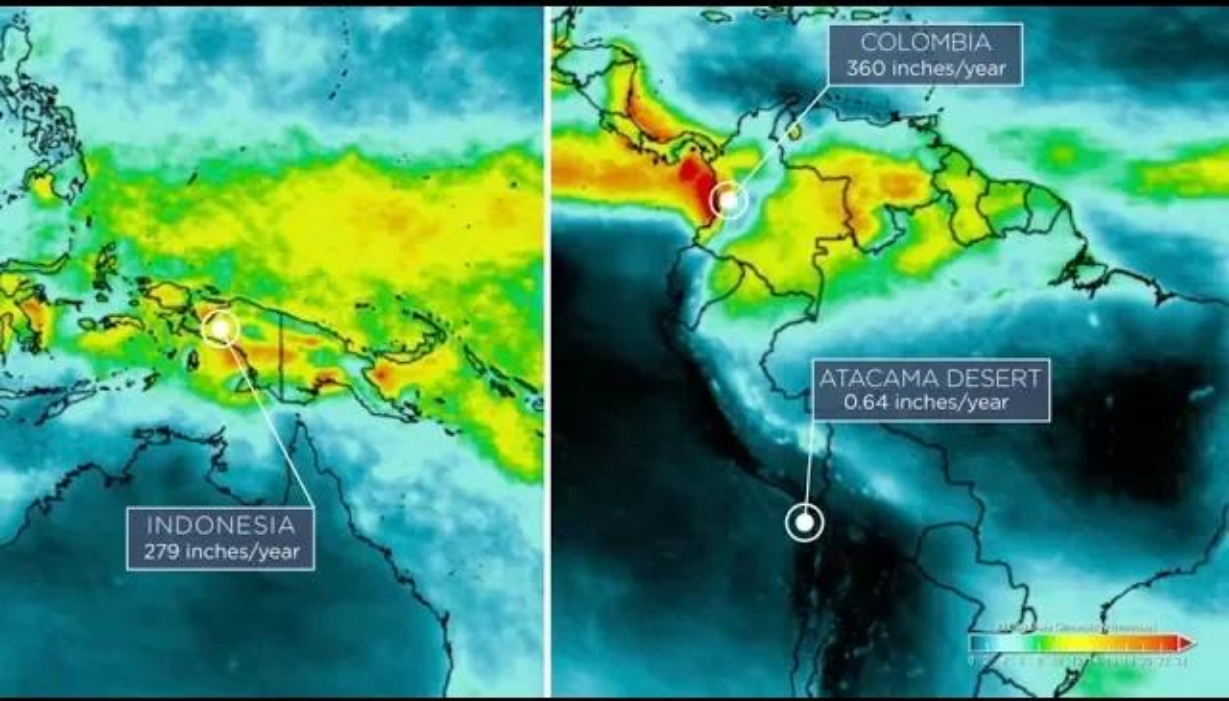
INDONESIA
279 inches/year
COLOMBIA
360 inches/year
ATACAMA DESERT
0.64 inches/year

1
00:00:00,000 --> 00:00:03,909
[Music]

2
00:00:09,030 --> 00:00:06,789
this is rain and snow

3
00:00:11,509 --> 00:00:09,040
not just a day

4
00:00:13,990 --> 00:00:11,519
or even a year

5
00:00:19,990 --> 00:00:14,000
this is the culmination of almost 20

6
00:00:23,910 --> 00:00:21,750
led by the global precipitation

7
00:00:25,429 --> 00:00:23,920
measurement mission the newest version

8
00:00:27,509 --> 00:00:25,439
of the nasa product called the

9
00:00:28,950 --> 00:00:27,519
integrated multi-satellite retrievals

10
00:00:32,229 --> 00:00:28,960
for gpm

11
00:00:35,350 --> 00:00:32,239
or imerg analysis has remastered almost

12
00:00:37,670 --> 00:00:35,360
20 years of rain and snow creating a

13
00:00:40,229 --> 00:00:37,680

crisper clearer and more complete

14
00:00:42,150 --> 00:00:40,239
picture than ever before

15
00:00:44,310 --> 00:00:42,160
this marks a major milestone in the

16
00:00:46,950 --> 00:00:44,320
effort to generate a long-term record of

17
00:00:49,670 --> 00:00:46,960
global precipitation

18
00:00:51,830 --> 00:00:49,680
with this two-decade long record you can

19
00:00:54,549 --> 00:00:51,840
see regional and global patterns in

20
00:00:58,150 --> 00:00:54,559
unprecedented detail

21
00:01:04,630 --> 00:01:01,590
over india and southeast asia massive

22
00:01:06,870 --> 00:01:04,640
monsoon rains shift

23
00:01:08,789 --> 00:01:06,880
storm tracks march along in higher

24
00:01:11,590 --> 00:01:08,799
latitudes

25
00:01:13,270 --> 00:01:11,600
the seas bubble in the southern ocean

26
00:01:15,990 --> 00:01:13,280
which scientists consider one of our

27
00:01:17,910 --> 00:01:16,000
planet's last great unknowns

28
00:01:20,550 --> 00:01:17,920
if we look a little closer we can see

29
00:01:23,270 --> 00:01:20,560
the wettest and driest places on earth

30
00:01:26,710 --> 00:01:23,280
extreme high events tend to be very

31
00:01:28,630 --> 00:01:26,720
concentrated very localized whereas the

32
00:01:31,109 --> 00:01:28,640
opposite what we would call droughts

33
00:01:33,109 --> 00:01:31,119
tend to be very widespread and sort of

34
00:01:35,749 --> 00:01:33,119
diffuse looking the wettest places on

35
00:01:37,830 --> 00:01:35,759
the globe occur over oceans particularly

36
00:01:40,149 --> 00:01:37,840
in places where the surrounding land

37
00:01:42,550 --> 00:01:40,159
forces air into a converging pattern

38
00:01:45,030 --> 00:01:42,560

over warm waters that provide a lot of

39
00:01:46,310 --> 00:01:45,040
evaporation

40
00:01:49,270 --> 00:01:46,320
for example

41
00:01:51,590 --> 00:01:49,280
off the coast of indonesia

42
00:01:53,109 --> 00:01:51,600
as well as off the northwest coast of

43
00:01:56,069 --> 00:01:53,119
colombia

44
00:01:57,830 --> 00:01:56,079
and just 2 000 miles to the south is one

45
00:02:00,469 --> 00:01:57,840
of the driest areas

46
00:02:02,310 --> 00:02:00,479
the atacama desert in chile

47
00:02:04,389 --> 00:02:02,320
across the atlantic

48
00:02:05,910 --> 00:02:04,399
namibia experiences some of the least

49
00:02:08,469 --> 00:02:05,920
rain as well

50
00:02:10,070 --> 00:02:08,479
the interesting thing of the last two is

51
00:02:11,830 --> 00:02:10,080
that they're right next to the ocean

52
00:02:13,670 --> 00:02:11,840
they're next to cold ocean and so in

53
00:02:15,110 --> 00:02:13,680
fact those dry zones actually extend

54
00:02:17,270 --> 00:02:15,120
over the ocean

55
00:02:19,589 --> 00:02:17,280
we tend not to think of ocean deserts

56
00:02:22,949 --> 00:02:19,599
but in fact that's what's going on

57
00:02:24,869 --> 00:02:22,959
over the past two decades precipitation

58
00:02:26,869 --> 00:02:24,879
has been changing

59
00:02:28,790 --> 00:02:26,879
what we're seeing isn't a change in the

60
00:02:30,630 --> 00:02:28,800
overall amount of rainfall

61
00:02:31,990 --> 00:02:30,640
but rather how that rainfall is

62
00:02:34,150 --> 00:02:32,000
distributed

63
00:02:36,470 --> 00:02:34,160

what seems to be happening and this is

64
00:02:39,110 --> 00:02:36,480
still subject to some interpretation

65
00:02:41,509 --> 00:02:39,120
is that the regions that get more

66
00:02:43,350 --> 00:02:41,519
precipitation are getting even more and

67
00:02:45,670 --> 00:02:43,360
the areas that get less precipitation

68
00:02:47,509 --> 00:02:45,680
are getting even less you perhaps heard

69
00:02:48,949 --> 00:02:47,519
the phrase the wet get wetter and the

70
00:02:51,030 --> 00:02:48,959
dry get drier

71
00:02:53,509 --> 00:02:51,040
this long record allows researchers to

72
00:02:55,589 --> 00:02:53,519
better test climate models by comparing

73
00:02:57,910 --> 00:02:55,599
the model's virtual scenario with

74
00:03:00,070 --> 00:02:57,920
decades of real precipitation

75
00:03:02,790 --> 00:03:00,080
we're able to go back in time and

76
00:03:05,589 --> 00:03:02,800
re-analyze large-scale events like el

77
00:03:07,830 --> 00:03:05,599
nino by making these revised estimates

78
00:03:10,070 --> 00:03:07,840
in the past it gives us better insight

79
00:03:12,710 --> 00:03:10,080
into the behavior of the atmosphere and

80
00:03:15,110 --> 00:03:12,720
it allows people who are doing say model

81
00:03:16,869 --> 00:03:15,120
verification to do a more accurate job

82
00:03:18,470 --> 00:03:16,879
of verifying their models for that

83
00:03:20,309 --> 00:03:18,480
particular event which happened in the

84
00:03:21,430 --> 00:03:20,319
past than they could have done at the

85
00:03:23,350 --> 00:03:21,440
time

86
00:03:25,350 --> 00:03:23,360
improving the models with the past will

87
00:03:26,869 --> 00:03:25,360
help predict the future

88
00:03:28,149 --> 00:03:26,879

and that doesn't stop with weather

89
00:03:30,309 --> 00:03:28,159
forecasts

90
00:03:33,430 --> 00:03:30,319
a long precipitation record is a vital

91
00:03:35,270 --> 00:03:33,440
tool for researchers modeling floods and

92
00:03:37,110 --> 00:03:35,280
landslides

93
00:03:39,750 --> 00:03:37,120
disease outbreaks

94
00:03:43,270 --> 00:03:39,760
agricultural forecasts

95
00:03:45,190 --> 00:03:43,280
tracking our main source of fresh water

96
00:03:48,390 --> 00:03:45,200
all of these applications need lots of

97
00:03:50,229 --> 00:03:48,400
data over many decades to fine-tune

98
00:03:52,789 --> 00:03:50,239
these statistics and models that

99
00:03:54,430 --> 00:03:52,799
agencies rely upon for making decisions