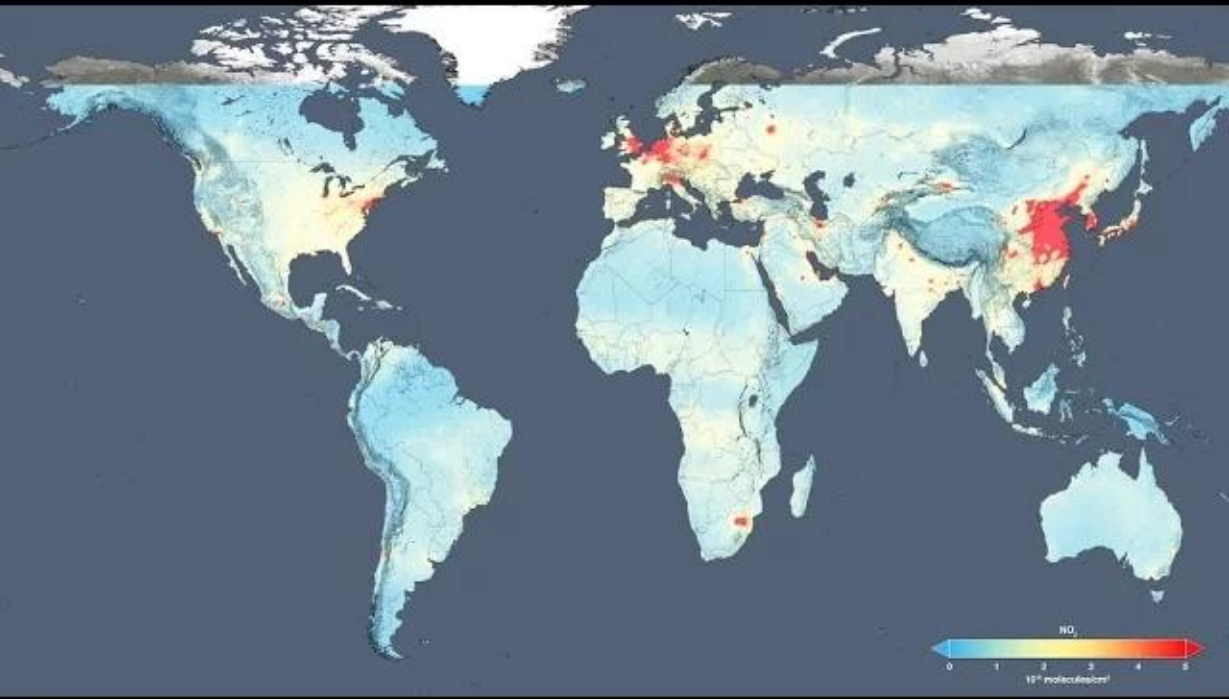
NO_2
0 1 2 3 4 5
10^{15} molecules/cm^2

1
00:00:00,000 --> 00:00:04,370
Nitrogen dioxide is a gas emitted during the combustion of fossil fuels.

2
00:00:04,390 --> 00:00:08,500
It's released from the tailpipes of cars, and the smokestacks

3
00:00:08,520 --> 00:00:12,590
of power plants. Together, these emissions affect the quality

4
00:00:12,610 --> 00:00:16,660
of the air we breathe. Since 2004, an instrument aboard NASA's AURA

5
00:00:16,680 --> 00:00:20,800
satellite has measured levels of nitrogen dioxide in Earth's atmosphere.

6
00:00:20,820 --> 00:00:24,920
In 2014, we released satellite images that show how

7
00:00:24,940 --> 00:00:29,120
environmental regulations have led to reductions in nitrogen dioxide

8
00:00:29,140 --> 00:00:33,160
over major U.S. cities. Now, we've created a global maps

9
00:00:33,180 --> 00:00:37,280
that allow us see how levels have changed around the world over the last decade.

10
00:00:37,300 --> 00:00:41,480
In Western Europe, despite the recent vehicle emissions scandal

11
00:00:41,500 --> 00:00:45,560
nitrogen dioxide levels have decreased by as much as 50 percent

12
00:00:45,580 --> 00:00:49,650
due to tighter environmental controls. In China, we see an increase

13
00:00:49,670 --> 00:00:53,750

in levels over most of the country due to a rise in coal use for power generation

14
00:00:53,770 --> 00:00:57,850
but decreases for some cities, like Beijing, where a growing

15
00:00:57,870 --> 00:01:01,990
middle class is now demanding cleaner air. In the Middle East, we see

16
00:01:02,010 --> 00:01:06,060
decreases in nitrogen dioxide levels over Syria due to the country's

17
00:01:06,080 --> 00:01:10,120
civil war and displacement of its population. Meanwhile, levels have

18
00:01:10,140 --> 00:01:14,230
gone up in neighboring countries where millions of Syrians have taken refuge.

19
00:01:14,250 --> 00:01:18,340
In the U.S., the only increases are in regions with intensive

20
00:01:18,360 --> 00:01:22,340
oil and natural gas extraction, including fracking. In North Dakota

21
00:01:22,360 --> 00:01:26,450
and Texas, we see increases of 30% in some areas.

22
00:01:26,470 --> 00:01:30,490
By monitoring levels of nitrogen dioxide from space

23
00:01:30,510 --> 00:01:34,700
we can see and quantify the effects of things like energy usage