
NASA

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00:00:00,539 --> 00:00:04,350
I had a chance to chat with Barry Lefer a
few days before he left for the start of KORUS-AQ,

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00:00:04,350 --> 00:00:09,190
and I picked his brain about why we should
be studying air quality over Asia in particular.

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00:00:09,190 --> 00:00:14,770
Hey, so Barry, tell us why we need NASA to
study air pollution.

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00:00:14,770 --> 00:00:18,180
Well, it turns out air pollution's a global
problem, and the best way to see the global

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00:00:18,180 --> 00:00:20,340
view is from space, from satellites.

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00:00:20,340 --> 00:00:25,820
And it's amazing when the first global satellite
of air--measuring air pollution from the Space

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00:00:25,820 --> 00:00:29,320
Shuttle, all the surprises we saw that we
didn't expect.

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00:00:29,320 --> 00:00:30,320
Hmm.

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00:00:30,320 --> 00:00:31,320
So, that's really exciting.

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00:00:31,320 --> 00:00:34,450
But, measuring air pollution from space must
be tough.

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00:00:34,450 --> 00:00:37,600
I mean, you're talking about small particles

and gases and things.

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00:00:37,600 --> 00:00:38,600
How does that work?

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00:00:38,600 --> 00:00:39,600
Yeah.

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00:00:39,600 --> 00:00:42,380
So, it turns out very small amounts of air
pollution can cause human health effects.

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00:00:42,380 --> 00:00:47,170
And so, it is indeed a challenge, and part
of it is is that clouds get in the way.

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00:00:47,170 --> 00:00:52,220
And also, we're measuring the whole column
of pollutants, and what we care about is what's

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00:00:52,220 --> 00:00:53,650
really down at the surface.

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00:00:53,650 --> 00:00:57,880
It's amazing over the last 10 years, the improvements
we've made in understanding how to take that

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00:00:57,880 --> 00:00:59,890
column and what is at the surface.

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00:00:59,890 --> 00:01:01,750
And now KORUS-AQ is going to help us with
that.

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00:01:01,750 --> 00:01:05,250
But, you're going to use, I think, something
like three different airplanes and some stuff

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00:01:05,250 --> 00:01:06,310

on the ground.

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00:01:06,310 --> 00:01:07,740
Tell us about how all that comes together.

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00:01:07,740 --> 00:01:13,080
Yeah, it is indeed a lot of coordination involved,
and we're working with our Korean colleagues

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00:01:13,080 --> 00:01:14,080
closely.

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00:01:14,080 --> 00:01:18,280
It turns out that we need multiple views of
the problem.

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00:01:18,280 --> 00:01:19,280
Hmm.

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00:01:19,280 --> 00:01:23,640
And so, we have the NASA DC-8 making these
walls, and then we have the NASA King Air

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00:01:23,640 --> 00:01:26,400
flying high, looking down with an airborne
simulator.

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00:01:26,400 --> 00:01:28,870
So, it's an exact duplicate of the satellite.

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00:01:28,870 --> 00:01:32,119
But, since the satellite's not launched yet,
we can actually see what the satellite's going

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00:01:32,119 --> 00:01:33,119
to see--.

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00:01:33,119 --> 00:01:34,119
--Hmm--.

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00:01:34,119 --> 00:01:35,119
--From this higher airplane.

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00:01:35,119 --> 00:01:36,119
Now, why Korea, right?

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00:01:36,119 --> 00:01:37,119
The KO in KORUS is Korea.

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00:01:37,119 --> 00:01:38,119
Why did you guys pick Korea to go with?

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00:01:38,119 --> 00:01:40,390
Well, we could have gone anywhere in the world
for this study, any megacity.

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00:01:40,390 --> 00:01:43,710
But, the Koreans, we have a special relationship
with the Koreans.

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00:01:43,710 --> 00:01:46,960
They're building a sister satellite to the
NASA TEMPO satellite--.

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00:01:46,960 --> 00:01:47,960
--Hmm--.

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00:01:47,960 --> 00:01:49,170
--Which is going to launch in a few years.

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00:01:49,170 --> 00:01:53,510
And so, we want to work on how to calibrate
and validate that satellite before it's even

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00:01:53,510 --> 00:01:54,510
in space.

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00:01:54,510 --> 00:01:55,510
Okay.

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00:01:55,510 --> 00:01:57,340
Now, tell us, how does all this data come together in the end?

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00:01:57,340 --> 00:01:59,780
Explain a little more about how our world works.

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00:01:59,780 --> 00:02:05,790
We're going to spend the next two to four years after we get the data analyzing it,

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00:02:05,790 --> 00:02:09,469
modeling it, and writing scientific papers and presenting them at conferences.