Good morning and welcome
to an important day in the evolution
of the relationship
between the National Oceanic
and Atmospheric Administration, or NOAA and
the Reinsurance Association of America.
As we take the next step
in a long relationship
built around and understanding
of our management of risk
and the hazards, and that our system
and the climate system bring us,
we are going to have a signing
of a memorandum of understanding
between our two organizations,
and they kick us off the president
of the Reinsurance Association
of America, Lee Covington,
is going to have some opening remarks.
And if I may introduce you, sir.
He was previously the president and CEO
of the Surety and Fidelity
Association of America.
He worked
topical issues related to the industry
as the head of government
and government affairs
for the Insured Retirement Institute,
and he was a co-lead
for the National Insurance Practice
at Squire Patton Boggs here in town,
and previously also has an understanding
from the state level.
Is the director
of the Ohio Department of Insurance
and the Deputy Commissioner
of the Arkansas Insurance Department.
Building from a career
where he first served as a legislative
aide to Governor Huckabee, Governor
Mike Huckabee in Arkansas.
So, sir, if you would take this up.
You bet. Well, thank you and thank you.
It's been around

and the leadership team here at No. One.
Welcome to all of you
who are here in the room and all of you
who are joining us virtually.
Today,
we have over 250 people on the line.
So there is obviously a lot of interest
in the work that no one is doing
and the announcement
that we're making today.
Before I begin, I just want to extend
my deep condolences to the families
who've lost loved ones
as a result of Hurricane Beryl
and recent wildfire flood,
tornado and extreme
heat events
and also my best hopes for those
who are recovering from damages
caused by these natural catastrophes.
As a result,
it's more important than ever
that we as a nation
step up and work together
to improve the safety
and security of all Americans.
In signing this memo, you
this memorandum of Understanding today
with NOA,
the RIAA is honored and embraces
this opportunity to meaningfully advance
a long standing relationship with NOA,
with the continued goal
of reducing the loss of lives and property
damage caused by extreme weather events,
as well as helping American families
recover faster from these events
through additional
and better research and data.
The RIAA looks forward to serving
as a facilitator
for insurance industry and industry
stakeholder engagement
with NOAA on these important issues.

Now, beginning
with some numbers for her number.
A lot of numbers today.
Over the past
five years, starting in 2019,
the US has experienced a yearly average
of $20 billion in natural disasters,
compared to just over 6.5
from the year 2000
to 2009, with 28 in 2023,
according to the Insurance Information
Institute.
Over that period, US insurance
and reinsurance paid over $440 billion
to help Americans recover from these
record breaking natural disasters.
In recent year eras, severe
convective storms in the US, I call them
thunderstorms.
Most people in the country
call them thunderstorm.
I have surpassed
all other types of disasters combined,
accounting for seven of the ten
top ten insured loss events in the world.
Globally, seven of the top ten.
In the US alone are 53 total
severe convective storms in 2023
eclipse the total of 36.
Other types of disasters.
Wildfire drought, heat, flooding,
winter storms and tropical cyclone events
withheld damage causing the majority
of losses from these storms.
All of this leads me
to the focus of today's event,
the important role of data
in protecting Americans.
The area and our members have long
been highly valued.
Our collaboration with NOLA.
Historically,
the reinsurance and insurance
industry is used nice data in five key

ways.
First, for disaster preparedness.
In the face of immediate events,
allowing homeowners and auto owners
to take action to prevent
the loss of lives or property damage.
You may not know this,
but all or of the recent Category
five hurricanes that made landfall
in the US
intensified from a tropical storm
just three days earlier.
So hours matter and good information
matters.
Second, to better respond to natural
disasters, providing information enabling
companies to position recovery teams
based on NOAA's projected storm tracks.
Third, to better assess risk and inform
policyholder of their risk,
either through educational efforts
and even through premium levels,
including forward looking trends.
Or to reduce risk assessing
where communities need to improve.
Building codes
and pre-disaster mitigation measures
or providing advice to policyholders
about risk.
Prevention steps that they can take
to reduce losses and premiums.
Think about stronger
roofs, landscaping setbacks.
Those are things that policyholders
steps they can take
to successfully
advocate for good public policy
to improve resiliency
before disaster strikes.
For example, the Community
Disaster Resilience Zone Act,
which used a national risk index,
including data contributed by NOAA
to identify and prioritize

our most in need and most at risk
communities
for public and private sector resources
to improve resilience.
Under the more you going forward,
NOAA and Ari will intensify
and even be even more intentional
in our in taking action
to achieve our common goals to protect
and help the American people.
Under the agreement,
we will work to improve the usefulness of
and develop new risk related products
of significant value to RTA.
The insurance industry
and other stakeholders.
We will update and expand
our leading Catastrophe Risk Management
Education program with the best in latest
climate and weather information.
And finally, we will work.
We will work to understand the risk faced,
to understand better the risks faced by
communities, especially those underserved
and vulnerable populations.
We were enthused.
That's been around earlier this year
when Deputy Secretary Don Graves
and you announced the investment
of $85 million in an industry
Proving Grounds program
with a focus on three industries,
including the reinsurance
and insurance industry.
I absolutely love the stated goal
of the proving grounds
to radically improve.
Let me repeat that.
To radically improve the delivery
and industry uptake of climate data
and information and decision
making and operations.
I no doubt it's been red.
We'll be talking more about the industry

proving grounds later in this program.
But even in advance of
today, NOAA
and the industry have already identified
opportunities where better and new data
will be extremely beneficial,
including even
from an operational standpoint, better
and more centralized access to NOAA's data
field climatology.
With the initial data within about a year
when climatology to understand better,
better, fast moving fires,
when driven rain data,
climate and natural hazard protection
services, tropical rainfall
and flooding data, more frequent
hurricane information and more.
Because this
collaboration began over ten years ago
under my predecessor, Frank Nutter,
who's with us, RCA
president for over 30 years.
We've asked him to join us today
after some opening remarks by Dr.
Spin.
Red and Blue
go a little bit deeper into the items
I have referenced in my remarks.
Again, Dr. Spinner, we thank you.
We thank your team for this opportunity
to deepen our collaboration
and look forward to meaningfully
advancing our common goals of preventing
loss of lives and damages to their homes
and other property,
while also helping Americans
restore their way of living
after devastating natural disasters.
Thank you.
Been a start.
And now we'll have some remarks and stuff
that's been heard.
Thank you, Mr. Covington. Really

right.
And all of our guests here in the
room, as well as leadership from NOAA
and scores
even hundreds of guests
who join us on the call today.
Thank you for being here.
This really is an historic moment for us,
I would say, for the nation
in many respects.
And I want to thank everybody,
especially our
leadership
and the National Center for Environmental
Information for the long
standing commitment to our shared work,
which I'll discuss in a little bit
more detail here, and really appreciate
the way you set this up,
because it makes my job easier to talk
about the value of what we're trying to do
in terms of environmental intelligence.
We are at know the federal government's
focal point for observing forecasting,
and that forecasting part
should not be undersold.
We are the only federal agency
with prediction as part of our mission
definition and responsibilities,
and it's all about the Earth system.
That's the other thing, is that the beauty
of having the ocean service and
the weather service and satellite service
and research and fishery service is
it is in our system.
And so you can't really understand
the physics of the atmosphere
without understanding
what happens in the ocean.
And so at the heart of that is,
as I say, what I call the environmental
intelligence,
which is at the core of everything we do,
our mission fundamentally

is to understand the planet and try to.
That then is helping to build resilience,
especially challenging
in the context of a changing climate.
But we can't do that without
an understanding of priorities of need.
And I would argue
we will never be able to collect
all of the information and build
all of predictive capabilities.
Therefore, we need to be very careful
about what information we collect,
the data we collect and to do that
we need to have reacted
dialog with the communities
that are most in need of that information.
Let me put a little bit finer
point on that.
Next slide, please,
and talk to you about
the kind of disasters
we alluded to some of this, but
we are seeing more and more extreme
weather events
in all corners of the country
already in 2024.
And we're just in July,
the middle of July.
There have been 15, 15
weather and climate disasters
in this country with losses over $1
billion each.
Hurricane Earl, for example,
was the earliest Cat
five Atlantic hurricane on record.
That's a potential preview
of what we've all already
characterized
will most likely be very active.
Atlantic hurricane season.
We still have many months left
in the hurricane season.
You compare this
with where we were, say, in 1983

when six events occurred
over the course of a full year, 391
events of $1,000,000,000 disaster
nature since 1980 have killed
more than 6400 people.
Total
direct costs in excess of $2.75 trillion
and as I've discussed with our team,
that's just the billion dollar disasters.
If you are in a community
gets wiped out by hundreds
million dollars
worth of damage from a tornado,
you don't care
whether it's $1,000,000,000 or not.
You have suffered extreme
impacts.
Many of
those once I've experienced these disaster
related activities, whether we're
fighting in a safe room from a tornado,
whether we're trying to make sure
we've got metal shutters put on our house
action of an oncoming hurricane
or even now, it's kind of interesting.
We were talking
as folks were coming in the room,
your we're going to get over
probably over 100 degrees here in D.C.
today.
And that kind of heat
is having more and more impacts
not just on people,
but on infrastructure as well.
Tragically, as I've said,
tens of thousands of Americans
have lost their lives
to tornadoes, hurricane,
heat stroke,
other extreme events in the 21st century.
And as the experts
on the other side of disaster recovery,
you all know
how expensive it is for everyone

involved to rebuild in the aftermath.
I'll add as a personal point
on many of the talks that I give,
people are asking,
when are we going to start feeling
or paying for these impacts?
And my comment, you all know this,
everybody on the phone knows
we already are.
We already are.
So the next slide, let's talk
a little bit about our work together
as we move forward,
as we navigate this century,
which is clearly being shaped
by climate change,
strengthened partnerships
like the one that we will formally endorse
today are going to help protect lives
and economic interests.
And again, I point out
we're sitting in the Department
of Commerce where economics is central
to everything we do.
I'm proud to be able to say
that we have partnered with RCA
for more than 15 years and counting.
I was just chatting
before we went online with Frank, said
He and I both testified
more than 15 years ago
when I was the head of research at on
on issues
that merited more formal attention
from both of our organizations.
You have given us the opportunity
to participate
our annual CAT model in conference.
Frank and I were just talking about,
in fact, when my predecessor, Kathy
Sullivan, participated and talked about
you said she talked about space weather.
Right. Which I know warms
the heart of many of the room,

but just
exemplifies the breadth of mission
responsibilities
we have that have direct implications
for the work in our area.
And we've had ongoing conversations
about how our information,
our intelligence can better inform
businesses
decisions made by you and your partners
In January.
As you heard from me
a moment ago, as part of President
Biden's investing in America agenda.
We were able to identify
$85 billion in Inflation Reduction Act
funds for the new industry
proving grounds, IPG, as we call it,
as we call it, which is centered in
this organization, is going to help ensure
that we build and develop
better climate products and services
to meet the needs of stakeholders
like our and its partners.
It's also going to combine environmental
and socioeconomic information
to close some of the equity gaps
that climate information needs.
That's an important
objective of this administration
as well, where frontline communities
are really facing
some of the earliest and most impactful
consequences of climate change.
That investment is part of the $6 billion
that the Biden-Harris administration
has made in know us
through the bipartisan Infrastructure
and Inflation Reduction Act,
which is an incredible
I've worked in Washington
since the Reagan administration.
And the first lesson I was told
is there's no more money.

This is new money.
And in fact, I couldn't be happier
that we're spending the money
and working with our partners.
Let me talk a little bit
about the value chain on the next slide,
because we like to think what we're doing
in NOAA is comprehensive
in the sense
of following needs across the value chain.
I'm sure at ARIA
you've got a different perspective on what
a value chain
looks like, but the concept here is from
the very fundamental capabilities
of making observations all the way through
service delivery and decision support.
This is how we do our business.
It's just how we're addressing
climate resilience.
This is our work
and we're working with our customers.
And I would argue that the insurance
and reinsurance
industry
needs our environmental intelligence
in order to understand the risks ahead
at every stage of the value chain.
So value chain.
So the other part that's not necessarily
directly called out on the slide,
but it's an important aspect of the,
if you will, the special sauce at night
is that we are using cutting edge
innovation.
We've got our leaders, Steve Volz,
Michael Morgan and Sarah Kapnick here
who could talk at length
about how we're using new technologies
like artificial intelligence, cloud
infrastructure,
as well as the the gray wear
of the intellect of our workforce
to try to to ever improve capabilities

for making the kinds of decisions
that are central to the mission
of the partners in our area.
I want to point out
I actually have two titles,
and one of those is
as Administrator of NOAA,
and the other is as an Under Secretary
of the Department of Commerce.
So technically the Under Secretary
for Oceans and Atmosphere
and for that title,
I take my responsibilities related
to trade, related to intellectual property
standards very seriously.
And if you're listening,
I just alluded to three other bureaus
within the Department of Commerce.
So the International Trade Administration
is responsible for working weather
and climate risk in the Caribbean,
for example, to drive group
insurance models being developed there.
We work with the National Institute
of Standards and Technologies.
They obviously are deeply involved
in developing of parametric insurance.
You can't do that
without the information that we have,
and I don't have specific things
to address
to address here with respect to our work
with the Patent Trademark Office.
But it's become very clear
that there is a market for many
for much of the intellectual property
being developed in the space,
intellectual property, which
are a partners, I'm sure, access to it,
but want to make sure
that access is being provided in a way
that protects the intellectual property.
So we've developed a relationship
with us to have the trademark office

that ensures one that the patent examiners
understand what climates, products
and services
are, and two, that our team of developers
and disseminator of climate products
and services understand what
intellectual property
protections are all about.
This also gets to our concept of meeting
customer needs.
And on the next slide, we talk about
the sort of view that a technocrat
like myself would bring into the products
and services
spanning both temporal and spatial scales.
I would say that the nexus between
environmental and information risks
is data that knows
information products to help Watergate
misuse risks
across many sectors and time horizons,
including insurance and reinsurance.
And as our climate changes,
the insurance and reinsurance
industry is adapted to navigate
increasing environmental volatility.
If you look at this time space domain,
basically
this calls out where we know our active
and I would argue too,
you could put an overlay on this
of the kinds of risks that are a
or share about in each of these time
spaces
at time trunks or spatial charts.
We're about connecting
our industry partners, in this case
RSA and their insurance
and reinsurance partners
with the kinds of products and services
that are useful.
And that's the other thing
that's shown here
is kind of an indication of

what are the products and services.
Some of them were policies
to look at a lower
right where we talk about long
term, large scale.
We are deeply involved in the IPCC,
climate assess and national
climate assessment activities.
We work regularly with policymakers.
Then by the other extreme,
you go up to the upper left
where we're talking about daily, weekly
downscaled local products and services
and something like we talk about hail,
forecast snowfall, impact indices.
Working with other partners,
in this case FEMA, the disaster
and emergency management community.
So we like to think of ourselves
as being supporting
customer needs in a full spectrum sense.
Just a quick next slide, please.
A quick tour of a little bit.
More specifically, what kinds of products
and services you've seen us roll out
some of these lately?
I think particularly noteworthy is all
of the heat type of work that we're doing.
We post the CDC Heat and Health Tracker,
which I guarantee you
is getting a lot of use right now.
And the emergency management system
keep track
or are based on the kind of information
we're putting out.
You see the eye in the upper right,
the climate
mapping for resilience and adaptation
or the camera product.
I'm hoping that just about everybody on
this call has looked at it
and is using camera
not just to get data and information,
but also you can do a deep dive

to find out what our current policies
with respect to programs,
what are the available
federal grants and contract programs
for coastal resilience
studies, for example,
you can see how exposure to flooding,
heat, drought, wildfire is going to change
over time, which I can guarantee you
from my trips around the country
is extremely important to local city
managers, local emergency managers.
We issue seasonal outlooks of both
by our Climate Prediction Center
for Temperature precipitation.
We divide that into basically below normal
at normal or above normal
kinds of characterizations.
The CPC also puts out
the Nino seasonal outlooks,
including the the outlook.
Right now, the 70% chance the La
Nina will emerge during August, October.
You're not going to reboot my computer.
And then we've got the sea level rise
viewer in the lower right,
which is really an extraordinary tool
and you can really scale down pretty well.
And with the slider, it's what the impact
is in your neck of the woods.
So that I can tell you,
especially in places like Alaska,
we're seeing people use this
to make some fundamental decisions.
These tools really are a testament
to the investment
that we've made over time
to climate change.
And they characterize, I think, well,
how climate change really is
a risk multiplier
that even without the impacts
that we're seeing at sea level rise
of changes of civilization, etc.,

we have challenges and threats.
When you overlay that with the projected
changes, we're going to see
in those particular parameters,
you get a sense of where
the impacts are going to be felt.
I'd also add
this has been enormously valuable
in connection with our equity agenda
because we can start scaling down
that look at how historically underserved
vulnerable communities
are really going to feel
the impact of climate change.
That gets me to the question of equity.
Next slide, please.
We've made a firm commitment
to meet the information
need to underserved communities.
We've done this in a variety of ways.
I think you may be familiar with the work
with FEMA.
In fact, where you alluded to
that community disaster is on its own.
Zeta's work at FEMA,
which drives public and private resources
to some of the most at risk
in the jurisdictions
of our deputy administrator,
Jennifer Ricci,
the assistant secretary for oceans
and up to here
has led a targeted engagement process,
with the outcome
being that we've developed an Equitable
Climate Services
Action Plan to put into action
the policies of this administration,
make sure those communities
get the best information and make the best
decisions in the most timely manner.
And so on the last slide before I close,
such as one college again,
the great work for A and its partners

do every day with respect
to making decisions in light of extreme
weather and the kinds of impacts
of climate change it's going to have of
insurance is our citizens safety net.
We're looking forward
to providing you all with the key
weather, water, ocean, climate information
and intelligence to make the decisions
and to reinforce and protect this effort.
And with that, thank you for listening.
Thanks for coming.
We have for so many years,
and I'll throw it back to the.
Thank you so much.
Thank you, both of you, for your
for your insights.
Before we had to do
what is literally a signature moment
in the relationship between
our organizations, we have Mr.
Frank Netter with us.
And as Mr.
Covington mentioned, Dr.
Spooner and you and Frank,
you have been real leaders
in the air space and you probably foresaw
this moment coming.
You saw our futures
converging in this way along the way.
But we
we would love to hear where we have
a conversation
between the two of you both to reflect on,
on what you
the accomplishments in the run
up to this moment, but more importantly,
the vision that you have, particularly
why now and why this signature?
We would love to hear the framing
around that for our folks online,
we are setting questions through the chat
mechanism of the go to meetings
so we will be able to following

this conversation, answer a few of those.
But Frank,
I think I'm going to get over to you, sir.
Thank you very much.
And thank you. The Dr.
SpinRite, for our
for this opportunity as well.
I think I'd also like to make a
framing comment, if you will, about this.
You've talked about the long history
of the relationship,
particularly between the RCA and NOAA,
and it really stemmed from a recognition
early on that both organizations,
both industry, the insurance industry
and NOAA were science based.
So obviously NOAA is very earth
science based.
The insurance sector is largely actuarial
based
actuarial scientist, but it's also based
upon the engineering sciences
and frankly, the social sciences
and of course the natural sciences.
So it was really a recognition
that you had a government agency
that had direct value, if you will, to
what the insurance sector was doing,
that the insurance business model
is largely to assess risk,
the price risk for individuals
and for communities.
But what it relies on, frankly,
the cornerstone of that is really
the information provided by NOAA
through various mechanisms.
And I did want to comment and compliment
you personally for the leadership
that you've brought to this,
but this is a notable event.
But I'd also like to compliment
the career employees at NOAA.
They have really been remarkable
over the years and

in reaching out
and seeking the best science, if you will.
So that engagement really has been fairly
continuous over a long period of time,
even with the change
in political leadership
in various organizations,
particularly NOAA.
I also I wanted to add a data point,
a couple of data points
to to what Lee said particular.
And you mentioned
one of the things that is remarkable,
if you will, is is wildfire
risk in this country.
Clearly a climate risk.
We tend to think about hail and wind
and tornadoes and that kind of thing.
But I look the data
and the data related to wildfire risk,
the insurance data related to Wyre Forest
is that from 2000 to 2016,
the total insured wildfire risk
paid in claims was about $10 billion.
In 2017, it was $19 billion in 2018,
it was $16 billion.
In 2020, it was another 16 or $17 billion.
It clearly is a change in weather
and climate that's affecting individuals
in a way that risk that we often
overlook are now on the evening news.
But they're also people dramatically.
I think Lee mentioned
or you mentioned the second quarter
of this quarter of this year,
it's $15 billion.
That's
looked at natural
catastrophe losses paid by the insurance
industry in the second quarter.
The mean over
the last ten years is about $15 billion.
The median is about $13 billion.
The insurance industry's insured loss

payments and second quarter
alone of 2024 is likely to be 30
plus billion dollars.
So a remarkable change in that.
And I do think that it's important
to recognize
that it's not just the same old thing.
The past is not necessarily the Prolog
that the prediction activities that no one
is engaged in or particularly important
to do well for the industry.
So to the question of why
this relationship,
it's the longstanding one
that's been productive
and why now is there's clearly been
a change in the impact of climate and
weather on our society.
Your doctrine and your comments.
Yeah, why the relationship?
I think and Lee
did a nice job of characterizing it,
but I would say,
if you'll bear with me for a minute,
I spent the early part of my career
working in the Defense Department and
we relied a lot on intelligence in various
flavors and types of intelligence.
And I think anyone who works
in national security recognizes
you can't just drop with that
intelligence.
We are in the business of creating
what we call environmental intelligence.
And so that's part and parcel of the risk
management.
Purchase arrangements
and insurance industry are engaged.
And so it's I would actually it's
not a question of why this partnership
would be a question
of why wouldn't we have a partnership
with the other part of it.
I love your example of wildfire.

I will give you a personal perspective.
Before I took this job, I had property
13 acres, and the idea of something
that's a good word
and I had to self-insure against wildfire.
And for me that represented an investment
of many thousands of dollars
just to make sure I took advantage
of the best information I could find.
The deal
was I knew where to call in NOAA
because I've worked in
NOAA for many years,
so I knew how to mitigate that risk.
But none of my neighbors, in fact,
when I did that,
cleared my property, protected from fire.
Many of my neighbors said,
Why did you do that
and how much did it cost you?
And the interesting thing
is that over the last couple of years,
all of my past neighbors have now gone
private.
And so why?
Because the the need
for the intelligence demands
that there be a relationship.
Now, we could have this relationship
without this formal agreement as well.
But what the agreement allows us to do
is, I would say, short circuit the dialog.
And so by having the formality
of agreement, we can basically sit down
and we will do this
with many other sectors as well
and say, let's have a discussion
on emerging requirements.
You tell us what's happening
in the industry,
what are you seeing in terms of changes?
We will tell you what we're seeing
in terms of changes in the system
or in our ability

to predict it. So I think
it's a natural.
It builds on both the skill sets
and capabilities we've got as well as what
we see as the emerging needs
from the reinsurance
and insurance industry.
One other anecdote I'll point out
and I think that's well,
I say that we work with a variety
of different economic sectors.
This sector is one
that has got it for a long time.
I remember some 20, 30 years ago,
and I think it was probably after work
this that there was a recognition
in the reinsurance industry
that our underwriting
policies were mitigating risk globally,
demanded more than sort of just a random
throw of the dark globe.
That was what was happening
in the Philippines might actually
be directly connected to what's happening
in the central Atlantic.
And it was then that there was
a recognition that maybe were studying
global dynamics and circulation
could contribute to understanding risk.
So there's been this history
of relationship between reinsurance
and insurance and the environmental impact
for a period of time.
I believe the insurance industry
was sponsoring more postdoctoral
fellows and physical oceanography
than all the ones that are combined.
So I think in my opinion,
it really is something we should have.
At some point we can talk about
why now to to why this?
Because we are critically dependent
on your definition of requirements
and our

capability to address those requirements
with products and services.
Well, let me pick up on something
you said about your own wildfire risk
and data point,
which you mentioned in your remarks.
Since 1980,
the insurance sector has paid about $2.7
trillion in insured losses
related to catastrophe.
That's a number that is consistent
with the number that you had.
What's unfortunate
is that generally in these events,
that is a third
to 50% of the economic losses
that in fact either
people cannot get or choose
not to get some sort of public
or private insurance.
The National Flood Insurance Program,
the percentage of people
in their country that have flood insurance
policies is 4%.
Now, that varies various places.
It's better in Florida
than it is in other places.
But the point is, you've got enormous
uninsured risk
from public or private programs,
and that is hopefully part
of the derivative of what will come from
this kind of collaboration is to focus on
how we recover in this country,
whether it's disaster assistance
or preferably people understanding
that recovery comes through
some sort of insurance product,
which community based or whether it's
individually based.
I'm really glad you brought that up
as well, Frank, because I think
another aspect of why this partnership is
we have our own circles,

circles of communication,
our own groups that we work with.
ORA has another communication.
And so one of the things
we find oftentimes is that
the public record is really unaware
of the kinds of products
and services that we've got.
And it's really important
for us to partner with organization
that can help
get word out to other segments of society.
And I think that's really important.
You bring a role.
I have to be careful
using all of the excuse I find out for
this radio
Rolodex the that we don't have a website.
Well, it's consistent with the point
that Lee made in his remarks
about how this how does the industry,
you know information it's data.
So let me just reiterate
some of what Lee said and put some point
of emphasis on a couple of things.
Clearly, pre-disaster mitigation measures.
What can what can people do?
Lee mentioned shrubbery, setbacks,
that sort of thing, as a good example,
better roofs, if you will,
so the industry can communicate risk
reduction, risk mitigation that way.
But the industry also uses our data
for positioning post-event.
So your visualizations,
your assessment of where an event
is taking place allows companies
to position its recovery teams, its claims
adjuster, for example,
which still a lot of people have lost
their lives quicker.
So you mentioned research,
you both mentioned research.
The Institute for Business and Home

Safety is an insurance industry
funded organization, relies
a lot on the NOAAdata
to assess the research
that it does about communicating ways
to reduce risk,
whether it's improved roofing materials,
it could be building design,
all of those kinds of things.
And of course, the forward
looking nature of what you do
allows everyone to assess risk
looking forward, which is something
there's tension
around the insurance product,
which is largely historic,
based upon lost experience.
But the reality is the pricing should
should reflect forward looking risk.
So if there is sea level rise, it's
going to affect storm surge.
If in fact there's a shift
in the pattern of hailstorms.
And now people who live in communities
that don't think of themselves
as in the traditional tract
should be aware of that.
The insurance
product is priced
based upon a lot of factors,
economic factors like
cost of goods,
the cost of labor to repair,
location of property, characteristics
of the property, to say basement.
I have a basement,
what's the nature of the roof?
But but at its core, understanding
the peril that the property's
exposed to and the people are exposed to
is really critical.
And that's where knowledge
data becomes important.
I did want to mention catastrophe models

in a couple of contexts.
The industry companies
as well as some vendors, provide
the industry with analytics
around catastrophe exposure
and what those models do is help
the industry
understand potential damage
ability of individual properties.
But they are very heavily
oriented toward the underlying
earth science information that's provided
by know that's pretty critical to
most catastrophe models.
What the industry doesn't do
with climate models
and that's where what you do is critical.
And I do think that one of the important
parts of looking at the proving grounds
or a continuing relationship
is that that assimilation, if you will,
or at least that synergy between
what the climate models are showing
and the protection models
that the industry uses, a lot of that
the frame is that way
because the challenge for us
is constraining our requirements.
And I'll give you an example,
I'll use hurricane forecasts as an
example in this case, I'm going to talk
about the emergency management community,
but the restoring choice nicely
to the reinsurance and insurance industry.
Years ago we were looking at how to well,
we saw how to improve both our tracking
intensity forecasts for hurricanes,
and we were finding that
with improvements in observations, data
assimilation, model development,
we were getting really good
48 hour, 72 hour
lead times on track and intensity,
significant improvements in 96 hours.

And our researchers were saying
if we do a number of things,
we could get out to 100,
the same skill set at 120, 144 hours.
And it was the emergency management
community, in fact,
the director of FEMA who said,
time out, we make our mobilization,
demobilization decisions.
That's 96 hours.
That's how they operate.
So you can knock yourselves out
to get to 100 and 2044 hours.
But it doesn't make any difference to us.
That's what I mean
by constraining the requirement.
So when you talk about
the applicability of our
state of the art climate models,
we could continue to invest every dollar
we've got in research
to improve those models,
extend amounts, downscaled, or
do any added
additional parameters to them.
You know, start getting cloud resolving
models, really start to show
we need some constraints
from the community
that's using these models that says
in a way not dissimilar the way FEMA said
don't worry about going past 96 hours.
Now, there are other users
who might want to, but in this dialog,
being able to say,
okay, from the RH perspective,
what do you see as the priorities?
What do you see as the allowable,
the tolerances, if you will?
This those models are going to have
uncertainties associated with that.
That's where this dialog is critical.
So then we can start making decisions.
We don't have enough resources

to do everything that we want to
in observations, in high performance
computing, building out models,
how do we make the priority decisions?
Okay, so this user can live in this way,
be sufficient for them?
Well, it's it's absolutely critical
they that the industry is focused on
its policyholders and communities,
including small communities
that perhaps get overlooked
in the billion dollar event kind of thing.
But what this collaboration
allows is that kind of dialog of
how is your
how's your research, how are your
your forward looking analysis,
how is it being applied in the real world
affecting real people?
And as you say,
the insurance industry is a vehicle,
if you will, a vessel for communicating
that kind of risk.
I do think
there are a lot of opportunities
with the proving ground in particular
enhanced resolution of some of
some of the analysis that you do would be
would be very important
storm footprints would be important.
Hale
Lee mentioned in particular of the change
and the impact that Hale is having
in particularly the middle
part of the country and analysis about
that is shifting whether or not there is
in fact a footprint,
if you will, that shifting.
So the historical record that NOAA
has is valuable and looking at trends
of whether or not we're seeing shifts
in weather and climate.
So I do think that that, as you say,
looking at the applications of NOAA's

information, is going to be
particularly important, whether it's
government agencies or the private sector,
if you will.
I did
want to mention a couple of products
that you've been very good about,
demonstrating an incredible amount
of information and products
that that NOAA provides.
Let me mention a couple of others,
if I can, but I mentioned hail.
Probability is another one
to look in the proving grounds.
Lee mentioned the rapid
intensification of storms
that that could have a big impact
on what information
is provided to local communities.
We saw in Barrel
that it went from a basically a storm
to a Cat five on July 1st, as I recall.
Pretty, pretty remarkable
bias in the historical record as well.
The the the information that
NOAA has about where events have occurred
doesn't always get translated
into the broader information
about the patterns of that hail.
It's fine if it's observed in a community,
if it
if it happens or tornadoes
happen in places that are not communities,
it doesn't mean that
that could be ignored.
But in fact, that's going to help
determine whether or not there was
a shift in patterns.
And clearly the
the information about the validation of
of and assessment of damage
that occurs, it's valuable to the industry
and the public
to look at what has happened

in the community at the time.
It happens as
everyone seeks to find ways to recover.
There are so many ways to apply this
proving ground to help improve
not just what no one does,
but how the industry,
the insurance industry broadly assesses
risk and communicates errors.
Yeah, and I hope that's how we're doing
it, that we do get that sort of feedback.
I want to zero in on that shopping list,
which you shared and point out
that one of the really intriguing
or confounding issues
that we're dealing with
is sort of compounding risks
with cascading risks.
And I wonder if you'd comment
from the array perspective on how
we might address
as a science based organization
where we do tend even my own slides
like batteries, heat or sea level rise.
But as we saw from barrel,
you can't do that.
There are there are these significant
interactions of risks
that in compound effect
actually do something greater than what
the individual is.
You know, that's a good point.
And it seems to me it should be looked at
not just from the science,
if you will, about how various perils
are impacting each other or advancing
something that perhaps is misunderstood
or not fully,
but it's also valuable
from the community's point of view
if our community is affected by heat
and then it's also affected by tornado
risk, what's what's the dynamics there?
So I do think that that interaction

between
the industry and its lost experience
about communities or regions
to look at multiple risks
that these communities have
as well as the science,
would be the kind of integration,
if you will, of knowledge, the sharing
of knowledge that will be valuable.
So what's your second question?
Do you think it's wonderful that
this was fascinating and all of us,
the know of folks around the table
who represent the high
performance architecture observations
and information services,
customer service, advancing science,
we're all thrilled by the conversation.
We do have a couple of questions,
or at least synthesize
a couple of questions from the folks
online, if you don't mind me asking.
And if I can point out,
since you follow the leadership of this,
if we can engage some of the leadership,
if Frank and I can actually shut up,
I know I have and
I believe you both already touched
on this, but to put a finer point on it,
synthesizing a couple of questions,
do you expect the partnership
that we're representing to really lean
into true innovation in moving forward,
or is this really about cementing
the relationship that we've had?
So. Well, I would say it's it's
it's putting on
a turbocharging relationship.
You've got leadership here,
both at the leadership level
and at a professional level
of career level that are looking to
to understand what the best science is,
to enhance that knowledge.

This commitment of $85 million to
the proving grounds
is pretty remarkable commitment.
So I'm sure that what the Ray is saying,
and I don't speak
for the ray at this point,
but it's can we take them?
We build upon what we've done
and truly enhance that experience
and that knowledge, that risk sharing,
and not make it ad hoc,
but institutionalize it.
I mean, I love price
analysis saying it's turbocharging it
with the investment in the proving ground.
So we have no resources around
being able to do this.
And I think that, as I said in my remarks,
we want to be embraces
be much more intentional and aggressive
about moving forward with this.
But we have the resources.
So I do believe more innovation,
if I can
add, innovation is central to this.
And the attention to Dr.
Karthik, one of the
I mean, we can talk about innovation
from the environmental side.
I can talk about really
all new modeling approaches or what
we're doing in research and capabilities.
But one of the things
and one of the reasons unrelated
Sara came on board is looking at
what's happening in terms
of financial innovation and how that
imposes, if you will, or helps drive
some of our priorities.
I wonder if you want to comment
on the implications of economic
and financial innovation
for our agenda for all of this
being able to know what the problems are

for the industry
allowed us to innovate towards
the science, deliver those answers,
and to be able to support the innovation
that needs to take place.
And what he's also mentioning is
we're doing a lot of work
on macroeconomics,
climate risk and innovation.
So those macroeconomic factors
and modeling
that needs to take place to understand
the sector to be able to do
the underwriting that needs to be done,
and then also developing all the science
to really support
the types of modeling that you all do,
which isn't necessarily the way
that we normally drive our science,
but is where we need to move as
we have all this uncertainty coming to us.
Climate changes.
If I would add
a comment to that,
I do think that I started by trying
to frame this,
recognizing that the insurance sector
looks at this kind of risk
through the natural sciences,
the actuarial sciences by the engineering
sciences and the social sciences.
And you mentioned that
in your introductory comments that
that kind of interaction
will be, particularly
if it's institutionalized,
will be particularly valuable
and really affecting real people
and real property in these communities.
So I think the insurance industry brings
a lot of that insight, if you will, to
to this dialog,
to parent with the excellent science
that historically has done

and certainly is continuing to do.
And if I can add one other comment that,
well, we're talking about innovation
and the connection with reinsurance
and insurance industry.
We are dealing with other sectors.
And in fact, one of the other sectors,
which is also part of the IPG
with whom we've established
a formal relationship, is the Civil
Engineering Center, which is involved
in building codes and that kind of site.
So the architecture engineering
building code sector is actively involved.
And my goal as no administrator
be able to say would be to say,
what are the sorts of innovations we're
looking our dialog with returns of charts
that also have added value
for the engineering architecture
and for that matter might apply
to the work we're doing in retail as well.
And so innovation,
I'm going to look for that Venn diagram
where we optimize
innovation replication for all sectors.
And so I we had one more question,
but Dr.
Kepner
actually stuck the landing on that one.
I anticipated it's
fantastic.
I do believe
if it if we have a closing comment,
well, it's just closing comment.
But I also want to make a point about you
mentioned
that you mentioned the community
just. Absolutely.
So, no, it's contribution
to the underlying data.
And of course, all that can be enhanced
and improved over time.
You're

drawing a lot from the Census Bureau.
That's also here
in the Commerce Department as well.
I do think that prioritizing communities
that are, as we've
commonly said, most at need, most at risk,
is really very important.
And part of a challenge
that those communities have is
that they are so small communities,
they often don't have the resources
to assess their own risk,
they don't have the resources
to apply for federal programs.
So I think as part of this,
or at least an adjunct to this, is
how can we as an industry
and how can I, as a government agency,
serve communities
that really are under-resourced,
but also have socioeconomic challenges,
if you will?
I would do that
as a guiding principle of thinking through
how can we enhance this experience
for those people And address their needs.
Yeah, but obviously that's mainstream
for this administration
of before you close this out.
Well, I want to give Michael Steve
a chance also comment on the innovation
question.
You might have had some thoughts on that
if you want to.
Not specifically, no. On that one.
Nothing specific except to say that
as we're exploring
artificial intelligence,
we see opportunities to really target
the output of our forecast models,
to be specific user
and and industry specific needs.
And I think that's one of the things
that we're beginning to explore.

We could do that with our current
suite of physics based models,
but it's adding on an additional component
to that in the post-processing
of the output to really target
what specific sector has an interest in
which is showing a lot of growth to serve.
I want to close my thought of the reason
we're all here that we're had
these types of discussions
is ultimately we're trying to tax laws and
and with that it requires
building resilience and changing climate,
which is changing magnitudes of extremes
and also the specifics of all that.
And so to that,
you need to be able to have
risk structures where you're transferring
risk assurance for insurance.
We also need to build resilience
in the built environment,
which is why we're also working
with the civil engineers
and building codes.
And then we also need the data
to understand what's to come
so we can unlock capital
either from the government
or from the private sector
to build that resilience.
And so working with you
is one piece of that important puzzle,
making sure that we're building
those resilient communities, particularly
in those zones
that the most thanks to Sara.
Thank. If I can just comment on that.
I've said many times in recent years that
we have a lot of distress
at insurance markets in this country,
all driven
by climate and weather related risk.
The insurance industry is not well served
by uninsurable communities,

so we need to make sure that we are
doing things together, that in fact,
these communities have resilience,
if you will.
Otherwise,
this is going to be this combination
of public support and private support.
And the insurance sector certainly needs
the benefit of the insights
that come with the analysis.
But to your point, preserving communities,
protecting people and their lives
is really what ought to be an overarching
goal of this this initiative.
And I think another aspect
about that cap interest rate, it is
we are still trying to figure out
what the right of dance.
It's with public private partnerships
for any number of applications.
And so that wasn't a very specific focus
of what talked about.
But I see it as a benefit.
What we do take auction
that may have applications for other
probably looks like procedure.
Thank you both.
Thank you, everyone for contributing you
for your questions online.
We were able to synthesize a little bit.
I guess now
it's time for our signature moment.
So while we pass these around,
several folks, Ellen Mecray on our side
in NOAA, and Nicole;
and Karalee and Tom on the RAA side,
really helped make this happen logistically.
All right.
You know...
You're going to use the Sharpie?
I am.
I'll use the Sharpie, too.
My first week on the job here, for reasons
that I know the NOAA family understands,

I signed several documents with a Sharpie:
a green Sharpie.
We have another Sharpie?
Oh, we don't.
Tell you what. For the photo purposes,
I'll make like I'm signing here,
then I'll use the Sharpie.
[Unintelligible]
[Unintelligible]
[Unintelligible]
[Unintelligible]
[Unintelligible]
There we have it
Can you gather around
like the President?
Would either of you
like to make any closing comments?
We're just delighted
to have had this opportunity
to deepen our relationship
and to advance it
farther again on behalf of and
for the benefit of the American people.
So thank you very much.
And I'll just simply say thank you
for all of the years of collaboration
working together.
I couldn't be more excited
about what the future will bear for us.
Let's get working.
Yeah, thank you.
I do believe that
that ends our programing today.
Thank you for everyone
who put this together and made it happen.
Thank you for your time and patience
online and thank you for your leadership
And thank you, Deke, for keeping us ...
so very much.
All right.
I believe that concludes our broadcast.
Thank you very much.