

California Drought (and Flood) Update



For March 30, 2017

by Patrick Ruckert

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NASA's greatest discoveries teach us many, many things. One lesson is the need to view old questions with fresh eyes. To have the courage to look for answers in places we have never looked before. To think in new ways because we have new information. Most of all, new discoveries remind us that, in America, anything is possible if we have the courage and wisdom to learn.

President Donald Trump

The Weekly Address by President Donald Trump

March 25, 2017

A Note To Readers

The following must be said in order for us to discuss California water issues in the context of the real world.

Not since the Presidency of John F. Kennedy has a President set the nation on a mission, at least not until now. President Trump's extraordinary Address to the Nation on March 25, may have only been five minutes long, but like Lincoln's Gettysburg Address (which was less than five minutes), will live forever. The text of that address by the President is the last item in this report.

Though the President did not say it, I will: The only real solution to both the nation's infrastructure needs and California's drought/flood bipolar personality will be found on the Moon. It is only by launching an aggressive manned space program, and an aggressive research program for fusion power, that we can set in motion the scientific discoveries, technological advances and the upgrading of the skills and intelligence of the American people required to solve the problems here on Earth. Without that approach, as Lyndon LaRouche has emphasized, whatever the good intentions of the President may be, he will not succeed.

Last week I featured the speeches of the President in which he invoked the return to the American System of economics as created by Alexander Hamilton. That, with his address last Saturday, show us that he is on the right path. But, the follow-through will define success or failure.

With new estimates that the repair to the Oroville Dam spillway could be as high as \$500 million now, the mooting by some around the administration that the setting up of an Infrastructure Bank is being considered is good news. That means we really are getting close to LaRouche's Four Laws for a real economic recovery. And perhaps the visit by Chinese President Xi with President Trump on April 6-7 can be the first step for funding such a bank.

Now, here is what else is in this week's report:

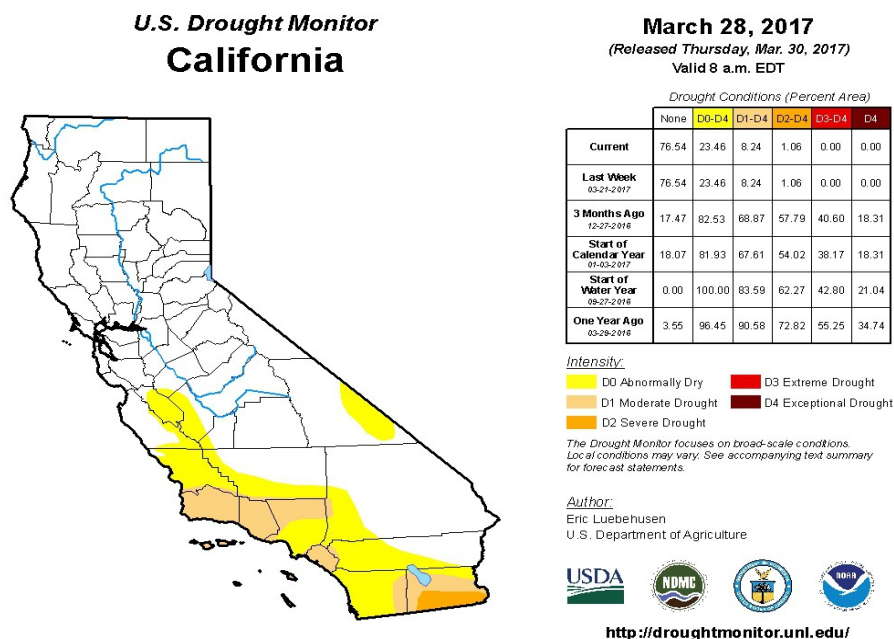
First, after the drought and snowpack report, we have an update on the Oroville Dam spillway, which includes the warning of the independent commission that the danger of something even more serious than the disaster already experienced cannot be ruled out.

Then, comes the flood report. The subsidence problem, especially in the Central Valley, may bring a new problem. With the land having sunk, the melting snow this spring may bring back Tulare Lake. Until the rivers of the southern Central Valley were put under control a hundred years ago, every Spring, as those rivers emptied the melting snow, the Tulare area became the largest fresh water lake in the country.

We round out this week with an update on the response to the 65 percent allocation of water to the western Central Valley, and a few more items of interest.

U. S. Drought Monitor

Again, the drought is over, at least for now. Only 8 percent of the state is in drought, and that being the least serious “Moderate Drought” designation. Why keep running the graphic? It adds a little color to the report.



The Snowpack

Not quite the biggest snowpack in California history, but it is getting close. Here is today's report from the Department of Water Resources, followed by an excerpted article on the topic.

March 30, 2017

From the Department of Water Resources:



With every monthly measurement of the California snowpack this winter, the state's rebound from the previous five years of drought becomes more evident. Today's electronic readings from 95 sites in the Sierra Nevada show an average statewide snow water equivalent (SWE) of 45.8 inches, or 164 percent of the historical average for March 30 (27.9 inches).

SWE is the depth of water that theoretically would result if the entire snowpack melted instantaneously. That measurement is more important than depth in evaluating the status of the snowpack. On average, the snowpack supplies about 30 percent of California's water needs as it melts in the spring and early summer.

What drought? Sierra Nevada snowpack at 164 percent of normal

By Paul Rogers

March 29, 2017

<http://www.mercurynews.com/2017/03/29/what-drought-sierra-nevada-snowpack-at-164-percent-of-normal/>

The biggest blizzards are over. But as state water officials head into the Sierra Nevada on Thursday for the annual April 1 snowpack reading — the most important of the year for planning summer water supplies — California still has a huge amount of snow covering its highest mountain peaks, an avalanche that has buried the state's punishing drought.

On Tuesday, the statewide Sierra snowpack stood at 164 percent of its historic average, a massive accumulation of new water. It's the largest snowpack since 2011, when it was 171 percent of normal on April 1.

At the height of the drought two years ago, the April 1 snowpack was 5 percent of its historic average, exposing a vast range of rock and dirt that normally would be covered with deep snow.

What happened?

In January, atmospheric river storms barreled in from the Pacific Ocean, no longer blocked by the high-pressure “Ridiculously Resilient Ridge” that had diverted so many storms during the height of the drought.

Those storms tapered off, and warmer conditions have brought less snow in March. Even so, more snow is forecast for Thursday, and the size of this winter’s snow surplus has been exceeded only three times since 1970 — in 2011, 1995 and 1983.

Every year, the Sierra snowpack accounts for roughly a third of California’s water supplies. A vast “frozen reservoir” that stretches 400 miles from Lassen County in the north to Tehachapi Pass in Kern County, the snow steadily melts in the spring and summer, flowing down rivers and into reservoirs, also replenishing depleted groundwater. The top and causing uncontrolled releases and floods in cities and towns downstream.

Oroville Dam Spillway: Still a Potential Catastrophe

I saw one report this week that more than doubles the estimated repair cost of the Oroville Dam spillway from \$200 million to \$500 million. The price tag may yet be the least of the problems. What follows are articles excerpted, beginning with the report on the panel of engineering consultants that bluntly states that bad can become really, really bad.

Following that are the statements and response of the state water officials.

Damage, design flaws in Oroville Dam spillway point to lengthy repairs, consultants say

By Ryan Sabalow and Dale Kasler

Sacramento Bee

March 23, 2017

<http://www.sacbee.com/news/state/california/water-and-drought/article140390898.html#storylink=cpy>

The main spillway at Oroville Dam is riddled with design flaws and so badly damaged that an independent panel of experts hired by the state has concluded it’s probably impossible to repair the structure completely before the next rainy season begins in November.

The panel of four engineering consultants, in a recent memo to the state Department of Water Resources, said it believes the concrete spillway can be made functional enough to release water from Lake Oroville during the next rainy season. But the panel noted it’s “questionable” whether the state has enough time to replace the badly damaged lower half of the 48-year-old spillway. The bottom of the structure is now split from the top by a gaping chasm that extends into the neighboring hillside.

Above the crater, consultants described design problems in the intact portion of the chute that are so “gross and obvious” they will have to take priority this year, said J. David Rogers, a dam expert from Missouri, who reviewed the report at The Sacramento Bee’s request. Rogers said the problems the consultants described were so egregious he was surprised the spillway didn’t fail decades ago.

“It calls into question the whole design of what’s still there in the upper section,” said Rogers, a professor at the Missouri University of Science and Technology.

The expert panel's conclusions, based on a review of reports and an on-site inspection earlier this month, provide a first-ever accounting of structural and design problems that might have caused the spillway to essentially split in half Feb. 7. The consultants described seeing troubling amounts of water flowing from underneath the structure, concrete that was far too thin and dangerous gaps underneath the foundation on which the massive concrete chute sits.

Rogers said the structure probably needs to be rebuilt from the ground up.

"I was shocked to hear the slab is only 12 inches thick, and that there's clay pockets underneath it," he said. "That section is going to have to be ripped up and you're going to have to start over again, most likely." He added that "it's remarkable it lasted as well as it did." He said he's surprised the structure didn't fail after the winter of 1997, when officials cranked up releases to their highest-ever amounts.

State water official vows new Oroville Dam spillway by winter

By Kurtis Alexander

March 27, 2017

<http://www.sfgate.com/news/article/California-water-official-vows-new-Oroville-Dam-11031590.php>



Photo: Rich Pedroncelli, Associated Press

In this Feb. 28, 2017, file photo, construction crews clear rocks away from Oroville Dam's crippled spillway in Oroville, Calif.

"If I have anything to say about it, we'll have a spillway to use by Nov. 1," said [Bill Croyle](#), acting director of the [California Department of Water Resources](#), addressing reporters Monday morning. "Whether that's a permanent or temporary structure is still to be determined."

Croyle said a plan for the rebuild would be unveiled this week or early next week. As for what exactly the new chute will look like, he said all options are on the table.

He acknowledged that the timetable for restoring the roughly 3,000-foot-long spillway so that it can

safely release water is tight.

After a design concept is chosen, bids for the work must be submitted, a contractor selected and a final plan agreed upon — all before construction begins.

A memo this month from four engineering consultants working with the state identified, to the greatest extent yet, the problems experienced at the broken spillway.

Although the cause of the fracture is yet to be determined, the panel found that water is seeping up from the ground beneath the chute, that the structure is too thin in many places to support outflows, and that the earth that holds up the spillway is riddled with empty space.

The consultants concluded that the spillway could not likely be replaced this year, though they said enough fixes could be completed to make it safe and functional by winter.

DWR responds to report of future "significant risk" at spillway

By: [Taylor Torregano](#)

Posted: Mar 23, 2017 06:28 PM PDT

<http://www.krctrv.com/news/report-in-associated-press-article-warns-of-significant-risk-to-the-state/412126510>

OROVILLE, Calif. - The Department of Water Resources (DWR) is responding to a report quoted in an article by the Associated Press which states all of California could face a very significant risk if the Oroville Dam spillway isn't fixed by November.

The report does not pinpoint the exact "significant risk". However, DWR officials have worried all along that if the damage to the main spillway expanded upwards to cripple the flood gates, there wouldn't be a way to control the outflow of water from the lake outside of the power plant.

The report quoted in the AP article was prepared by independent consultants selected by the state.

It also suggested that even parts of the spillway that appear to be undamaged, might need to be replaced.

In a statement from DWR Thursday, officials said, "As we have stated from the beginning, DWR's objective is to have a fully functional spillway before the start of the next storm season. With the support of the Governor's Executive Order in February, we are expediting response and recovery efforts, and we'll be working round-the-clock through spring, summer and fall to make that happen."

Spillway flows to go to 0 as work continues; "We will have a spillway to use November 1st," assures Bill Croyle

[March 27, 2017 Maven Breaking News](#)

<https://mavensnotebook.com/2017/03/27/this-just-in-oroville-dam-monday-spillway-flows-to-go-to-0-as-work-continues-we-will-have-a-spillway-to-use-november-1st-assures-bill-croyle/>

From the briefing by ACTING DWR DIRECTOR BILL CROYLE

There is plenty of water and snow in the watershed. Northern California is approaching and likely will soon exceed the second wettest year on record that goes back 100 years. We are not quite there yet but we don't need too much more rain. Since the water year goes through October 1st, there is still plenty of time remaining to break that second wettest year on record, if not the wettest year on record.



An aerial view of the Lake Oroville flood control spillway as water rushes into the diversion pool from a ravine created by the spillway incident. Photo taken March 23, 2017.
Florence Low / California Department of Water Resources

“We will, if I have anything to do with it, have a spillway to use November 1st. Whether that’s a permanent or a temporary structure is yet to be decided. Part of that comes back to the alternatives that are being vetted out through not only the department but our regulatory agencies, our independent board of consultants, and ultimately we’re briefing the Governor, the water contractors, etc. to make sure we are doing everything we can to implement a corrective action before wet season next year. ... We expect to have a 60% design vetted through the process later this week or very early next week. That will be what we talk about next time we get together, what that design looks like and what the contingency plans for if a particular design is executed and we run into a road block is what are those other things we’re going to do to ensure that we have a safe and usable spillway and an emergency spillway for this next flood season.”

Subsidence Threatens A Flood

That Sinking Feeling: Corcoran Fears Floods Thanks To Subsidence, Snowmelt

By Ezra David Romero / Valley Public Radio

<http://kvpr.org/post/sinking-feeling-corcoran-fears-floods-thanks-subsidence-snowmelt#stream/0>

A new [map](#) released by NASA earlier this year shows that large portions of California are sinking. The worst of it is in the San Joaquin Valley. One of the main reasons is the over pumping of groundwater, especially in the last five years of drought.

"The risk here of a catastrophic event is high." - Dustin Fuller

All that sinking and all the snow melting in the Sierra has Central Valley water managers like Dustin Fuller worried.

Dustin Fuller with the Cross Creek Flood Control District is managing the levee raising project.

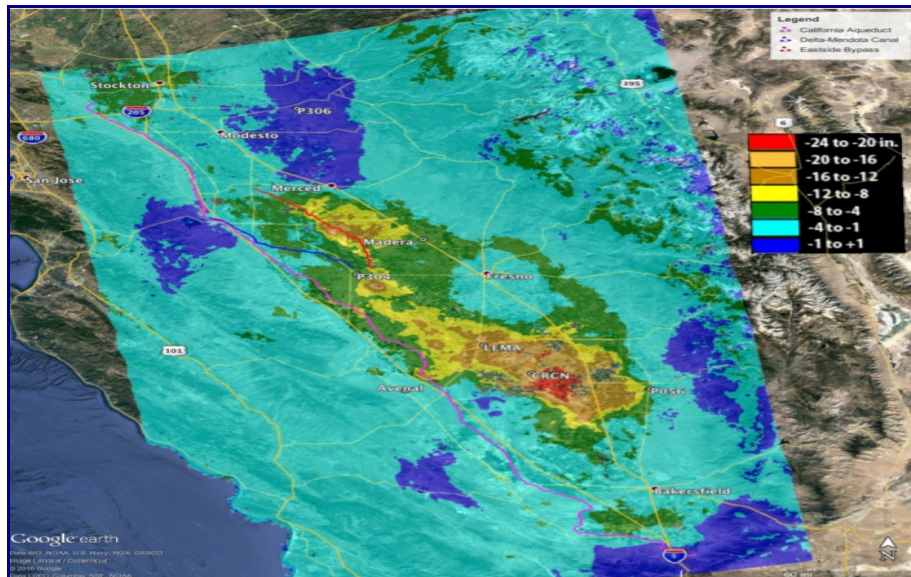
He's managing an army of earth movers that are scraping top soil off farmland that surrounds the Corcoran State Prison in Kings County. His team is getting ready for what officials feel like could be a big flood, but looking at it now you wouldn't have a clue that this dry area could become a lake.

Fuller says the levee used to be tall enough. Due to subsidence it's sunk and now it's not. He's the water manager that's overseeing the \$14 million levee raising project that's supposed to protect the 25,000 person City of Corcoran and the prison. Fuller's worried because the area he manages is part of the historic Tulare Lake Basin which was once filled by the Kings and Tule Rivers. Before it dried due to water diversions it was the largest freshwater lake west of the Mississippi. Fuller says once snow melts there will be flooding and the lake could come back to life.

"The risk here of a catastrophic event is high," says Fuller. "The easiest way to equate it is you got 20 gallons sitting up in the hills and at some point in time that 20 gallons is going to come down to a five gallon bucket. We've got issues."

NASA's satellite imagery shows a 60 mile area around Corcoran hit hard by subsidence, it sank about two feet in 2015. But to the average person you can't really tell. Tom Farr with NASA's Jet Propulsion Laboratory says that's because the whole region is slowly sinking.

NASA's research started because of a request from the Department of Water Resources. They mapped the whole state from 2006 to 2015 and saw the worst subsidence in the San Joaquin Valley.



NASA map of subsidence in the Central Valley. The red area is around the city of Corcoran and shows the land has sunk as much as two feet. Credit NASA JPL

A second study from 2015 to 2016 showed a major increase in sinking in the Central Valley. The areas showing the most signs of subsidence are along the California Aqueduct, Corcoran and an area just south of Merced. Farr says NASA will launch a satellite sometime in the next decade with the sole purpose of mapping subsidence.

Everyone but the Westlands Get Full Allocation

Reactions from agricultural institutions to the Bureau of Reclamation's decision to allocate only 65 percent of the requested water to the west side of the Central Valley continue:

Ag Alert Update: Less-than-full CVP water allocation 'boggles the mind'

Issue Date: March 22, 2017

Christine Souza

<http://agalert.com/story/?id=10731>

Surprised by the announcement that Central Valley Project farmers south of the Sacramento-San Joaquin Delta would only receive 65 percent of contracted supplies, farmer Nathan Cardella of Mendota wanted to know, "If it is not a 100-percent year, then what will be a 100-percent year?"

The U.S. Bureau of Reclamation, which operates the CVP, made the initial allocation on Wednesday, which came late so federal water officials could assess hydrological factors, river flows and accumulation of rainfall and snowpack.

California Farm Bureau Federation President Paul Wenger said the announcement of 65 percent supplies for south-of-delta agricultural contractors shows how operation of the state's water system remains in need of an overhaul.

"In the alternate universe of California water, we can have floods, full reservoirs and a huge snowpack and still not have full water supplies. It boggles the mind," Wenger said.

Why Jerry Brown Has Gone Quiet On Trump

Trump delivers surprise to California

Despite the bad blood between the president and the nation's most populous state, Trump has come through on three big asks so far.

By David Siders

03/26/17

<http://www.politico.com/story/2017/03/trump-delivers-surprise-to-california-236509>

"Nothing is all that predictable under the current administration," California Gov. Jerry Brown said. |

SACRAMENTO — California appeared destined for near-Dickensian times after Donald Trump's election. The state had just delivered a landslide winning margin for his opponent and rapidly evolved into the beachhead of the Trump resistance. The irritable president threatened to withhold federal funding from the nation's most populous state.

Yet in an early turn from that discord, the Trump administration has delivered on three big asks in its short time in office, approving much-needed presidential disaster declarations related to the Oroville Dam crisis and winter storms. The declarations free up what's likely to be millions of dollars in federal aid in more than a dozen California counties.

With a fourth request pending, Brown said after meeting with the Federal Emergency Management Agency's Bob Fenton, "We feel we're in synch with the federal emergency management team here ... and I'm optimistic. I think President Trump cares about helping people in disasters."

Like other presidents, Trump has also appeared to recognize the political opportunity in assisting states. Hours before issuing his first disaster declaration for California, in February, the president used the Oroville Dam emergency to advance his infrastructure agenda.

"The situation is a textbook example of why we need to pursue a major infrastructure package in Congress," White House press secretary Sean Spicer told reporters that month. "Dams, bridges, roads and all ports around the country have fallen into disrepair. In order to prevent the next disaster, we will pursue the president's vision for an overhaul of our nation's crumbling infrastructure."

For Your Entertainment

NY Times turns up volume on 'climate propaganda machine'

By Julie Kelly, opinion contributor - 03/22/17 01:20 PM EDT

<http://thehill.com/blogs/pundits-blog/energy-environment/325194-ny-times-turns-up-volume-on-climate-propaganda-machine>

The New York Times announced last week that it will expand its coverage on climate change, just as the Trump administration plans to defund most federal climate programs and the global commitment to pay for climate policies starts to wane.

A group of journalists at the Times will now be "devoted entirely to climate issues" and work with their international news bureaus to report how "the calamities caused by climate change seem to be intensifying."

According to Hannah Fairfield, head of the new climate reporting team, the Times will "produce visual, explanatory and investigative journalism" during a time of "uncertainty regarding the Trump administration's environmental policies."

This is an interesting move because it's not as if the paper lacks coverage of climate issues; in fact, you'd be hard-pressed to find a bigger climate change cheerleader than the New York Times.

Rarely a day goes by that the Gray Lady isn't wringing her hands and clutching her pearls about the certain doom we all face because of anthropogenic global warming. Its opinion page is one sustained wail about the imminent doom we all face at the hands of President Trump and his planet-pillaging cabinet.

In the past month, the Times published more than 200 articles that mention climate change. One story suggests climate change caused cherry blossoms to bloom early in Washington, D.C., just before a winter storm killed them off. California's drought-turned-deluge, famine in Africa and a water crisis in Mexico City were all blamed on climate change — and that's just in one month.

Exactly zero articles in the Times gave voice to those who legitimately question how much, if at all, human activity is contributing to the aforementioned catastrophes.

For Lack of Vision, the People Perish

One trillion dollars over ten years just does not cut it. The President knows that, but those in the administration are sorely lacking in vision. The American Society of Civil Engineers, in its March Report Card, makes it clear: Nothing less than \$4.5 trillion in just a few years is required to bring existing infrastructure up to speed. And that does not include the necessary crash research program for fusion or a great space program.

The excerpted article below shows this lack of vision.

Infrastructure won't be the big item Trump can check off as an early win

By Curtis Tate

March 29, 2017

<http://www.modbee.com/news/politics-government/article141580169.html#storylink=cpy>

President Donald Trump's infrastructure plan won't be ready until later this year, delaying one of his signature campaign promises and depriving his administration of a big policy achievement in the first months of his presidency.

Transportation Secretary Elaine Chao said Wednesday [at an event marking the Department of Transportation's 50th anniversary](#) that the package would be a "strategic, targeted program of investment" of \$1 trillion over 10 years.

It would include more than just transportation, Chao said, encompassing energy, water, broadband and veterans hospitals. It will be announced later this year, she said. Chao offered nothing more specific.

"Investors say there is ample capital available, waiting to invest in infrastructure projects," Chao said. "So the problem is not money. It's the delays caused by government permitting processes that hold up projects for years, even decades, making them risky investments."

The Weekly Address by President Donald Trump

Not since President John F. Kennedy has a President put forward a mission for the nation to unleash its creative powers to discover the laws of the universe, and to make the universe mankind's universe.

This five minute weekly address by the President will stand along side that of President Kennedy's in 1961-- that within the decade we will land on the Moon and return the astronauts safely to Earth. It will forever be seen as the moment when the sense of optimism and hope has once again been returned to the American people.

Here is the transcript of Trump's extraordinary Saturday address to the nation. The video can be watched here:

<https://www.youtube.com/watch?v=ZGt6lkLApuo>

March 25, 2017

My fellow Americans,

This week, in the company of astronauts, I was honored to sign the NASA Transition Authorization Act

right into law. With this legislation, we renew our national commitment to NASA's mission of exploration and discovery. And we continue a tradition that is as old as mankind. We look to the heavens with wonder and curiosity.

More than two decades ago, one scientist followed his curiosity and dramatically changed our understanding of the universe. The year was 1995. Taxpayers were spending billions and billions of dollars on NASA's Hubble Space Telescope. The astronomer in charge had a novel idea. He wanted to use the expensive telescope in a totally unconventional way.

Instead of pointing Hubble's eye at nearby stars or distant formations, Robert Williams wanted to peer into the void. He aimed the massive telescope at one of the emptiest regions of the night sky. For ten days during Christmas of 1995, Hubble stared into the abyss seeking whatever light it could glean from the darkness. And it was total darkness.

Fellow astronomers didn't know if he'd see much of anything. But Williams was rewarded and the entire world was struck by the awesome images our satellite returned. In that tiny patch of sky, the Hubble Deep Field showed thousands of lights. Each brilliant spot represented not a single star but an entire galaxy.

The discovery was absolutely incredible. But the unforgettable image did not satisfy our deep hunger for knowledge. It increased evermore and even more and reminded us how much we do not know about space; frankly, how much we do not know about life.

With this week's NASA reauthorization, we continue [to make] progress on Hubble's successor, the James Webb Space Telescope. It is amazing. The Webb Telescope is set to launch next year. It will gaze back through time and space to the very first stars and the earliest galaxies in the universe. We can only imagine what incredible visions it will bring.

At a time when Washington is consumed with the daily debates of our Nation, I was proud that Congress came together overwhelmingly to reaffirm our Nation's commitment to expanding the frontiers of knowledge.

NASA's greatest discoveries teach us many, many things. One lesson is the need to view old questions with fresh eyes. To have the courage to look for answers in places we have never looked before. To think in new ways because we have new information. Most of all, new discoveries remind us that, in America, anything is possible if we have the courage and wisdom to learn.

In the span of one lifetime, our Nation went from black and white pictures of the first airplanes to beautiful images of the oldest galaxies, captured by a camera in outer space.

I am confident that if Americans can achieve these things, there is no problem we cannot solve. There is no challenge we cannot meet. There is no aim that is too high.

Whatever it takes and however long it will be, we are a Nation of problem solvers and the future belongs to us.

We are truly a great place to be. I love America.