

**Remarks by The Honorable Fred Gregory  
NASA Acting Administrator  
Embry-Riddle Aeronautical University  
Daytona Beach, Florida  
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Thank you President Epps (President George Epps) for that wonderful introduction. It's great to be back at Embry-Riddle to appear today before the members of the President's Council.

Ten months ago I very much enjoyed a brief campus tour and the opportunity to speak to the leaders and members of your outstanding Air Force ROTC Detachment 157 at their annual spring banquet.

During the banquet, the young men and women of the Detachment conducted a very moving ceremony paying tribute to the heroes who have fallen in our nation's wars. As a veteran who lost many friends to combat in Vietnam, I was quite taken

by this heartfelt gesture, and by the maturity and intelligence of the cadets I had the privilege of speaking with that evening.

My last visit also occurred just a few weeks after Junior Cadet Glenn Meleen made national headlines after he skillfully made an emergency landing into the cab of a moving truck.

Let me just say that you folks certainly teach some very creative piloting techniques down here.

But let me tell you, he's just the kind of person we want in the future to help us achieve pinpoint landings on asteroids and other great feats of interplanetary piloting.

Well today, it's a pleasure to be back on your campus, and I think as you are conducting your strategic planning to align Embry Riddle with the future of aerospace technology it's a wonderful time to talk about NASA's Vision for Space Exploration, our long-term strategy to advance U.S. scientific,

security and economic interests through a robust program of human and robotic space exploration.

Given your interest in the future of flight, I'll also address NASA's commitment to funding a robust aeronautics research program in the years ahead.

Additionally, I want to highlight NASA's commitment to working with Embry-Riddle on cutting edge research projects that will help us pursue our Agency's objectives, and will serve to inspire your students who will soon take leadership positions in the next generation of explorers.

This is indeed a promising time to discuss these subjects.

When you think about everything NASA is doing--whether it be conducting research on the International Space Station, exploring Mars and Saturn or working with Embry-Riddle on the Small Aircraft Transportation System to improve the

precision guidance of small aircraft, we're making great strides in advancing American scientific and technological leadership.

These accomplishments and NASA's steady progress toward safely returning the Space Shuttle to flight is the product of a team that has strived very diligently since the Columbia accident to operate all our missions safely and successfully.

Having worked to address all of the safety recommendations of the Columbia Accident Investigation Board and to raise the safety bar even higher, we are now aiming for a May 15<sup>th</sup> launch date of Space Shuttle Discovery.

The Shuttle's safe return to flight will obviously be an important story here in Florida and throughout the country.

Getting the Shuttle's flying again will also mark an important milestone, as using the Shuttle's to complete the assembly of the International Space

Station is the first step in achieving the objectives of the Vision for Space Exploration that President Bush proposed a year ago in January.

The President has now given the entire space community a once in a lifetime opportunity to carry the torch of exploration throughout the solar system during the second century of flight.

Now to help set the stage for the rest of my presentation, I'd like to show you a brief video that highlights the elements of the Vision and the work that NASA will conduct to achieve these exploration objectives.

I think what's most satisfying for people like me who have been with the Agency for over 30 years is that the Vision gives NASA a set of long-term goals that are compelling, achievable and responsible.

I'm confident that these goals promise to add value to many of the subjects taught here at Embry-Riddle as well.

I encourage this institution to grasp the opportunities presented by the Vision for all that they are worth.

As part of your far-sighted Strategic Plan for the year 2015, I've noticed that you are committed to increasing the amount of research and project funding you receive from NASA and other government agencies.

You are exactly on target in this aspiration. And for our part, NASA is determined to draw on the creativity of institutions like Embry Riddle as we develop revolutionary technologies and capabilities for the future. We very much want you along for the ride.

And what a ride it will be.

We're confident that our work to implement the Vision will spur technological developments leading to new products and services and tangibly improve the lives of people throughout the world.

Indeed, just as Project Apollo led to important advances in computing and electronics, the potential spin-off benefits from NASA's 21<sup>st</sup> century exploration program could prove considerable.

We anticipate that the technology development necessary to implement the Vision will accelerate advances in robotics, autonomous and fault tolerant systems, human-machine interface, materials, life support systems and novel applications of nanotechnology as well as microdevices.

So I encourage you to give some consideration to these cutting edge technology areas as you continue your strategic planning for the curriculum of the future.

I'm also aware that Embry-Riddle was among the institutions that responded last year to a Broad Agency Announcement that solicited innovative ideas about human and robotic exploration technology from industry and academia. While you

didn't quite make the cut with your response to this specific Announcement, I encourage you to keep on developing technical proposals because we're just getting started in developing all the systems and technologies we'll need to extend our exploration reach throughout the solar system.

Of course, we're also going to be counting on Embry-Riddle to continue producing bright young graduates who have the talent, and I hope the gumption to become tomorrow's trailblazing spacecraft designers, mission managers, and astronauts.

Thus far Embry-Riddle has produced such outstanding astronauts as Daniel Burbank, Alvin Drew, Ronald Garan, Susan Kilrain, Nicole Stott and Terry Virts.

No doubt many more Embry-Riddle Eagles will join the astronaut corps in the future as we get set to send explorers throughout the solar system.

Since I was last here, NASA has made tangible progress in advancing the goals of the Vision.

In November, U.S. astronaut Leroy Chiao and his fellow Expedition 10 crewmember Russian cosmonaut Salizhan Sharipov marked the fourth year of continuous human occupancy onboard the Station.

They are conducting important research on how human beings adapt to the long-term challenges of spaceflight--such as bone and muscle loss during lengthy stays in zero gravity.

NASA and its international partners are also going to work very hard to turn this research facility into a test bed for future exploration activities. We're going to learn on the Space Station how to make repairs in a base far from home, how to grow food, how to treat injured or ill crew members and a

number of other crucial skills necessary for expanding our exploration horizons.

Now once the job of completing Space Station assembly is completed five years from now, our next step is to return human explorers to the Moon as soon as 2015 in preparation for the exploration of Mars and beyond.

To accomplish these and other objectives we are striving to transform our entire NASA organization in order to be "wired for success."

The transformation activities we set in motion last summer include the restructuring of NASA's six Strategic Enterprises into four Mission Directorates for Aeronautics Research, Science, Exploration Systems and Space Operations. This new organizational structure will help us better align our personnel and resources with Vision enabling activities.

Our new Exploration Systems Mission Directorate, led by retired Admiral Craig Steidle, has developed a very thoughtful strategy to employ experience, technology readiness and flexibility to enable each successive exploration step.

This group is well engaged on another goal of the Vision, to develop and test under Project Constellation, a new spacecraft, the Crew Exploration Vehicle, with a demonstration scheduled in 2008, and the first crewed mission no later than 2014.

NASA's other Mission Directorates are similarly advancing the objectives of the Vision.

Last fall our Aeronautics Mission Directorate, led by Vic Lebacqz successfully flew NASA's X-43A experimental vehicle on a flight taking it to 10 times the sound barrier. Using novel scramjet engine technology, the X-43A may ultimately produce

access to space in ways that we've never thought we could achieve.

This technology, once fully developed, may also enable passengers to travel from coast to coast in less than a half hour. We're turning this research effort over to the Defense Department, with our colleagues at DoD working to take this to the next level.

In the future, NASA will be focusing our aeronautics research a number of vital areas, including increasing Aviation safety and security, reducing emissions and airplane noise, and increasing the capacity and efficiency of the National Airspace System.

The President's Fiscal Year 2006 budget request for NASA includes \$852 million for aeronautics research. The budget increases funding on Aviation safety and security by four percent and airspace systems by 32 percent. These two priority programs are fully funded to ensure timely results critical to

meeting national goals, especially those efforts in support of the interagency Joint Planning and Development Office, which is chartered to transform the U.S. air transportation system by the year 2025.

In terms of aeronautics technology development, we're transforming part of our investment to more sharply focus on breakthrough technologies.

Toward this end, our restructured NASA Aeronautics Vehicle Systems Program is focusing on four projects seeking to achieve near-term flight demonstrations of revolutionary and barrier breaking technology: First, reducing the noise of conventional aircraft to within the airport boundary. Second, reducing the supersonic boom allowing future supersonic aircraft to fly over land without the restrictions in place today. Third, developing electric propulsion systems for aircraft that eliminate pollution entirely because they do not burn hydrocarbon fuels. And fourth, demonstrating high

altitude, long endurance, remotely operated or autonomous aircraft to create opportunities for new applications including science platforms.

Turning now to space science, our Science Mission Directorate, led by Al Diaz, has enjoyed an incredibly productive year, highlighted by the historic Spirit and Opportunity missions to Mars.

Science Magazine recently praised these Mars Exploration Rovers for the scientific breakthrough of the year, the discovery that Mars once indeed harbored a shallow salty sea, which may have been conducive to life.

Another impressive Science Mission Directorate achievement is the Cassini-Huygens mission around Saturn. In January, for the first time a spacecraft—the Huygens--descended into the atmosphere of another Moon, Saturn's mysterious Moon Titan, whose atmosphere is filled with liquid methane.

Looking forward, the people in our Science Mission Directorate are planning even more sophisticated robotic missions to the planets that will blaze the trail for the human pioneers who will come later.

Indeed, throughout NASA and with other nations and organizations work is well under way to advance and mature a range of novel concepts and high-leverage technologies that will enable safe, affordable, effective and sustainable human and robotic exploration for the benefit of all humankind.

This is the spirit in which we hope to engage all sorts of partners such as Embry-Riddle in cutting-edge activities that will help build revolutionary technologies and capabilities for the future.

In the months and years ahead I'm confident we will achieve steady progress in reaching our exploration objectives--one mission, one voyage, and one landing at a time.

It's been 33 years since Apollo 17 Astronaut Gene Cernan last set foot on the Moon and said, "We leave as we came, and God willing as we shall return, with peace and hope for all mankind." As President Bush said, "America will make those words come true."

When we do return to the Moon, we will stay there for extended periods of time in order to develop new technologies and harness the Moon's abundant resources to allow human exploration of more challenging environments.

And then we will go onward to Mars, and beyond. I hope many of your students have the opportunity to participate in the exploration of Mars as scientists, engineers, and astronauts. It's a fascinating place, as our robotic emissaries Spirit and Opportunity are proving.

I think it is also important to note that the public has responded very enthusiastically to our space exploration initiative, and the rationale that a milestone-driven program of human and robotic space exploration and discovery activity will enhance America's economic, scientific and security interests.

A Gallop Poll taken last summer found that seven out of 10 Americans support the goals of the initiative.

Another measure of strong public interest in the Vision is the number of hits we receive on our NASA website. Last year we received over 18 billion hits, representing about 150 million discrete users. And our web traffic is equally heavy this year.

Furthermore, in my travels last year, I've noticed that young people--the members of the next generation of explorers who are well represented in your student body--are tremendously excited about

our plans to explore the Earth, Moon, Mars and beyond.

In the years ahead they will provide the rocket fuel of energy and enthusiasm that will enable us on a sustainable basis to expand our exploration reach and to share our technological advances with others.

Indeed, in my concluding remarks I'd like to discuss how the excitement generated by new journeys and discoveries in space will help nurture a new generation of skilled scientists and engineers here at Embry Riddle and around the country who will help produce the technologies and breakthroughs of tomorrow.

We believe the exciting potential of our space exploration initiative will help reverse a decade long trend of declining interest by students in math, science and engineering fields, and help refresh

NASA's talent pool and our national technology base overall.

From NASA's self-interested perspective, we are facing the graying of our workforce. One-fourth of our workforce will be eligible for retirement in the next five years.

Not only do we face a challenge in recruiting young people to replace our experienced scientists and engineers, but we must also consider what specific skill sets and technical competencies we will need in our future workforce. As it will be your students who help to take us to the Moon, Mars and beyond, I challenge Embry Riddle to adapt your curriculum to the technological skills NASA will need in the future.

You've already demonstrated your determination to be a strong contributor to NASA's achievements through the scientists, engineers and seven astronauts you've produced. And I'm confident you will do a

good job aligning with our long-term space exploration vision.

Let me also put NASA's ability to inspire that next generation of technology leaders in the context of some larger demographic changes that are happening in our country.

As many of your faculty who study these issues can attest, employment opportunities in science and engineering are expected to increase at a rate almost four times greater than for all other occupations this decade. Yet, enrollment in science and engineering college courses has been in general decline.

These trends have broader national implications as well, implications that should particularly interest this audience.

Last year the National Science Board issued a report noting the nation is losing "a long-distance race" to maintain its edge in human scientific

resources. So this is not just about space, but where we are as a nation.

The Board pointed out that the U.S. ranks 17<sup>th</sup> among nations surveyed in the share of 18 to 24 year-olds who earn natural science and engineering degrees, trailing Taiwan, South Korea, Italy and Ireland.

It may be NASA's greatest legacy that a regeneration of our nation's commitment to exploration and discovery will help reverse this trend.

So as we move forward with initial activities to implement the Vision, we're putting a lot of effort in reaching out to our next generation of explorers.

In this regard we're quite pleased with the NASA-Embry Riddle sponsored Teach Space Initiative, which through workshops for high school teachers around the country is bringing the excitement of space exploration and space science to America's math, science, and technology classrooms.

I understand that through this program, Teach Space is projected to reach ten thousand teachers and over one million 14-to-18 year olds by 2008. That's truly a noble goal.

We are also pleased to partner with Embry-Riddle in providing your students with opportunities to participate in NASA cooperative learning programs at the Kennedy Space Center and other NASA Centers.

I should also mention that thanks to new legislation the President signed last year, NASA is beginning a new Scholarship for Service Program, which will provide financial assistance to promising undergraduate and graduate students with a potential opportunity to work for NASA. In this way, we intend to truly build up the bench strength of our agency.

Through this program we hope Embry Riddle will be able to send us some of your best and

brightest students. I guarantee you that NASA will give them challenges that will help them stretch their abilities and realize their dreams.

In summary, I'm convinced our collective work here in Florida and elsewhere to address the challenges presented by the Vision is setting the stage for a space program that will boost the opportunities we will all have to become a smarter, safer, healthier and more intelligent world.

Speaking of intelligence, I know that last Sunday, your city put on a little sporting event called the Great American Race. Let me share with you a little secret. A while before the Daytona 500, members of Jeff Gordon's pit crew visited the Kennedy Space Center and we were able to share with them some NASA technology that allowed them to increase Jeff's speed into the near orbital velocity range. Now I can't reveal exactly what we told them,

but we certainly gave Jeff that extra something that allowed him to be the first across the checkered flag. And for the record Darrell Earnhardt's crew wants to schedule a visit to NASA next year.

On a more serious note, I'd like to make one last point about Daytona Beach. I'm convinced that many of the steps on our long road to the stars will be paved by bright and talented Embry-Riddle Eagles. And your commitment to long-term strategic planning for a second century of flight that will be filled with tremendous advances in the air and space will help make this so.

Once again I thank you for the opportunity to carry the NASA banner here to Embry Riddle. Thank you very much for your warm hospitality.