



Remarks by
NASA ADMINISTRATOR CHARLES BOLDEN
at the:

UNIVERSITY OF ALABAMA IN HUNTSVILLE WINTER COMMENCEMENT

Huntsville, Alabama
December 13, 2015

AS PREPARED FOR DELIVERY

President Altenkirch; distinguished trustees; honored guests; friends and family who have made today possible ... what a pleasure it is to be able to share this joyous occasion with you here in the Rocket City at this great university which, I might add, was founded in large part due to the efforts of a rocket scientist.

To the Class of 2015 ... this is my favorite part ... congratulations! Way to go!

As you ponder your future over these next few days and weeks, I hope you'll consider looking at some of the stunning new images of our planet that have been coming our way, courtesy of NASA's Deep Space Climate Observatory or *DSCOVR* satellite. You can find them right on our NASA.gov web site.

There are few things quite as beautiful as our very planet itself. I've been blessed, during four Space Shuttle missions, to be able to look back at Earth from space. An astronaut colleague wrote about the experience as follows: "*The first day or so we all pointed to our countries. The third or fourth day we were pointing to our continents. By the fifth day, we were aware of only one Earth.*"

Another astronaut, from a different country, had this to say about the experience. "*There is no better place to emphasize the unity of people in the world than flying in space. We are all the same people, we are all human beings and I believe that most of us, almost all of us, are good people.*"

The first quote is from Prince Sultan Salman Abdulaziz Al-saud of Saudi Arabia; the second, by the late Israeli Astronaut Ilan Ramon.

As you look at the marvelous pictures of our planet perhaps, like me, you will find that they are most remarkable for what you do not see: War; mass shootings; racially motivated hate speech; hunger; disease; the demonizing of our fellow human beings because of what religions they happen to practice or where they happen to have been born or whom they happen to love.

If you look very closely at those images of earth – you may need to squint your eyes a bit, but you’ll see a big sign that’s wrapped around our planet. It says, “Help wanted.” (Not really!)

As I was thinking about what message I wanted to give to you of the UAH Class of 2015 today, I couldn’t help but think about the tremendous challenges that my generation will be passing on to yours.

Then I happened upon your mission statement – and just to remind you, it says in part: “...to explore, discover, create, and communicate knowledge, while educating individuals in leadership, innovation, critical thinking and civic responsibility and inspiring a passion for learning.”

That mission is further refined with your vision and I quote that in part: “...be a preeminent, comprehensive, technological research-intensive university known for inspiring and instilling the spirit of discovery, the ability to solve complex problems, and a passion for improving the human condition...” *(Repeat)*

Wow! What a marvelous recipe for healing what ails our world!
The best part of my job as NASA Administrator is the opportunity I have to travel across our planet and meet with young people just like you.

Class of 2015, I am convinced that the anecdote to our world’s greatest challenges is *you*. It’s your generation and it’s your willingness to live and breath the spirit of your school’s mission and vision.

The great Vincent Van Gogh said, “...great things are done by a series of small things brought together.”

With this in mind, today I want to challenge all of you to commit to working in your own way toward finding your own series of small things – or large things – that will contribute to the greater good.

I challenge you to embrace your UAH *Chargers* spirit and to charge forward toward reversing the effects of our changing global climate.

- To charge forward toward closing racial, gender-based and economic disparities;
- To charge forward with a renewed interest in science, technology, engineering, the arts and mathematics;
- To charge forward by reaching new heights in medicine, green technology, sustainable agriculture, aviation and space exploration;
- To charge forward by overcoming hate with love and conflict with cooperation ... and to charge forward toward the day when people all across our world will finally dance together in the joyful bonds of peace and cooperation;
- To charge forward toward unlocking the age-old mysteries of the universe, including whether or not we are alone in the infinite expanse of space.

I also hope that your generation will charge forward on something else: an incredible adventure that has captured the hearts and imaginations of human beings for as long as we've been looking upward toward the night sky:

NASA is on a Journey to Mars. It's a Journey that will bring astronauts to the Red Planet in the 2030s and it's a journey that will require the motivation and inspirational leadership of many of you receiving your degrees today.

With this in mind, I have a favor to ask. As members of the Huntsville community you have a unique perspective on space and exploration. I hope you will assume the role as ambassadors of space to the members of your generation.

You see, for decades we at NASA have been working toward humankind's common dream of sending people to Mars and about five years ago, President Obama set us on a remarkable, visionary path – and from his vision has emerged a plan for sending human beings to Mars in the 2030s. The good news is that this plan is clear, affordable, sustainable and attainable. The humbling news is that it will be up to your generation to see it through.

Make no mistake: we need all of you. We're out to achieve one of the most remarkable goals in the history of humankind. Therefore, we simply cannot afford to leave anyone behind.

In addition to scientists, we need sociologists. We need teachers every bit as much as we need technologists. Along with astronauts – and we open our application process for a new astronaut class tomorrow – we need artists. We need specialists in human capital as well as in human exploration.

We need physicists and physicians and we also need poets and painters. We need mechanics and musicians. We need pilots and we also need parents.

I like to think of your generation as “the space generation” because of the expansive way you look at the universe and at possibility itself.

To you, the things that would have seemed like science fiction when I grew up are just normal parts of life ... everything from cell phones to GPS to the ability to post pictures of loved ones – or dancing cats – on social media.

For the majority of most of your young lives, astronauts from many nations have been flying together in space aboard the International Space Station – we celebrated the 15 anniversary of living and working on Station last month.

In your lifetime, young folks will be able to say the same things about human beings living and working together with robots on Mars.

In the past year alone, human beings– led by the United States – have seen the most vivid pictures ever of Pluto ... discovered flowing water Mars ... launched both an American and a Russian astronaut on a year-long mission in space ... learned more about our changing climate ... and made significant advances toward aviation that’s cleaner, greener, safer and quieter.

Meanwhile, NASA and our partners have been working hard to advance the technologies that drive exploration – including the Space Launch System (SLS) that’s being built by a superb NASA – industry team led from right here in Huntsville at the Marshall Space Flight Center!

As a result of this and more, we are closer than ever before in human history to sending astronauts to Mars. But ultimately, it will be your generation who will determine whether we complete this Journey or hit the brakes.

If you choose to complete this Journey – the doorway to the rest of the solar system will open with it. The sustainable technologies developed for long duration spaceflight may very well serve the dual purpose of revolutionizing how we fuel our own planet – and reverse the effects of a rapidly changing climate.

It may very well mean that fewer people go hungry, as the agricultural engineering we use to grow crops off-the-Earth feed more people on it.

It can mean that doctors will be able to treat people in far-off, hard to reach places, using the same technologies NASA and our partners develop to help doctors on Earth care for astronauts in space.

The fact of the matter is that technologies that were developed for the space program are already saving lives and reshaping our world. They're keeping patients' hearts beating and listening for beating hearts in the rubble after natural disasters. They're protecting the health of the food we feed our babies and the safety of families driving upon our highways. They're giving artificial limbs to parents who can once again hug their children. They're powering people's houses for fractions of the cost of fossil fuels. They're giving countless people the priceless luxury of a good nights sleep on a memory foam mattress.

Just think of what – with your work, your imagination, and your drive – the next few decades of discovery will bring to humanity.

None of these accomplishments will be more important than the one I hinted at up front – and as I close, I want to return to it.

Technology – particularly space technology – has the potential to bring our world together. It can also be used to tear us further apart. It can heal our fellow human beings in the most remote locations of our planet – and it can heal the health of our very planet itself. It can also be used to kill and to destroy the ecosystems that keep us all alive.

In my lifetime I've traveled to space; I've also gone to war. I grew up during our nation's "space race" with the Soviet Union that was also our nation's long period of division and hatred over civil rights. Years later, I was honored to fly aboard the first joint American-Russian shuttle mission.

How we use technology, how we view progress and how we choose to move forward ... these questions will ultimately be decided by your generation.

I began with a quote from two astronauts – one Israeli and one Saudi Arabian. I want to leave you with a quote from a fellow American – or to be more specific, a prominent American newspaper.

“For a moment it seemed that all men were brothers ... Communist journalists congratulated American scientists. Israeli photographers beamed at Egyptian broadcasters. Brown hands grasped white ones and few eyes were dry ... the word went out in 30 languages to 1535 radio and television networks to 1056 newspapers and to 445 magazines in 57 countries”.

This was written in the Houston Chronicle on July 21, 1969 – the day after the moon landing. Neil Armstrong, Buzz Aldrin and Michael Collins had reached the moon in times that weren’t easy. A year earlier we had lost Dr. Martin Luther King, Jr. and Robert F. Kennedy to assassins’ bullets. As American astronauts flew into space in the summer of 1969, American pilots were flying sorties Vietnam – and too many, including some of my friends, paid the ultimate price.

Graduates, *Chargers* of the UAH Class of 2015 – as your generation faces its own defining moments of triumph and tragedy, may you find the imagination, inspiration, innovation and courage necessary to charge forward.

May you find the willingness to work hard, the discipline to study hard and the resolve never to be deterred by failure.

May you find strength in the support of the friends, family, professors, bosses, spiritual leaders, mentors and significant others who brought you to this moment.

May you find the resolve to be bold and fearless; to dream big; and to refuse to listen to anyone who tells you that you can’t do something or that you don’t belong.

May you reach for new heights – heights that reach all the way to Mars and beyond the furthest reaches of the known universe.

In the finest UAH tradition, may you continue to explore ... to discover ... to create, communicate, educate, lead, learn, think, inspire and embrace your civic responsibility.

And may you do so guided by the love you have for your family, for one another, for our common humanity and for the beautiful round marble that is Earth, the most important planet of them all.

Charge forward, *Chargers*!

Thank you and God Bless.