

# NASA AT 50 ORAL HISTORY PROJECT

## ORAL HISTORY TRANSCRIPT

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INTERVIEWED BY REBECCA WRIGHT  
NASA HEADQUARTERS, WASHINGTON, D.C. – 21 MARCH 2007

WRIGHT: Today is March 21<sup>st</sup>, 2007. We are at NASA Headquarters in Washington, D.C., to speak with Michael O'Brien, the assistant administrator for NASA external relations, for the NASA at 50 Oral History Project. Interviewer is Rebecca Wright, assisted by Sandra Johnson. In preparation for the space agency's fiftieth anniversary the NASA Headquarters History Office commissioned this oral history project to gather thoughts, experiences, and reflections from NASA's top managers. The information recorded today will be transcribed and placed in the history archives here at NASA Headquarters, where it can be accessed for future projects.

Are there any questions that I can answer before we begin?

O'BRIEN: Ready to go.

WRIGHT: Well, thanks again for taking this time for us. In your current role you're responsible for NASA's interaction with the nation's executive-branch offices and agencies, international relations for each NASA enterprise, administration of export control and international technology transfer programs, the NASA History Office, and the NASA advisory councils and commissions. Could you tell us please how you came into this position, and briefly describe your background?

O'BRIEN: Sure. I've been at NASA now for thirteen years, and in my current position as Assistant Administrator for External Relations for three and a half years. Almost ten years prior to that I was the deputy in this office. My background, I spent twenty-eight years in the United States Navy. I was carrier pilot, and the navy was very, very good to me.

In between assignments operating off aircraft carriers they sent me on a variety of very interesting tasks, most of them overseas. These were to go overseas to learn a foreign language, to get a master's degree in international relations, to study physics for a while, to attend the French Naval War College, and then in one assignment for the Chairman of the Joint Chiefs of Staff I spent a couple of years traveling to the Persian Gulf, before the first Persian Gulf War, negotiating agreements in Kuwait, Bahrain, Oman, Saudi Arabia, etc. All of that experience apparently was of interest to NASA when I was ready to retire from the Navy, and it ended up in my coming here to get involved in international and interagency relations in the early nineties.

WRIGHT: How has NASA changed over the time since you've been here?

O'BRIEN: Well, I think the biggest change that I'm sure others have talked about has been the Vision for U.S. [United States] Space Exploration, which was announced by President [George W.] Bush on January fourteenth of 2004, and it was a long process that I'm sure Mike [Michael] Griffin and others will go into greater detail on, but it represented a strategic shift in direction for NASA with a very significant aspect, in that for the first time in decades NASA was going to make plans to build vehicles to go beyond low-Earth orbit again back to the Moon to establish an outpost, and then ultimately to explore beyond low-Earth orbit, not only with robots as we're doing now, but with humans.

So that change was brought about initially, and sadly, by the loss of [Space Shuttle] *Columbia* [STS-107] several years ago, after which NASA, as a result of the *Columbia* Accident Investigation Board's report really had a soul-searching several months, during which it not only reacted to the recommendations of the report related to the accident itself, but also looked at its long-term strategic plan, and what its real mission in support of space activities, and ultimately support of the American people should be. That led to this change, and to me that's the biggest change that's taken place, and now it's going to be with us for decades. It's a pretty exciting place to be right now.

WRIGHT: How did that vision change your job specifically?

O'BRIEN: Very good question. My job, as you mentioned some of the aspects, really breaks down into four things, the NASA History Office, support for NASA advisory councils, interagency relations (relationships with the State Department, Department of Defense, the White House staffs, etc.), and international relations.

The international relations portion of it is about half of what I do, and this change in strategic direction came with a direction from the president to pursue international cooperation in this new vision, this new set of activities. So since 2004 we have been very, very active going around the world explaining the details of this new plan, explaining the fact that the president has directed us to cooperate in the implementation of the plan, and trying to work out with basically thirteen or fourteen different countries the details of what that cooperation would mean.

I might add that that is new, because there are new things that we are going to do in the next several years or decades, as we move off the surface of the Earth beyond low-Earth orbit to

the Moon and Mars. It is new but it is not necessarily different. NASA is extraordinarily international, and has been since its inception fifty years ago. The [National Aeronautics and Space Act that created NASA also had language in it that basically said, "NASA should cooperate internationally in the implementation of its vision."

As a result, over the last fifty years we have had about four thousand international agreements, and this surprises people, I think, sometimes to hear those numbers. Now, I'd be hard pressed to produce all four thousand of them, but for the last several years we've been doing a very good job of taking these agreements and putting them in a database, and we know, for example, in the last ten years we have signed nine hundred agreements, with 75 percent of those coming from ten countries around the world, Germany, France, Italy, Russia, China, the U.K., Australia, India, etc., which leads us to today, where we have currently active 256 international agreements, with the number of countries about sixty.

So that's in position, active right now, which keeps us very busy just either negotiating new agreements, updates to those agreements, or maintaining them. So the fact that we're going to have international cooperation in this new plan is exciting and it allows us to do new things with partners we've had for a long time. It doesn't represent much of a change in what I'm doing, just a change in emphasis.

WRIGHT: You recently traveled to China with Administrator Mike Griffin. How do you believe that that trip and those discussions will enter into NASA's future?

O'BRIEN: Well, it's going to be a slow process. The Chinese have a space capability of some significance. They're only the third nation in history to have launched and recovered human

beings into orbit safely. The trip came about as a result of a summit between the two presidents a couple of years ago, during which President Bush basically said as one of the many outcomes in the summit, that if the Chinese National Space Agency, CNSA, invited the NASA Administrator to visit, then we would consider that invitation and perhaps would accept it, which we did.

The idea was to have a visit without a firm agenda for cooperation. It was a get-to-know-you visit, during which we visited several locations of the Chinese space activities, both in Beijing and in Shanghai. Interestingly, we didn't go to their human spaceflight launch facility in the Gobi Desert. We were going to go there, but at the last minute they told us that we were really only going to go be allowed to see the launch pad, and we decided that we would do other things instead of being restricted, which was interesting, and it's a reflection of the fact that unlike the United States, China organizes its space activities either under the military, which is where the human spaceflight activities take place, or under the civilian agency. So we only saw what the civilian agency could show us.

Things have changed a little bit since our return. We came back, reported back to the president and his staff the results of the trip, and thought we would perhaps be having more visits, which we may very well, to look at ways we could cooperate, first on the easy things, data sharing etc., for Earth observation. But the Chinese in January, as you may well be aware, destroyed one of their own satellites in an ASAT [Anti-Satellite] test, which was a great concern not only to the United States but to the rest of the world, because it created orbital debris that has increased the risk to satellites and even humans that—including Chinese—may be launched.

So the U.S. government and the Chinese government are talking to one another about that. We're not involved in those conversations. Even before the ASAT test there were other,

there are other existing issues having to do with nonproliferation, human rights, etc., at a government-to-government level, and we're a technical agency. We don't get involved in those discussions.

But the results of those discussions will have an impact one way or another on whether or not we can pursue cooperation. So for a variety of reasons, existing issues between the two governments, as well as the more recent issue of the Chinese ASAT test, tell me that we will be going rather slowly, which is fine, with the Chinese in terms of discussions about cooperation.

WRIGHT: What do you believe to be NASA's impact on society?

O'BRIEN: Well, I'm probably not the right guy to answer this question. There are lots of anecdotal stories about everything from Tang [orange drink] to microwaves to pacemakers, etc., that some claim came from NASA, and a lot of those, as I look at it coming from a non-technical position, there's a kernel of truth in a lot of those things. NASA is at the leading edge of technology development and exploration, and doing those types of things that no one else is doing or can do forces us to develop technologies in order to accomplish those tasks.

As it turns out, many of those technologies are directly applicable to what humans do on Earth. Now, the argument is, and it's a subjective one, maybe those things would have been developed anyway in the absence of a space program. I don't believe that. Well, I shouldn't say that. They may be developed, but not as quickly, and some of them may never have been developed, because we didn't even know they were applicable to life on Earth until they were developed in space.

So I think in terms of making life better for Americans and people around the world there's been a tremendous impact, if you just talk about products. If you talk about things that you can observe from space that we all take for granted now, such as weather satellites, the ability to monitor the weather, that has a huge impact on the nation and on the world, as do communications satellites, some parts of which were developed by NASA, some of which were not developed by NASA. On occasion it's difficult to draw a distinction between the two.

The other impact I think that we have that is even more subjective than things that have come from space technology that we use in our own lives is the exploration aspect, and that's what we're embarked on now. We came from explorers that immigrated to this country. I think we have an explorer spirit. There is always debate about how much is enough, and why are you spending money to go there when the money could be spent here to do other things. It wasn't any different four or five hundred years ago when this country was being explored and discovered.

There are benefits that will come from that, but you don't know what you don't know. It's like performing research in a variety of areas that 99 percent of them don't come to fruition, but the one percent that does changes everybody's life for the better, and I think that that's an aspect of this exploration program that we're on that will pay dividends when we get out there and see things that we don't even know exist.

WRIGHT: NASA has a history of itself, and it's not just been exploration. It's also included other aspects. Can you share with us your thoughts of how that's going to be part of your vision?

O'BRIEN: Sure. I think one of the things that in our enthusiasm for this new vision that I've tried to be mindful of is that NASA has been doing a lot of things for forty-eight years before the vision changed our direction in a strategic sense, that we will continue to do. One group of these activities is very international, and I mentioned it a little earlier in another context, and that has to do with Earth observation, for a variety of reasons.

Our science program at NASA is split into two categories. They used to be separate; they've been joined together under the science mission directorate. One of those has to do with planetary probes and planetary exploration, the Rovers on the surface of Mars, for example. The other very important aspect of it that is not beyond low-Earth orbit is within low-Earth orbit, close to the Earth, is those spacecraft that observe the Earth for a variety of reasons, not just weather, but basically to understand the Earth as a system, so that we can understand the changes that take place that are caused or determined by the actions of man, or those that are natural phenomenon like weather, for example, that is not necessarily caused by man, but we still need to understand.

Currently NASA has forty-four missions on orbit, both interplanetary and those that are in low-Earth orbit observing the Earth. I don't know the split between the two exactly. The reason I know that number is because 25 of those have a significant international component. So of those 256 agreements that we have, there are a subset of those that involve our cooperation on these 25 active missions that are either interplanetary or are some sort of Earth observation, very, very important for the nation and the world, either for the weather forecasting that comes from NOAA [National Oceanic and Atmospheric Administration] , or for the understanding of the Earth so that we can, we meaning the global we, can make good decisions based on our understanding of the Earth as an entire system.



The reason that international cooperation is so important in that respect is that you have to have buy in from other countries, for a couple of reasons. One is, if you are taking measurements from space and you say that deforestation is taking place at a certain pace in the Amazon or in the Middle East, you need to be able to go into the country and calibrate those measurements from actual instruments on the ground, so you know that what you're seeing from space reflects reality on the ground. Therefore, the country that you're interested in has to agree to let you come in, and has to cooperate with you. So that's one aspect, so that you know that the measurements you're taking from space do, in fact, reflect reality.

And then the second, maybe even more important aspect is, if there are decisions to be made to counter those changes that are caused by the actions of humans, and these types of changes don't respect national boundaries, those countries, large countries, perhaps China and India and Brazil as very large countries, would have to agree to make some of those changes as well as the United States. Otherwise the effect will not be as important, or it won't be as effective if you're trying to change a process that may be, in fact, negative, such as deforestation is one example, or pollution in the oceans, etc.

So there's a lot of ongoing activities that don't really fall into the category of exploration beyond low-Earth orbit, but they've existed for a long time and they will continue to exist, and are, in fact, part of the vision. Part of the vision, the words are to the effect of an integrated plan of Earth observation and exploration and aeronautics as we move forward. The focus generally in the last couple of years has been on the new kind of interesting stuff, the new stuff we're going to build, and the fact that we're going to retire the shuttle, etc., and it's a much bigger program than that.

JOHNSON: We were talking about the vision. Let's talk about the lessons learned based on your experience in NASA, or based on the history of NASA. What do you feel are the lessons learned?

O'BRIEN: It's a pretty broad question. Let me focus in a little bit on one aspect of lessons learned that is of great interest to me, and that would be the next kind of big thing for NASA right now is the retirement of the space shuttle, and the corresponding development and production of a replacement vehicle. That is going to, unfortunately, result in a four- or a five-year gap, similar to what we had between *Apollo* [Program], maybe hopefully a little shorter, between *Apollo* and the Space Shuttle, gap in human spaceflight capability for the United States.

We will get beyond that, and we will, as I mentioned earlier, cooperate in the implementation internationally of this new exploration plan, so that we will hopefully end up on the surface of the Moon a decade or so from now, with an outpost of some sort that is constructed by some sort of international consortium. It could be two, could be ten, don't really know.

But I think it's fair to say that we have a lot of international experience in embarking on these types of activities. International Space Station is a perfect example of that. So what we are doing now is looking at lessons learned from a variety of past activities, so that we can put our best practices forward in implementing whatever arrangement comes out of our plans to go to the Moon, not alone but with other partners.

We need partners that have the interest in space exploration, the capabilities to partner with us, and the resources to do that. We have all three, and we have greater resources than anyone else in the world by a factor of two or three. We're very, very lucky in that respect.

What we're looking for is other countries not as big as us, not to do the same things as us, but to do complementary things.

We have a history with all of our potential partners, perhaps save a few such as China, if we can resolve the issues I mentioned earlier, and we will look at our history of operating both bilaterally and multilaterally in groups with these likely partners, in order to avoid some of the mistakes of the past, but also capitalize on the good things that we've done.

JOHNSON: As far as NASA's role with the nation, you've touched on the human and robotic spaceflight and the number of actual missions that are ongoing. What about the importance of aeronautics in NASA?

O'BRIEN: Well, aeronautics is, of course, the first A in NASA. It is very important to NASA. It does not get the same level of resources of some of the other mission directorates, and that's a decision made way above my pay grade. And, of course, I'm sure you're asking Dr. [Lisa J.] Porter the same question, so I'll only go into it from my perspective, which is one that will be the following.

Of the mission directorates that we have, science, space operations, exploration systems and aeronautics. Aeronautics is the least international, and it's probably the least international because it involves developments of technology that could be used for military purposes, of course, and jet aircraft, or could be used for or related to commercial aspects of civil aviation and competition. So there is very little international cooperation in the Aeronautics Research Mission Directorate.

There are some studies that have to do with safety and things of that nature that would not impact our ability to apply those things that the Aeronautics Research Mission Directorate does to either civilian, civil aviation capabilities, or could be related maybe to the military later on in some aspect. So from my perspective it's, of course, an extremely important aspect of what NASA does, but this office has a relationship with the Aeronautics Research Mission Directorate, but not as much as others.

JOHNSON: Let's talk about NASA's culture. There's been a lot of talk about NASA's culture, especially after *Columbia*. What is your perception of NASA culture?

O'BRIEN: Well, that's a tough one, a tough one in the sense that it's subjective and you probably get as many opinions about it as there are people that you ask the question. There have been surveys done and it ranges from, "NASA is the best place in government to work," which a year or two ago came out among fifty agencies or whatever the number of agencies, or to other surveys that have shown a large proportion of folks in NASA don't believe what their bosses tell them, which is of great concern.

When it gets to the point of which I think we did get to in both *Columbia* and [Space Shuttle] *Challenger* [STS 51-L], where there was some reticence on the part of individuals in the chain of command or parallel to the chain, to use a military term, that were reticent and hesitated to mention safety concerns that they had, or did mention safety concerns and felt like they were discounted, that's a real problem. It's a problem that was, I think, and I forget exactly how it was characterized, but was pointed out as one of the causes of the accident by the *Columbia* Accident Investigation Board, that there was a failure to communicate at very specific times

throughout that horrible incident and build up to it, that led to the launch and the failure of the wing when the foam came off the external tank.

There's been a lot of effort to address the culture through a variety of mechanisms. For me, in an organization that has only fifty-four people, and less than fifty are here in this building, it's a little bit easier. I won't say we do a good job, I'll just say that it's easier to communicate with folks when you're only worried about fifty folks and people around this town that I communicate with as well, much easier to deal with that than it is to deal with seventeen-thousand that the Administrator has to think about, and he's got his own thoughts on it, I'm sure.

Now, one of the things that helps very much in our current environment with our current Administrator is that he answers questions very directly, makes it very clear what he wants to do and where we are going. That is helpful as you communicate down the chain of command, because generally speaking, I think that his direct reports will tell you, they don't have any doubt about what their objectives are and what their guidance is from the Administrator. That's good because that allows you to be more direct with your subordinates, so that this loss of a clear idea of objectives and the ability to transmit back up the chain of command becomes a little bit easier than it might have been in the past.

So I think we're in a pretty good situation from the point of view of leadership being clear, but it's a tough, tough issue to deal with when folks that are working on the Space Shuttle or on other hardware feel like they can't communicate with their supervisors. That's a tough one. It almost needs constant supervision by others in the agency to deal with strategic communications, for example. I don't know if you've talked to the communications and public-affairs folks. They think about that every day.

JOHNSON: If someone asked you, if they were thinking about joining NASA and becoming an employee with NASA, what would you say to them?

O'BRIEN: Well, I'd tell them that this is a terrific place to work, and I've been doing this for, it's hard to believe, thirteen years now, and every day I get up I literally look forward to coming to work. Just look at what we do. You go down and watch a Shuttle launch once—I don't know if either of you have had the opportunity to do that—and then realize that even if it's only a small piece, that you have had a piece of the action, you've had a part of that incredible achievement, and it's not just—the Shuttle is probably the most visible, but all of these other forty-some missions that I mentioned, very few of them launched on the Shuttle. They launch on other expendable launch vehicles of our country or of other countries.

You can really get a feeling for what the impact that you're having on something that's real, and you know, somebody that works for other parts of the federal government I don't think could possibly get the same feeling, although I'm sure they're proud of what they're doing. I know that myself personally I wouldn't get the same feeling working for—I hesitate to give an example, but I will—for the IRS [Internal Revenue Service], for example, a very important organization, but I doubt that I would get the same day-to-day satisfaction that I get working for NASA.

So I'd give an unqualified endorsement on trying to work for NASA. It would also come with a caution; if it's not a caution it's advice, if it's a younger person in college or graduate school, it's that you'd better do well, because it's a high bar.

I'll give you an example. We have what we call desk officers, and about half of those that work here are international program specialists. They generally, a lot of them have Ph.D.s

or significant international experience, speak languages, etc. When we were hiring a couple of years ago, we put out a call to fill three of those desk-officer billets. We got four hundred applications. [laughs] So that tells you that people want to work for NASA. We have no problem getting qualified people. The problem is finding enough space to keep all the qualified people that want to work here. It's a neat place to work.

JOHNSON: I agree with you. Is there anything else that you'd like to ask?

WRIGHT: I don't know if you had a chance to ask about looking at the next fifty years, what do you believe the role of NASA will be, and in your case not just in the nation but internationally?

O'BRIEN: Well, I think that, and thankfully whoever wrote the exploration vision for the president, and some folks here were involved, but it was a fairly small group of folks in the U.S. government that did this, they put in the direct guidance that—it's only a three-page document—that directs NASA to, "pursue international cooperation in the implementation of the vision."

That's a very powerful statement for a person in my position, because I now have a piece of paper with the president's signature on it that says that I need to go talk to people and give them the opportunity to come up with a mutually beneficial way to cooperate. Given that building a transportation system is going to be extremely expensive, and we are one of only a couple of countries in the world, Russia, Europe, maybe India and China, that have the capability to do that, not all of them have the resources.

We're going to expend such a large portion of the NASA budget on building a transportation system, it's going to be almost mandatory to have cooperation on the international

scale in order to be able to actually do something when we get to wherever we are going. So, part of it is just common sense. The sum of the parts is greater than the individual sum of the individual parts. We can rely on capabilities that others provide that we would not have to provide, and vice versa. All of the others will be relying on NASA, for example, to provide transportation. In return we'll get the use of some of the capabilities that they provide.

So it was laid down in the actual direction in 2004, the program is going to go for the next twenty or thirty years, so for a good portion of the next fifty years that you mention, NASA is going to be in the business of international cooperation for these exploration activities, and as I mentioned earlier, we're already, in a very huge way, in the business of international cooperation with respect to robotic interplanetary probes, and robotic spacecraft that are observing the Earth from low-Earth orbit. That I expect to continue as well, and probably even expand.

JOHNSON: Is there anything you'd like to add before we end?

O'BRIEN: Not that I can think of. It's a privilege to sit down and talk to you all. I've probably got the best job in NASA, other than maybe the Administrator, and not too many people know that, because our little organization touches just about everything that NASA does, whether it's international, interagency, the history office, advisory committees, and so we're involved in everything in a supportive way. We're not in charge of anything.

We only support the mission directorates and the execution of their programs by providing a little international expertise, and the contacts and the context, negotiation and maintenance of agreements for the mission directorates, so that as they do their very difficult technical jobs they don't have to worry about some of these other things that we worry about. So



it's a good, I think, division of labor for all of us, seems to have worked fairly well, and I appreciate the opportunity to talk a little bit about it.

JOHNSON: Well, thank you.

[End of interview]