## INTERNATIONAL SPACE STATION PROGRAM ORAL HISTORY PROJECT EDITED ORAL HISTORY TRANSCRIPT

GREGORY H. JOHNSON INTERVIEWED BY SANDRA JOHNSON HOUSTON, TEXAS – AUGUST 3, 2015

SANDRA JOHNSON: Today is August 3<sup>rd</sup>, 2015. This oral history session is being conducted with Gregory H. Johnson at Johnson Space Center in Houston, Texas, as part of the International Space Station Program Oral History Project. The interviewer is Sandra Johnson. I want to thank you again for joining us today and taking the time to meet with us.

You were selected by NASA for the 1998 astronaut class. After training and among your other early assignments, you became the Deputy and then the Chief of the Astronaut Safety Branch. You also flew as a pilot for two Space Shuttle missions, both to the International Space Station [ISS], and both on *Endeavour*, STS-123 in 2008, and *Endeavour*'s last flight, STS-134 in May of 2011.

Later in 2011, you had a one-year appointment as the Associate Director of External Programs at the [NASA] Glenn Research Center in [Cleveland] Ohio. Then you returned to JSC at the end of 2012 to the Astronaut Office, where you headed the Visiting Vehicle Working Group, which helped plan and execute missions with NASA's commercial partners. In August 2013 you left NASA for your current position as the executive director for the Center for the Advancement of Science in Space [CASIS].

Throughout your career you've had involvement with ISS, since you first became an astronaut. How has the ISS Program changed over that time period, do you think?

GREGORY H. JOHNSON: Sandra, it actually even goes back further. During the road show that Charlie [Charles F.] Bolden and Dan [Daniel S.] Goldin were helping the country understand—at six different centers, they called them road shows—to better understand about Space Station Freedom, the International Space Station concept at the time. I'm not sure exactly when it changed names. I went to Raleigh-Durham, North Carolina, for the road show. The Space Station was out there and it sparked my interest in really going to be a test pilot, eventually becoming an astronaut.

When I showed up in 1998 there were over 70 unflown astronauts in the class of 1996 and the class of 1998. We were going to wait a long time to fly in space. The Space Station was the big project that the Shuttle was undertaking, as well as some other missions that were going to low-Earth orbit for other reasons, for example the Hubble [Space Telescope] and others.

Most of the flights on the manifest were Space Shuttle flights to the Space Station for Space Station assembly. That was going to be my job, to help build the Space Station. I was hoping to get about four Shuttle flights in my career as an astronaut. Of course things slowed down when we first got there. Then the [Space Shuttle] *Columbia* [STS-107] accident happened and then the Station modules were being prioritized. What's the Space Station really going to look like? But that whole time from 1998 all the way till 2011 when I got my last Shuttle flight, during that whole assembly sequence, I saw it evolve through many different steps.

The first was getting started. The Russians gave us a real challenge there with some of the early modules that we were putting together. Then of course we got into a pretty good flow of Shuttle assembly flights. Then *Columbia* happened. That of course delayed assembly of the Space Station for a number of years, and then we were wondering which modules were the ones that were actually going to get up there.

I was really excited to be part of the first Japanese assembly mission. There were three. I was really excited to slide in and get a second flight. What's interesting to me though is when we were talking about the prioritization of the modules the Cupola [observatory module] to me was not in my mind the highest priority compared to some of the other modules. But, after seeing the Cupola on my second flight—because on my first flight the Cupola wasn't there yet it became to me the most inspiring module of the entire Space Station when we saw it fully assembled, except for that final piece that the [STS-]135 crew put up there. I thought the Cupola was an amazing surprise and the perspective of our planet and the perspective of the immediate surroundings of the Space Station completely changed the picture for me.

SANDRA JOHNSON: I've read where it affected a lot of the residents also on ISS because they could get up there and just see everything at that point.

GREGORY H. JOHNSON: Absolutely. In the periphery of the Space Station, you could see outside the immediate vicinity of the Space Station. It was great for operating the robotic arm, for example, and tracking EVAs [extravehicular activities], and photography around the Space Station, but also the beautiful view of our planet was just compelling to me.

SANDRA JOHNSON: Let's talk about some of the decisions that have impacted the development of ISS. Something that you're involved in now was affected by the fact that the ISS was designated as a National Laboratory in 2005. Until relatively recently, research on board ISS has been reserved mostly for government initiatives, but new opportunities for commercial and academic use of the ISS are now available because of the decision to form that cooperative agreement and

turn over the management of the orbiting lab to CASIS. If you would, talk about your decision to leave NASA and then when you went to CASIS, what led to that decision and what you do there as the executive director.

GREGORY H. JOHNSON: The notion of the ISS National Lab was formed around the *Columbia* period when we were doing a lot of thinking as an Agency about the Space Station. The Space Station was sold to the country and to the world for a lot of different reasons. But, one of the reasons was to make good use of the Space Station to solve problems on the Earth that you just couldn't solve on the Earth: because of the unique aspects of the Space Station, microgravity, the unique vantage point, and the external environment being outside of the Earth's atmosphere.

In 2005, the ISS National Lab was created really because it was not just NASA's Space Station, it was also the country's and the world's Space Station. The ISS National Lab serves the U.S. The idea in 2005 evolved until the creation of CASIS in 2010, and came into being in August of 2011: an external, outside of the government, nonprofit that would help maximize the utilization of the Space Station for Earth benefit.

Other government agencies, although they had involvement with the Space Station prior to that time, were working with NASA, and NASA had its roadmap and priorities. There were conflicts or different viewpoints, if you will, that were urging the country to do something from an outside source. There were also commercial players that were wanting to build that new commercial market in low-Earth orbit, and others, so the nonprofit was created in 2010. We went into operation in 2011.

At that time, I was just coming off my second Shuttle flight, so I didn't have a lot of knowledge of this whole movement. I was a pilot, so my job was to row the boat and operate the

robotic arm to build the Space Station. The Space Station was a wonderful facility, and my two Shuttle flights turned out to be the two longest attached assembly flights. Both of them were almost 16 days, and we were attached for over 12 days on both missions, so I spent a lot of time in the Space Station. I wasn't a researcher, though, but because the other guys were doing space walks, and I was inside; I got to share in some of the work, and I enjoyed my time on the Space Station. But, again, I probably didn't fully appreciate the enormity of what the thinkers were contemplating in 2005 and in 2008 and then again in 2010 when CASIS was first formed.

I came back from the second Shuttle flight and went off to a leadership job to cut my teeth on a division up at NASA Glenn. I didn't really think about CASIS. Although I knew of the existence of CASIS, I really wasn't aware of what was going on. But, what was going on was a disruptive revolution in the way that NASA has done business. NASA was building the Space Station and interacting with the international partners and focusing most of its effort on building the Space Station, and around the 2010-2011 timeframe trying to figure out how to get the best projects up on the Space Station.

This new nonprofit outside of NASA was injected into this established system with NASA, and it was disruptive, and it was challenging, and NASA was trying to understand what CASIS was. These new people at CASIS were trying to understand what NASA was. It was a great challenge for both organizations.

Come the summer of 2013, I came back from the leadership job at Glenn. We had some pretty good success in external programs at NASA Glenn. They called me, they actually said, "Hey, we'd like to have a strong leader, somebody who has passion, who can energize this group and take them to the next level." I learned about the CASIS mission. Initially I was skeptical and questioning, but, then I realized how wildly important the mission of CASIS is, so I signed up and entered in an organization that did have some challenges.

One of the first issues was to make sure that we clarified the communications between NASA, CASIS, and all the other players, [Washington] DC stakeholders. There were some political ramifications with having a nonprofit working with a government agency and funded on appropriated funds. All of those sorts of relationships were really important in those first couple of years when I joined CASIS.

I've now been with CASIS for two years. I think after our recent ISS Research and Development Conference in Boston [Massachusetts] last month, that instead of feeling a headwind from NASA when I first joined CASIS in 2013, now it feels to me more like a tailwind. I think NASA now better understands what CASIS is trying to do and CASIS better understands what NASA is trying to do. I think the decision makers in DC are also in on the program and everybody has buy-in.

I think we're in a great environment now where we can take the organization from understanding each other and working together and the idea of unity of mission and take our science and our technology and our STEM [Science, Technology, Engineering, and Mathematics], because we have an education mission as well, up to the next level.

I think it's a really exciting environment right now that we're in.

SANDRA JOHNSON: Talk about that for a minute. Like you said, you do have a STEM mission and you have these different things that the nonprofit is supposed to accomplish. If you don't mind, just walk us through exactly what CASIS does for NASA, as far as researchers and finding those researchers and helping to guide things and move things through the flow toward ISS.

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GREGORY H. JOHNSON: I've got a great working relationship now with Mike [Michael T.] Suffredini and with Marybeth [A.] Edeen and Mike [Michael E.] Read. They would watch me smile as I answer this question, because your question is "What are we doing for NASA," and actually I view it as what are we doing for the country. We're helping NASA by complementing the existing areas where NASA was working and building research and technology and STEM, and complementing that with these other new nontraditional innovative users and commercial users to help build the commercial market on low-Earth orbit.

As NASA has populated the Space Station with projects, there are a lot of different sources of projects. You can imagine that as the pipeline is filling full of projects, there might be a researcher who collects data that could have benefited a whole bunch of others, not just focusing on his/her problem. One of the things that I think CASIS is bringing is the idea of bringing multiple users together and building consortia or groups of thought leaders that would help solve multiple problems with the same data set. For example, we have campaign Good Earth, which is a remote sensing initiative that's trying to use the Space Station as an Earth observation platform. Multiple sensors, perhaps sensor fusion, to serve all the way from humanitarian to commercial users. There are preexisting commercial users up there, a big one is Teledyne Brown [Engineering]. They're building the MUSES [Multi-User System for Earth observation from a bigger perspective.

Campaign Good Health is another big one that we're working on. That is improving human health here on the planet. With the Human Research Program [HRP] and NSBRI [National Space Biomedical Research Institute], NASA is focusing on solving problems of long duration spaceflight that'll get us to the Moon or Mars and living in space for a year. We have Scott [J.] Kelly up there this year [ISS one-year mission]. For the first time we have a yearlong mission. There are objectives and there are data that are collected to solve those problems that can also be translated to solve human health problems here on the Earth, so we're looking to build teams that can actually serve both objectives, the up and out: going to the next level in the solar system, while also solving problems here on the Earth.

As far as education, we're leveraging on a lot of the educational ideas and programs that NASA has traditionally done. The funding went down a little for education over the last few years, so we're trying to help fill that vacuum and again build teams, leverage partnerships in STEM, that maybe NASA hadn't worked with, like maybe the Boy Scouts of America or the Boys and Girls Clubs [of America] or others, and build awareness to inspire that next generation of scientists or explorers.

SANDRA JOHNSON: It sounds like you're more of a coordinator, that you coordinate these projects and then find the people to do the research, which is interesting.

GREGORY H. JOHNSON: That's absolutely right. We're a coordinator. We're a facilitator. We are not owners. They're not our projects. We don't have to have all the great scientists on our team, but we have to have a subset of very intelligent scientists who can help mine the landscape for the best projects, and when those projects come over the fence, to evaluate them, or at least know how we can outsource the evaluation to get the best projects on the Space Station.

SANDRA JOHNSON: In your position as executive director, is that part of what you do, go out there and present to potential researchers or potential people that could be working together that this is what's going on, this is part of what's going on at ISS, or these are the potentials? Is that part of your job, being that front person, the head of the arrow as far as CASIS is concerned?

GREGORY H. JOHNSON: I am the primary up and out person for CASIS. As the executive director, I'm the president of the organization. The workers in the organization all fall under me. We have a board of directors, and I'm the primary interface with the board of directors. The board of directors are very high level individuals in the commercial world and in science, who are helping us take CASIS up to the next level: connectors and also visionaries for strategy. As far as the other stakeholders, like the DC stakeholders, other symposia around the country, CEOs and others, and other leaders in the industry, my job is the front guy to interface with them. Of course, some on the management director level below me, they're interfacing with these people as well. I have to bring along the smart scientists or the smart technologists when we get into the nitty-gritty talking about possible projects. But yes, I'm that guy, so I'm on the road quite a bit.

SANDRA JOHNSON: Looking back on your history with ISS, this process of building ISS and then of actually using it for the science that the country expects it to be used for, and then of course the partnership with CASIS and then finding the researchers and getting all that going, what do you think are some of the lessons learned based on your experiences with this whole process?

GREGORY H. JOHNSON: I think one of the lessons learned is when the Space Station was created there was a lot of expectation that was created on a lot of different fronts. The use of a microgravity laboratory that you just can't replicate here on the ground, and the remote sensing, orbiting the Earth every 90 minutes, and the unique vantage point that the Space Station has, and with astronauts on board who actually can interface with these projects.

The notion is it's easier to say that this resource can be used to cure cancer, for example, than it is to actually make that happen. That's a lot harder problem. Logistically, it's hard to get scientists' minds on the ground into the Space Station. I think what I found is they didn't believe it. Some do, but some had no idea that was an option.

Part of our job is to educate the community on what the opportunity is. NASA has had a budget for putting science and technology on the Space Station, and NASA has watched that budget compete with other programs in NASA, so NASA can't put the kind of investment on the Space Station that they could in some of the earlier years. We're challenged at CASIS to bring in funding from other areas, and especially from commercial sources, and building that commercial market, building the demand that actually might pay for, or partially pay for the follow-on Space Station(s). It's a unique challenge getting the users to understand first of all what the opportunity is, but then to actually close the deal and make these investments in the future.

SANDRA JOHNSON: You mentioned the commercial partners, and that has been an important part, especially recently, in getting things up to the Station, as far as commercial spacecraft and NanoRacks [LLC], but also as you mentioned help with funding. Do you have a vision of what that will look like at some point percentagewise? What is it going to be as far as NASA or education or commercial ventures or experiments or research going on at ISS?

GREGORY H. JOHNSON: The U.S. capability on the Space Station, so the upmass, the powered upmass, the downmass, the volume on the Space Station, the astronaut time, is shared equally between the ISS National Laboratory, which is managed by CASIS but it's managed also in the ISS Program and the relationships are a little bit complex, and then also for example NanoRacks, who preexisted CASIS, and Teledyne Brown's relationship. So we're working together ironing out some of the complexities of relationships. But for the ISS National Lab, CASIS is the front door to the ISS National Lab. This represents 50 percent of the U.S. capability onboard the ISS.

The other half is pure NASA. You can get the pure fundamental research, you'll get SLPS [Space Life and Physical Science] and other scientific organizations in NASA, the Human Research Program and others, that are focusing on more fundamental research and also for the exploration portion of the science that's going to better understand the human body going to the Moon or Mars. These two groups have overlap, so we want to build that overlap portion, but we also want to complement each other, with the fundamental exploration type research and the commercial type research and other nontraditional users and other government agencies mixing into the fight. Does that answer your question?

SANDRA JOHNSON: I think it does, because I was going to ask you about that relationship with CASIS and the Human Research Program as being something for NASA.

GREGORY H. JOHNSON: The Human Research Program is on this side, on the exploration mission, but they have specific objectives for a mission beyond LEO. They've also been doing some of those translatable kind of objectives that will benefit human health on Earth. We're trying to build the consortia together and work on that overlap area between the two organizations, but also build on that portion that is outside of what HRP or NSBRI are working on.

SANDRA JOHNSON: If you had to think about it, what would you consider to be your most significant contribution to the ISS Program?

GREGORY H. JOHNSON: That's interesting. I was lucky enough to be on the assembly teams on two Shuttle flights. Of the, what was it, 35 Shuttle flights to assemble the Space Station, I was lucky to be on a couple of those, and I think that was a contribution as a pilot.

I think my contributions to the ISS Program in general, though, are probably in the future for me. It's building this new group that's interfacing with NASA and complementing the projects that NASA has traditionally done, building in these new areas. I think that if CASIS is really successful we will build demand in low-Earth orbit commercialization. If we're successful, I think other government agencies will fence off portions of their funding to solve problems on the Space Station that maybe they hadn't contemplated prior. I think that the whole of the ISS Program, the NASA side and also the ISS National Lab side, will both benefit.

SANDRA JOHNSON: I'm sure you've had some challenges throughout your career, training to be an astronaut and those years, but as you mentioned, when you first started with CASIS and first took this job there was a couple rough years before you started with CASIS. Were there any significant challenges that you had to overcome during that time period once you took this position? You mentioned there are some stakeholders in DC. Was there anything that you'd like to talk about that you had to do to get it going in the right direction that it needed to go?

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GREGORY H. JOHNSON: I think that what I learned in my leadership job at NASA Glenn for about 15 months, some of the principles that I used there—and I call it playground dynamics, sharing, trying to understand each other, listening, waiting your turn—those were all principles that were fundamental when I first started with CASIS. Let's look at it from NASA's perspective. NASA had 100 percent of the allocation prioritization for projects on the Space Station prior to CASIS. Now all of a sudden—and that's why I call it disruptive, and it's revolutionary; it certainly wasn't evolutionary—because all of a sudden now this organization that was new, different—and it was actually designed to be different—had half of the keys to the kingdom.

These groups in NASA that previously enjoyed 100 percent of the allocation now enjoyed only 50 percent. That's a really troubling relationship if you think about it. Understanding what their challenges were, the whole environment was fraught with, "That's yours and this is mine." We had to get past that. Them understanding we have the mission in mind, we want to serve the other users, the other government agencies, the nontraditional, the innovative, these commercial players who could fund the next Space Station, it's wildly important, and helping this group to understand that.

But, helping my group understand how important it is, the research that NASA has been doing for the last 10 years, actually 25 years, but on the Space Station about 10 years, and how we could help them by finding areas where we can solve both of our problem sets together. Listening, sharing, understanding, supporting, those are all challenges that I had to work on as I joined the team. As a pilot and as a leader at NASA Glenn, up at NASA Glenn when the education budget was being cut, I saw the same patterns. Those patterns are all over in government, but also outside the government. That's where we started. Once we just worked together and understood each other, I think we're now starting to gain traction together. That's why I'm saying we're in a great environment to really launch into great success in research and technology development.

SANDRA JOHNSON: I was going to ask you if the Glenn experience helped you with that. I was curious.

GREGORY H. JOHNSON: NASA Glenn is one of the 10 Centers, and I've learned a lot about NASA. There are so many touch points throughout NASA. You've got [NASA] Headquarters [Washington, DC], then you've got all the different Centers. In some ways the Centers compete with each other, and sometimes it's all the Centers against Headquarters. We had to navigate those woods, and I think we're making great progress on that. Understanding each other and getting the support of the ISS Program as well as our Headquarters players and Mr. [William H.] Gerstenmaier and others in understanding what we're trying to do has been very helpful.

SANDRA JOHNSON: I have read in another article you mentioned that teamwork is so important. It's important when you're on a Shuttle crew, it's important no matter what you're doing as far as trying to achieve a goal.

GREGORY H. JOHNSON: I've always found myself in those sort of leadership positions. I can think back in the Boy Scouts. I can think in the band in high school as a drum major. I can think about the teams we had at the Air Force Academy, the teams of fighter pilots when we would

have to ship out going off to war. Then integrating test teams at Edwards [Air Force Base, California], and then like you said, Shuttle missions.

I've always been in the middle of building teams and rah-rahing, trying to get everybody focused on a mission. Maybe that's one of my skill sets that I've brought to CASIS.

SANDRA JOHNSON: You mentioned the Boy Scouts. I know you're a former Eagle Scout. Do you have a chance in your position to work with other organizations like Boy Scouts? I believe there's some involvement with them on getting things on ISS. Or students? Do you get a chance to actually work with kids and talk to kids very often?

GREGORY H. JOHNSON: All astronauts work with kids. That's part of our mission and our mandate. I've loved that part of the mission, interfacing with kids and trying to inspire kids, because Neil [A.] Armstrong was my number one: he was the guy who inspired me when I was seven years old. Astronauts have inspired me along the way. Charlie Bolden at the road show, he was <u>the</u> guy, and it's interesting, now he's the NASA Administrator, and we joke about that because at the time he was a just a generic Shuttle pilot. He was going around with the then NASA Administrator, Dan Goldin. That's when I got the motivation that this could actually happen; it's something that's achievable, not just a dream.

The STEM mission is so wildly important, and we had a lot of practice as astronauts, and so now at CASIS that's part of our mission. The Boy Scouts of America, for example, we have a partnership with them. We have a joint event coming up next spring, where we're going to try to inspire Boy Scouts, we're going to try to get the Boy Scouts of America involved in STEM projects that are on the Space Station. Both organizations are going to mutually benefit. The Boys and Girls Clubs is another STEM connector, but there are many many others all around the country. We had a big STEM summit last January where we built some new relationships with some of the corporate STEM organizations, trying to get the partnership and the leverage associated with those relationships.

It's an interesting challenge. We don't want to offset too much research or too much technology, but I think our tactic is that every ISS National Lab project is wrapped in STEM. Whether it's a deep science, a deep dive into some scientific principle, or some other cool technology that we're trying to develop on Space Station, there is some grouping of students who could benefit from that. We're trying to, I call it chocolate-coat or STEM, coat every project that we're putting on the Space Station.

SANDRA JOHNSON: What do you believe is going to be the legacy of ISS?

GREGORY H. JOHNSON: The legacy of ISS I think is first of all to build the low-Earth orbit commercial market. There are things that we can do on the Space Station that can't be done on the ground. Finding those unique areas that we can further knowledge, build economic activity, create jobs, and solve problems here on the Earth is what the legacy of the Space Station is going to be.

If we get to the end of the Space Station's useful life and we don't have any holy grails or any trophies in our trophy case that would really demonstrate that the Space Station was worth that \$100 billion investment, then arguably that would weaken our legacy. I believe the undertaking is worth the risk, and so did our decision makers back in the '90s when we funded the Space Station. But, it's our job to use this valuable one-of-a-kind asset up on the Space Station.

SANDRA JOHNSON: The time is not probably as long as a lot of people would hope, since what is it, 2024 now?

GREGORY H. JOHNSON: It's 2024, but when I showed up at CASIS it was 2020. I'm hopeful it'll be 2028 or further. But, you're right, the time is now for us to use the available runway, because that runway, whether it's 10 years long or 14 years long, there's going to be an end of the useful life of the Space Station, and it's really important for us to develop all those areas that would create the follow-on space stations. I believe there'll be different sorts of space stations out there. There'll be little space stations that have a pocket of interest, and it might be a production facility, or it might be some other facility that we generate a need for. But, I think there'll also be a need for a platform that's Space Station-like, but maybe different, maybe located in a different place in our solar system.

Right now we want to build the demand. We want to build the need. We want to identify those problems that we can solve on follow-on space stations.

SANDRA JOHNSON: The role of the astronauts on Station, there's upkeep to the Station, and then they have time set aside to do the research and the work that they need to do. It's somewhat limited because of the demands on their time until we can have seven residents up there. What are your thoughts on getting to the point that we can have enough people? Is that ever a problem in your position, because you're finding these connections and getting people to buy into doing the research, but then scheduling it once you're talking about doing the actual work on Station? Is that anything that CASIS has any input in? Or how is that worked out?

GREGORY H. JOHNSON: Absolutely. Astronaut time was the first portion of our allocation that we maxed out. What that essentially means is you have so many projects that need astronaut time, and we've pushed up against our limit of allocation. Allocation comes in different flavors. For example we haven't bumped up on our upmass, 50 percent of our upmass allocation, but the allocation parameters are not going to all necessarily line up. Astronaut time is really right now the long pole in the tent, if you will. If we could build up astronaut time, then everybody benefits.

Getting that astronaut time is difficult because obviously a portion of their time needs to be spent just operating the Space Station. There's a critical mass of astronauts just to operate the Space Station. Additional astronauts on orbit are gravy. We can essentially double our research time with just the addition of one astronaut. We're really looking forward to the Commercial Crew Program and getting those additional astronauts on the Space Station.

The use of astronaut time is also very valuable because you can do things on the Space Station with astronauts up there that you can't do unmanned. Unmanned projects need to have a lot of redundancy, a lot of reliability. Those projects have to be more complex and there's a lot more risk associated with them, whereas on the Space Station when you have a person there and you have a robotic arm, for example, you can develop technologies that you just wouldn't want to make the investment as a secondary payload because the costs of launch are extremely expensive. So, using our ability to get payloads up to the Space Station using SpaceX, Orbital, and the others, it's a great value proposition right now. We try to communicate to the external users and say, "Hey, you've got an opportunity where you can ride on these vehicles subsidizing the launch cost, get them up to Space Station, and solve your problems, advance your technologies."

SANDRA JOHNSON: As a former astronaut and someone that has visited the ISS personally—and you've seen some changes in your two visits—do you think that spaceflight experience that you have, the fact that you've actually been there and you've seen the ISS, do you think it benefits your position at CASIS? If so, how do you think that helps?

GREGORY H. JOHNSON: I think it helps for a couple reasons. For one, I have a perspective that others might not have who haven't been to space. The players, the environment, and understanding the relationships. Also, just the experience of being in space, there are some things that are maybe more obvious to me than to others, but I think it's sharing in the passion. I think one of the reasons that they asked me to lead CASIS was because I'm invested in the Space Station; 15 years of my life in the astronaut corps helping to build the Space Station. We want to use it; we want to put it to the best use possible.

It's not about my career success. It's not about another interest that I'm trying to advance. It's really about serving the nation to make the best use of this one-of-a-kind asset.

SANDRA JOHNSON: Is there anything we haven't mentioned that you'd like to mention about your position at CASIS?

GREGORY H. JOHNSON: I can just tell you, it has been a great challenge. I've never worked harder in my life. I guess this is on the record, but it's been a great challenge. I think that we're making traction. I think that we're going to get there. I do believe that we're going to solve some serious problems here on the Earth in the next 10 years.

SANDRA JOHNSON: That's exciting. I hope we get to see that.

GREGORY H. JOHNSON: I do too.

SANDRA JOHNSON: Thank you. I appreciate it.

[End of interview]