



ASK talks with

Bill Townsend

Recently retiring from his position as Deputy Director of NASA's Goddard Space Flight Center in Greenbelt, Maryland, Bill Townsend is now the Vice President and General Manager of Civil Space Systems of Ball Aerospace and Technologies Corporation. Prior to his assignment to Goddard in 1998, Mr. Townsend had served as the Deputy Associate Administrator (Programs) for the Office of Earth Science since 1993. For a 20 month period beginning June 1996, he was also the acting Associate Administrator for the Enterprise.

Mr. Townsend also held other key positions within NASA, including the title of Deputy Director of the Earth Science Applications Division and the Chief of the Flight Programs Branch. He began his tenure at Wallops in 1963, and in addition to being recognized with various prestigious service awards, has been involved with close to sixty launches during the course of his NASA career. His story about the Aura launch was recently published in ASK 20.

You recently had a story about your experiences with the Aura launch published in ASK. One of the most valuable lessons that came from it was the importance of listening to minority opinion.

People need to recognize how important it is to listen to minority opinions. It doesn't mean you have to agree with them, but they should be heard. And this needs to happen at all levels of the organization. In this particular case, I had to seek out the minority opinion. When I heard that it might have some legitimacy, I wanted to hear more and take the time to discuss what was being said.

I was asking, "Why are we seeing these things so late in the game?" Allegedly, we'd never seen them before, so why were they coming up in the launch sequence? It turned out that they had been there all along, but we hadn't seen it in the data. It was the dissenting opinion that caused us to go back and look at the test data again.

If you are lower down in the organization, sometimes it's hard to raise your hand and say, "We've got a problem here." It is the same kind of thing that was discussed in the CAIB report. You've got people who are afraid that they are wrong, and they don't want to be embarrassed in front of their peers. That's why at Goddard we always insist that there are senior people onsite, involved, and ready to act for all our launches to make sure that no viewpoint gets overlooked.

This story, especially in reference to the CAIB report, reinforces the importance of establishing a culture that respects minority opinion.

Sure, because sometimes it's tempting to ignore the small voice. People get caught up in what I call "launch fever." Regardless of what's going on, people just want to launch. They get caught up in the quick tempo of things during the countdown.

This discussion where I was able to elicit the dissenting opinion took place only an hour before launch—which is the height of "launch fever." It was a case where senior management had to step in and make a decision. So I decided to stop the launch.

You've been involved with almost sixty launches, over half of which were at Goddard. Were there any other times when you had to make the tough decision of postponing a launch?

Another situation was a NOAA launch some years ago. It was an entirely different situation, but as we

"I will take real, live experience any day of the week over a textbook, or classroom-type training."

prepared for launch, there were issues that needed to be resolved.

During launch countdowns, I typically keep five or six channels open so I can hear what is going on across the board. Those almost sixty launches you mentioned have taught me that when everything is going well, the net is really quiet. When things aren't going well, people are talking constantly. In this particular case, there was chatter all over the place. As the countdown continued, it only got worse. It got down to about ten minutes, and I just had a gut instinct that we needed to stop the launch and assess where we were. So I did.

We fixed our problems and launched the next night without any issues. It's tough, but as a manager you have to hold out against "launch fever." I have a motto I follow, which I've adopted from the wine industry: "No launch before its time."

What can you conclude from these cases regarding risk and decision making during a launch?

It is a real fallacy that it is possible to drive risk to zero. Anybody who thinks that there is no risk in this business, has never worked in this business. Everything we do has residual risk associated with it. Senior Management has



Goddard Space Flight Center's launch phase simulator.

to make judgment calls. They have to ask, “Is the risk low enough that we can go forward with this? Do we have a reasonable chance at being successful?”

For example, in a perfect world, people would say that you don't launch until you find the flashlight. But we held a full investigation: tracked people down as far as Holland, looked at photographic evidence—even checked the trash dump to see if we'd accidentally thrown it away. The spacecraft was the size of a small school bus, and the flashlight was a little penlight. When it came down to it, I thought the evidence was overwhelming that the flashlight was not on the spacecraft, so I decided to launch.

Your decision turned out to be the right one, since the launch was ultimately a success. Have you ever made decisions on a project that you later wished you'd done differently?

Yes. There was a program called the Advanced Airborne Flight Experiment Program (AAFE). I proposed an aircraft instrument development effort, it was selected, and it came out very well. Then I proposed to augment the system. It is, in my opinion, one of my more notable career failures that I could never get this augmentation to work.

Probably what happened is that I was so deep in the forest that I couldn't see my way out for the trees. I really needed somebody to have said, “Give it up. This is good money after bad. You're not going to get anywhere.”

Then again, I don't think you can become a top-notch project manager who is recognized as somebody to emulate without having made some mistakes. A classroom definitely doesn't provide everything you need to know to be a good project manager.

What kind of role, then, do you think that training and certification of project managers plays?

I will take real, live experience any day of the week over a textbook, classroom-type training experience. Don't get me wrong: Training has its place. It's important, there is no doubt about that. But you can't become a project manager by going to a class. There has to be a balance.

Is there an Apprenticeship Program at Goddard so people can get that important hands on experience?

We are part of NASA's Summer High School Apprenticeship Research Program (SHARP) which allows students the opportunity to become apprentices to scientists and engineers at various centers across the country.



For our in-house employees, the kinds of experiences that build good project managers are different for each person. Sometimes we let people learn on smaller projects as a training ground. Or we might let them work on a larger project, but under a more experienced Project Manager.

They've got to have the opportunity to learn the whole experience. I think we grow people at Goddard very well, partly because we have so many opportunities for our people. At any given time we have about three dozen missions in formulation, two dozen in active development, and another couple of dozen in operations. There is a wide breadth of activity here. The main thing we've tried to continually work on is to grow people into being able to successfully assume positions associated with all stages of a project.

Do you think that it is important to have an open door management style so that people can get the support they need beyond training an experience?

Absolutely. And then it's the management's job to provide the support needed along those lines. I never turn down requests for that kind of consultation, and people know I'm willing to do that. When people give me feedback about how my advice helped them, it reinforces my motivations for giving it.

Not too long ago there was a person who came to me that was interested in becoming a project manager.

The Aura Launch at Vandenberg Air Force Base.



I told him that I didn't think he was ready. I said, "I just don't think you've had the right experiences yet to be put into that position." So I told him I'd like him to be a Deputy Project Manager on a larger project than the one he wanted to manage himself. I said, "Do that for a year or two, and we'll talk about a project management assignment."

That's an important management role: evaluating people and assessing their needs and capabilities, and then placing them in a situation where they can get the necessary tools and experience.

When you think back on your career at NASA, can you think of anyone who mentored you?

Well, I came to NASA right out of high school. I had no interest at the time in going to college, so I went into an Electronic Technician Apprentice Program. I did well in the program, and I got noticed by the Wallops Flight Center Director at the time, Bob Krieger. He encouraged me to go to college and helped me understand the importance of an education. I completed the Apprentice Program and got an electrical engineering degree from Virginia Tech.

When I got back to Wallops, Bob Krieger was still the Center Director. Around 1970, he set up a small group to do space-borne radar development. Back then Wallops didn't do a lot of development work, but he saw some opportunities there and knew he had people whose talents could be directed towards it.

I was only six months out of college, and I got in at the ground floor of this group. We build three successful space-borne radar systems before I left Wallops to go to NASA Headquarters. For me, Bob Krieger was the most instrumental person in my career. I've had other folks who have played a significant role in advancing my career, but without Bob Krieger, it wouldn't have mattered. He took an interest in me and spent the time to help me understand my potential.

Is there a specific moment that you remember about your first job in a project management capacity?

When I was at Wallops, I was Experiment Manager for the SeaSat Radar Altimeter, which launched in 1978. I was sitting here at Goddard in "Building 14" at a console in the Control Center on the second floor. I gave the command personally to turn this particular instrument on, and then all the various parameters came up on the screen. It worked, and I was elated. It was an experience I'll never forget. •