

Notes from the President

Reflecting on the Space Shuttle's Final Flight: Launch Day

07/08/2011

The final launch is scheduled for today, Friday, July 8 at 11:26 a.m. EDT. Got up in the middle of the night to check to see if they were proceeding with the fueling and they started at 2:00 a.m., which is a very good sign. We are to meet in the hotel lobby at 5:15 a.m. and leave shortly thereafter, scheduled to arrive at the launch site by 6:15 a.m. or so for a pre-launch briefing. The weather looks OK, no rain, but no stars either, so it is overcast. The [USAF 45th Weather Squadron](#) — one of two groups that provide weather support for the shuttle — forecasts a 30 percent chance of acceptable weather at [Kennedy Space Center \(KSC\)](#) on Friday. Keep your fingers crossed.

As part of this process, I have become much more familiar with the role Georgia Tech has played in the space program and in particular the Shuttle program. I have met a number of folks who have an association with Tech in one way or the other and it is clear that Tech has had a significant impact.

[Dr. Sandy Magnus](#), a mission specialist on today's mission, enrolled at Georgia Tech in 1994, and earned her PhD two years later from the School of Material Science and Engineering. Weeks following her graduation, she was accepted by NASA's [Johnson Space Center](#) for their astronaut program. Dr. Magnus is a two-time shuttle astronaut and space station crew member, and has traveled nearly 55 million miles during her two space flights. [In 2002 she was a crew member of Atlantis](#) when it delivered a starboard truss segment and fresh supplies for the crew aboard the [International Space Station](#). Her eleven-day flight included her using the station's robotic arm during three days to assist fellow crew members spacewalking outside the complex.

She was also [part of the crew of Endeavour](#), and lived aboard the International Space Station for nearly five months. During Endeavour's two day trip to the outpost, she was joined by fellow Georgia Tech graduate, [Eric Boe, EE '97](#), who was [selected to pilot the final flight of Discovery in May](#), 30 years after the first space shuttle mission. The crew delivered a permanent, multipurpose logistics module to the International Space Station, and conducted two space walks during their two-week mission. They also delivered [Robonaut 2, or R2](#), a human-like robot, to be a permanent resident of the station.

It is starting to get light outside and as we approach Kennedy, I can see all the people up and stirring around. People camping out and trailers and tents abound. It is overcast but everyone is optimistic, including Keith and me.

We will be watching the launch from Banana Creek, which is 3.3 miles from the launch pad and across the water so that there is nothing blocking the view. NASA does not allow anyone closer than 3 miles, except the emergency rescue crew which is located in a bunker about a mile from the launch pad. They say that within 100 yards you will be incinerated and within 400 yards you could not withstand the shock wave, so they keep people well away.

Just got an update on the weather from the NASA website — “moisture brought into the area by a tropical wave will increase the chance of rain and thunderstorms around the launch site after the east coast sea breeze forms Friday morning” — potentially violating several launch criteria.

The shuttle is not allowed to fly through rain, mostly because of potential damage to the orbiter's fragile thermal protection tiles. The launch criteria and flight rules prohibit rain along the planned flight path and around the potential emergency landing sites. The [Spaceflight Meteorology Group](#),

which is responsible for landing site forecasts, expects rain and thunderstorms near the KSC landing site but good weather at the Transoceanic Abort Landing (TAL) sites in Europe.

NASA reported that lightning, whether naturally occurring or the artificially rocket-triggered variety, can damage shuttle systems. Not only can observed lightning cause a launch scrub, but also certain kinds of electrified clouds due to the risk of artificially triggered lightning. We are arriving at the viewing area, and they just gave us some “hints” – the one that sticks in my mind is to not look at the exhaust flame or the bright lights will give you that “sunspot” effect and you will miss the separation of the Solid Rocket Boosters (SRB’s) Time to unload! Stay tuned!

G. P. "Bud" Peterson
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