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End of an era for Utah in space

Beehive state's future role in space uncertain

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When the space shuttle Atlantis roars into orbit Friday morning, it will bring to a close an era of nearly four decades during which Utah played a central role in the nation's space program.

At this historic pivot point, the 135th and final shuttle launch, the Beehive State's future in space is hard to predict. NASA is struggling to chart a new course in a time of economic stress, and it's not clear if Utah will gain a new toehold in the final frontier.

"I'm very disappointed that we are stopping the shuttle and then the United States has no ability to get into space on our own," said former Sen. **Jake Garn**, who made headlines as the first politician in space in 1985. "I think it's a big mistake. I think we should have continued it until we had a replacement vehicle."

That thought is echoed by numerous current and former Utahns who drew inspiration and income from their state's space connection over the decades. Nearly all of them describe the upcoming final launch as a "bittersweet" moment as they take pride in what the shuttle program accomplished and feel regret as it comes to a close.

"It will be a proud day but probably a sad day to watch that thing go," said David Sebahar who spent most of the past 29 years working on shuttle-related projects. He began working as an engineer at Thiokol Corporation's rocket works in Box Elder County in 1982, following the first shuttle launch on April 12, 1981.

Utah has shared in the shuttle programs triumphs and tragedies over the last 30 years — 132 successful missions and two gripping disasters. Seven astronauts died in 1986 when the Challenger's fuel tank exploded shortly after launch, a tragedy with close connections to Utah. Seven more died in 2003 when Columbia broke up over Texas after it re-entered the Earth's atmosphere with a damaged heat shield.

NASA selected Thiokol in 1974 to build the shuttle's Solid Rocket Boosters, the powerful twin rockets "strapped on" to the shuttle assembly. The Utah-made boosters provide 70 percent of the thrust needed to get the shuttle into orbit. Minneapolis-based ATK purchased Thiokol in 2001. The company's Aerospace Systems Group is still based in Utah and continued making booster segments until the last one was cast in September 2009.

The company is still angling for a future role in the space program. Sebahar, now a vice president at ATK, said, "We have a really good team of folks that's capable and ready and willing when NASA decides what they want to do."

The company's employment levels have rocketed up and plunged down over the years depending on the pace of the space effort. Gil Moore, whose black eye patch and enthusiasm for the shuttle program made him a familiar "face-of-space" for many Utahns in the 1980s, said there were about 1,500 workers at Thiokol when he arrived in 1962.

"Then it went up to 8,000," he said, "and now it's down to 1,500 again."

"It's been a very inspiring impact on the state and on the nation and the world," Moore said, "and it's a doggone shame" the shuttle will fly no more.

Many give Moore personal credit for increasing the inspirational impact on Utah. As spokesman for Thiokol and an adjunct professor at Utah State University, Moore ignited a passion for space science in many students. He helped recruit participants in the Getaway Special program which allowed high

school and college students to put scientific projects on board the shuttle.

Terry Thomas was a sophomore at Box Elder High School in 1977 when Moore spoke to his class. "What interest I had was certainly cemented at that time," Thomas said. "That just kind of opened up the floodgate."

While still in high school, Thomas proposed a space experiment involving metal alloys. Later, he went to Utah State University on a Getaway Special Scholarship. The fourth mission of the space shuttle took his experiment into space in 1982 along with several other student projects.

Thomas remembers that Moore paid NASA's \$10,000 launch fee out of his own pocket. In the years since, Utah State University has put more projects into space than any university in the world.

Moore remembers covering the \$10,000 fee on behalf of the students. "I have always felt an obligation to pass on the opportunities I've had" in the space program, he said.

Thomas went on to an aerospace career with Boeing and gives considerable credit to Moore and Thiokol. "There's no question that I had one of the best apprenticeships one can have in college," Thomas said. "That's why I ended up being hired by Boeing."

Thomas regrets the end of the shuttle program. "I think it was a fantastic investment that will continue to pay dividends," Thomas said.

"There cannot but be a sense of bittersweet loss about this," said veteran astronaut Jim Halsell, who piloted or commanded five shuttle missions from 1994 to 2000 and is now a vice president at ATK.

Halsell said the shuttle's overly complex design led to both space shuttle tragedies. When NASA settled on a design combining a crew-carrying capability with heavy cargo capacity, Halsell said, it placed the boosters, fuel tank and crew compartment side by side. The Challenger disaster was directly traced to the failure of a seal in a Thiokol booster, which triggered a fuel tank explosion adjacent to the crew compartment.

"A lot of people at ATK have devoted their lives," to the shuttle, Halsell said. "They went through the very wrenching Challenger disaster. But they made it through the redesign and what we ended up with is a very improved vehicle."

NASA is expected to make an announcement on launch day, July 8, outlining plans for a new launch system. It would carry astronauts and equipment further into space than the low Earth orbit used by the shuttle. Potential missions could include a return to the moon, a trip to an asteroid or a mission to Mars. ATK's booster segments can be reconfigured for use in such a vehicle.

"I think there's excitement about what's coming next," Halsell said. "All of these rockets need safe, reliable, proven boost capability. We believe our five-segment solid rocket launch vehicle provides that."

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