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# AEROSPACE
## AMERICA

# 2012

*Year in review*

# Society and aerospace technology



*Hundreds gathered in New York City's Times Square on the night of August 12 to watch the televised landing of the Curiosity rover on Mars. Credit: MSNBC.*

Late on a Sunday night in August, hundreds gathered to watch a historic event unfold on the giant screen in Times Square. The occasion was not a concert by a famous band or the finale of a hit show, but was instead the next step in human exploration of other planets. Like the Times Square viewers that night, millions of others also tuned in to NASA TV and webcasts to see the Mars Science Laboratory spacecraft land Curiosity, a 900-kg, nuclear-powered, laser-equipped rover, on the Martian surface.

Although this was the seventh successful Mars landing mission for the U.S., the technology needed to safely land the huge rover represents a gigantic leap toward sending humans to Mars someday. More important, the event garnered massive public support for science and technology development and may have inspired the next generation of scientists and engineers who could make humans a multiplanet species.



*The space shuttle Enterprise flies over New York City in April. Credit: NASA/Robert Markowitz.*

The future of space development was frequently in the news this year, especially with the retirement of the space shuttles and their subsequent delivery to various museums across the country. The shuttles will be housed in Washington, D.C., New York, Los Angeles, and the Kennedy Space Center in Florida, where they will educate and encourage future generations. Pictures of the Enterprise soaring over the Manhattan skyline provided an image of inspiration and stirred reminiscence of a program that embodied the ingenuity of a nation.

As Americans were fondly remembering their country's past, commercial space companies were pushing into the next frontier. SpaceX's Dragon capsule berthed successfully with the ISS in May and then returned safely to Earth, a feat previously achieved by only a handful of nations. Like SpaceX, other commercial aerospace companies have also started showing that for-profit businesses can be successful in the space sector and have opened job opportunities for many while broadening the economic impact of the aerospace industry.

As the effects of aerospace technologies are felt more broadly by society, there are some pitfalls associated with them as well. Several U.S. government agencies recently came under fire from civil liberties groups for using unmanned aerial vehicles to surveil the public. The Environmental Protection Agency, for example, was found using drones to monitor ranchers in the Midwest. Although the agency stated that its purpose was to monitor livestock contamination in protected watersheds, this information underscores the potential for abuses in the application of such technology.

Overall, aerospace technology continues to have a positive effect on society. Satellite-based systems have been used for humanitarian purposes, having helped to track abuse of individuals in Syria while also allowing eyewitnesses to broadcast their stories around the world. Weather satellites and reconnaissance planes (nicknamed 'hurricane hunters') provide real-time measurements of storms for improved predictions of hurricane paths. Carbon fiber—a spinoff of an aerospace technology originally designed for aircraft engine rotors—has enabled the development of lightweight prostheses such as the one used by sprinter Oscar Pistorius, who became the first double-leg amputee to participate in the Olympics. These are just a few examples of the many broader societal benefits of aerospace-related technologies. A