

Flying In the Fast Lane with Air Traffic Software

(Virginia Success Story)

Transportation

7/14/2020

NASA's research has led to the development of tools like Airspace Technology Demonstration 2 (ATD-2) and Harmony Software through collaboration with Metron. ATD-2 integrates flight data to improve air traffic management while Harmony builds upon the model by predicting weather impact and suggesting alternative routes for efficiency. Being adopted globally, these help to improve both communication and safety by improving coordination between both controllers and airlines, preventing delays and bottlenecks.

Interesting Facts:

- Countries around the world, including Columbia, Singapore, and South Korea, are adopting NASA's air traffic management software.
- NASA has spent 30 years developing air traffic management tools for the FAA.



What Is a spinoff? Where can one go to read more about spinoffs?

A spinoff is a commercialized product or service that incorporated NASA's research and development efforts. These advancements, many of which were originally intended for space missions or other specialized purposes, are adapted for use in sectors on Earth. Improving key aspects like safety and efficiency in industries like information technology, spinoffs help benefit daily life and show NASA's impact beyond space exploration. You can read and learn more about spinoffs on NASA's official website, referenced below.

National Aeronautics and Space Administration. (n.d.). *NASA Spinoff*.
<https://spinoff.nasa.gov/>



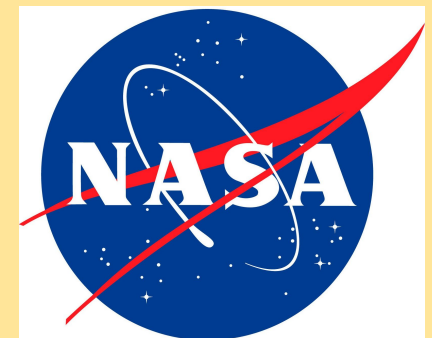
Beyond Space: How NASA's Spinoffs Impact Life on Earth

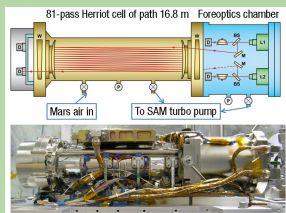
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Oil Drillers, Environmentalists Agree on Small, Sensitive Spectrometer

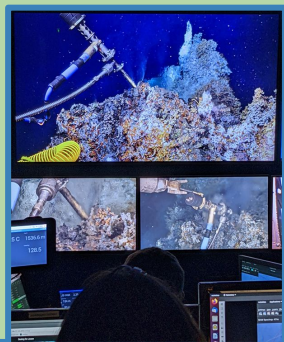
Energy and Environment

1/29/2024

Originally used on the Curiosity rover, NASA's research on a tunable laser spectrometer led to the development of a smaller and more efficient version that is designed for application on Earth. The capillary absorption spectrometer has the ability to measure trace gasses and isotopes with extreme accuracy from a small sample size. This tool is used to analyze water quality and methane emissions, assisting in environmental and industrial research like with offshore oil drilling and climate studies.

Interesting Facts:

- NASA's Curiosity rover first used a laser spectrometer to analyze isotopes on Mars.
- A small pressurized chamber allows gases to bubble out from water samples, which makes them available for isotope testing.



Spraying for Food Safety

Industrial Productivity

7/25/2024

NASA's development of an electrostatic spray nozzle to water plants in space is now being used to improve the process on Earth through its licensing to Electronic Spraying Systems Inc. The nozzle uses a charge to create 40-micron droplets that uniformly covers surfaces, improving efficiency and water usage. ESS now incorporates the design into its Maxcharge sprayers that help maintain costs and are sustainable in areas like agriculture, food safety, and sanitization.

Interesting Facts:

- The design of the mister nozzle developed by NASA is used at Disney World to help keep those inside cool.
- The mister nozzle developed by NASA has a unique feature in which the pressure within the nozzle never builds up. This is very important for smaller, enclosed spaces like the International Space Station.



Ballooning Business for Shrinking Cameras

Information Technology

1/29/2024

NASA's zero-pressure balloon technology, alongside minitizurized color and infrared sensors, are being downsized and used by Urban Sky to capture high-resolution Earth imagery. The lightweight Microballoon can be launched from a truck and provides detail, localized data for industries like insurance, oil, and wildfire monitoring. This method allows for more flexibility and increases efficiency in a way that doesn't sacrifice resolution quality.

Interesting Facts:

- Urban Sky's cameras capture images with 4-inch resolution that is much better than satellite images and collect eight times more data.
- Urban Sky took over 100 flights and produced images covering 5 million acres.

