

## **Ball Aerospace Celebrates Hubble Space Telescope 2012 Science Achievements**

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BOULDER, Colo., Jan. 8, 2013 /PRNewswire/ -- The Ball Aerospace & Technologies Corp. Wide Field Camera 3 (WFC3) aboard the Hubble Space Telescope (HST) delivered unprecedented science in 2012 including the discovery of the oldest galaxy to date.

Installed by shuttle astronauts during the 2008 Servicing Mission (SM4), the WFC3 is Hubble's most technologically advanced visible spectrum instrument. In addition to WFC3, the SM4 included installation of the Ball-built Cosmic Origins Spectrograph (COS), an instrument 30 times more sensitive in the far-ultraviolet than earlier Hubble ultraviolet spectrographs.

According to scientists, the most recent discovery made by Hubble showed that the galaxy, known as UDFj-39546284, likely existed when the universe was just 380 million years old. The other six distant galaxies all formed within 600 million years of the Big Bang, which created our universe about 13.7 billion years ago. UDFj-39546284 was detected previously, and researchers had thought it formed just 500 million years or so after the Big Bang. The WFC3 infrared observations push its probable formation time back even further. Also in 2012:

- Hubble captured the farthest-ever view into the universe, a photo that reveals thousands of galaxies billions of light-years away. Called eXtreme Deep Field, or XDF, the image combines 10 years of Hubble telescope views of one patch of sky. Only the accumulated light gathered over so many observation sessions can reveal such distant objects. The photo is a sequel to the original "Hubble Ultra Deep Field," an image Hubble captured in 2003 and 2004 that collected light over many hours to reveal thousands of distant galaxies in what was the deepest view of the universe to that date. The XDF goes even farther, peering back 13.2 billion years into the universe.
- Hubble detected a tiny new moon discovered orbiting Pluto, bringing the number of known Pluto satellites to five. Researchers expressed surprise that despite its small size, Pluto nonetheless has a very complex collection of satellites. The new discovery provides additional clues for unraveling how the Pluto system formed and evolved.

Ball Aerospace built seven Hubble science instruments including the Corrective Optics Space Telescope Axial Replacement (COSTAR) instrument that corrected the spherical aberration of Hubble's primary mirror.

Beyond the COSTAR, WFC3 and COS, Ball-built Hubble instruments include: the Goddard High Resolution Spectrograph; the Near-infrared Camera and Multi-object Spectrometer; the Space Telescope Imaging Spectrograph; and the Advanced Camera for Surveys.

The James Webb Space Telescope will be the next-generation NASA space observatory. Providing the eyes of the telescope, Ball Aerospace is the principal subcontractor for the Webb to Northrop Grumman, contributing the advanced optical technology and lightweight mirror system.

Ball Aerospace & Technologies Corp. supports critical missions for national agencies such as the Department of Defense, NASA, NOAA and other U.S. government and commercial entities. The company develops and manufactures spacecraft, advanced instruments and sensors, components, data exploitation systems and RF solutions for strategic, tactical and scientific applications. For more information, visit

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### **Forward-Looking Statements**

This release contains "forward-looking" statements concerning future events and financial performance. Words such as "expects," "anticipates," "estimates" and similar expressions are intended to identify forward-looking statements. Such statements are subject to risks and uncertainties which could cause actual results to differ materially from those expressed or implied. The company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Key risks and uncertainties are summarized in filings with the Securities and Exchange Commission, including Exhibit 99.2 in our Form 10-K, which are available on our website and at [www.sec.gov](http://www.sec.gov). Factors that might affect our packaging segments include fluctuation in product demand and preferences; availability and cost of raw materials; competitive packaging availability, pricing and substitution; changes in climate and weather; crop yields; competitive activity; failure to achieve anticipated productivity improvements or production cost reductions; mandatory deposit or other restrictive packaging laws; changes in major customer or supplier contracts or loss of a major customer or supplier; political instability and sanctions; and changes in foreign exchange rates or tax rates. Factors that might affect our aerospace segment include: funding, authorization, availability and returns of government and commercial contracts; and delays, extensions and technical uncertainties affecting segment contracts. Factors that might affect the company as a whole include those listed plus: accounting changes; changes in senior management; the recent global recession and its effects on liquidity, credit risk, asset values and the economy; successful or unsuccessful acquisitions; regulatory action or laws including tax, environmental, health and workplace safety, including U.S. FDA and other actions affecting products filled in our containers, or chemicals or substances used in raw materials or in the manufacturing process; governmental investigations; technological developments and innovations; goodwill impairment; antitrust, patent and other litigation; strikes; labor cost changes; rates of return projected and earned on assets of the company's defined benefit retirement plans; pension changes; uncertainties surrounding the U.S. government budget and debt limit; reduced cash flow; interest rates affecting our debt; and changes to unaudited results due to statutory audits or other effects.

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