

## **Ball Aerospace Moving Ahead on TEMPO & GEMS Air Quality Sensors Future Earth Days will benefit from environmental monitoring in North America & South Korea**

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BOULDER, Colo., April 22, 2014 /PRNewswire/ -- Two powerful Ball Aerospace & Technologies Corp. air quality sensors are on their way to providing future environmental monitoring to support the quality of life on Earth.

Ball is building nearly identical geostationary ultraviolet visible spectrometers: the Tropospheric Emissions: Monitoring of Pollution (TEMPO) instrument for NASA Earth Venture, and the Geostationary Environment Monitoring Spectrometer (GEMS), being jointly developed by Ball and the Korea Aerospace Research Institute (KARI), South Korea. Both instruments will complete critical design in 2015 and be delivered in 2017.

"The simultaneous build of the TEMPO and GEMS spectrometers is allowing us to capture multiple design and affordability efficiencies between the two instruments," said Rob Strain, Ball Aerospace president. "Both instruments are similar from a technical basis, and the duplicate build allows recurring and non-recurring cost savings in design, procurement and hardware manufacturing for both customers."

TEMPO will, for the first time, make accurate observations of atmospheric pollution with high spatial and temporal resolution over North America, from Mexico City to the Canadian tar/oil sands, and from the Atlantic to the Pacific. TEMPO will provide hourly daylight measurements of ozone, nitrogen dioxide, sulfur dioxide, formaldehyde, glyoxal and other pollutants to create a revolutionary dataset that provides understanding and improves air quality (AQ) and climate forcing.

TEMPO is the first NASA Earth Venture Instrument mission and will be the first UV-visible air quality spectrometer in geostationary orbit. The spectrometer's two-axis scan mirror will use valuable heritage from other highly successful Ball programs. TEMPO will share a ride on a yet unidentified commercial satellite as a hosted payload to an orbit about 22,000 miles above Earth's equator.

The GEMS spectrometer is designed to monitor trans-boundary pollution events for the Korean peninsula and Asia-Pacific region. The spectrometer provides high spatial and high temporal resolution measurements of ozone and its precursors. Hourly measurements by GEMS will improve early warnings for potentially dangerous pollution events and monitor long-term climate change. GEMS is manifested on KARI's GEO-KOMPSAT-2B geostationary satellite for a 2018 launch.

The GEMS instrument is the Asian element of a global air quality monitoring constellation of geostationary satellites that includes the TEMPO spectrometer.

For more than 30 years, Ball Aerospace has been a recognized industry leader in developing advanced spectrometers. Ball recently provided the Ozone Mapping and Profiler Suite aboard the Suomi National Polar-orbiting Partnership and is building a similar instrument for the Joint Polar Satellite System. Historically, Ball was the primary supplier of spectrometers for the Hubble Space Telescope including the Goddard High Resolution Spectrograph, Space Telescope Imaging Spectrograph, and the Cosmic Origins Spectrograph.

"Since 1970, Earth Day has been celebrated on April 22 to show support for environmental protection and

we are eager to further contribute to the sustainability of the planet when these instruments begin operations," added Strain.

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 <http://www.ballaerospace.com/>.

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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 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 in our Form 10-K, which are available on our website and at [www.sec.gov](http://www.sec.gov). Factors that might affect: a) our packaging segments include product demand fluctuations; availability/cost of raw materials; competitive packaging, pricing and substitution; changes in climate and weather; crop yields; competitive activity; failure to achieve productivity improvements or 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 or tax rates; b) our aerospace segment include funding, authorization, availability and returns of government and commercial contracts; and delays, extensions and technical uncertainties affecting segment contracts; c) the company as a whole include those listed plus: changes in senior management; successful or unsuccessful acquisitions and divestitures; regulatory action or issues including tax, environmental, health and workplace safety, including U.S. FDA and other actions or public concerns affecting products filled in our containers, or chemicals or substances used in raw materials or in the manufacturing process; technological developments and innovations; litigation; strikes; labor cost changes; rates of return on assets of the company's defined benefit retirement plans; pension changes; uncertainties surrounding the U.S. government budget, sequestration and debt limit; reduced cash flow; ability to achieve cost-out initiatives; interest rates affecting our debt.

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