



## **Northrop Grumman Cryocoolers Onboard the Japan Meteorological Agency Satellite, Himawari-8, Become 18th and 19th Units to Operate in Space without a Failure**

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REDONDO BEACH, Calif., Feb. 11, 2015 /PRNewswire/ -- Northrop Grumman Corporation (NYSE: NOC) continues its record of success in space cryocoolers with the latest units to become operational on-orbit.

***NORTHROP GRUMMAN***

Photos accompanying this release are available at: <http://media.globenewswire.com/noc/mediagallery.html?pkgid=30678>.

Northrop Grumman's cryocoolers enable the operation of the Advanced Himawari Imager (AHI), built by Exelis, Inc., by creating the extremely cold temperature required for its operation. The Imager, on board the Japan Meteorological Agency weather satellite manufactured by Mitsubishi Electric Corporation, Himawari-8, is improving weather forecasts and early warnings for severe weather in Eastern Asia and Western Pacific.

The Himawari-8 cryocoolers join the multiple Northrop Grumman cryocoolers successfully operating in space, most recently the High Efficiency Cryocooler on board NASA's Orbiting Carbon Observatory-2 satellite, launched July 2.

For the Advanced Himawari Imager, Northrop Grumman's HEC cryocooler has been configured with a second cold head to provide simultaneous cooling at two temperatures. The system maintains its high reliability, inherent in the design with no moving parts in the cold end and a non-wearing compressor. The design used for Himawari-8 has also been delivered to support Exelis' Advanced Baseline Imager (ABI) for the National Oceanic and Atmospheric Administration (NOAA).

"It is gratifying to know our technology plays such a key role in climate research and weather monitoring for U.S. and international customers," said Chris Yamada, vice president, Aerospace Products, Northrop Grumman Aerospace Systems.

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