# Lockheed Martin, NVIDIA to Build Digital Twin of Current Global Weather Conditions for the National Oceanic and Atmospheric Administration

## Artificial Intelligence-Driven System Will Fuse Sensor Data to Provide Better, Timely World Picture

Lockheed Martin (NYSE: LMT) and NVIDIA today announced a collaboration to build an artificial intelligence (AI)-driven Earth Observations Digital Twin that will provide the National Oceanic and Atmospheric Administration (NOAA) with an efficient and centralized approach to monitor current global environmental conditions, including extreme weather events.

The two companies expect to fully integrate and demonstrate one of the variable data pipelines — sea surface temperature — by September 2023, one year after initial contract award.

Presently, NOAA receives terabytes of data about its five earth systems domains — the cryosphere, land, atmosphere, space weather and ocean — from numerous space and Earth-based sensor sources. NOAA administrators and researchers have to collect, combine and analyze that information to observe and understand environmental conditions and changes.

The new Earth Observations Digital Twin — developed under contract with Lockheed Martin Space, working with NVIDIA — will provide NOAA with a high-resolution, accurate and timely depiction of global conditions, using current satellite and ground-based observations.

For the project, Lockheed Martin's OpenRosetta3D™ platform will utilize AI and machine learning (ML) to ingest, format and fuse observations from multiple sources into a gridded data product and detect anomalies. NVIDIA Omniverse Nucleus, the collaboration and database engine of its Omniverse world simulation platform, will convert data into the Universal Scene Description framework, enabling data-sharing across multiple tools and between researchers. Agatha, a Lockheed Martin-developed visualization platform, will ingest this incoming data from Omniverse Nucleus and allow users to interact with it in an Earth-centric 3D environment.

"At Lockheed Martin we regularly use digital twins and AI to provide our government customers with the clearest, current situational picture and actionable intelligence for their important missions," said Matt Ross, senior program manager at Lockheed Martin Space. "We're pleased that we can use our technology experience to collaborate with NVIDIA on this project to provide NOAA a timely, global visualization for their own important missions."

"Digital twins will help us solve the world's hardest scientific and environmental challenges," said Dion Harris, lead product manager of accelerated computing at NVIDIA. "The combination of Lockheed Martin's AI technology with NVIDIA Omniverse will give NOAA researchers a powerful system to improve weather predictions at a global scale."

Lockheed Martin and NVIDIA are already collaborating on an effort to help fight wildfires, which have burned more than 7.2 million U.S. acres this year. By pairing Lockheed Martin's AI/ML platforms and joint all domain command and control capabilities with NVIDIA's Omniverse, the two companies are demonstrating how firefighters can use advanced technology to help better detect, predict and suppress wildfires.

**About Lockheed Martin**
Headquartered in Bethesda, Maryland, Lockheed Martin Corporation is a global security and aerospace company that employs approximately 114,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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**About NVIDIA**
Since its founding in 1993, NVIDIA (NASDAQ: NVDA) has been a pioneer in accelerated computing. The company's invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined computer graphics, ignited the era of modern AI and is fueling the creation of the metaverse. NVIDIA is now a full-stack computing company with data-center-scale offerings that are reshaping industry. More information at https://nvidianews.nvidia.com/.

Certain statements in this press release including, but not limited to, statements as to: the benefits, impact, performance, features and availability of our products, collaborations and technologies, including the Earth Observations Digital Twin, NVIDIA Omniverse and NVIDIA Omniverse Nucleus; the expectation to fully integrate and demonstrate one of the variable data pipelines one year after initial contract award; and digital twins helping solve the world's hardest scientific and environmental challenges are forward-looking statements that are subject to risks and uncertainties that could cause results

to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our collaborators' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.



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