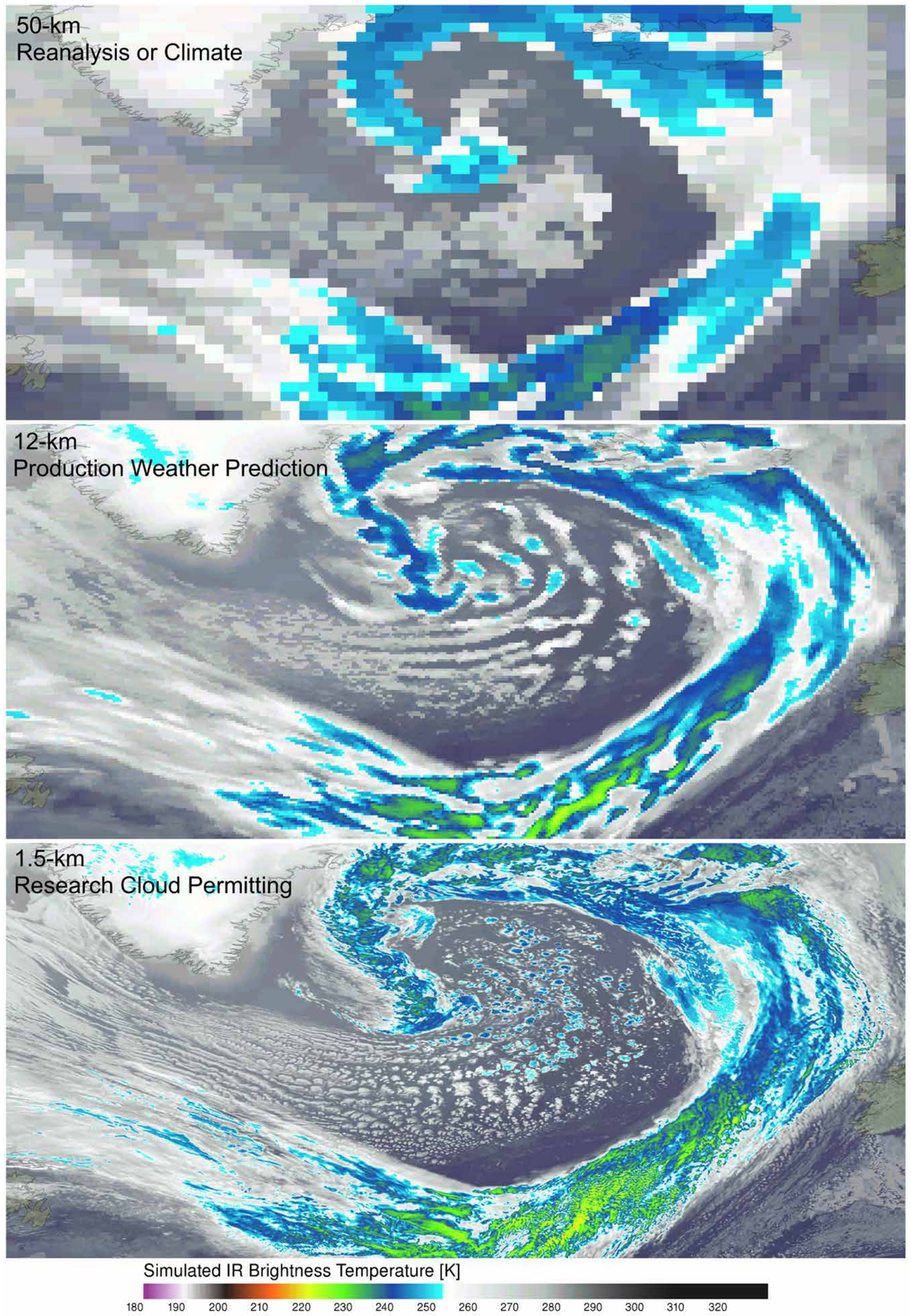

The Goddard Earth Observing System (GEOS) model illustrates the role of resolution in representing the cloud field of an Icelandic Low in April 2017. As low-pressure systems depart the East Coast of the United States, they intensify in the North Atlantic near Iceland and form what are known as Icelandic Lows. A variety of cloud types arise within these systems. The size of the grid cells used to simulate the atmosphere in the GEOS model has a significant influence on the types of clouds that can be resolved in these systems. *William Putman, NASA/Goddard*

National Aeronautics and
Space Administration

A Glimpse at the Future of Global Weather Prediction and Analysis at NASA

The Goddard Earth Observing System (GEOS) model provides a peek into the future of global weather prediction and analysis. Using the non-hydrostatic "finite-volume cubed-sphere" (FV3) dynamics solver and advanced physics schemes, GEOS pushes the limits of high-performance computing at NASA to execute simulations representative of the projected evolution of global weather prediction capabilities over the next decade.

Innovative numerical methods in combination with increased resolution and efficient computing power have revived a new exploration of the advanced simulation capabilities for global modeling systems like GEOS. These GEOS simulations provide the first glimpse at the potential for what are known as "global convection-allowing models" of the Earth's atmosphere.

William Putman, NASA Goddard Space Flight Center

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