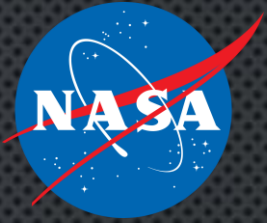# NASA'S RADIATION FORECASTS SHIELD U-2 PILOTS DURING EXTREME SOLAR STORM

NASA'S NAIRAS RADIATION PREDICTION MODEL

NASA's NAIRAS radiation-prediction model played a critical role in protecting U.S. Air Force U-2 pilots by forecasting dangerously elevated radiation levels during the intense 9–13 November 2025 solar storm. The storm produced multiple X-class flares, coronal mass ejections, and high-energy proton bursts that pushed predicted radiation dose rates up to 20 times normal at U-2 operating altitudes. Using these real-time warnings, the USAF cancelled select missions to safeguard pilots, later thanking NASA for directly contributing to aircrew safety during the rare high-radiation event.
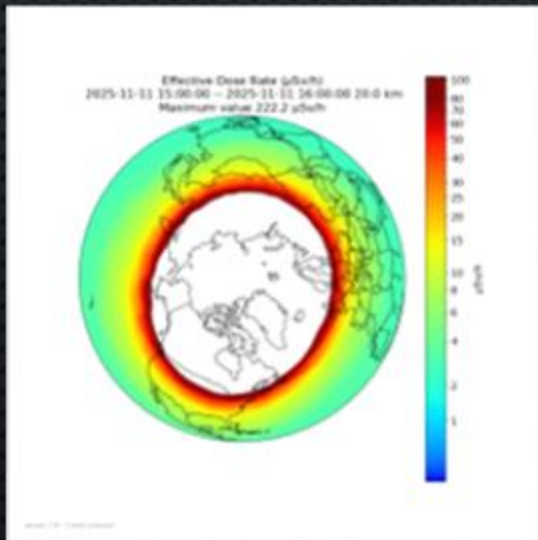
NAIRAS model global real-time predictions at 20 km during the November 2025 SEP event, taken from the Community Coordinated Modeling Center (CCMC) Integrated Space Weather Analysis (ISWA) web interface NAIRAS 3.0 | CCMC. The effective dose rates were so high (+200 µSv/h) during this event that they exceeded the default color scale of the graphical products with maximum of 100 µSv/h.
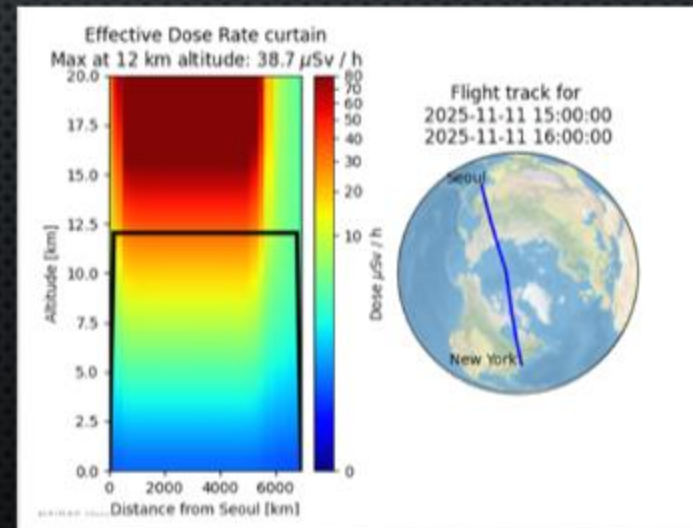
NAIRAS model real-time predictions for a transpolar commercial aircraft during the November 2025 SEP event, taken from the CCMC. The recommended effective dose rate threshold is 20 µSv/h.