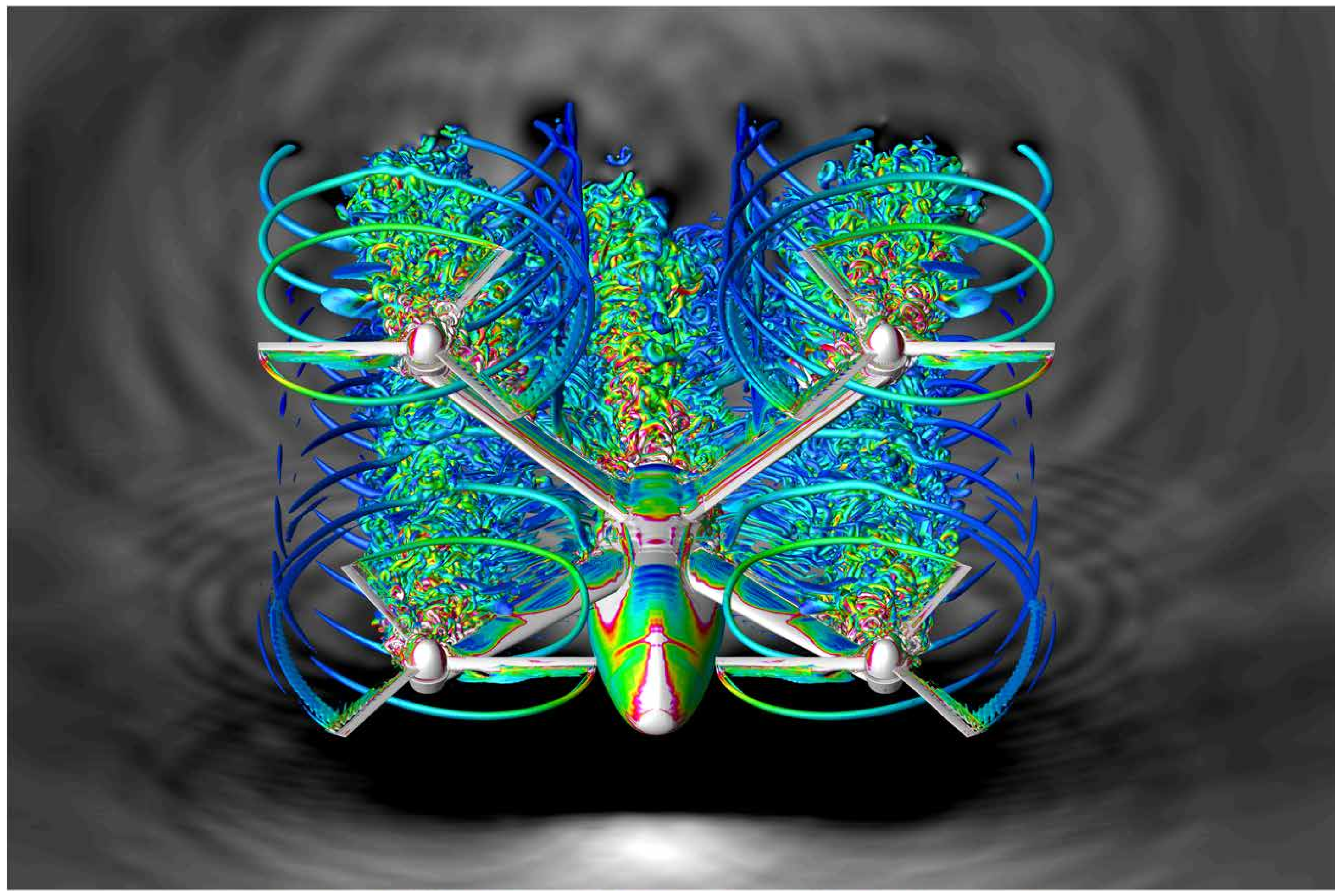
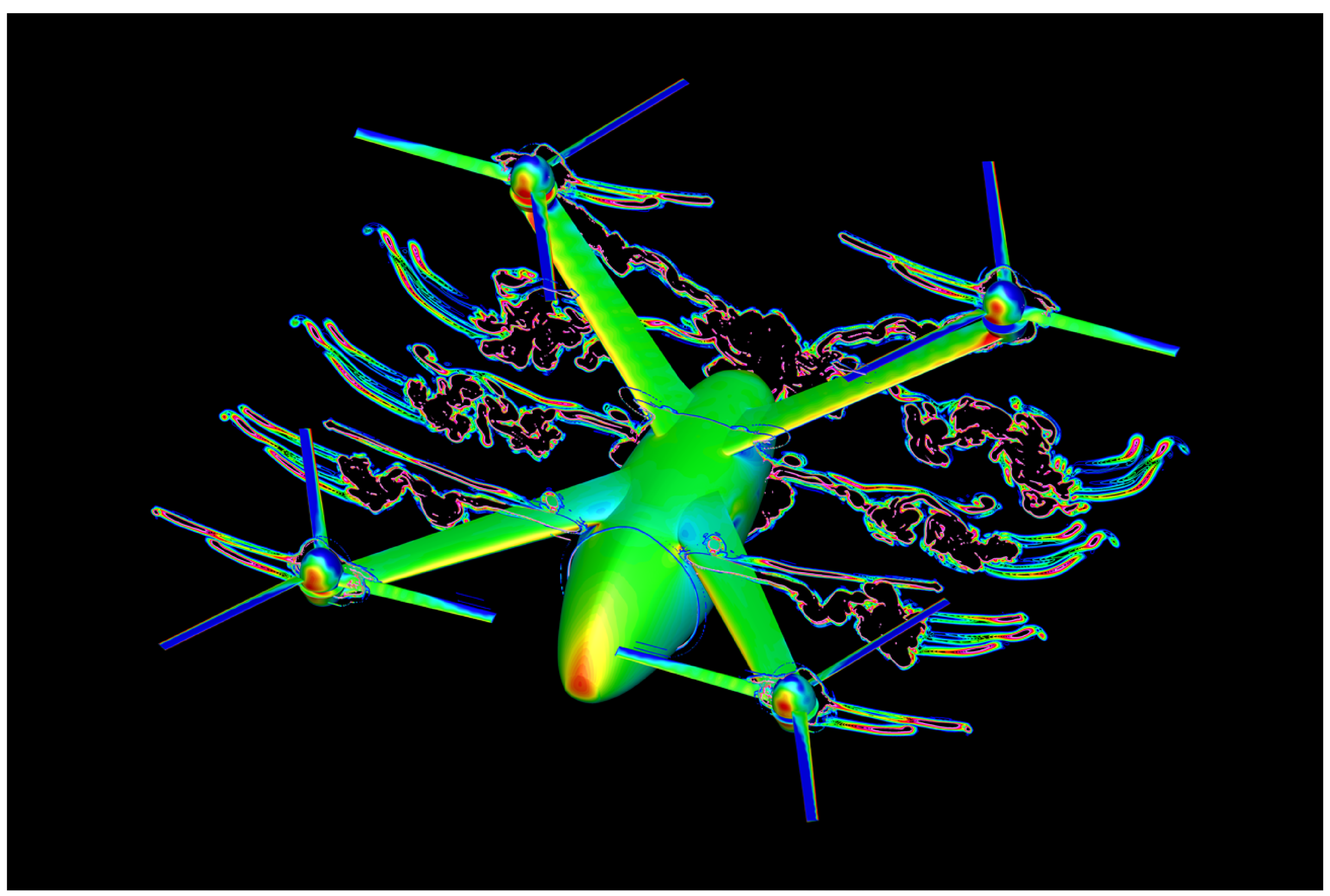


Flow visualization of NASA's six-passenger quadcopter concept for urban air mobility (UAM), in edgewise flight (front-oblique view). The vehicle design reduces rotor-rotor interactions between the front and rear rotors, while keeping an efficient, compact configuration. The background shows pressure oscillations (white is high, black is low). This image reveals the complexity of the flow for a multi-rotor configuration, where many rotors interact with each other and the different components. *Patricia Ventura Diaz, NASA/Ames*



High-fidelity computational fluid dynamics flow visualization of NASA's six-passenger quadcopter concept for urban air mobility, in edgewise flight (front-oblique view). The vehicle surface pressure is shown in blue (low) and red (high). Line contours show the vorticity magnitude (blue is low, magenta is high) at four vertical planes: one at the front rotors; two downstream of the front rotors; and one at the rear rotors. Rotor-rotor interactions are reduced by moving the rear rotors above the wake from the front rotors, shown as vorticity contours at the rear rotors' plane. *Patricia Ventura Diaz, NASA/Ames*

National Aeronautics and
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# Towards Urban Air Mobility: NASA's Quadcopter Air Taxi Concept

Urban Air Mobility (UAM) is envisioned to be the future air transportation system over populated areas, where everything from small package delivery drones to passenger-carrying air taxis are able to interact safely and efficiently. The capacity of multi-rotor vehicles to perform vertical takeoff and landing (VTOL), together with their great maneuverability, make them an excellent choice for UAM aircraft. The accurate prediction of multi-rotor vehicles performance and acoustics is very challenging due to the unsteady and complex flows, as well as the aerodynamic interactions. By running high-fidelity computational fluid dynamics simulations on NASA supercomputers, researchers model the complex aerodynamics of multi-rotor flows, getting us closer to making UAM a reality.

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