

NASA Langley Research Center (NASA LaRC)

NASA LaRC was established in 1917 in Hampton, Virginia, and is the oldest NASA field center. With state-of-the-art wind tunnels – the Center boasts one of the largest of its kind in the world – simulation centers, laser labs, landing dynamics facilities, electromagnetic labs, and other unique assets, NASA LaRC conducts research and development of aerospace vehicles and systems for NASA, industry, and other government organizations. Approximately two thirds of research conducted at NASA LaRC is devoted to aeronautics, with the remaining third focused on space. There are four main areas of research at NASA LaRC that support NASA’s primary mission: space exploration, space operations, atmospheric/earth sciences, and aeronautics. Recent initiatives have been in aerosciences and the characterization of atmospheres, systems analysis, structures and materials, and engineering and safety. These core competencies offer unique capabilities and support technology sectors such as Aerospace, Aviation, Life Sciences, Environment, and Advanced Manufacturing.

Aerosciences

The aerosciences capability at NASA LaRC provides simulation and testing in diverse atmospheres, such as those on and around Earth and Mars. The Center can create and evaluate advanced concepts with systems analysis, systems engineering, simulation, technology development, technology demonstration, and infusion into air and space flight operations.

Systems Analysis

Systems analysis work at the Center has developed advanced concepts and architectures by using system and subsystem design techniques for break-through concepts, honest broker analysis for technology investment, and informed decision-making. Specific areas of expertise include mission architectures and systems concepts, systems concept development and technology assessment, and analysis and design method development.

Structures and Materials

NASA LaRC’s structures and materials expertise targets advanced structural and material concepts, radiation protection, large space structures, durability and damage tolerance, nondestructive evaluation, and smart and self-healing materials and systems that are crucial to NASA’s exploration goals. Researchers at NASA LaRC recognize the close relationship of aeronautics and space applications and adapt the techniques of one discipline for use in the other.

NASA LaRC focuses on the early stages of system definition, technology advancement, and private sector growth through the commercialization of its technology. NASA LaRC works collaboratively with other NASA Centers, industry, universities, and international partners to move concepts to usable, reliable components. In addition, its dedication to education and outreach, NASA LaRC makes available online

resources and programs to students and teachers, thus helping shape the next generation of scientists and researchers.