N A S A
SUPPORTED RESEARCH AT THE
UNIVERSITY OF MICHIGAN

$43M
Research Expenditures

6%
Percentage of Overall U-M Federal Support

435
Active Projects
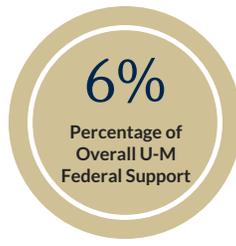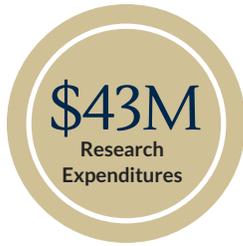
FY 2016 Research Expenditures: $43,173,240

Year-to-year, NASA-supported projects involve about:

Faculty Researchers...154
Postdoctoral Fellows..47
Graduate Student Researchers...62

**Examples of U-M projects supported by NASA:**

CYGNSS STORM CHASER SATELLITES

The Cyclone Global Navigation Satellite System, or CYGNSS, will provide scientists with the ability to see inside hurricanes as never before.

CYGNSS launched December 15 from Cape Canaveral Air Force Station in Florida.

It is measuring previously unknown details that are crucial to understanding the formation and intensity of tropical cyclones and hurricanes.

This U-M-led NASA satellite mission is using eight micro-satellites to make accurate measurements of ocean surface winds in and near the eye of the storm throughout the lifecycle of tropical cyclones, typhoons, and hurricanes, tracking intensity and storm surge.
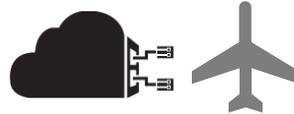
TACKLING TURBULENCE WITH BIG DATA

A U-M led team of engineers is developing a better description of *turbulence*, which could enable radical, more efficient airplane designs *and* improve prediction in other fields where chaotic flow comes into play – from the human bloodstream to weather forecasting.

The chaotic nature of turbulence is hard to simulate. By building a model from a database of airflow measurements and computations, the team hopes to make predictions based on more realistic approximations.

Netflix and Amazon also big data for predictive behavior, but their models don't need to follow the laws of physics.

The U-M led team of engineers and collaborators from Iowa and Stanford will build physics into this machine-learning approach. NASA's Leading Edge Aeronautics Research program has awarded the first phase of a $1.6 million grant to the project, with promise of a larger grant if significant progress is made.

TABLE-TOP SIZED THRUSTER

The spacecraft engine that will help take humans to Mars may be based on a U-M prototype.

NASA gave this dream new credibility by funding a spaceflight propulsion system to be built around a tabletop-sized thruster developed by Alec Gallimore, the Robert J. Vlasic Dean of Engineering at U-M.

The agency selected the thruster as part of its Next Space Technologies for Exploration Partnerships, or NextSTEP program.

NextSTEP encompasses a set of projects aimed at improving small satellites, propulsion and human living quarters in space. These are milestones toward sending humans into orbit between Earth and the moon in the 2020s and to Mars the following decade.