

NASA GLENN RESEARCH CENTER OVERVIEW

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CENTER OVERVIEW

Donald J. Campbell  
Director



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# Welcome

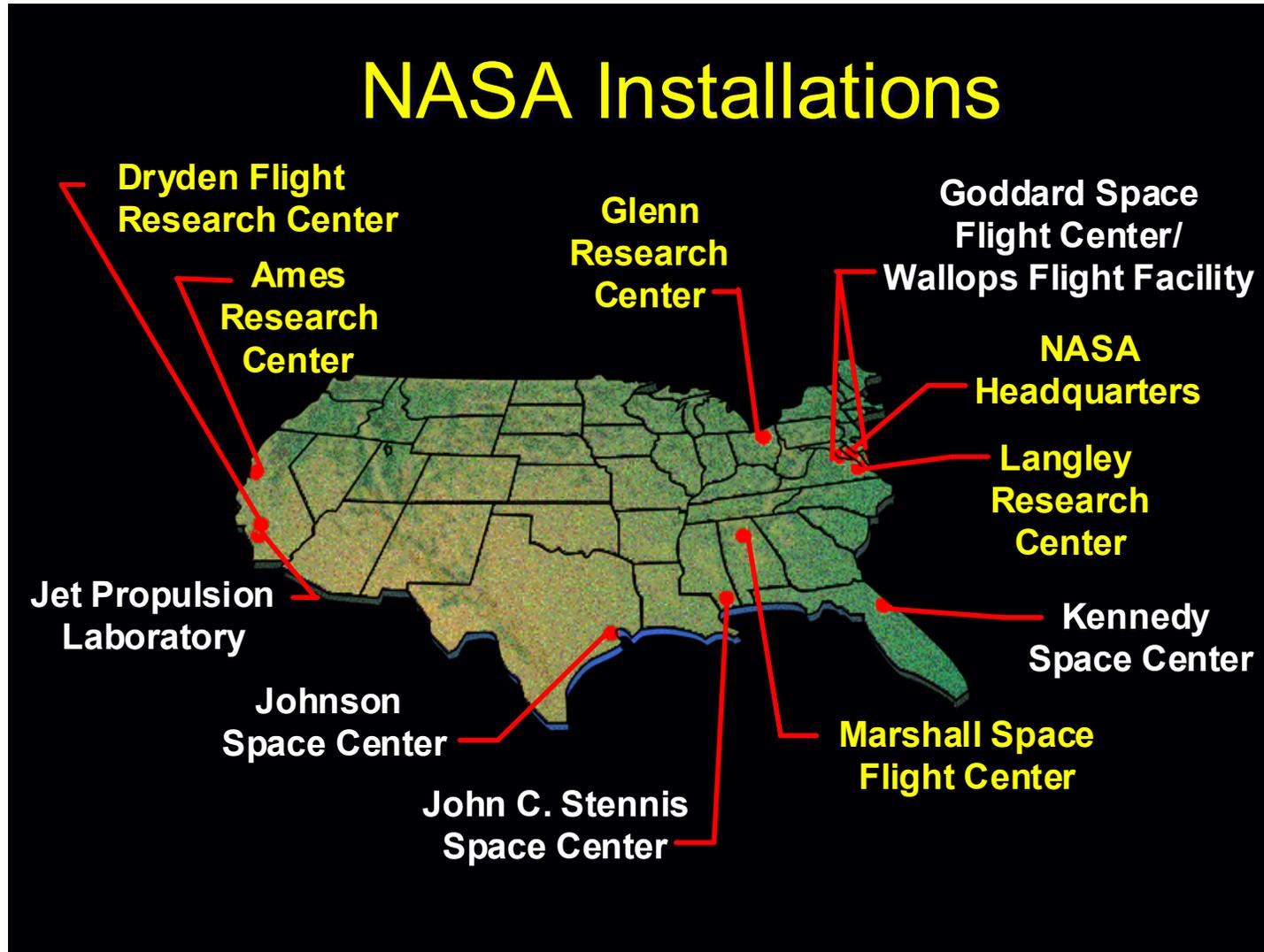


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# NASA Installations



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# NASA's Vision

- To improve life here
- To extend life to there
- To find life beyond

# NASA's Mission

- To understand and protect our home planet
- To explore the universe and search for life
- To inspire the next generation of explorers

...as only NASA can

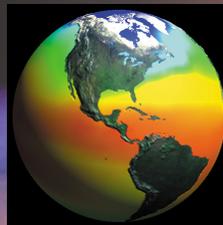
**5 Strategic Enterprises**

**One NASA**

Space Science



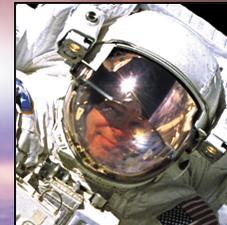
Earth Science



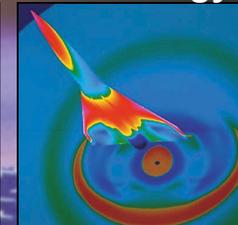
Biological & Physical Research



HEDS



Aerospace Technology



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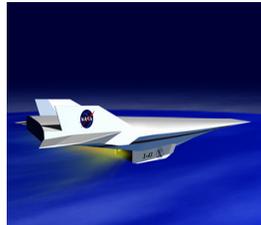
# NASA Aerospace Technology - Themes



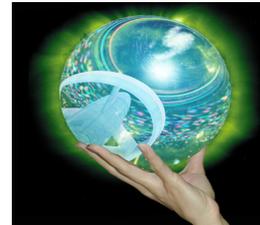
**Revolutionize  
Aviation**



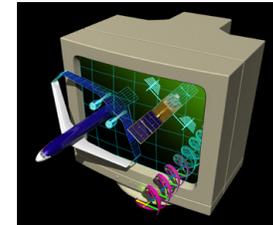
**Space Launch  
Initiative**



**Advanced Space  
Transportation  
Technology**



**Fundamental  
Technology**



**Commercial  
Technology**



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# GRC Roles and Responsibilities

## **Primary Responsibility**

- Aeropropulsion

## **Additional Responsibilities**

- Space Propulsion
- Space Power
- Space Communications

## **Transformational Responsibilities**

- Microgravity



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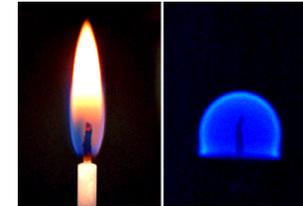


# GRC Mission Areas

## Aerospace Power



## Microgravity Science



## Aeropropulsion

Hypersonic



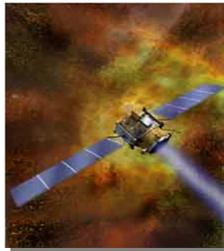
Supersonic



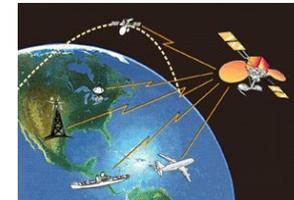
Subsonic



## Space Propulsion



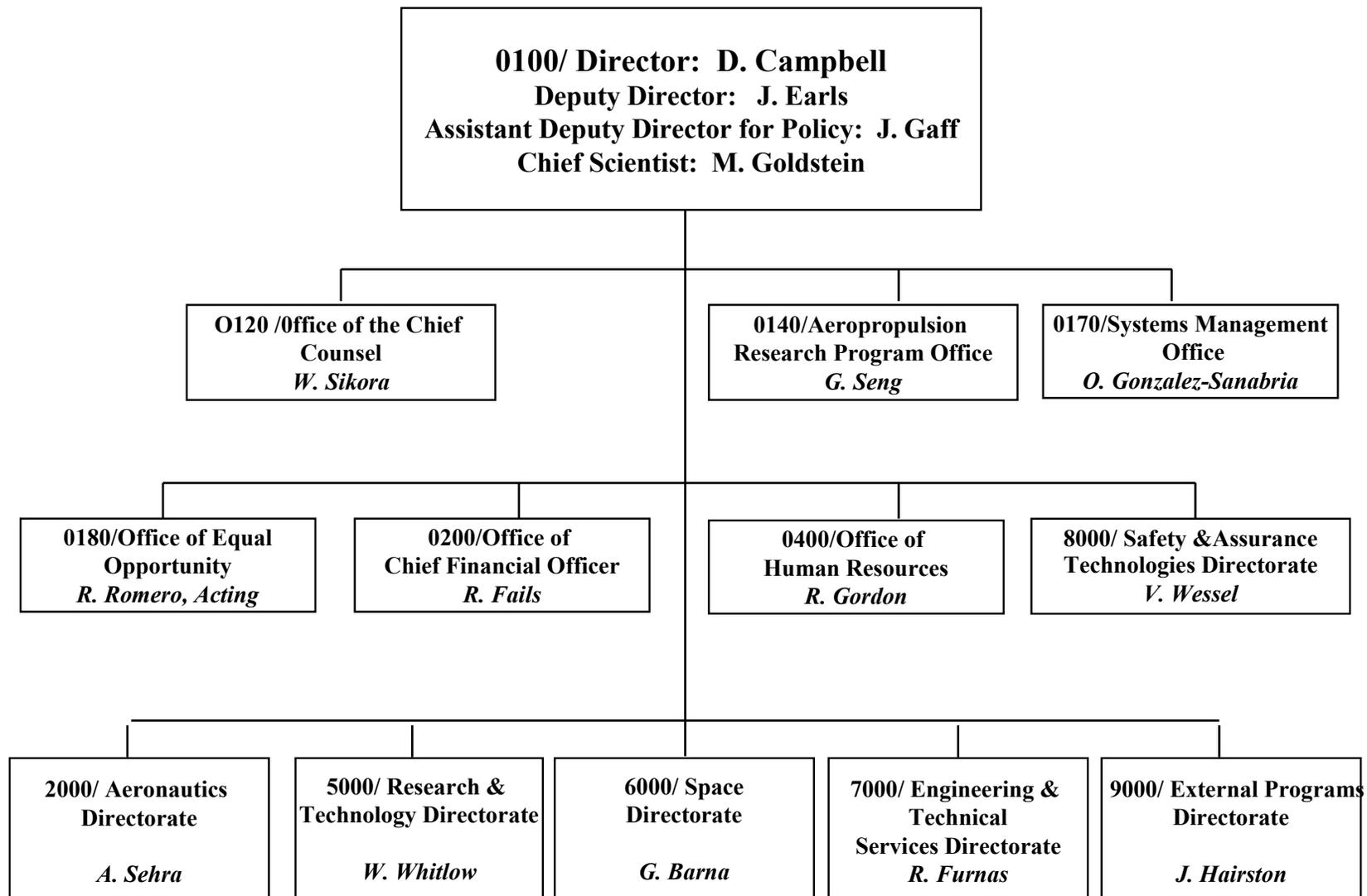
## Aerospace Communication



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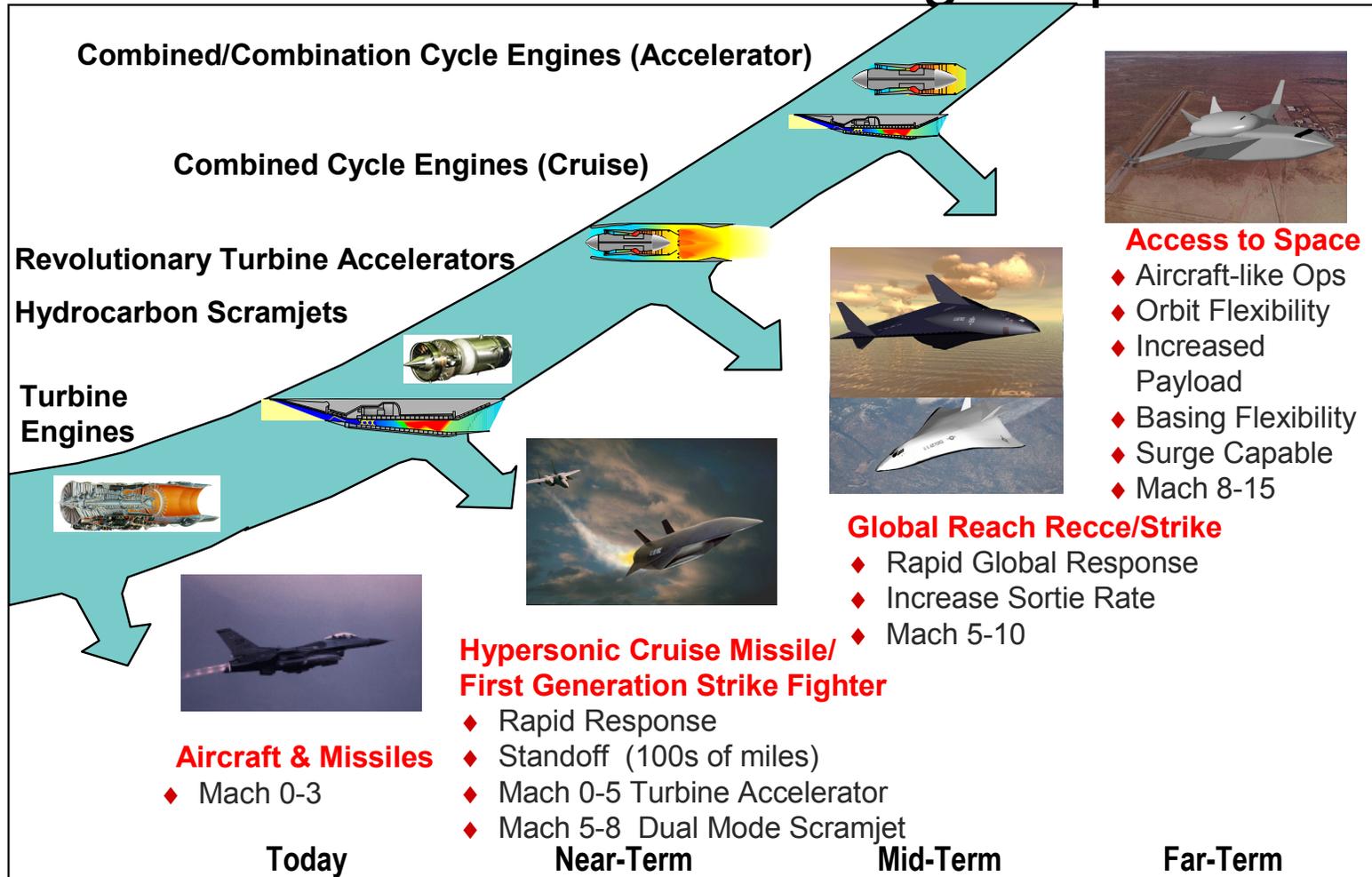


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# Potential Uses of Airbreathing Propulsion



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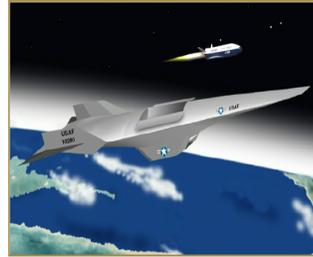


# GRC Space



## Communications

- Modeling/Analyses
- Antennas
- Solid-state devices
- Digital communications
- Vacuum electronics
- Satellite/terrestrial networks
- Spectrum Management



## Space Transportation

- Advanced Concepts/Analyses
- Airbreathing Propulsion
- Propulsion Materials/Structures
- Subsystems (Power, Actuators)
- Propellants
- Vehicle Health Management

## Microgravity Science

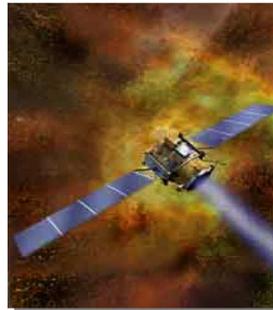


- Fluid Physics
- Combustion science
- BioScience and Engineering
- Acceleration measurements
- Flight exp. development & operations
- Space Station utilization



## Power

- Architecture/Analyses
- Generation
- Storage
- Distribution/Control
- Environmental durability
- Space Station support



## Space Propulsion

- Modeling/Analyses
- Electric
- Chemical
- Thrusters/Controls & Electronics/Feed Sys.



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# Future Plans

**Advanced aero, space, & aerospace propulsion systems**

**Nanotechnology & nanostructural engineering**

**Biomedical engineering & biotechnology**

**Information, data, & communications technology**

**Advanced health monitoring devices**

**Diagnostic instruments and controls**

**Longer life, lower cost, lightweight turbomachinery**

**Computationally designed materials & structures**

**Improved modeling, analysis, & computational methods**

**Advanced aerospace power systems**



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