



AFRL

AFOSR's Southern Office of Aerospace Research and Development

Lt Col Maribel Harmon

5 May 2023



AFRL At a Glance



- The Air Force Research Laboratory (AFRL)
 - Created in 1997 through the consolidation
 - Four former Air Force laboratories (Wright, Phillips, Rome, and Armstrong)
 - Air Force Office of Scientific Research (AFOSR).
 - 100+ years of critical research efforts
 - The primary scientific R&D center for the Department of the Air Force
 - Headquarters is at Wright-Patterson Air Force Base, Ohio
- Today’s one lab supports the Science & Technology of two services
 - Air Force (USAF)
 - Space Force (USSF)
- Develops innovative and affordable technologies and solutions to the warfighter
- Locations
 - 10 States: California, Florida, Hawaii, Nevada, New Mexico, New York, Ohio, Tennessee, Texas, and Virginia
 - International Sites in the United Kingdom, Japan, Chile, and Brazil. Australia to open by middle of 2023.

LEAD | DISCOVER |
DEVELOP | DELIVER

Locations

AFRL Headquarters
 Wright-Patterson AFB, Ohio

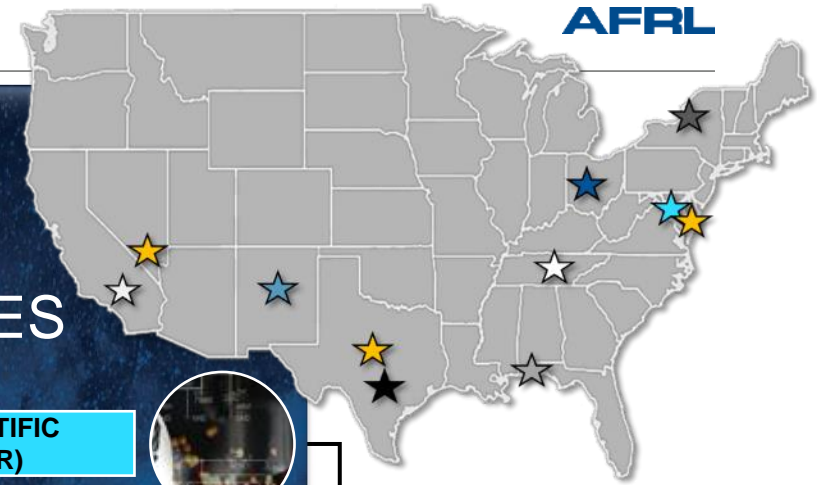
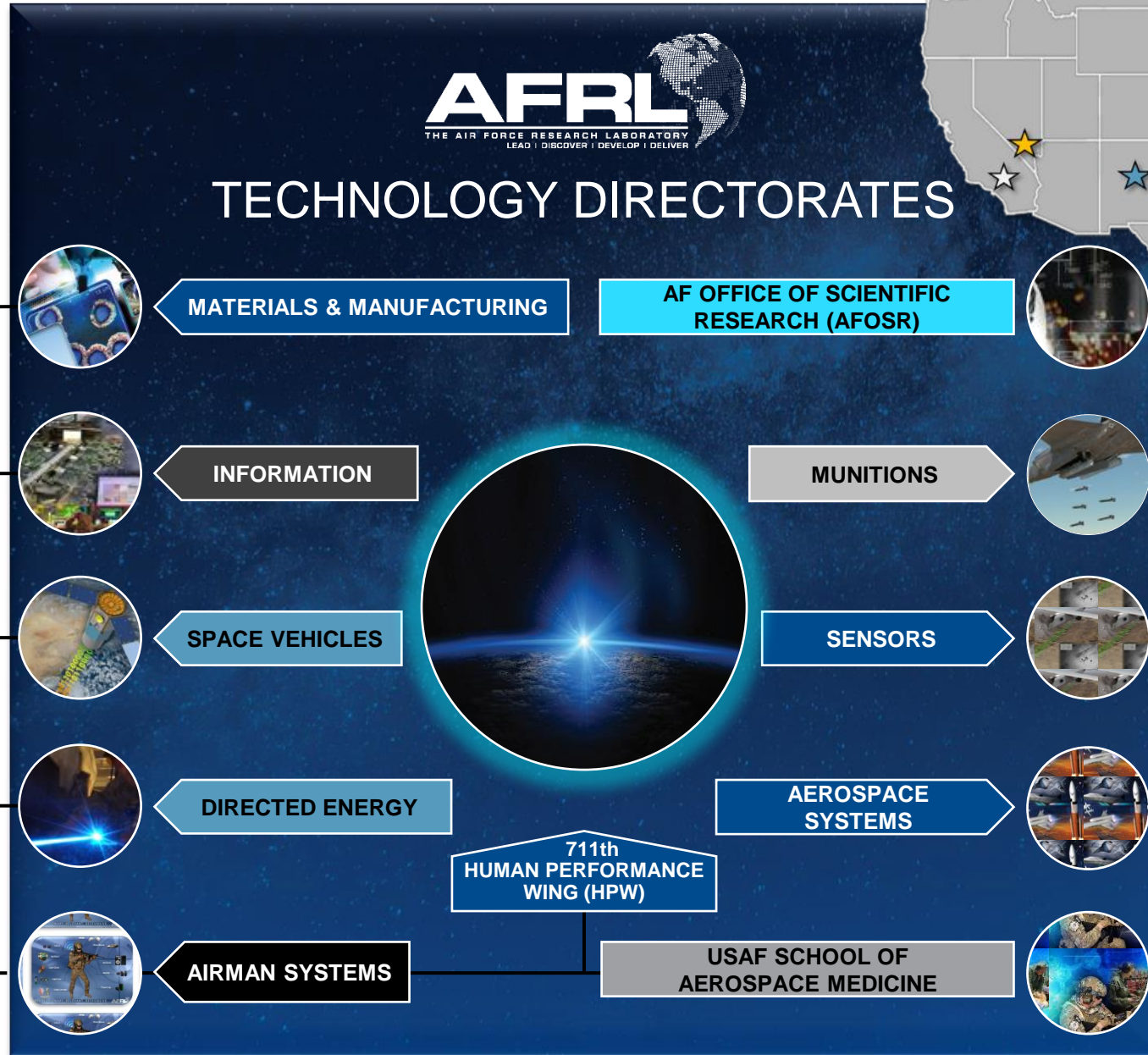
Wright-Patterson AFB, Ohio

Rome, New York

Kirtland AFB, New Mexico

Maui, Hawaii*
 Maui Research Site

Ft. Sam Houston, Texas*



Arlington, Virginia

Eglin AFB, Florida

Wright-Patterson AFB, Ohio

Edwards AFB, California

Arnold AFB, Tennessee
Arnold Engineering Development Complex

AFWERX
Las Vegas, NV -- Austin, TX
Washington D.C.

Mission



AFRL

We lead the discovery, development and delivery of warfighting technologies for our air, space and cyberspace forces



AFOSR, “We Science”!

We discover, shape, and champion bold, high-risk, high-reward basic research



International Science Division

We provide the USAF and USSF awareness of, engagement with and relationships to overseas basic research

Basic Research

32 CFR § 272.3:

Basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind.

“BASIC RESEARCH LEADS TO NEW KNOWLEDGE. IT PROVIDES SCIENTIFIC CAPITAL. IT CREATES THE FUND FROM WHICH THE PRACTICAL APPLICATIONS OF KNOWLEDGE MUST BE DRAWN.

NEW PRODUCTS AND NEW PROCESSES DO NOT APPEAR FULL-GROWN. THEY ARE FOUNDED ON NEW PRINCIPLES AND NEW CONCEPTIONS, WHICH IN TURN ARE PAINSTAKINGLY DEVELOPED BY RESEARCH IN THE PUREST REALMS OF SCIENCE.”

-- SCIENCE, THE ENDLESS FRONTIER

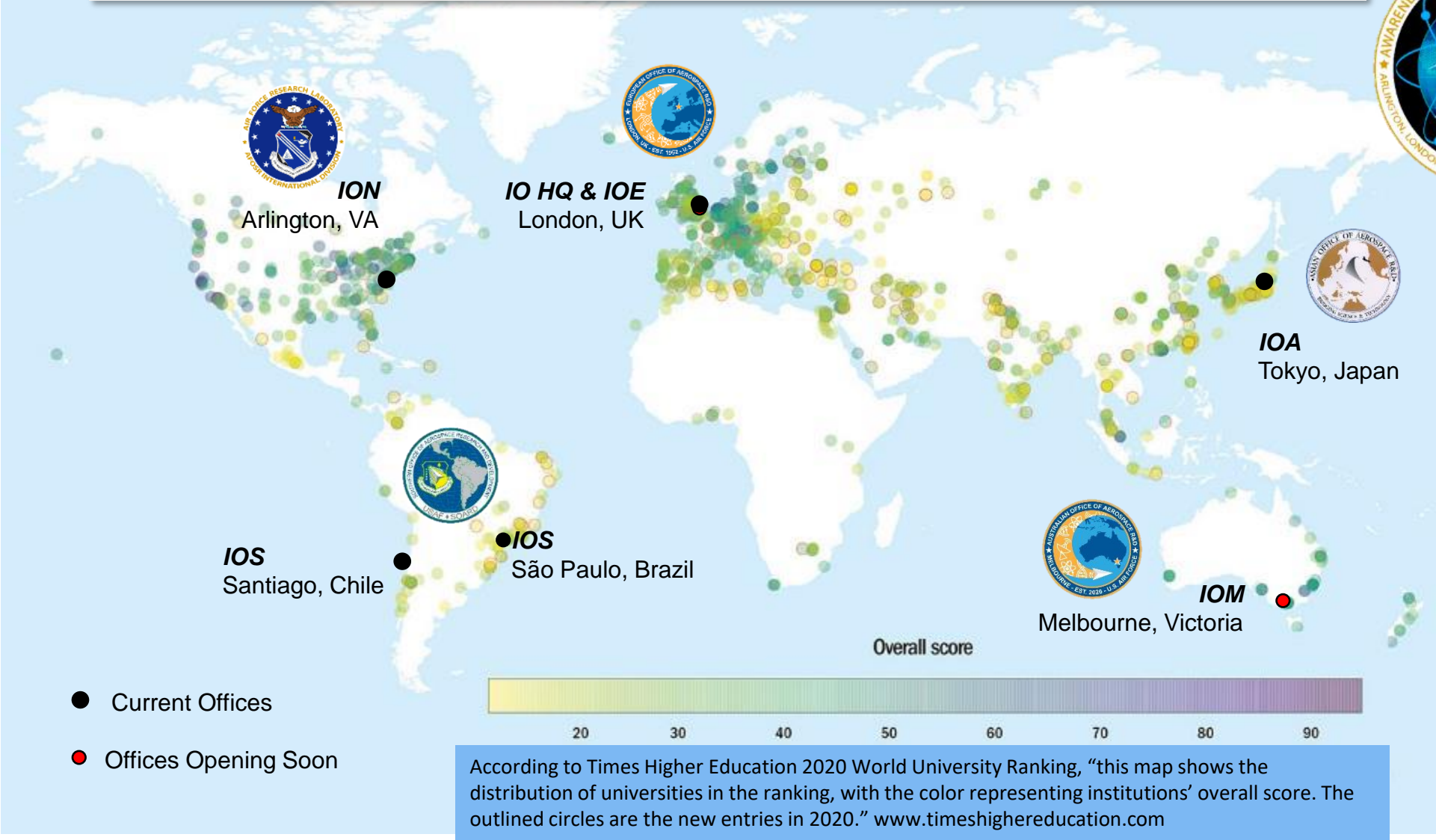
AFSOR Science & Technology Portfolios

Engineering and Complex Systems	Information and Networks	Physical Sciences	Chemistry and Biological Sciences	International Division
Dynamic Materials and Interactions	Computational Cognition and Machine Intelligence	Aerospace Materials for Extreme Environments	Biophysics	Asian Office of Aerospace R&D Tokyo
GHz-THz Electronics	Computational Mathematics	Atomic and Molecular Physics	Human Performance and Biosystems	European Office of Aerospace R&D London
Energy, Combustion, and Non-Equilibrium Thermodynamics	Dynamical Systems and Control Theory	Electromagnetics	Mechanics of Multifunctional Materials and Microsystems	Southern Office of Aerospace R&D Santiago & Sao Paulo
Unsteady Aerodynamics and Turbulent Flows	Dynamic Data and Information Processing	High Energy Radiation Matter Systems	Molecular Dynamics and Theoretical Chemistry	North America - Arlington
High-Speed Aerodynamics	Information Assurance and Cybersecurity	Optoelectronics and Photonics	Natural Materials and Systems	
Aerospace Composite Materials	Mathematical Optimization	Astrodynamics	Organic Materials Chemistry	
Multiscale Structural Mechanics and Prognosis	Science of Information, Computation, Learning, and Fusion	Quantum Information Sciences		
Propulsion and Power	Trust and Influence	Physics of Sensing		
Agile Science of Test and Evaluation (T&E)	Complex Networks	Space Science		
	Cognitive and Computational Neurosciences	Ultrashort Pulse Laser-Matter Interactions		
		Condensed Matter Physics		





AFOSR International Compared to World University Ranking map



IOS (SOARD) in Latin America

Our Mission: Identify & support basic science research in Mexico, Central, and South America

- Foreign engagement provides awareness & avoids technological surprises
- Fosters international relationships for mutual benefit



Portfolio Areas and Contacts



Information Science, Optimization, and HCI

Lt Col Christopher Carson (christopher.carson.1@us.af.mil)



High & Low Speed Aerodynamics

Col Roger Greenwood (roger.greenwood@us.af.mil)



Space Science

Lt Col Maribel Harmon (maribel.harmon@us.af.mil)



Microelectronics, Physics

Dr. James Lyke (james.lyke.2@us.af.mil)



Regional Executive Officer

Ms. Katty Maldonado - Secondary contact for all portfolio areas (maldonadoka@state.gov)



Research Projects

Grants/contracts to support fundamental S&T of AF interest

~150 new starts per year

Conference Support

Focused support of conferences, workshops, and program reviews

~55 events per year

Windows on Science

Travel support for international researchers to interact with DoD

~150 visitors per year



White Paper Development

- **Background** – describe the current state of the art/what has been done in your area of interest and the importance of pursuing this research effort
- **Research objectives/outcomes** – details on the specific objectives of the research effort, with quantifiable goals for each – Include paragraph tying your effort to the BAA (next slide)
- **Technical approach** – the research approach that will be used to obtain the objectives/goals outlined, include the facilities available and partnerships/collaborations in place
- **Deliverables** – deliverables include quarterly financial reporting, a yearly report of research progress (annual summary in the final year), and peer reviewed journal publications
- **Budget** – all items must be broken out in the general areas of:
 - Salary (including benefits) with person/position and percentage of man year devoted to the effort
 - Travel – number of people traveling, approximate time required and general purpose (international conference, domestic conference, etc.)
 - Equipment – this item is to be used sparingly and must be supported by 2 quotes and a justification for why needed and how supports and is necessary for the effort
 - Materials/consumables – provide general idea of what this entails
 - Overhead – charged by the institution to be accompanied by policy document (this is NOT a fee)
- **References** – be sure to include literature references and cite properly



White Paper
Template

Process

- White paper submission, review, revisions, introduction to collaborators and partners
- Invitation to submit proposal package through grants.gov

Broad Area Announcement

- Apply through Grants.gov: **FA9550-23-S-0001** **START EARLY!**
- <https://www.grants.gov/web/grants/view-opportunity.html?oppld=334084>

Other Information

- Best to initiate conversation with Program Officer prior to drafting white paper/budget to pitch idea
- Typically grants are \$30,000-\$50,000/yr for 2-3 years
 - No guarantee of funding beyond year 1 (cancellation is rare)
 - No promises or guarantee of awarding grant until the contract is written
- Preference given to collaborative efforts (particularly AFRL) and multi-discipline, -national, -organization
- Tri-service partners – share white papers and funding with local Navy and Army counterparts
- **Intellectual property belongs to researchers (PI) – we encourage publication in open literature and patenting to protect your discoveries (AF support available but not necessary)**



We are AFOSR and We Science!