



Ames Research Center

in Silicon Valley



**Federal Labs as Agents of Innovation and Tech Transfer:
NASA Ames**



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Background

- **Established as an Aeronautics Research Lab 1939**
- **Became NASA Research Center 1958**
- **Expanded from Aeronautics to:**
 - Astronomy/Astrophysics
 - Information Technology/High End Computing
 - Space life sciences
 - Astrobiology
 - Material Sciences/Nanotechnology
 - Small Satellites
- **Developed NASA Research Park 2002/NAS Moffett Field**
- **Annual Budget approx. \$750M**
- **Employees: 2500 (1225 CS/1275 contractors)**



In-House Scientific and Technical Contributions to Innovation

Period 2008 – 2009

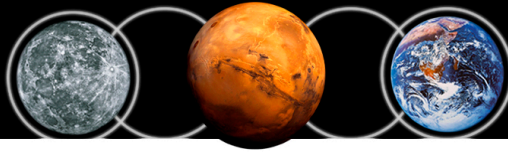
- Peer Reviewed Publications – 820
- NASA Technical Reports – 684
- Invited Presentations - 900
- Patents Issued – 31
- Significant Awards:
 - * 2008 Federal Laboratory Consortium for Technology Transfer Award
 - * NASA Software of the Year Award, 2009 (won 8 times since 1994)
 - * AIAA Lawrence Sperry Award



Ames Partnerships: Metrics

R&D Impact: Agreements, Publications, Patents, Licenses

Category	2008-2010
Space Act Agreements Processed	511
Significant Space Act Agreements	102
New Technologies Reported	559
Patents Issued	37
Licenses Executed	7
New Software Released	23
Software Use Agreements Signed	665
Spinoff Articles Published	20



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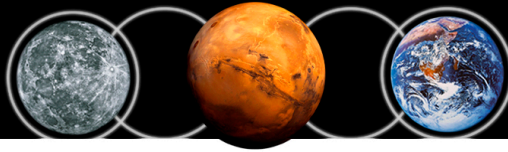
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NASA's New Direction: President's Proposed 2011 Budget Impact on Ames Research Center (ARC)

- **Increased investment in basic research and technology development**
 - Material Science
 - Nanotechnology
 - Life sciences
 - Computer Sciences (supercomputing, robotics, autonomy)
 - Aeronautics
 - Earth Sciences
- **New robotic missions and technology demonstrator missions**
 - Electric Propulsion
 - Small Satellite Missions

Impact: Major influx of new R&D resources



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NASA Research Park

A shared use R&D and educational campus to support collaboration among government, industry, academia and non-profit organizations

Current Partners:

- Academic (UCSC, CMU, SCU, FHDA, SU)
- Industry 28*
- Non-Profit 9*

Future Plans:

Build out over 4M sq. ft. office, R&D labs, university classrooms, housing, clean industry and a conference and education center.

- University Associates, LLC
- Google



* See: <http://researchpark.arc.nasa.gov> for more information



NASA Ames Economic Impacts (FY2003)

Geography/Impacts	Direct	Indirect	Induced	Total
Bay Area				
Output	\$523,330,000	\$152,756,000	\$200,607,000	\$876,693,000
Employment	3,280	803	1,223	5,306
California				
Output	\$530,684,000	\$165,215,000	\$235,785,000	\$931,684,000
Employment	3,377	963	1,564	5,904
United States				
Output	\$551,503,000	\$294,832,000	\$472,417,000	\$1,318,752,000
Employment	3,578	1,689	3,156	8,423

Notes:

(a) Includes impacts from contractor awards, civilian employment, and military employment

Sources: IMPLAN; Bay Area Economics, 2009.

Each dollar spent at Ames generates \$1.68 in economic activity within the Bay Area and \$1.76 within the California



NRP Construction Impacts (Full build out; 2009 Dollars)

Geography/Impacts (a)	Direct	Indirect	Induced	Total
Bay Area (b)				
Output	\$2,448,900,000	\$727,990,000	\$804,955,000	\$3,981,845,000
Employment (c)	1,064	288	386	1,737
California				
Output	\$2,448,900,000	\$844,580,000	\$949,683,000	\$4,243,163,000
Employment (c)	1,064	357	495	1,916
United States				
Output	\$2,448,900,000	\$1,891,036,000	\$2,033,994,000	\$6,373,930,000
Employment (c)	1,064	720	1,062	2,847

Notes:

(a) All impacts reported in 2009 dollars.

(b) The nine-county Bay Area region includes the following counties: Alameda, Contra Costa, Marin years, active construction. Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

(c) Assumes a construction phase of

15 years, active construction for commercial and residential development.

8 years, active construction for infrastructure.

Sources: IMPLAN, BAE, 2009.

As NRP partners build out facilities, approximately 3,700 construction jobs will be generated annually over the 15-year build-out period



NRP Economic Impacts (Upon build-out; 2009 Dollars)

Geography/Impacts	Direct (b)	Indirect	Induced	Total
Bay Area				
Output	\$2,262,795,000	\$885,250,000	\$863,984,000	\$4,012,029,000
Employment	11,527	4,591	5,266	21,384
California				
Output	\$2,262,795,000	\$926,997,000	\$1,005,619,000	\$4,195,411,000
Employment	11,527	5,378	6,671	23,576
United States				
Output	\$2,262,795,000	\$1,527,248,000	\$2,003,111,000	\$5,793,154,000
Employment	11,527	8,885	13,381	33,793

Notes:

(a) Includes impacts from Google, NRP tenants, and UA-SV LLC.

(b) Direct employment figures from UDA Development Plan.

Sources: DMJM; IMPLAN; Bay Area Economics, 2009.

Each dollar spent by NRP Partners generates \$1.77 in economic activity within the Bay Area and \$1.85 within the California



Barriers to Federal Laboratory Innovation in California:

- ITAR* restrictions
- Hiring foreign nationals
- High cost of living
- Marginalization of education K-16

* International Traffic in Arms Regulations



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NASA Ames Economic Impacts (FY2008)

	Direct	Indirect	Induced
Bay Area Jobs	\$750K 2500		
California Jobs			

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