

# Aerospace in the West

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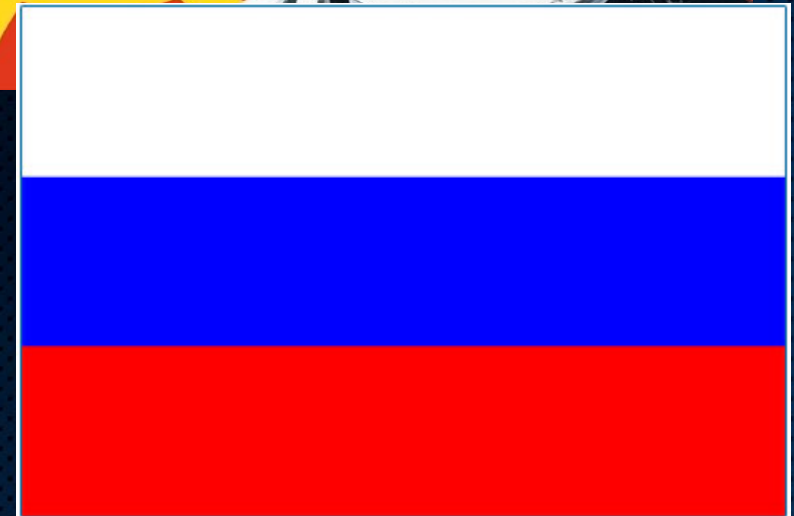




# Nations with Human Space Flight Capability



Now





# Launch!



<https://www.youtube.com/watch?v=BE6n09xgeSE>

**December 5, 2014:** A United Launch Alliance (ULA) Delta IV Heavy rocket carries America's new spacecraft, Orion, on its first test flight into space for Exploration Flight Test – 1.

The uncrewed test flight was successful and was the furthest a spacecraft designed to carry people has gone since Apollo 17 in 1972. The next test flight is not scheduled until 2017 or 2018, with the first flights with astronauts aboard presently anticipated around 2021.

Spacecraft for NASA by **Lockheed Martin Space Systems**  
Launched by **United Launch Alliance**



LOCKHEED MARTIN



## Aeronautics



## Information Systems & Global Solutions



## Missiles & Fire Control



## Mission Systems & Training



## Space Systems





# Lockheed Martin Space Systems



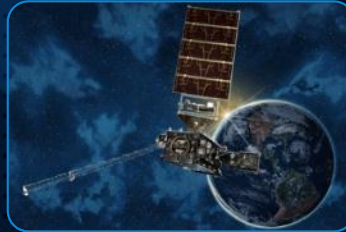
## *Civil Space*



Human Exploration



Planetary Exploration



Weather & Environment

## *Strategic & Missile Defense*



Advanced Programs



Strategic Missiles



Missile Defense

## *Military Space*



Protected Communications



Narrowband Communications



Navigation



Weather



Early Warning

## *Special Programs*



## *Commercial Space*



Remote Sensing



Commercial SATCOM

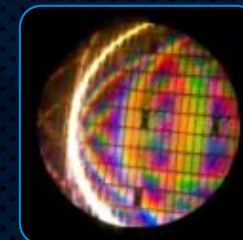


Airports / Wind Energy

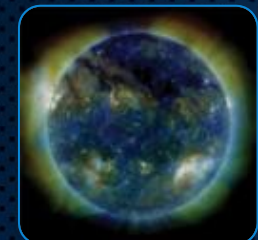
## *Advanced Technology Center*



Optics, RF & Photonics



Advanced Materials & Nano Systems



Space Sciences and Instruments

We Protect...

We Connect...

We Explore...



# Space Systems Locations



**Athena Launches**

**Livermore, CA**

- Sandia National Labs

**Sunnyvale, CA (5,025)**

- Solar Array MFG
- Comprehensive Space Vehicle I&T

**Palo Alto, CA (348)**

- Advanced Tech. Ctr

**Santa Cruz, CA**

- Test Support

**Vandenberg Air Force Base, CA**

- Western Launch Range
- Launch Operations

**El Segundo, CA**

- MILSATCOM

**Albuquerque, NM**

- Sandia Nat'l Labs
- Targets

**White Sands, NM**

- Missile Range

**Denver, CO (4,410)**

- Rocket Propulsion Testing
- CHIL
- Comprehensive Space Vehicle I&T
- Space Ops Simulation Center
- Mission Support Area
- Coherent Technologies
- Centennial, CO
- United Launch Alliance

**Houston, TX**

- Orion
- United Space Alliance

**Stennis, MS (117)**

- Propulsion MFG
- Thermal Protection

**Michoud, LA (242)**

- Orion structure
- Dream Chaser (subcontractor to Sierra Nevada Corporation)
- FAST (U.S. Air Force

**Kennedy Space Center /CCAFS, FL (550)**  
**Eastern Launch Range**

- Orion AI&T

**Helensburgh, Scotland**

- Trident strategic weapon system engineering & maintenance

**Valley Forge, PA (296)**

- Reentry Systems

**Newtown, PA (485)**

- Commercial Space
- RF & Antenna MFG
- AF Reentry Systems MFG

**Courtland, AL**

- Targets & Countermeasures Production

**Huntsville, AL (728)**

- Missile Defense
- Targets and Counter Measures MFG & Test

**Kings Bay, GA (433)**

- FBM IA&T

**In CSG West:  
AK, CA, CO, HI,  
NM, and WA**

**Bangor, WA (284)**

- FBM IA&T



**Kauai, HI**  
• PMRF

**~13,369 Total Employees**

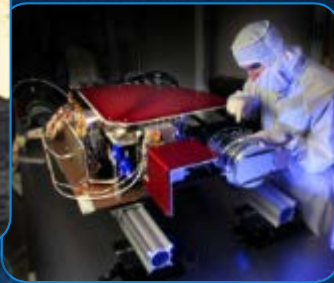
( ) is the number of employees at each location. The number of employees at locations without numbers is 99 or fewer. Does not include casual and international employees.



# Space Systems in California



- 5,550 employees
- Facilities:
  - Manufacturing
  - Satellite integration & test
  - Advanced simulation
  - Laboratories
- Programs and Operations:
  - Military communications satellites
  - Special programs
  - Environmental satellite systems
  - Strategic & missile defense systems
  - Research & development
  - Launch operations





# Space Systems in Washington



- 270 employees
- Facilities:
  - Trident II (D5) Missile Assembly/Test Operations
  - Nuclear Weapons Processing/Storage
  - Fleet Support

- Programs and Operations:
- FBM IA&T
  - Nuclear Weapons Security

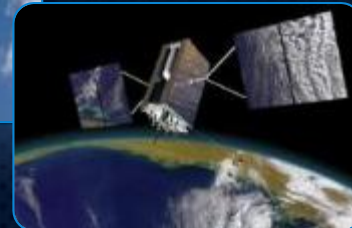




# Space Systems in Colorado



- 4,225 employees
- Facilities:
  - Manufacturing
  - Satellite integration and test
  - Advanced simulation
- Programs and Operations:
  - Robotic space exploration
  - Human exploration system
  - Special programs
  - Satellite navigation systems
  - Earth observation systems







# Alaska, Hawaii, and New Mexico

## Alaska

LMC Sales	(Data Pending)
LMC Employees Living In State	35
LMC Retirees Living In State	38
LMC Employees Working In State	23
LMC Payroll	(Data Pending)

## LMC Local Supplier Information

Number of Local Suppliers to LM	17
Supplier Dollar Contracts	\$55,915,155.91

## Local Small Disadvantaged Business (SDB) Information

Number of Local SDB Suppliers to LM	4
SDB Supplier Dollar Contracts	\$55,284,857.60

## New Mexico

LMC Sales	\$2,536,297,134.00
LMC Employees Living In State	10,913
LMC Retirees Living In State	561
LMC Employees Working In State	11,384
LMC Payroll	\$944,052,050.00

## LMC Local Supplier Information

Number of Local Suppliers to LM	138
Supplier Dollar Contracts	\$240,626,138.86

## Local Small Disadvantaged Business (SDB) Information

Number of Local SDB Suppliers to LM	15
SDB Supplier Dollar Contracts	\$172,337,051.23

## Hawaii

LMC Sales	\$192,507,466.00
LMC Employees Living In State	288
LMC Retirees Living In State	239
LMC Employees Working In State	279
LMC Payroll	\$26,762,941.00

## LMC Local Supplier Information

Number of Local Suppliers to LM	48
Supplier Dollar Contracts	\$4,855,692.35

## Local Small Disadvantaged Business (SDB) Information

Number of Local SDB Suppliers to LM	3
SDB Supplier Dollar Contracts	\$1,763,029.02

Updated July 2015

## Alaska



## Hawaii



## New Mexico





# Aerospace in Colorado



- #1 in private sector employment (per capita);  
#3 overall     52,990 Total Primary Jobs
  - 25,100 Private / 27,890 Military (+ another 109,690 supported jobs)
- Not “just” big business... Half of Colorado’s over 400 aerospace companies employ fewer than 10 people
- \$1.7 Billion in NASA Prime Contracts (#4 in the country)

*Aerospace touches every aspect of the  
Colorado Economy*



# Aerospace in Colorado

- Launch Vehicles
- Spacecraft
- Satellites
- Sensors and Instruments
- Operations and Services

## Military Examples:

- NORTHCOM/NORAD
- AF Space Command
- 3 Air Force Bases



## Private Sector Examples:



**LOCKHEED MARTIN**

**Raytheon**

**ITT EXELIS**



Ball Aerospace  
& Technologies Corp.

**NORTHROP GRUMMAN**

**ULA**  
United Launch Alliance



# LM Colorado Impact



## Deer Creek



CO Employees: 8,833

- Space Systems: 4,225  
(not counting ULA)
- IS&GS and Other: 4,608

CO Facilities: 5.3M Sq. Ft.  
CO Retirees: 7,173  
CO Payroll: \$2.2B  
CO Suppliers: 1,200  
CO Supplier Dollars: \$1.2B  
CO Sales: \$5.6B

Other Major Locations  
Include Louisville and  
Colorado Springs

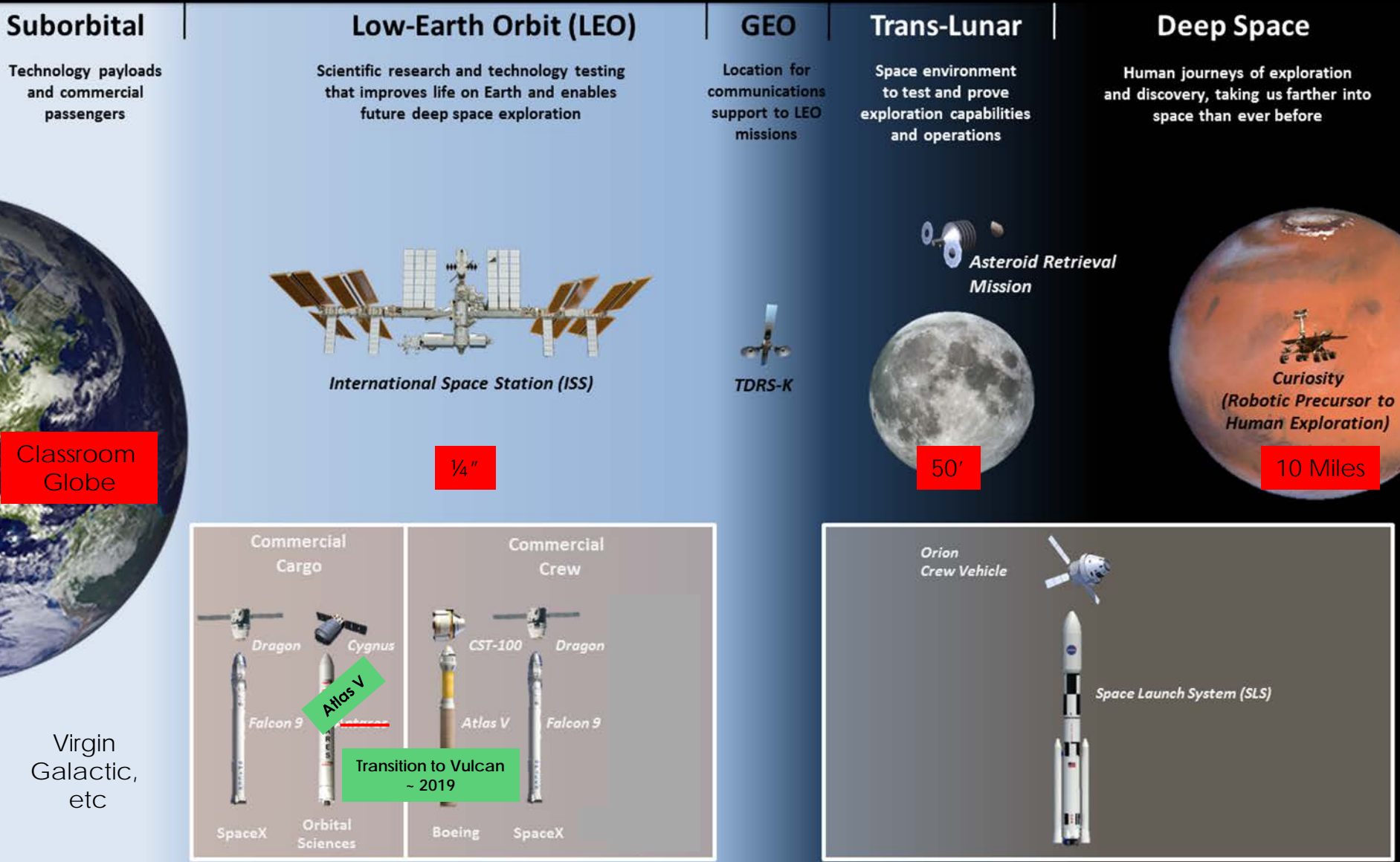
## Waterton



Deer Creek and Waterton are located near  
Chatfield State Park in the Southwest Denver Metro Area



# Transportation Capabilities to Enable Human Space Exploration



**Why Do Humans Explore?**  
Discovery | Scientific Knowledge | Returning Benefits To Humanity  
Technology & Economic Growth | Expansion of Human Civilization | International Cooperation | Public Engagement

Last Updated:  
05/03/2013



# Doing Business With Lockheed Martin



- Opportunities do exist; though more limited
- Can you provide an innovative product or an existing product with better quality, faster, cheaper, are you
- Consider starting by partnering with an existing Lockheed Martin supplier or sub-contractor
- Identify a few target businesses or programs
- Study our website and programs: [www.lockheedmartin.com](http://www.lockheedmartin.com)  
Register: "Suppliers" tab; "Doing Business with Lockheed Martin"
- Send capabilities to: [supplier.communications@lmco.com](mailto:supplier.communications@lmco.com)
- Include in Biz Card/Capabilities: NAICS Codes; CAGE Codes; DUNS Number; Socio-Economic Status; Key Words



# Example of Business Opportunity



- In my email on July 21
- Having trouble finding a supplier

## **LMB0046, Cleanroom Garments**

Lockheed Martin seeks a small business or a consortium of small businesses to supply, launder, pick up and deliver clean room garments to locations across the United States. Details will be shared in the Statement of Work provided with the RFP. Interested suppliers are requested to take two actions. First, input your company information online at <http://www.lockheedmartin.com/us/suppliers/doingbusiness.html>. Second, submit a one page capabilities statement to [supplier-diversity.dp-gtl@lmco.com](mailto:supplier-diversity.dp-gtl@lmco.com) referencing “LMB0046 Cleanroom Garments.” Respond as soon as possible, but no later than July 31.





**Colorado Space Business Roundtable**

**Aerospace Business Development**

**Road Trips**



# Purpose

- Seek potential suppliers and subcontractors
- Promote Colorado's aerospace industry
- Support STEM Education Programs





# Business Development Road Trips

- *August 5-8, 2013: Pueblo, Alamosa, Durango, Grand Junction, and Rifle*
- *September 19, 2013: Ft. Morgan*
- *July 23 – 25, 2014: Craig, Yampa Valley, and Steamboat Springs*
- *September 29 – October 3, 2014: Canon City-Alamosa-Farmington-Durango-Montrose-Buena Vista*





**“The fact that Colorado is a leading space state is not very well known, despite the fact that Colorado ranks second nationally in private-sector aerospace employment,” says Edgar Johansson, CSBR President, in a news release. “This aerospace road trip is one way we are trying to promote Colorado’s strength in the industry.”**

**“Colorado’s aerospace industry has hundreds of small- and medium-size companies along the Front Range,” said Gov. John Hickenlooper, in a news release. “Many of our communities across the state have companies that could provide the components and services that are currently sourced outside of Colorado. Aligning these efforts will strengthen Colorado’s standing as a leader in the aerospace industry and benefit our economy.”**

## The Pueblo Chieftain

### Colorado aerospace road trip attempts to extend the cluster beyond the Front Range

By Kristen Painter  
The Denver Post



Comments (3)



Launch of a United Launch Alliance Atlas V rocket, carrying MUOS-2, July 19, 2013 from Cape Canaveral AFS.

## THE BUSINESS TIMES



**BUSINESS BRIEFS BUSINESS NEWS CONTRIBUTORS FOCUS TRENDS 0**

SUBMIT PRESS RELEASE SUBSCRIBE ADVERTISING ARCHIVES

### Aerospace connections promoted

Article date: Aug 13 2013



Kelly Sloan

Kelly Sloan, The Business Times

A growing aerospace industry in Colorado offers opportunities to businesses not only on the Front Range, but also the Western Slope, according to members of an organization that recently toured the region.

Club 20 hosted members of the Colorado Space Business Roundtable on a tour that included stops in Durango, Garfield County and Grand Junction.

## POST INDEPENDENT CITIZEN TELEGRAM

Serving Glenwood Springs, Rifle, and Grand Junction, CO

**“Today is just the starting point,” said roundtable chair Stacey DeFore. “We want to see this develop into a dialog we can continue in the future. And we will be back.”**

**Thank you to  
CLUB 20, Action 22,  
Progressive 15 and  
our Congressional  
Offices for being  
such great partners!**

## THE DAILY SENTINEL

GRAND JUNCTION, COLORADO

**Space firms promise to work with Rifle businesses at Colorado Space Business Roundtable meeting**

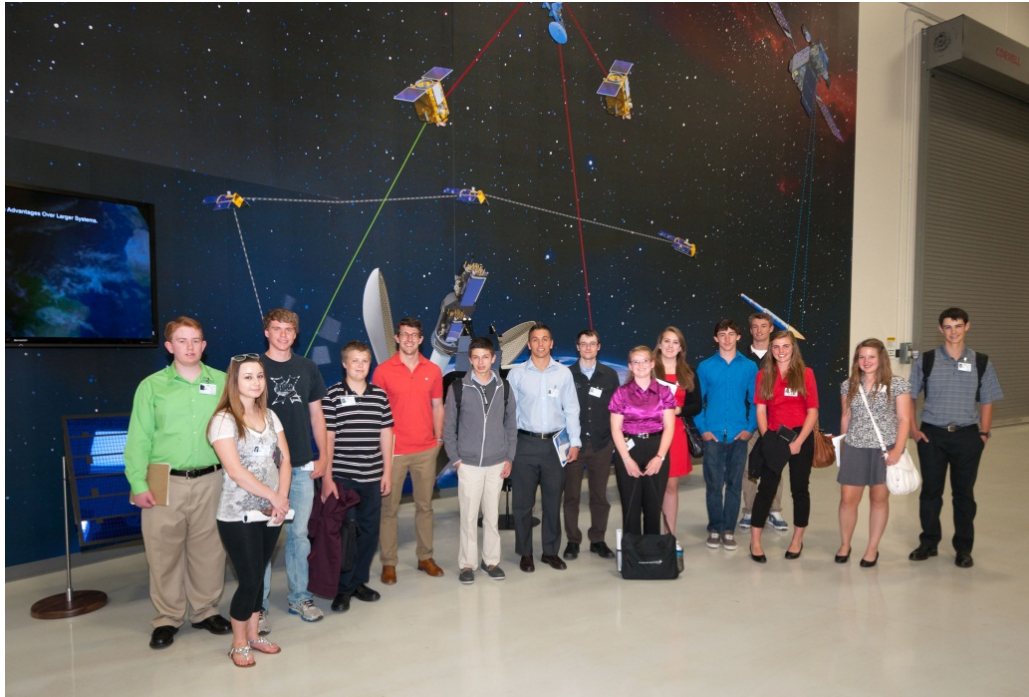
**Club 20 hosting forum for aerospace industry**

**Space visit: Aerospace industry could partner with Rifle**



# Upcoming Events

- **Next Road Trip:** August 18-21 (Southeast)  
Trinidad, La Junta, Lamar, and Limon
- **CSBR Social (BBB):** August 26, 4-8 p.m.  
Wings Over the Rockies
- **Colorado Space Roundup:** December 9, All Day, Denver Museum of Nature and Science
  - **Suppliers Open House:** December 10



## CSBR Internship Program

Conducted in 2014 and  
2015 – Scheduled again for  
**June 2016**

Info and to Register:

<http://www.coloradosbr.org/internship/>



# Common Tour Locations...



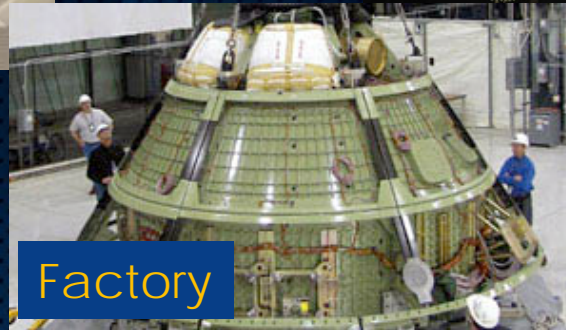
MSA



SOSC



EMF



Factory



GPF



CHIL





# Why Space is important...



- National Security
- Economic Security
- Economic Benefits
- Weather Forecasting
- Drives Innovation
- Drives Technology

Space Exploration  
Benefits Life on Earth!

*Did you know it came from space?*

- Metals, Materials, Electronics
- Improvements in mammogram technology
- GPS is used for much more than navigation!
  - Precision Timing: Internet, Finances, etc.
  - Micro-targeting of pesticides and fertilizer

*Only a few of hundreds of examples...*

<https://spinoff.nasa.gov/index.html>

## Who's Going to Lead in Space?

### Russia-China Moon Base

April 28, 2015

"The two countries are discussing China's participation in a Russian project to create a permanent manned station on the moon."

<http://sputniknews.com/world/20150428/1021463835.html#ixzz3YppzoxC3>



# Colorado Organizations

ASA-Colorado is  
CSC and CSBR



- **Colorado Space Coalition**

*Federal and State Policy and Advocacy*

[www.spacecolorado.org](http://www.spacecolorado.org)

- **Colorado Space Business Roundtable**

*Focus on Business Development*

[www.coloradosbr.org](http://www.coloradosbr.org)

- **Citizens for Space Exploration** (Free!)

*Grassroots Advocacy and Involvement*

[www.coloradosbr.org/citizensforspace](http://www.coloradosbr.org/citizensforspace)





# EXTRAORDINARY

## PEOPLE PROTECTING OUR WORLD AND FORGING THE FUTURE OF SPACE



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