Potential Impact of Investment in Small Satellite Initiative

The Virginia Tech Office of Economic Development

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Small Satellites are Big Business

- $203 billion global satellite industry
- Smallsat launches nearly doubled from 2014 to 2013
- Smallsat market projected to grow 17% over next five years

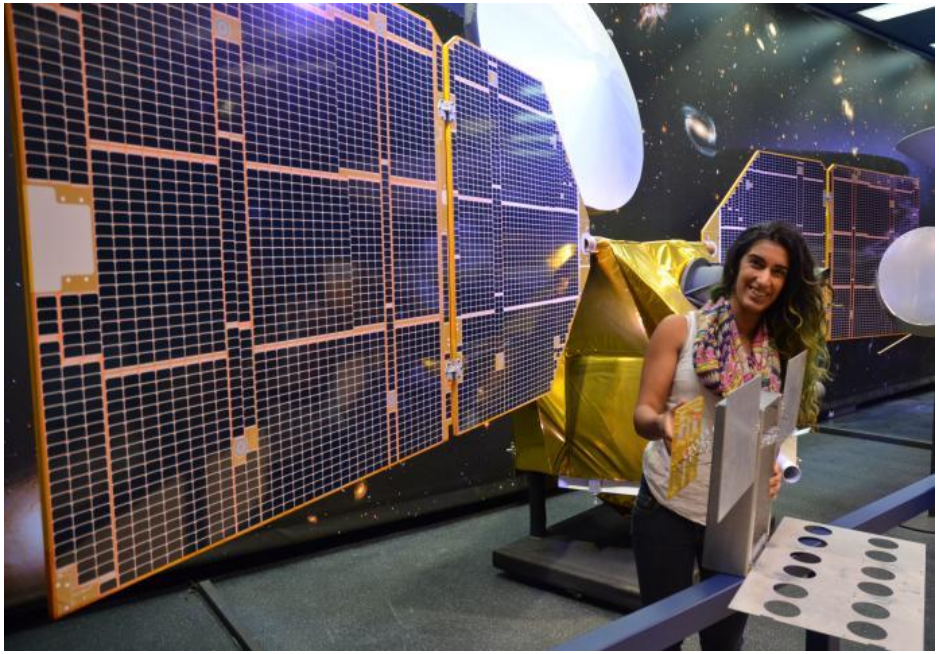

Image Credit: NASA/JPL-Caltech

Factors Driving Growth of SmallSat

- Cost Imperatives
- Launch Options
- Disruptive Technologies
- Large-Scale Private Investment
- Defense
- Entrepreneurs
- Communications Industry
- R&D

Image Credit: NASA Wallops

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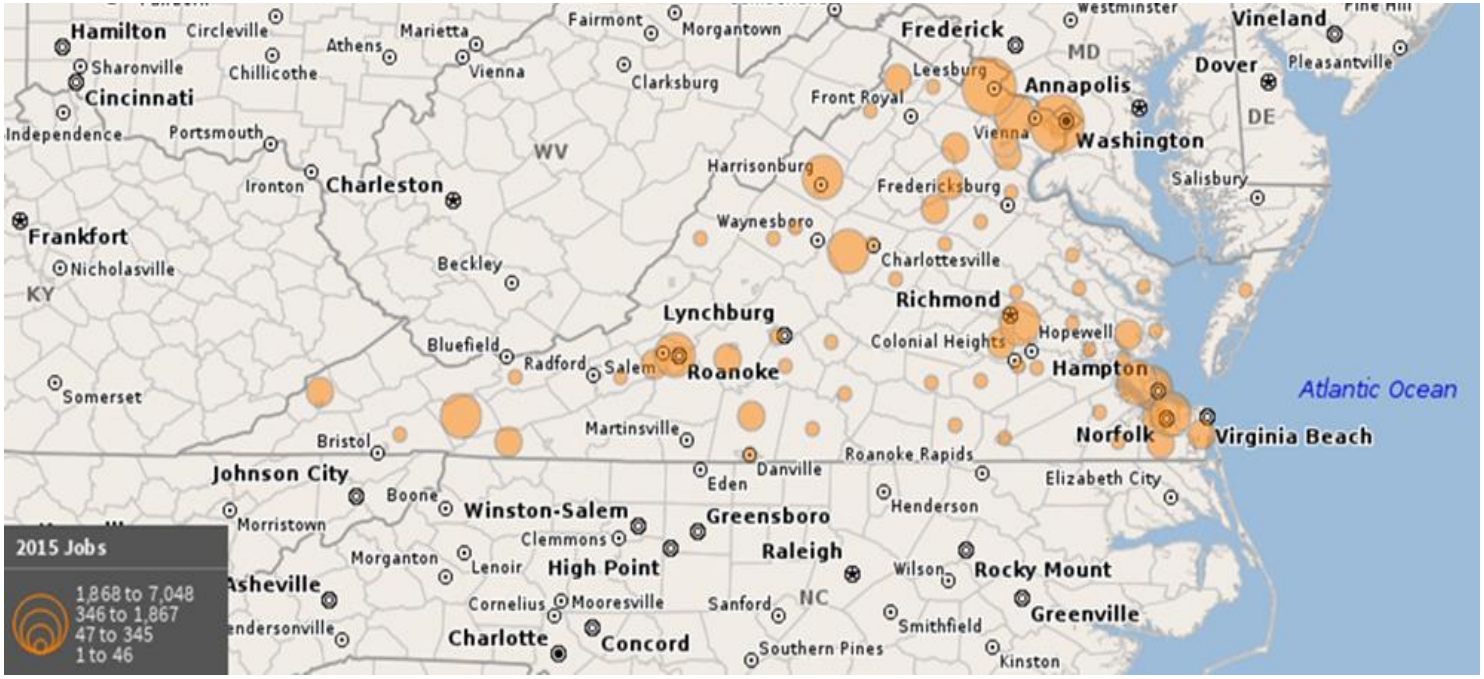
Virginia: Well-Positioned

- 265 aerospace-related firms
- 23,427 private-sector workers in 2014; plus 2,132 public-sector
- Average salary of $88,052
- Aerospace industry contributes $2.0 billion to VA economy



Virginia in Vanguard of SmallSat Surge

- NASA Langley Capabilities
- Wallops a "natural fit" – many firsts in smallsat
- VSGC member research capacities
- Significant private sector presence

Image Credit: NASA Langley

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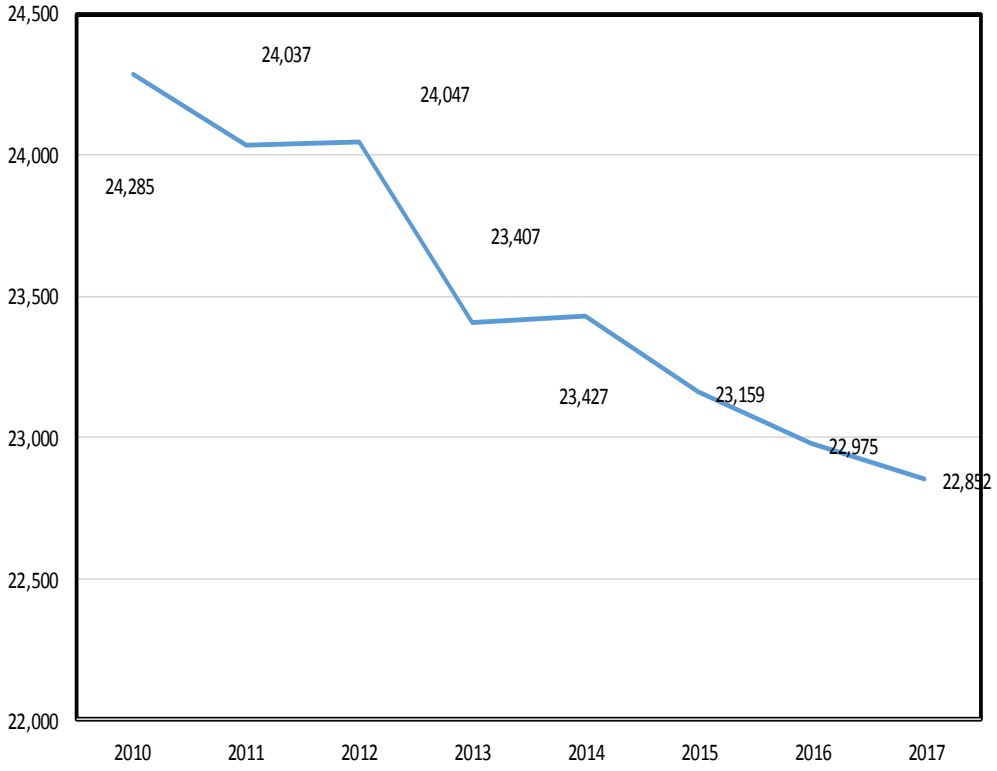
Research Support can Enhance SmallSat Cluster

- KY - $3 million annual investment in SmallSat
- KS – aviation cluser state r&d investment generated a 9:1 return
- Ontario – heavy public r&d investment
- Toulouse, France – public support catalyzed cluster formation

Image credit: NASA Wallops

And this is a Critical Time…

Aerospace and Aviation Employment in Virginia 2010-2014



Source: EmsiAnalyst, QCEW+Non-QCEW Employees, 2015.1

- **Slight employment declines in VA workforce**
- **Continuing modest declines in defense-related spending**
- **Virginia may be state most affected by DOD declines** (ranked first in the nation for DOD Prime Contracts with $44.6 billion in fiscal year 2013)
- **May be crucial to expand R&D to protect market share and stimulate an emerging cluster**

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Three Year Impact of $4 Million Annual Investment

	Jobs	Labor Income	Total Output
Direct	41-75	$4.8-5.1 million	$7.8-9 million
Indirect	3-6	$537,000-990,000	$1.7-3 million
Induced	10	$1.4 million	$3.9-4.2 million
Total Impact	57-89	$6.9-7.2 million	$13.5-16.2 million

- **Generated by constructing an IMPLAN model, which provides an annualized snapshot of reasonably anticipated effects**
- **Does not account for the cluster strengthening effects of this investment that would lead to a change in industry behavior over time**

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Leveraged Impact through Match and In-Kind Support

- Time donated by Initiative Partners – Assuming 5 hours/month at $150/hour
- More than $800,000 annual match through cash and in-kind support from Virginia Space Grant Consortium and Industry
- Additional cash matches possible

Equivalent $5.3 Million over Three Years

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Reasonably Anticipated ROI

- Historically, VSGC has generated an additional $6-$10 in additional investment for every $1 of NASA Space Grant funding.
- A 6:1 return on the 3-year $4 million annual state investment in research would total **$72 million**
- Cluster development literature and regional case examples suggest nurturing a smallsat cluster in which significant assets and an already high concentration of industries exist makes sound economic sense

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