

COE CST Fifth Annual Technical Meeting

Task 193: Role of COE CST in EFP

**PI: George H. Born
Bradley Cheetham**

*October 27-28, 2015
Washington, DC*



Center of Excellence for
Commercial Space Transportation



Agenda

- Team Members
- Purpose of Task
- ESIL
- Other Support
- Publications
- Next Steps
- Contact Information

Team Members

- **George H. Born** – Director Emeritus, Colorado Center for Astrodynamics Research
- **Bradley Cheetham** – Instructor/Researcher, CU Boulder, Aerospace Engineering Sciences

Team Members – Sponsors



Team Members – Supporters

- William Pomerantz – Virgin Galactic
- Greg Autry – UC Irvine
- Scott Hubbard – Stanford Univ.
- Dan Lopez – Urthecast
- Julian Mann – Skybox
- Art Anisimov – Dauria Aerospace
- Jordon Croom – SSL
- Ward Hanson – SIEPR
- Bruce Pittman – NASA
- Steve Jurvetson – DFJ
- Robert Lightfoot – NASA
- George Nield – FAA
- David Brandt – LMCO
- A.C. Charania – Virgin Galactic
- Charles Miller
- Mischa Fisher
- Carissa Christensen – Tauri Group
- Richard Dalbello - OSTP
- Lori Garver - ALPA

Task Purpose

Objectives:

- Identify key industry characteristics to facilitate EFP efforts
- Host targeted workshops to engage students and young professionals
- Support conferences to educate students and young professionals
- Incorporate young professional perspectives in ongoing industry planning efforts

COE Research Objectives

Research

- Products of workshop and ongoing EFP supporting activities

Training

- Emerging Space Industry Leaders Workshop Series

Outreach

- Disseminating activity results, promoting a broader understanding of commercial space

ESIL Workshops

- Emerging Space Industry Leaders Workshop series
- Objectives:
 - Inform – perspective, background, context
 - Perform – group analysis
 - Network – internal and external to industry
- Impact:
 - 83 participants
 - 3 publications complete

ESIL-01 – October 2011

- 26 participants
- Industry segments:
 - Point-to-point
 - Lunar Mining
 - Hosted Payloads
- Guest Contributors
 - Dennis Stone – NASA JSC
 - Max Vozoff – mv2space
 - Diane Dimeff - eSpace



ESIL-02 – March 2012

- 12 Participants
- Industry focus:
 - Government role in commercial space
- Guest contributors
 - Richard Dunn – DoD Acq.
 - Chris Shank – dCoS L. Smith
 - Alan Ladwig – NASA HQ
 - James Finch – OSD
 - Jim Van Laak – FAA AST
 - Clay Mowry - Arianespace



ESIL-03 – November 2012

- 10 Participants
- Industry focus:
 - Commercial human spaceflight training
- Guest Contributors
 - Brienna Henwood



Pictured (L to R): Nathan Wong, John Stark, Ken Davidian, Brad Cheetham, Kaizad Raimalwala, Matt Cannella, Brienna Henwood, Liz Kennick, Sirisha Bandla, Jules Feldhacker, Jim Crowell.

ESIL-04 – June 2013

- 14 Participants
- Industry focus:
 - Microgravity utilization
- Guest contributors:
 - Sirisha Bandla – CSF
 - Cassie Kloberdanz – SNC
 - Dan Durda – SwRI
 - Khaki Rodway – XCOR



ESIL-05 – November 2013

- 5 Participants
- Industry focus:
 - Smallsat dedicated launcher
- Guest Contributors:
 - William Pomerantz – Virgin Galactic

ESIL-06 – May 2014

- 7 Participants
- Industry focus:
 - Commercial remote sensing
- Guest Contributors:
 - Greg Autry – UC Irvine
 - Scott Hubbard – Stanford Univ.
 - Dan Lopez – Urthecast
 - Julian Mann – Skybox
 - Art Anisimov – Dauria Aerospace
 - Jordon Croom – SSL
 - Ward Hanson – SIEPR
 - Bruce Pittman – NASA
 - Steve Jurvetson – DFJ

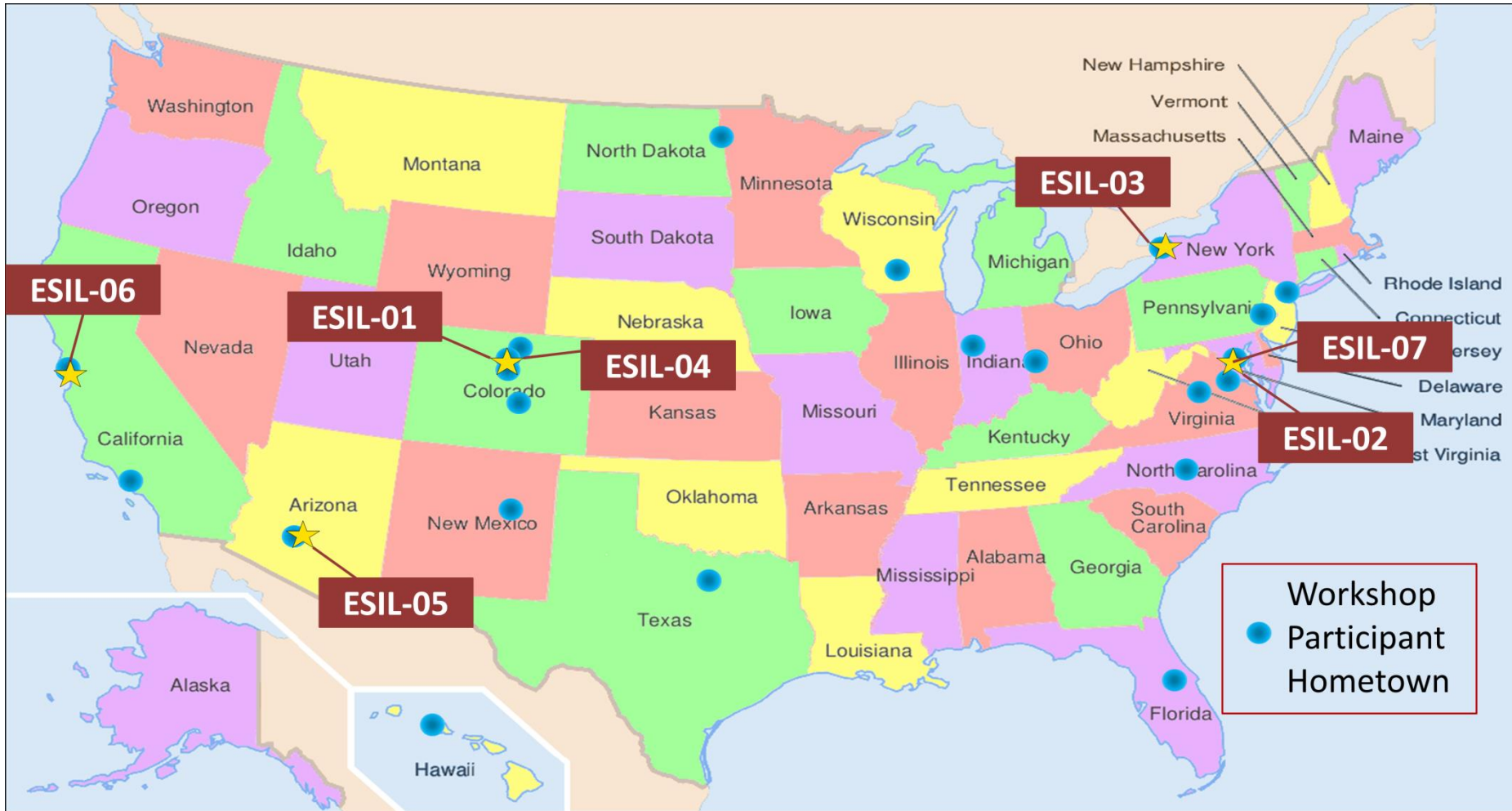


ESIL-07 – May 2014

- 12 Participants
- Industry focus:
 - Student non-profit strategy
- Guest contributors:
 - Robert Lightfoot – NASA
 - George Nield – FAA
 - David Brandt – LMCO
 - A.C. Charania – Virgin Galactic
 - Charles Miller
 - Mischa Fisher
 - Carissa Christensen -Tauri Group
 - Richard Dalbello - OSTP
 - Lori Garver - ALPA



Impact



Support Other Events

- SpaceVision Conference (2011, 2012, 2014, 2015)
 - Logistics/planning/speaker support
- Space Generation Fusion Forum (2012, 2013, 2014)
 - Logistics/planning/speaker support
 - Video recording support

Publications/Presentations

- Bandla, Sirisha, Bradley Cheetham, Rachel Hakeem, and Luis Zea, **Applying Insights of Game Theory to the Microgravity Utilization Market**, 65th International Astronautical Congress, Toronto Canada, IAC-14,E6,3,3,x24346
- Henwood, Brienna, Nathan Wong, John Stark, Ken Davidian, Bradley Cheetham, Kaizad Raimalwala, Matt Cannella, Liz Kennick, Sirisha Bandla, Jules Feldhacker, and Jim Crowell, **“The ‘Game’ of Training Humans for Commercial Suborbital Spaceflight,”** 64th International Astronautical Congress, Beijing China, IAC-13-E6.2.3
- Cheetham, Bradley, Juliana Feldhacker, Angela Peura, Ashley Chandler, Cassie Kloberdanz, and Lewis Groswald, **“Government’s Role in Commercial Space from the Perspective of Emerging Industry Leaders,”** 63rd International Astronautical Congress, Naples Italy, IAC-12-E6.4-D4.2.1.

Next Steps

- Get to ESIL-10
 - Planning stages of 3 more ESIL workshops
 - Considering
 - DC in March
 - NYC, LA, and/or Seattle as destinations
- Seeking partner organizations to continue efforts
 - Multiple expressions of interest
 - Goal is to continue with “franchise model”

Contact Information

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Bit.ly/ESIL_Home