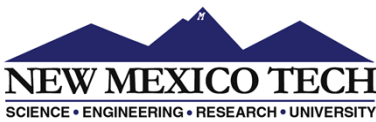




Florida Institute of Technology



[www.coe-cst.org](http://www.coe-cst.org)



Center of Excellence for Commercial Space Transportation

# Federal Aviation Administration Center of Excellence for Commercial Space Transportation

## Year 2 Annual Report

## Volume 3. Teleconference Notes

December 31, 2012



## COE CST YEAR 2 ANNUAL REPORT – VOLUME 3

This report is produced by the FAA Office of Commercial Space Transportation (AST) in fulfillment of FAA Centers of Excellence program requirements.

The full report is broken into an Executive Summary and three volumes:

- The Executive Summary gives an overview of the FAA AST, the FAA COE program and the COE CST. A brief description of the member universities precedes a series of “quad charts,” one for each task conducted by the COE CST during the second year of operation. The document ends with a listing of the Year 2 students, supporting organizations and technical publications.
- Volume 1 gives a description of the FAA COE CST, its research, structure, member universities and research tasks.
- Volume 2 is a comprehensive set of presentation charts of each research task as presented at the second Annual Technical Meeting in November 2012.
- Volume 3 is a comprehensive set of notes from all FAA COE CST teleconferences and face-to-face meetings.

This is Volume 3 of the full report.

In addition to the COE CST Executive Committee Teleconferences notes given here, the notes and audio recordings of all these meetings are available on the web at the following URLs:

#	Date	Notes URL	Audio Recording URL
1	May 29, 2012	<a href="http://db.tt/lpCD4UYs">http://db.tt/lpCD4UYs</a>	<a href="http://db.tt/nebaM7vF">http://db.tt/nebaM7vF</a>
2	June 27, 2012	<a href="http://db.tt/haVgvpLd">http://db.tt/haVgvpLd</a>	<a href="http://db.tt/LczxnAZn">http://db.tt/LczxnAZn</a>
3	July 23, 2012	<a href="http://db.tt/wHTfBjKr">http://db.tt/wHTfBjKr</a>	<a href="http://db.tt/A92YO9Jx">http://db.tt/A92YO9Jx</a>
4	August 20, 2012	<a href="http://db.tt/NLi3WVcC">http://db.tt/NLi3WVcC</a>	<a href="http://db.tt/HdZ1TH2t">http://db.tt/HdZ1TH2t</a>
5	September 17, 2012	<a href="http://db.tt/z4qoRRvN">http://db.tt/z4qoRRvN</a>	<a href="http://db.tt/KudIZcGL">http://db.tt/KudIZcGL</a>
6	October 16, 2012	<a href="http://db.tt/1sH51CRl">http://db.tt/1sH51CRl</a>	<a href="http://db.tt/bq0xN9qW">http://db.tt/bq0xN9qW</a>
7	November 12, 2012	<a href="http://db.tt/zOnA4XzW">http://db.tt/zOnA4XzW</a>	<a href="http://db.tt/nSwYMDZN">http://db.tt/nSwYMDZN</a>

Any questions or comments about the content of this report should be directed to Mr. Ken Davidian, FAA Program Manager for the Center of Excellence for Commercial Space Transportation, or Dr. Patricia Watts, FAA COE Program Director.

## Table of Contents

---

AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #01 MONDAY, 20 FEBRUARY 2012 .....	1
AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #02 MONDAY, 5 MARCH 2012 .....	3
AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #03 MONDAY, 19 MARCH 2012 .....	5
FAA AST COE CST PRINCIPAL INVESTIGATORS’ TELECON #04 MONDAY, 02 APRIL 2012 .....	7
FAA AST COE CST PRINCIPAL INVESTIGATORS’ TELECON #05 MONDAY, 16 APRIL 2012 .....	12
FAA AST COE CST PRINCIPAL INVESTIGATORS’ TELECON #06 MONDAY, 14 MAY 2012 .....	16
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #01 - TUESDAY, 29 MAY 2012 .....	19
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #02 - WEDNESDAY, 27 JUNE 2012 .....	33
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #03 - MONDAY, 23 JULY 2012 .....	41
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #04 - MONDAY, 20 AUGUST 2012 .....	49
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #05 - MONDAY, 17 SEPTEMBER 2012 .....	57
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #06 - TUESDAY, 16 OCTOBER 2012 .....	68
FAA AST COE CST EXECUTIVE COMMITTEE TELECON #07 - MONDAY, 12 NOVEMBER 2012 .....	76

## Introduction

---

This report includes all the notes from different Center of Excellence for Commercial Space Transportation (COE CST) teleconferences held during the period between August 2010 and December 2011.

Each telecom may have some combination of notes (read-ahead material sent out prior to a teleconference), minutes (taken during the teleconference and sent out after the meeting), and/or attachments.

During this time, there were four different sets of teleconferences conducted:

Starting in February 2012, six Principal Investigators' Teleconferences were held:

- February 20, 2012 - Principal Investigators' Teleconference #1
- March 5, 2012 - Principal Investigators' Teleconference #2
- March 19, 2012 - Principal Investigators' Teleconference #3
- April 2, 2012 - Principal Investigators' Teleconference #4
- April 16, 2012 - Principal Investigators' Teleconference #5
- May 14, 2012 - Principal Investigators' Teleconference #6

Starting in May, all the Principal Investigators' Teleconferences were replaced with the Executive Committee (EC) Teleconferences conducted on the following dates:

- May 29, 2012 – EC Telecon #01
- June 27, 2012 – EC Telecon #02
- July 23, 2012 – EC Telecon #03
- August 20, 2012 – EC Telecon #04
- September 17, 2012 – EC Telecon #05
- October 16, 2012 – EC Telecon #06
- November 12, 2012 – EC Telecon #07

There was no EC Telecon conducted in December 2012.

The remainder of this report volume includes all the notes, minutes and attachments from these meetings.

## AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #01 MONDAY, 20 FEBRUARY 2012

	Name		Name		Name
	Alonso, Juan – SU		Fitz-Coy, Norm – UF		Kumar, Rajan - FSU
	Alvi, Farrukh – FSU		Fuller-Rowell, Tim - CU		Oates, Billy – FSU
	An, Linan – UCF		Gordon, Ali – UCF		Ostergren, Warren - NMT
	Axelrad, Penny – CU		Gou, Jan – UCF		Rock, Steve – SU
	Born, George – CU		Hubbard, Scott – SU		Scheeres, Dan – CU
	Close, Sigrid – SU		Hynes, Pat – NMSU		Sheplak, Mark – UF
	Collins, Emmanuel – FSU		Jennings, Richard – UTMB		Vanderploeg, Jim – UTMB
	Davidian, Ken – FAA AST		Kapat, Jay – UCF		Villaire, Nat – FIT
	Durrance, Sam – FIT		Kirk, Dan – FIT		Westpfahl, Dave – NMT
	Fiedler, Tristan - FIT		Klaus, David – CU		Zagrai, Andrei - NMT

### 0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)

---

#### 0.1 Coordinating Committee Meeting Information

- Dial-In #: 712-432-0180, Participant Access Code: 898876#
- Next Meeting #02 options: March 5, 2012, 1pm EST.

#### 0.2 Proposed Order and Timing of Major Topics of Discussion

- 1.0 Reports
- 2.0 Meetings and Events
- 3.0 R&D Funding Process

### 1. REPORTS

---

#### 1.1 Upcoming Quarterly Report Dates

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - IN PROCESS: 5th quarterly reporting period ending Dec 31, 2011.
- Next Quarterly Report Due April 30, 2012 for 6th quarterly reporting period ending March 31, 2012.

#### 1.2 Other Reports

- The “COE CST Research Roadmap Report” is completed and on the COE CST web site.
- “Year 1 Annual Report Executive Summary” is completed and on the COE CST web site.
- Need to start putting final reports on the COE CST web site in the Publications section.

### 2. MEETINGS AND EVENTS

---

#### 2.1 Year 2 Meeting 1 (of 2)

- WHY: Coordinating Committee face-to-face meeting to discuss administrative topics.
- WHERE, WHEN: FSU campus, Tallahassee, FL. Specific dates in April 25-26, 2012.
- WHO: COE CST Coordinating Committee members, CESTAC leadership & members

Wednesday, April 25, 2012

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:00 CESTAC Discussion
- 15:30 Break
- 16:00 COE CST Topics – Part 2 (KD)
- 18:30 Dinner

Thursday, April 26, 2012

- 8:00 Breakfast
- 9:00 Welcome Address, Governor Florida
- 9:30 Welcome, FSU President
- 10:00 Keynote Speaker, Aviation
- 10:30 Keynote Speaker, Space
- 11:00 Break
- 11:30 Progress review FCAAP
- 12:00 Lunch
- 13:30 Facility Tour
- 14:30 COE CST Topics - Part 3 (KD)
- 16:30 Poster Session, Exhibition & Technology Demonstration
- 18:30 Reception & Dinner

- COE CST Topics Include:
  - MIS run-through and description
  - CST Industry Overview – Pairings
  - Letters to Wilson Felder
  - Drafting of Annual Evaluation Questions
  - Strategic Planning

### 3. R&D FUNDING PROCESSES

---

#### 3.1 FY12 AST R&D Funding - Internal Solicitation for Research (ISR) Process

- ISR-1 and SIR-2 have been released. ISR-3 is envisioned for release on or about Feb 24.
- Proposals are due back by March 19.

#### 3.2 Other FAA Lines of Business

- Research funds from other FAA areas are being investigated. Discussions with major R&D “lines” of NAS Ops, Aviation Safety, Environment & Energy and Airports have been initiated.
- Making a coordinated impression on the person responsible for the \$180M R&D budget for the entire FAA is the goal of the planned letter writing campaign.

#### 3.3 NASA

- NASA Ames and HQ OCT have expressed specific intentions to participate in COE CST research activities through the contribution of funds.
- Other NASA centers and offices within HQ have expressed general interest in participating in the COE CST.
- More COE CST interactions with NASA folks will be conducted at the NSRC in Palo Alto.
- The Reimbursable Agreement between NASA and FAA that would allow transfer of funding is under review by NASA and FAA legal offices.

## AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #02 MONDAY, 5 MARCH 2012

	Name		Name		Name
	Alonso, Juan – SU		Fitz-Coy, Norm – UF		Kumar, Rajan - FSU
	Alvi, Farrukh – FSU		Fuller-Rowell, Tim - CU		Oates, Billy – FSU
	An, Linan – UCF		Gordon, Ali – UCF		Ostergren, Warren - NMT
	Axelrad, Penny – CU		Gou, Jan – UCF		Rock, Steve – SU
	Born, George – CU		Hubbard, Scott – SU		Scheeres, Dan – CU
	Close, Sigrid – SU		Hynes, Pat – NMSU		Sheplak, Mark – UF
	Collins, Emmanuel – FSU		Jennings, Richard – UTMB		Vanderploeg, Jim – UTMB
	Davidian, Ken – FAA AST		Kapat, Jay – UCF		Villaire, Nat – FIT
	Durrance, Sam – FIT		Kirk, Dan – FIT		Watkins, Joylynn - NMSU
	Fiedler, Tristan - FIT		Klaus, David – CU		Westpfahl, Dave – NMT
					Zagrai, Andrei - NMT

### 0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)

---

#### 0.1 Coordinating Committee Meeting Information

- Dial-In #: 712-432-0180, Participant Access Code: 898876#
- Next Meeting #03: March 19, 2012, 1pm EST.

#### 0.2 Proposed Order of Major Topics of Discussion

- 1.0 Reports
- 2.0 Meetings and Events
- 3.0 FY12 COE CST R&D Funding Process
- 4.0 COE CST Web Site Comments

### 1. REPORTS

---

#### 1.1 Upcoming Quarterly Report Dates

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - IN PROGRESS: 5th quarterly reporting period ending Dec 31, 2011.
  - LATE NOTICE: Alonso (185, 258, 259, c/o Hubbard), Sheplak (241, c/o Fitz-Coy), Kapat (TO-287), Fitz-Coy (TO-288)
- Next Quarterly Report Due April 30, 2012 for 6th quarterly reporting period ending March 31, 2012.

#### 1.2 Other Reports

- Need to start putting final reports on the COE CST web site in the Publications section.

### 2. MEETINGS AND EVENTS

---

#### 2.1 Year 2 Meeting 1 (of 2)

- WHY: Coordinating Committee face-to-face meeting to discuss administrative topics.
- WHERE, WHEN: FSU campus, Tallahassee, FL. Specific dates in April 25-26, 2012.
- WHO: COE CST Coordinating Committee members, CESTAC leadership & members



Wednesday, April 25, 2012

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:00 CESTAC Discussion
- 15:30 Break
- 16:00 COE CST Topics – Part 2 (KD)
- 18:30 Dinner

Thursday, April 26, 2012

- 8:00 Breakfast
- 9:00 Welcome Address, Governor Florida
- 9:30 Welcome, FSU President
- 10:00 Keynote Speaker, Aviation
- 10:30 Keynote Speaker, Space
- 11:00 Break
- 11:30 Progress review FCAAP
- 12:00 Lunch
- 13:30 Facility Tour
- 14:30 COE CST Topics - Part 3 (KD)
- 16:30 Poster Session, Exhibition & Technology Demonstration
- 18:30 Reception & Dinner

- Topics for agenda items listed as “COE CST Topics” above Include:
  - MIS run-through and description
  - CST Industry Overview – Pairings
  - Letters to Wilson Felder [1]
  - Draft of Annual Survey Questions [2]
  - Matching Funds Strategies
  - Strategic Planning Overview
- Homework (to be completed before arriving at this meeting):
  1. Ideas for at least 3-5 future COE CST research tasks. Include the following info: (i) Title, (ii) Relevance to FAA AST and Commercial Space Industry, (iii) brief Statement of Work.
  2. Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?

### 3. FY12 COE CST R&D FUNDING PROCESS

---

- ISR-3 was released on Feb 26. Proposals are due back by March 19.
- During the next month, proposals received will be evaluated by AST personnel. There will be a technical and programmatic evaluation.
- Between mid-April and mid-May, tasks will be selected for funding and universities will be notified, proposals will be submitted to grants.gov, modifications will be issued and funding authorized.
- Period of performance for most tasks will begin on June 1, 2012.

### 4. COE CST WEB SITE COMMENTS

---

- RHS “Publications” “See All...” link directs to Blog page... can this be fixed?
- Please update RHS “Upcoming Events” list.
- Can we link tasks listed on “Research” page to their summary charts and full ATM-1 presentations?
- On “Members/Partners” page, can we link “University Partners” to the ATM-1 presentations of each university?
- Can we add something for the CESTAC on the “Members/Partners” page?
- Other thoughts?

## AST COE MANAGEMENT COUNCIL COORDINATING COMMITTEE MEETING #03 MONDAY, 19 MARCH 2012

	Name		Name		Name
	Alonso, Juan – SU		Fitz-Coy, Norm – UF		Kumar, Rajan - FSU
	Alvi, Farrukh – FSU		Fuller-Rowell, Tim - CU		Oates, Billy – FSU
	An, Linan – UCF		Gordon, Ali – UCF		Ostergren, Warren - NMT
	Axelrad, Penny – CU		Gou, Jan – UCF		Rock, Steve – SU
	Born, George – CU		Hubbard, Scott – SU		Scheeres, Dan – CU
	Close, Sigrid – SU		Hynes, Pat – NMSU		Sheplak, Mark – UF
	Collins, Emmanuel – FSU		Jennings, Richard – UTMB		Vanderploeg, Jim – UTMB
	Davidian, Ken – FAA AST		Kapat, Jay – UCF		Villaire, Nat – FIT
	Durrance, Sam – FIT		Kirk, Dan – FIT		Watkins, Joylynn - NMSU
	Fiedler, Tristan - FIT		Klaus, David – CU		Westpfahl, Dave – NMT
					Zagrai, Andrei - NMT

### 0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)

---

#### 0.1 Coordinating Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- Next Meeting #04: April 2, 2012, 1pm EST.

#### 0.2 Proposed Order of Major Topics of Discussion

- 1.0 Reports
- 2.0 Meetings and Events
- 3.0 FY12 COE CST R&D Funding Process
- 4.0 COE CST Web Site Comments

### 1. REPORTS

---

#### 1.1 Upcoming Quarterly Report Dates

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - IN PROGRESS: 5th quarterly reporting period ending Dec 31, 2011.
  - VERY LATE NOTICE: Alonso (185, 258, 259, c/o Hubbard), Sheplak (241, c/o Fitz-Coy), Kapat (TO-287), Fitz-Coy (TO-288) ... WHY IS THERE NO PROGRESS ON THIS?
- Next Quarterly Report Due April 30, 2012 for 6th quarterly reporting period ending March 31, 2012.

#### 1.2 Other Reports

- Need to start putting final reports on the COE CST web site in the Publications section.

### 2. MEETINGS AND EVENTS

---

#### 2.1 Year 2 Meeting 1 (of 2)

- WHY: Coordinating Committee face-to-face meeting to discuss administrative topics.
- WHERE, WHEN: FSU campus, Tallahassee, FL. Specific dates in April 25-26, 2012.
- WHO: COE CST Coordinating Committee members, CESTAC leadership & members

Wednesday, April 25, 2012

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:00 CESTAC Discussion
- 15:30 Break
- 16:00 COE CST Topics – Part 2 (KD)
- 18:30 Dinner

Thursday, April 26, 2012

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:30 Facility Tour
- 14:30 COE CST Topics - Part 3 (KD)
- 16:30 Poster Session, Exhibition & Technology Demonstration
- 18:30 Reception & Dinner

- Topics for agenda items listed as “COE CST Topics” above Include:
  - MIS run-through and description
  - CST Industry Overview – Pairings
  - Letters to Wilson Felder [1]
  - Draft of Annual Survey Questions [2]
  - Matching Funds Strategies
  - Strategic Planning Overview
- Homework (to be completed before arriving at this meeting):
  3. Ideas for at least 3-5 future COE CST research tasks. Include the following info:
    - (i) Title, (ii) Relevance to FAA AST and Commercial Space Industry, (iii) brief Statement of Work.
  4. Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?

### **3. FY12 COE CST R&D FUNDING PROCESS**

---

- ISR-3 proposals were due this morning, March 19.
- During the next month, proposals received will be evaluated by AST personnel. There will be a technical and programmatic evaluation.
- Between mid-April and mid-May, tasks will be selected for funding and universities will be notified, proposals will be submitted to grants.gov, modifications will be issued and funding authorized.
- Period of performance for most tasks will begin on June 1, 2012.

### **4. COE CST WEB SITE COMMENTS**

---

- RHS “Publications” “See All...” link directs to Blog page... can this be fixed?
- Please update RHS “Upcoming Events” list.
- Can we link tasks listed on “Research” page to their summary charts and full ATM-1 presentations?
- On “Members/Partners” page, can we link “University Partners” to the ATM-1 presentations of each university?
- Can we add something for the CESTAC on the “Members/Partners” page?
- Other thoughts?

**FAA AST COE CST PRINCIPAL INVESTIGATORS'  
TELECON #04  
MONDAY, 02 APRIL 2012**

Name	Name	Name
Alonso, Juan – SU	Fitz-Coy, Norm – UF	Kumar, Rajan - FSU
Alvi, Farrukh – FSU	Fuller-Rowell, Tim - CU	Oates, Billy – FSU
An, Linan – UCF	Gordon, Ali – UCF	Ostergren, Warren - NMT
Axelrad, Penny – CU	Gou, Jan – UCF	Rock, Steve – SU
Born, George – CU	Hubbard, Scott – SU	Scheeres, Dan – CU
Close, Sigrid – SU	Hynes, Pat – NMSU	Sheplak, Mark – UF
Collins, Emmanuel – FSU	Jennings, Richard – UTMB	Vanderploeg, Jim – UTMB
Davidian, Ken – FAA AST	Kapat, Jay – UCF	Villaire, Nat – FIT
Durrance, Sam – FIT	Kirk, Dan – FIT	Watkins, Joylynn - NMSU
Fiedler, Tristan - FIT	Klaus, David – CU	Westpfahl, Dave – NMT
		Zagrai, Andrei - NMT

**0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)**

---

**0.1 Coordinating Committee Meeting Information**

- Dial-In #: 712-432-0180, Participant Access Code: 898876#
- The next telecon is scheduled to be conducted on April 16, 2012, 1pm EDT.

**0.2 Proposed Order of Major Topics of Discussion**

- 1.0 Reporting Requirements
- 2.0 Meetings
- 3.0 Events
- 4.0 R&D Funding Process
- 5.0 Web Site Updates
- 6.0 Summary of Outstanding Action Items

**1. REPORTING REQUIREMENTS**

---

**1.1 Upcoming Quarterly Report Dates**

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - IN PROGRESS: 5th quarterly reporting period ending Dec 31, 2011.
  - VERY, VERY LATE NOTICE: Alonso (185, 258, 259, c/o Hubbard), Sheplak (241, c/o Fitz-Coy), Kapat (TO-287), Fitz-Coy (TO-288)?
- We need to start thinking toward the next quarterly report due April 30, 2012 for the 6th reporting period ending March 31, 2012.

**1.2 Other Reports**

- THIRD CALL: I still need pictures of the COE CST plaques from the following universities: FSU, UCF, FIT, UF, NMSU, UTMB, NMT.

**2. MEETINGS**

---

**2.1 Year 2 Meeting 1 (of 2)**

- WHY: Coordinating Committee face-to-face meeting to discuss administrative topics.
- WHERE, WHEN: FSU campus, Tallahassee, FL. Specific dates in April 25-26, 2012.
- WHO: COE CST Coordinating Committee members, CESTAC leadership & members

- Wednesday, April 25, 2012
- 8:00 Breakfast
  - 9:00 COE-CST Management Plan (KD)
  - 9:30 FAA AST R&D Processes & Plans (KD)
  - 10:00 Year 1 Evaluation Results (Pat Watts)
  - 10:30 Coffee Break
  - 11:00 COE CST Topics – Part 1 (KD)
  - 12:00 Lunch
  - 13:00 CESTAC Discussion
  - 15:30 Break
  - 16:00 COE CST Topics – Part 2 (KD)
  - 18:30 Dinner

- Thursday, April 26, 2012
- 8:00 Breakfast
  - 9:00 COE-CST Management Plan (KD)
  - 9:30 FAA AST R&D Processes & Plans (KD)
  - 10:00 Year 1 Evaluation Results (Pat Watts)
  - 10:30 Coffee Break
  - 11:00 COE CST Topics – Part 1 (KD)
  - 12:00 Lunch
  - 13:30 Facility Tour
  - 14:30 COE CST Topics - Part 3 (KD)
  - 18:30 Dinner

- Topics for agenda items listed as “COE CST Topics” above Include:
  - MIS run-through and description
  - CST Industry Overview – Pairings
  - Letters to Wilson Felder [1]
  - Draft of Annual Survey Questions [2]
  - Matching Funds Strategies
  - Strategic Planning Overview
- Homework (to be completed before arriving at this meeting):
  5. Ideas for at least 3-5 future COE CST research tasks. Include the following info:
    - (i) Title, (ii) Relevance to FAA AST and Commercial Space Industry, (iii) brief Statement of Work.
  6. Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?

## 2.2 Year 2 Meeting 2 (of 2)

- WHY:**
- Presentation of research plans and results from all funded COE CST projects.
  - Industry advisory council (CESTAC) meeting, including discussions a (possible) brief closed session, out brief.
  - Provide a forum for developing relationships between professors and students for future collaborative work.
- WHERE,**
- NMT campus, Socorro, NM.
- WHEN:**
- Specific dates in November TBD, 2012.
- WHAT:**
- Technical presentations, poster sessions, meetings, networking receptions, CESTAC meeting.
  - Tentative Agenda Items
    - CESTAC Meeting
    - Technical Presentations
    - Facility/Campus Tours
- WHO:**
- Principal investigators and students from member universities.
  - Industry advisory board (CESTAC) members
  - FAA and other government sponsors.

## 3. EVENTS

---

- If you have upcoming events, paper presentations, workshops, etc., please provide me that information so it can be included on this list.

### 3.1 Recent Past COE CST Events

- 26-27 March: Emerging Space Industry Leaders Workshop (ESIL-02), Washington DC. Information about the workshop can be seen at <http://bit.ly/ESIL-02>.

### 3.2 Upcoming COE CST Events

- 25-26 April: COE CST Year 2 Meeting 1, on the campus of FSU, Tallahassee, FL.
- 1 May: COE CST Presentation to NASA Advisory Council Commercial Space Committee, at NASA GRC, Cleveland, OH.
- TBD Nov: COE CST Year 2 Meeting 2, on the campus of NMT, Socorro, NM.

## 4. R&D FUNDING PROCESS

---

- Proposals received are undergoing technical evaluation by AST personnel.
- I am conducting the programmatic evaluation. My observations so far include:
  - Standardized budget submissions are a good thing. The figure below shows the level of detail I am finding very helpful.

SAMPLE TASK	FY19X BUDGET			\$0
	Salary	Fringe	Subtotal	\$0
<b>Personnel</b>				
Faculty			\$0	
Graduate Student			\$0	
			\$0	
<b>Other Direct Costs</b>				<b>\$0</b>
Tuition	-	-		
Publication Costs	-	-		
Travel	-	-		
Materials & Supplies	-	-		
Consultants, Subawards (NASTAR)	-	-		
Miscellaneous	-	-		
<b>Indirect Costs - Overhead</b>			\$0	<b>\$0</b>

- Meeting the intent of the COE matching requirements needs to be rewarded. I receive uneven levels of info about the matching component of the budgets.
- I'm reviewing each of the funding proposals to find savings where I can. For example, some proposals in the past and present are submitting "Matriculation Fees" in their proposals. Our funds are too scarce to be spent on such fees.
- Between mid-April and mid-May, tasks will be selected for funding and universities will be notified, proposals will be submitted to grants.gov, modifications will be issued and funding authorized.

## 5. WEB SITE UPDATES

---

### 5.1 Recently Implemented Modifications

- RHS "Publications" "See All..." link directs to Blog page... can this be fixed?

### 5.2 New or Unimplemented Modifications

- As always, please update RHS "Upcoming Events" list. Also, there are some crazy color things going on that makes it hard to read.
- Can we link tasks listed on "Research" page to their summary charts and full ATM-1 presentations?

- On “Members/Partners” page, can we link “University Partners” to the ATM-1 presentations of each university?
- Can we add something for the CESTAC on the “Members/Partners” page?
- Other thoughts?

## 6. SUMMARY OF ACTION ITEMS

---

### 6.1 Standing Actions

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide me that information so it can be included on this list.
- ALL: Review and submit ideas for COE CST website modifications and updates.

### 6.2 Episodic Actions

- ALL: Start thinking toward inputting data for the next quarterly report due April 30, 2012.
- FSU, UCF, FIT, UF, NMSU, UTMB, NMT: Please take and send me pictures of the COE CST plaques with students, if possible. (See the Stanford example below.)
- Yr2-Mtg1 Attendees: Please perform the following preparatory activities: (a) Ideas for at least 3-5 future COE CST research tasks. Include the following info: (i) Title, (ii) Relevance to FAA AST and Commercial Space Industry, (iii) brief Statement of Work; (b) Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?







## FAA AST COE CST PRINCIPAL INVESTIGATORS' TELECON #05 MONDAY, 16 APRIL 2012

Name	Name	Name
Alonso, Juan – SU	Fitz-Coy, Norm – UF	Oates, Billy – FSU
Alvi, Farrukh – FSU	Fuller-Rowell, Tim - CU	Ostergren, Warren - NMT
An, Linan – UCF	Gordon, Ali – UCF	Rock, Steve – SU
Axelrad, Penny – CU	Gou, Jan – UCF	Scheeres, Dan – CU
Born, George – CU	Hubbard, Scott – SU	Sheplak, Mark – UF
Close, Sigrid – SU	Hynes, Pat – NMSU	Vanderploeg, Jim – UTMB
Collins, Emmanuel – FSU	Jennings, Richard – UTMB	Villaire, Nat – FIT
Davidian, Ken – FAA AST	Kapat, Jay – UCF	Watkins, Joylynn - NMSU
Durrance, Sam – FIT	Kirk, Dan – FIT	Watts, Pat - FAA
Fiedler, Tristan - FIT	Klaus, David – CU	Westpfahl, Dave – NMT
	Kumar, Rajan - FSU	Zagrai, Andrei - NMT

### 0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)

---

#### 0.1 Coordinating Committee Meeting Information

- Dial-In #: 712-432-0180, Participant Access Code: 898876#
- The next telecon is supposed to be scheduled to be conducted on April 30, 2012, 1pm EDT.
- I'm not sure I can do the April 30 date due to travel. Since we do recordings, does it matter?
- I'm thinking of also recording "podcasts" on the in-between weeks. Would people listen?

#### 0.2 Proposed Order of Major Topics of Discussion

- 1.0 Reporting Requirements
- 2.0 Meetings
- 3.0 Events
- 4.0 R&D Funding Process
- 5.0 Web Site Updates
- 6.0 Summary of Outstanding Action Items

### 1. REPORTING REQUIREMENTS

---

#### 1.1 Upcoming Quarterly Report Dates

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - ACTION: Please input your information from the 6th quarterly report due April 30, 2012 for performance period ending March 31, 2012.
  - I still need to chat with Juan Alonso so he can change the status of his tasks from Red to Green.

#### 1.2 Other Reports

- FOURTH CALL: COE CST plaques pictures from the following: UCF, FIT, UF, NMSU, NMT.

### 2. MEETINGS

---

#### 2.1 Year 2 Meeting 1 (of 2)

- WHY: Coordinating Committee face-to-face meeting to discuss administrative topics.
- WHERE, WHEN: FSU campus, Tallahassee, FL. Specific dates in April 25-26, 2012.

- WHO: COE CST Coordinating Committee members, Other interested PIs, CESTAC leadership & members
- WHAT: Agenda is given below

**Wednesday, April 25, 2012**

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts via telecon)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:00 CESTAC Discussion
- 15:30 Break
- 16:00 COE CST Topics – Part 2 (KD)
- 18:30 Dinner

**Thursday, April 26, 2012**

- 8:00 Breakfast
- 9:00 COE-CST Management Plan (KD)
- 9:30 FAA AST R&D Processes & Plans (KD)
- 10:00 Year 1 Evaluation Results (Pat Watts via telecon)
- 10:30 Coffee Break
- 11:00 COE CST Topics – Part 1 (KD)
- 12:00 Lunch
- 13:30 Facility Tour
- 14:30 COE CST Topics - Part 3 (KD)
- 18:30 Dinner

- Topics for agenda items listed as “COE CST Topics” above Include:
  - MIS run-through and description
  - CST Industry Overview – Pairings
  - Letters to Wilson Felder [1]
  - Draft of Annual Survey Questions [2]
  - Matching Funds Strategies
  - Strategic Planning Overview
- Special Audio/Visual Equipment Needs
  - Teleconferencing Phone
  - Internet Access
  - 7. Computer Projector
  - 8. Projection Screen (or white wall)
- Homework (to be completed before arriving at this meeting):
- 9. Ideas for at least 3-5 future COE CST research tasks. Include the following info: (i) Title, (ii) Relevance to FAA AST and Commercial Space Industry, (iii) brief Statement of Work.
- 10. Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?

**2.2 Year 2 Meeting 2 (of 2)**

- WHY:
11. Presentation of research plans and results from all funded COE CST projects.
  12. Industry advisory council (CESTAC) meeting, including discussions a (possible) brief closed session, out brief.
  13. Provide a forum for developing relationships between professors and students for future collaborative work.
- WHERE, WHEN:
14. NMT campus, Socorro, NM.
  15. Specific dates in November TBD, 2012.
- WHAT:
16. Technical presentations, poster sessions, meetings, networking receptions, CESTAC meeting.
    - Tentative Agenda Items
      - CESTAC Meeting
      - Technical Presentations
      - Facility/Campus Tours
    - Special A/V Needs
      - Teleconferencing Phone
      - Internet Access
      - Computer Projector and Screen
      - Audio Amplification

- WHO:
17. Principal investigators and students from member universities.
  18. Industry advisory board (CESTAC) members
  19. FAA and other government sponsors.

### 3. EVENTS

---

- If you have upcoming events, please provide me that information so it can be included on this list. A specific list of what I'm looking for includes the following:
  - Papers
  - Conference presentations
  - Patents
  - Experimental testing
  - Graduations
  - Awards, Honors

#### 3.1 Recent Past COE CST Events

- 26-27 March: Emerging Space Industry Leaders Workshop (ESIL-02), Washington DC. Information about the workshop can be seen at <http://bit.ly/ESIL-02>.

#### 3.2 Upcoming COE CST Events

- 25-26 April: COE CST Year 2 Meeting 1, on the campus of FSU, Tallahassee, FL.
- 1 May: COE CST Presentation to NASA Advisory Council Commercial Space Committee, at NASA GRC, Cleveland, OH.
- TBD Nov: COE CST Year 2 Meeting 2, on the campus of NMT, Socorro, NM.

### 4. R&D FUNDING PROCESS

---

- Proposals received are undergoing technical evaluation by AST personnel.
- I sent out an email with specific questions to everybody and I appreciate the overwhelming responses I received. Thank you!
- Between mid-April and mid-May, tasks will be selected for funding and universities will be notified, proposals will be submitted to [grants.gov](http://grants.gov), modifications will be issued and funding authorized.

### 5. WEB SITE UPDATES

---

20. Web site maintenance will transition from NMSU to Orion America Technologies (OAT) in the near future. The transition period will begin May 1 and end June 1.

#### 5.1 Recently Implemented Modifications

- The RHS "Upcoming Events" list crazy coloring has been fixed! Yea!

#### 5.2 New or Unimplemented Modifications

- Can we link tasks listed on "Research" page to their summary charts and full ATM-1 presentations?
- On "Members/Partners" page, can we link "University Partners" to the ATM-1 presentations of each university?
- Can we add something for the CESTAC on the "Members/Partners" page?
- We'll add a page for the pictures of the COE CST plaques.
- Other thoughts?

## 6. SUMMARY OF ACTION ITEMS

---

### 6.1 Standing Actions

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide me that information so it can be included on this list.
- ALL: Review and submit ideas for COE CST website modifications and updates.

### 6.2 Episodic Actions

- ALL: Please start inputting your data for the 6<sup>th</sup> quarterly report due April 30, 2012.
- UCF, FIT, UF, NMSU, NMT: Please send me COE CST plaques pictures (high resolution, if possible) with students, if possible. (Pictures received so have been posted on the Commercial Space Wiki in the folder COE CST Pages<sup>1</sup>).
- Yr2-Mtg1 Attendees: Please perform the following preparatory activities:
  - (a) Ideas for at least 3-5 future COE CST research tasks. Include the following info:
    - (i) Title,
    - (ii) Relevance to FAA AST and Commercial Space Industry,
    - (iii) brief Statement of Work;
  - (b) Think of simple evaluation questions for annual survey. Can include multiple choice or ranking (e.g., on a scale of 0-10). Other types?

---

<sup>1</sup> <http://commercialspace.pbworks.com/w/page/52560873/COE%20CST%20Plaque%20Pics>

**FAA AST COE CST  
PRINCIPAL INVESTIGATORS' TELECON #06  
MONDAY, 14 MAY 2012**

	Name		Name		Name
	Alonso, Juan – SU		Fitz-Coy, Norm – UF		Oates, Billy – FSU
	Alvi, Farrukh – FSU		Fuller-Rowell, Tim - CU		Ostergren, Warren - NMT
	An, Linan – UCF		Gordon, Ali – UCF		Rock, Steve – SU
	Axelrad, Penny – CU		Gou, Jan – UCF		Scheeres, Dan – CU
	Born, George – CU		Hubbard, Scott – SU		Sheplak, Mark – UF
	Close, Sigrid – SU		Hynes, Pat – NMSU		Vanderploeg, Jim – UTMB
	Collins, Emmanuel – FSU		Jennings, Richard – UTMB		Villaire, Nat – FIT
	Davidian, Ken – FAA AST		Kapat, Jay – UCF		Watkins, Joylynn - NMSU
	Durrance, Sam – FIT		Kirk, Dan – FIT		Watts, Pat - FAA
	Fiedler, Tristan - FIT		Klaus, David – CU		Westpfahl, Dave – NMT
			Kumar, Rajan - FSU		Zagrai, Andrei - NMT

**0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)**

---

**0.1 Coordinating Committee Meeting Information**

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is supposed to be scheduled to be conducted on May 28, 2012, 1pm EDT.

**0.2 Proposed Order of Major Topics of Discussion**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• 1.0 Reporting Requirements</li> <li>• 2.0 Meetings</li> <li>• 3.0 Events</li> </ul> | <ul style="list-style-type: none"> <li>• 4.0 R&amp;D Funding Process</li> <li>• 5.0 Web Site Updates</li> <li>• 6.0 Summary of Outstanding Action Items</li> </ul> |
|--|--|

**1. REPORTING REQUIREMENTS**

---

**1.1 Upcoming Quarterly Report Dates**

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - ACTION: Please input your information from the 6th quarterly report due April 30, 2012 for performance period ending March 31, 2012.

**1.2 Other Reports**

- TBD

**2. MEETINGS**

---

**2.1 2<sup>nd</sup> ANNUAL ADMINISTRATIVE MEETING (AAM2)**

- Review of AAM2 Draft Final Report due May 17
  - The full draft report is available for download as a compressed pdf file at the following URL:  
<http://bit.ly/AAM2-DRAFT>
- Discussion of proposed merger of Planning and Coordinating Committees.
  - Concurrence received from following universities: CU, FIT, FSU, SU, UF, UTMB
- AAM2 Action Items: See Action Items section below.
- Lessons Learned Discussion

## 2.2 2<sup>nd</sup> ANNUAL TECHNICAL MEETING (ATM2)

- WHY:
21. Presentation of research plans and results from all funded COE CST projects.
  22. Industry advisory council (CESTAC) meeting, including discussions a (possible) brief closed session, out brief.
  23. Provide a forum for developing relationships between professors and students for future collaborative work.
- WHERE, WHEN:
24. NMT campus, Socorro, NM.
  25. Proposed dates: November 6-8, 2012.
- WHAT:
26. Technical presentations, poster sessions, meetings, networking receptions, CESTAC meeting.
    - Tentative Agenda Items
      - CESTAC Meeting
      - Technical Presentations
      - Facility/Campus Tours
    - Special A/V Needs
      - Teleconferencing Phone
      - Internet Access
      - Computer Projector and Screen
      - Audio Amplification
- WHO:
27. Principal investigators and students from member universities.
  28. Industry advisory board (CESTAC) members
  29. FAA and other government sponsors.

## 3. EVENTS

---

- If you have upcoming events, please provide me that information so it can be included on this list. A specific list of what I'm looking for includes the following:
  - Papers
  - Conference presentations
  - Patents
  - Experimental testing
  - Graduations
  - Awards, Honors

### 3.1 Recent Past COE CST Events

- 25-26 April: COE CST Year 2 Meeting 1, on the campus of FSU, Tallahassee, FL.
- 1 May: COE CST Presentation to NASA Advisory Council Commercial Space Committee, at NASA GRC, Cleveland, OH.
- 11 May: Jim Vanderploeg and Richard Jennings (UTMB) will be presenting at a meeting of the Committee on Aerospace Medicine and the Medicine of Extreme Environments at NASA JSC. They will talk about "progress and issues in U.S. medical certification of commercial spaceflight" related to their work on Task 183.

### 3.2 Upcoming COE CST Events

- 13-17 May: Jim Vanderploeg (UTMB) will participate on the "Data Accessibility for Occupational Surveillance and Life Science Research" panel at the 83rd Annual Meeting of the Aerospace Medical Association in Atlanta. His talk is entitled "Protection and Sharing of Medical Data Obtained from Commercial Spaceflight Participants and Flight Crew" related to his work on Task 181.
- TBD Nov: COE CST Year 2 Meeting 2, on the campus of NMT, Socorro, NM.

## 4. R&D FUNDING PROCESS

---

- Proposals received are undergoing technical evaluation by AST personnel.

- I sent out an email with specific questions to everybody and I appreciate the overwhelming responses I received. Thank you!
- Between mid-April and mid-May, tasks will be selected for funding and universities will be notified, proposals will be submitted to grants.gov, modifications will be issued and funding authorized.

## **5. WEB SITE UPDATES**

---

30. Web site maintenance will transition from NMSU to Orion America Technologies (OAT) in the near future. The transition period will begin May 1 and end June 1.

### **5.1 Recently Implemented Modifications**

- The RHS “Upcoming Events” list crazy coloring has been fixed! Yea!

### **5.2 New or Unimplemented Modifications**

- Can we link tasks listed on “Research” page to their summary charts and full ATM-1 presentations?
- On “Members/Partners” page, can we link “University Partners” to the ATM-1 presentations of each university?
- Can we add something for the CESTAC on the “Members/Partners” page?
- We’ll add a page for the pictures of the COE CST plaques.
- Other thoughts?

## **6. SUMMARY OF ACTION ITEMS**

---

### **6.1 Standing Actions**

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide me that information so it can be included on this list.
- ALL: Review and submit ideas for COE CST website modifications and updates.

### **6.2 Episodic Actions**

- ALL: Please start inputting your data for the 6<sup>th</sup> quarterly report due April 30, 2012.
- NMSU: Please send me hi-res COE CST plaques pictures with students, if possible.

### **6.3 AAM2 Actions**

- FAA AST and PIs should develop an outreach strategy that is targeted and planned to cover all the major meetings. Spots on panels and paper sessions to talk about COE CST. Recruit PIs (who may already be at the meeting) to give these presentations. (Section 1.2)
- Assuming that the overall ATM2 will require 2.5-3 meeting days (two days of presentations and one-half to one full day dedicated to the Spaceport America tour), PIs should identify their preferred set of dates for the late October, early November time frame. (Section 2.1)
- Ken Davidian will update the AST R&D Coordination Plan to show where input from industry can be inserted into the RII and ISR processes. (Section 4.1)
- The COE CST PM should initiate the IDIQ contact option with all the member universities. (Section 4.3)
- The COE CST PM will issue changes to the current Management Plan and CAs to enact changes due to admin function and quarterly reporting changes. (Section 4.4)
- COE CST PM was tasked with coordinating and arranging the meeting between Dr. Nield and Mr. Felder to request additional AST R&D funding. (Section 4.6)

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #01 - TUESDAY, 29 MAY 2012

Name	Org	Name	Org
Dr. Juan Alonso	SU	Prof. Scott Hubbard	SU
Dr. Farrukh Alvi	FSU	Dr. Pat Hynes	NMSU
Dr. Linan An	UCF	Dr. Richard Jennings	UTMB
Dr. Penina Axelrad	CU	Dr. Jay Kapat	UCF
Dr. George Born	CU	Dr. Dan Kirk	FIT
Mr. Fred Bowen	OAT	Dr. David Klaus	CU
Mr. Brad Cheetham	CU	Dr. William Oates	FSU
Ms. Carissa Christensen	CESTAC	Dr. Warren Ostergren	NMT
Dr. Sigrid Close	SU	Dr. Steve Rock	SU
Dr. Emmanuel Collins	FSU	Dr. Joe Rothenberg	CESTAC
Mr. Ken Davidian	FAA AST	Dr. Daniel Scheeres	CU
Dr. Sam Durrance	FIT	Dr. Mark Sheplak	UF
Dr. Tristan Fiedler	FIT - CESTAC	Dr. James Vanderploeg	UTMB
Dr. Norm Fitz-Coy	UF	Dr. Nathaniel Villaire	FIT
Dr. Tim Fuller-Rowell	CU	Ms. Joylynn Watkins	NMSU
Dr. Ali Gordon	UCF	Dr. Patricia Watts	FAA
Dr. Jan Gou	UCF	Dr. Dave Westpfahl	NMT
Ms. Carol Gregorek	OAT	Dr. Andrei Zagrai	NMT

### 0. BACKGROUND INFORMATION (AKA ADMINISTRIVIA)

---

#### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for on June 25, 2012, 1-2pm EDT.

#### 0.2 Proposed Order of Major Topics of Discussion

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• 1. Reporting Requirements</li> <li>• 2. Meetings</li> <li>• 3. Events</li> <li>• 4. R&amp;D Funding Process</li> </ul> | <ul style="list-style-type: none"> <li>• 5. CESTAC Report</li> <li>• 6. EC Subcommittee Reports</li> <li>• 7. Any Other Business</li> <li>• 8. Summary of Outstanding Action Items</li> </ul> |
|---|---|

#### 0.3 Attachments

- For COE CST EC Members:
  - Appendix A. Reference Information (pgs 5-6)
  - Attachment 1. Updated version of the COE CST Management Plan (pgs 7-11)
- For Students (for immediate distribution):
  - Attachment 2. RAISE Announcement (pg 12)
  - Attachment 3. Linda Olivo Amelia Earhart Fellowship – 2012 Announcement (pg 13)



## **0.4 COE CST EC Functions (Details in Appendix Sec. A.2)**

The FAA COE CST Executive Committee is responsible for the following functions:

- Develop a set of self-governance documents.
- Foster cooperative efforts among the COE CST member and non-member universities.
- Begin conducting strategic planning analyses.

## **0.5 Introduction of Orion America Technology Personnel**

- Carol Gregorek, President: M.L. Carol Gregorek, founded Orion Technology in 1992. She developed, administered, and directed engineering education and research programs for NASA, NSF, NAS, FAA, DoD, USN, USAF, academia and industry. These programs varied from Congressional mandates such as the FAA Airworthiness Assurance Center of Excellence, a multi-institutional, multi-disciplinary team addressing research, education, and technology transfer and utilization in the area of airworthiness assurance to a USN aerodynamic study of wind tunnel tests and computational fluid dynamics (CFD) analyses of the C-130 wing. Ms. Gregorek has served on the International Aeronautique Federation (IAF) Education Committee since 1989. She is active in public policy at the state and federal levels.
- Fred Bowen, Chief Financial Officer: Mr. Fredric L. Bowen has developed and managed information systems for industry, academia, and the federal government. He developed the Orion MIS, a robust management information system that provides researchers and federal monitors with a tool supporting their technical contributions, cost share, fiscal status, and partnership activity. Orion is intimately familiar in the government-preferred methods of data and fiscal procedures delivery and its participation in technical reporting and business management diminishes duplication of effort, results in a more responsive, unified reporting system, and most importantly, provides greater leveraging of funds. Mr. Bowen is recognized as a leader in information technologies.

## **1. REPORTING REQUIREMENTS**

---

### **1.1 Upcoming Quarterly Report Dates**

- Implementation of the web-based COE CST quarterly reporting system is underway.
  - ACTION: Please input your information from the 6th quarterly report due April 30, 2012 for performance period ending March 31, 2012.

### **1.2 Other Reporting Topics**

- Please enter cost-share information into MIS.
- OMIS: (1) Tips for entering data; (2) Differences between primary and other partners.

## **2. MEETINGS**

---

### **2.1 2<sup>nd</sup> ANNUAL ADMINISTRATIVE MEETING (AAM2)**

- AAM2 Final Report available at the following URL: <http://bit.ly/AAM2-FINAL>

### **2.2 2<sup>nd</sup> ANNUAL TECHNICAL MEETING (ATM2)**

- WHY:
- Presentation of research plans and results from all funded COE CST projects.
  - Industry advisory council (CESTAC) meeting, including discussions a (possible) brief closed session, out brief.
  - Provide a forum for developing relationships between professors and students for future collaborative work.

- WHERE, WHEN:**
- NMT campus, Socorro, NM.
  - Proposed dates: November 6-8, 2012.
- WHAT:**
- Technical presentations, poster sessions, meetings, networking receptions, CESTAC meeting.
  - Tentative Agenda Items
    - CESTAC Meeting
    - Technical Presentations
    - Facility/Campus Tours
  - Special A/V Needs
    - Teleconferencing Phone
    - Internet Access
    - Computer Projector and Screen
    - Audio Amplification
- WHO:**
- Principal investigators and students from member universities.
  - Industry advisory board (CESTAC) members
  - FAA and other government sponsors.

- Input regarding availability of dates:

<b>October 30 – November 1</b>	<b>November 6-8 (Proposed)</b>	<b>November 13-15</b>
• Yes: UTMB, SU	• Yes: UTMB (RJ only), FIT (TF), NMT, NMSU, CU, UF (7&8 good, not 6)	• Yes: UTMB
• No:	• Maybe: SU (must reschedule exams)	• No:
• Maybe:	• No Response Yet: UCF, FSU	• Maybe:

### 3. EVENTS

---

- If you have upcoming events, please provide me that information so it can be included on this list. A specific list of what I'm looking for includes the following:
  - Papers
  - Conference presentations
  - Patents
  - Experimental testing
  - Graduations
  - Awards, Honors

#### 3.1 Recent Past COE CST Events

- 25-26 April: COE CST Year 2 Meeting 1, on the campus of FSU, Tallahassee, FL.
- 1 May: COE CST Presentation to NASA Advisory Council Commercial Space Committee, at NASA GRC, Cleveland, OH.
- 11 May: Jim Vanderploeg and Richard Jennings (UTMB) will be presenting at a meeting of the Committee on Aerospace Medicine and the Medicine of Extreme Environments at NASA JSC. They will talk about "progress and issues in U.S. medical certification of commercial spaceflight" related to their work on Task 183.
- 13-17 May: Jim Vanderploeg (UTMB) will participate on the "Data Accessibility for Occupational Surveillance and Life Science Research" panel at the 83rd Annual Meeting of the Aerospace Medical Association in Atlanta. His talk is entitled "Protection and Sharing of Medical Data Obtained from Commercial Spaceflight Participants and Flight Crew" related to his work on Task 181.
- UTMB Residents in Aerospace Medicine win 5<sup>th</sup> Annual "RAM Bowl". UTMB Residents (and COE CST-funded students) receiving awards included:
  - Dr. Jennifer Law received the Stanley Mohler Endowed Scholarship and the Society of NASA Flight Surgeons Outstanding Student and Resident Award.
  - Dr. Becky Blue received the Life Sciences and Bioengineering Branch Ross McFarland Award and the Julian A. Ward memorial Award for Outstanding Performance in Residency.

### 3.2 Upcoming COE CST Events

- TBD Nov: COE CST Year 2 Meeting 2, on the campus of NMT, Socorro, NM.

### 4. R&D FUNDING PROCESS

---

- Initial round of funding has been allocated.
  - 6 of 11 expected proposals have been submitted to grants.gov.
- Additional funding has been sought, requested and we are awaiting word on its arrival. This should fund the outstanding (currently unfunded) tasks.

### 5. CESTAC REPORT

---

- Coming Soon...

### 6. EC SUBCOMMITTEE REPORTS

---

- Coming Soon...

### 7. ANY OTHER BUSINESS

---

- I've had three offers in the past year, two in the past week, from professors of other universities offering to fund research for the COE CST. I want to say yes right away and then figure out how to do this. Here are my initial ideas of "Gives & Gets" for the COE CST:
  - COE CST "Gives"
    - AST TM guidance
    - Presentation slots at ATMs
    - Limited status of COE CST affiliation (i.e. not eligible to receive AST R&D funding, no participation in EC telecons)
  - COE CST "Gets"
    - Increased reportable COE CST research work (# tasks, funding levels, research areas)
    - Increased university, industry and geographic diversity

### 8. SUMMARY OF ACTION ITEMS

---

#### 8.1 Standing Actions

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide me that information so it can be included on this list.

#### 8.2 Episodic Actions

- ALL: Please start inputting your data for the 6<sup>th</sup> quarterly report due April 30, 2012.
- NMSU: Please send me hi-res COE CST plaques pictures with students, if possible.

#### 8.3 AAM2 Actions

- FAA AST and PIs should develop an outreach strategy that is targeted and planned to cover all the major meetings. Spots on panels and paper sessions to talk about COE CST. Recruit PIs (who may already be at the meeting) to give these presentations. (Section 1.2)
- ✓ Assuming that the overall ATM2 will require 2.5-3 meeting days (two days of presentations and one-half to one full day dedicated to the Spaceport America tour), PIs should identify their preferred set of dates for the late October, early November time frame. (Section 2.1)
- Ken Davidian will update the AST R&D Coordination Plan to show where input from industry can be inserted into the RII and ISR processes. (Section 4.1)
- ✓ The COE CST PM should initiate the IDIQ contact option with all the member universities. (Section 4.3)

- ✓The COE CST PM will issue changes to the current Management Plan and CAs to enact changes due to admin function and quarterly reporting changes. (Section 4.4)
- ✓COE CST PM was tasked with coordinating and arranging the meeting between Dr. Nield and Mr. Felder to request additional AST R&D funding. (Section 4.6)

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                     <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                     <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                     <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                     <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### 0.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **FOSTER COOPERATIVE EFFORTS AMONG COE CST MEMBER AND NON-MEMBER UNIVERSITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 SUMMER CALENDARS

Univ.	T1 Classes Begin	T1 Classes End	T2 Classes Begin	T2 Classes End	Commencement
FIT	7-May	15-Jun	18-Jun	27-Jul	
FSU	14-May	22-Jun	2-Jul	10-Aug	11-Aug
NMT	12-Jun			3-Aug	
NMSU	24-May			3-Aug	
SU	2-Apr	NA	NA	6-Jun	17-Jun
UCF	14-May	22-Jun	25-Jun	3-Aug	4-Aug
CU	14-May	1-Jun	4-Jun	10-Aug	11-Aug
UF	14-May	22-Jun	2-Jul	10-Aug	11-Aug
UTMB					

**2012 Fall Calendars**

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Commencement
FIT	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
FSU	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
NMT	21-Aug	22-Nov	23-Nov				
NMSU	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
SU	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
UCF	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
CU	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
UF	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec
UTMB							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Commencement
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

Four meetings already conducted during first year of COE CST operation:

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX.
- Feb 9, 2011: COE CST meeting held in conjunction with the AST Conference in Washington, DC. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST Second Annual Administrative Meeting (AAM2), Tallahassee, FL.

**A.5 Past Quarterly Report Due Dates**

- Aug 18, 2010: Start of Cooperative Agreements
- Jan 30, 2011: Due date of First Quarterly Reports for period ending Dec 31, 2010.
- Apr 29, 2011: Due date of Second Quarterly Reports for period ending Mar 31, 2011.
- July 29, 2011: Due date of Third Quarterly Reports for period ending Jun 30, 2011.
- Oct 28, 2011: Due date of Fourth Quarterly Reports for period ending Sept 30, 2011.
- Jan 31, 2012: Due date for 5th quarterly reporting period ending Dec 31, 2011.
- Apr 30, 2011: Due date of 6th Quarterly Reports for period ending Mar 31, 2012.

## **ATTACHMENT 1. COE CST MANAGEMENT PLAN – DRAFT FOR YOUR REVIEW**

---

### **0. Introduction**

#### **0.1 Background**

In August 2009, the FAA Administrator signed a memo agreeing to the creation of a Center of Excellence (COE) for Commercial Space Transportation (CST) that would be supported at a minimum level of one million dollars per year for 10 years.

Following two public meetings conducted in February 2010, a competitive process was conducted over the following four months to solicit and then evaluate proposals for the COE CST.

In September 2010, Cooperative Agreements (CAs) were executed with nine universities to create the COE CST. The member universities are (in alphabetical order):

- Florida Institute of Technology (FIT, or Florida Tech)
- Florida State University (FSU)
- New Mexico Institute of Mining and Technology, (NMT, or New Mexico Tech)
- New Mexico State University (NMSU)
- Stanford University (SU)
- University of Central Florida (UCF)
- University of Colorado at Boulder (CU)
- University of Florida (UF)
- University of Texas Medical Branch at Galveston (UTMB)

Subsequently, the FAA distributed two million dollars to these universities to conduct the first set of research tasks. Through this Management Plan, the FAA encourages the COE CST member universities to cooperate and collaborate with the purpose of conducting world-class research in support of the Commercial Space Transportation industry.

Together, the nine member universities bring complementary strengths together for the benefit of the overall COE CST. FAA finds that each team member provides highly respected and accomplished experiences that directly address the research and study needs of the commercial space industry.

- Florida Tech (FIT) offers broad expertise in aerospace and space-related engineering, science, space traffic management and launch operations, vehicle and payload analysis and design, thermal systems and propulsion.
- FSU brings a range expertise and unique infrastructure in many areas relevant to the COE CST, including but not limited to: cryogenics, thermal management, vehicle aerodynamics and controls, sensors, actuators and system health monitoring and high performance simulations.
- NMT is a science, math and engineering university with a focus on applied research. Major research facilities include a rocket engine test fixture at the Energetic Materials Research and Testing Center, and a 2.4M fast tracking telescope at the Magdalena Ridge Observatory dedicated to the study of near earth objects.
- NMSU and its Physical Sciences Laboratory have led space and aerospace research in areas of suborbital investigations from the time of Werner Von Braun to the current era of commercial sub-orbital space transportation with Virgin Galactic. The 21st Century Space and Aerospace research focus encompasses annual access to space for student and faculty experiments, unmanned aerial vehicles, scientific ballooning and nano-satellite development.

- SU brings a 50 year history of aerospace research excellence and a broad scope of expertise to the COE CST, including the optimization and autonomous operation of complex systems, strategic research planning, organizational integration and distributed administration experience.
- UCF, as partners of Florida Center for Advanced Aero-Propulsion (FCAAP) and the Center for Advanced Turbines & Energy Research (CATER), offers its experience and expertise in thermal protection system, propulsion system components, cryogenic systems and materials, composites, sensors and actuators, and guidance and control.
- CU offers the COE CST their experience in spacecraft life support systems and habitat design, human factors engineering analysis, payload experiment integration, and expertise in space environment and orbital mechanics.
- UF has been performing aeronautical and aerospace research since 1941, with current emphasis in the Department of Mechanical and Aerospace Engineering on research in space systems, MEMS, computational sciences, structural dynamics, controls, gas dynamics, and propulsion.
- UTMB has a long history of medical support and human spaceflight physiological research with NASA. This is complemented by more recent involvement in the commercial orbital and suborbital spaceflight industry supporting space flight participant visits to the ISS and preparation of passengers and crew for suborbital space flights.

Additionally, the team members provided a comprehensive distribution of geographical coverage representing the entire Commercial Space Transportation industry. Combined, the nine universities bring over 50 other government, industry and academic organizations as research partners.

## **0.2 Overview**

### **Key FAA Personnel**

In this document, the following position titles are used. As of the distribution date of this document, the individuals named below hold each of these positions:

- Dr. Patricia Watts, FAA Center of Excellence (COE) Program Director
- Mr. Mike Kelly, AST Chief Engineer
- Mr. Ken Davidian, AST Director of Research and COE CST Program Manager

### **Purpose**

The purpose of the AST COE Management Plan is to define the relationships, roles, goals and membership of the COE CST organizational entities and AST.

### **Organizational Context**

As shown in the figure below, the R&D Coordination and COE are programs within the following organizational hierarchy:

- Office of Commercial Space Transportation, Deputy Associate Administrator
- Office of the AST Chief Engineer, Chief Engineer

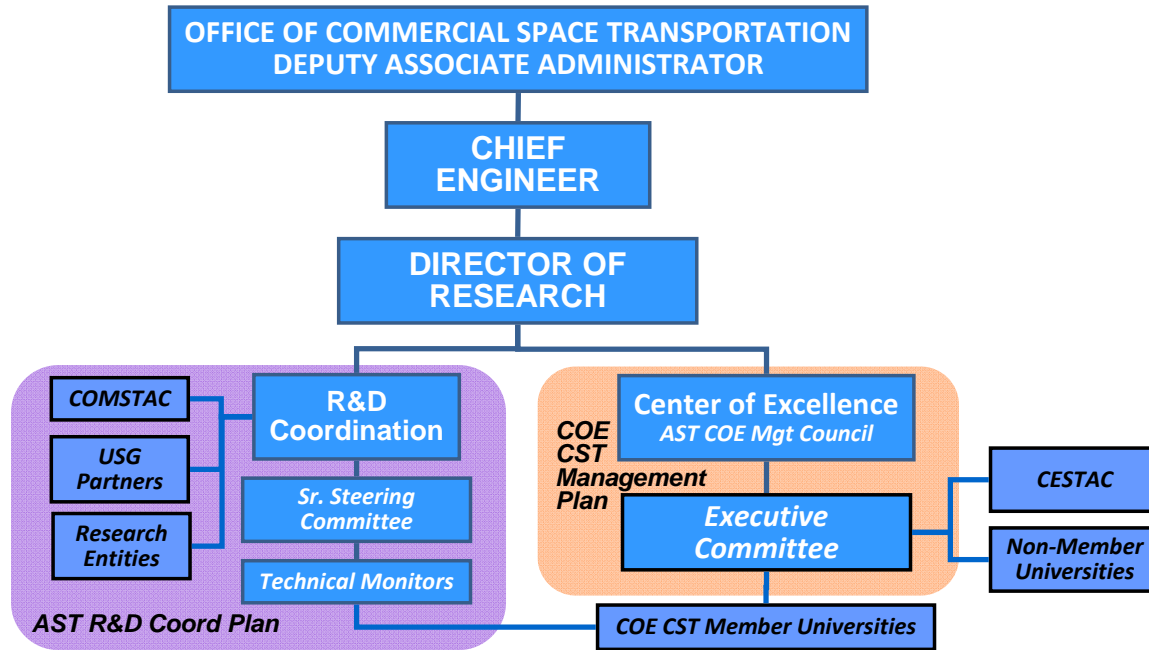
Also shown in the figure below, COE CST member universities interface with both AST's R&D Coordination processes and the COE CST. Specifically, the research task proposal and selection process, including all competition sensitive information submitted by member universities, is coordinated by the FAA AST through the R&D Coordination activity (in coordination with AST entities such as the AST Senior Steering Committee and the Technical Monitors as shown in the



figure below). All other activities of the COE CST member universities fall within the COE CST program.

### 0.3 Scope

The Center of Excellence (COE) is comprised of the AST COE Management Council (ACMC) and the Executive Committee (EC). The relationship of these entities with respect to the rest of



the FAA AST R&D organization is shown below.

General statements describing the relationships, roles, goals and membership of the ACMC and the EC are as follows:

- The AST COE Management Council (ACMC) is responsible for providing COE CST oversight and guidance based on recommendations from the Planning Committee. Details of the ACMC are given in section 1 of this document.
- The Executive Committee (EC) is responsible for strategic planning, COE CST governance; and coordination of organizational integration. More details of this committee are given in section 2.

Administrative activities of the COE CST member universities are defined in COE CST Cooperative Agreements. For activities not specified in the COE CST Cooperative Agreements, member universities are at liberty to conduct business as agreed upon among them and by the Executive Committee through a consensus-driven decision-making process.

Complementary to the functions performed by the ACMC and EC, COE CST appraisal review and audits will be performed by the FAA COE Program Office in accordance with terms of the COE Policy Guide.

Other COE CST-related organizations, including the COE CST Advisory Council (CESTAC) and other non-member universities, interact with the COE CST through the Executive Committee.

## 0.4 Abbreviations and Acronyms

Below are the abbreviations and acronyms used in this document.

ACMC	AST COE Management Council	NMSU	New Mexico State University
AOB	Any Other Business	NMT	New Mexico Tech
AST	Office of Commercial Space Transportation	PI	Principal Investigator
CA	Cooperative Agreement	PM	Program Manager
CESTAC	COE CST Industry Advisory Council	R&D	Research and Development
COE	Center of Excellence	SU	Stanford University
CST	Commercial Space Transportation	UCF	University of Central Florida
CU	University of Colorado at Boulder	UF	University of Florida
EC	Executive Committee	UTMB	University of Texas Medical Branch at Galveston
FAA	Federal Aviation Administration		
FIT	Florida Institute of Technology		
FSU	Florida State University		

### 1. AST COE Management Council

AST leadership comprises an organizational entity called the “AST COE Management Council” (ACMC). The functions and membership of the ACMC are described below.

#### 1.1 Functions

The ACMC provides official FAA AST oversight and guidance to the COE CST Executive Committee (EC).

Input from the EC is considered in the ACMC decision-making process.

#### 1.2 Membership

Permanent membership of the ACMC includes the following individuals:

- Mr. James van Laak, AST Deputy Associate Administrator.
- Mr. Mike Kelly, AST Chief Engineer.
- Mr. Ken Davidian, AST Director of Research.

## 2. Executive Committee

### 2.1 Functions and Goals

The Executive Committee (EC) is responsible for the following COE CST functions:

- DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS. Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- FOSTER COOPERATIVE EFFORTS AMONG THE COE CST MEMBER AND NON-MEMBER UNIVERSITIES. To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.

- **BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

## **2.2 Membership**

Members of the EC include:

- **EXECUTIVE COMMITTEE CHAIR.** Mr. Ken Davidian, AST Director of Research and COE CST Program Manager, is the EC Chair.
- **COE CST MEMBER UNIVERSITY REPRESENTATIVES.** Each university can be represented by COE CST Principal Investigators (PIs) and other university personnel (including staff and student observers) on an “as interested” basis. However, each university will designate a primary and secondary PI to attend the EC as a voting member.
- **CESTAC.** The COE CST Industry Advisory Council will be represented at the EC meetings by the CESTAC Chair, Vice-Chair and/or the COE CST CESTAC Point of Contact. Although they are contributing member in discussions leading to consensus, CESTAC participants are not voting members of the EC.

## **2.3 Meetings and Schedule**

Attendance at the EC meetings will be generally inclusive (allowing multiple PIs, student observers and staff as needed to attend from any given university).

EC meetings will normally be conducted by teleconference on a monthly basis with face-to-face meetings twice a year (at the annual administrative and technical meetings).

The teleconferences will be normally very short unless there were special briefings (for example, updates from the "Terms of Reference" team) or other topics to discuss.

The EC is intended to be a consensus-driven decision-making body, but in the event that decisions were not able to be made by consensus in an open session, a closed-session vote may be necessary. Each member university would have a single vote given to their primary PI, regardless of the number of PIs representing any given university on the EC.

In the event the primary PI from a given university is not able to participate in a close-session vote, the designated secondary PI from that same university will be able to act as a substitute.

The agenda of these meetings will be determined by the EC Chair in consensus with the EC membership and distributed in advance of each meeting by the EC Chair or designee.

## ATTACHMENT 2. RAISE ANNOUNCEMENT

---



*Announcement*

**Department of Transportation  
The Secretary's RAISE Award  
(Recognizing Aviation Achievement in Science Engineering)**

**Nominations Open Through July 12**

The Secretary of Transportation, Ray LaHood, has established the Secretary's RAISE Award to recognize aviation achievement in science and engineering. The DOT will present the 2012 RAISE Award to a high school, college or graduate student for an extraordinary achievement that has a significantly innovative impact on the future aerospace/aviation environment.

The Department of Transportation will announce the selection in October.

The full announcement and application details are available in the Federal Register and at [www.challenge.gov](http://www.challenge.gov). Contact Dr. Patricia Watts, FAA Centers of Excellence Program Office, telephone number (609) 485-5043 or e-mail: [patricia.watts@faa.gov](mailto:patricia.watts@faa.gov) with questions.

## **ATTACHMENT 3. LINDA OLIVO AMELIA EARHART FELLOWSHIP – 2012**

---

### **Zonta International – Atlantic City Area Club**

The Zonta International Amelia Earhart Fellowships were established in 1938 in honor of Amelia Earhart, famed pilot and Zonta club member in New York and Boston. Fellowships are granted annually by Zonta International to women pursuing Ph.D./doctoral degrees in aerospace related sciences and aerospace related engineering.

A \$500 local Amelia Earhart fellowship is awarded annually to a high school or college student in memory of Linda Olivo, a dedicated employee of the FAA Wm. J. Hughes Technical Center. While working, mothering, and bravely battling her illness, Linda pursued far reaching personal, professional, and academic goals. She was a model of strength, warmth, and professionalism for all.

The local Amelia Earhart award is sponsored by Jim Olivo in memory of his wife, Linda, and presented through the Zonta Club of the Atlantic City Area in coordination with the FAA Air Transportation Centers of Excellence. This scholarship is open to women pursuing degrees in aerospace related areas, math, science or engineering.

#### **Who is Eligible? Women:**

- pursuing a math, science, engineering or aerospace related degree in an accredited college, or those who are accepted or registered in a qualifying program
- who demonstrate a superior academic record in math, science or engineering as verified by a current transcript
- who may have overcome extraordinary obstacles while striving to reach their goals, and
- who may serve as a role model for others

#### **What are the Requirements? Applicants must provide:**

- a cover letter with contact information to include: full name, mailing address, telephone number(s), e-mail address
- a letter of acceptance or verification of enrollment
- a resume with employment history, limit 1 page
- a statement of academic, professional and personal goals, including personal challenges that have been successfully met, limit 1 page
- a list of scholarships, fellowships, and honors received
- at least one letter of recommendation from a teacher, professor, academic advisor or an employer

In addition to the above, attachments such as articles, publications or additional information may be considered, although they are not required.

#### **What is the Application Process and Deadline?**

Applications may be sent to Patricia Watts, FAA Centers of Excellence Program Office, Amelia Earhart Chair, Wm. J. Hughes Technical Center, Atlantic City Int'l Airport, NJ 08405; or e-mail Patricia.Watts@faa.gov. Application packages must be sent for receipt by May 25.

The local Zonta selection committee will review the applications, Jim and daughter Rachel will make the final selection(s). A check will be sent to the student's university. This credit may be applied toward tuition, fees or related charges including books, supplies or equipment needed to satisfy academic requirements. The selected applicant(s) will be notified by May 31.

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #02 - WEDNESDAY, 27 JUNE 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	Dr. David Klaus	Dr. Penina Axelrad	Dr. George Born, Dr. Tim Fuller-Rowell, Dr. Dan Scheeres, Mr. Brad Cheetham
FIT	Dr. Dan Kirk	Dr. Sam Durrance	Dr. Nat Villaire, Dr. Tristan Fiedler
FSU	Dr. Farrukh Alvi	Dr. Emmanuel Collins	Dr. Billy Oates
NMSU	Dr. Patricia Hynes		Ms. Joylynn Watkins
NMT	Dr. Warren Ostergren	Dr. Dave Westpfahl	Dr. Keith Miller, Dr. Andrei Zagrai
SU	Prof. Scott Hubbard	Dr. Juan Alonso	Dr. Sigrid Close, Dr. Steve Rock
UCF	Dr. Jay Kapat	Dr. Jan Gou	Dr. Ali Gordon, Dr. Lin An
UF	Dr. Norm Fitz-Coy	Dr. Mark Sheplak	
UTMB	Dr. Jim Vanderploeg	Dr. Richard Jennings	
CESTAC	Dr. Joseph Rothenberg	Ms. Carissa Christensen	Dr. Tristan Fiedler (FIT)
OAT	Ms. Carol Gregorek	Mr. Fred Bowen	
FAA AST	Mr. Ken Davidian		
FAA	Dr. Patricia Watts		

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for on July 24, 2012, 1-2pm EDT.

### 0.2 Proposed Order of Major Topics of Discussion

- |  |   |
|--|---|
| 1. Starters (Administrivia)                | 5. Strategic Planning Subcommittee Report |
| 2. CESTAC Report                           | 6. Any Other Business                     |
| 3. Self-Governance Subcommittee Report     | 7. Outstanding Action Items               |
| 4. Cooperative Efforts Subcommittee Report |   |

### 0.3 Attachments

- For COE CST EC Members:
  - Appendix A. Reference Information (pgs 4-5)
  - Attachment 1. Basic terms of the affiliate member agreement (pg 6)
- For Students (for immediate distribution):
  - Attachment 2. RAISE Announcement – Deadline Extended (pg 7)

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.2 Quarterly Reporting Status

- The following Tasks/PIs have NOT input their quarterly reports that were due April 30, 2012:
  - CU: 186, 187      • UF: 241      • FSU: 241, 244, 297      • UCF: 287
- The next quarterly reports (Q7) are due July 31, 2012 for active tasks during April 1 – June 30, 2012 time period, including:
 

• CU: 184, 186, 187, 193, 257, 281	• NMSU: 220, 284	• UCF: 253, 287
• FIT: 247, 296 (NEW)	• NMT: 228, 293 (NEW)	• UF: 241, 244
• FSU: 241, 244, 297	• SU: 185, 186, 193, 244, 258, 259	• UTMB: 181, 183, 255, 256, 289, 294 (NEW), 295 (NEW)

### 1.3 Year 2 Annual Technical Meeting

- WHEN & WHERE: Oct 31 – Nov 1 on the campus of NMT, Socorro, NM

- WHAT: Presentations of COE CST R&D Tasks

#### 1. SPACE TRAFFIC MANAGEMENT AND OPERATIONS

- 185. Unified 4D Trajectory (SU-Alonso)
- 186. Space Environment MMOD Modeling & Prediction (SU-Close), (CU-Fuller-Rowell)
- 187. Space Situational Awareness (CU-Scheeres)
- 247. Air & Space Traffic Considerations for Commercial Space Transportation (FIT-Villaire)
- 220. Space Operations Framework (NMSU-Hynes)
- 257. Master's Launch & On-Orbit Ops Lab (CU-Born)

#### 2. SPACE TRANSPORTATION OPERATIONS, TECHNOLOGIES & PAYLOADS

- 258. Multi-disc Analysis of Safety Metrics (SU-Alonso)
- 259. Flight Software V&V for Safety (SU-Alonso)
- 228. Magneto-Elastic Sensors for Structural Health Monitoring (NMT-Zagrai, Ostergren)
- 241. High Temperature Pressure Transducers (UF-Sheplak), (FSU-Oates)
- 253. Ultra High Temp Composites (UCF-Gou, Kapat)
- 244. Autonomous Rendezvous & Docking (UF-Fitz-Coy), (FSU-Collins), (SU-Rock) (CU-Axelrad)
- ★ 293. Reduced Order Non-Linear Dynamic System Models (NMT-Miller) NEW

#### 3. HUMAN SPACEFLIGHT

- ★ 181. Physiological DB Definition and Design (UTMB-Vanderploeg) FINAL
- ★ 182. Human System Risk Management Approach (UTMB-Vanderploeg) FINAL
- ★ 256. Centrifuge Testing (UTMB-Vanderploeg) FINAL
- ★ 295. EMF Effects on Implantable Devices (UTMB-Vanderploeg) NEW
- ★ 183. Crew & HSP Medical Standards (UTMB-Jennings) FINAL
- ★ 255. Wearable Biomedical Equipment (UTMB-Jennings) FINAL
- ★ 294. Minor Injury Severity Scale (UTMB-Jennings) NEW
- 184. Commercial Spacecraft Human Rating (CU-Klaus)

#### 4. SPACE TRANSPORTATION INDUSTRY VIABILITY

- 193. Role of COE CST in EFP (SU-Hubbard), (CU-Born)

### 1.4 Funding Situation Status

- House Appropriations Committee Report (<http://appropriations.house.gov/uploadedfiles/hrpt-112-ap-fy13-thud.pdf>)
- Meeting with Senate Appropriations' Staffers
- Multiple Internal Funding Request Activities

## 2. CESTAC REPORT

---

- Coming Soon...

## 3. SELF-GOVERNANCE SUBCOMMITTEE REPORT

---

### 3.1 Members

- None identified.

### 3.2 Activity

- Pat Hynes submitted sample docs from NASA Space Grant.

## 4. COOPERATIVE EFFORTS SUBCOMMITTEE REPORT

---

### 4.1 Members

- None identified.

## **4.2 COE CST Affiliate Members**

### **4.2.1 ADMINISTRATION: DECISION-MAKING PROCESS**

- Until a formal decision-making process is identified and accepted by the EC at-large, the COE CST Program Manager (PM) will decide between the candidate Affiliate Members (AMs) and interested Member Universities (MUs) taking the interests of all parties into consideration.
  - When request to become AM comes to AST, COE CST PM will broadcast opportunity to all MUs and request notification of interest by any MU to be Host University (HU) for the candidate AM under basic terms of the drafted AM Agreement (see Attachment 1).
    - If no MU indicates the desire to be HU for candidate AM, COE CST PM will decline the candidate AM offer.
    - If only one MU indicates desire to be HU for candidate AM, COE CST PM will announce the HU-AM pairing and the agreement can then be executed.
    - If multiple MUs indicate desire to be HU for candidate AM, COE CST PM will decide which among them will be the HU-AM pair and the agreement can then be executed.

### **4.2.2 AM APPLICATION #1: MCGILL UNIVERSITY INSTITUTE OF AIR AND SPACE LAW**

Candidate McGill IASL Members

- Dr. Ram S. Jakhu: Principal Investigator
- Mr. Paul Fitzgerald: Research Associate
- Ms. Diane Howard: Research Associate

Anticipated contribution will be mainly to item 4.3 (Law) of the Research Roadmap Report. For your information, both Mr. Fitzgerald and Ms. Howard are doctoral fellows, mature, experienced and experts in both aviation law and space law in the US, Canada and at the international level.

## **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

### **5.1 Members**

- None identified.

### **5.2 Activity**

- Pat Hynes proposed a strategic planning task at AAM2.
- Internal AST activities continuing.

## **6. ANY OTHER BUSINESS**

---

- Dissemination of Information Public Notice – See Appendix Section A.6.
- Determination of future dates for EC Telecons

## **7. OUTSTANDING ACTION ITEMS**

---

### **8.1 Outstanding Actions**

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide Fred Bowen (fredbowen@orionat.com) that information so it can be included on the web site.
- ALL: Please start inputting your data for the 7<sup>th</sup> quarterly report due July 31, 2012.
- NMSU: Please send me hi-res COE CST plaques pictures with students, if possible.



## **8.2 AAM2 Actions**

- FAA AST and PIs should develop an outreach strategy that is targeted and planned to cover all the major meetings. Spots on panels and paper sessions to talk about COE CST. Recruit PIs (who may already be at the meeting) to give these presentations. (Section 1.2)
- Ken Davidian will update the AST R&D Coordination Plan to show where input from industry can be inserted into the RII and ISR processes. (Section 4.1)

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                     <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                     <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                     <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                     <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### A.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **FOSTER COOPERATIVE EFFORTS AMONG COE CST MEMBER AND NON-MEMBER UNIVERSITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 SUMMER CALENDARS

Univ.	T1 Classes Begin	T1 Classes End	T2 Classes Begin	T2 Classes End	Graduation
<b>FIT</b>	7-May	15-Jun	18-Jun	27-Jul	
<b>FSU</b>	14-May	22-Jun	2-Jul	10-Aug	11-Aug
<b>NMT</b>	12-Jun			3-Aug	
<b>NMSU</b>	24-May			3-Aug	
<b>SU</b>	2-Apr	NA	NA	6-Jun	17-Jun
<b>UCF</b>	14-May	22-Jun	25-Jun	3-Aug	4-Aug
<b>CU</b>	14-May	1-Jun	4-Jun	10-Aug	11-Aug
<b>UF</b>	14-May	22-Jun	2-Jul	10-Aug	11-Aug
<b>UTMB</b>					

**2012 Fall Calendars**

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
FSU	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
NMT	21-Aug	22-Nov	23-Nov				
NMSU	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
SU	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
UCF	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
CU	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
UF	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec
UTMB							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX.
- Feb 9, 2011: COE CST meeting held in conjunction with the AST Conference in Washington, DC. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST Second Annual Administrative Mtg (AAM2), Tallahassee, FL.

**A.5 Past Four Quarterly Report Due Dates**

- July 29, 2011: Due date of Third Quarterly Reports for period ending Jun 30, 2011.
- Oct 28, 2011: Due date of Fourth Quarterly Reports for period ending Sept 30, 2011.
- Jan 31, 2012: Due date for 5th quarterly reporting period ending Dec 31, 2011.
- Apr 30, 2011: Due date of 6th Quarterly Reports for period ending Mar 31, 2012.

**A.6 Dissemination of Information Notice**

The grantee will not engage in interviews that reference FAA, FAA funded research, FAA Centers of Excellence, or related non-technical issues without prior review and consent by the FAA Program Director and the FAA COE Program Manager. Related press releases and interviews will be reviewed and cleared with the FAA Public Affairs Office as necessary.

The grantee will not issue technical news releases or issue technical reports without the following statement included as part of the information disclosed:

- Although the FAA has sponsored this project, it neither endorses nor rejects the findings of this research. The presentation of this information is in the interest of invoking technical community comment on the results and conclusions of the research.

## **ATTACHMENT 1. BASIC TERMS OF THE AFFILIATE MEMBER AGREEMENT**

---

### **A. CONCERNED PARTIES**

- The Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST).
- The Member University (MU), one of the current nine universities who have an executed cooperative agreement with FAA AST.
- The Center of Excellence for Commercial Space Transportation (COE CST) comprised of the FAA AST and the MUs.
- The Affiliate Member (AM).
- The Host University (HU), a MU acting as liaison between the COE CST and the AM.

### **B. GENERAL TERMS**

The AM and AST will work together to develop a research task Statement of Work (SOW) that is satisfactory to both the AM and the COE CST.

There will be no exchange of funds between any of the involved parties (the AM, the HU, the FAA AST and the COE CST).

The AM will be responsible for all costs associated with the research being conducted, including but not limited to: oversight, guidance, execution, training, travel and per diem.

### **C. THE COE CST WILL RECEIVE THE FOLLOWING FROM THE AM:**

- Publicly-available results (products) of the AM research activity in the form of papers and presentations given at meetings and conferences, journal articles, and any other publicly-available deliverables depending on the specific SOW.
- Permission to refer to the AM as such in its reports, executive summaries, and other instruments of information dissemination regarding COE CST-related research or activities.

### **D. THE AM WILL RECEIVE THE FOLLOWING FROM THE COE CST:**

- Official recognition of the AM as such.
- Technical guidance through the assignment and regular insight of a FAA AST Technical Monitor.
- A presentation slot at the COE CST Annual Technical Meeting for the AM Principal Investigator and/or student to orally present the COE CST-related research.
- Permission for the AM to refer to itself as such in reports, executive summaries and other instruments of information dissemination regarding COE CST-related research or activities.

### **E. THE AM WILL RECEIVE THE FOLLOWING FROM THE HU:**

- Sponsorship as an AM into the COE CST through an executed agreement.

### **F. THE HU WILL RECEIVE THE FOLLOWING FROM THE COE CST:**

- Official recognition as a HU of the AM.

### **G. THE HU WILL RECEIVE THE FOLLOWING FROM THE AM:**

- The value of all costs associated with the research being conducted by the AM to be credited toward the matching funds requirement of the HU.

**ATTACHMENT 2. RAISE ANNOUNCEMENT – DEADLINE EXTENDED**

*FOR IMMEDIATE DISSEMINATION TO ALL COE CST STUDENTS*

---

*Announcement*

**Department of Transportation  
The Secretary's RAISE Award**

(Recognizing Aviation and Aerospace Innovation  
in Science & Engineering)

**Nominations Open Through July 26**  
*(extended two weeks, was July 12)*

The Secretary of Transportation, Ray LaHood, has established the Secretary's RAISE Award to recognize aviation achievement in science and engineering. The DOT will present the 2012 RAISE Award to a high school, college or graduate student for an extraordinary achievement that has a significantly innovative impact on the future aerospace/aviation environment.

The Department of Transportation will announce the selection in October.

The full announcement and application details are available in the Federal Register and at [www.challenge.gov](http://www.challenge.gov). Contact Dr. Patricia Watts, FAA Centers of Excellence Program Office, telephone number (609) 485-5043 or e-mail: [patricia.watts@faa.gov](mailto:patricia.watts@faa.gov) with questions.

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #03 - MONDAY, 23 JULY 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	<input type="checkbox"/> Dr. David Klaus	<input type="checkbox"/> Dr. Penina Axelrad	<input type="checkbox"/> Dr. George Born <input type="checkbox"/> Dr. Tim Fuller-Rowell <input type="checkbox"/> Dr. Dan Scheeres <input type="checkbox"/> Mr. Brad Cheetham
FIT	<input type="checkbox"/> Dr. Dan Kirk	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Tristan Fiedler
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Joylynn Watkins
NMT	<input type="checkbox"/> Dr. Warren Ostergren	<input type="checkbox"/> Dr. Dave Westpfahl	<input type="checkbox"/> Dr. Keith Miller <input type="checkbox"/> Dr. Andrei Zagrai
SU	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso	<input type="checkbox"/> Dr. Sigrid Close <input type="checkbox"/> Dr. Steve Rock
UCF	<input type="checkbox"/> Dr. Jay Kapat	<input type="checkbox"/> Dr. Jan Gou	<input type="checkbox"/> Dr. Ali Gordon <input type="checkbox"/> Dr. Lin An
UF	<input type="checkbox"/> Dr. Norm Fitz-Coy	<input type="checkbox"/> Dr. Mark Sheplak	<input type="checkbox"/>
UTMB	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Richard Jennings	<input type="checkbox"/>
CESTAC	<input type="checkbox"/> Dr. Joseph Rothenberg	<input type="checkbox"/> Ms. Carissa Christensen	<input type="checkbox"/> Dr. Tristan Fiedler (FIT)
OAT	<input type="checkbox"/> Ms. Carol Gregorek	<input type="checkbox"/> Mr. Fred Bowen	<input type="checkbox"/>
FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/>	<input type="checkbox"/>

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for August 20, 2012, 1-2pm EDT.

### 0.2 Proposed Order of Major Topics of Discussion

- |  |   |
|--|---|
| 1. Starters (Administrivia)                | 5. Strategic Planning Subcommittee Report |
| 2. CESTAC Report                           | 6. Any Other Business                     |
| 3. Self-Governance Subcommittee Report     | 7. Outstanding Action Items               |
| 4. Cooperative Efforts Subcommittee Report |   |

### 0.3 Attachments

- For COE CST Executive Committee Members:
  - Appendix A. Reference Information
  - Appendix B. Quarterly Reporting Status By Task

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 Quarterly Reporting Status

- Refer to Appendix B for the status of each task regarding the status of their quarterly reporting.
- Final reporting requirements for tasks need to be met before they can be closed-out in OMIS.
  - Cooperative Agreement, Attachment 5 "Clarifications" B. "Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award."

### 1.2 Year 2 Annual Technical Meeting Details

- GENERAL: Breakfast is indicated on agenda. Lodging rate includes hot breakfast. To keep costs down the breakfasts at Fidel Center may be cancelled.
- TUESDAY, OCTOBER 30:

- Afternoon: SPACEPORT AMERICA TOUR: There is a fee of \$59/person. Transportation will be provided by the tour company from Socorro. Private cars are not permitted.
- Evening: Evening reception in Macey Center on the campus of NMT, Socorro, NM
- WEDNESDAY, OCTOBER 31:
  - Morning on the campus of NMT, Socorro, NM: Breakfast in Fidel Center - Registration in Workman Lobby - Welcome by President Lopez - Conference in Workman 101
  - Afternoon on the campus of NMT, Socorro, NM: Lunch in Fidel Center - Continue Conference in Workman 101
  - Evening: Tour MRO and Langmuir Lab in Magdalena Mts. - Dinner at MRO
- THURSDAY, NOVEMBER 1: On the campus of NMT, Socorro, NM
  - Morning on the campus of NMT, Socorro, NM: Breakfast in Fidel Center - Registration in Workman Lobby - Conference in Workman 101 - Tour and demonstration at EMRTC
  - Afternoon on the campus of NMT, Socorro, NM: Lunch in Fidel Center
- LODGING: Holiday Inn (40 rooms) and Best Western (36 rooms) have been tentatively reserved at a gov't rate of \$77 plus tax (\$86.24). The Best Western and Holiday Inn provide hot breakfast from 6:00 - 9:30.

• LIST OF COE CST R&D PRESENTATIONS:

**1. SPACE TRAFFIC MANAGEMENT AND OPERATIONS**

- 185. Unified 4D Trajectory (SU-Alonso)
- 186. Space Environment MMOD Modeling & Prediction (SU-Close), (CU-Fuller-Rowell)
- 187. Space Situational Awareness (CU-Scheeres)
- 247. Air & Space Traffic Considerations for Commercial Space Transportation (FIT-Villaire)
- 220. Space Operations Framework (NMSU-Hynes)
- 257. Master's Launch & On-Orbit Ops Lab (CU-Born)

**2. SPACE TRANSPORTATION OPERATIONS, TECHNOLOGIES & PAYLOADS**

- 258. Multi-disc Analysis of Safety Metrics (SU-Alonso)
- 259. Flight Software V&V for Safety (SU-Alonso)
- 228. Magneto-Elastic Sensors for Structural Health Monitoring (NMT-Zagrai, Ostergren)
- 241. High Temperature Pressure Transducers (UF-Sheplak), (FSU-Oates)
- 253. Ultra High Temp Composites (UCF-Gou, Kapat)
- 244. Autonomous Rendezvous & Docking (UF-Fitz-Coy), (FSU-Collins), (SU-Rock) (CU-Axelrad)
- ★ 293. Reduced Order Non-Linear Dynamic System Models (NMT-Miller) NEW

**3. HUMAN SPACEFLIGHT**

- ★ 181. Physiological DB Definition and Design (UTMB-Vanderploeg) FINAL
- ★ 182. Human System Risk Management Approach (UTMB-Vanderploeg) FINAL
- ★ 256. Centrifuge Testing (UTMB-Vanderploeg) FINAL
- ★ 295. EMF Effects on Implantable Devices (UTMB-Vanderploeg) NEW
- ★ 183. Crew & HSP Medical Standards (UTMB-Jennings) FINAL
- ★ 255. Wearable Biomedical Equipment (UTMB-Jennings) FINAL
- ★ 294. Minor Injury Severity Scale (UTMB-Jennings) NEW
- 184. Commercial Spacecraft Human Rating (CU-Klaus)

**4. SPACE TRANSPORTATION INDUSTRY VIABILITY**

- 193. Role of COE CST in EFP (SU-Hubbard), (CU-Born)

**1.3 Website Status**

- Given by Fred Bowen.

**1.4 Funding Situation Status**

- House Appropriations Committee Report (<http://appropriations.house.gov/uploadedfiles/hrpt-112-ap-fy13-thud.pdf>)
- Meeting with Senate Appropriations' Staffers
- Multiple Internal Funding Request Activities

## 2. CESTAC REPORT

---

- Coming Soon...

## 3. SELF-GOVERNANCE SUBCOMMITTEE REPORT

---

### 3.1 Members

- None identified.

### 3.2 Activity

- Pat Hynes submitted sample docs from NASA Space Grant.

## 4. COOPERATIVE EFFORTS SUBCOMMITTEE REPORT

---

### 4.1 Members

- None identified.

### 4.2 COE CST Affiliate Members

#### 4.2.1 ADMINISTRATION: DECISION-MAKING PROCESS

- Until a formal decision-making process is identified and accepted by the EC at-large, the COE CST Program Manager (PM) will decide between the candidate Affiliate Members (AMs) and interested Member Universities (MUs) taking the interests of all parties into consideration.
  - When request to become AM comes to AST, COE CST PM will broadcast opportunity to all MUs and request notification of interest by any MU to be Host University (HU) for the candidate AM under basic terms of the drafted AM Agreement (see Attachment 1).
    - If no MU indicates the desire to be HU for candidate AM, COE CST PM will decline the candidate AM offer.
    - If only one MU indicates desire to be HU for candidate AM, COE CST PM will announce the HU-AM pairing and the agreement can then be executed.
    - If multiple MUs indicate desire to be HU for candidate AM, COE CST PM will decide which among them will be the HU-AM pair and the agreement can then be executed.

#### 4.2.2 AM APPLICATION #1: MCGILL UNIVERSITY INSTITUTE OF AIR AND SPACE LAW

Candidate McGill IASL Members

- Dr. Ram S. Jakhu: Principal Investigator
- Mr. Paul Fitzgerald: Research Associate
- Ms. Diane Howard: Research Associate

Anticipated contribution will be mainly to item 4.3 (Law) of the Research Roadmap Report. For your information, both Mr. Fitzgerald and Ms. Howard are doctoral fellows, mature, experienced and experts in both aviation law and space law in the US, Canada and at the international level.

- I have selected FIT to be the Host University to McGill because of their expression of interest and the geographical proximity of one of the students (Ms. Howard). Congratulations FIT!



## **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

### **5.1 Members**

- None identified.

### **5.2 Activity**

- Pat Hynes proposed a strategic planning task at AAM2.
- Internal AST activities continuing.

## **6. ANY OTHER BUSINESS**

---

- Determination of future dates for EC Telecons

## **7. OUTSTANDING ACTION ITEMS**

---

### **8.1 Outstanding Actions**

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide Fred Bowen (fredbowen@orionat.com) that information so it can be included on the web site.
- ALL: Please start inputting your data for the 7<sup>th</sup> quarterly report due July 31, 2012.
- NMSU: Please send me hi-res COE CST plaques pictures with students, if possible.

### **8.2 AAM2 Actions**

- FAA AST and PIs should develop an outreach strategy that is targeted and planned to cover all the major meetings. Spots on panels and paper sessions to talk about COE CST. Recruit PIs (who may already be at the meeting) to give these presentations. (Section 1.2)
- Ken Davidian will update the AST R&D Coordination Plan to show where input from industry can be inserted into the RII and ISR processes. (Section 4.1)

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                     <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                     <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                     <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                     <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### A.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **FOSTER COOPERATIVE EFFORTS AMONG COE CST MEMBER AND NON-MEMBER UNIVERSITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 SUMMER CALENDARS

Univ.	T1 Classes Begin	T1 Classes End	T2 Classes Begin	T2 Classes End	Graduation
FIT	7-May	15-Jun	18-Jun	27-Jul	
FSU	14-May	22-Jun	2-Jul	10-Aug	11-Aug
NMT	12-Jun			3-Aug	
NMSU	24-May			3-Aug	
SU	2-Apr	NA	NA	6-Jun	17-Jun
UCF	14-May	22-Jun	25-Jun	3-Aug	4-Aug
CU	14-May	1-Jun	4-Jun	10-Aug	11-Aug
UF	14-May	22-Jun	2-Jul	10-Aug	11-Aug
UTMB					

**2012 Fall Calendars**

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
FSU	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
NMT	21-Aug	22-Nov	23-Nov				
NMSU	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
SU	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
UCF	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
CU	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
UF	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec
UTMB							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX.
- Feb 9, 2011: COE CST meeting held in conjunction with the AST Conference in Washington, DC. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST Second Annual Administrative Mtg (AAM2), Tallahassee, FL.

**A.5 Dissemination of Information Notice**

The grantee will not engage in interviews that reference FAA, FAA funded research, FAA Centers of Excellence, or related non-technical issues without prior review and consent by the FAA Program Director and the FAA COE Program Manager. Related press releases and interviews will be reviewed and cleared with the FAA Public Affairs Office as necessary.

The grantee will not issue technical news releases or issue technical reports without the following statement included as part of the information disclosed:

- Although the FAA has sponsored this project, it neither endorses nor rejects the findings of this research. The presentation of this information is in the interest of invoking technical community comment on the results and conclusions of the research.

**A.5 Close Out Reporting Requirements**

- Cooperative Agreement, Attachment 5 "Clarifications" B. "Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award."

**APPENDIX B. QUARTERLY REPORTING STATUS BY TASK**

			Q1	Q2	Q3	Q4	STATUS
CU Boulder	184-CU	Human Rating of Commercial Spacecraft	OK	OK			FY12 Funded
	186-CU	Space Env MMOD Modeling & Prediction	OK	OK	OK		Paused
	187-CU	Space Situational Awareness	OK	OK			FY12 Funded
	193-CU	Role of COE CST in EFP	OK	OK			Paused
	244-CU	Autonomous RDV & Docking	OK	OK			Paused
	257-CU	Master's Launch & On-Orbit Ops Lab	OK	OK			31 Dec 2012
	281-CU	Technical Oversight	OK	OK			31 Aug 2012
FIT	247-FIT	Air & Space Traffic Considerations for CST	OK	OK			In Process
	296-FIT	CESTAC Support and Outreach	OK	OK			In Work
	282-FIT	Technical Oversight	OK	OK	X	X	31 Dec 2011
FSU	241-FSU	High Temp Pressure Transducers	OK	OK	OK		FY12 Funded
	244-FSU	Autonomous RDV & Docking	OK	OK	OK		Paused
	297-FSU	TO & OMIS Integration	OK	OK			FY12 Funded
	283-FSU	Technical Oversight	OK				31 March 2012
NM SU	220-NMSU	Space Operational Framework	OK	OK			FY12 Funded
	284-NMSU	Administrative Lead	OK	OK			31 May 2012
NMT	228-NMT	Magneto-Elastic Sensing for SHM	OK	OK			FY12 Funded
	293-NMT	Reduced Order Non-Linear Dynamics Model	OK	OK			FY12 Funded
SU	185-SU	Unified 4D Trajectory	OK	OK			In Work
	186-SU	Space Env MMOD Modeling & Prediction	OK	OK			Paused
	193-SU	Role of COE CST in EFP	OK	OK			FY12 Funded
	244-SU	Autonomous RDV & Docking	OK				Paused
	258-SU	Multi-disc Analysis of Safety Metrics	OK	OK			In Work
	259-SU	Flight Software V&V for Safety	OK	OK			31 Dec 2011
	286-SU	Technical Oversight	OK	X	X	X	31 Dec 2011
UCF	253-UCF	Ultra High Temp Composites	OK	OK	OK		FY12 Funded
	287-UCF	Technical Oversight	OK				30 Sept 2012
UF	241-UF	High Temp Pressure Transducers	OK	OK			FY12 Funded
	244-UF	Autonomous RDV & Docking	OK	OK	OK		Paused
	288-UF	Technical Oversight	OK	X	X	X	31 Dec 2012
UM	181-UTMB	Physiological DB Definition and Design	OK	OK			31 Dec 2012

182-UTMB	Human System Risk Management Approach	OK	OK	X	X	31 Dec 2011
183-UTMB	Crew & HSP Medical Standards etc.	OK	OK			31 Dec 2012
255-UTMB	Wearable Biomedical Monitoring Equip	OK	OK			31 Dec 2012
256-UTMB	Additional NASTAR Centrifuge Testing	OK	OK			31 Dec 2012
289-UTMB	Technical Oversight	OK	OK			17 Aug 2011
294-UTMB	Minor Injury Severity Scale	NA	NA			FY12 Funded
295-UTMB	EMF Effects on Implantable Devices	NA	NA			FY12 Funded

**Legend for Q1, Q2, Q3, Q4 Columns**

- OK – Quarterly Report has been input.
- X – Task is completed. No input required.
- NA – Task had not started yet. No input required.
- If cell is blank, quarterly report input is required.

**Quarterly Report Deadlines**

- Q1 reports are due Jan 31 of each year.
- Q2 reports are due April 30 of each year.
- Q3 reports are due July 31 of each year.
- Q4 reports are due October 31 of each year.

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #04 - MONDAY, 20 AUGUST 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	<input type="checkbox"/> Dr. David Klaus	<input type="checkbox"/> Dr. Penina Axelrad	<input type="checkbox"/> Dr. George Born <input type="checkbox"/> Dr. Tim Fuller-Rowell <input type="checkbox"/> Dr. Dan Scheeres <input type="checkbox"/> Mr. Brad Cheetham
FIT	<input type="checkbox"/> Dr. Dan Kirk	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Tristan Fiedler
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Joylynn Watkins
NMT	<input type="checkbox"/> Dr. Warren Ostergren	<input type="checkbox"/> Dr. Dave Westpfahl	<input type="checkbox"/> Dr. Keith Miller <input type="checkbox"/> Dr. Andrei Zagrai
SU	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso	<input type="checkbox"/> Dr. Sigrid Close <input type="checkbox"/> Dr. Steve Rock
UCF	<input type="checkbox"/> Dr. Jay Kapat	<input type="checkbox"/> Dr. Jan Gou	<input type="checkbox"/> Dr. Ali Gordon <input type="checkbox"/> Dr. Lin An
UF	<input type="checkbox"/> Dr. Norm Fitz-Coy	<input type="checkbox"/> Dr. Mark Sheplak	<input type="checkbox"/>
UTMB	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Richard Jennings	<input type="checkbox"/>
CESTAC	<input type="checkbox"/> Dr. Joseph Rothenberg	<input type="checkbox"/> Ms. Carissa Christensen	<input type="checkbox"/>
OAT	<input type="checkbox"/> Ms. Carol Gregorek	<input type="checkbox"/> Mr. Fred Bowen	<input type="checkbox"/>
FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/>	<input type="checkbox"/>
NASA	<input type="checkbox"/> Mr. Alex MacDonald (RA4)	<input type="checkbox"/>	<input type="checkbox"/>

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for September 17, 2012, 1-2pm EDT.

### 0.2 Proposed Order of Major Topics of Discussion

- |  |   |
|--|---|
| 1. Starters (Administrivia)                | 5. Strategic Planning Subcommittee Report |
| 2. CESTAC Report                           | 6. Any Other Business                     |
| 3. Self-Governance Subcommittee Report     | 7. Outstanding Action Items               |
| 4. Cooperative Efforts Subcommittee Report |   |

### 0.3 Attachments

- For COE CST Executive Committee Members:
  - Appendix A. Reference Information
  - Appendix B. Quarterly Reporting Status By Task
  - Appendix C. Current ATM2 Draft Agenda

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 Quarterly Reporting Status

- Refer to Appendix B for the status of each task of their quarterly reporting.
- Final reporting requirements for tasks need to be met before they can be closed-out in OMIS.
  - Cooperative Agreement, Attachment 5 “Clarifications” B. “Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award.”

### 1.2 Year 2 Annual Technical Meeting Details

- Draft agenda for day 0 (Oct. 30) is:
  - 1300-1600: Spaceport America Tour (may become an optional activity)

- 1700-1900: Evening Reception & Student Poster Session at the NMT Macey Center
- Detailed draft agenda for days 1 and 2 (Oct. 31 and Nov. 1) is available on the COE CST website by clicking on the graphic under “UPCOMING EVENTS”.
- The most current draft agenda for days 1 and 2 at the time of this telecom is included in these notes as Appendix C.

### 1.3 Website Status (Fred Bowen)

- New Reports Added to Publications page.
  - Task 183—Flight Crew Medical Standards and Spaceflight Participant Medical Acceptance Guidelines for Commercial Space Flight, August 6, 2012
  - FAA Office of Commercial Space Transportation Research Roadmap, by Jonah Zimmerman of Stanford
- Planned transition to new hosting company after ATM2.

### 1.4 Budget and Finance Stuff

- The Department of Transportation (DOT) is implementing a system
- I'm not sure if you're aware of this yet or not, but we have two computer systems now active regarding COE CST tasks:
  - The first is OMIS, the FAA COE web-based repository for Technical and Financial data that facilitates our efforts to fulfill the FAA's annual reporting requirements to Congress.
    - OMIS does \*not\* help any grantee get paid.
    - If you have questions about OMIS and how to input financial information into it, please contact Fred Bowen (copied on this email). CU Principal Investigators should also be using OMIS to input technical information on a quarterly basis.
  - The FAA is transitioning to the second system, a web-based invoicing system that goes by some combination of the following names: DELPHI, iSupplier and/or eInvoice.
    - No grantee will get paid without using this system.
    - If you have questions about the iSupplier page, please contact Nicole Newman (also copied on this email).
    - To date, I've received invoices in iSupplier from UTMB and UCF.
- I know this all sounds very onerous, but I can tell you from personal experience that the prolonged hyperventilating will stop very soon. :-D Just remember that you're not alone and we'll get through this together!

### 1.5 General Comments

- I'd like to introduce Mr. Alex MacDonald who is the NASA Program Executive for the Emerging Commercial Space Office. I've asked Alex to contribute to our telecons as an At-Large member of the group for research area 4. Alex will soon be getting his Ph.D. from University of Oxford and is currently a research faculty in economics at Carnegie-Mellon now on IPA to NASA. He is an economic historian and his thesis, entitled “The Long Space Age: An Economic Perspective on the History of American Space Exploration” and it investigates a wide area of topics related to American spaceflight.
- 15-Second Videos: “Hi! My name is XXX and I'm a Principal Investigator for the University of X. I work on the XXX task for the FAA Center of Excellence for Commercial Space Transportation.” Total duration: 15±5 seconds. Filmed from your iPad or smart phone. Email to ken.davidian@gmail.com. To be aired at the ATM2 and included on COE CST web site.
- Everybody directly associated with the COE CST should employ a consistent name and abbreviation for the program
  - The name is the "Center of Excellence for Commercial Space Transportation". (Please no variations due to different use of hyphens, upper/lower case, spaces or no spaces, etc...)

- The abbreviation is "COE CST". (As before, please no hyphens, no lower case, etc.)
- This is always an issue, especially when some technical limitations (such as web URLs) do not allow for the use of spaces as a delimiter between words. But other than URLs, file and folder names should have no issue with the use of spaces.
- We can't force the outside world to follow our particular conventions, but we should be consistent with our usage.

## **2. CESTAC REPORT**

---

### **2.1 CESTAC Criteria for Assessment of the COE CST Research Program**

- This is the assessment criteria CESTAC will use for the COE CST Research portfolio.
- For all research areas:
  - Is this research area relevant to anything your company is doing or plans to do?
  - Is this research area relevant to something that you see as important to the industry?
  - What is the industry view of the FAA's role in potential regulations resulting from the each research area?
  - Is the distribution of funding balanced appropriately across the four research areas?
  - What areas do you think are important that are not currently being adequately addressed in the COE CST research portfolio?
- For each research task:
  - Is the planned product or result of the research directly relevant to the need?
  - If so, is the timetable of the research task consistent with the need?
  - Is the research task appropriately funded?

### **2.2 CESTAC ATM2 Information Request**

- This information will help CESTAC with their assessment role. Each Research Team is requested to include two charts for presentation at the upcoming ATM.
  - Chart 1: Task Description
    - Research objectives and expected product or result
    - Challenges
    - Value to industry from a Research Team's perspective
  - Chart 2: Programmatic Overview
    - Budget
    - Schedule

## **3. SELF-GOVERNANCE SUBCOMMITTEE REPORT**

---

### **3.1 Members**

- None identified.

### **3.2 Activity**

- Pat Hynes submitted sample docs from NASA Space Grant.
- AST (Greg Dees and Ken Davidian) are doing a preliminary in-house analysis and are looking for "previewers" to provide input and review. Any takers?

## **4. COOPERATIVE EFFORTS SUBCOMMITTEE REPORT**

---

### **4.1 Members**

- None identified.



## **4.2 COE CST Affiliate Members**

### **4.2.1 ADMINISTRATION: DECISION-MAKING PROCESS**

- Until a formal decision-making process is identified and accepted by the EC at-large, the COE CST Program Manager (PM) will decide between the candidate Affiliate Members (AMs) and interested Member Universities (MUs) taking the interests of all parties into consideration.
  - When request to become AM comes to AST, COE CST PM will broadcast opportunity to all MUs and request notification of interest by any MU to be Host University (HU) for the candidate AM under basic terms of the drafted AM Agreement (see Attachment 1).
    - If no MU indicates the desire to be HU for candidate AM, COE CST PM will decline the candidate AM offer.
    - If only one MU indicates desire to be HU for candidate AM, COE CST PM will announce the HU-AM pairing and the agreement can then be executed.
    - If multiple MUs indicate desire to be HU for candidate AM, COE CST PM will decide which among them will be the HU-AM pair and the agreement can then be executed.

### **4.2.2 AFFILIATE MEMBER #1: MCGILL UNIVERSITY INSTITUTE OF AIR AND SPACE LAW**

- Principal Investigator: Dr. Ram S. Jakhu
- Students: Mr. Paul Fitzgerald, Ms. Diane Howard
- FIT-McGill Status given by Tristan Fiedler

## **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

### **5.1 Members**

- One volunteer stepped up: Dave Klaus.
- I will begin working with members of this subcommittee to refine the in-house strategic planning exercise being conducted.

### **5.2 Activity**

- Pat Hynes proposed a strategic planning task at AAM2.
- Limited distribution of internal AST preliminary analysis begun for content and editorial review from COE CST community members.

## **6. ANY OTHER BUSINESS**

---

- Determination of future dates for EC Telecons

## **7. OUTSTANDING ACTION ITEMS**

---

### **8.1 Outstanding Actions**

- ALL: If you have upcoming events, paper presentations, workshops, etc., please provide Fred Bowen (fredbowen@orionat.com) that information so it can be included on the web site.
- ALL: Please start inputting your data for the 7<sup>th</sup> quarterly report due July 31, 2012.

### **8.2 AAM2 Actions**

- All closed.

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                     <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                     <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                     <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                     <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### A.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **FOSTER COOPERATIVE EFFORTS AMONG INTERNAL AND EXTERNAL COE CST ENTITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 Fall Calendars

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
<b>FIT</b>	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
<b>FSU</b>	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
<b>NMT</b>	21-Aug	22-Nov	23-Nov				
<b>NMSU</b>	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
<b>SU</b>	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
<b>UCF</b>	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
<b>CU</b>	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
<b>UF</b>	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec
<b>UTMB</b>							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX.
- Feb 9, 2011: COE CST meeting held in conjunction with the AST Conference in Washington, DC. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST 2nd Annual Administrative Meeting (AAM2) in Tallahassee, FL.

**A.5 Dissemination of Information Notice**

The grantee will not engage in interviews that reference FAA, FAA funded research, FAA Centers of Excellence, or related non-technical issues without prior review and consent by the FAA Program Director and the FAA COE Program Manager. Related press releases and interviews will be reviewed and cleared with the FAA Public Affairs Office as necessary.

The grantee will not issue technical news releases or issue technical reports without the following statement included as part of the information disclosed:

- Although the FAA has sponsored this project, it neither endorses nor rejects the findings of this research. The presentation of this information is in the interest of invoking technical community comment on the results and conclusions of the research.

**A.5 Close Out Reporting Requirements**

- Cooperative Agreement, Attachment 5 "Clarifications" B. "Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award."

**APPENDIX B. Q3 QUARTERLY REPORTING STATUS BY TASK**

Q3 Task #	Task Name	Input Need?	Q1	Q2	Q3	Q4
185-SU	Unified 4D Trajectory	Juan Alonso	3	3	1	
228-NMT	Magneto-Elastic Sensing for SHM	Andrei Zagrai	3	3	1	
241-UF	High Temp Pressure Transducers	Mike Sheplak	3	3	1	
244-UF	Autonomous RDV & Docking	Norm Fitz-Coy	3	3	1	
247-FIT	Air & Space Traffic Considerations for CST	Nat Villaire	3	3	1	
258-SU	Multi-disc Analysis of Safety Metrics	Juan Alonso	3	3	1	
259-SU	Flight Software V&V for Safety	Juan Alonso	3	3	1	
293-NMT	Reduced Order Non-Linear Dynamics Model	Keith Miller	3	3	1	

**Quarterly Report Deadlines**

- Q1 reports are due Jan 31 of each year.
- Q2 reports are due April 30 of each year.
- Q3 reports are due July 31 of each year.
- Q4 reports are due October 31 of each year.

**Legend for Q1, Q2, Q3, Q4 Columns**

- 0 = Task Not Yet Started
- 1 = Needs Input from PI
- 2 = Needs Input from TM
- 3 = Needs No Further Input
- 4 = Task Completed (not shown)

**APPENDIX C. CURRENTY ATM2 DRAFT AGENDA**

Day 1: Wednesday, October 31, 2012		Day 2: Thursday, November 1, 2012	
8:00 AM	<b>Registration</b> <i>Workman Lobby</i>	8:00 AM	<b>Registration</b> <i>Workman Lobby</i>
8:15 AM		8:15 AM	
8:30 AM		8:30 AM	
8:45 AM		8:45 AM	
9:00 AM	<b>NMT WELCOME REMARKS</b> (NMT President Lopez, 0900-0915)	9:00 AM	<b>2-B: SPACE TRANSPORTATION OPS, TECH &amp; PAYLOADS (4 talks in 60 min)</b> 244. Autonomous RDV & Docking for Space Debris Mitigation (UF-Fitz-Coy, 0830-0845), (FSU-Collins, 0845-0900) (SU-Rock, 0900-0915), (CU-Axelrad, 0915-0930)
9:15 AM	<b>PROGRAMMATIC OVERVIEWS (3 talks in 45 min)</b> - FAA COE Welcome & Overview (Watts, 0915-0930) - FAA AST Welcome & Status Report (Kelly, 0930-0945) - COE CST Status Report (Davidian, 0945-1000)	9:15 AM	
9:30 AM		9:30 AM	
9:45 AM		9:45 AM	
10:00 AM	<b>COE CST AFFILIATE MEMBER OVERVIEW (2 talks in 30 min)</b> - Affiliate Member Overview (Davidian, 1000-1015) - McGill University (Jakhu, 1015-1030)	10:00 AM	<b>3-A: HUMAN SPACEFLIGHT RESEARCH (4 talks in 60 min)</b> 181. Phys'l DB Def'n and Design (UTMB-Vanderploeg, 0930-0945) 182. Comm'l Spaceflight DRMs (UTMB-Vanderploeg, 0945-1000) 183. Crew & HSP Medical Stds (UTMB-Jennings, 1000-1015) 184. Comm'l Spacecraft Human Rating (CU-Klaus, 1015-1030)
10:15 AM	10:15 AM		
10:30 AM	10:30 AM		
10:45 AM	10:45 AM		
11:00 AM	<b>4: SPACE TRANSPORTATION INDUSTRY VIABILITY (4 talks in 60 min)</b> 193. Role of COE CST in EFP (SU-Hubbard, 1100-1115), (CU-Born, 1115-1130) 297. Task 1 (MU-Howard, 1130-1145) 298. Task 2 (MU-Fitzpatrick, 1145-1200)	11:00 AM	<b>3-B: HUMAN SPACEFLIGHT RESEARCH - (4 talks in 60 min)</b> 255. Wearable Biomedical Equip (UTMB-Jennings, 1100-1115) 256. Centrifuge Testing (UTMB-Vanderploeg, 1115-1130) 294. Minor Injury Severity Scale (UTMB-Jennings, 1130-1145) 295. EMF Effects on Implantable Devices (UTMB-Vanderploeg, 1145-1200)
11:15 AM		11:15 AM	
11:30 AM		11:30 AM	
11:45 AM		11:45 AM	
12:00 PM	<b>Lunch</b> <i>Fidel Center</i>	12:00 PM	<b>Lunch</b> <i>Fidel Center</i>
12:15 PM		12:15 PM	
12:30 PM		12:30 PM	
12:45 PM		12:45 PM	
1:00 PM	<b>1: SPACE TRAFFIC MANAGEMENT AND OPERATIONS (7 talks in 1 hr 45 min)</b> 185. Unified 4D Trajectory (SU-Alonso, 1300-1315) 186. Space Env MMOD Modeling & Prediction (SU-Close, 1315-1330), (CU-Fuller-Rowell, 1330-1345) 187. Space Situational Awareness (CU-Scheeres, 1345-1400) 247. Air & Space Traffic Considerations for CST (FIT-Villaire, 1400-1415) 220. Space Ops Framework (NMSU-Hynes, 1415-1430) 257. Master's Ops Lab (CU-Born, 1430-1445)	1:00 PM	<b>EMRTC Tour</b> 1300-1600
1:15 PM		1:15 PM	
1:30 PM		1:30 PM	
1:45 PM		1:45 PM	
2:00 PM		2:00 PM	
2:15 PM		2:15 PM	
2:30 PM		2:30 PM	
2:45 PM	<b>Networking Break</b>	2:45 PM	<b>CESTAC REPORT</b> (Rothenberg & Christensen, 1600-1700)
3:00 PM		3:00 PM	
3:15 PM		3:15 PM	
3:30 PM		3:30 PM	
3:45 PM	<b>2-A: SPACE TRANSPORTATION OPS, TECH &amp; PAYLOADS (7 talks in 1 hr 45 min)</b> 258. Multi-disc Analysis of Safety Metrics (SU-Alonso, 1515-1530) 228. Magneto-Elastic Sensing for SHM (NMT-Zagrai, Ostergren, 1530-1545) 241. High Temp Pressure Transducers (UF-Sheplak, 1545-1600), (FSU-Oates, 1600-1615) 253. Ultra High Temp Composites (UCF-Gou, Kapat, 1615-1630) 259. Flight Software V&V for Safety (SU-Alonso, 1630-1645) 293. Reduced Order Non-Linear Dynamic System Models (NMT-Miller, 1645-1700)	3:45 PM	<b>CESTAC REPORT</b> (Rothenberg & Christensen, 1600-1700)
4:00 PM		4:00 PM	
4:15 PM		4:15 PM	
4:30 PM		4:30 PM	
4:45 PM	<b>Adjournment Announcements</b>	4:45 PM	<b>Closing Comments &amp; Adjournment</b>
5:00 PM		5:00 PM	
5:15 PM		5:15 PM	
5:30 PM		5:30 PM	
5:45 PM		5:45 PM	
6:00 PM		6:00 PM	
6:15 PM		6:15 PM	
6:30 PM		6:30 PM	
6:45 PM		6:45 PM	
7:00 PM		7:00 PM	
7:15 PM		7:15 PM	
7:30 PM	7:30 PM		
7:45 PM	7:45 PM		
8:00 PM	<b>MAGDALENA MOUNTAIN FACILITY TOURS</b> - Magdalena Ridge Observatory (MRO) - Langmuir Lab for Atmospheric Research	8:00 PM	
8:15 PM		8:15 PM	
8:30 PM		8:30 PM	
8:45 PM		8:45 PM	

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #05 - MONDAY, 17 SEPTEMBER 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	<input type="checkbox"/> Dr. David Klaus	<input type="checkbox"/> Dr. Penina Axelrad	<input type="checkbox"/> Dr. George Born <input type="checkbox"/> Dr. Tim Fuller-Rowell <input type="checkbox"/> Dr. Dan Scheeres <input type="checkbox"/> Mr. Brad Cheetham
FIT	<input type="checkbox"/> Dr. Dan Kirk	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Tristan Fiedler
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Joylynn Watkins
NMT	<input type="checkbox"/> Dr. Warren Ostergren	<input type="checkbox"/> Dr. Dave Westpfahl	<input type="checkbox"/> Dr. Keith Miller <input type="checkbox"/> Dr. Andrei Zagrai
SU	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso	<input type="checkbox"/> Dr. Sigrid Close <input type="checkbox"/> Dr. Steve Rock
UCF	<input type="checkbox"/> Dr. Jay Kapat	<input type="checkbox"/> Dr. Jan Gou	<input type="checkbox"/> Dr. Ali Gordon <input type="checkbox"/> Dr. Lin An
UF	<input type="checkbox"/> Dr. Norm Fitz-Coy	<input type="checkbox"/> Dr. Mark Sheplak	<input type="checkbox"/>
UTMB	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Richard Jennings	<input type="checkbox"/> Dr. Tarah Castleberry
CESTAC	<input type="checkbox"/> Dr. Joseph Rothenberg	<input type="checkbox"/> Ms. Carissa Christensen	<input type="checkbox"/>
OAT	<input type="checkbox"/> Ms. Carol Gregorek	<input type="checkbox"/> Mr. Fred Bowen	<input type="checkbox"/>
FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/>	<input type="checkbox"/>
NASA	<input type="checkbox"/> Mr. Alex MacDonald (RA4)	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/>

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for October 15, 2012, 1-2pm EDT. See section A.5 for future EC Telecon dates.

### 0.2 Proposed Order of Major Topics of Discussion

1. Starters (Administrivia)
2. CESTAC Report
3. Self-Governance Subcommittee Report
4. Collaboration Subcommittee Report
5. Strategic Planning Subcommittee Report
6. Any Other Business
7. Outstanding Action Items

### 0.3 Appendices

- A. Reference Information
- B. List of COE CST Year 2 R&D Tasks
- C. Short Video Guidelines and Action
- D. AIAA Copyright and Posting Policy
- E. Florida Space Institute Director Announcement

### 0.4 Outstanding Actions

- ALL: Please start inputting your data for the Year 2-Q4 report due Oct 31, 2012.
- ALL: Please shoot a brief auto-intro video for showing at the ATM2.
- ALL: Begin inputting Y2-Q4 status reports into OMIS.

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 Quarterly Reporting Status

- The Y2-Q4 status reporting period ends on Sept 30 (in two weeks). Reports are due to be input to OMIS by Oct 31. Please do them before the ATM2.
- Refer to Appendix B for the Q3 reporting status for outstanding tasks.

- Final reporting requirements for tasks need to be met before they can be closed-out in OMIS.
  - Cooperative Agreement, Attachment 5 “Clarifications” B. “Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award.”

### 1.2 Year 2 Annual Technical Meeting Details

- Agenda options being firmed up. Latest addition is good news-bad news story.
- Current agenda and registration info are given at [www.coe-cst.org](http://www.coe-cst.org) under the “Meetings” tab.
- Please create and send me video self-introductions. See Attachment C for more info.
- ATM2 Checklist – Please let me know how many PIs are coming, how many students are coming, whether the students will have posters, whether all planned attendees have registered and if everybody has reserved their lodging.

University – Primary EC POC	# PIs	# Stud-ents	Post-ers?	Regist-ered?	Hotel Reserved?	Intro Video?
CU - Dr. David Klaus						
FIT - Dr. Dan Kirk						
FSU - Dr. Farrukh Alvi						
NMSU - Dr. Patricia Hynes						
NMT - Dr. Warren Ostergren						
SU - Prof. Scott Hubbard						
UCF - Dr. Jay Kapat						
UF - Dr. Norm Fitz-Coy						
UTMB - Dr. Jim Vanderploeg						
McGill - Dr. Ram Jakhu						

- CESTAC ATM2 Information Request: This information will help CESTAC with their assessment role. Each Research Team is requested to include two charts for presentation at the upcoming ATM.
  - Chart 1: Task Description
    - Research objectives and expected product or result
    - Challenges
    - Value to industry from a Research Team’s perspective
  - Chart 2: Programmatic Overview
    - Budget
    - Schedule

### 1.3 Planning for the Third Annual Administrative Meeting (AAM3)

- Things we know:
  - What? 2-day COE CST management and administrative meeting.
  - Why? Discuss administrative topics, face-to-face meeting opportunity, conduct subcommittee activities.
  - Who? Required: EC members, CESTAC members. Optional: COE CST Students.
- Open Questions: Where? When?

#### **1.4 Website Status (Fred Bowen)**

- Planned transition to new hosting company after ATM2.

#### **1.5 Budget and Finance Stuff**

- In response to a request for \$2M, the FAA Administrator's Discretionary budget provided an additional \$764K to fund COE CST tasks in FY12.
- See Appendix B for a complete list of COE CST R&D Tasks.
- All tasks that were accepted but unfunded during the FY12 ISR process are fully funded.
- We anticipate being in a funding shortfall position again next year. Keep those seat belts fastened!

#### **1.6 General Comments**

- No new general comments.

### **2. CESTAC REPORT**

---

#### **2.1 CESTAC Criteria for Assessment of the COE CST Research Program**

- This is the assessment criteria CESTAC will use for the COE CST Research portfolio.
- For all research areas:
  - Is this research area relevant to anything your company is doing or plans to do?
  - Is this research area relevant to something that you see as important to the industry?
  - What is the industry view of the FAA's role in potential regulations resulting from the each research area?
  - Is the distribution of funding balanced appropriately across the four research areas?
  - What areas do you think are important that are not currently being adequately addressed in the COE CST research portfolio?
- For each research task:
  - Is the planned product or result of the research directly relevant to the need?
  - If so, is the timetable of the research task consistent with the need?
  - Is the research task appropriately funded?

### **3. SELF-GOVERNANCE SUBCOMMITTEE REPORT**

---

#### **3.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- FIT – Nat Villaire
- 
- 

### **4. COLLABORATION SUBCOMMITTEE REPORT**

---

#### **4.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- UF - Mark Sheplak
- FIT - Tristan Fiedler (Lead)
- CU - Axelrad
- NMSU - Hynes
- NMT - Ostergren
- UTMB - Vanderploeg

### **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

#### **5.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- CU - Dave Klaus
- SU - Sigrid Close
- NMT - Andrei Zagrei
- FIT - Dan Kirk
- SU - Juan Alonso
- SU - Scott Hubbard



## **6. ANY OTHER BUSINESS**

---

-

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                     <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                     <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                     <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                     <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### A.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **SELF GOVERNANCE SUBCOMMITTEE – TO DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **COLLABORATION SUBCOMMITTEE – TO FOSTER COOPERATIVE EFFORTS AMONG INTERNAL AND EXTERNAL COE CST ENTITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **STRATEGIC PLANNING SUBCOMMITTEE – TO BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 Fall Calendars

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
FSU	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
NMT	21-Aug	22-Nov	23-Nov				
NMSU	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
SU	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
UCF	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
CU	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
UF	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
UTMB							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX.
- Feb 9, 2011: COE CST meeting held in conjunction with the AST Conference in Washington, DC. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST 2nd Annual Administrative Meeting (AAM2) in Tallahassee, FL.

**A.5 Future EC Telecon Dates**

In an attempt to systematically identify future EC Telecom dates, the following rule of thumb of "the second non-holiday Monday of each month" has been adopted. Known exceptions to this rule will be in December when no meeting will be held. Unknown exceptions will be accommodated by rescheduling to the third or fourth Monday of the month as need be.

This leads to the following set of dates for the next year:

Dates in 2012: 15 Oct, 12 Nov.

Dates in 2013: 14 Jan, 11 Feb, 11 March, 8 April, 13 May, 10 June, 8 July, 12 Aug, 16 Sept

**A.6 Dissemination of Information Notice**

The grantee will not engage in interviews that reference FAA, FAA funded research, FAA Centers of Excellence, or related non-technical issues without prior review and consent by the FAA Program Director and the FAA COE Program Manager. Related press releases and interviews will be reviewed and cleared with the FAA Public Affairs Office as necessary.

The grantee will not issue technical news releases or issue technical reports without the following statement included as part of the information disclosed:

- Although the FAA has sponsored this project, it neither endorses nor rejects the findings of this research. The presentation of this information is in the interest of invoking technical community comment on the results and conclusions of the research.

### **A.5 Close Out Reporting Requirements**

- Cooperative Agreement, Attachment 5 “Clarifications” B. “Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award.”

**APPENDIX B. LIST OF COE CST YEAR 2 R&D TASKS**

Below is a list of all active COE CST tasks with indications of FY12 funding sources.

<b>Task # Name</b>	<b>PI(s) (Univ)</b>
181 Physiological DB Definition and Design	Vanderploeg (UTMB)
182 Human System Risk Management Approach	Vanderploeg (UTMB)
183 Crew and HSP Medical Standards	Jennings (UTMB)
184 Human Rating of Commercial Spacecraft	Klaus (CU)***
185 Unified 4-Dimensional Trajectory Analysis	Alonso (SU)*
186 Space Environment MMOD Modeling and Prediction	Close (SU)**, Fuller-Rowell (CU)**
187 Space Situational Awareness	Scheeres (CU)*
193 Role of COE CST in EFP	Hubbard (SU)*, Born (CU)**
220 Space Operational Framework	Hynes (NMSU)***
228 Magneto-Elastic Sensing for Structural Health Monitoring	Zagrai & Ostergren (NMT)
241 High Temperature Pressure Transducers	Sheplak (UF)*, Oats (FSU)*
244 Autonomous Rendezvous and Docking	Fitz-Coy (UF)**, Collins (FSU)**, Rock (SU)**, Axelrad (CU)**
247 Air and Space Traffic Considerations for CST	Villaire (FIT)***
253 Ultra High Temperature Composites	Gou & Kapat (UCF)*
255 Wearable Biomedical Monitoring Equipment	Jennings (UTMB)
256 Additional NASTAR Centrifuge Testing	Vanderploeg (UTMB)
257 Master's Launch and On-Orbit Operations Laboratory	Born (CU)**
258 Multi-Disciplinary Analysis of Safety Metrics	Alonso (SU)*
259 Flight Software Validation & Verification for Safety	Alonso (SU)
293 Reduced Order Non-Linear Structural Modeling	Miller (NMT)
294 Minor Injury Severity Scale	Jennings (UTMB)*
295 EMF Effects on Implantable Devices	Vanderploeg (UTMB)*
296 CESTAC Support and Outreach	Fiedler (FIT)***
297 Technical Oversight & OMIS	Alvi (FSU)***
298 Integration Evaluation of ADS-B Payloads	Hynes (NMSU)**
299 Nitrous Oxide Composite Tank Testing	TBD (MT)***
300 Collaborative Activities	TBD**
301 European Commercial Space Regulations (?)	Jakhu (MU)
302 International Commercial Space Regulations (?)	Jakhu (MU)
Orion America Technologies Contract	Davidian (AST)*
<b>NOTES</b>	
* Received FY12 AST R&D funds.	
** Received FY12 Administrator discretionary funds.	
*** Both * and **.	

## **APPENDIX C. SHORT VIDEO GUIDELINES AND ACTION**

---

Regarding the idea of making short videos (15 +/- 5 seconds in total duration) I thought I'd do a quick sample for you to see and ask you to start making your and getting your students to make theirs... So first, as an example, here's the URL to my 15-second COE CST video:

<https://dl.dropbox.com/u/5167409/COECSTVideo-KD.mov>

If you, your students, your administrators and/or your financial officers could make a similar video using your home computer, phone, iPad, or any other device, we could use it at our upcoming ATM in Socorro. This could be very fun and would be a great way for people to see the other individuals affiliated with our effort.

When you are getting ready to send it, please follow the steps below:

1. Please attach your video file to an email and send it to [ken.davidian@gmail.com](mailto:ken.davidian@gmail.com) so I won't run into any "mail jail" problems.
2. Please state that in the body of the email that you are giving the COE CST permission to show your video at the ATM in Socorro, NM. (We will not plan on putting these videos up on the COE CST web site for the time being. One step at a time...)

- ★ So here's my official request to you... Please shoot a video of this sort for us and we'll start collecting them for showing at the ATM2.

As a guide, you can use the appropriate sample scripts below to make your video.

### **PRINCIPAL INVESTIGATOR SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **STUDENT SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a student at [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a student at [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **FINANCIAL OFFICER SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **COE CST ADMINISTRATION SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm the [TITLE] for the FAA Center of Excellence for Commercial Space Transportation. My job is to [BRIEF JOB DESCRIPTION]."
- "Hi! My name is [NAME] and I'm the [TITLE] for the FAA COE CST. My job is to [BRIEF JOB DESCRIPTION]."

## **APPENDIX D. AIAA COPYRIGHT AND POSTING POLICY**

---

### **AIAA Copyright Notices for COE CST-Funded Research**

Coming soon...

### **AIAA Author Rights and Responsibilities: Self-Archiving and Posting Policy**

Authors of journal articles and meeting papers published by AIAA may post their articles and papers on their private websites and deposit them in their institutional repositories, so long as access to the website is free of charge. In no circumstance shall any charge be made for access to the posted article or paper. Posting to an institutional repository is limited to those to which the author has a direct relationship (e.g., academic department repository, university repository, corporate intranet, agency repository, laboratory website, funding sources, or similar) including those that have deposit mandates.

The articles and papers posted must be either the submitted (or electronic pre-print) version of a conference paper or the final accepted version (revised to incorporate review recommendations) of an AIAA journal paper. Authors may no longer post the final published version of AIAA journal articles published after 1 July 2012 (which would include the results of copy-editing, proof-reading, and formatting performed by AIAA).

Authors are required to include the appropriate copyright notice on their posted paper or article. Upon publication, authors must ensure that the posted paper or article includes either 1) the full citation to the AIAA work with its Digital Object Identifier (DOI) or 2) links to the work in the AIAA electronic library.

## **APPENDIX E. FLORIDA SPACE INSTITUTE DIRECTOR ANNOUNCEMENT**

---

Director, Florida Space Institute, University of Central Florida, Orlando, FL

The Florida Space Institute (FSI), a small multi-disciplinary center devoted to facilitating and conducting leading edge applied and basic research and education programs in space-related fields, seeks applications and nominations for Director.

FSI is located in the Central Florida Research Park just off the University of Central Florida (UCF) campus, and less than 45 minutes from the NASA Kennedy Space Center. FSI's charter is to support space research, development, and education activities within UCF and the broader State of Florida, and secondarily to support the development of Florida's space economy—civil, defense, and commercial.

UCF is a rapidly growing university of almost 60,000 students. UCF is committed to becoming a premier institution in space science, engineering, and education and is seeking a dynamic individual to implement that vision by growing FSI to a nationally recognized space research powerhouse. The Director will work with faculty from the College of Engineering and Computer Science, the College of Optics and Photonics, the College of Science, and others with interests in space-related research at UCF.

More information about FSI can be found at: <http://fsi.ucf.edu>

**Minimum Qualifications:** A PhD in a relevant field or equivalent experience is required. Applicants should have demonstrated leadership and management ability, effective interpersonal skills, a record of national and international recognition, a record of winning competitively funded space funding, and past experience in academic programs.

**Preferences :** Experience within NASA or receiving and executing large NASA funded programs is desired. A successful candidate is expected to have an entrepreneurial mind-set in building up an organization, and experience in growing and managing a center, institute, or a large research group.

**Reporting:** The FSI Director reports directly to UCF's Vice President for Research and Commercialization, and will strategize, coordinate, and lead UCF's efforts in space science, engineering, and education.

Review of applications will begin 01 October 2012 and will continue until the position is filled. Applicants should apply on line at [www.jobswithucf.com](http://www.jobswithucf.com); refer to position number 37346. Please direct any questions to the current FSI Director, Dr. S Alan Stern, at (303) 324-5269 or [astern@ucf.edu](mailto:astern@ucf.edu).

The University of Central Florida is an equal opportunity, equal access, and affirmative action employer.



## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #06 - TUESDAY, 16 OCTOBER 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	<input type="checkbox"/> Dr. David Klaus	<input type="checkbox"/> Dr. Penina Axelrad	<input type="checkbox"/> Dr. George Born <input type="checkbox"/> Dr. Tim Fuller-Rowell <input type="checkbox"/> Dr. Dan Scheeres <input type="checkbox"/> Mr. Brad Cheetham
FIT	<input type="checkbox"/> Dr. Dan Kirk	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Tristan Fiedler
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Joylynn Watkins
NMT	<input type="checkbox"/> Dr. Warren Ostergren	<input type="checkbox"/> Dr. Dave Westpfahl	<input type="checkbox"/> Dr. Keith Miller <input type="checkbox"/> Dr. Andrei Zagrai
SU	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso	<input type="checkbox"/> Dr. Sigrid Close <input type="checkbox"/> Dr. Steve Rock
UCF	<input type="checkbox"/> Dr. Jay Kapat	<input type="checkbox"/> Dr. Jan Gou	<input type="checkbox"/> Dr. Ali Gordon <input type="checkbox"/> Dr. Lin An
UF	<input type="checkbox"/> Dr. Norm Fitz-Coy	<input type="checkbox"/> Dr. Mark Sheplak	<input type="checkbox"/>
UTMB	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Richard Jennings	<input type="checkbox"/> Dr. Tarah Castleberry
CESTAC	<input type="checkbox"/> Dr. Joseph Rothenberg	<input type="checkbox"/> Ms. Carissa Christensen	<input type="checkbox"/>
OAT	<input type="checkbox"/> Ms. Carol Gregorek	<input type="checkbox"/> Mr. Fred Bowen	<input type="checkbox"/>
FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/>	<input type="checkbox"/>
NASA	<input type="checkbox"/> Mr. Alex MacDonald (RA4)	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Bruce Pittman

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for November 12, 2012, 1-2pm EDT. See section A.5 for future EC Telecon dates.

### 0.2 Proposed Order of Major Topics of Discussion

- |  |   |
|--|---|
| 1. Starters (Administrivia)            | 5. Strategic Planning Subcommittee Report |
| 2. CESTAC Report                       | 6. Any Other Business                     |
| 3. Self-Governance Subcommittee Report | 7. Outstanding Action Items               |
| 4. Collaboration Subcommittee Report   |   |

### 0.3 Appendices

- |                                       |  |
|---------------------------------------|--|
| • A. Reference Information            | • C. Short Video Guidelines and Action |
| • B. List of COE CST Year 2 R&D Tasks | • D. AIAA Copyright and Posting Policy |

### 0.4 Outstanding Actions

- ALL: Please start inputting your data for the Year 2-Q4 report due Oct 31, 2012.
- ALL: Please shoot a brief auto-intro video for showing at the ATM2.
- ALL: Begin inputting Y2-Q4 status reports into OMIS.

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 Quarterly Reporting Status

- The Y2-Q4 status reports are due to be input to OMIS by Oct 31. Please do them before the ATM2.
- As a reminder, final reporting requirements for tasks need to be met before they can be closed-out in OMIS. See Cooperative Agreement, Attachment 5 “Clarifications” B.

### 1.2 Year 2 Annual Technical Meeting Details

- Agenda options being firmed up. Latest addition is good news-bad news story.
- Current agenda and registration info are given at [www.coe-cst.org](http://www.coe-cst.org) under the “Meetings” tab.
- Please create and send me video self-introductions. See Attachment C for more info.
- ATM2 Checklist – Please let me know how many PIs are coming, how many students are coming, whether the students will have posters, whether all planned attendees have registered and if everybody has reserved their lodging.

University – Primary EC POC	# PIs	# Stud-ents	Post-ers?	Regist-ered?	Hotel Reserved?	Intro Video?
CU - Dr. David Klaus						
FIT - Dr. Dan Kirk						2
FSU - Dr. Farrukh Alvi						
NMSU - Dr. Patricia Hynes						
NMT - Dr. Warren Ostergren						
SU - Prof. Scott Hubbard						
UCF - Dr. Jay Kapat						
UF - Dr. Norm Fitz-Coy						
UTMB - Dr. Jim Vanderploeg						
McGill - Dr. Ram Jakhu						

- CESTAC ATM2 Information Request: This information will help CESTAC with their assessment role. Each Research Team is requested to include two charts for presentation at the upcoming ATM.
  - Chart 1: Executive Summary Quad Chart
    - Research objectives and expected product or result
    - Challenges
    - Value to industry from a Research Team’s perspective
  - Chart 2: CESTAC Quad Chart
    - Past Major Milestones
    - Future Major Milestones
    - Schedule
    - Budget

### 1.3 Planning for the Third Annual Administrative Meeting (AAM3)

- Things we know:
  - What? 2-day COE CST management and administrative meeting.
  - Why? Discuss administrative topics, face-to-face meeting opportunity, conduct subcommittee activities.
  - Who? Required: EC members, CESTAC members. Optional: COE CST Students.
- Open Questions: Where? When?

### 1.4 Website Status (Fred Bowen)

- Planned transition to new hosting company after ATM2.

### 1.5 Budget and Finance Stuff

- See Appendix B for a complete list of COE CST R&D Tasks.

- We anticipate being in a funding shortfall position again next year. Keep those seat belts fastened!

### **1.6 General Comments**

- No new general comments.

## **2. CESTAC REPORT**

---

### **2.1 CESTAC Criteria for Assessment of the COE CST Research Program**

- This is the assessment criteria CESTAC will use for the COE CST Research portfolio.
- For all research areas:
  - Is this research area relevant to anything your company is doing or plans to do?
  - Is this research area relevant to something that you see as important to the industry?
  - What is the industry view of the FAA's role in potential regulations resulting from the each research area?
  - Is the distribution of funding balanced appropriately across the four research areas?
  - What areas do you think are important that are not currently being adequately addressed in the COE CST research portfolio?
- For each research task:
  - Is the planned product or result of the research directly relevant to the need?
  - If so, is the timetable of the research task consistent with the need?
  - Is the research task appropriately funded?

## **3. SELF-GOVERNANCE SUBCOMMITTEE REPORT**

---

### **3.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- FIT – Nat Villaire • •

## **4. COLLABORATION SUBCOMMITTEE REPORT**

---

### **4.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- UF - Mark Sheplak • FIT - Tristan Fiedler (Lead) • CU - Axelrad
- NMSU - Hynes • NMT - Ostergren • UTMB - Vanderploeg

## **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

### **5.1 Members (reflecting survey results as of 17 Sept at 9:00am)**

- CU - Dave Klaus • SU - Sigrid Close • NMT - Andrei Zagrei
- FIT - Dan Kirk • SU - Juan Alonso • SU - Scott Hubbard

## **6. ANY OTHER BUSINESS**

---

-

## APPENDIX A. REFERENCE INFORMATION

### A.1 FAA AST Research Areas

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Space Traffic Management &amp; Operations                         <ol style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 National Air Space Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated Air/Space Traffic Management</li> </ol> </li> <li>2. Space Transportation Ops, Technologies and Payloads                         <ol style="list-style-type: none"> <li>2.1 Ground Systems &amp; Operations Safety Technology</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems and Technologies</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Operations Safety</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Human Spaceflight                         <ol style="list-style-type: none"> <li>3.1 Aerospace Physiology and Medicine</li> <li>3.2 Personnel Training</li> <li>3.3 ECLSS</li> <li>3.4 Habitability &amp; Human Factors</li> <li>3.5 Human Rating</li> </ol> </li> <li>4. Space Transportation Industry Viability                         <ol style="list-style-type: none"> <li>4.1 Markets</li> <li>4.2 Policy</li> <li>4.3 Law</li> <li>4.4 Regulation</li> <li>4.5 Cross-Cutting Topics</li> </ol> </li> </ol> |
|--|--|

### A.2 COE CST Executive Committee Functions

The FAA COE CST Executive Committee is responsible for the following functions:

- **SELF GOVERNANCE SUBCOMMITTEE – TO DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.
- **COLLABORATION SUBCOMMITTEE – TO FOSTER COOPERATIVE EFFORTS AMONG INTERNAL AND EXTERNAL COE CST ENTITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.
- **STRATEGIC PLANNING SUBCOMMITTEE – TO BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

### A.3 Upcoming Academic Calendars

#### 2012 Fall Calendars

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	20-Aug	21-Nov	23-Nov	5-Dec	10-Dec	14-Dec	15-Dec
FSU	27-Aug	21-Nov	23-Nov	7-Dec	10-Dec	14-Dec	15-Dec
NMT	21-Aug	22-Nov	23-Nov				
NMSU	23-Aug	19-Nov	23-Nov	14-Dec	10-Dec	14-Dec	15-Dec
SU	24-Sep	19-Nov	23-Nov	7-Dec	10-Dec	14-Dec	10-Jan
UCF	30-Aug	22-Nov	23-Nov	3-Dec	5-Dec	11-Dec	14-Dec
CU	27-Aug	22-Nov	23-Nov	14-Dec	15-Dec	20-Dec	21-Dec
UF	22-Aug	21-Nov	24-Nov	5-Dec	8-Dec	14-Dec	14-Dec

Univ.	Classes Begin	T/giving Start	T/giving End	Classes End	Final Exam Start	Final Exam End	Graduat'n
UTMB							

**2013 Spring Calendars**

Univ.	Classes Begin	SB Start	SB End	Classes End	Final Exam Start	Final Exam End	Graduat'n
FIT	7-Jan	4-Mar	8-Mar	24-Apr	29-Apr	3-May	4-May
FSU							
NMT	15-Jan	11-Mar	15-Mar		4-May	9-May	11-May
NMSU	17-Jan	25-Mar	29-Mar	10-May	6-May	10-Jun	11-May
SU	7-Jan	17-Mar	1-Apr	6-Jun	10-Jun	13-Jun	16-Jun
UCF	7-Jan	4-Mar	8-Mar	22-Apr	24-Apr	30-Apr	2-May
CU	14-Jan	25-Mar	29-Mar	3-May	4-May	9-May	10-May
UF	7-Jan	4-Mar	8-Mar	24-Apr	27-Apr	3-May	3-May
UTMB							

**A.4 Past Meetings**

- Oct 21, 2010: COE CST dinner held in conjunction with ISPCS in Las Cruces, NM.
- Nov 9-10, 2010: COE CST meeting hosted by UTMB in Galveston, TX. (Retroactively designated the first Annual Administrative Meeting, AAM1.)
- Feb 9, 2011: COE CST meeting held during the AST Conference, Washington, DC.
- Nov 8-9, 2011: COE CST First Annual Technical Meeting (ATM1) in Boulder, CO.
- April 24-25, 2012: COE CST 2nd Annual Administrative Meeting (AAM2) in Tallahassee, FL.

**A.5 Future EC Telecon Dates**

In an attempt to systematically identify future EC Telecom dates, the following rule of thumb of "the second non-holiday Monday of each month" has been adopted. Known exceptions to this rule will be in December when no meeting will be held. Unknown exceptions will be accommodated by rescheduling to the third or fourth Monday of the month as need be.

This leads to the following set of dates for the coming months:

Dates in 2013: 14 Jan, 11 Feb, 11 March, 8 April, 13 May, 10 June, 8 July, 12 Aug, 16 Sept

**A.6 Dissemination of Information Notice**

The grantee will not engage in interviews that reference FAA, FAA funded research, FAA Centers of Excellence, or related non-technical issues without prior review and consent by the FAA Program Director and the FAA COE Program Manager. Related press releases and interviews will be reviewed and cleared with the FAA Public Affairs Office as necessary.

The grantee will not issue technical news releases or issue technical reports without the following statement included as part of the information disclosed:

- Although the FAA has sponsored this project, it neither endorses nor rejects the findings of this research. The presentation of this information is in the interest of invoking technical community comment on the results and conclusions of the research.

**A.5 Close Out Reporting Requirements**

- Cooperative Agreement, Attachment 5 "Clarifications" B. "Close Out Reports for all tasks are to be submitted to the FAA within 90 days of the termination of the award."

**APPENDIX B. LIST OF COE CST YEAR 2 R&D TASKS**

Below is a list of all active COE CST tasks with indications of FY12 funding sources.

<b>181 Physiological DB Definition and Design</b>	Vanderploeg (UTMB)
<b>182 Human System Risk Management Approach</b>	Vanderploeg (UTMB)
<b>183 Crew and HSP Medical Standards</b>	Jennings (UTMB)
<b>184 Human Rating of Commercial Spacecraft</b>	Klaus (CU)***
<b>185 Unified 4-Dimensional Trajectory Analysis</b>	Alonso (SU)*
<b>186 Space Environment MMOD Modeling and Prediction</b>	Close (SU)**, Fuller-Rowell (CU)**
<b>187 Space Situational Awareness</b>	Scheeres (CU)*
<b>193 Role of COE CST in EFP</b>	Hubbard (SU)*, Born (CU)**
<b>220 Space Operational Framework</b>	Hynes (NMSU)***
<b>228 Magneto-Elastic Sensing for Structural Health Monitoring</b>	Zagrai & Ostergren (NMT)
<b>241 High Temperature Pressure Transducers</b>	Sheplak (UF)*, Oats (FSU)*
<b>244 Autonomous Rendezvous and Docking</b>	Fitz-Coy (UF)**, Collins (FSU)**, Rock (SU)**, Axelrad (CU)**
<b>247 Air and Space Traffic Considerations for CST</b>	Villaire (FIT)***
<b>253 Ultra High Temperature Composites</b>	Gou & Kapat (UCF)*
<b>255 Wearable Biomedical Monitoring Equipment</b>	Jennings (UTMB)
<b>256 Additional NASTAR Centrifuge Testing</b>	Vanderploeg (UTMB)
<b>257 Master's Launch and On-Orbit Operations Laboratory</b>	Born (CU)**
<b>258 Multi-Disciplinary Analysis of Safety Metrics</b>	Alonso (SU)*
<b>259 Flight Software Validation &amp; Verification for Safety</b>	Alonso (SU)
<b>293 Reduced Order Non-Linear Structural Modeling</b>	Miller (NMT)
<b>294 Minor Injury Severity Scale</b>	Jennings (UTMB)*
<b>295 EMF Effects on Implantable Devices</b>	Vanderploeg (UTMB)*
<b>296 CESTAC Support and Outreach</b>	Fiedler (FIT)***
<b>297 Technical Oversight &amp; OMIS</b>	Alvi (FSU)***
<b>298 Integration Evaluation of ADS-B Payloads</b>	Hynes (NMSU)**
<b>299 Nitrous Oxide Composite Tank Testing</b>	TBD (MT)***
<b>300 Collaborative Activities</b>	TBD**
<b>301 European Commercial Space Regulations (?)</b>	Jakhu (MU)
<b>302 International Commercial Space Regulations (?)</b>	Jakhu (MU)
<b>Orion America Technologies Contract</b>	Davidian (AST)*
<b>NOTES</b>	
* Received FY12 AST R&D funds.	
** Received FY12 Administrator discretionary funds.	
*** Both * and **.	

## **APPENDIX C. SHORT VIDEO GUIDELINES AND ACTION**

---

Regarding the idea of making short videos (15 +/- 5 seconds in total duration) I thought I'd do a quick sample for you to see and ask you to start making your and getting your students to make theirs... So first, as an example, here's the URL to my 15-second COE CST video:

<https://dl.dropbox.com/u/5167409/COECSTVideo-KD.mov>

If you, your students, your administrators and/or your financial officers could make a similar video using your home computer, phone, iPad, or any other device, we could use it at our upcoming ATM in Socorro. This could be very fun and would be a great way for people to see the other individuals affiliated with our effort.

When you are getting ready to send it, please follow the steps below:

1. Please attach your video file to an email and send it to [ken.davidian@gmail.com](mailto:ken.davidian@gmail.com) so I won't run into any "mail jail" problems.
2. Please state that in the body of the email that you are giving the COE CST permission to show your video at the ATM in Socorro, NM. (We will not plan on putting these videos up on the COE CST web site for the time being. One step at a time...)

★ So here's my official request to you... Please shoot a video of this sort for us and we'll start collecting them for showing at the ATM2.

As a guide, you can use the appropriate sample scripts below to make your video.

### **PRINCIPAL INVESTIGATOR SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **STUDENT SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a student at [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a student at [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **FINANCIAL OFFICER SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA Center of Excellence for Commercial Space Transportation."
- "Hi! My name is [NAME] and I'm a Principal Investigator for [UNIVERSITY NAME]. I work on the [TASK NAME] task for the FAA COE CST."

### **COE CST ADMINISTRATION SCRIPT OPTIONS**

- "Hi! My name is [NAME] and I'm the [TITLE] for the FAA Center of Excellence for Commercial Space Transportation. My job is to [BRIEF JOB DESCRIPTION]."
- "Hi! My name is [NAME] and I'm the [TITLE] for the FAA COE CST. My job is to [BRIEF JOB DESCRIPTION]."

## **APPENDIX D. AIAA COPYRIGHT AND POSTING POLICY**

---

### **AIAA Copyright Notices for COE CST-Funded Research**

Coming soon...

### **AIAA Author Rights and Responsibilities: Self-Archiving and Posting Policy**

Authors of journal articles and meeting papers published by AIAA may post their articles and papers on their private websites and deposit them in their institutional repositories, so long as access to the website is free of charge. In no circumstance shall any charge be made for access to the posted article or paper. Posting to an institutional repository is limited to those to which the author has a direct relationship (e.g., academic department repository, university repository, corporate intranet, agency repository, laboratory website, funding sources, or similar) including those that have deposit mandates.

The articles and papers posted must be either the submitted (or electronic pre-print) version of a conference paper or the final accepted version (revised to incorporate review recommendations) of an AIAA journal paper. Authors may no longer post the final published version of AIAA journal articles published after 1 July 2012 (which would include the results of copy-editing, proof-reading, and formatting performed by AIAA).

Authors are required to include the appropriate copyright notice on their posted paper or article. Upon publication, authors must ensure that the posted paper or article includes either 1) the full citation to the AIAA work with its Digital Object Identifier (DOI) or 2) links to the work in the AIAA electronic library.



## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #07 - MONDAY, 12 NOVEMBER 2012

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU	<input type="checkbox"/> Dr. David Klaus	<input type="checkbox"/> Dr. Penina Axelrad	<input type="checkbox"/> Dr. George Born <input type="checkbox"/> Dr. Tim Fuller-Rowell <input type="checkbox"/> Dr. Dan Scheeres <input type="checkbox"/> Mr. Brad Cheetham
FIT	<input type="checkbox"/> Dr. Dan Kirk	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Tristan Fiedler
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Joylynn Watkins
NMT	<input type="checkbox"/> Dr. Warren Ostergren	<input type="checkbox"/> Dr. Dave Westpfahl	<input type="checkbox"/> Dr. Keith Miller <input type="checkbox"/> Dr. Andrei Zagrai
SU	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso	<input type="checkbox"/> Dr. Sigrid Close <input type="checkbox"/> Dr. Steve Rock
UCF	<input type="checkbox"/> Dr. Jay Kapat	<input type="checkbox"/> Dr. Jan Gou	<input type="checkbox"/> Dr. Ali Gordon <input type="checkbox"/> Dr. Lin An
UF	<input type="checkbox"/> Dr. Norm Fitz-Coy	<input type="checkbox"/> Dr. Mark Sheplak	<input type="checkbox"/>
UTMB	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Richard Jennings	<input type="checkbox"/> Dr. Tarah Castleberry
CESTAC	<input type="checkbox"/> Dr. Joseph Rothenberg	<input type="checkbox"/> Ms. Carissa Christensen	<input type="checkbox"/>
OAT	<input type="checkbox"/> Ms. Carol Gregorek	<input type="checkbox"/> Mr. Fred Bowen	<input type="checkbox"/>
FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/>	<input type="checkbox"/>
NASA	<input type="checkbox"/> Mr. Alex MacDonald (RA4)	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Bruce Pittman

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for January 14, 2013, 1-2pm EDT.

### 0.2 Proposed Order of Major Topics of Discussion

- |  |   |
|--|---|
| 1. Starters (Administrivia)            | 4. Collaboration Subcommittee Report      |
| 2. CESTAC Report                       | 5. Strategic Planning Subcommittee Report |
| 3. Self-Governance Subcommittee Report | 6. Any Other Business                     |

### 0.3 Appendices

- |                                       |  |
|---------------------------------------|--|
| • A. Reference Information            | • C. Short Video Guidelines and Action |
| • B. List of COE CST Year 2 R&D Tasks | • D. AIAA Copyright and Posting Policy |

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 Quarterly Reporting Status

- The following tasks are awaiting their Q4 status reports:

Task #	Task Name	PI Name
241-FSU	High Temp Pressure Transducers	Mark Sheplak
241-UF	High Temp Pressure Transducers	Billie Oates
244-FSU	Autonomous RDV & Docking	Emmanuel Collins
244-UF	Autonomous RDV & Docking	Norm Fitz-Coy
247-FIT	Air & Space Traffic Considerations for CST	Nat Villaire
287-UCF	Technical Oversight	Jay Kapat
288-UF	Technical Oversight	Norm Fitz-Coy
297-FSU	TO & OMIS Integration	Farrukh Alvi

### 1.2 Second Annual Technical Meeting (ATM2) Wrap-Up

- Despite hurricane Sandy and Carol's hospitalization, the meeting went well.
- Links to the presentation videos will be available from the COE CST web site.

### 1.3 Planning for the Third Annual Administrative Meeting (AAM3)

- Things we know:
  - What: 2-day COE CST management and administrative meeting.
  - Why: Discuss administrative topics, face-to-face meeting opportunity, conduct subcommittee activities.
  - Who: Required: EC members. Optional: Other COE CST PIs, CESTAC members, COE CST Students.
- Open Questions: Where? When?

### 1.4 Website Status (Fred Bowen)

- Planned transition to new hosting company after ATM2.

### 1.5 Budget and Finance Stuff

- Still awaiting proposals input to grants.gov for recent funding awards from the following tasks:

Task #	Task Name	PI Name
185-SU	Unified 4D Trajectory	Juan Alonso
220-NMSU	Space Operational Framework	Pat Hynes
258-SU	Multi-disc Analysis of Safety Metrics	Juan Alonso
296-FIT	CESTAC Support and Outreach	Tristan Fiedler
298-NMSU	Integration & Evaluation of ADS-B Payloads	Pat Hynes
299-NMT	Nitrous Oxide Composite Tank Testing	Bob Abernathy
300-FIT	Collaboration Activities	Tristan Fiedler

### 1.6 General Comments

- No new general comments.

## 2. CESTAC REPORT

---

### 2.1 Post-ATM2 Activities

- I'd like to thank CESTAC for their participation and evaluation of our tasks.

- I'm planning to meet with Joe Rothenberg in early 2013 to discuss further ways to improve the COE CST and facilitate information dissemination to CESTAC.

### **3. SELF-GOVERNANCE SUBCOMMITTEE REPORT**

---

- **GOAL: TO DEVELOP A SET OF SELF-GOVERNANCE DOCUMENTS.** Beginning with an EC Terms of Reference document, working through the second step of an EC Management Plan of its own, and culminating with an EC Constitution that will be iteratively refined over multiple years, these will evolve toward the foundational document for the COE CST entering its self-sustaining phase after 10 years of guaranteed FAA funding.

#### **3.1 Members**

- FIT – Nat Villaire
- UF – Norm Fitz-Coy
- 

#### **3.2 Activities**

- Nat will lead the “team” (of two!) and will present results of this subcommittee at AAM3.

### **4. COLLABORATION SUBCOMMITTEE REPORT**

---

- **GOAL: TO FOSTER COOPERATIVE EFFORTS AMONG INTERNAL AND EXTERNAL COE CST ENTITIES.** To respond not only to FAA funding solicitations but also to external funding solicitations, cooperative efforts will require some modified posturing. The intent is to demonstrate through signaling and subsequent action that being a member of the COE CST and partnering with other member and non-member universities actually enhances the chances of winning funding for related research tasks.

#### **4.1 Members**

- UF - Mark Sheplak
- NMSU – Pat Hynes
- CU – Dan Scheeres
- FIT - Tristan Fiedler (Lead)
- NMT – Warren Ostergren
- CU – Penny Axelrad
- UTMB – Jim Vanderploeg

#### **4.2 Activities**

- Tristan will head this group.
- Could this group begin discussing ideas surrounding the upcoming Affiliate Members solicitation planned for early 2013?

### **5. STRATEGIC PLANNING SUBCOMMITTEE REPORT**

---

- **GOAL: TO BEGIN CONDUCTING STRATEGIC PLANNING ANALYSES.** Strategic planning analyses will be very valuable to the COE CST and can provide the basis for sustained, meaningful activities among the participating members. The long-term goal is self-sustenance after 10 years and the results of many structured analyses will be essential to painting a more complete picture of how it can best be achieved.

#### **5.1 Members**

- CU - Dave Klaus
- FIT - Dan Kirk
- FSU – Billie Oates
- SU - Sigrid Close
- SU - Juan Alonso
- NMT - Andrei Zagrei
- SU - Scott Hubbard

## **5.2 Activities**

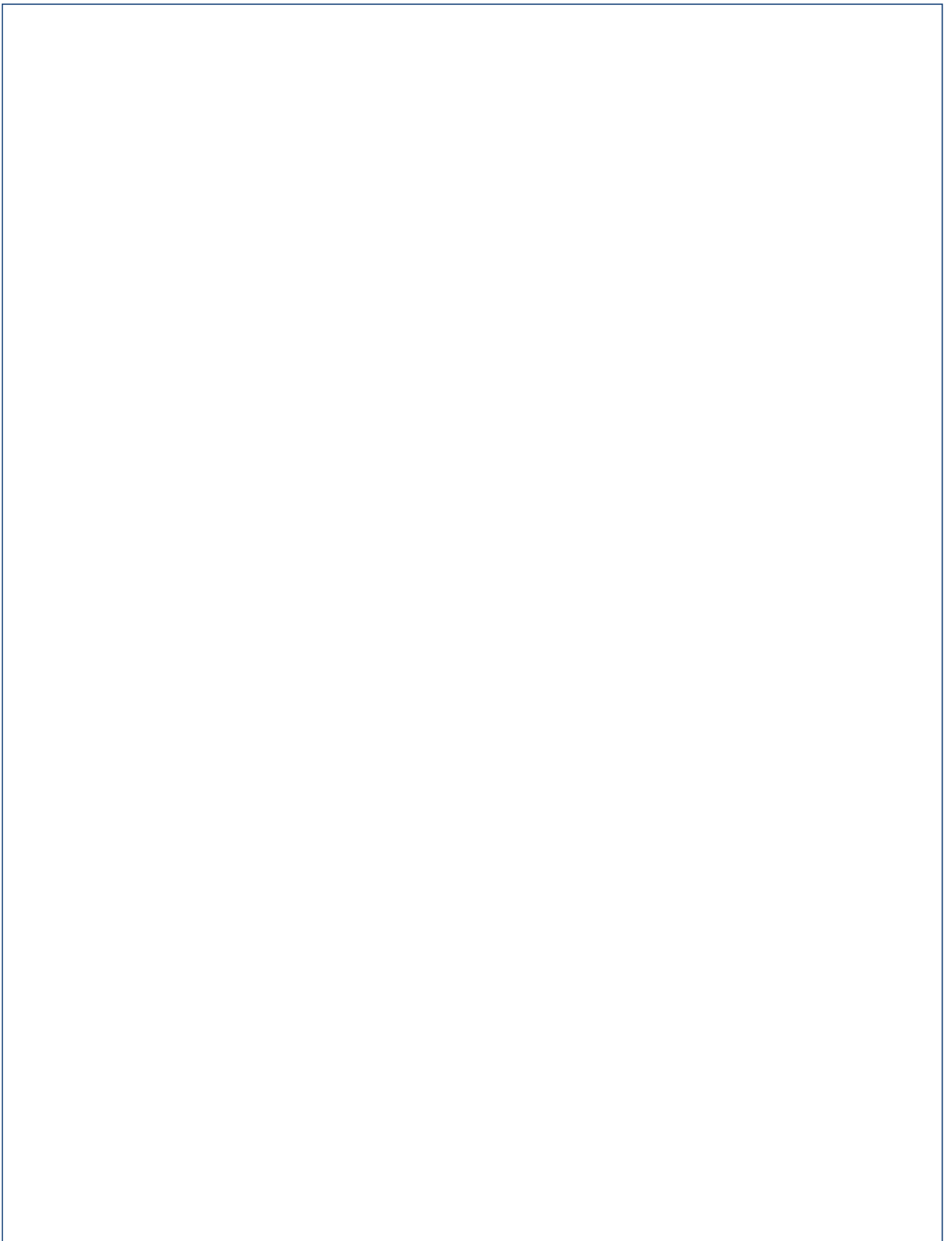
- Dave Klaus will head this group and lead a strategic analysis with initial results to be presented at the upcoming AAM3.
- To fill out the Blue Ocean Survey on-line that is collecting information for the AST COE CST strategic planning exercise, please go to the following URL:
  - <https://www.surveymonkey.com/s/2BZL8DQ>

## **6. ANY OTHER BUSINESS**

---

-







Center of Excellence for  
Commercial Space Transportation