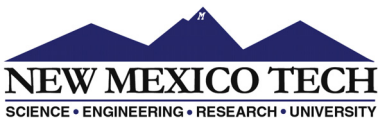




Florida Institute  
of Technology



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



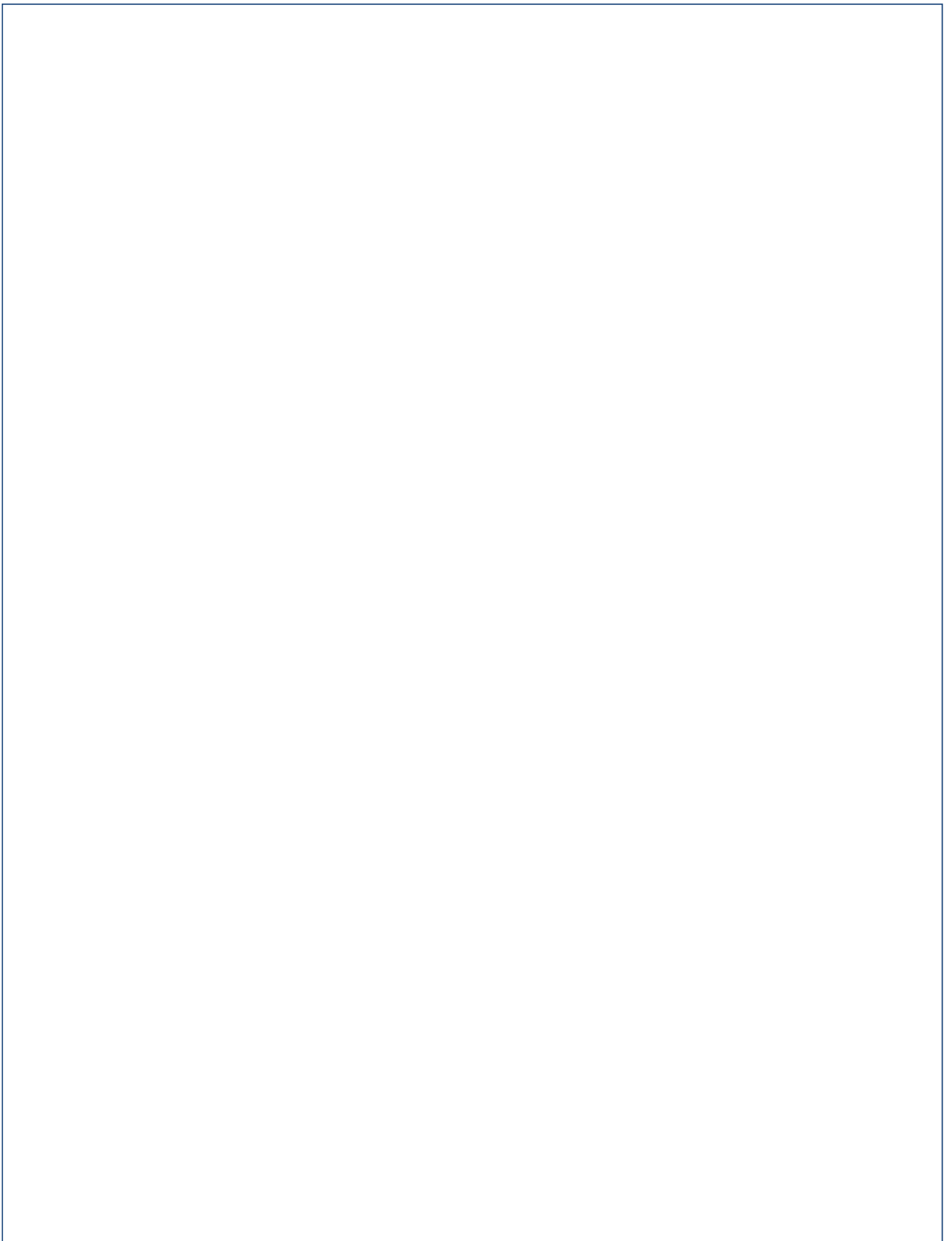
Center of Excellence for  
Commercial Space Transportation

# Federal Aviation Administration Center of Excellence for Commercial Space Transportation

## Year 4 Annual Report

## Volume 3. Teleconference Notes

December 31, 2014



## COE CST YEAR 4 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 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 fourth year of operation. The document ends with a listing of the Year 4 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 fourth Annual Technical Meeting in October 2014.
- 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
19	2014-01-13	<a href="https://db.tt/ijd4AO9e">https://db.tt/ijd4AO9e</a>	<a href="https://db.tt/VbJaHluL">https://db.tt/VbJaHluL</a>
20	2014-02-10	<a href="https://db.tt/JM7fv5Fx">https://db.tt/JM7fv5Fx</a>	<a href="https://db.tt/soHCxU3x">https://db.tt/soHCxU3x</a>
21	2014-03-10	<a href="https://db.tt/zFxbeiQx">https://db.tt/zFxbeiQx</a>	<a href="https://db.tt/bGUHALqX">https://db.tt/bGUHALqX</a>
22	2014-04-14	<a href="https://db.tt/9qe6HMdK">https://db.tt/9qe6HMdK</a>	<a href="https://db.tt/CIWusIdX">https://db.tt/CIWusIdX</a>
XX	2014-04-16	CESTAC Conference Call	<a href="https://db.tt/FICdCCDS">https://db.tt/FICdCCDS</a>
XX	2014-04-(21-23)	AAM4 Held in Melbourne, FL	
23	2014-05-19	<a href="https://db.tt/bFfZrhXt">https://db.tt/bFfZrhXt</a>	<a href="https://db.tt/XCjpGFUw">https://db.tt/XCjpGFUw</a>
24	2014-06-16	<a href="https://db.tt/FegOL0FH">https://db.tt/FegOL0FH</a>	<a href="https://db.tt/mThu6vUq">https://db.tt/mThu6vUq</a>
XX	2014-07-00	No Meeting	
26	2014-08-11	<a href="https://db.tt/Vs5ooLjp">https://db.tt/Vs5ooLjp</a>	<a href="https://db.tt/soTcA7KR">https://db.tt/soTcA7KR</a>
27	2014-09-08	<a href="https://db.tt/YYoVmMZX">https://db.tt/YYoVmMZX</a>	<a href="https://db.tt/nQyqAMYv">https://db.tt/nQyqAMYv</a>
28	2014-10-14	<a href="https://db.tt/6Ycm04NK">https://db.tt/6Ycm04NK</a>	<a href="https://db.tt/4p7Q2On7">https://db.tt/4p7Q2On7</a>
XX	2014-10-(29-30)	ATM4 Held in Washington, DC	
XX	2014-11-00	No Meeting	
29	2014-12-08	<a href="https://db.tt/gp2d8QPW">https://db.tt/gp2d8QPW</a>	<a href="https://db.tt/XxGBK9VK">https://db.tt/XxGBK9VK</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.

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## Introduction

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Included in this volume are the notes, recordings, minutes and presentation material from the Center of Excellence for Commercial Space Transportation (COE CST) teleconferences held between January and December 2014. AAM4 and ATM4 meetings held in April and October 2014, respectively, are included.

Each telecon 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 ten different Executive Committee (EC) Teleconferences conducted on the following dates:

- January 13, 2014 - Teleconference #19
- February 10, 2014 - Teleconference #20
- March 10, 2014 - Teleconference #21
- April 14, 2014 - Teleconference #22
- May 19, 2014 - Teleconference #23
- June 16, 2014 - Teleconference #24
- August 11, 2014 - Teleconference #26
- September 08, 2014 - Teleconference #27
- October 14, 2014 - Teleconference #28
- December 08, 2014 - Teleconference #29

There were no EC Telecons conducted in July or November 2014.

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

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #19 - MONDAY, 13 JANUARY 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden
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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 141648#
- The next telecon is scheduled for February 10, 2014, 1-2PM Eastern Time
- New Dial-In #: 712-432-0075; Participant Access Code: 381319
- Orion America will manage the teleconference recording & distribution

### 0.2 Attachments: None

## 1. STARTERS (ADMINISTRIVIA)

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### 1.1 FY13Q4 Quarterly Reporting Status (Fred Bowen)

- Status of quarterly reports, for the period Oct 1 – Dec 31, 2013, due on Jan 31, 2014.
- Report Status will be made by Carol Gregorek at Feb telecon
- Delinquent Report update by Carol Gregorek
  - Complete:                      • Expense report; No Progress report:
  - Submitted:                    • Progress report; No Expense report:
  - Delinquent:

### 1.2 Third Annual Technical Meeting (ATM3 – Tristan Fiedler)

- Travel Reimbursements - Checks Issued: 12 (Complete); NMT & CU: In progress

### 1.3 Fourth Annual Administrative Meeting (AAM4 – Ken Davidian, Carol Gregorek)

- Cancellation Option – Carol Gregorek sent Doodle Poll for availability
- WHO: Required attendance by primary or secondary EC members from each COE CST member university. Voluntary attendance from CESTAC members, students and

additional PIs from COE CST member and affiliate universities. COE CST will pay travel, per diem and registration expenses of required attendees only.

- WHAT: Meeting to discuss administrative topics, interact with industry members.
- WHERE & WHEN: Current favorite option includes: Washington, DC in conjunction with (either the day before or after) the FAA Commercial Space Transportation Conference, February 5-6, 2014.
- WHY: The primary goals of the AAM4 are:
  - Adoption of the Self-Governance Document
  - Maximize industry exposure and interaction with COE CST and CESTAC.
- HOW: TBD...

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

- No updates.

#### **1.5 Budget and Finance Stuff (Ken Davidian)**

- FY14 funding status
- Proposal status; Office of Dr. Pat Watts, William Carrier
- Research vs Operations status

#### **1.6 Annual Report (Tristan Fiedler)**

- Student Data Complete (Fred Bowen)
- Project Completion in OMIS – 4 PI's responded; 2<sup>nd</sup> request forthcoming (Carol Gregorek)
- Missing Items (Tristan Fiedler)

#### **1.7 Annual Report 1.8 General Comments (Ken Davidian)**

- Transition of COE CST administrative management from KD to TF moving forward.

### **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

---

- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
- Brief update on Operations By-Laws by Carol Gregorek & Nat Villaire
- Subcommittee Update:

### **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
- Membership Types
- Affiliate Members:
- Completed: NASTAR/UTMB, SatWest/NMSU
- In Process: UofN/NMSU, BCM/UTMB, ERAU/NMSU
- Ongoing Submission Window for New Affiliates
- Subcommittee Update: DARPA XS-1 Proposal Due 16 January 2014
- <https://www.fbo.gov/spg/ODA/DARPA/CMO/DARPA-BAA-14-01/listing.html>

### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

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- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU

- Subcommittee Update:
- Self-Governance Document Topics of Discussion
- Membership – Definitions and Terms
- Leadership – Definitions and Terms
- Policy Review

## **5. ANY OTHER BUSINESS**

---

- 2014 COE CST EC Telecon Dates
- Jan 13
- Feb 10 (may be preempted by AAM4 if held) – New Dial-In #: 712-432-0075; Participant Access Code: 381319
- Mar 10
- Apr 14
- May 12
- June 16
- July 14
- Aug 11
- Sep 8
- Oct 14 (moved to Tuesday due to Columbus Day)
- Nov 10
- Dec 8 - No Telecon
- Times will stay the same as before, 1-2PM Eastern time



## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #20 - MONDAY, 10 FEBRUARY 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden
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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for March 10, 2014, 1-2PM EST
  - Orion America - teleconference recording & distribution

### 0.2 Attachments: None

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 FY13Q4 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Oct 1 – Dec 31, 2013, due on Jan 31, 2014.
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### 1.2 Third Annual Technical Meeting (ATM3 – Tristan Fiedler)

- Travel Reimbursements update

### 1.3 Fourth Annual Administrative Meeting (AAM4 – Ken Davidian, Carol Gregorek)

- Postponed – F2F vs Virtual Meeting via Adobe Connect
  - Doodle Poll for AAM4 scheduling (Carol Gregorek)
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.
- WHAT: Meeting to discuss administrative topics, interact with industry members.

- WHERE & WHEN: TBD based on Doodle Poll
- WHY: The primary goals of the AAM4 are:
  - Adoption of the Self-Governance Document
  - Maximize industry exposure and interaction with COE CST and CESTAC.

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

#### **1.5 Budget and Finance Stuff (Ken Davidian)**

- FY14 funding status
- Proposal status; Office of Dr. Pat Watts
- Research vs Operations status

#### **1.6 Annual Report (Tristan Fiedler)**

- Student Data Complete (Fred Bowen)
- Project Completion in OMIS (Carol Gregorek)

### **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

---

- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
  - Brief update on Operations By-Laws by Carol Gregorek & Nat Villaire
- Subcommittee Update:

### **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
  - Membership Types
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU
  - In Process: UofN/NMSU, BCM/UTMB
    - ERAU/NMSU – update requested from NMSU
  - Ongoing Submission Window for New Affiliates
  - McGill & Baylor assembling SOW

### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

---

- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms
  - Leadership – Definitions and Terms
  - Policy Review

### **5. ANY OTHER BUSINESS**

---

- 2014 COE CST EC Telecon Dates
  - ~~Jan 13~~
  - ~~Feb 10~~ – New Telecon Dial In Number in Effect

- Mar 10
- Apr 14
- May 12
- June 16
- July 14
- Aug 11
- Sep 8
- Oct 14 (moved to Tuesday due to Columbus Day)
- Nov 10
- Dec 8 - No Telecon

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #20 - MONDAY, 10 MARCH 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden
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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

Other Attendees: FAA Nick Demidovich *Green Highlight indicates present on 10 Feb 2014 Telecon*

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecon is scheduled for April 14, 2014, 1-2PM EST
  - Orion America - teleconference recording & distribution

### 0.2 Attachments: None

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 FY13Q4 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Oct 1 – Dec 31, 2013, due on Jan 31, 2014.
- *Carol Gregorek to add Task numbers below*
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### 1.2 Fourth Annual Administrative Meeting (AAM4 – Ken Davidian, Carol Gregorek)

- **AAM4 scheduling (Carol Gregorek)**
  - 22-24 April tentative AAM4 window @ Florida Tech
    - Request: Date & time of admin mtg – Jim Vanderploeg
    - Telecon/virtual capability via Adobe Connect if needed
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.

- WHAT: Meeting to discuss administrative topics, interact with industry members.
- WHERE & WHEN: TBD based on Doodle Poll
- WHY: The primary goals of the AAM4 are:
  - Adoption of the Self-Governance Document
  - Maximize industry exposure and interaction with COE CST and CESTAC.

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

- **Creating new architecture**

### **1.4 Budget and Finance (Ken Davidian)**

- FY14 funding status –
  - Status of Funding/RE&D \$1M Budget update
  - Operations funding – Status of any Operations funding TBD
  - New Money into cooperative Agreement from \$1M – Jim Vanderploeg
- Proposal status; Office of Dr. Pat Watts
  - Timeline & Milestones for 5 yr audit
- Invoice issues: Stanford & UTMB

### **1.5 Annual Report (Tristan Fiedler)**

- Student Data Complete (Fred Bowen)
- Project Completion in OMIS (Carol Gregorek)

### **1.6 NASTAR – COE Partner (Patricia Hynes; *may join telecon late*)**

- Opportunities for Teachers

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

---

- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
  - Brief update on Operations By-Laws by Carol Gregorek & Nat Villaire
- Subcommittee Update:

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
  - Membership Types
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU, UofN/NMSU
  - In Process:
    - ERAU/NMSU – MOU update requested from NMSU (Pat Hynes)
    - ERAU w/ several FL Schools (Ken Davidian to comment)
    - Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
    - Baylor College of Med/UTMB – MOU & Task into OMIS (Tara Castelberry)
    - McGill/FLTECH – assembling SOW
- Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

---

- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms
  - Leadership – Definitions and Terms
  - Policy Review
  - Discussion at AAM4 requested by Dave Klaus

#### **5. ANY OTHER BUSINESS**

---

- 2014 COE CST EC Telecon Dates
  - ~~Jan 13~~
  - ~~Feb 10~~ – New Telecon Dial In Number in Effect
  - ~~Mar 10~~
  - Apr 14
  - May 12
  - June 16
  - July 14
  - Aug 11
  - Sep 8
  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #22 - MONDAY, 14 APRIL 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden
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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

Other Attendees: FAA Nick Demidovich *AquaBlue indicates present on 10 Mar 2014 Telecon; pls advise if incorrect*

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for May 12, 2014, 1-2PM EST
  - Orion America - teleconference recording & distribution

### 0.2 Attachments: None

## 1. STARTERS (ADMINISTRIVIA)

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### 1.1 FY13Q4 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Jan 1 – Mar 31, 2013, due on Apr 30, 2014.
- *Carol Gregorek to add Task numbers below for next telecon agenda*
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### 1.2 Fourth Annual Administrative Meeting (AAM4 – Ken Davidian, Carol Gregorek)

- 22-23 April - AAM4 at Florida Tech;
- 21 April (1-4 pm) Florida Schools Pre-Meeting on Affiliate Membership/ERAU
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.

- WHAT: Meeting to discuss administrative topics
- WHERE & WHEN: Day 1 – 8 am to 6 pm, Day 2 – 8 am to 3 pm
- WHY: The primary goals of the AAM4 are:
  - CST Status & Current Funding (Ken Davidian)
  - Evaluation Report (Pat Watts)
  - Affiliate Members Report (Tristan Fiedler)
  - Adoption of the Self-Governance Document (Carol Gregorek & Nat Villaire)
  - Maximize industry exposure and interaction with COE CST and CESTAC
  - Research Roadmap

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

- **Creating new architecture**

### **1.4 Budget and Finance (Ken Davidian)**

- FY14 funding status –
- Status of Funding/RE&D \$1M Budget update
- Operations funding – Status of any Operations funding TBD
- Proposal status; Office of Dr. Pat Watts
- Timeline & Milestones for 5 yr audit

### 1.5 Delphi Outage (Fred Bowen)

### 1.6 CESTAC Telecon (Tristan Fiedler)

- Wed April 16, 2014, 2 pm to 2:30 pm EASTERN TIME
- Dial-in #: 712-432-0075; Participant Passcode: 381319#
- Joe Rothenberg: Leader
- Purpose: CESTAC – COE CST relationship & future direction

### 1.7 COE CST Evaluation (Carol Gregorek)

Student: [https://www.surveymonkey.com/s/COE\\_CST\\_Student\\_Evaluation\\_2014](https://www.surveymonkey.com/s/COE_CST_Student_Evaluation_2014)

PI: [https://www.surveymonkey.com/s/COE\\_CST\\_University\\_PI\\_Evaluation\\_2014](https://www.surveymonkey.com/s/COE_CST_University_PI_Evaluation_2014)

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

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- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
  - Governance & Operations By-Laws – postponed due to COE funding uncertainty
- Subcommittee Update: Postponed due to uncertainty in funding & cooperative agreement structure; To be discussed briefly at AAM4

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

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- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
  - Membership Types
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU, UofN/NMSU
  - In Process:



- ERAU/NMSU – update requested from NMSU (Pat Hynes)
- ERAU w/ several FL Schools (Ken Davidian to comment)
- Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
- Baylor College of Med/UTMB – MOU & Task into OMIS (Tara Castelberry)
- McGill/FLTECH – assembling SOW
- Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

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- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms
  - Leadership – Definitions and Terms
  - Policy Review
  - Discussion at AAM4 requested by Dave Klaus

#### **5. ANY OTHER BUSINESS**

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- 2014 COE CST EC Telecon Dates
  - Jan 13
  - Feb 10 – New Telecon Dial In Number in Effect
  - Mar 10
  - Apr 14
  - May 12
  - June 16
  - July 14
  - Aug 11
  - Sep 8
  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon

## CESTAC TELECON WITH COE CST EXECUTIVE COMMITTEE - WEDNESDAY, 16 APRIL 2014

Here are the summary notes and highlights from the call with Joe Rothenberg, Chair, CESTAC. The audio link is provided for your review.

Audio Link: <https://db.tt/FICdCCDS>

The process we're using right now may not be the right process.

How and what would be useful from us from the CESTAC?

- **Dave Klaus (CU):** Might be too scattered as a center. Individual teams of one. Do more collaboration with industry to be less scattered.
- **Warren Ostergren (NMT):** Maybe reverse the way we're doing things. What if we engage CESTAC asking for their specific technical needs and shape our research to fit their needs.
- **Jay Kapat (UCF):** Each university may be able to reach out to their industry partners to bring them to the board.
- **Jim Vanderploeg (UTMB):** CESTAC's most valuable contribution could be to define the needs for the research. Ideas have come directly from FAA or UTMB but not so many ideas have come from industry. That may be because CESTAC participation has not been overwhelming.
- **Tarah Castleberry (UTMB):** No.
- **Carol Gregorek (OAT):** Pass
- **Fred Bowen (OAT):** Having a separate CESTAC meeting apart from tagging it onto the ATM or AAM. More informal presentations by PIs to industry groups. This would require funding.
- **Ken Davidian (FAA):** Public R&D and proprietary R&D are two different things.
- **Joe Rothenberg (CESTAC):** Research road map might be a way to bring new members to the CESTAC. Maybe it would be good to have interaction on front end to identify research requirements that industry might not be thinking about.
- **Joe Rothenberg (CESTAC):** If we came up with a strong road map that industry said they need and R&D community felt they were areas that industry recognized that were important, is it possible to take another swing at getting a bigger budget.
- **Joe Rothenberg (CESTAC):** Is it possible to put each research areas of the roadmap into the context of a specific industry activity that's real, that will help. Tie each research area and program to actual industry activities.

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #23 - MONDAY, 19 MAY 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> 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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

**Other Attendees: FAA Nick Demidovich** *Green indicates present on 14 April 2014 Telecon; pls advise if incorrect*

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for June 16, 2014, 1-2PM EST
  - Orion America - teleconference recording & distribution

### 0.2 Attachments: Letter from ExCom to Dr. Patricia Watts – draft in progress (Juan Alonso)

## 1. STARTERS (ADMINISTRIVIA)

---

### 1.1 FY14Q2 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Jan 1 – Mar 31, 2014, due on Apr 30, 2014.
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### 1.2 Fourth Annual Technical Meeting (ATM4 – Ken Davidian, Carol Gregorek)

- WHERE: TBD Florida vs Washington DC
- WHEN: Nov 5-6 (FL) vs Oct 29-30 (DC)
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.
- WHAT: Meeting to discuss technical tasks
- WHY: The primary goals of the ATM4 are:

- CST Status & Current Funding (Ken Davidian)
- Task Reports (PIs)
- CESTAC Review/Input
- Affiliate Members
- Research Roadmap
- Banners (analogous to ATM3)

### **1.3 Research Roadmap Activity (Scott Hubbard)**

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

- <http://66.116.208.14/>
- **Creating new architecture; Input Requested**

### **1.5 Call for Volunteer (Ken Davidian)**

- **Administrative Coordinator for next year**

### **1.6 Recommendation Letter to Pat Watts (Juan Alonso)**

- **COE CST to remain active**

### **1.6 Report out from COE CST Evaluations (Pat Watts)**

### **1.7 Budget and Finance (Ken Davidian)**

- FY14 funding status

### **1.8 Summer Internships / Camps / Programs (Ken Davidian)**

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

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- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
  - Governance & Operations By-Laws
- Subcommittee Update: Draft Governance Bylaws included with Telecon agenda (Gregorek)

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
  - COMSTAC Presentation
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU, UofN/NMSU
  - In Process:
    - ERAU/NMSU – update requested from NMSU (Pat Hynes)
    - ERAU w/ several FL Schools (Ken Davidian to comment)
    - Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
    - Baylor College of Med/UTMB – MOU & Task into OMIS (Tara Castelberry)
    - McGill/FLTECH – SOW provided on 13 March 2014 by Yaw Nyampong, Exec Dir, Ctr for Research in Air & Space Law
    - Iowa State Univ, poc Tor Finseth & USC, poc Michael Kezirian – TJF responded per AAM4 that research (not outreach/education) tasks needed & to explore research collab w/ member univs
  - Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

---

- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms
  - Leadership – Definitions and Terms
  - Policy Review
  - Discussion at AAM4 requested by Dave Klaus

#### **5. ANY OTHER BUSINESS**

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- 2014 COE CST EC Telecon Dates
  - Jan 13
  - Feb 10 – New Telecon Dial In Number in Effect
  - Mar 10
  - Apr 14
  - May 19 [Date changed from May 12 on 29 Apr 2014]
  - June 16
  - July 14
  - Aug 11
  - Sep 8
  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #24 - MONDAY, 16 JUNE 2014

SCHOOL	PRIMARY	SECONDARY	ADDITIONAL
CU-DC	<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-DC	<input type="checkbox"/> Dr. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU-DC	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> JoyLynn Watkins
NMT-DC	<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-DC	<input type="checkbox"/> Prof. Scott Hubbard	<input type="checkbox"/> Dr. Juan Alonso <input type="checkbox"/> Andrew Ow	<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. Subith Vasu	<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-DC	<input type="checkbox"/> Dr. Jim Vanderploeg	<input type="checkbox"/> Dr. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

**Other Attendees: FAA Nick Demidovich** *Yellow indicates present on 19 May 2014 Telecon; pls advise if incorrect*

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for July 14, 2014, 1-2PM EST
- Orion America - teleconference recording & distribution

### 0.2 Attachments:

- OMIS Affiliate Members – Task Setup guide
- Quarterly Report Update
- Two submissions with comments on the Operations By-laws

## 1. AGENDA ITEMS

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### 1.0 Recommendation Letter to Pat Watts (Juan Alonso)

- COE CST to remain active; Feedback to Juan by Tues May 27, 2014

### 1.1 FY14Q2 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Jan 1 – Mar 31, 2014, due on Apr 30, 2014.
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### **1.2 Fourth Annual Technical Meeting (ATM4 – Ken Davidian, Carol Gregorek)**

- WHERE: Washington DC
- WHEN: Oct 28 (FAA Admin Reception), 29-30 (ATM4) incl FAA HQ “Showcase”
- Note: NMSU interest in hosting next AAM5
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.
- WHAT: Meeting to discuss technical tasks
- WHY: The primary goals of the ATM4 are:
  - CST Status & Current Funding (Ken Davidian)
  - Task Reports (PIs)
  - CESTAC Review/Input
  - Affiliate Members
  - Research Roadmap
  - Banners (analogous to ATM3)
  - Capitol Hill briefing (faculty invited)

### **1.3 Research Roadmap Activity (Scott Hubbard)**

- Virtual Institute / Adobe Connect

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

- <http://66.116.208.14/>
- Creating new architecture; Input Requested

### **1.6 Report out from COE CST Evaluations (Pat Watts) – July telecon**

### **1.7 Budget and Finance (Ken Davidian)**

- Funding Status

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

---

- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
- Governance & Operations By-Laws
- Subcommittee Update: Draft Governance Bylaws included with Telecon agenda (Gregorek)
- Distributed for 19 May 2014 telecon, to be Discussed

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
- COMSTAC Presentation – CSF update from Ken Davidian
- OMIS – record keeping (Fred Bowen)
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU, UofN/NMSU
  - In Process:
    - ERAU/NMSU – update requested from NMSU (Pat Hynes)
    - ERAU w/ several FL Schools (Ken Davidian to comment)
    - Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
    - MIT-Lincoln Labs / Stanford – in discussion (via Juan Alonso)
    - Baylor College of Med/UTMB – MOU & Task into OMIS (Tara Castelberry)
    - McGill/FLTECH – SOW provided on 13 March 2014 by Yaw Nyampong, Exec Dir, Ctr for Research in Air & Space Law

Iowa State Univ, poc Tor Finseth & USC, poc Michael Kezirian – TJF responded per AAM4 that research (not outreach/education) tasks needed & to explore research collab w/ member univs  
Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

---

- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms; Revisit membership necessary
  - Leadership – Definitions and Terms
  - Policy & Goals Review
  - Discussion at AAM4 requested by Dave Klaus
  - Pending renewal of COE

#### **5. ANY OTHER BUSINESS**

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- 2014 COE CST EC Telecon Dates
  - Jan 13
  - Feb 10 – New Telecon Dial In Number in Effect
  - Mar 10
  - Apr 14
  - May 19
  - June 16
  - July 14
  - Aug 11
  - Sep 8
  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon



## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #26 - MONDAY, 11 AUGUST 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Scott Benjamin
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> 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"/> Andrew Ow	<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. Subith Vasu	<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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

***The 14 July 2014 Telecon was cancelled***

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for Aug 11, 2014, 1-2PM EST
- Orion America - teleconference recording & distribution

### 0.2 Adobe Connect test meetings “open house”

## 1. AGENDA ITEMS

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### 1.0 Recommendation Letter to Pat Watts (Juan Alonso)

- COE CST to remain active

### 1.1 FY14Q4 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Apr 1 – Jun 30, 2014, due on July 31, 2014.
- Delinquent Report Update
  - Complete:
    - Expense report; No Progress report:
  - Submitted:
    - Progress report; No Expense report:
  - Delinquent:

### 1.2 Fourth Annual Technical Meeting (ATM4 – Ken Davidian, Carol Gregorek)

- WHERE: Hyatt Regency Washington on Capitol Hill, 400 New Jersey Ave., Washington DC 20001

- WHEN:
  - 28 Oct
  - 12-4 pm Hill visits (Geographic, Appropriations Committee, FAA Funding Committee)
  - 5 pm FAA HQ “Showcase” – Besse Coleman Room – TENTATIVE FAA Admin Reception
  - 29-30 (Technical Presentations)
- Note: NMSU interest in hosting next AAM5
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.
- WHAT: Meeting to discuss technical tasks
- WHY: The primary goals of the ATM4 are:
  - CST Status & Current Funding (Ken Davidian)
  - Task Reports (PIs)
  - CESTAC Review/Input – Materials needed for Task Review
  - Affiliate Members
  - Research Roadmap
  - Banners/Student Posters (analogous to ATM3)

### **1.3 Research Roadmap Activity (Scott Hubbard)**

- Virtual Institute / Adobe Connect

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

<http://66.116.208.14/>

- Creating new architecture; Input Requested

### **1.6 Report out from COE CST Evaluations (Pat Watts - Postponed) ; originally scheduled for July telecon but requests Letter being prepared by Juan Alonso before briefing Executive Committee**

### **1.7 Budget and Finance (Ken Davidian)**

- Funding Status

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

---

- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
- Governance & Operations By-Laws
- Subcommittee Update: Draft Governance Bylaws included with Telecon agenda (Gregorek)
- Distributed for 19 May 2014 Telecon, to be Discussed

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

---

- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
- COMSTAC Presentation – CSF update from Ken Davidian
- OMIS – record keeping (Fred Bowen)
- Affiliate Members:
  - Completed: NASTAR/UTMB, SatWest/NMSU, UofN/NMSU
  - In Process:
    - USC (Greg Autry) & UC-Berkeley/Danish Technical Univ (Ken Davidian interim poc)
    - ERAU – Task 306 ERAU & 307 SatWest established 19 June 2014

- Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
- MIT-Lincoln Labs / Stanford – in discussion (via Juan Alonso)
- Baylor College of Med/UTMB – MOU & Task into OMIS (Tara Castelberry)
- FLTECH – Task 304 McGill
  
- Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

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- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms; Revisit membership necessary
  - Leadership – Definitions and Terms
  - Policy & Goals Review - Pending renewal of COE

#### **5. ANY OTHER BUSINESS**

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- 2014 COE CST EC Telecon Dates
  - ~~Jan 13~~
  - ~~Feb 10~~ – New Telecon Dial In Number in Effect
  - ~~Mar 10~~
  - ~~Apr 14~~
  - ~~May 19~~
  - ~~June 16~~
  - ~~July 14~~
  - ~~Aug 11~~
  - Sep 8
  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon

Attached are the agenda and projects for ATM4.

Host universities with affiliate members - what tasks would your Affiliate members like to present? To assist you in this be sure Statements of Work have been submitted, allocated task numbers, input to OMIS, tracked, etc? this will assure their tasks are included in our ATM4 agenda.

Task # Task Title

MEMBER UNIVERSITY TASKS

184-CU	Human Rating of Commercial Spacecraft
186-CU	Space Env MMOD Modeling & Prediction
187-CU	Space Situational Awareness
193-CU	Role of COE CST in EFP
244-CU	Autonomous RDV & Docking for Space Debris Mitigation
257-CU	Master?s Launch & On-Orbit Ops Lab
247-FIT	Air & Space Traffic Considerations for CST
296-FIT	Outreach - Commercial Space Transportation
300-FIT	COE CST Collaboration Coordination
241-FSU	High Temp Pressure Transducers
244-FSU	Autonomous RDV & Docking for Space Debris
220-NMSU	Space Operational Framework
298-NMSU	Integration & Evaluation of ADS-B Payloads
228-NMT	Magneto-Elastic Sensing for SHM
293-NMT	Reduced Order Non-Linear
299-NMT	Nitrous Oxide Composite Tank Testing
185-SU	Unified 4D Trajectory
186-SU	Space Env MMOD Modeling & Prediction
193-SU	Role of COE CST in EFP
244-SU	Autonomous RDV & Docking for Space Debris Mitigation

258-SU	Multi-disc Analysis of Safety Metrics
253-UCF	Ultra High Temp Composites
241-UF	High Temp Pressure Transducers
244-UF	Autonomous RDV & Docking for Space Debris Mitigation
255-UTMB	Wearable Biomedical Monitoring Equip/Additional NASTAR
Centrifuge Testing?	



## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #27 - MONDAY, 8 SEPTEMBER 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Nat Villaire <input type="checkbox"/> Dr. Scott Benjamin
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> 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"/> Andrew Ow	<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. Subith Vasu	<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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
CESTAC	<input type="checkbox"/> TBD	<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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

### 0.1 Executive Committee Meeting Information

- Dial-In #: 712-432-0075, Participant Access Code: 381319#
- The next telecom is scheduled for Oct 14, 2014, 1-2PM EST Tuesday due to Columbus Day
- Orion America - teleconference recording & distribution

### 0.2 Adobe Connect test meetings “open house”

## 1. AGENDA ITEMS

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### 1.0 Recommendation Letter to Pat Watts (Juan Alonso)

- COE CST to remain active

### 1.1 FY14Q4 Quarterly Reporting Status (Carol Gregorek)

- Status of quarterly reports, for the period Apr 1 – Jun 30, 2014, due on July 31, 2014.
- Verify ‘Student’ information in OMIS (new & continuing)
- Delinquent Report Update

### 1.2 Fourth Annual Technical Meeting (ATM4 – Ken Davidian, Carol Gregorek)

- WHERE: Hyatt Regency Washington on Capitol Hill, 400 New Jersey Ave., Washington DC 20001
- WHEN:
  - 28 Oct
    - 12-4 pm Hill visits (Geographic, Appropriations Committee, FAA Funding Committee)

- 5 pm FAA HQ “Showcase” – Besse Coleman Room – TENTATIVE FAA Admin Reception
- 29-30 (Technical Presentations)
- *Note: NMSU interest in hosting next AAM5*
- WHO: Required attendance by primary or secondary EC members from each COE CST member university.
- WHAT: Meeting to discuss technical tasks
- WHY: The primary goals of the ATM4 are:
  - CST Status & Current Funding (Ken Davidian)
  - Task Reports (PIs)
  - CESTAC Review/Input – Materials needed for Task Review
    - Industry Technical participants should review tasks – not bus dev folks
  - Affiliate Members
  - Research Roadmap
  - Banners/Student Posters (analogous to ATM3) – Past Due to Ken
  - Keynote Speakers (suggestions Huerta, Nield, Antunano, Stallmer, Clark, elected officials)

### **1.3 Research Roadmap Activity (Scott Hubbard)**

- Virtual Institute / Adobe Connect

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

<http://66.116.208.14/>

- Creating new architecture; Input Requested

### **1.5 Report out from COE CST Evaluations (Pat Watts - Postponed) ; Letter being prepared by Juan Alonso before briefing Executive Committee**

### **1.6 Budget and Finance (Ken Davidian)**

- Funding Status

## **2. SELF-GOVERNANCE SUBCOMMITTEE REPORT (LEAD, NAT VILLAIRE)**

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- Members: Nat Villaire/FIT (Chair), Norm Fitz-Coy/UF
- Governance & Operations By-Laws
- Subcommittee Update: Draft Governance Bylaws included with Telecon agenda (Gregorek)
- To be Discussed at 2015 Administrative Meeting

## **3. COLLABORATION SUBCOMMITTEE REPORT (LEAD, TRISTAN FIEDLER)**

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- Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU
- CESTAC Update:
  - Brad to e-introduce Ken D (& CESTAC Lead) to Eric Stallmer to explore CSF partnership
- OMIS – record keeping (Fred Bowen)
- Affiliate Members - In Process:
  - USC (Greg Autry), UC-Berkeley; Danish Technical Univ (Ken Davidian interim poc)
  - Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)
  - MIT-Lincoln Labs / Stanford – in discussion (via Juan Alonso)
  - Baylor College of Med/UTMB – revised MOU & Task into OMIS (Tara Castelberry)



- Ongoing Submission Window for New Affiliates

#### **4. STRATEGIC PLANNING SUBCOMMITTEE REPORT (LEAD, DAVE KLAUS)**

---


- Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU
- Subcommittee Update:
- Self-Governance Document Topics of Discussion
  - Membership – Definitions and Terms; Revisit membership necessary
  - Leadership – Definitions and Terms
  - Policy & Goals Review - Pending renewal of COE

#### **5. ANY OTHER BUSINESS**

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- 2014 COE CST EC Telecon Dates
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  - Oct 14 (moved to Tuesday due to Columbus Day)
  - Nov 10
  - Dec 8 - No Telecon

FAA Center of Excellence for Commercial Space Transportation

Day 0: Tuesday, October 28, 2014		Day 1 Agenda		Day 2 Agenda	
8:00 AM	 <p><b>DRAFT Agenda</b> 9-08-2014</p> <ul style="list-style-type: none"> <li><b>1 Space Traffic Management &amp; Operations</b> <ul style="list-style-type: none"> <li>1.1 Orbital</li> <li>1.2 Suborbital</li> <li>1.3 MAS Integration</li> <li>1.4 Spaceport Operations</li> <li>1.5 Integrated AirSpace Traffic Management</li> </ul> </li> <li><b>2 Space Transportation Operations &amp; Payloads</b> <ul style="list-style-type: none"> <li>2.1 Ground System &amp; Ops Safety</li> <li>2.2 Vehicle Safety Analyses</li> <li>2.3 Vehicle Safety Systems &amp; Techs</li> <li>2.4 Payload Safety</li> <li>2.5 Vehicle Ops Safety</li> </ul> </li> <li><b>3 Human Spaceflight</b> <ul style="list-style-type: none"> <li>3.1 Aerospace Phys &amp; 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> </ul> </li> <li><b>4 Space Transportation Industry Viability</b> <ul 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> </ul> </li> </ul>	8:00 AM	Registration and Breakfast	8:00 AM	Registration and Breakfast
8:15 AM		Hyatt Regency Capitol Rooms A & B - Lobby Level (Breakfast Included in your Registration)	8:00 AM	Hyatt Regency Capitol Rooms A & B - Lobby Level (Breakfast Included in your Registration)	
8:30 AM		ATM4 Welcoming Remarks, Tristan Fiedler/FIT	9:00 AM	Day 2 Opening Announcements, Tristan Fiedler/FIT	
8:45 AM		Opening Keynote Speaker, TBD	9:15 AM	COE CST Year 4 Status Report, Ken Davitian, FAA AST	
9:00 AM		Introduction by Tristan Fiedler/FIT	9:30 AM	COE CST Principal Investigator Panel Moderated by TBD	
9:15 AM		Commercial Space Industry R&D Roundtable Discussion Moderated by New Space Journal Editor, Scott Hubbard/Stamford	10:30 AM	Break	
9:30 AM		Break	11:00 AM	SPACE TRAFFIC MANAGEMENT & OPERATIONS TECHNICAL PRESENTATIONS	
9:45 AM		FAA COE Welcome and Overview Dr. Patrick Warrs, FAA Technical Center	11:30 AM	186-CU, Space Env MMOD Modeling & Prediction, Fuller/Rowell/None	
10:00 AM		1.1 Orbital	11:30 AM	186-SU, Space Env MMOD Modeling & Prediction, Close/Li	
10:15 AM		1.2 Suborbital	11:45 AM	187-CU, Space Situational Awareness, Scheeres/Park	
10:30 AM	1.3 MAS Integration	12:00 PM	Hyatt Regency Capitol Room A (Speaker TBD)		
10:45 AM	1.4 Spaceport Operations	1:00 PM	185-SU, Unified 4D Trajectory, Adams/Cavin		
11:00 AM	1.5 Integrated AirSpace Traffic Management	1:15 PM	258-SU, Multi-disc Analysis of Safety Metrics, Alonso/Capristan		
11:15 AM	2.1 Ground System & Ops Safety	1:30 PM	244-CU, Autonomous RDV & Docking, Axehrad/McMahon/LoCrasto		
11:30 AM	2.2 Vehicle Safety Analyses	1:45 PM	244-FSU, Autonomous RDV & Docking, Collins		
11:45 AM	2.3 Vehicle Safety Systems & Techs	2:00 PM	244-SU, Autonomous RDV & Docking, Rock/Pridahl		
11:50 AM	2.4 Payload Safety	2:15 PM	244-UF, Autonomous RDV & Docking, Fitz-Coy		
11:55 AM	2.5 Vehicle Ops Safety	2:30 PM	Break		
12:00 PM	4.1 Markets	3:00 PM	220-NMSU, Space Operational Framework, Hynes		
12:05 PM	4.2 Policy	3:15 PM	257-CU, Master's Launch & On-Orbit Ops Lab, Bom/Cleetham		
12:10 PM	4.3 Law	3:30 PM	Closing Keynote Speaker, Dr. George Nield		
12:15 PM	4.4 Regulation	3:45 PM	FAA AST Associate Administrator		
12:20 PM	4.5 Cross-cutting Topics	4:30 PM	ATM4 Closing Remarks, Ken Davitian, FAA AST		
1:00 PM	3.1 Aerospace Phys & Medicine	4:45 PM	Adjourn		
1:05 PM	3.2 Personnel Training				
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## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #28 - TUESDAY, 14 OCTOBER 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Sam Durrance	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Scott Benjamin
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> 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
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FAA AST	<input type="checkbox"/> Mr. Ken Davidian	<input type="checkbox"/>	<input type="checkbox"/>
FAA	<input type="checkbox"/> Dr. Patricia Watts	<input type="checkbox"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger

### 0.1 Executive Committee Meeting Information

Dial-In #: 712-432-0075, Participant Access Code: 381319#

- Highlighted attendance above from 8 September 2014 telecon
- The next telecon is scheduled for Nov 10, 2014, 1-2PM EST  
Orion America - teleconference recording & distribution

### 0.2 Adobe Connect test meetings “open house”

#### 1. AGENDA ITEMS

---

#### 1.0 Recommendation Letter to Pat Watts (Juan Alonso)

COE CST to remain active - Hynes letter

#### 1.1 FY14Q4 Quarterly Reporting Status (Carol Gregorek)

Status of quarterly reports, for the period Apr 1 – Jun 30, 2014, due on July 31, 2014

#### 1.2 Fourth Annual Technical Meeting (ATM4 – Ken Davidian, Carol Gregorek)

WHERE: Hyatt Regency Washington on Capitol Hill, 400 New Jersey Ave., Washington DC 20001

Hotel Rate expired 11 Oct per Carol’s reminder on 7 Oct

WHEN: 28 – 30 Oct

28 OCT

12-4 pm Hill visits

5 pm Reception with FAA Administrator FAA HQ “Showcase” – Bessie Coleman Room

Security screening & entry to FAA HQ; FAA poc needed (Ken Davidian) – Non-US citizenship criteria  
29-30 OCT (Technical Presentations)

WHO: Required attendance EC members from each COE CST member university.  
Travel funds should be discussed with Ken Davidian.

WHAT: Meeting to discuss technical tasks and accomplishments  
○ Presentations and Quad Charts provided to Orion prior to presentations

WHY: The primary goals of the ATM4 are:  
CST Status & Current Funding (Ken Davidian)

Task Reports (PIs)

Affiliate Members

Research Roadmap

Student Banners/analogous to ATM3 (Fred Bowen) Using ATM3 banners?

Note: NMSU interest in hosting AAM5

Other interested hosts?

### **1.3 Research Roadmap Activity (Scott Hubbard)**

Virtual Institute / Adobe Connect

### **1.4 Website, Annual Report Status, OMIS (Fred Bowen)**

<http://66.116.208.14/>

Student Data Updated

Publications Updated

Quarterly Reports Updated

Matching Reports Updated

### **1.5 Report out from COE CST Evaluations (Pat Watts - Postponed) Initial meeting on Sept 23; end of calendar year 2014 results expected**

### **1.6 Budget and Finance (Ken Davidian)**

Funding Status

## **2. SELF-GOVERNANCE SUBCOMMITTEE**

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Members: (Chair TBD), Norm Fitz-Coy/UF  
Draft Governance & Operations By-Laws  
To be Discussed at 2015 Administrative Meeting

## **3. COLLABORATION SUBCOMMITTEE (LEAD, TRISTAN FIEDLER)**

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Members: Tristan Fiedler/FIT (Chair), Mark Sheplak/UF, Penny Axelrad/CU, Pat Hynes/NMSU, Warren Ostergren/NMT, Jim Vanderploeg/UTMB, Dan Scheeres/CU

CESTAC Update:

Brad to e-introduce Ken D (& CESTAC Lead) to Eric Stallmer to explore CST partnership

OMIS – record keeping (Fred Bowen)

Affiliate Members - In Process:

USC (Greg Autry), UC-Berkeley; Danish Technical Univ (Ken Davidian interim poc)

Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)

Baylor College of Med/UTMB – revised MOU & Task into OMIS (Tara Castelberry)

Ongoing Submission Window for New Affiliates

**4. STRATEGIC PLANNING SUBCOMMITTEE (LEAD, DAVE KLAUS)**

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Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU  
Subcommittee Topics: Membership terms, Leadership, Policy & Goals  
To be Discussed following ATM4

**5. ANY OTHER BUSINESS**

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2014 COE CST EC Telecon Dates

Oct 14 (moved to Tuesday due to Columbus Day)

Nov 10

Dec 8 - No Telecon

2015 COE CST EC Telecons

Jan 12

Feb 09

Mar 09

Apr 13

May 11

Jun 08

Jul 13

Aug 10

Sep 14

Oct 13 (moved to Tuesday/Columbus Day)

Nov 10 (moved to Wednesday Nov. 12)

Dec – No Telecon

## FAA AST COE CST EXECUTIVE COMMITTEE TELECON #29 - MONDAY, 8 DECEMBER 2014

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. Tristan Fiedler	<input type="checkbox"/> Dr. Scott Benjamin	<input type="checkbox"/> Dr. Dan Kirk <input type="checkbox"/> Dr. Sam Durrance <input type="checkbox"/> Dr. Nat Villaire
FSU	<input type="checkbox"/> Dr. Farrukh Alvi	<input type="checkbox"/> Dr. Emmanuel Collins	<input type="checkbox"/> Dr. Billy Oates <input type="checkbox"/> Dr. Rajan Kumar
NMSU	<input type="checkbox"/> Dr. Patricia Hynes	<input type="checkbox"/>	<input type="checkbox"/> Ms. Kristi Burden <input type="checkbox"/> 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"/> Andrew Ow	<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. Subith Vasu	<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. Tarah Castleberry	<input type="checkbox"/> Dr. Charles Mathers
CESTAC	<input type="checkbox"/> TBD	<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"/> Dennis Flath	<input type="checkbox"/> John Reinhart (UAS COE)
NASA	<input type="checkbox"/> Mr. Alex MacDonald	<input type="checkbox"/> Dr. Dan Rasky	<input type="checkbox"/> Mark Redlinger
CSF	<input type="checkbox"/> Mr. Eric Stallmer	<input type="checkbox"/> Ms. Sirisha Bandla	<input type="checkbox"/>
McGill	<input type="checkbox"/> Ms. Andrea DiPaolo	<input type="checkbox"/>	<input type="checkbox"/>

### 0.1 Executive Committee Meeting Information

Dial-In #: 712-432-0075, Participant Access Code: 381319#

Video Feed : <http://fit1.adobeconnect.com/faa-demo/>

- Highlighted attendance above from 14 October 2014 telecon

The next telecom is scheduled for 12 Jan 2015, 1-2PM EST

Orion America - teleconference recording & distribution

## 1. AGENDA ITEMS

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### 1.0 Commercial Spaceflight Federation (Eric Stallmer - invited)

Overview & COE CST intersects

#### 1.1 Annual Administrative Meeting 2015

Options: NMSU, Dallas Ft Worth Airport (central location), virtual, others?

#### 1.2 Annual Report

Quad Charts & ATM4 Presentations in Drop Box (Fred)

Matching Funds & Student information updated in OMIS (All)

#### 1.3 Research Roadmap Activity (Scott Hubbard & Roadmap Pls)

Virtual Institute / Adobe Connect

**1.4 Website, Annual Report Status, OMIS (Fred Bowen)**

<http://66.116.208.14/>

Student Data, Publications, Quarterly Reports & Matching Reports Updated

**1.5 Budget & Research Reporting (Ken Davidian & Carol Gregorek)**

FY14Q4: July-Sept, due 31 Oct 2014 Reporting Status (CG)

Finance (KD)

**1.6 Intl Astronautical Congress – Emerging Space Leaders (ESL) Grant Programme (Pat Watts)**

Deadline 6 Feb 2015

<http://iafastro.org/grantProgramme/index.php>

ESL.pdf attachment

**1.7 RAISE Award (Pat Watts)**

Deadline 30 Dec 2014

<http://www.transportation.gov/office-policy/aviation-policy/secretary-transportations-raise-award>

Sec of Transportation – Annual Competition in aviation & aerospace

**1.8 COE CST Panel a/o Presentation opportunities (Ken Davidian)**

FAA Conference in February to be held in Washington, DC.

CRASTE Conference in June to be held in Chantilly, VA.

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**2. SELF-GOVERNANCE SUBCOMMITTEE**

---

Members: (Chair TBD), Norm Fitz-Coy/UF

Draft Governance & Operations By-Laws

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CESTAC Update:

OMIS – record keeping (Fred Bowen)

Affiliate Members - In Process:

- Host responsibilities (Ken)

USC (Greg Autry), UC-Berkeley (TJF to contact- reminder, DELETE in final)

- Danish Technical Univ (Ken Davidian interim poc)

Arizona State/Stanford must apply – Jim Bell (via Scott Hubbard)

Baylor College of Med/UTMB – revised MOU & Task into OMIS (Tara Castelberry)

Ongoing Submission Window for New Affiliates

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Members: Dave Klaus/CU (Chair), Sigrid Close/SU, Andei Zagrei/NMT, Billie Oates/FSU, Dan Kirk/FIT, Juan Alonso/SU, Scott Hubbard/SU

Subcommittee Topics: Membership terms, Leadership, Policy & Goals

To be Discussed following ATM4

**5. ANY OTHER BUSINESS**

---

2015 COE CST EC Telecons

Jan 12

Feb 09

Mar 09

Apr 13

May 11

Jun 08

Jul 13

Aug 10

Sep 14

Oct 13 (moved to Tuesday/Columbus Day)

Nov 09

Dec – No Telecon



# AAM4 MEETING IN MELBOURNE, FLORIDA APRIL 21 - 23, 2014

## APPENDIX A

### FAA CENTER OF EXCELLENCE (COE) FOR COMMERCIAL SPACE TRANSPORTATION

#### AFFILIATE MEMBERSHIP GUIDELINES

- 1.1** THE FAA CENTER OF EXCELLENCE (COE) FOR COMMERCIAL SPACE TRANSPORTATION OFFERS AFFILIATE MEMBERSHIP through the Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST). *(More information about the COE CST can be found on the web at [www.coe-cst.org](http://www.coe-cst.org)).*
- 1.2** To fully develop the network of organizations from academia and industry (including for-profit and non-profit organizations) with similar and complementary interests in the research conducted under the COE CST, the Executive Committee will consider organizations that wish to join the COE CST to conduct research as an Affiliate University Member or an Affiliate Industry Member.
- 1.3** An Affiliate University Member or Affiliate Industry Member (generally referred to as an Affiliate Member) is distinguished by bringing their own self-funded, unique research activities to the COE CST network.
- 1.4** Affiliate Members are defined as a public or private organization that conducts research or educational activities that fall within the COE CST research areas of interest. Educational organizations at the undergraduate level or above, including universities and colleges as well as community colleges, are considered eligible organizations.
- 1.5** Eligible organizations may be located within or outside the United States.
- 1.6** Affiliate Members are official members of the COE CST and are invited to participate in the COE CST annual technical meetings.
- 1.7** Affiliate Members are associated with the COE CST through a Host University.
- 1.8** A Host University is defined as one of the nine COE CST Member Universities that provides a rational and meaningful linkage between the COE CST and the Affiliate Member.
- 1.9** Affiliate Members become associated with the COE CST and may benefit from networking and collaborative activities of the center.
- 1.10** Affiliate Members do not receive direct funding from FAA AST. However, Affiliate Members research activities may be included in the COE CST annual technical meeting.
- 1.11** Once a Host University is identified and a candidate Affiliate Member accepted, the Host University and the Affiliate Member execute a Memorandum of Understanding (MOU) that defines the basic terms of the relationship.
  - 1.11.1** General Terms of the MOU are as follows:

- The Affiliate Member, the Host University and FAA AST will work together to develop a research task Statement of Work (SOW) that is satisfactory to all parties.
- There will be no exchange of funds among the Affiliate Member, the Host University and the FAA AST.
- The Affiliate Member will be responsible for all costs associated with the research being conducted and participation in COE CST meetings or activities.

**4.11.2** The COE CST will receive the following from the Affiliate Member:

- Timely submission of publicly-available results (products) of the Affiliate Member 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. These products will be provided to the FAA COE CST Technical Monitor.
- Permission to refer to the Affiliate Member as such in its reports, executive summaries, and other instruments of information dissemination regarding COE CST-related research or activities.

**4.11.3** The Affiliate Member will receive the following from the COE CST:

- Official recognition of the Affiliate Member as such.
- Technical guidance upon request.
- A presentation opportunity at appropriate COE CST meetings.
- Permission for the Affiliate Member to refer to itself as such in reports, executive summaries and other instruments of information dissemination regarding COE CST-related research or activities
- Host university reserves the right to preapprove all papers and presentations given by the Affiliate to any and all professional meetings, congresses, symposia, journals, other publications, etc.

**4.11.4** The Affiliate Member will receive the following from the Host University:

- Sponsorship (non-fiscal) as an Affiliate Member into the COE CST through an executed agreement.

**4.11.5** The Host University will receive the following from the COE CST:

- Official recognition as a Host University of the Affiliate Member.

**4.11.6** The COE CST will require the following from the Host University:

- Entry of relevant data into the COE CST research task database (OMIS).

- Timely submission of required forms to account for matching funds provided by Affiliate Member.
- Timely fulfillment of annual reporting requirements associated with the research task performed by the Affiliate Member.

**4.11.7** The Host University will receive the following from the Affiliate Member:

- The value of all costs associated with the COE CST research being conducted by the Affiliate Member or its participation in COE CST meetings or activities to be credited toward the matching funds requirement of the Host University. The value of these costs may be carried to future years if not needed in the current fiscal year, if approved by the FAA COE Program Manager.

## **CENTER OF EXCELLENCE for COMMERCIAL SPACE TRANSPORTATION**

### **STRUCTURE AND OPERATIONAL BYLAWS**

#### **GOVERNANCE**

This document provides for the structure and operation of The Department of Transportation (DOT) Federal Aviation Administration (FAA) Center of Excellence (COE) for Commercial Space Transportation (CST).

This document lists the membership, requirements, structure, and privileges unifying the FAA COE CST and the nine core Universities. This organizational document is established to provide a formal mechanism that the FAA COE CST establishes to perform its mission of research into commercial space development.

#### **CENTER OF EXCELLENCE (COE) for COMMERCIAL SPACE TRANSPORTATION (CST) MEMBERSHIP**

##### **PREFACE**

The original nine core universities united under the overall FAA Center of Excellence Cooperative Agreements of the Federal Aviation Administration's Commercial Space Transportation Office, constitute the core membership.

The core membership of the COE CST at the time of ratification of this document shall consist of:

- Stanford University,
- The University of Colorado,
- New Mexico State University,
- New Mexico Technical Institute,
- The University of Texas Medical Branch at Galveston,
- Florida State University,
- The University of Florida,
- The University of Central Florida,
- The Florida Institute of Technology and
- FAA COE CST
- Executive Management Support, if requested

Herein after referred to "Executive Committee"

#### **I. PRIVILEGES TO WHICH MEMBERS OF THE COE CST ARE ENTITLED**

In recognition of their membership, research capabilities and interests, COE CST members are imbued with the following privileges that can be modified by the Executive Committee:

1. Membership in the COE CST is achieved upon ratification of this document by the original core universities.
2. All COE CST members will have immediate and unmodified privileges of the COE CST.

3. All membership will have access to, and publication of, research in all COE sponsored Publications and Research Capability Listings subject to peer review. (This privilege does not require any journal to accept member publications.)
4. All COE CST members and COE COE Affiliate members will be listed on the official COE CST Web Site and other publications.
5. In regard to Internet Web Pages, each member institution will be responsible for providing to the Executive Management Support Coordinator accurate descriptions and data regarding that institution's commercial space research capabilities.
6. The [www.coe-cst.org](http://www.coe-cst.org) web page is the responsibility of the Executive Management Support Coordinator.
7. Organizational publications. Each COE CST member and Affiliate member may list the COE CST in appropriate professional publications. The publications may cite the capabilities, accreditations and associations with other organizations related with that institution.
8. Business Cards. Business cards with the logo and notation that the represented institution is a COE CST member are allowed.

## **II. RESPONSIBILITIES:**

The primary responsibilities of the COE CST shall be to promote responsible research in the field of Commercial Space Operations and enhance the relationships among the FAA, University based researchers, and the Commercial Space community.

## **III. IDENTITY**

The organization is defined as the original nine core universities and the FAA COE CST. A broader organization may be formed made up of well-qualified entities who share a credible interest and expertise. These entities may be academic institutions, industry, or governmental/municipal institutions. It is expected that after a period of gaining experience with the role and contributions of these institutions the core organization can take advantage of other, well qualified associations. The Institutions that are not charter members of the COE CST may apply for Affiliate or Associate Institutional status at [www.coe-cst.org](http://www.coe-cst.org).

## **IV. ORGANIZATIONAL BY-LAWS OF THE FAA COE CST**

### **2. ARTICLE I: IDENTITY**

The COE CST is a duly approved entity of the FAA COE Program and consists of the original nine CORE members of the COE-CST and Items 1.1 – 1.4 below.

- 2.1 The original CORE membership consists of the original nine charter members contracted through an FAA Cooperative Agreement defining the relationships among the institutions and the FAA COE CST.
- 2.2 Affiliated Institutions with the privileges and under the conditions specified in this document.
- 2.3 The FAA COE CST
- 2.4 The Executive Management Support Coordinator.

**3. ARTICLE II: PURPOSE**

- 3.1 The COE CST members wish to contribute to the body of knowledge supporting the growth of Commercial Space Operations around the world.
- 3.2 The COE CST is formed to provide a formal means of coordinating members' research activities.
- 3.3 The COE CST By-Laws are the medium by which all members are permitted to voice their opinions and to participate in the administration of the FAA COE CST.

**4. ARTICLE III: MEMBERSHIP**

- Stanford University
- The University of Colorado at Boulder
- New Mexico State University
- New Mexico Technical Institute
- The University of Texas Medical Branch at Galveston
- Florida State University
- The University of Florida
- The University of Central Florida
- The Florida Institute of Technology
- FAA COE CST
- Executive Management Support Coordinator
- Affiliate Membership

**5. ARTICLE IV: AFFILIATE MEMBERSHIP:**

Affiliate memberships in the COE CST are available to prospective institutions and organizations in accordance with the following general policy (*A detailed directive on the full qualification, selection and obligations of Affiliate Membership is contained in a separate document titled "The FAA CENTER OF EXCELLENCE FOR COMMERCIAL SPACE TRANSPORTATION ANNOUNCEMENT FOR AFFILIATE MEMBERS"*): Further information is found in Appendix A.

**6. ARTICLE V: RULES, REGULATIONS, AND REPORTING**

- 6.1 All COE CST members will abide by all rules and regulations associated with FAA directed activities.
- 6.2 All COE CST members will report their CST related activities on a quarterly basis. Such reports will be submitted in accordance with the rules and regulations approved by the FAA COE Program Office. The reports will be provided through the FAA approved management information system (OMIS).
- 6.3 An "End of Project" report will be submitted to the FAA COE CST Executive Management Support
- 6.4 Coordinator in accordance with the requirements set by the FAA (9550.5). Reporting will be through the OMIS.
- 6.5 All reports can be submitted to the COE CST membership for open publication unless such publication would be in violation of FAA COE CST rules.

**7. ARTICLE VI: OFFICERS, EXECUTIVE MANAGEMENT SUPPORT COORDINATOR, COMMITTEES, AND DUTIES**

**7.1** There shall be an Administrative Coordinator and Executive Management Support Coordinator. The Administrative Coordinator position will rotate annually. The rotation process will consist of an FAA call for participants.

**7.1.1** The Administrative Coordinator and the Executive Management Support Coordinator shall act as liaison team among the FAA COE CST, other Core Members and Affiliated members.

**7.1.2** The Administrative Coordinator will preside over all official meetings of the Center of Excellence for Commercial Space Transportation.

**7.1.3** The Administrative Coordinator and the Executive Management Support Coordinator will approve the final agendas of all official COE CST meetings and activities.

**7.2** The Administrative Coordinator if unable to serve a full term may have the position filled by appointment approved by the Executive Committee. If the position is prematurely assumed, the Administrative Coordinator will serve both the original Administrative Coordinator term and the one year that would have normally been the Administrative Coordinator's term. The Executive Management Support Coordinator will retain the administrative position and duties under the new Administrative Coordinator.

**7.2.1** The Administrative Coordinator and Executive Management Support Coordinator are jointly responsible for organizing and conducting COE meetings.

**7.2.1.1** The Administrative Coordinator team will develop the schedule of presentations for FAA approval.

**7.3** The Administrative Coordinator, the FAA, and the Executive Management Support Coordinator will manage the correspondence and financial affairs of the COE CST.

**7.3.1** The Administrative Coordinator and the Executive Management Support Coordinator will be the primary planners for any social activity associated with official COE CST meetings.

**7.4** All COE CST Principle Investigators (PI), Assistant Principle Investigators and Associate Principle Investigators are eligible candidates for all positions. All candidates must be legally affiliated with a COE CST Member institution or activity.

**7.5** Officers will be elected by a simple majority of the voting membership. A quorum of COE CST representatives must be present for the vote.

**7.6** The voting membership will consist of one representative from each of the COE Core Members.

**7.7** The Administrative Coordinator will assume their duties at the opening of the next Annual Administrative Meeting.

**8. ARTICLE VI: MEETINGS**

**8.1** The FAA COE Cooperative Agreements require a minimum of two meetings per year.

**8.1.1** Annual Administrative Meeting (AAM) – The AAM will be at a place and time determined by the COE CST Executive Committee. The AAM will be at a place and time determined by the COE CST Executive Committee. This

meeting will have a primary mission of reviewing COE policy, exchanging administrative concepts and managing the COE. The AAM will have a primary mission of reviewing COE CST policy and managing the COE Annual Technical Meeting (ATM)

**8.1.2** The ATM will have a primary mission of highlighting work accomplished during the past 12 months by the participating members.

7.1.4 Standing Committees: Self-Governance Subcommittee; Collaboration Subcommittee; and the Strategic Planning Committee. These subcommittees will report out at the AAM and ATM meetings. Informal briefings will be made monthly at the Executive Committee monthly teleconferences.

## **9. ARTICLE VIII: AMENDMENTS**

**9.1** These BY-LAWS may be amended by a majority vote of the core COE CST membership.

**9.2** The BY-LAWS were formally approved on \_\_\_\_\_ by signatures of the majority of the Core COE CST membership and the FAA CST representative.



## **Background and Governance**

As one of the first tasks for the FAA Center of Excellence (CoE) for Commercial Space Transportation (CST), Stanford University Professor Scott Hubbard and graduate student Jonah Zimmerman completed a research roadmap for the CoE. This document was completed at the end of 2011 using the input of more than 100 representatives from various companies, organizations, universities, and government agencies who are present in the CST field. In the intervening time since the original research roadmap was completed, the CST landscape has changed and therefore the roadmap must be updated. This task will focus on updating the research roadmap and will be accomplished by the same Stanford University team, with the addition of Andrew Ow.

## **Charter**

Our overall goal is to update the original research roadmap and build on it in order to increase its usefulness to the community and to the FAA CoE CST. There are three main components to our task:

1. Revisit the 2011 research roadmap and update as necessary
2. Identify and differentiate near term (1-5 years) and far term (5+ years) research tasks
3. Define research priorities to the extent possible

## **Approach**

Our plan is to host five workshops focused on one or part of each of the research themes previously identified by the 2011 roadmap. Each workshop will be 1.5 - 2 days long. To reduce travel, we will host the workshops where the majority of researchers and stakeholders are located. Below is a list of workshops and suggested locations:

Theme	Location	Date
1a - Space Traffic Management and Air Traffic Management	NASA Ames / Stanford University	11/13/2014 – 11/14/2014
1b - Spaceports	New Mexico State University	Week of 11/17/2014

2 - Space Transportation Operations and Payloads	Florida State University	11/3/2014 – 11/4/2014
3 - Human Spaceflight	University of Texas Medical Branch at Galveston	9/24/2014 – 9/25/2014
4 - Space Transportation Industry Viability	Washington, D.C. (hosted by Florida Institute of Technology)	12/2/2014 – 12/3/2014

Other important dates: 10/29/2014 – 10/30/2014 Annual Technical Meeting #3

**Deliverables**

- Host 5 workshops focused to discuss the 2011 research roadmap, define short term (1 – 3 years), medium term (3 - 6 years) and far term (> 6 years) goals.
- Update the 2011 research roadmap. Our goal is, to the extent possible, to create a document that can be used to make decisions about research policies.

**Schedule**

<b>Deliverable</b>	<b>Responsible Party</b>	<b>Due Date</b>
<b>Draft Summaries of Workshops</b>	Workshop Hosts	1/15/2015
<b>Workshop Summary Presentation First Draft</b>	Professor Hubbard, Jonah Zimmerman, Andrew Ow	2/15/2015
<b>Workshop Summary Presentation Second Draft</b>	Professor Hubbard, Jonah Zimmerman, Andrew Ow	3/15/2015
<b>Delivery of Roadmap 2.0</b>	Professor Hubbard, Jonah Zimmerman, Andrew Ow	5/1/2015

## Roadmap 2.0 Draft Planning Outline

- Planning for Roadmap 2.0 is underway.
- The Goals for this Roadmapping are:
  - After ~4 years of COE operation, revisit the existing research tasks, possible new directions and their place in a revised Roadmap.
  - Set the stage by asking the FAA to summarize what has emerged as priorities from a regulatory and licensing perspective.
  - Ask the current PIs for a given Theme what progress has been made and how they would characterize future work:
    - What is near term, medium term and long term research
  - Ask non-COE attendees how they would characterize future work:
    - What is near term, medium term and long term research
  - A critical objective is to get industry to say what is important to them
- In order to include all interested parties, yet minimize travel expenses we propose to make the discussion workshops for each Theme virtual.
  - The NASA Aeronautics Research Institute (NARI) will facilitate the virtual collaboration
  - We suggest an FAA HQs node using the LMCO Vision Center given the FAA video and teleconferencing firewalls.
- We plan 5 workshops, each going deeply into an element of the previous Roadmap.
- At present, we are planning for a total 1.5 days of content per workshop. Each workshop will occupy two days, about 6 hours each day to accommodate the 3-hour time difference for virtual attendees. For example, the workshop might be 8:00 am - 2:00 pm PDT, 11:00 am - 5:00 pm EDT. If the designated organizer PI finds more or less time is required, we can adjust as needed.
- The 5 meetings are:
  - Theme 1a (STM/ATM, plus orbital tasks - debris and autonomy):
    - PI Organizer: Juan Alonso
  - Theme 1b (Spaceports and related issues - suborbital) -
    - PI Organizer: Pat Hynes
  - Theme 2 (Ops Safety, Payloads and Safety, etc)

- PI Organizer: Farrukh Alvi
  - Theme 3 (Space Biomedicine and Human Rating)
    - PI Organizer: Jim Vanderploeg
  - Theme 4 (Industry Viability)
    - PI Organizer: Tristan Fiedler
- As indicated above, there will be a COE PI working on the Theme to serve as the domain expert organizer of each workshop. That PI will be responsible for:
  - Presentations about current work including other PIs working on the Theme
  - Including relevant and knowledgeable academic, government and industry participants who are not necessarily part of the current COE
  - Assisting in the documentation of the workshop
- A preliminary goal is to conduct the 5 meetings before the Holidays. For many schools that means by early December
- Taking notes and summarizing the output will be conducted by Jonah Zimmerman, Andrew Ow and myself
  - Presentation of draft Roadmap 2.0 nominally scheduled for early calendar 2015.
- The final report will be ready NLT May 31, 2015

Best regards,  
Scott Hubbard

Minutes

FAA Center of Excellence for Commercial Transportation

Fourth Annual Administrative Meeting (AAM4)

Florida Institute of Technology, Melbourne Florida

April 21 – April 23, 2014

Leaders and Topic Facilitators – Ken Davidian (FAA), Patricia Watts (FAA), and Tristan Fiedler (FL Tech, CST Administrative Lead)

Participants:

1. Patricia Watts, FAA
2. Ken Davidian, FAA
3. Carol Gregorek, Orion America Technologies
4. Fred Bowen, Orion America Technologies
5. Tristan Fiedler, FL Tech
6. Dan Kirk, FL Tech
7. Nat Villaire, FL Tech
8. Farrukh Alvi, FSU
9. Jay Kapat, UCF
10. Jan Gou, UCF
11. David Klaus, CU
12. Brad Cheetham, CU
13. Patricia Hynes, NMSU
14. James Vanderploeg, UTMB
15. Warren Ostergren, NMT
16. Juan Alonso, Stanford

**April 21, 2014**

Ken Davidian and Tristan Fiedler met with representatives from ERAU about possible Affiliate Membership from 1:00 – 4:00

Recommendation: ERAU will apply for Affiliate Membership and coordinate their proposed tasks with NMSU and FL Tech

**April 22, 2014**

The meeting was opened by Ken Davidian with welcomes from Pat Watts and Tristan Fiedler. For the next hour Ken discussed the CST funding and the likelihood of the CST continuation process for the next phase (five years). All participants expressed concern regarding the current funding level. It was agreed among the nine universities that if the funding level remained

constant they would rotate funded tasks with some schools receiving only travel funds and very restricted summer release time.

Patricia Watts discussed the Five Year Evaluation and its impact on the COE continuation process for Phase II. She reviewed the questionnaire, provided very high level feedback but no detail on the questionnaire since she had received the results only a few days prior and had not had the opportunity to assess the results. She is to provide the details at the ATM4 being held in Washington, DC on October 27-30, 2014. There were many questions from the schools on how to be more proactive and how best to help the FAA become more aware of the capabilities of the CST.

Tristan Fiedler, lead for the CST Collaboration Subcommittee, with members Pat Hynes, Warren Ostergren, and Jim Vanderploeg in attendance; provided an Affiliate Member Report showing the status of interested universities.

### Affiliate Membership

#### 1. Current Members

- McGill - FIT - Signed MOU needed, etc...
- ERAU - NMSU - Signed MOU needed, etc...
- SatWest - NMSU - Signed MOU received. OMIS
- UN Lincoln - NMSU - Signed MOU needed, etc...
- Baylor - UTMB - Signed MOU needed, etc...
- NASTAR - UTMB - Signed MOU needed, etc...

#### 2. Potential Members

- ASU - Stanford
- ERAU - FSU
- ERAU - UCF - Need to improve SOW (Nan Guzman and Mike Hickey)
- ERAU - FIT
- ERAU - UF
- UT Brownsville -
- USC - Michael Kezarian

#### 3. 2013 Applicants

- Czech Technical University - No Host Identified - Outstanding Questions
- Final Frontier - possibly with CU and UTMB
- Near Space Corp./Barbara Prujin - NMT/Andrei Zagrai - SOW needed
- Penn State - SOW Needed
- Prevalence - SOW Needed
- Sysenex - SOW Needed

The process for Affiliate Membership requires the host university to perform the following:

- Agree and negotiate a SOW and put into proposal format
- Submit their proposal through the standard FAA proposal process using [grants.gov](http://grants.gov)

- Submit the appropriate budget (even if the budget is \$0)
- Submit Cash/In-Kind Match form (FAA COE In-Kind Cost Sharing) with supporting documentation from the Affiliate Member
- Upon acceptance, the task will be tracked in OMIS and the Affiliate Member will be setup as a “Primary Partner” permitting the OMIS to track the matching contributions
- Establish a method of receiving financial reports from the Affiliate Member that will satisfy the Host University auditor(s) and their State regulations
- Be responsible for entering the matching contributions in OMIS

Strategies on how to better engage the Affiliates and how strengthen the Affiliate/Host relationship resulted in the following suggestions:

- Include them in monthly Executive Committee telecons
- Fund Affiliates' travel to the annual technical conferences

Tristan Fiedler led the discussion on CESTAC relations. Industry needs to see a more immediate return on their involvement. The CST remains in its infancy thus long term relationships like those in general aviation and other long standing research areas haven't had time to coalesce. Outside the box thinking is required.

Former astronaut, Sam Durrance and FL Tech Provost Dwayne McCay delivered interesting lectures on their time in space and with NASA, respectively.

#### **April 23, 2014**

The Executive Committee held a closed session to discuss a draft letter to Patricia Watts regarding their concern over funding limitations and CST continuation.

Action: Juan Alonso is to draft and circulate to the Executive Committee for concurrence.

The Governance Committee report prepared by Nat Villaire was circulated prior to the AAM4. Comments were integrated into a revised document.

Action: All the universities are to revisit the document and have their comments back to Carol and/or Nat before the ATM4. Getting standardized operating protocols in place is an imperative of the second phase of CST.

The Strategic Planning subcommittee report was made by the lead, David Klaus. This committee has looked to the other two committees to help them in attaining the CST policy and goals. It is expected their work will be more forthcoming in the next phase.

The Research Roadmap activity is being led by Scott Hubbard. A brief presentation was made by Juan Alonso with more information being submitted in a report coming out shortly.

Action: Scott Hubbard (synopsis attached)

Fred Bowen provided an updated CST website demo and review.

Carol Gregorek discussed the administrative procedures for reporting the quarterly status narrative in OMIS, answered questions on cost share/matching, task closeout procedures and requirements, and the no cost extension conditions

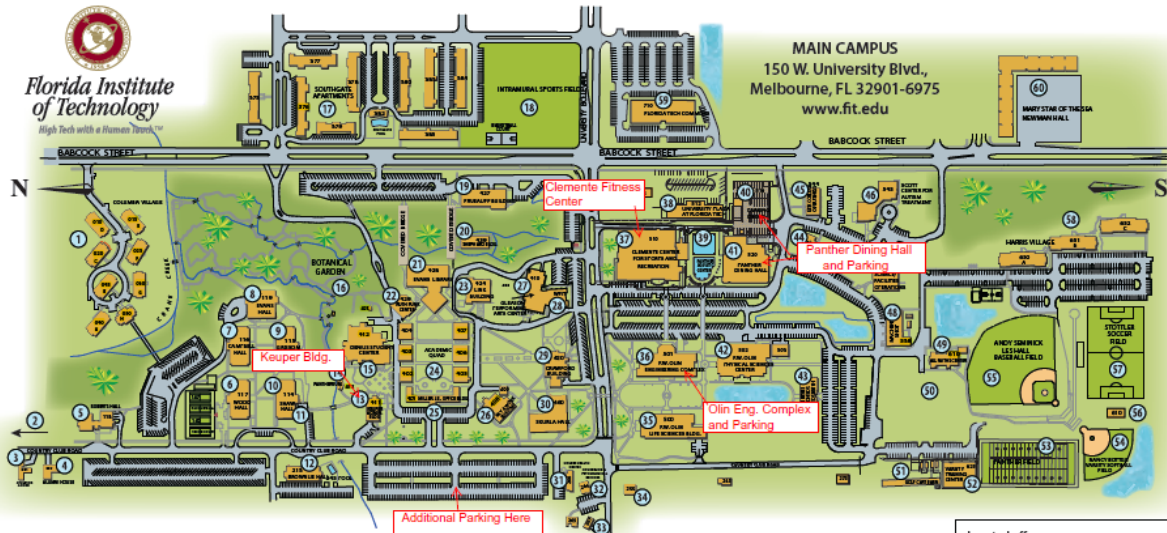
Dan Kirk gave a report on the research at FL Tech.

Mr. Frank Kinney, the Vice President for Research, discussed the research program and research agenda for Florida Institute of Technology. All these presentations spoke to the mission of the university, its ability to attract and retain top students, and the outstanding faculty and facilities.

A lengthy discussion was held discussing the CST challenges and goals without specific actions being assigned. Student participation might be enhanced through a summer intern program; student scholarship or prizes. Diversity outreach was addressed – no specific action was taken.

AAM4 was officially adjourned at 4:00 EDT.





- 1 Columbia Village
- 2 Edgewood House
- 3 Athletics Annex
- 4 Alumni House
- 5 Roberts Hall
- 6 Wood Hall
- 7 Campbell Hall
- 8 Evans Hall and Rathskeller (bottom floor)
- 9 Grissom Hall
- 10 Shaw Hall
- 11 Security and Safety (first floor Shaw Hall)
- 12 Brownlie Hall
- 13 Keuper Administration Building
- 14 Panthereum
- 15 Dentus Student Center and Panther Plaza

- 16 Botanical Garden
- 17 Southgate Apartments
- 18 Intramural Sports Field
- 19 Freuauff Building
- 20 Shephard Building
- 21 Evans Library
- 22 Ruth Funk Center for Textile Arts
- 23 Link Building
- 24 Academic Quad
- 25 John E. Miller Building
- 26 Ray Work Jr. Building
- 27 Gleason Performing Arts Center
- 28 WFIT Radio
- 29 Crawford Building
- 30 Skurla Hall

- 31 Holzer Health Center
- 32 Counseling and Psychological Services
- 33 Music Program Studios
- 34 Music House
- 35 F.W. Olin Life Sciences Building
- 36 F.W. Olin Engineering Complex
- 37 Clemente Center for Sports and Recreation
- 38 University Plaza at Florida Tech
- 39 Panther Aquatic Center
- 40 Parking Decks
- 41 Panther Dining Hall
- 42 F.W. Olin Physical Sciences Center
- 43 Harris Center for Science and Engineering
- 44 Allen S. Henry Building
- 45 Nathan M. Bisk College of Business

- 46 The Scott Center for Autism Treatment
- 47 Military Science
- 48 Machine Shop
- 49 All Faiths Center
- 50 F.W. Olin Sports Complex
- 51 Golf Cart Barn
- 52 Varsity Training Center
- 53 Panther Field
- 54 Nancy Bottge Varsity Softball Field
- 55 Andy Seminick-Les Hall Baseball Field
- 56 Concessions Building
- 57 Rick Stottler Soccer Field
- 58 Harris Village
- 59 Florida Tech Commons
- 60 Mary Star of the Sea

Located off campus:

North:  
 Applied Research Laboratory (ARL)—  
 328 W. Hibiscus Blvd., Melbourne  
 Center for Aeronautics and Innovation  
 and Florida Tech Research Park—  
 1050 W. Nasa Blvd., Melbourne  
 FIT Aviation LLC (Ernst Buehler Center for  
 Aviation Training and Research)—  
 Melbourne International Airport  
 Fossamer Art Museum—  
 1463 Highland Ave., Melbourne

South:  
 Intraoral—2495 NE Palm Bay Rd., Palm Bay  
 Panther Bay—1540 Skippers Way, Palm Bay  
 River's Edge—4400 NE Dixie Hwy., Palm Bay

Updated—10-15-14



## ATM4 Registration

Last Name	First Name	Company
Alvi	Farrukh	Florida Center for Advanced Aero-Propulsion (FCAAP)
Axelrad	Penina	University of Colorado
Barnett	Brian	Satwest
Beavin	Michael	FAA AST
Bergeron	Rene	RB Global Defense Solutions, LLC
Bigelow	Catherine	FAA
Blue	Rebecca	University of Texas Medical Branch, Virgin Galactic
Bowen	Fred	Orion America Technologies
Brandt	Keith	USAF/FAA
Capristan	Francisco	Stanford University
Castleberry	Tarah	UTMB
Chamberlain	Christine	University of Colorado, Boulder
Cheetham	Bradley	University of Colorado Boulder
Collins	Justin	FSU
Collins	Emmanuel	Florida State University
Colvin	Thomas	Stanford University
Davidian	Ken	FAA AST
Ehrlich	Carl	Spaceworks Enterprises
Escobar	Adam	Orbital Sciences Corporation
Fiedler	Tristan	Florida Institute of Technology
Fitz-Coy	Norman	University of Florida
Francis	Griffin	Florida State University
Fuller-Rowell	Tim	University of Colorado
Fuller-Rowell	Tim	SWPC
Gannon	Tony	Space Florida
Gregorek	Carol	Orion America Technologies
Huang	Roger	CU Boulder Aerospace
Hynes	Pat	NM Space Grant Consortium
Kapat	Jay	UCF
Keelor	Bradley	British Embassy
Klaus	David	University of Colorado
Kumar	Rajan	Florida State University
Lampazzi	Henry	FAA/AST
Law	Glenn	The Aerospace Corporation
Li	Alan	Stanford University
Lim	Bin	NMT
LoCraсто	Heather	CU Boulder
Mathers	Charles	UTMB Health

FAA Center of Excellence for Commercial Space Transportation

Oates	William	Florida State University
Orovets	Christine	FAA/AST
Ostergren	Warren	New Mexico Tech
Ow	Andrew	Stanford University
Santee	Jay	Self-Employed
Scheeres	Daniel	University of Colorado Boulder
Stansbury	Richard	Embry-Riddle Aeronautical University
Thurmond	Kyle	University of Central Florida
Tran	Yvonne	FAA/AST
Traver	Steve	Congressman Pearce
Trujillo	Blaine	New Mexico Institute of Mining and Technology
Vanderploeg	Jim	UTMB
Vasu	Subith	University of Central Florida
Zagrai	Andrei	New Mexico Tech
Zimmerman	Jonah	Stanford University

Minutes

FAA Center of Excellence for Commercial Transportation

Fourth Annual Technical Meeting (ATM4)

Hyatt Regency Capitol Hill and FAA Headquarters

Washington, DC

October 28 – 30, 2014

Leaders and Topic Facilitators – Ken Davidian (FAA), Patricia Watts (FAA), and Tristan Fiedler (FL Tech, CST Administrative Lead)

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**October 28, 2014**

The fourth annual technical meeting began with a presentation by the FAA Administrator, Michael P. Huerta. The presentation honored UTMB for its work in Human Flight Research. Receiving the honor for UTMB were Tara Castleberry, M.D., and Charles Mathers, M.D. The research team leader, James Vanderploeg, M.D. was acknowledged. The presentation was held in the Bessie Coleman Room of FAA Headquarters. Mr. Huerta's address included the importance of commercial space transportation to the nation's economy, R&D, and its importance to the FAA.

The COE's are a national treasure who have provided and continue providing a talented well-trained new workforce. At the conclusion of the presentation the researchers, industry, and federal reconvened at the Hyatt Regency Capitol Room for the student poster session and discussion.

**October 29, 2014**

Professor Tristan Fiedler, the COE CST Administrative Leader, opened the meeting by welcoming the attendees and introducing dignitaries.

The keynote speaker, Melchor Antunano M.D., Director of FAA CAMI, began with remarks topics showing the emergence of medical research in the commercial space transportation industry. His address "Individual and Safety Survivability Considerations in Manned Commercial Space Flights" demonstrated the US leadership in CST.

Dr. Scott Hubbard chaired an R&D roundtable. The roundtable participants were industry leaders discussing industry near term and long term needs. The panel members were Ms. Debra Facktor-Lepore from Ball Aerospace, Dr. Alex MacDonald from NASA HQ Emerging Space Office, and Mr. Brian Barnett from SatWest.

Dr. Pat Watts gave a broad presentation discussing the COE program and the evaluation process for Phase II renewal. There were many questions after her talk where she agreed to an in-depth conversation at the presentation on October 30, 2014. Both her briefings are attached.

Ken Davidian provided comments and the FAA perspective on where the COE CST is in terms of its relevancy to the AST brain trust and the prospects for continuation for Phase II.

Dennis Filler, Director of the William J. Hughes Technical Center, furnished his comments during the lunch. He spoke of the superior work being done by the COE National Director, Dr. Pat Watts; the Tech Center's role in the FAA R&D; and his strong sponsorship of COE CST research thrusts.

Technical Research Area presentations were made by the Vehicle Technology and Industry Viability teams. See agenda for details.

Professor Tristan Fiedler adjourned the meeting at 5:30.

### **October 30, 2014**

Professor Tristan Fiedler opened the session at 8:00 AM with the first presentations being made by the Human Spaceflight Research team. These presentations were followed by the Space Traffic and Management Operations team.

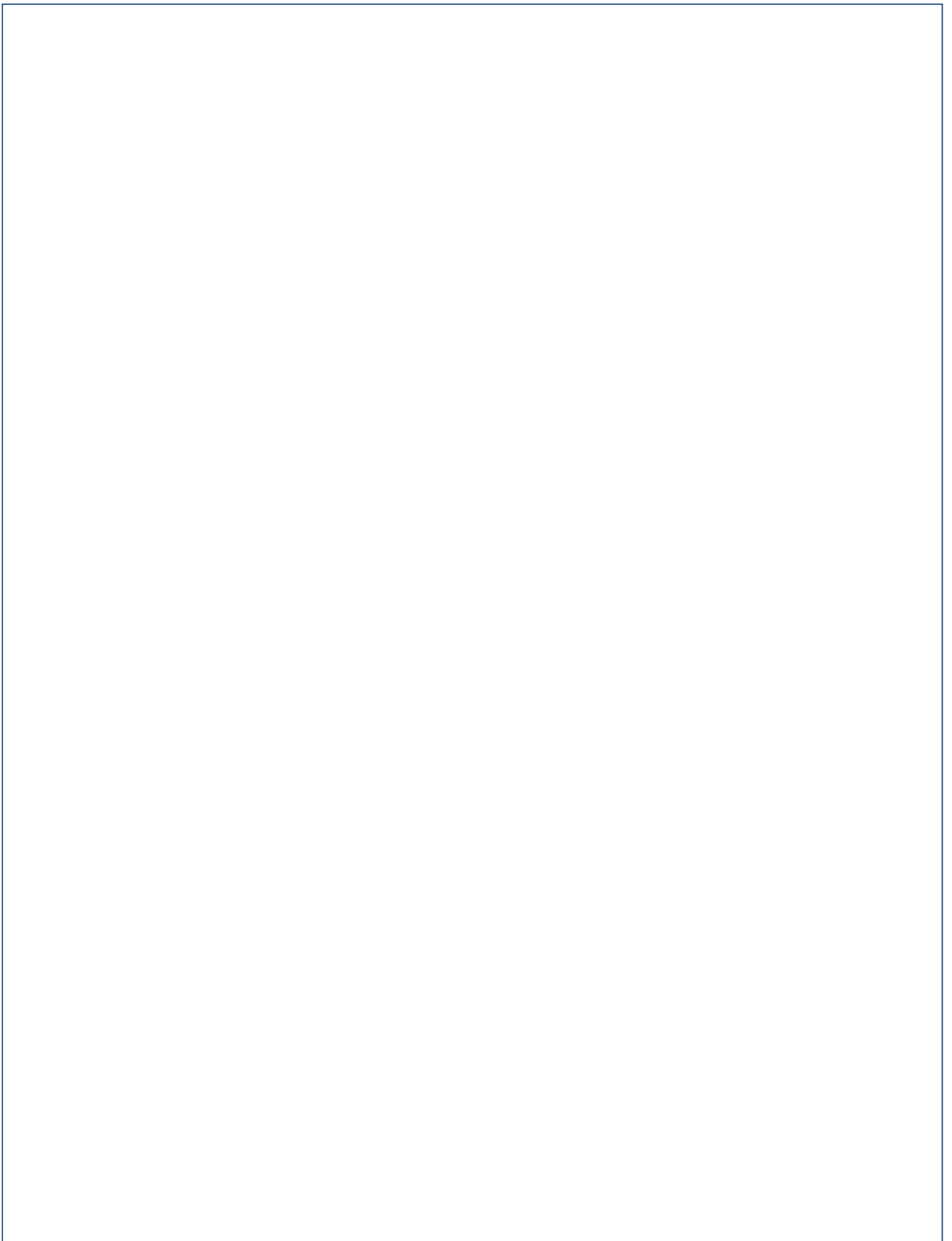
Eric Stallmer, President of the Commercial Space Flight Federation was the luncheon speaker. The federation is made up of commercial space flight industry, academia, and some of the federal agencies. These key players are positioned to provide the industry with access to almost limitless materials and opportunities.

Concluding remarks detailing the results of the CST Phase I closeout survey were provided by Dr. Patricia Watts. The primary concerns were funding level, FAA AST acknowledgment and use of the CST research capabilities, and the standardized reporting for the COE versus the reporting of ordinary research grants and contracts. Dr. Watts discussed "turning on" the contracts piece of the COE legislation. This provides a mechanism for additional research funding.

Ken Davidian presented student banner awards to the top three winners. Judging was done by the FAA technical monitors and other technical attendees not associated with the universities.

Dr. George Nield, FAA AST Associate Administrator provided the concluding keynote statements. Dr. Nield has shared for the past five years his wisdom and deep knowledge of commercialization of space transportation. His unwavering sponsorship of the COE, his strong financial backing, and personnel support show his unflinching commitment. The COE CST owes a heavy debt of gratitude to him.

Concluding remarks were made by Ken Davidian thanking the contributors. He adjourned the meeting at 5:15 pm.





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