FAA Center of Excellence
AMTAS
Advanced Materials in Transport Aircraft Structures

AMTAS Regional Advanced Materials Center

Panel Discussion
AMTAS Autumn 2005 Meeting
October 13, 2005
University of Washington, HUB 200

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- Rob Albers, Introduction; Medical; Electronics
- Bruno Brousier, Wind Energy
- Shreeram Raj, Sporting Goods / Recreation
- Dave Humphreys, Marine
- Steve Coe, Aerospace
- Dan Farmer, Transportation
- Results and Summary
- Questions & Answers

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Committee Members	Organization	Industry
Steve Coe, Al Miller	Boeing	Aerospace
Bruno Brousier	Hexcel	Energy
John Stanton	UW	Infrastructure
Lloyd Smith	WSU	Construction/Industrial
Dave Humphreys	WA State Ferries	Marine
Kim Willoughby	WA DOT	Infrastructure
Rob Albers	UW/Boeing	Medical/Electronics
Shreeram Raj	Cytec	Sporting Goods
Dan Farmer	PACCAR	Transportation
Charles Seaton	Edmonds CC	Education

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Regional Center Sub-Committee:

- Formed June 2005 after the Spring AMTAS Meeting
- Contact each industry to identify needs and issues
- Write up a brief summary for each sector
- Summarize overlapping areas
- Convene facilitated meeting to address collaboration (July 11, 2005)
- Further discussions

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Medical Industry

- Comments from Spring 2005 Meeting
  - Composites/advanced materials widely used in prosthetics of all types
  - (At UW) possible conflicts/collaboration with existing UW Center for Nanotechnology

- Contacted: Chris Henry, Seattle Systems, 800-248-6463, Poulsbo, WA 98370

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Medical Industry Needs and Issues

- Composites with better toughness and fatigue properties
- Prediction of fatigue behavior
- Lower cost processing and materials
- Lack of composite education for industry

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Electronics Industry

- No comments from Spring 2005 Meeting
- Contacted
  - Tom Woodrow and Les Saulsberry, Boeing
  - Nathan Schwarz, Interpoint
  - Ernie Vasvary, Micro Systems Engineering
  - Steve Kirby, Kirby & Demarest
  - Jim Currier, Special Equipment Engineering, Inc.
- Minimal response from this industry

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- Wind Energy
- Sporting Goods / Recreation
- Marine
- Aerospace
- Transportation

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List of Potential Common Issues / Needs

- Education
- Surface finish
- NDE
- Testing standardization
- Durability prediction (maintenance, fatigue, environmental effects)
- Fire properties
- High temperature materials
- Tooling
- Repair
- Health monitoring
- Recycling
- Lower cost materials

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Next steps:

- Rank these issues and needs
- Identify the strengths of the AMTAS center
- From these lists, identify the issues and needs a regional AMTAS should address
- Responses from Seaton, Humphreys, Brousier, Albers, Raj, Smith, and Farmer

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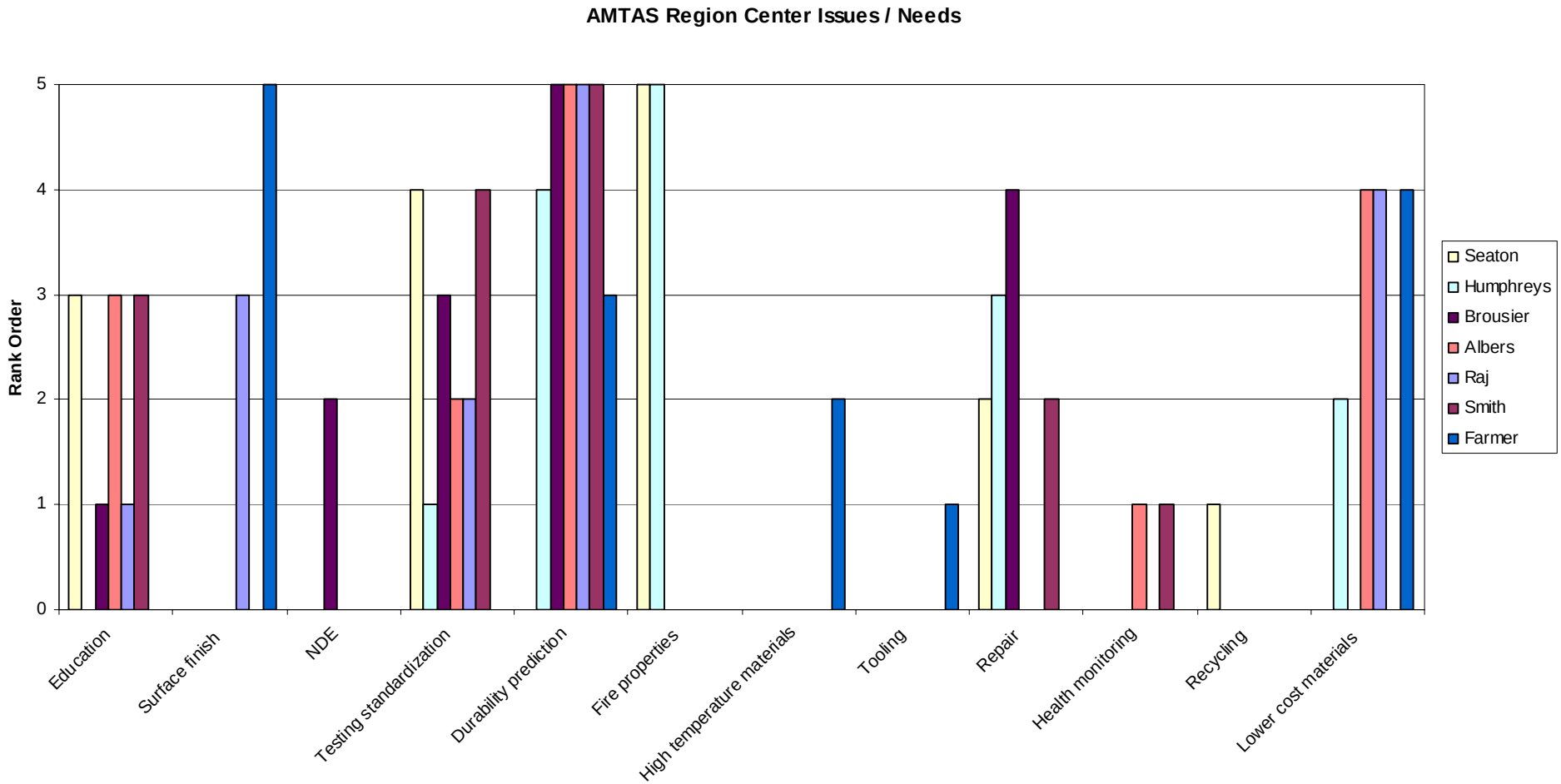

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Test Standards

- How to compare standards?
- Ongoing Don Adams articles in *High Performance Composites*
- FAA/Universities/Industry
- Specification interpretation
- SAE/CACRC/ASTM/SACMA
- Generic for broad spectrum of industries
- Safety factor differences
- Marine insurance/Coast Guard standards
- AMTAS standards package? Like Underwriters' Laboratories?

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Durability

- Creep
- Fatigue
- Failure initiation—industry to industry differences
- What's failure? Continuum of failure
- How to model over full life of component?
- Tie-in with "Reliability–based Damage Tolerance Design"

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Other Organizations to Pursue:

- Northwest Center of Excellence for Marine Manufacturing and Technology
- Wind Energy Works!
- Lancair http://www.flycolumbia.com/

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Issues:

- How to herd cats? Smaller subsets of projects
- Proprietary information—how to handle? University still wants to publish. Patents, IP rights.
- Export compliance (EAR/ITAR) regulations—how to handle?

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Questions & Answers

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SAMPE Technical Conference

SAMPE 37th International Fall 2005 Technical Conference

Materials and Processing Technologies for Revolutionary Applications

October 31 - November 03
Washington State Convention Center - Renaissance Seattle Hotel - Seattle WA

http://www.sampe.org/events/2005seattle.aspx

Strategic Industry R&D

- **Aerospace Materials - Opportunities**
- **Transportation, Energy, & Infrastructure**
- **Advance Processing Techniques**
- **Natural Composite Materials**
- **Low-Cost Composite Materials**
- **Advanced Aircraft Structures**
- **Resin Infusion Technology**

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SAMPE Technical Conference

Special Track on Nanotechnologies

- **Nano-scale Composites**
- **Polymer Nanocomposites**
- **Carbon Nanotube Technology**
- **Health and Safety of Nanomaterials**
- **Nanocomposite Research & Development**
- **Global vs. Regional Nanotechnology Development Roundtable**

Keynote Speaker:

Walt Gillette
Vice President of Airplane Development 787 Program, Boeing Company

Walt Gillette is responsible for all aspects of developing the next new Boeing commercial airplane..

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SAMPE Technical Conference

Guest Speaker:

Mark Brown
Vice president and General Manager, Computer Sciences Corp.

Air Force fighter pilot, engineer, two highly successful space shuttle missions, senior astronaut on the Space Station Program.

Full registration and attendance will provide access to keynote speeches, roundtable and technical sessions focusing on advanced materials and processes in composites, manufacturing, adhesives, finishes, structures, and inspection, and will include a *special track on nanotechnologies* . In addition there will be special events including a tour-banquet at the Museum of Flight, a structures contest and hospitality suites.

Plus: **Exhibits spotlighting composite material products and services.**

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Issues / Needs	AMTAS Capabilities (Seaton)	AMTAS Capabilities (Albers)
Education	4	4
Surface finish	3	2
NDE	3	2
Testing standardization	3	3
Durability prediction (maintenance, fatigue, environmental effects)	4	4
Fire properties	3	2
High temperature materials (service temperature applications)	2	2
Tooling	2	3
Repair	4	2
Health monitoring	2	4
Recycling	1	1
Lower cost materials	2	3