



The Launch of the NW Composites Centre

An International Perspective

comments by

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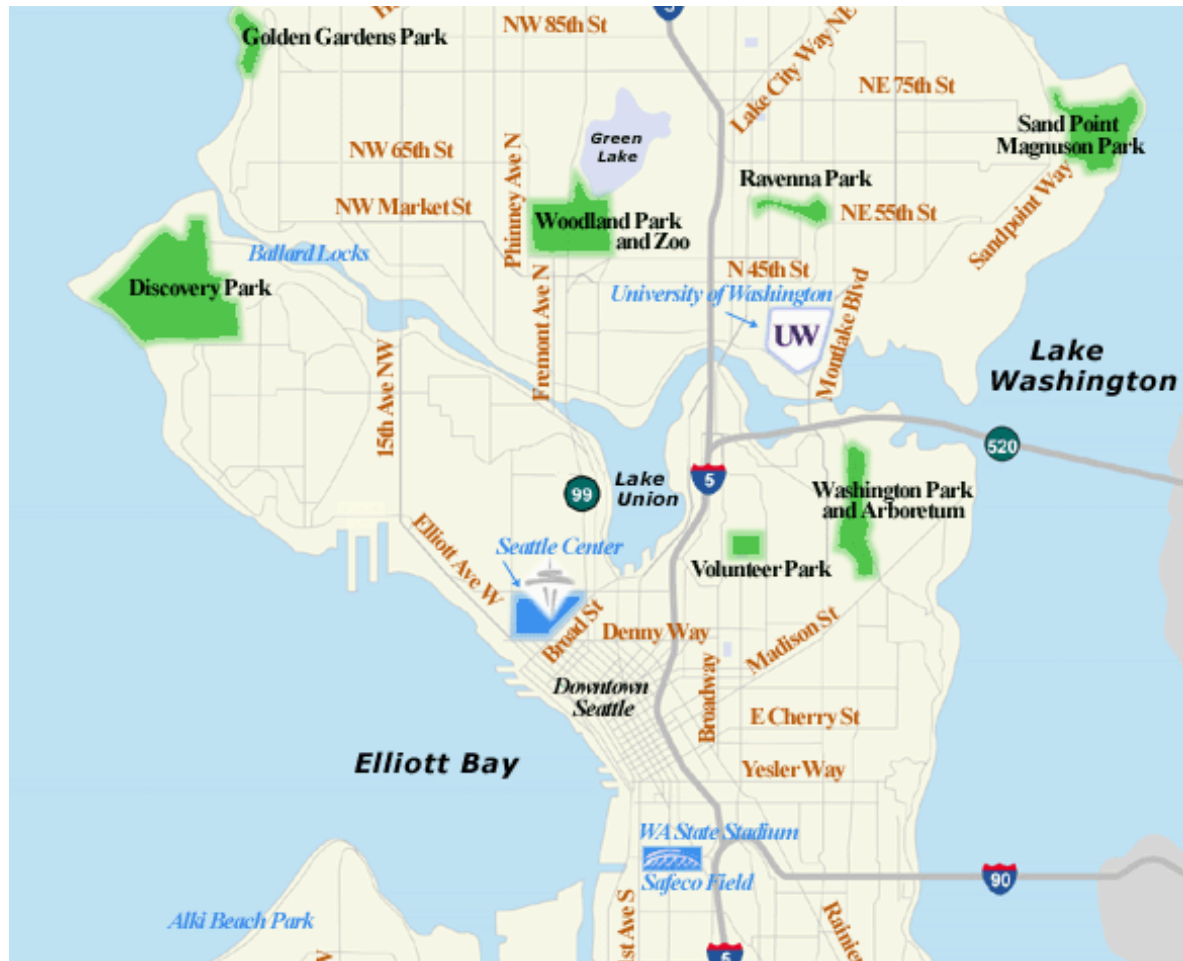
Where is the State of Washington, USA?!



Where is Seattle, WA?!



Where is the University of Washington?



Seattle and the Aerospace Industry

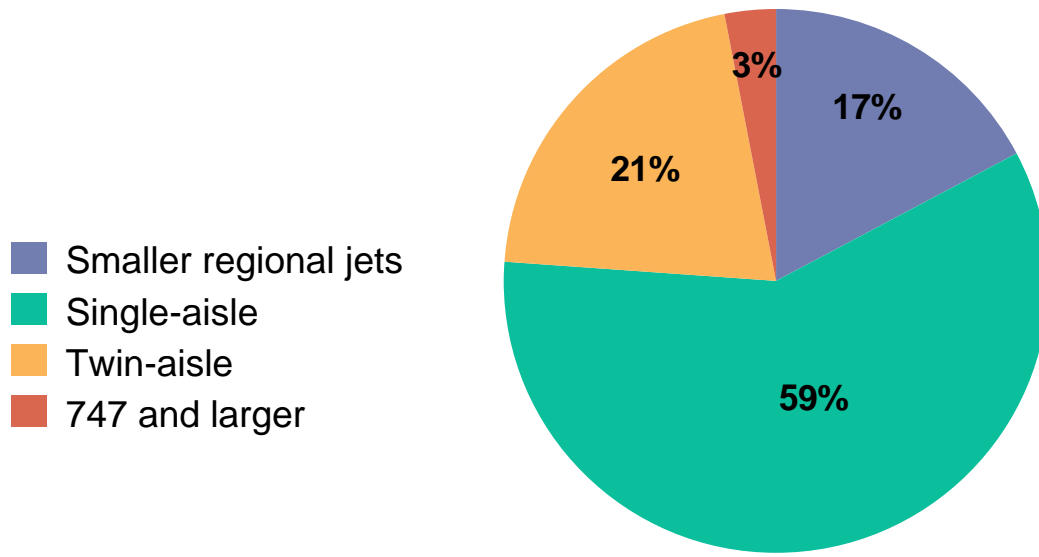
- Bill Boeing founded his company in Seattle in 1916
- Aeronautical research began at the UW in 1917, when Boeing funded construction of a wind tunnel on the UW campus



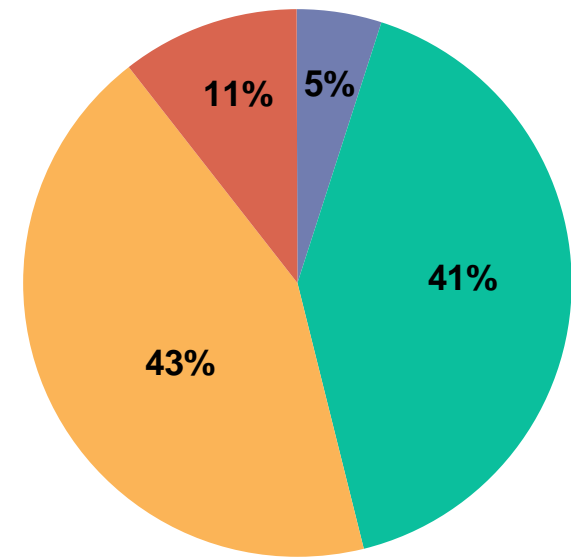
The Boeing Wind Tunnel at the UW (c. 1918)

In 2006: Increasing Demand for Transport Aircraft

(Boeing estimate: 25,000 new aircraft needed over next 20 yrs)



**25,000
airplanes**



**2.0 trillion
delivery dollars***

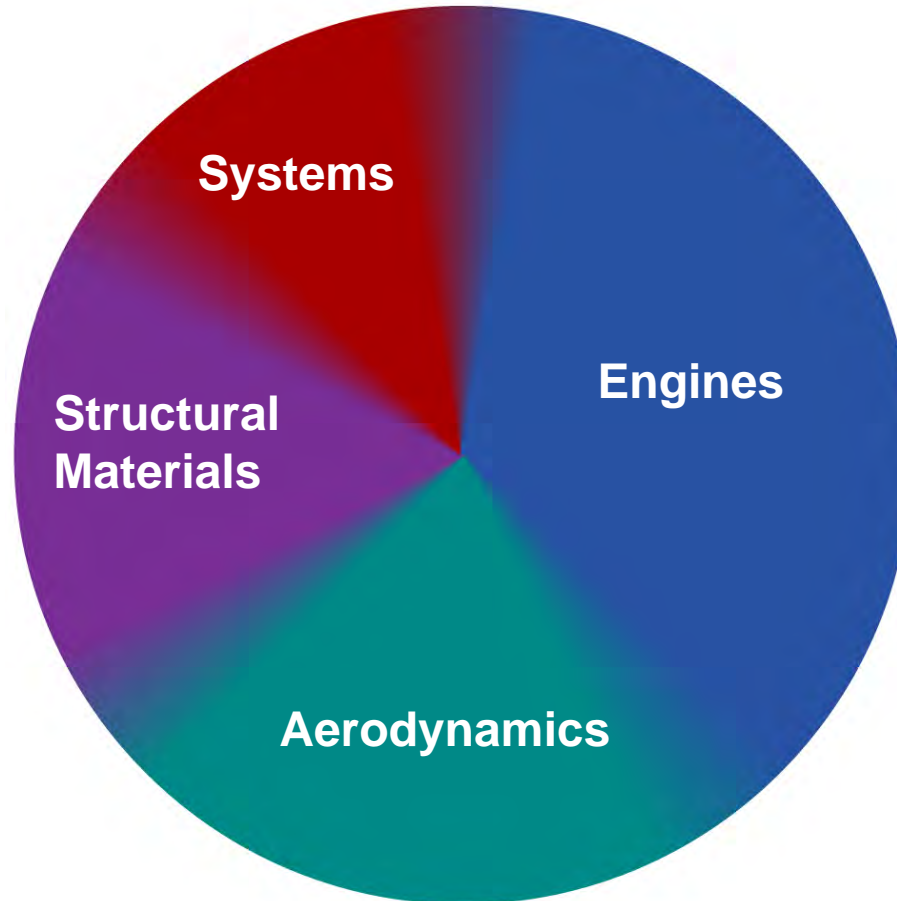
*In year 2003 dollars



Modern Transport Aircraft Offer Dramatically Improved Performance

- Example: Compared to similarly-sized existing aircraft, the Boeing 787 Dreamliner is expected:
 - To be 20% more fuel efficient,
 - To be quieter, reducing noise pollution and increasing passenger comfort,
 - To have an expanded range (~15,000 km for the 787-3, with 210-250 passengers),
 - To have a cruising speed of ~Mach 0.85
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Improvements Due to Advances in All Areas





Aerospace Industry is a Global Enterprise

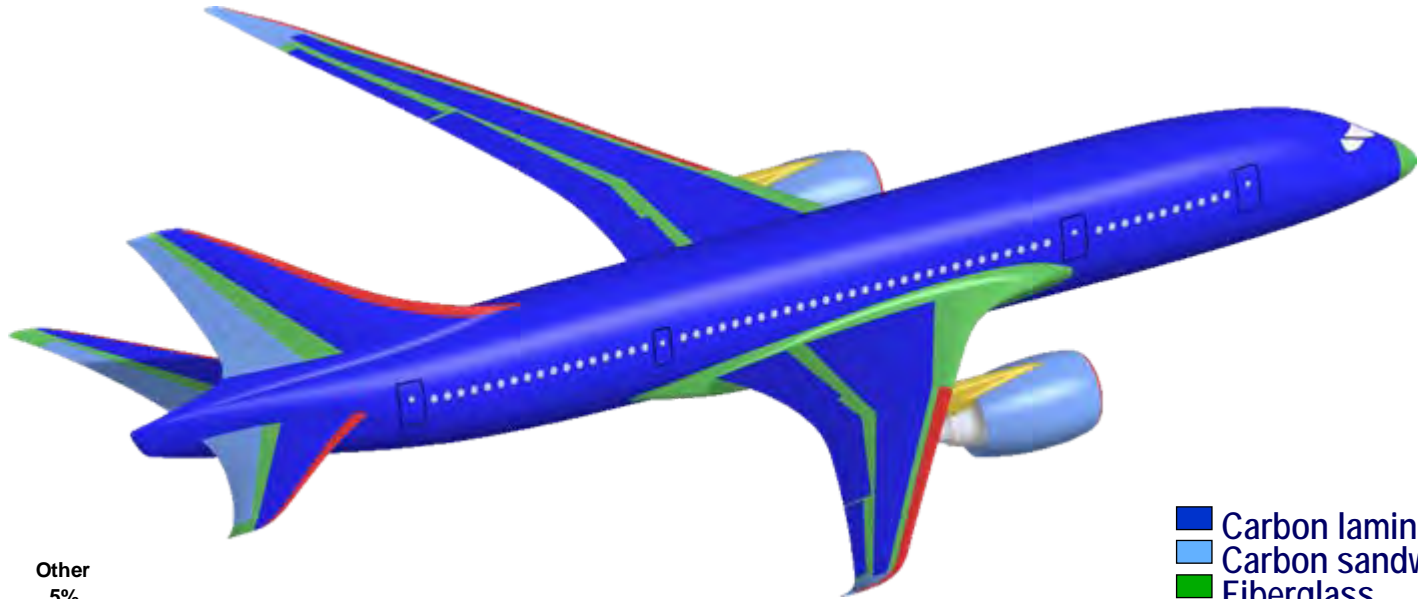
To illustrate: partial list of Boeing 787 team members



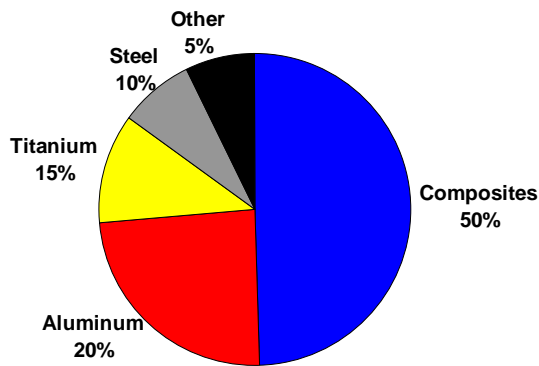
AIR CRUISERS



Polymeric Composite Materials Used Extensively in Boeing 787 *Primary structure ~50% composites (by weight)*



- Carbon laminate
- Carbon sandwich
- Fiberglass
- Aluminum
- Aluminum/steel/titanium





Joint Advanced Materials and Structures Center of Excellence (JAMS)

- The FAA established JAMS in 2003, in response to increasing use of composites in general and transport aircraft
 - Two lead universities:
 - University of Washington: Center for Advanced Materials in Transport Aircraft Structures (AMTAS)
 - Wichita State University: Center of Excellence for Composites and Advanced Materials (CECAM)
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AMTAS Participants

- AMTAS currently consists of:
 - Four academic partners
 - Eleven industrial partners
 - All AMTAS participants have significant presence within the USA Pacific Northwest
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AMTAS Participants

Academic Partners

- University of Washington
 - main campus in Seattle, WA
 - 35,000 students
 - <http://www.washington.edu/>
 - Washington State University
 - main campus in Pullman, WA
 - 22,500 students
 - <http://www.wsu.edu/>
 - Oregon State University
 - main campus in Corvallis, OR
 - 18,000 students
 - <http://oregonstate.edu/>
 - Edmonds Community College
 - Lynnwood, WA
 - 11,000 students
 - <http://enr.edcc.edu/>
-



AMTAS Participants

Current Industry Partners





International Academic Collaboration

- The University of Washington (UW) and University of Manchester (UM) both lead composite centers of excellence and share common research interests
 - UW and UM are natural collaborators and will work together to develop standards, protocols, and procedures for structural application of composites, particularly as related to
 - Design allowables and methodologies
 - Airframe and wing design
 - Manufacturing methods
 - Composite repair
 - Outreach and education
-



Concluding Comments

Let us work together to help insure continued development of a worldwide fleet of safe, reliable, and efficient transport aircraft

Congratulations on the Launch of the NW Composites Centre!
