

Risk Benefit Cost Analysis for Freighter Fire Suppression - Mitigation Model

International Aircraft Systems Fire
Protection Working Group Meeting

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Federal Aviation
Administration

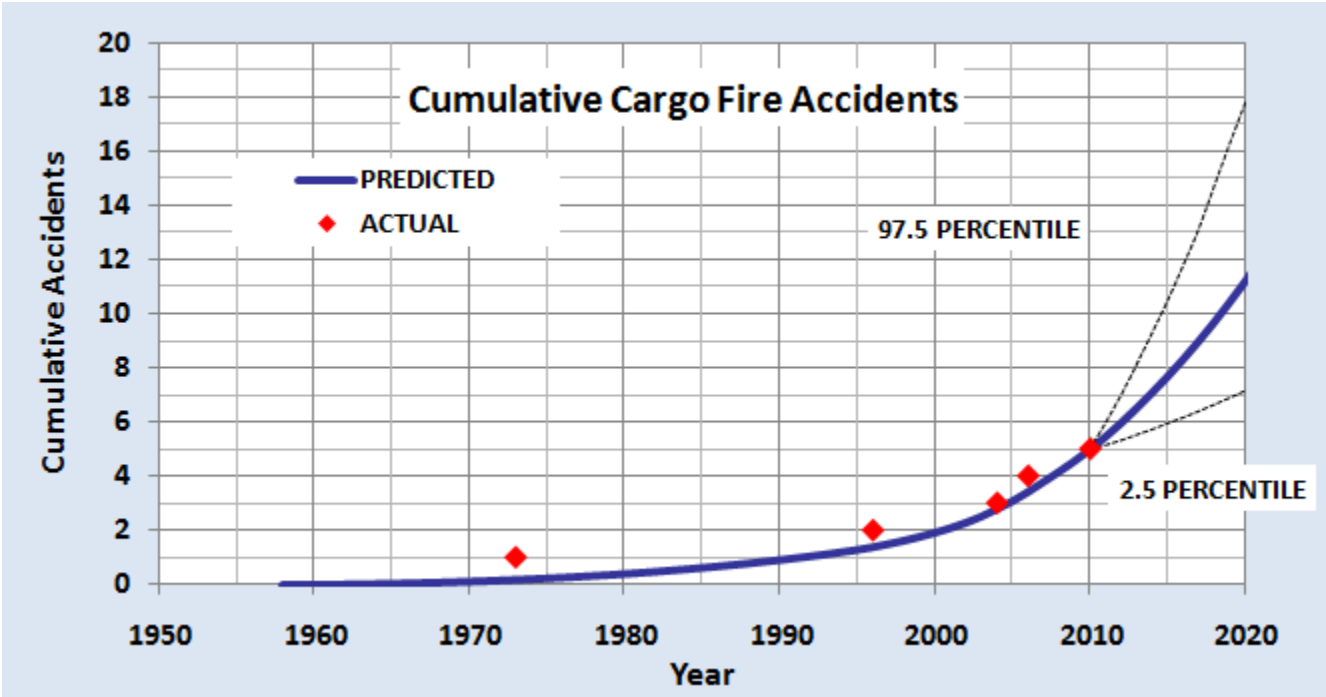


Background

- **5 cargo fire accidents on U.S. registered freighter airplanes to date**
- **2 with possible lithium battery involvement**
- **Future risks assumed proportional to cargo Ton-Miles**
- **Risk Model predicted:**
 - 6 further accidents over next 10 years
 - Corresponding annual cost of accidents \$50 Million

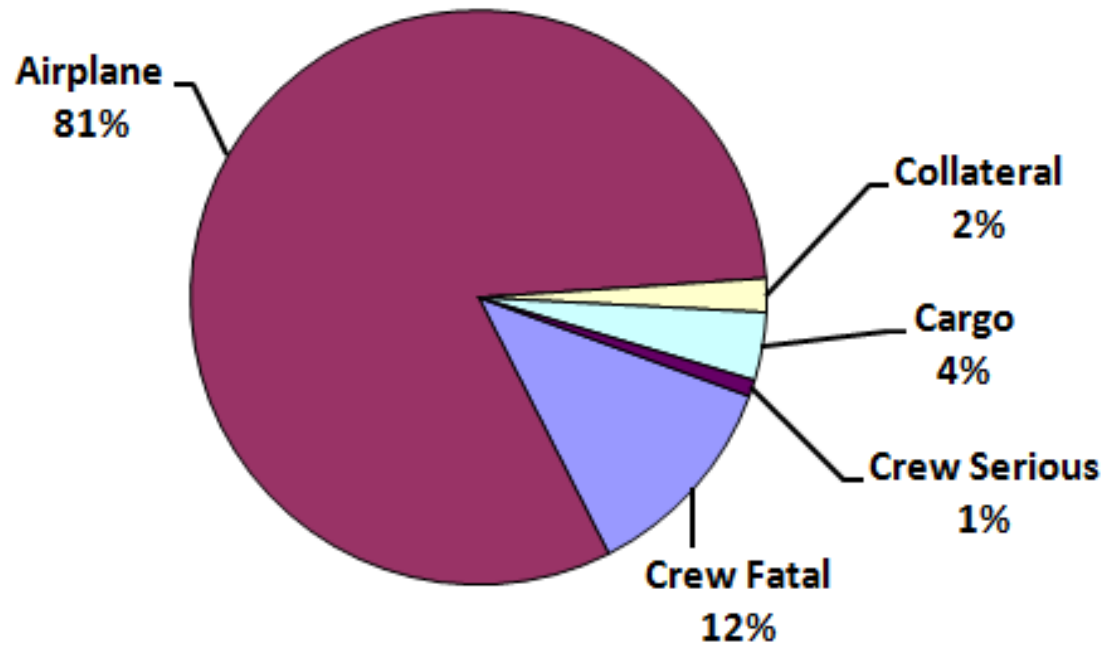


Future Cargo Fire Accident Prediction Without Mitigation



Accident Cost Breakdown

Average for all Airplane Types and Ages



Current Model

- **FAA Risk/Benefit/Cost Report & Model published April 2013**
 - 7 selectable mitigation means – individual or combined
 - Mitigation can be applied to any of the 17 aircraft types in the U.S. Fleet
 - User variable mitigation effectiveness, costs, and introduction/completion dates
 - Model output gives future accident prediction, residual accident cost, benefit, mitigation cost and benefit/cost ratio
 - Links to model and report

<http://www.fire.tc.faa.gov/zip/FreighterRiskModel50.zip>

<http://www.fire.tc.faa.gov/pdf/TC-13-2.pdf>



Latest Model Development

- **Data Updated:**
 - U.S. Freighter airplane fleet
 - Ton-Miles etc
 - Mitigation Costs
- **Additional Capability to:**
 - Vary distribution of battery cargo between airplane types
 - Select proportion of each airplane type to be mitigated
 - Select proportion of battery cargo carried by mitigated airplanes
- **Published April, 2013**
- **Model Available at:**
<http://www.fire.tc.faa.gov/reports/searchresults.asp?searchType=title&searchPhrase=Benefit&searchSubmit=Search>

