Freighter Fire Suppression Cost Benefit Analysis & Risk Model

OVERVIEW
Following in-flight fire occurrences on US registered freighter airplanes, where it is suspected that lithium batteries have had an involvement, the Federal Aviation Administration (FAA) & Transport Canada have commissioned the development of Cost Benefit and Risk Models to evaluate potential mitigation strategies.

Models have been developed for both the US and Canadian fleets.
FAA MODEL OVERVIEW

- The Monte Carlo Simulation model has been developed in Microsoft Excel
- The model considers each freighter airplane type individually and in combination
- The model assesses Cost Benefit Ratio and the likely reduction in the number of future accidents for any selected combination of 7 proposed mitigation strategies.

PROPOSED MITIGATION STRATEGIES

- All
- None
- CONTAINER SUPPRESSION - EXTERNAL
- CONTAINER SUPPRESSION - INTERNAL
- PALLET COVERS
- BATTERY BOXES PRIMARY
- BATTERY BOXES SECONDARY
- FIRE HARDENED CONTAINERS
- COMPARTMENT SUPPRESSION
USER VARIABLES

Many of the variables in the Model may be changed by the User including the following:

- Aircraft Types selected for mitigation
- Mitigation to be applied
- Costs (Fuel, Labour Rates, Mitigation, etc)
- Mitigation Effectiveness, Weights, Introduction date, etc.
- Proportion of freight that is palletized versus containerized

Default Values

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>CUMULATIVE RTM</th>
<th>NUMBER OF FIRE ACCIDENTS</th>
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<tbody>
<tr>
<td>1967 - 2010</td>
<td>624 x 10^9</td>
<td>5</td>
</tr>
<tr>
<td>2011 - 2020</td>
<td>365 x 10^9</td>
<td>3</td>
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MODEL AND REPORT
Both the Model and the Report may be downloaded from the FAA website.

http://www.fire.tc.faa.gov/reports