



# Airborne Mineral Dust, Aerosols and Gases

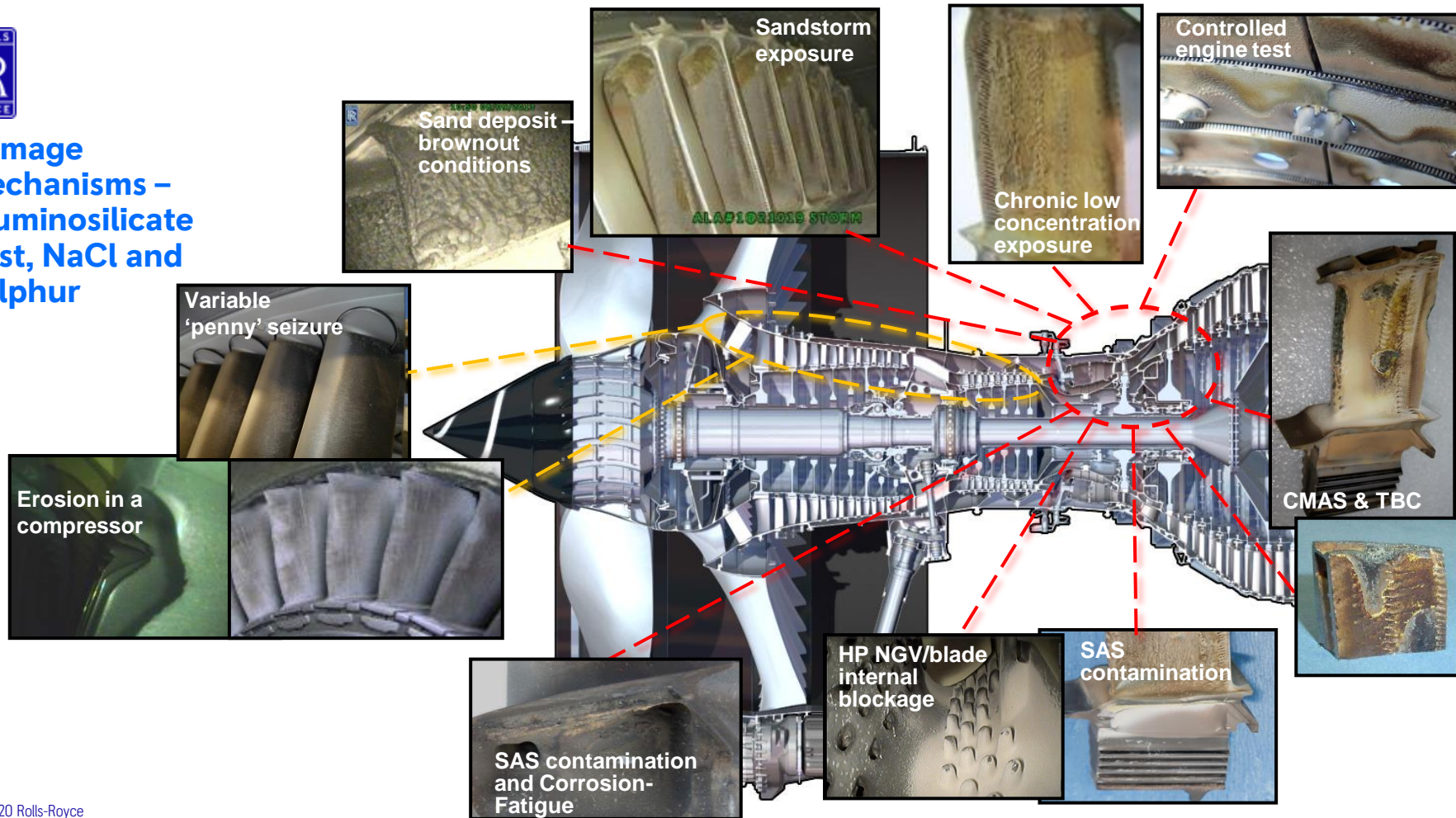
## InDust Workshop

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## Damage Mechanisms – Aluminosilicate dust, NaCl and Sulphur





## Engine OEM Business Model

# Power-by-the-Hour Service Contracts

- Like the other engine OEMs >50% Rolls-Royce's income comes from power-by-the-hour service contracts

**TotalCare®**   **LessorCare®**   **CorporateCare®**   **MissionCare®**

### TotalCare summary

Fixes engine maintenance cost

Aligns business structures

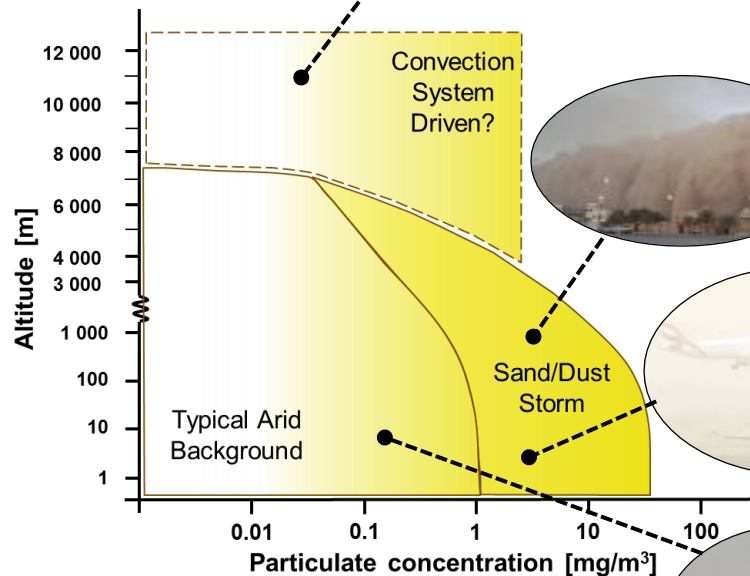
Increases aircraft availability

Allows airlines to focus on core business

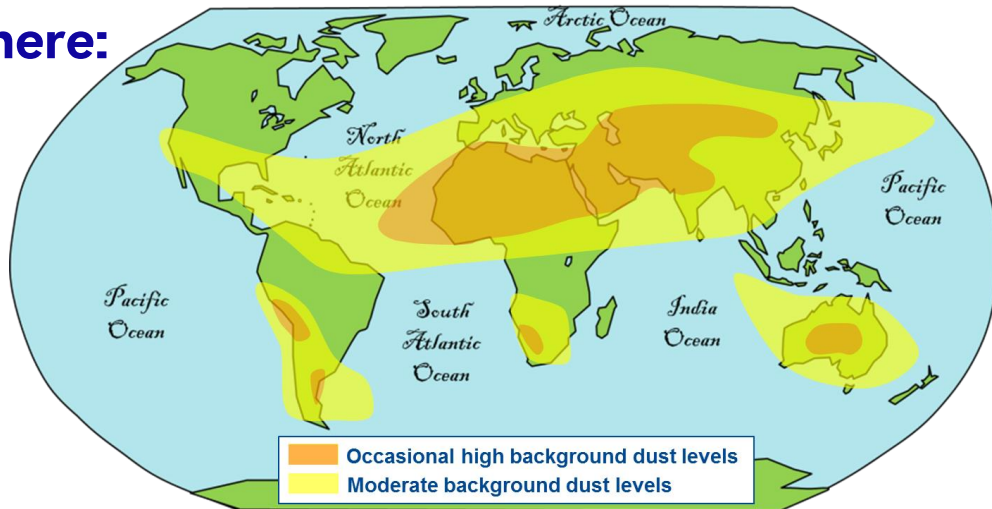
Fully transfers financial risk

- Care contract does, or doesn't, cover exposure to 'abnormally erosive or corrosive' environments

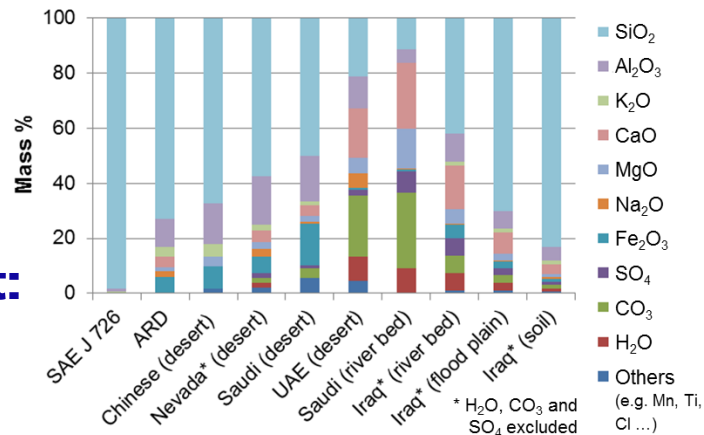
## Dust: Region, Composition, Flight Phase



## Where:



## What:

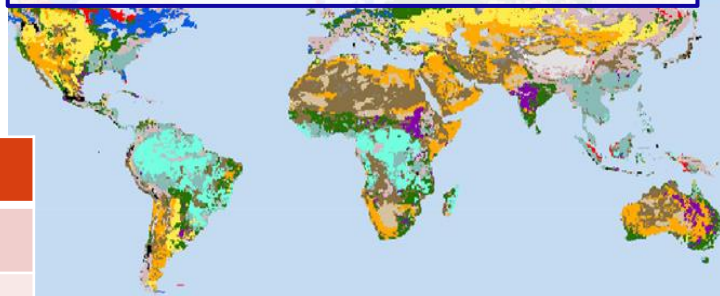


## Composition varies with location

### Dust: Composition Matters

Mineral	Composition
Quartz	Framework silicate
Feldspars	Framework silicate (Al, Ca, Na, K)
Micas	Layer silicate (Al, K, Mg, Fe, OH)
Clays	Layer silicate (Al, Mg, Fe, K, OH)
Glauconite	Layer silicate (Fe rich)
Calcite	$\text{Ca CO}_3$
Dolomite	$\text{Ca Mg (CO}_3)_2$
Gypsum	$\text{Ca SO}_4 \cdot 2(\text{H}_2\text{O})$
Anhydrite	$\text{Ca SO}_4$
Halite	$\text{NaCl}$

Different combinations and proportions of sand/dust at the earth's surface



e.g. Phoenix



e.g. Dubai

