AVIATION CO_2 REDUCTIONS

STOCKTAKING SEMINAR

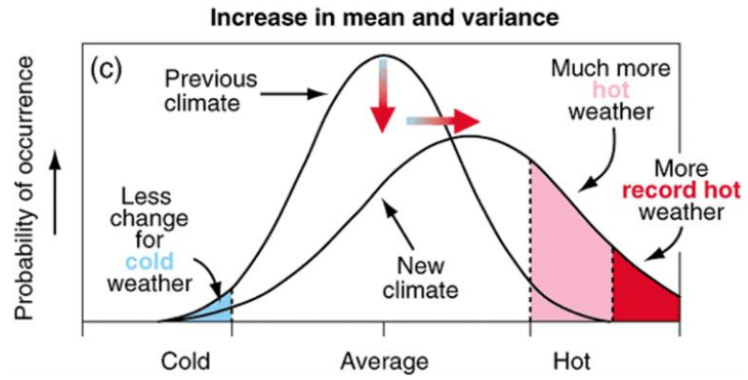
TECHNOLOGY · OPERATIONS · SUSTAINABLE AVIATION FUELS

Ground Operations

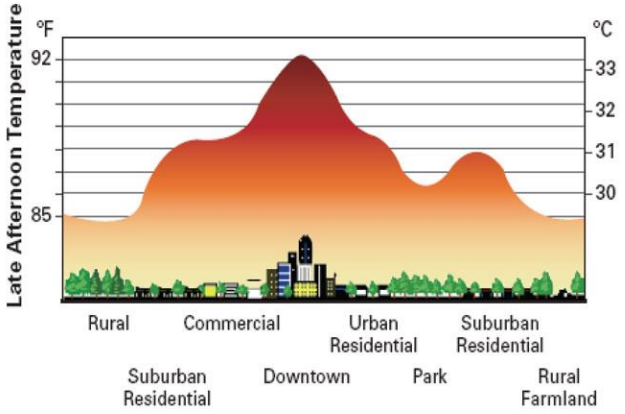
Leigh Gapp,

Sustainability Manager – Adelaide Airport

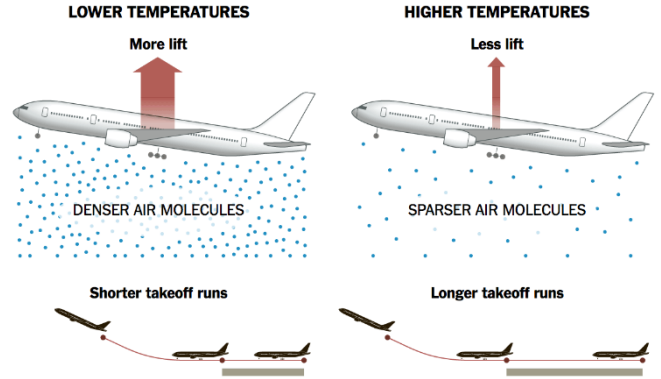
Climate change is affecting aircraft performance



Source IPCC (2001)



Source: Heat Island Group



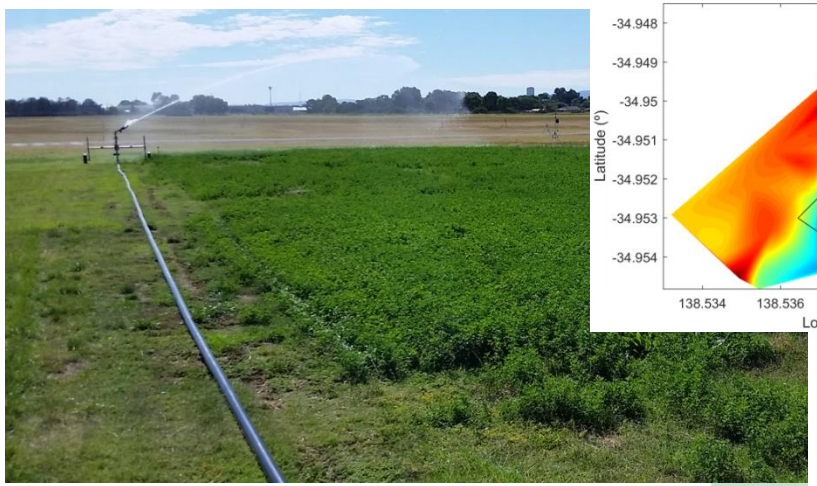
Source: National Oceanic and Atmospheric Administration | By The New York Times

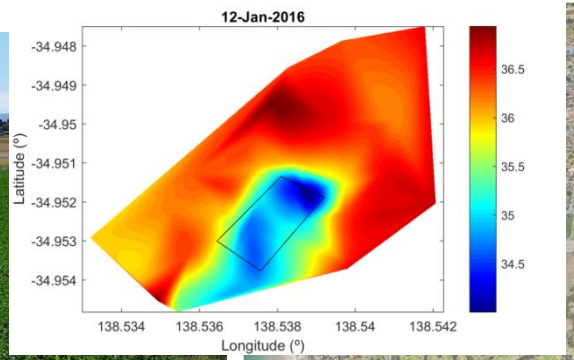
Hotter temperatures and increased duration of extreme heat events

Urban Heat Island Effect (UHI) further exacerbating increasing temperatures and extreme heat events at airports

Higher temperature result in reduced thrust and lift, increasing the length of takeoff roll and associated fuel burn

Airfield irrigation can reduce local temperature

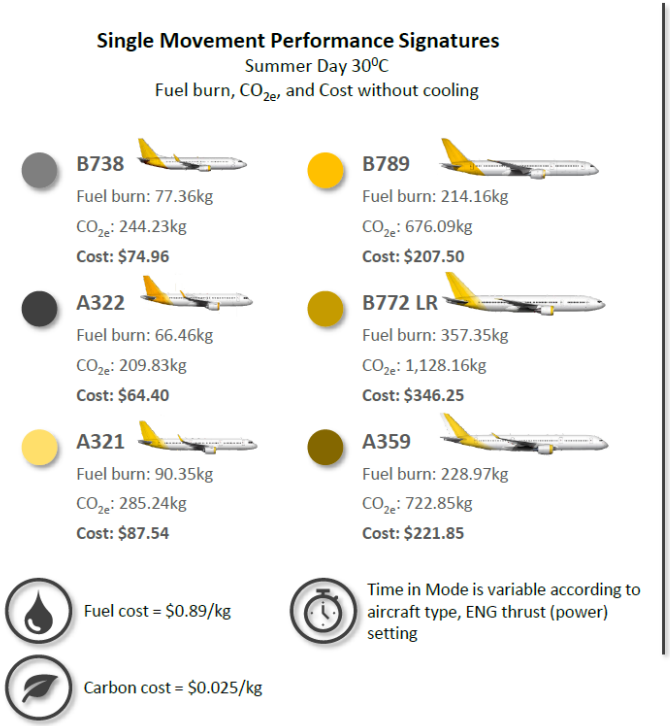


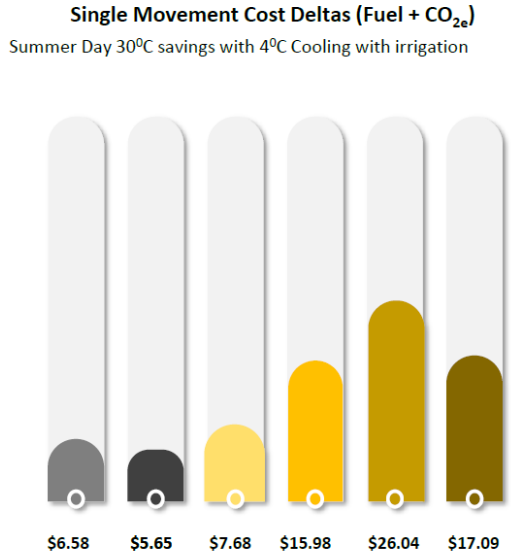


Airfield irrigation can be used to reduce ambient temperature and therefore may be able to improve aircraft performance

Trail data indicates a reduction of over 3°C can be achieved on days over 30°C

Reduced temperatures can deliver savings and maintain payloads





Temperature	Flight	Percentage restriction	Restriction Kgs	Total value
30	DXB	6.1	10417	$37,240.78
35	DXB	9.6	16417	$58,690.78
35	DOH	3	4000	$14,300.00
40	DXB	13.1	22417	$80,140.78
40	DOH	7.6	10000	$35,750.00
45	DXB	16.1	27417	$98,015.78
45	DOH	10.6	14000	$50,050.00

Temperature can have a significant impact on payload, specifically for long haul flights

Analysis indicates that local cooling of 4°C could allow a reduced thrust of 3% and reduce take-off roll time by 2 seconds equating to an average saving of 8% fuel burn across the key aircraft types.

Reduce fuel burn and maintain payload with airfield irrigation

Operations

Airfield irrigation to cool local temperature

CO_2 reductions per flight	8%
Level of finance required	~1.5M
Timeframe	Ready
Main challenges	Vertical extent of cooling

Thank You

ICAO