REVIEW ON THE IMPLEMENTATION OF

ENHANCED WAKE TURBULENCE SEPARATION (eWTS)

AT HONG KONG INTERNATIONAL AIRPORT

ATM/SG/10 WP 23

HONG KONG, CHINA

- **Implementation of eWTS for arrival at HKIA**
  - Analysis
  - Missed approach data and pilots report
- **Extension of eWTS for departure at HKIA**
- **Action by the meeting**

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eWTS for arrival at HKIA

- Implemented since 5 Nov 2020
- eWTS was implemented on north runway (07L/ 25R)
- Improved runway capacity and efficiency in safe manner
- Minimum investment in supporting infrastructure
- Regular review exercise for evaluating the implementation

Analysis

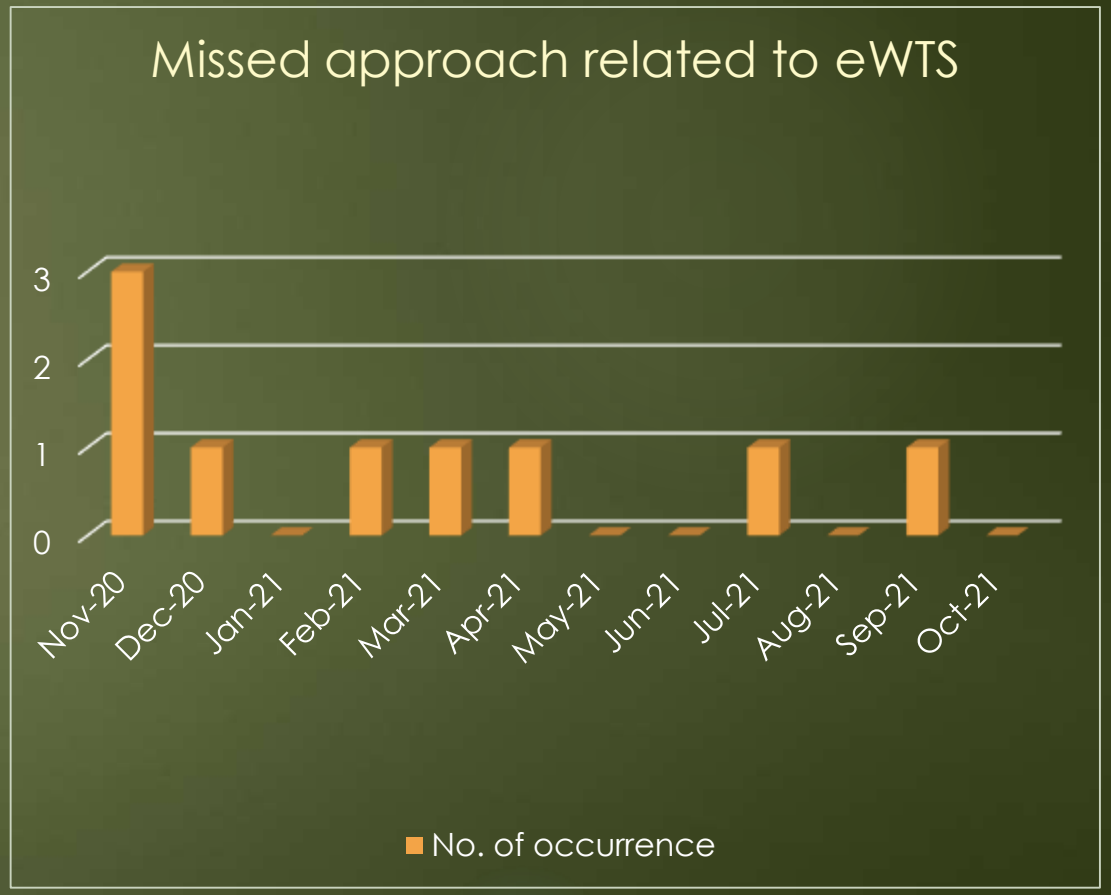
- Maximum hourly runway capacity at HKIA has been increased from 34 to 35 and progressively for more hours in a day

- As controllers and pilots have become more accustomed to the closer inter-arrival spacing and in the light of more operational experience gained

- Further marginal enhancement to the maximum hourly arrival capacity at HKIA in future

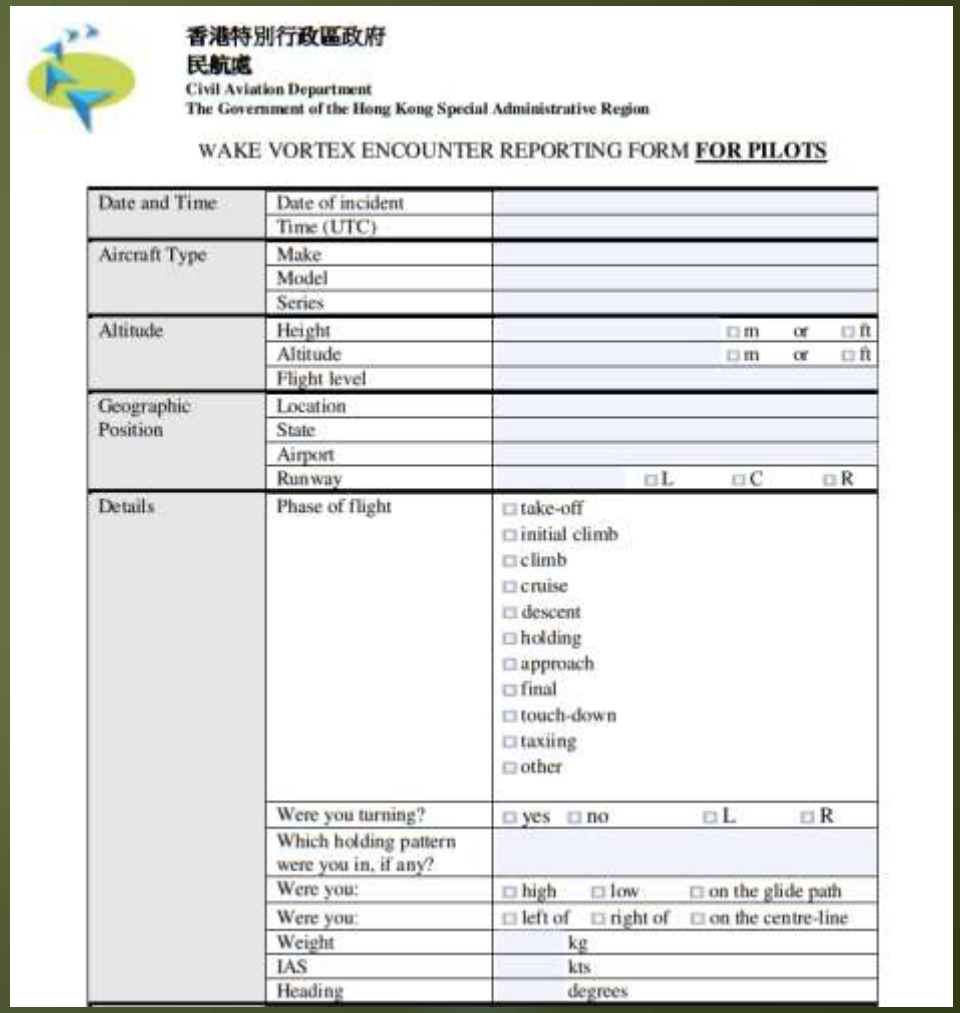
Analysis - Missed approach

- Missed approach data within 12 months before and after the implementation of eWTS were examined
- **9** missed approaches (**0.02%** of the total no. of arrival on north runway) were related to eWTS
- Remedial actions had been promptly taken by controllers before eWTS was compromised
- Most of them occurred shortly after the implementation



Analysis – Pilot report

- Review of wake turbulence encounter reports filed by pilots, **none** of them were related to eWTS
- With the increased runway capacity brought by the implementation of eWTS and no compromise on the safety of operations, the implementation of eWTS for arrivals at HKIA is considered successful



香港特別行政區政府
民航處
Civil Aviation Department
The Government of the Hong Kong Special Administrative Region

WAKE VORTEX ENCOUNTER REPORTING FORM **FOR PILOTS**

Date and Time	Date of incident	
	Time (UTC)	
Aircraft Type	Make	
	Model	
	Series	
Altitude	Height	□ m or □ ft
	Altitude	□ m or □ ft
	Flight level	
Geographic Position	Location	
	State	
	Airport	
	Runway	□ L □ C □ R
Details	Phase of flight	□ take-off □ initial climb □ climb □ cruise □ descent □ holding □ approach □ final □ touch-down □ taxiing □ other
	Were you turning?	□ yes □ no □ L □ R
	Which holding pattern were you in, if any?	
	Were you:	□ high □ low □ on the glide path
	Were you:	□ left of □ right of □ on the centre-line
	Weight	kg
	IAS	kts
	Heading	degrees

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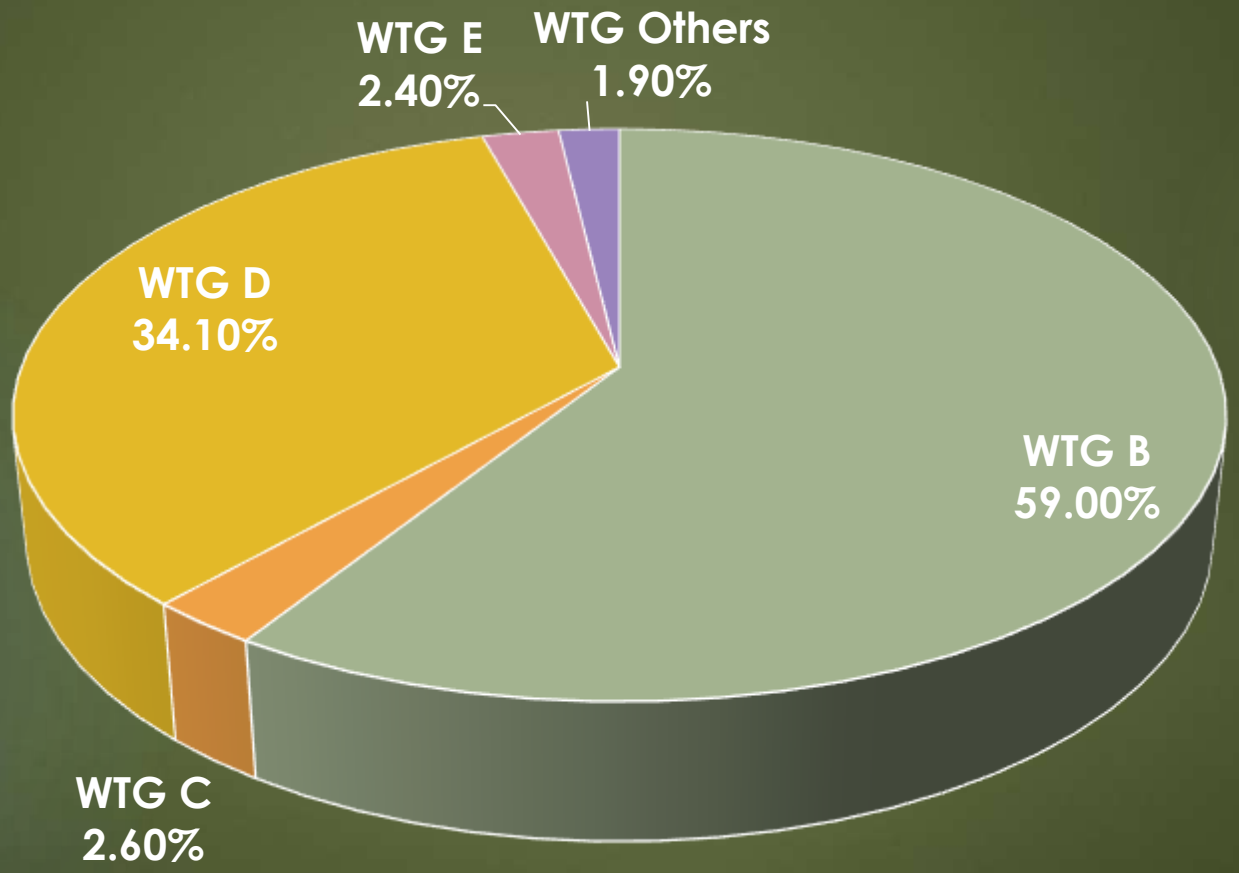
eWTS for departure at HKIA

- Improving departure delivery rate is equally important in optimizing runway capacity under existing airport infrastructure
- Potential benefits of implementing eWTS for departures safely at HKIA has been conducted
- Analysis on departure traffic mix (pre-COVID peak traffic data) at HKIA and their respective enhanced separation criteria based on ICAO WTG

Departure traffic mix



ICAO WTG requirement vs proposal at HKIA

Preceding aircraft WTG	Succeeding aircraft WTG	ICAO Doc 4444 minima (time-based wake turbulence separation minima in second)	Proposed minima to be adopted at HKIA (time-based wake turbulence separation minima in second)
B	D	100	100
	E	120	120
	F	120	120
C	D	80	**100**
	E	100	**120**
	F	100	**120**

Analysis – Departure eWTS

- Proposed minima planned to be adopted at HKIA will be more conservative than as stipulated in ICAO Doc 4444 PANS-ATM
- Covers the majority **(95.7%)** of applicable pairs of WTG B, C and D traffic departing from HKIA
- providing tangible operational benefits from eWTS and only inducing minimal changes to existing operational procedures

Benefits of eWTS for departure

- Potential to increase the maximum hourly departure capacity at HKIA by **2-3%**, subject to further operational evaluation and validation

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Action by the meeting

- Note the information contained in this paper
- Consider to convene relevant workshop lead by ICAO to encourage members to share experiences and lessons learnt in the implementation of eWTS at their airports, as appropriate while maintaining safety
- Discuss any relevant matters as appropriate

Thank you