

ANSP considerations for methodology, models and severity criteria

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NATS

Overview

- » Wake Turbulence Concept Evolution
- » Convergence Needs
- » Safety Metrics
- » Standards
- » Summary

Wake Turbulence Concept Evolution

» *NATS Current Operations*

- » Revised Wake categories for safety/efficiency
 - » J, H, UM, LM, S,L
 - » Separation applied to 4DME (landing stabilisation phase)

» *Near term deployment*

- » Reduced Final Approach Separation (RFAS)
 - » Met Conditional reduction of 0.5NM to wake pairs

» *Medium Term*

- » Time Based Separation (TBS)
- » SESAR Weather Dependent Sep (WDS) , Dynamic Pairwise Sep

» *How does RECAT fit in?*

- » RECAT I ~ NATS current Ops (safety / cap improvements)
- » RECAT II & III vs SESAR TBS, WDS, D-PWS

» **A Harmonised concept roadmap is required**

- » Implies harmonised methodology, models and severity criteria

Convergence Needs

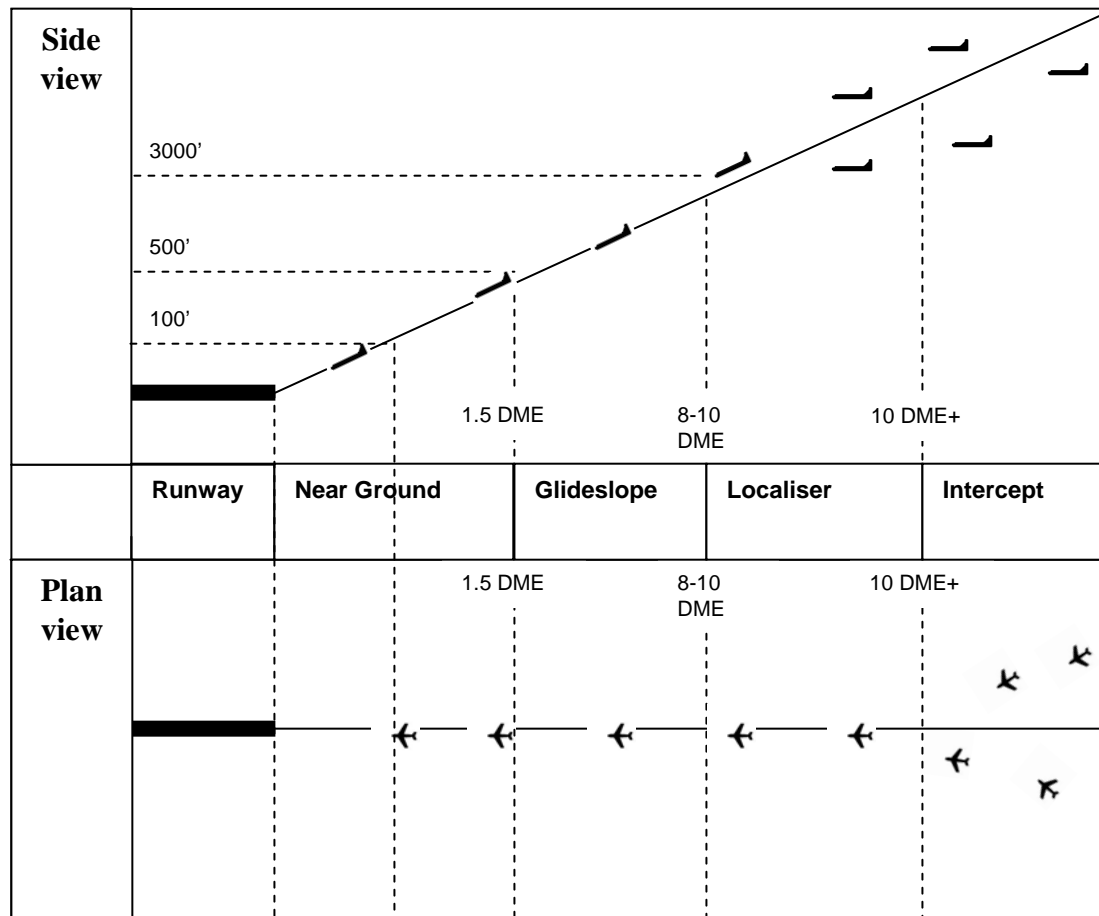
- » Common methodology is required that can be used
 - » ANSPs may require to extend to other concepts e.g. safety / cap
 - » ANSPs need to assess impact of controller practices & procedures
 - » extended safety argument/evidence
 - » Will RECAT provide:
 - » *A set of criteria to be used?*
 - » *A methodology to be adapted with supporting data?*

- » In order to incorporate ANSP needs, common methodology, validated models & data are required



Safety Metrics

- » NATS uses reported WTE as safety indicator
 - » Key 'hot spot' areas are close to ground & Localiser Intercept
 - » WTE Mitigations required for all phases of approach



- » Wake improvements : No degradation in Safety
 - » Require to quantify / estimate:
 - » Impact of change on WTE severity (all points)
 - » Impact of change on WTE frequency (all points)

- » Can standards be developed to define this?
 - » Cf. EASA CS-25 (JAR – 25.1309)
 - » Categories relating to severity of outcome on occupants
 - » Severity Effect: Catastrophic/Hazardous/Major/Minor
 - » Associated acceptable frequencies
 - » Doesn't feel right given 'accepted' wake risk with sep minima

 - » *Effectively an absolute measure rather than relative*

- » Requirement for validated models to assess WTE impact
 - » RECAT Encounter effect doesn't reflect current Ops reporting
 - » Consideration of intercept path



Standards

- » Standard for Meteorological conditions used in concepts
 - » Wind, temperature, fronts, EDR etc
 - » forecast horizon & monitor requirements
 - » Related to controller concept requirements & safety requirements
 - » Safety 'buffers', location of equipment, equipment performance vary
 - » Can a target be set (e.g. RNP equivalent) ?
 - » Otherwise, a unique bespoke concept safety evidence required

- » Safety Methodology
 - » A standard 'Methodology' is required
 - » Standard safety arguments / evidence drawing upon
 - » Reported Wake Schemes
 - » Measured Wake (e.g. Lidar)
 - » Validated encounter models

- » RECAT a step forward in defining a standard methodology

Summary

» Wake Turbulence Concept Evolution

- » A Harmonised concept roadmap required
 - » RECAT II & III vs SESAR TBS, WDS, D-PWS

» Convergence Needs

- » In order to incorporate ANSP needs, common methodology & data are required

» Safety Metrics

- » Need for improved methods to categorise risk & impact on Operations

» Standards

- » Common standards for Meteorological capability required
- » Common validated Safety Arguments & Method required



Questions?

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