FAA RECAT Phase I
Operational Experience

WakeNet-Europe Workshop 2015
April 2015
Amsterdam, The National Aerospace Laboratory (NLR)

- Tittsworth (FAA Air Traffic Organization)
- Pressley (NATCA / IFATCA)
- Gallo (FAA Flight Standards Service)
- Barnes (Engility Corporation)
- Lang (Volpe NTSC)
Outline

Background
- Quick High Level Description of RECAT
- Historical Note on RECAT I
- Recent Changes

Updates
- Initial Implementation in US
- The Rest of the Waterfall Implementation
- Lessons Learned for RECAT II
RECAT Introduction

→ RECAT is a Three Phased Effort
  - Phase I is static 6 category system IOC in MEM in Nov 2012
  - Phase II is static pair-wise separation
    - Requiring no automation tools
    - With the flexibility of 6 customizable categories for optimization of local fleet mixes
  - Phase III is dynamic pair-wise separation using
    - Phase II pair-wise separations as a base, and
    - Taking atmospheric and aircraft data to dynamically change the separations.

→ All three phases directly support NextGen and SESAR capacity enhancement goals
RECAT Phase I

RECAT I - Genesis

- At the request of ICAO, FAA and EUROCONTROL formed a WG to examine the feasibility
- Want to have *Wake Based*, instead of *Weight Based* wake turbulence separation minima categories
- Refine category boundaries
- Maintain safety, but changes are driven by operational benefits
RECAT I – Where Boundaries Come From

- RECAT I – Anticipated Level of Benefit Going In (1/2)
  - Categorization, thus benefit, strongly depend on fleet mix
  - Traffic / fleet mix from eight airports were chosen to develop RECAT I categories
    - KATL, KEWR, KJFK, KORD and KSFO
    - EGGL, EDDF and LFPG
  - Safety analysis done using ICAO baseline
  - Benefit analysis done using local standard as references
RECAT I – Where Boundaries Come From

- **RECAT I – Anticipated Level of Benefit Going In (2/2)**
  - Categorization is not optimized for any specific airport, but categorization drives towards everyone getting benefit over baseline, as a first step towards global harmonization.
  - Other factors that influenced details of the final RECAT I optimization of categories:
    - EU traffic has relative higher proportion of Heavies.
    - US traffic has relative higher proportion of Mediums and Lights, and 757.
    - Weight boundary differences between ICAO and FAA (7110.65).
  - So, the categories are not optimized for US traffic, but US implementation has been more successful than first anticipated.
**RECAT I – N7110.659A to N7110.659B**

### Old – RECAT I

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### New – RECAT “1.5” (As of April 2015)

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**On Approach**
- F behind E was 4 miles now MRS
- F behind D was 5 miles now 4 miles
Additional Changes:

- Cat F crossing 500 ft below Cat D
- Any category can depart from one runway after a Cat D departs from a closely spaced parallel runway
### High Level Summary of RECAT I Experience

At the time of this brief, over 58,000 TRACON hours of RECAT I operation in the NAS

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<th>Months of Operation</th>
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RECAT and Automated Terminal Proximity Alert (ATPA)

- Available on CARTS and STARS (national release)
- Some Sites Implemented ATPA Prior to RECAT
  - SDF
  - CLT
- Some Sites Implemented RECAT without ATPA
  - MEM
  - ATL
- Some Sites Implemented RECAT and ATPA Simultaneously
  - CVG
  - I90
  - N90
- All Three Options are Acceptable
- Preference is to have site gain ATPA operational experience 3-6 months prior to RECAT IOC
- ATPA Phase II planning discussions underway
Summary of MEM To Date

30 months into implementation (key site)

We learned a lot of lessons with MEM

- Training needs to be done in a different manner
- New tools with RECAT makes controllers jobs easier
- Departure benefits will show up quicker
- Arrival benefits will often have several “walls” that need to be knocked down before similar benefits are recognized.
- A six category system does not need a separate tool to be successful, but improvements to current tools are needed to reduce what would be an increased workload for controllers.
- These equipment improvements and training changes are a main part of controller “buy-in” when implementing RECAT
- The overall implementation process takes 6 months to get the most benefit/buyin up front.
Summary of ATL To Date

- 11 months into implementation at the Number 2 (or 1 depending on the month) busiest airport in the world.
  - RECAT can allow airlines to have a more consistent and reduced taxi time on arrivals and departures.
  - This allows for a more consistent scheduling of gates (and a tremendous cost savings in taxi time alone).
  - Learned we didn’t have to implement RECAT at all of the airports in an approach control.
  - Delta estimates between $14 Million and $38 million in savings the first full year (Delta is 60% of the airports operations).
  - RECAT can be successful at high density air carrier airports and controller acceptance of the change is very high.
Summary of N90 (NY TRACON) To Date

- 2 months into implementation
  - A major complicated metroplex
  - Implementation involves the entire TRACON - six satellite airports IOC simultaneously (not all airports went RECAT)
  - Controller acceptance of RECAT is high and this will improve with time.
  - We do not have a clear picture yet on the benefits for New York.
    - Very complicated airspace with several major airports in close proximity
    - JFK is in the middle of extensive construction with both runway and taxiway closures daily
    - EWR and LGA are working out changes in taxi routes to maximize benefits
    - Throughput has increased overall at the major airports and we expect that to increase.
ORD and SFO Status

Chicago expects to implement RECAT I (1.5) at the end of June, 2015

- Currently Operating With ATPA
- Including sites: C90, ORD, MDW (6 others will not)

SFO expects to be the first site to implement RECAT II during FY15 Q4

- Currently Operating With ATPA
- Including sites: NCT, SFO, OAK, SJC with additional satellite airports to be identified
- Note some 60+ airports operate under NCT
- The same issues implementing Phase I plus some new ones*
- Implementation strategies learned during Phase I implementations will be used for Phase II.
Summary

- RECAT Phase I is successful on its own with very little change for the workforce.
- Successful RECAT implementation strategies are critical for the acceptance of the procedure.
- RECAT Phase I is successful at both passenger and cargo based airports.
- RECAT Phase I is continuing to improve based on data gathered from current RECAT sites and from other sites with different wake turbulence mitigation tools.
- RECAT Phase II implementations will be heavily influenced by lessons learned during Phase I implementations.