Federal Aviation Administration

Air Traffic Organization’s Human Performance Team and its efforts to Improve Safety

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Human Performance Team

• Formally consisted of just the Fatigue Element (2009)

• Human Factors Element created in 2015

• Health and Wellness Element created in 2016
Human Performance Team

The ATO Human Performance Team is responsible for developing the tools needed to achieve a high level of human performance in the NAS using the science of human factors. The team identifies areas of risk before sponsoring and applying human factors research and analysis to develop mitigations.

We seek to embed human factors into the ATO.
Simply put ...

Do we have the **right people** in the **right roles** with the **right information** and the **right skills**

and the **right tools**

and the **right role models**

with the **right motivation**

to do the job?
Human Performance Team Projects

- Safety Culture Awareness Survey
- HCF HP Assessment
- Visual Scan Research
- Remote Tower Support
- Runway Safety Call to Action
- Runway Safety Counsel
- Facility HF Support
- SFO Investigation
- Risk Analysis Program
- Fatigue Work Plans
- Team Resource Management
- New Controller “Survival Guide”
- ZOA Actigraph Study
- Recurrent Training Development
- IFR/VFR Assessments
- HP at the Academy
- Fatigue Safety Steering Committee

- NOTAMS 101
- Local Safety Council Support
- HP Center of Excellence
- Instructor Handbook Review
- Runway Markings, Signage, and Lighting Assessment Study
- Training Standards to Support N90 Training Program
- Training Standards to Support F11 Training Program
- Local Runway Incursion Pilot Surveys
- Safety Risk Management Panels
- Runway Safety Root Cause Analysis Tool Assessments
- Academy Training Overhaul
- Controller/Pilot Communication Awareness Videos
- Top 5 Development

- HP Training in Safety Investigations
Importance of Capturing Good Data

• Outcomes are only as good as input
  – RCAT, RAP Panels, Investigations, SRM
• Sometimes information is incomplete
• Data collected directly informs safety analysis panels
  – Top 5, Runway Safety Counsel, Call to Action
• Uncertain if the current mitigations and corrective actions are solving /can solve the right problems
  – Are we asking the right questions?
• Harnessing “good data” is complex process
  – ASAP, ATSAP, SRT Checklists, RAP, MORs
• No one is speaking the HP same language
Human Factors Analysis and Classification Systems (HFACS)

• A taxonomy is a scheme of classification to identify, name, or classify something

• An aviation system of classification

• Organizes concepts into an easy-to-remember framework

• Groups based on similarities

• Aids in the ability to recall and group data later for use in analysis

• Proven effective in military, commercial and general aviation safety mitigation development
AirTracs
Air Traffic Analysis and Classification System

• Provides a framework for identifying emerging risk trends and statistically significant linkages between causal factors and errors at all levels of the NAS

• Shifts focus away from “Human Error” and towards the important causal and contributory factors

• Allows for mitigations to be targeted at key elements in the most important risk pathways

• Common framework allows for scalable analysis from individual events to facility-specific trends to emerging NAS-wide risk profiles
AirTracs Taxonomy

Outside Influences
- NAS Influences from non-FAA/flight deck actor

Agency Influences
- Higher level conditions, policies, and procedures which contributed to the safety event

Facility Influences
- Conditions at the facility which contributed to the safety event

Operating Context
- The immediate working environment of the controller during the event

Operator Acts
- Controller actions which contributed to the safety event
AirTracs Taxonomy

Operator Acts

- Acts
- Intentional Non-Compliance
  - Sensory
  - Decision
  - Execution
AirTracs Taxonomy

Operating Context

Controller Workspace
- Physical Environment
- Technological Environment

NAS Interactions
- Cognitive and Physiological Factors
- Knowledge / Experience
  - Aircraft Actions
  - Communication
  - Airport Conditions
  - Airspace Conditions

Controller Readiness
AirTracs Taxonomy

Agency Influences
- Resource Management
- Agency Climate
- Operational Process

Facility Influences
- Supervisory Planning / Preparation
- Supervisory Operations
- Traffic Management Unit
AirTracs Taxonomy

Outside Influences

- Airline Influences
- Military Influences
- Contract Tower Influences
- Other ANSPs Influences
- Other Outside Influences
In Conclusion

The Human Performance Team is…

• Working to familiarize systems’ users with AirTracs
• Establishing measures to increase data accessibility
• Developing databases more conducive to “deep dives”
• Still working with the existing data to develop tactical and strategic level mitigations
  – Recurrent training communication (hearback/readback, phraseology, concise messaging) initiatives
  – Researching effective scan techniques
  – Airport geometry, location, topography, visual aid studies
Questions?

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Air Traffic Organization
Safety and Technical Training