



NTSB National Transportation Safety Board

Fatigue Management: Embrace Change to Enhance Safety and Health

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Board Member

C. O. Sappington Memorial Lecture
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Conference
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Go! Flight 1002



- early starts, multiple segment days, sleep apnea

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Guantanamo Bay Cuba

First NTSB aviation accident to cite fatigue as probable cause



- acute sleep loss, sleep debt, circadian disruption

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**Uncontrolled In-Flight Collision with Terrain
AIA Flight 808, Douglas DC-8-61, N814CK
U.S. NAS, Guantanamo Bay, Cuba, August 18, 1993**

“The National Transportation Safety Board determines that the probable causes of this accident were the impaired judgment, decision making, and flying abilities of the captain and flight crew due to the effects of fatigue...”

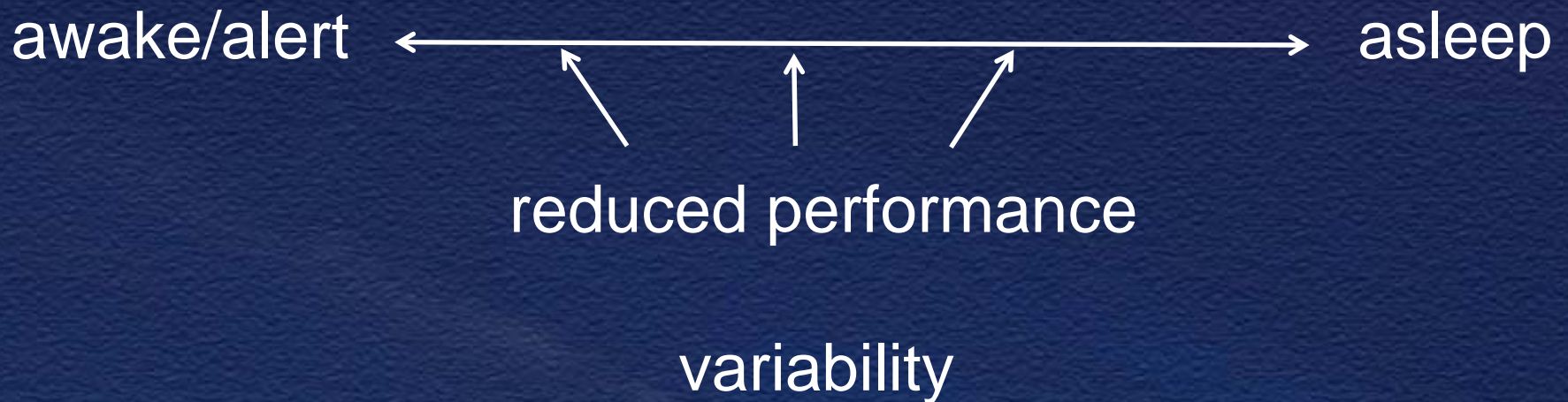
Fatal Airline Accidents (Examples) (fatigue cited)

- 8/97 Guam: 228 fatalities
- 6/99 Little Rock AK: 11 fatal
- 10/04 Kirksville MO: 11 fatalities
- 8/06 Lexington KY: 49 fatalities
- 2/09 Buffalo NY: 49 fatalities

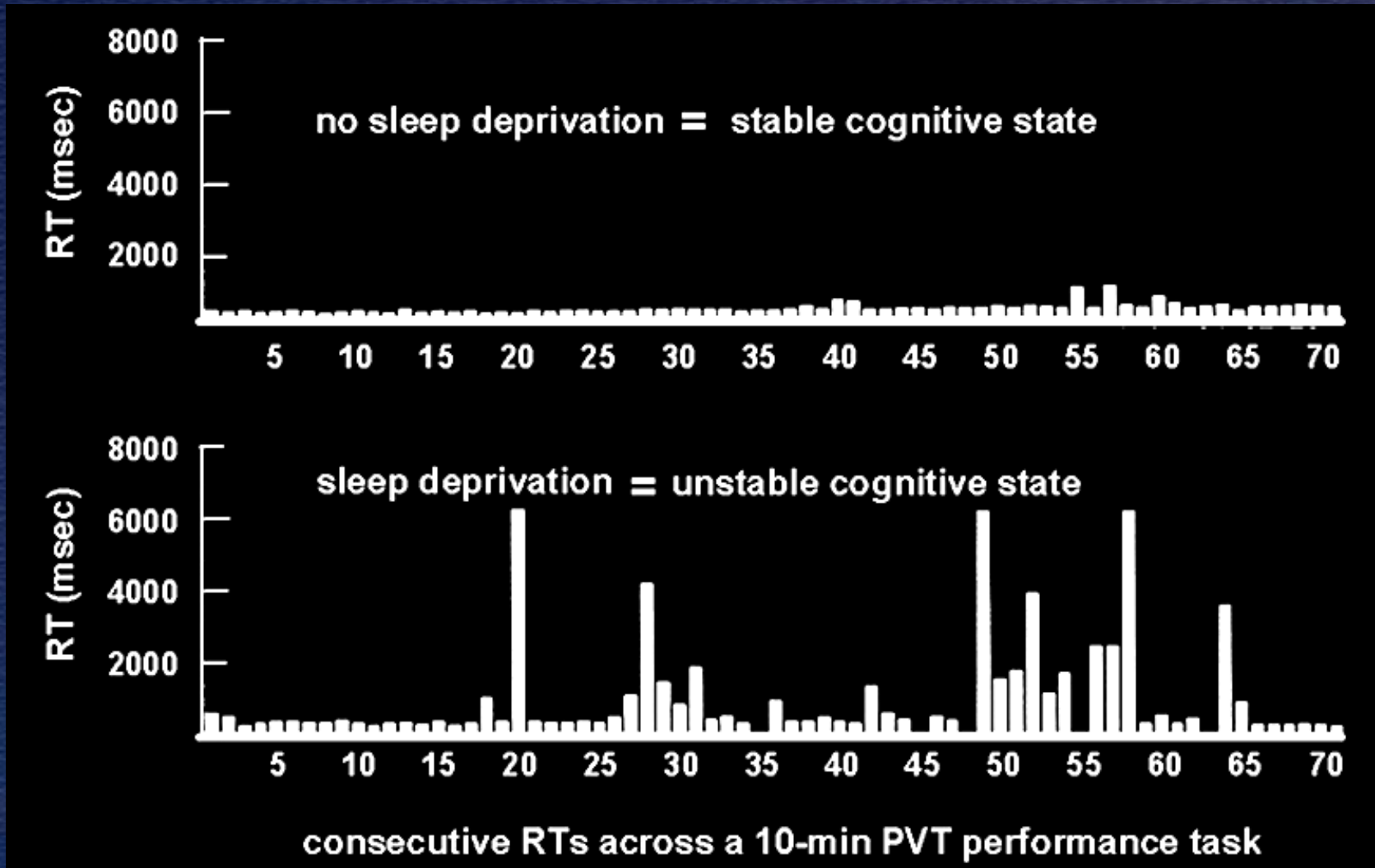
Point #1

Fatigue risks are
significantly
underestimated.

Fatigue Risks



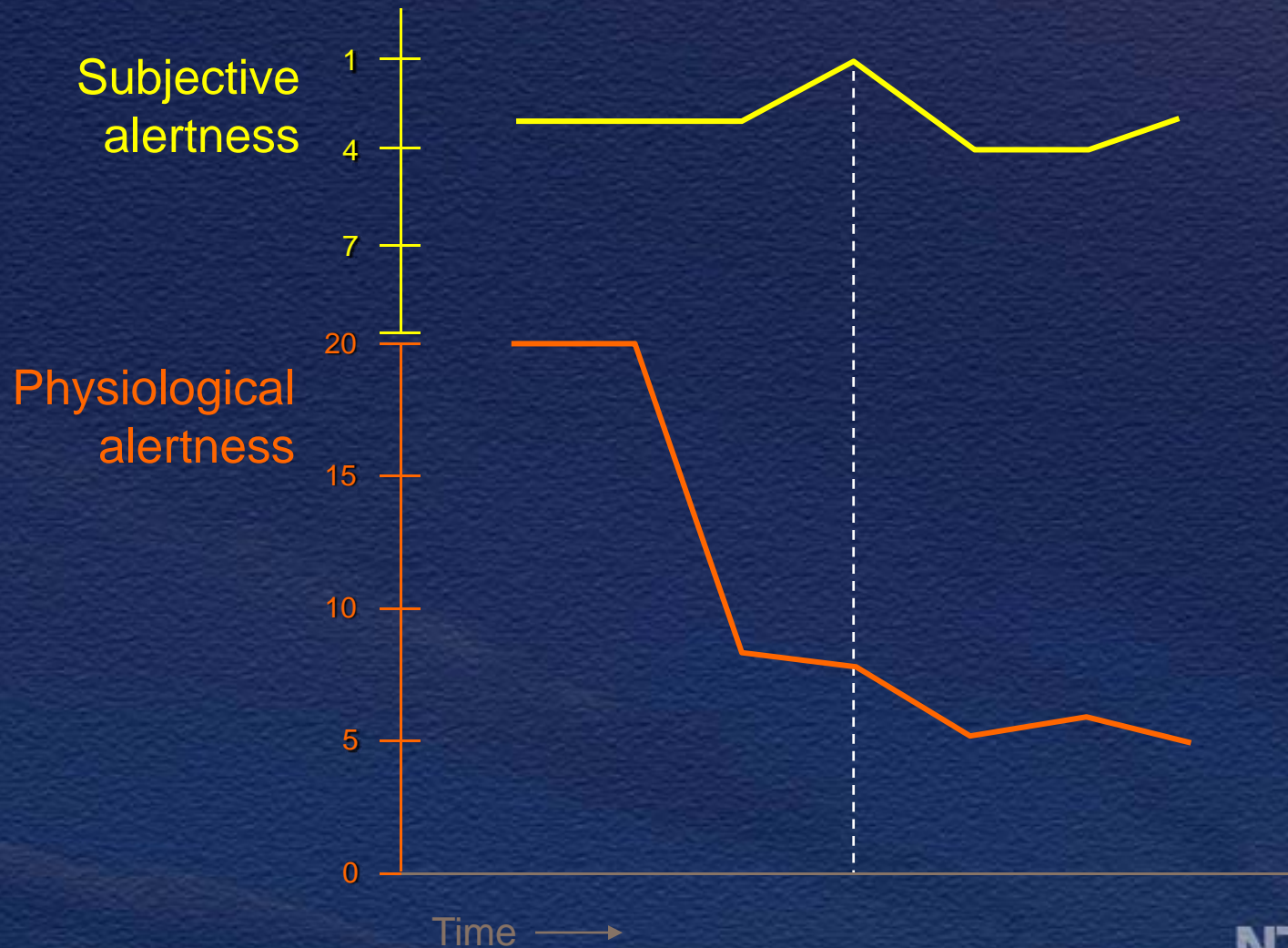
Fatigue and Reaction Times



Doran SM, Van Dongen HP, Dinges DF. Sustained attention performance during sleep deprivation: evidence of state instability. *Archives of Italian Biology: Neuroscience* 2001;139:253-267.



Alertness Reports Often Inaccurate



Adapted from Sasaki et al., 1986

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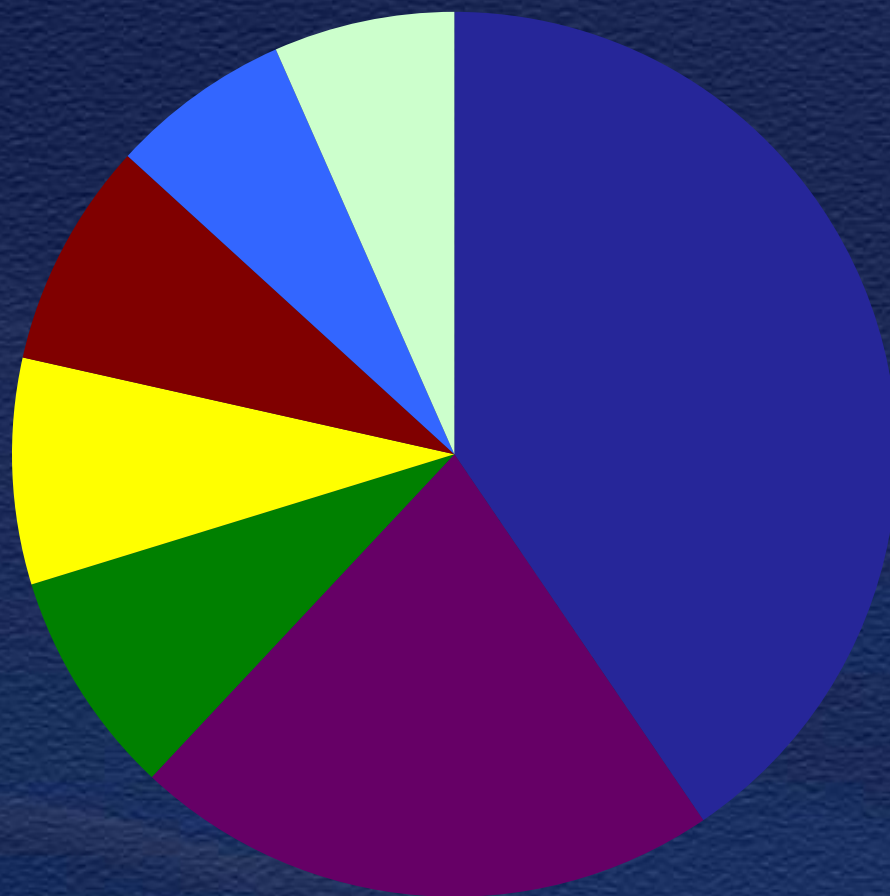
Point #2

Strategies
are effective.

NTSB Fatigue Recommendations

- MOST WANTED since 1990
- 190+ fatigue recommendations

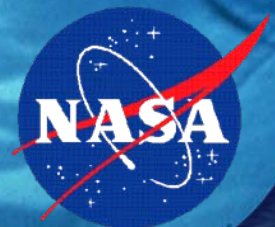
Complex Issue: Requires Multiple Solutions



- Scheduling Policies and Practices
- Education
- Organizational Strategies
- Raising Awareness
- Healthy Sleep
- Vehicle and Environmental Strategies
- Research and Evaluation

Education/Strategies

- Develop a fatigue education and countermeasures training program
- Educate operators and schedulers
- Include information on use of strategies: naps, caffeine, etc.
- Review and update materials



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Fatigue Management Systems

- Develop guidance based on empirical and scientific evidence for operators to establish fatigue management systems
- Develop and use a methodology that will continually assess the effectiveness of fatigue management systems

Point #3

The culture
is changing.

Success requires . . .

A culture change that supports
different attitudes and behaviors

Culture is Changing . . .

- ACOEM focus/activities/tools
- New/proposed HOS regs/guidelines
- Sleep apnea Dx/Rx projects
- Visibility: media/meetings
- Fatigue Management Programs
- Fatigue safety risks acknowledged

The Opportunity . . .

- Don't underestimate fatigue risks
- Implement effective strategies
- Embrace/facilitate culture change



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