



NTSB National Transportation Safety Board

Office of Aviation Safety



New Mexico State Police Photo

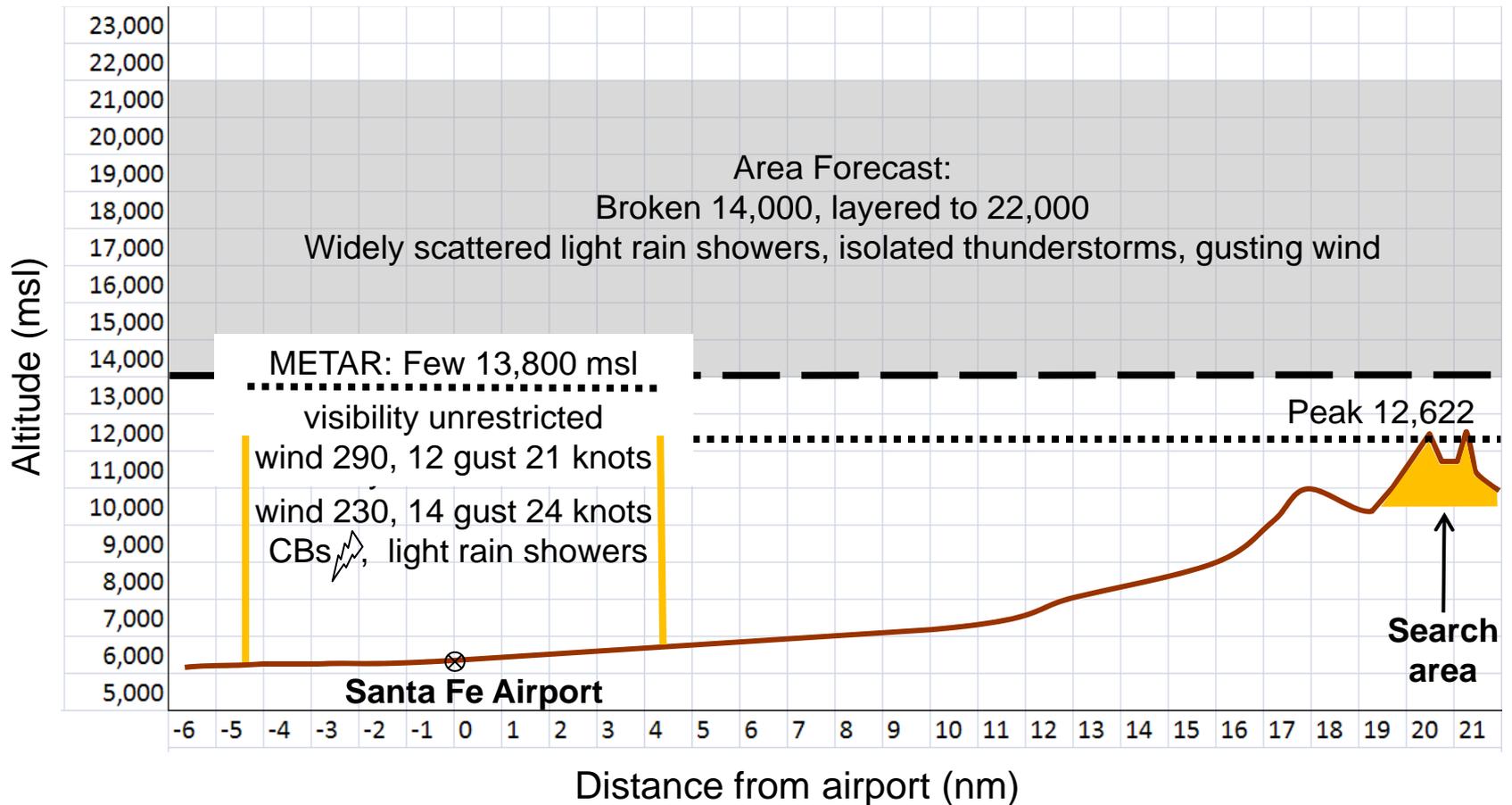
Agusta A-109E
Santa Fe, New Mexico
William Bramble, Ph.D.
Human Performance

Decision to Launch

- Weather information
- Pilot “checked the wind”
- Specific products unknown
- METAR and TAF typically checked

Decision to Launch

Pre-launch weather information



Decision to Launch

- Risk factors
 - High altitude
 - Mountainous terrain
 - < 2 hours of daylight
- Precautions (not taken)
 - Warm clothing
 - Night vision goggles

Decision to Take Off From the Mountain

- Conditions
 - Darkness
 - Low ceiling
 - Mixed precipitation
 - High wind
 - Surrounding terrain

Decision to Take Off From the Mountain

- Factors affecting pilot decision-making
 - Fatigue
 - Self-induced pressure
 - Situational stress

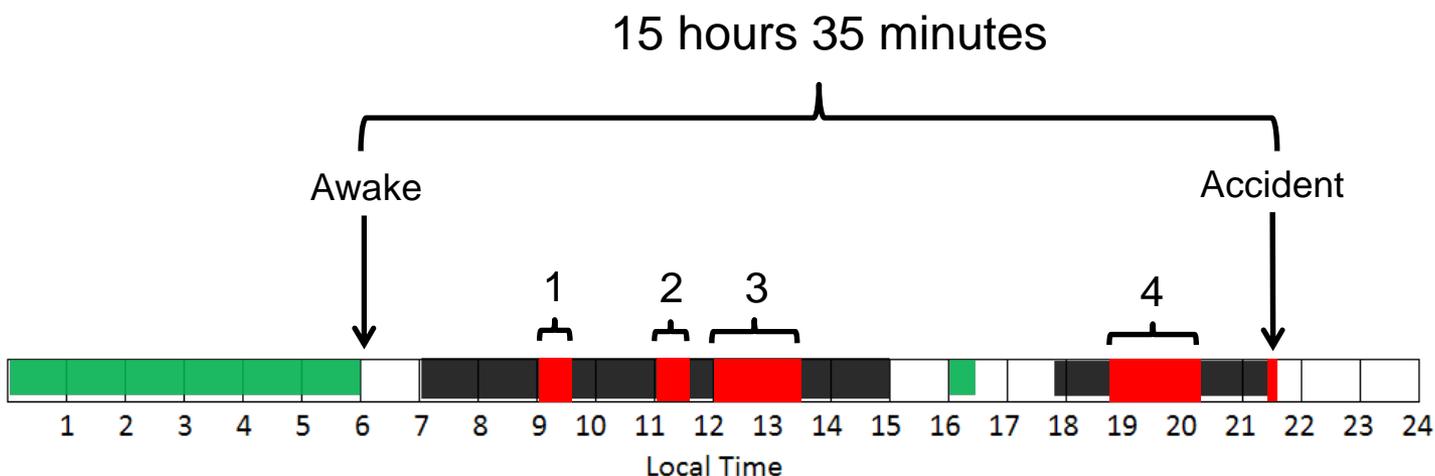
Fatigue

- Pilot's typical sleep pattern
 - 8 to 8½ hours at night
 - 30-minute afternoon nap
- Sleep opportunities – last 48 hours
 - 2 to 4 hours Sunday night
 - 8 to 8½ hours Monday night
 - Customary naps
- Accident occurred Tuesday evening

Fatigue

- Sleep opportunity
- Work activity
- Flights

- Hours worked: 11 hours 41 minutes
- Time in the air: 5 hours 22 minutes
- Prior flights: 4



Fatigue

- No fatigue risk management program
- No protected rest periods
- Insufficient staffing
- No requirement for protected rest in ALEA standards

Pilot's Aeronautical Decision Making

- Colleagues' assessments varied
 - Careful and methodical
 - Highly mission-focused
 - Risk tolerant
 - Sometimes impulsive

Situational Stress

- Deteriorating weather conditions caused increased stress
 - Concern about weather
 - Concern about being stranded

Coordination with SAR

- Pilot did not communicate with SAR
- SAR willing to assist
- SAR ground teams available
- Coordination could have improved pilot decision-making

Organizational Culture

- DPS Cabinet Secretary
 - Did not take responsibility for safety performance
 - Did not ensure effective safety programs
 - Actions detrimental to safety
 - Not involved in accident mission

Pilot Training

- Fixed-wing instrument rating
- No helicopter instrument rating
- No helicopter inadvertent IMC training
- Helicopter inadvertent IMC training could improve safety



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