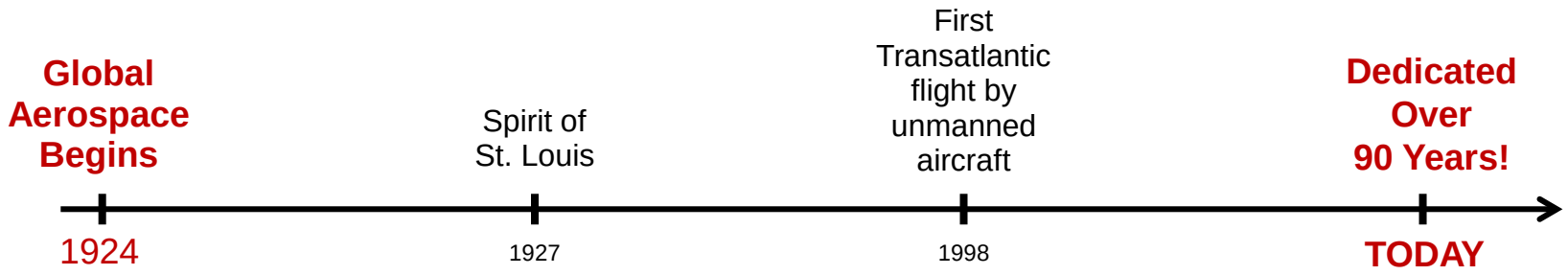
GLOBAL AEROSPACE

Service, Security, Solutions | Since 1924

Insurance and Risk Management Considerations for UAS

RPAS Symposium, Montreal

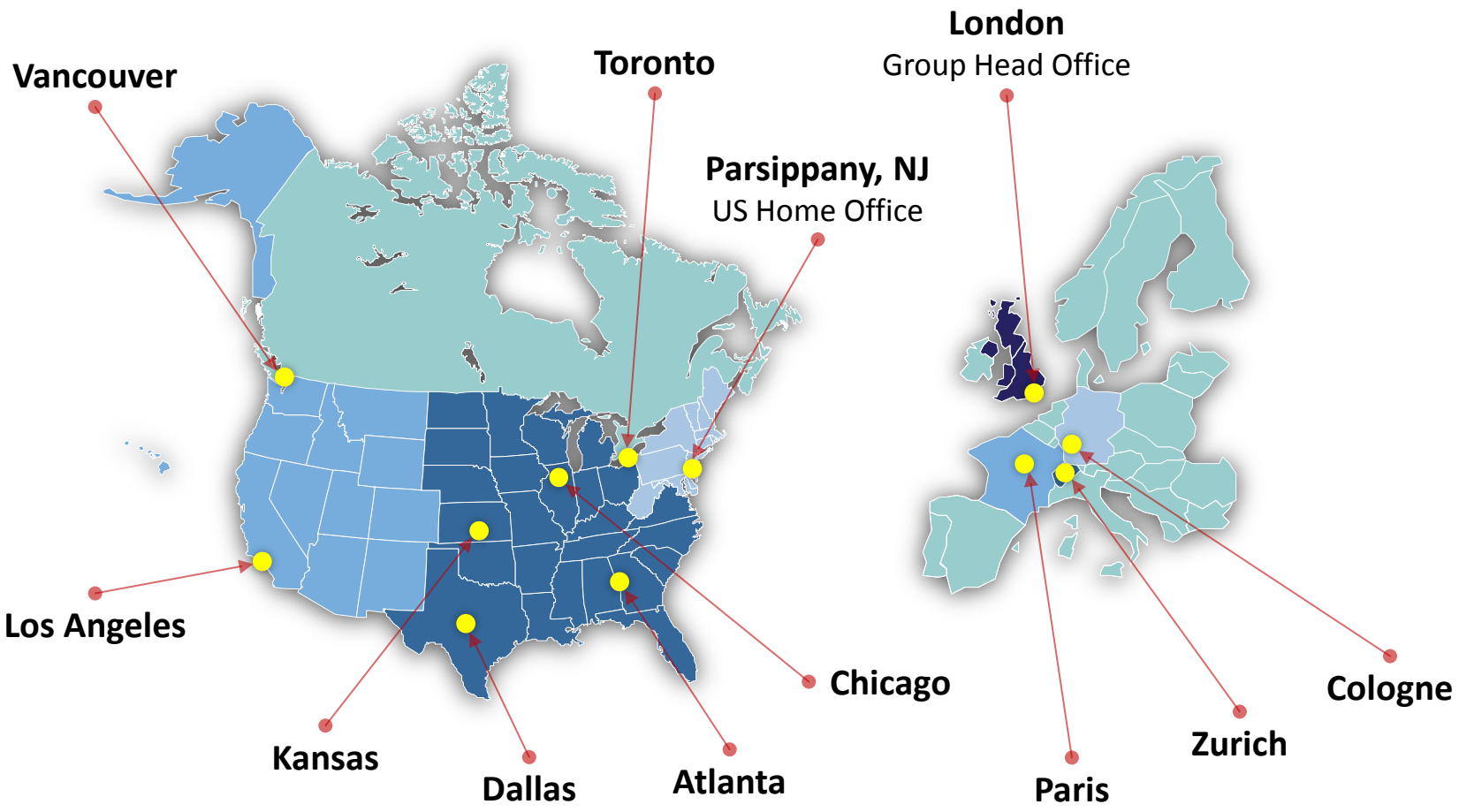


March | 2015

Chris Proudlove

- 25 years in Aviation Insurance
- Global Aerospace since 2005
- USA since 2011
- Leading Global Aerospace's UAS team

Global Aerospace | Our Network



Global Aerospace | Market Leadership

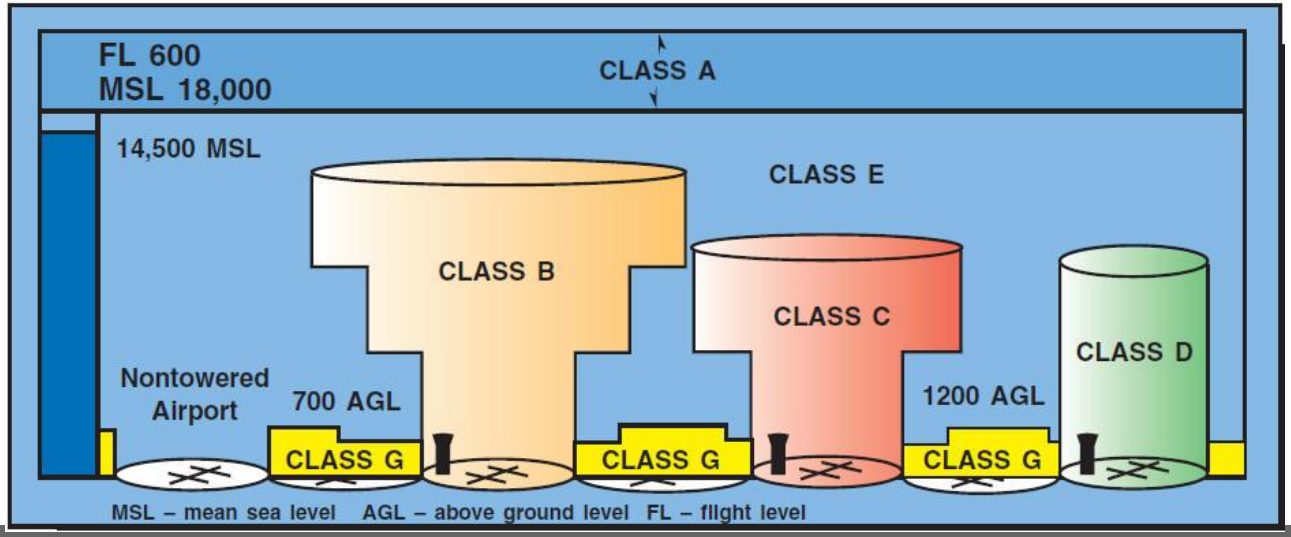
- Global Aerospace leads over 20% of the world's airlines
- Global Aerospace leads 50% of the world's aerospace manufacturers
- 30,000 General Aviation aircraft insured worldwide

Proudly representing:

- Global Aerospace
- Board member of UVS International
  - Led study group on Responsibility, Liability and Insurance
- Int'l Union of Aerospace Insurers

Regulation

- Distinguish between VLOS/BLOS, segregated, non-segregated
- Be Proportionate to the risk
- International in scope



Different risk profile?

Risk Management

- Operator Training mandated, standardized and certified
- Operators should be registered

Risk Management continued..

- Safety Management
  - SOP/ERP
  - Log books
  - Maintenance / inspections

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Circle the description that closest resembles your situation, then follow instructions at the bottom of the page			
Factor	Low Risk	Moderate Risk	High Risk
People			
Illness	Clean bill of health, no signs of illness	Common cold, under the weather, allergies, coughing	Very sick, eyes watering, flu-like symptoms, loss of balance, feeling spacey
Alcohol, drugs, or medication use	No alcohol, prescription drugs in the past 12 hours, free from all effects	Feeling dizzy or have a headache, sluggish and/or tired	Feeling the effects of drugs or alcohol, visibly hung-over, have consumed alcohol or drugs in the past 12 hours
Outside physiological stressors	No outside pressure	Significant other is pregnant (less than 7 months), having problems with significant other, and/or work stress is high	Significant other is greater than 7 months pregnant, just had a fight with significant other or coworker, just received bad news
Proper rest	Eight hours of uninterrupted sleep, well rested and energetic	Less than seven hours of uninterrupted sleep, showing physical signs of fatigue like yawning	Little to no sleep, showing physical signs of exhaustion, nodding off or having trouble keeping eyes open
Currency and proficiency	Above 100 FC*. Flown in the last 30 days, familiar with operation type	Less than 100 FC*. Flown in the last 60 days but not in the last 30 days, training flight or low proficiency at operation type	Less than 25 FC* , or flying alone without a flight in the last 61-90 days, unfamiliar with operation
Operational			
Mode of communications	Use voice (if less than 100 meters) or dedicated intercom system for crew to crew, Use an aviation radio for crew to ATC or Aircraft	Use voice (if greater than 100 meters but less than 500 meters) or hand held	Use voice (if over than 500 meters) or cell phones for crew to crew, No way of
Planning Time	Complete site survey, and more than two hours of planning and preflight time		lanning and preflight time
Scale and complexity	1 take off and recovery, single air vehicle		veral air vehicles without a gement plan
Mission duration	Under 2 hours		
System automation	Fully autonomous (autopilot control all aspects of flight)		n 200 FC*) or switching modes
Ground operations	Improved surface and area has been cleared of foreign object debris and obstacles (100x aircraft width)		h are recovery site, site cleared or less
Launch and Recovery	No additional launch or recovery equipment required	Systems requires a launcher, is hand tossed, or needs a recovery area	Launch and or recovery off of a structure or vehicle (needs contingency plan)
Navigation	Auto generated waypoints, overflight of land only, or launch and GPS hold only	Mixed method, overflight or property and/or water, transition <5 min	Manual waypoint entry, overflight of people or roads, transition >5 min
Mission delay complexity	Simple and familiar with operation	Complex operation but familiar, or not familiar but simple operation	
System			
Lost data link	Dedicated frequency outside of ISM band, data link security, no detected interference, and no observed lost link events during previous flights in the operating area	Shared frequency, ISM band, or self-selecting frequency, detect interference in data link band; or new to the operating area and unable to scan frequency	
Maintenance and status	Aircraft is mission ready with no new critical components	Aircraft has critical components with less than two hours of flight time or within two hours of Time Between Overhaul (TBO), MTBF, or replacement	
Environment			
Terrain and obstacles	Flat terrain, clear of obstacles, towers, structures and or spectators	Moderate terrain or few buildings or towers that must be avoided, areas adjacent to the flight area have obstacles or property that could be damaged, may have onlookers, but contained to a specified area out of harm's way	
Launch elevation	Low elevation (sea level to 1000'). No noticeable [illegible] performance or difference in [illegible] consumption	Medium elevation (1001' to 3999'), and/or suspect UAS performance may be degraded	
Ceiling and visibility	Visibility greater than five miles and clear skies, UAS has aircraft lighting and brightly colored panels visible at one mile	Visibility greater than one mile but less than 5 miles low clouds (1000'), UAS is visible at half of a mile	
Winds	Winds are well within the manufacturer recommended limits, less than 10 knots for systems without published limits	Forecast wind near or out of manufacturer recommended limits, observed/measured winds at site are within limits but variable (wind gusts)	
Temperature	Able to keep crew and equipment between 51 and 79 degrees F, have environmental conditioning available or in-use	Less than 50 degrees or greater than 80 degrees F without environmental conditioning equipment	
Airspace	Class G, below 400', greater than 10 miles from the closest airport. If in special use airspace - familiar with special instructions	Glass G, below 400', 5 to 10 miles from a public or private airfield, in the proximity of non-traditional aircraft activity (ultralights, balloons, aerial spray aircraft), first time in special use airspace	
*FC= Flight Cycles	If all or almost all items are in this column the risk score is low, proceed as planned	4 or more in this column represents an overall risk of moderate; you may need to change the plan; formulate a strategy to reduce the risk or accept and proceed with caution	Any in this column represents a high risk! You must change the plan! Do not proceed unless you have developed contingencies and risk mitigation plans to reduce or control the risk

Launch and Recovery

Navigation

Launch elevation

Ceiling and visibility

Winds

UNMANNED SAFETY INSTITUTE™

Registration

- UAS registration and identification
- Accident and operational data

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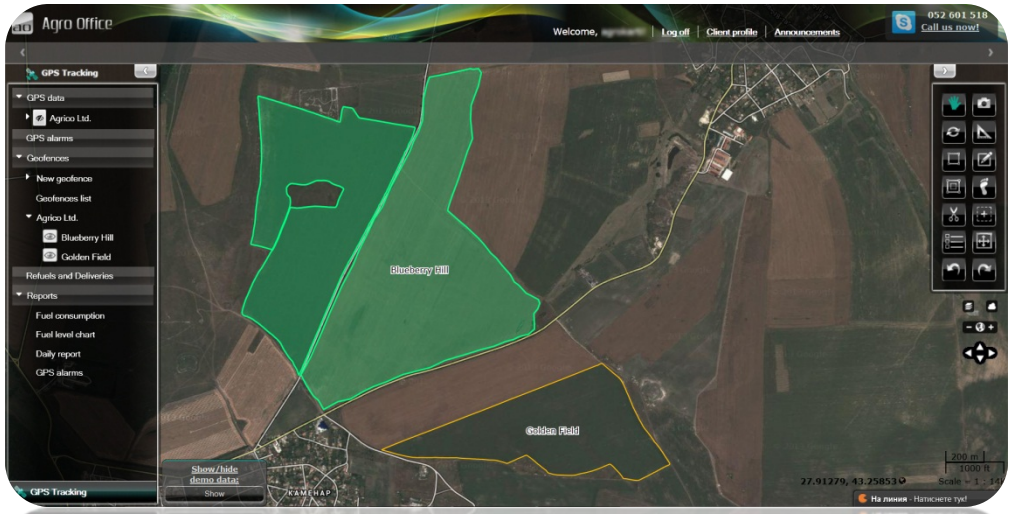
Manufacturers

- Generate Manuals
- Stand-by their products
- Safety oriented design
  - *Return to home*
  - *Geo-fencing*



Role of insurers

- Support and assist with safe integration
- Provide professional products
- Help draft regulation

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Thank You

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