

SAFE USE OF DRONES AT INDUSTRIAL SITES

TODD BURNES

MAP TECH INC.

MAPTECH.CA

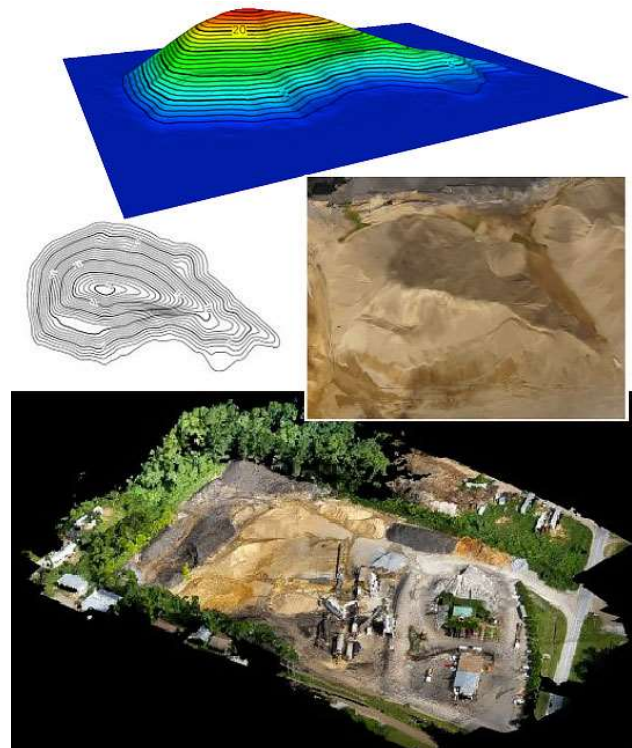
What are drones used for?



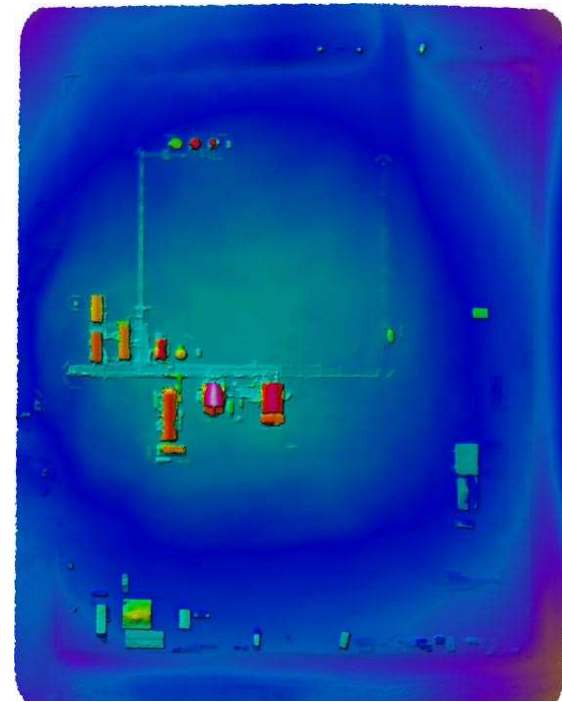
Applications - Surveying



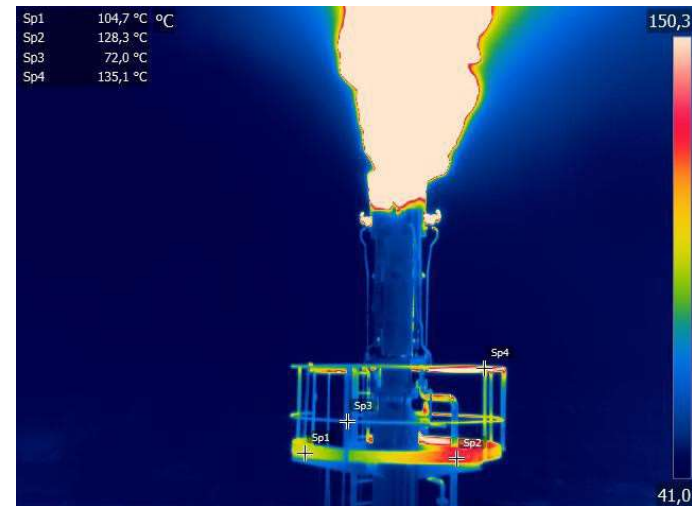
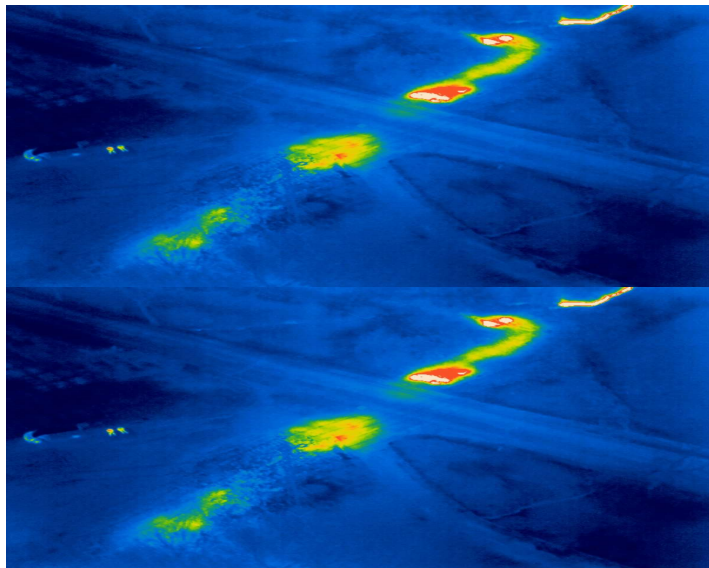
Applications – 3D Modelling



Applications – Digital Elevation Models



Applications – Thermal Imaging



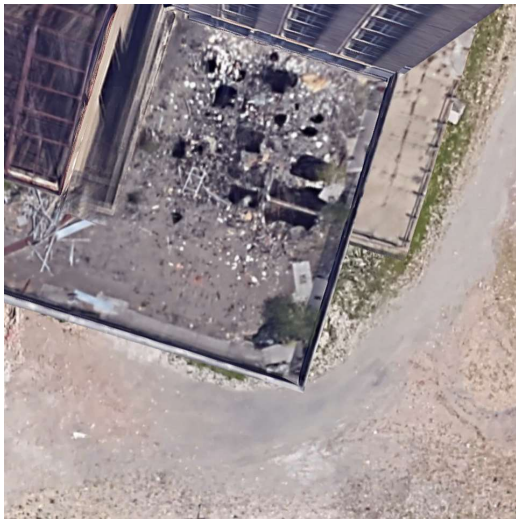
Applications – Surveillance & Monitoring



Applications – Inspection



Applications – Orthophotos



Google Maps



Bing Maps



Ortho by Drone

Applications – Orthophotos



Google Maps



Bing Maps



Ortho by Drone

Applications – Orthophotos



Google Maps



Bing Maps



Ortho by Drone

Ensure safe drone operations by following the rules!



Transport
Canada



Special Flight Operations Certificate (SFOC)

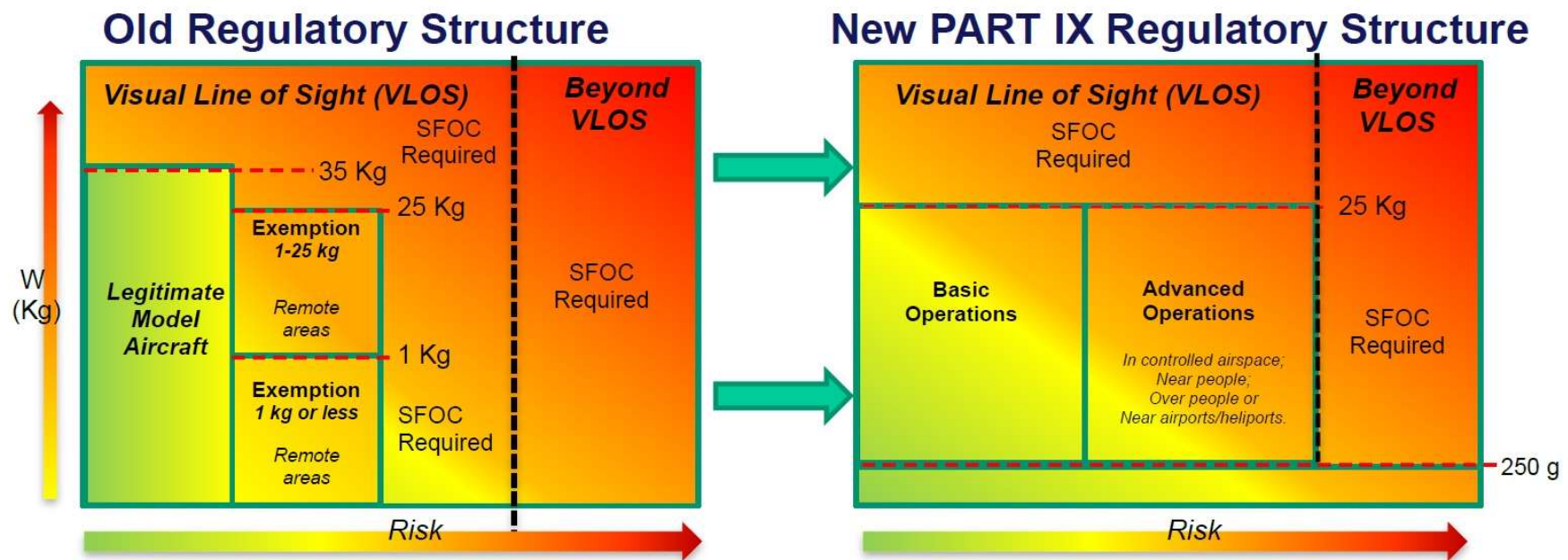
A Special Flight Operations Certificate tells you how and where you may fly your drone, legally.

Criteria

- Operations in class A, B, C, D, E, F and G airspace
- Maximum altitude of 300' AGL (Above Ground level)
- At least 100' lateral distance from persons not associated with the operation
- More than 5.6km from the center of an aerodrome – there are exceptions to this
- More than 1.9km from heliports
- Fly within visual line of site – currently 500m
- Visual observer is mandatory
- Minimum pilot age is 18
- Completion of mandatory ground school
- Minimum \$100,000 UAV liability insurance requirement
- ROC-A license might be required
- Exemptions from acquiring an SFOC are available!



New rules June 1, 2019



Pilot Certificate – Basic Operations

Fly in uncontrolled airspace only (Class G)

Fly more than 30m horizontally from bystanders

Never fly over bystanders

Drone must be registered with Transport Canada

Pilot must pass the basic exam

- Online, 35 questions, 90 minutes, passing grade of 65%

Have Pilot Certificate – Basic Operations and proof of registration when you fly

No requirement for insurance but strongly recommended

Pilot minimum age is 14

Pilot Certificate – Advanced Operations

Fly in controlled airspace

Fly within 30m of bystanders (measured horizontally)

Fly over bystanders

Drone must be registered with Transport Canada

Pilot must pass the Advanced exam

- Online, 50 questions, 60 minutes, passing grade of 80%

Pilot must pass a flight review with a flight reviewer

Have Pilot Certificate – Advanced Operations and proof of registration when you fly

Drone must meet the Transport Canada RPAS Safety Assurance Requirement

Pilot minimum age is 16

No requirement for insurance but strongly recommended

Canadian Airspace

Class A – 18,000' – 60,000'

Class B – 12,500' – 18,000'

Class C – Surface to 12,500' above large airport

- ATC clearance required

Class D – Surface to 3000'

- control zone for smaller airports and aerodromes
- Contact ATC for entry

Class E – Aerodromes with very little traffic

- ATC available but not required

Class F – Special use airspace

- Designated CYR, CYD, or CYA
- A – aerobatics, F – aircraft testing, H – hang gliding,
- M – military, P – parachuting, S – soaring, T – training
- Aircraft needs the permission of the operating authority

Class G – Airspace that is not designated

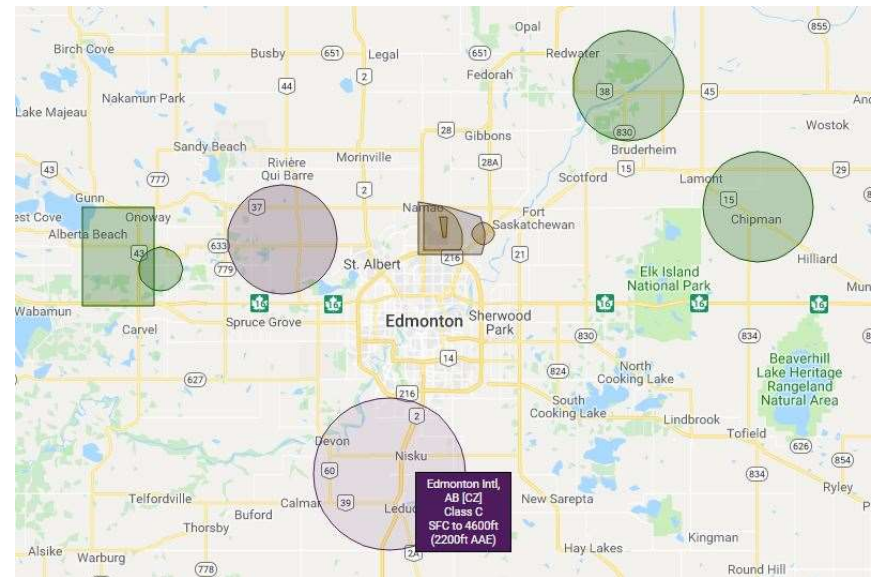
- ATC available but not required
- This airspace is uncontrolled, and ATC is not usually available (though exceptions are made)
- Any aircraft may fly in Class G airspace
- 99% of Canada

What airspace am I flying in?

CANADIAN AIRSPACE VIEWER

http://www3.telus.net/cschwab/viewer/canadian_airspace.html

Does not identify heliports and smaller aerodromes



What airspace am I flying in?

NAV CANADA

Detailed paper airspace maps and charts can be purchased online



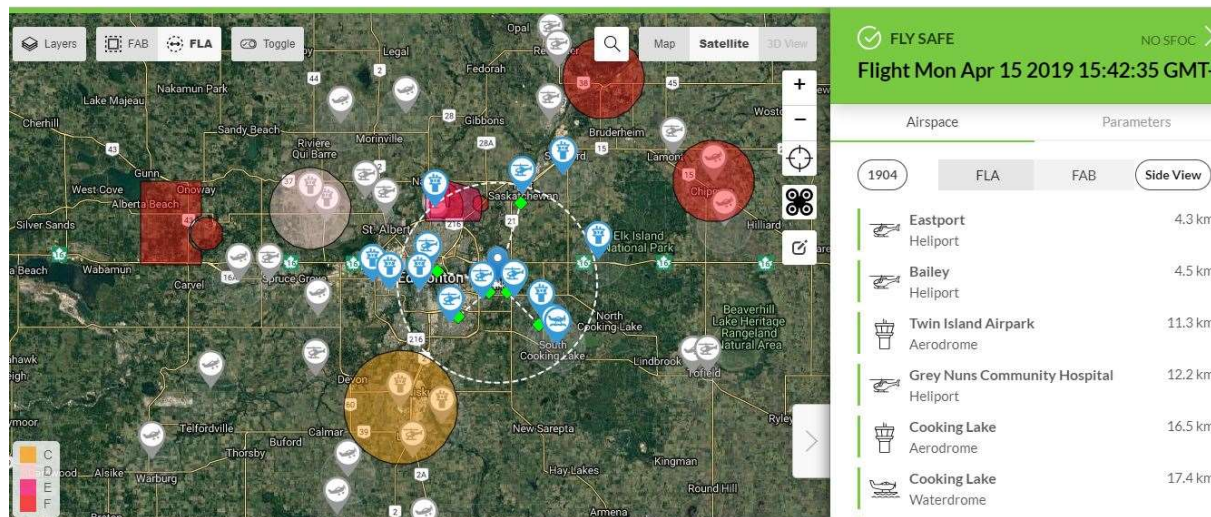
What airspace am I flying in?

AIR MARKET

Specific to drone flights

Provides airspace information including distances to nearby aerodromes and heliports

FLYSAFE Basic subscription is free



Next Steps

- ✓ Don't settle for the cheapest option!
 - ✓ If becoming a certified drone pilot ensure you attend a certified ground school
 - ✓ Challenge the Transport Canada Advanced exam
 - ✓ Complete the Flight Review
 - ✓ Purchase UAV liability insurance
 - ✓ Company operations manual
 - ✓ You can never have too many batteries!
 - ✓ If unsure about anything, ask questions
- 

Questions?

Contact Information

- Todd Burness
- 403-470-4091
- todd@maptech.ca
- <http://maptech.ca/>

Map Tech:

- UAV Services
 - Surveys and Data Collection
 - Courses & Training
 - Consulting
 - Operations Manuals, SOPs and Logs
- GIS Mapping
- Public Awareness Programs for ERP

