

Unmanned Aerial Systems (UAS), and how they fit within the Geospatial Technological Revolution

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Hill 881S

Hill 881N

61

Landing Zone

Hill

Research Background (How I got into UAS)

UAS Future Potential

Wisconsin Economic Impact						
Year	Direct Employment	Total Employment Impact	Total Direct Spending (\$M)	Total Economic Impact (\$M)	Total State Taxes (\$K)	Percent Change Over Previous Year
2015	77	150	\$7.83	\$14.59	\$159.52	
2016	154	300	\$15.66	\$29.19	\$319.05	100%
2017	232	450	\$23.49	\$43.78	\$478.57	50%
2018	243	473	\$24.66	\$45.97	\$502.50	5%
2019	255	497	\$25.89	\$48.27	\$527.62	5%
2020	268	521	\$27.19	\$50.69	\$554.01	5%
2021	282	547	\$28.55	\$53.22	\$581.71	5%
2022	296	575	\$29.98	\$55.88	\$610.79	5%
2023	310	604	\$31.47	\$58.67	\$641.33	5%
2024	326	634	\$33.05	\$61.61	\$673.40	5%
2025	342	665	\$34.70	\$64.69	\$707.07	5%

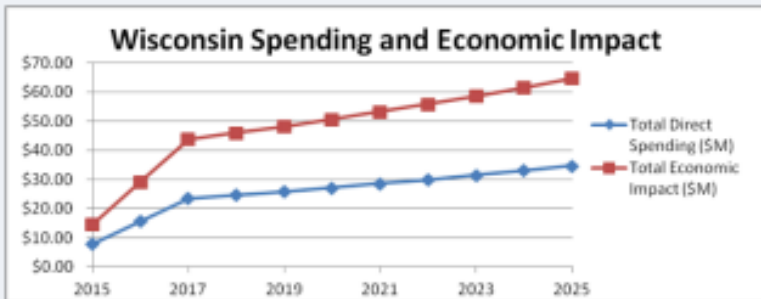
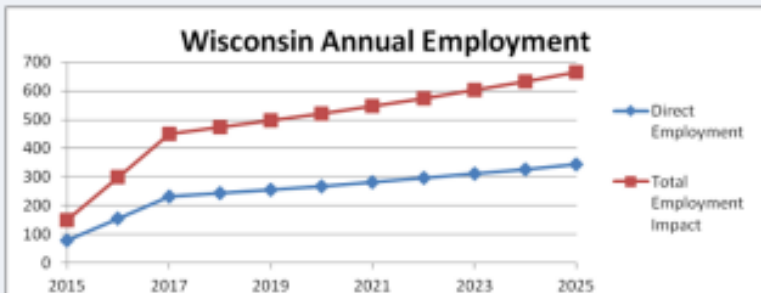
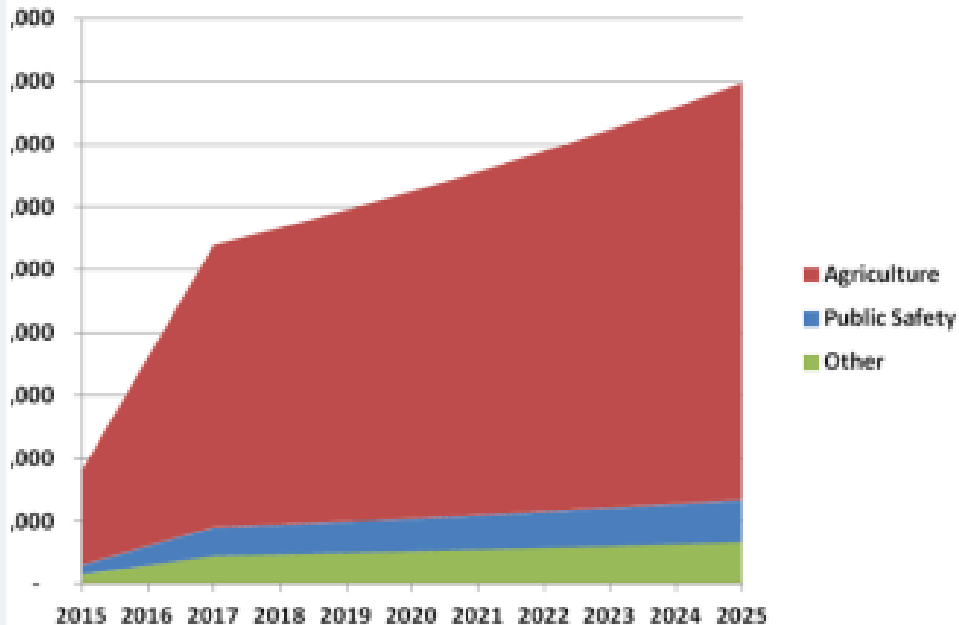


Figure 2: Annual UAS Sales for Agriculture, Public Safety, and Other Markets



614			
2,986			
320			
740			
4,380	\$2,783	\$26.86	3,517
6,746	\$7,888	\$0.00	9,967
240	\$280	\$2.83	354
450	\$527	\$5.76	665
24	\$28	\$0.00	36
70,240	\$82,124	\$482.39	103,776

Total \$13,657 \$80.22



Why UAS?

- Cheaper
- Lower
- Slower

UAS Technological Range

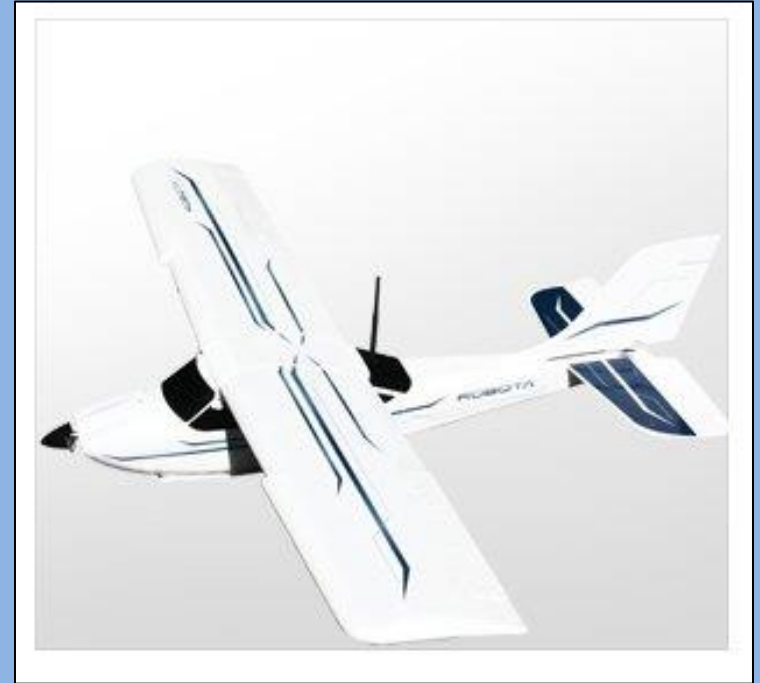


Begs question of what a UAS exactly is?

Common UAS Platforms



Rotocopter

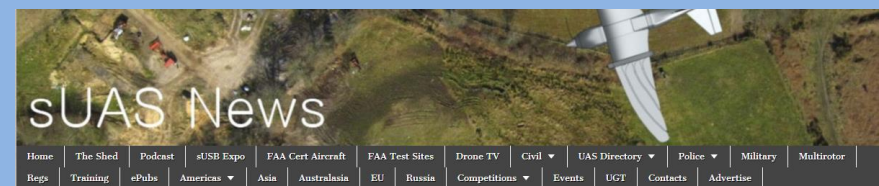


Fixed Wing

RC Vs. Drone – what is the difference?

Components of a UAS

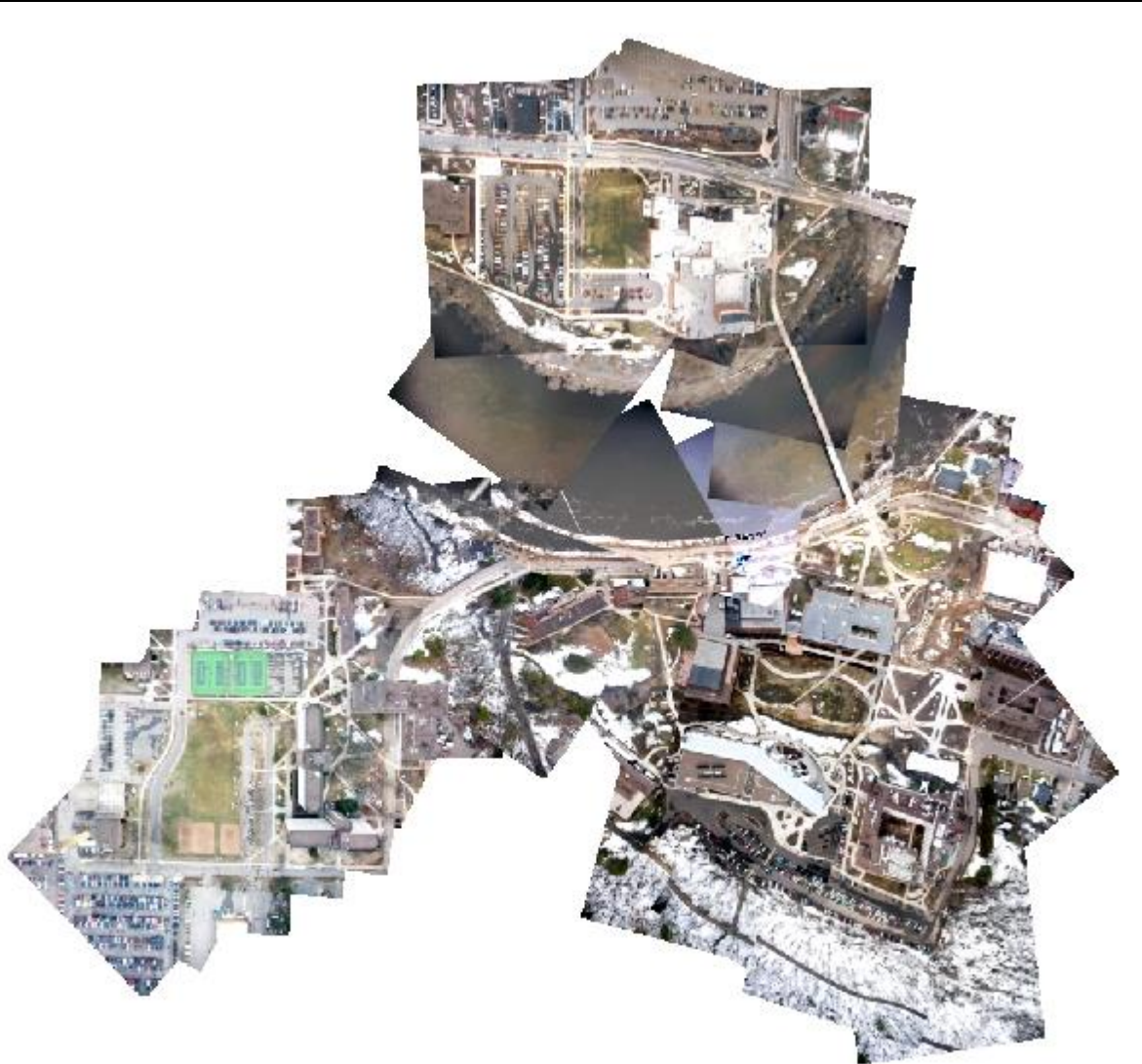
- Platform
- Sensor
- Auto Pilot Hardware
 - Autopilot 'chip'
 - GPS
- Ground Based Software
- Telemetry Set
- Radio Control Receiver
 - For manual control



Can be low tech/cost as.....



Student Generated Via Balloon Platform



Ongoing Work:

- Mosaic Software Evaluation
- Georeferencing Techniques
- Camera Platforms
- Camera Types

Commercial UAS Applications

Manned Fixed Wing Limitations:

- Fuel Costs
- Pilot Costs
- Safety Issues



Agriculture



Mining

Other Commercial UAS Applications:

Lake Associations:

- Septic Flow
- Weed Control

Forestry:

Insects
Blights
Harvest

Structural Inspection:

Buildings
Bridges
Steep Slopes

Energy:

Leak Detection
Pipeline Patrol
Power Lines
Wind Turbines

Disaster Management:

Wild land Fires
Floods
Search and Rescue

Science:

Meteorology
Climatology
Hurricane Forecasting
Seismology
Volcanology

Insurance Industry:

Auto Insurance Claims
Tornado Damage Assessment

Thank You For Your Time:

- Questions????
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