



Alaska Department of Transportation & Public Facilities

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10/20/2023

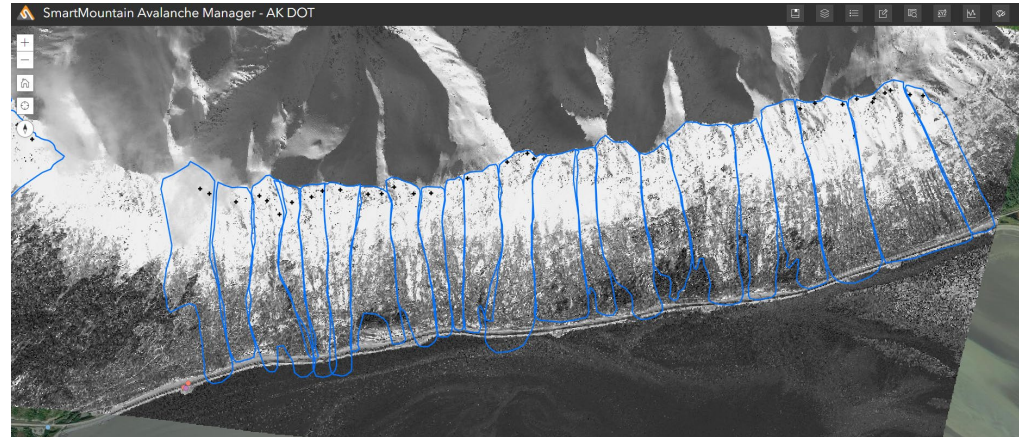
Our mission is to **Keep Alaska Moving** through service and infrastructure.

DOT&PF Avalanche Program

AS 19.05.030 “develop and implement an avalanche control plan to protect persons who use public highways”



Long Term Measures



© George Kourounis

Short Term Measures



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Current Program

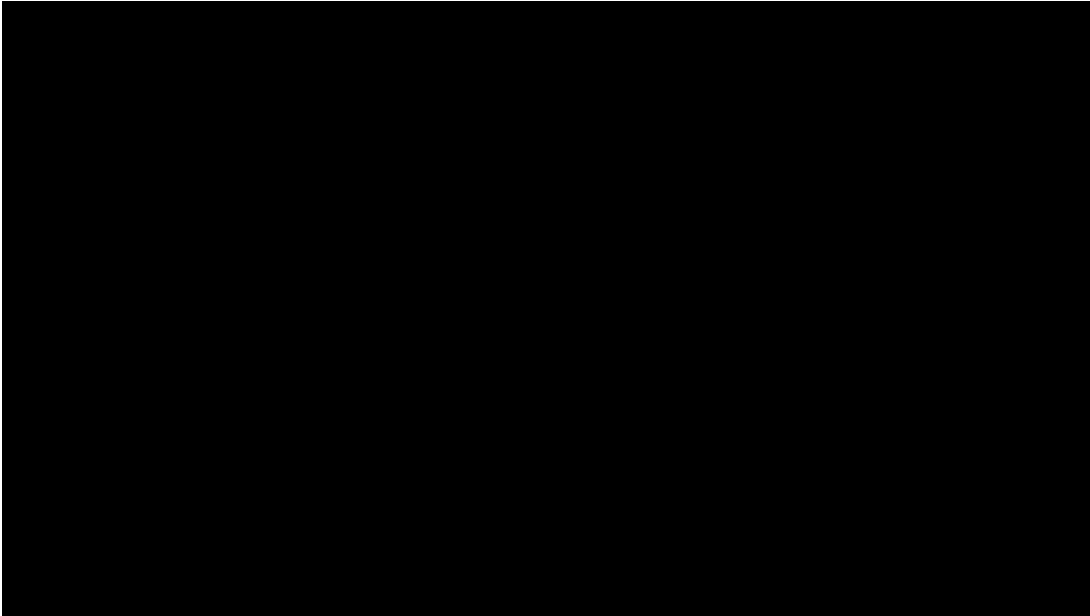
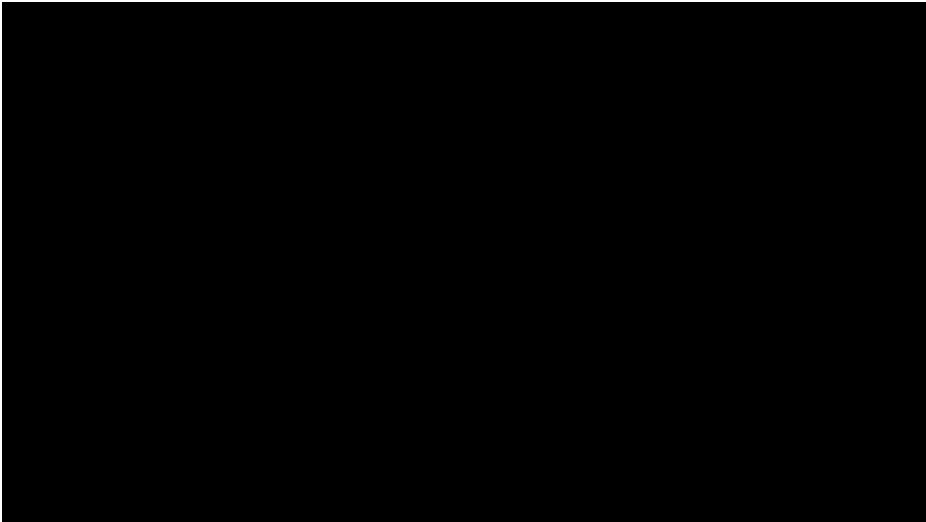


Table IV-1 Suggested reliability and closure timing ratings for select mitigation measures.

Primary Control Method	Reliability	Closure Timing
Passive - in runout zone	A	A
Passive - in start zone	A	A
Helicopter	D	E
Avalauncher	B	C
O'Bellx	B	A
Wyssen	B	A
Gazex	B	A
Avalanche Guard	B	A
Artillery	E	C
Hand / Case	B	C
Ski Cutting	B	C
Blower	A	C
Preventative Closure	A	A
No Control Needed	A	A



Current Challenges



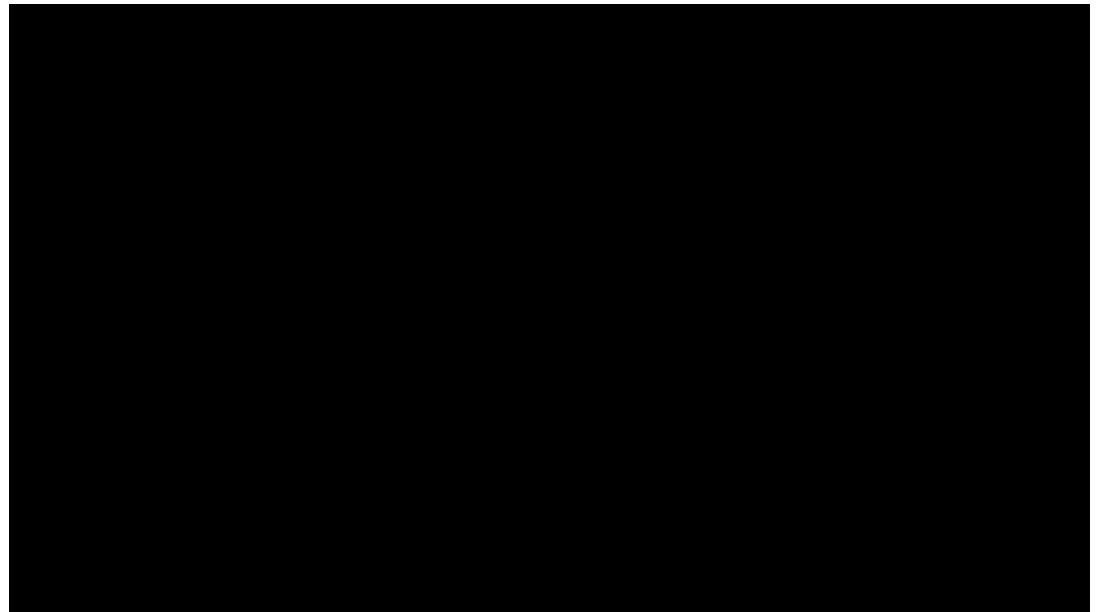
M101A1 105mm Howitzer

- Primary tool
- Old
- Lack of Support
- Crews
- Cost increase

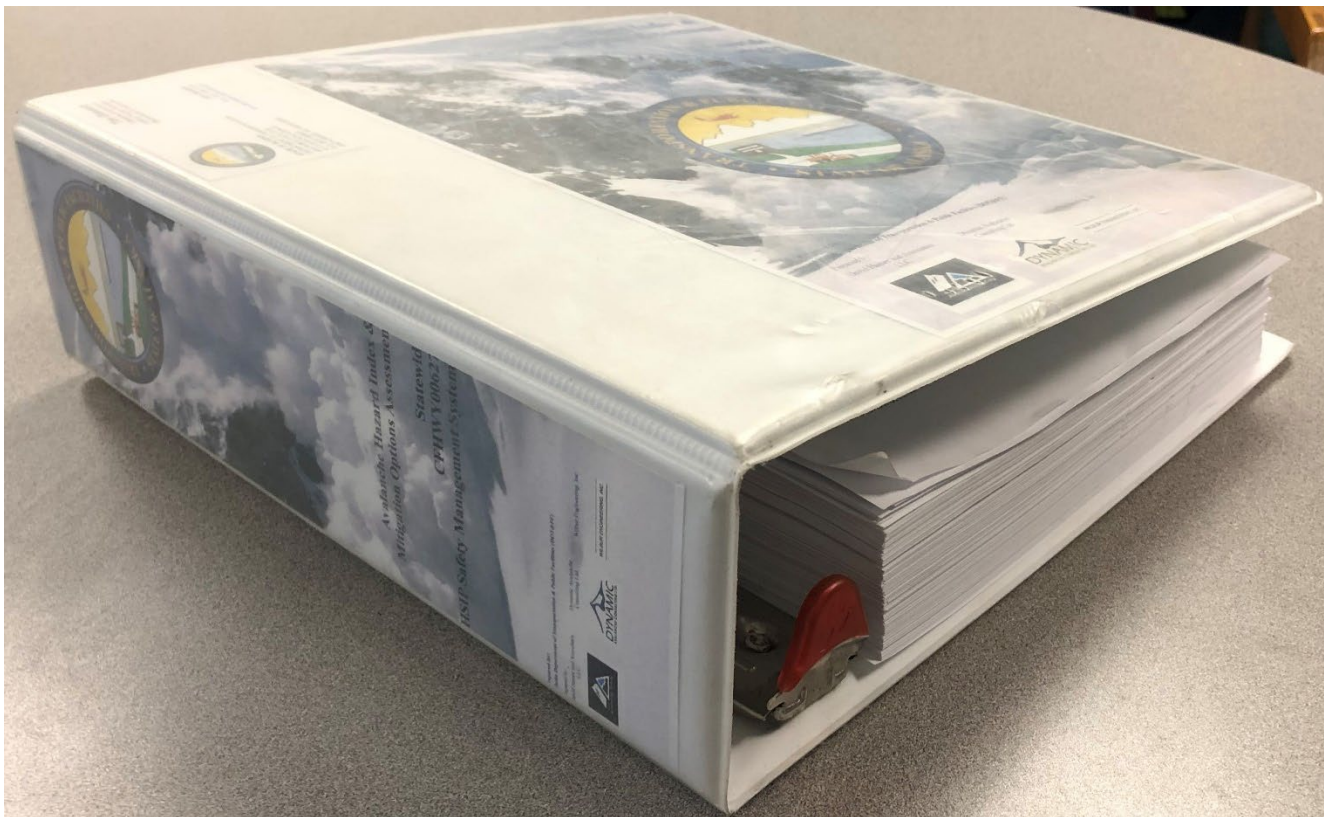
Future Solutions



Remote Avalanche
Control Systems (RACS)



Statewide Report



Statewide Rankings

Color	Rating	AHI	Mitigation Measures
Red	Very High	>150	Full-time forecasting and mitigation with explosives, permanent structures, etc.
Orange	High	40-150	Forecasting and closures, limited explosive mitigation
Yellow	Moderate	10-40	Forecasting and closures, selected sites
Blue	Low	1-10	Rare closures or no mitigation
Green	Very Low	<1	No mitigation

Table 1: AHI Hazard Levels and Typical Mitigation (after Schaerer, 1989)

AMZ #	Highway Name	AHI	CBE
12 to 16	Seward Highway	212	309
5 to 7	Thompson Pass	136	263
1	Atigun Pass	98	131
21	Klondike Hwy.	86	143
9	Hatcher Pass	61	55
22	Thane Road	29	37
20	Pasagshak	16	16
8	Copper River	11	13

Table 2: AHI and CBE Levels for Moderate and Higher AMZs

What are we doing now?

Funding

STIP – identifying where
avalanche work can be included

HSIP

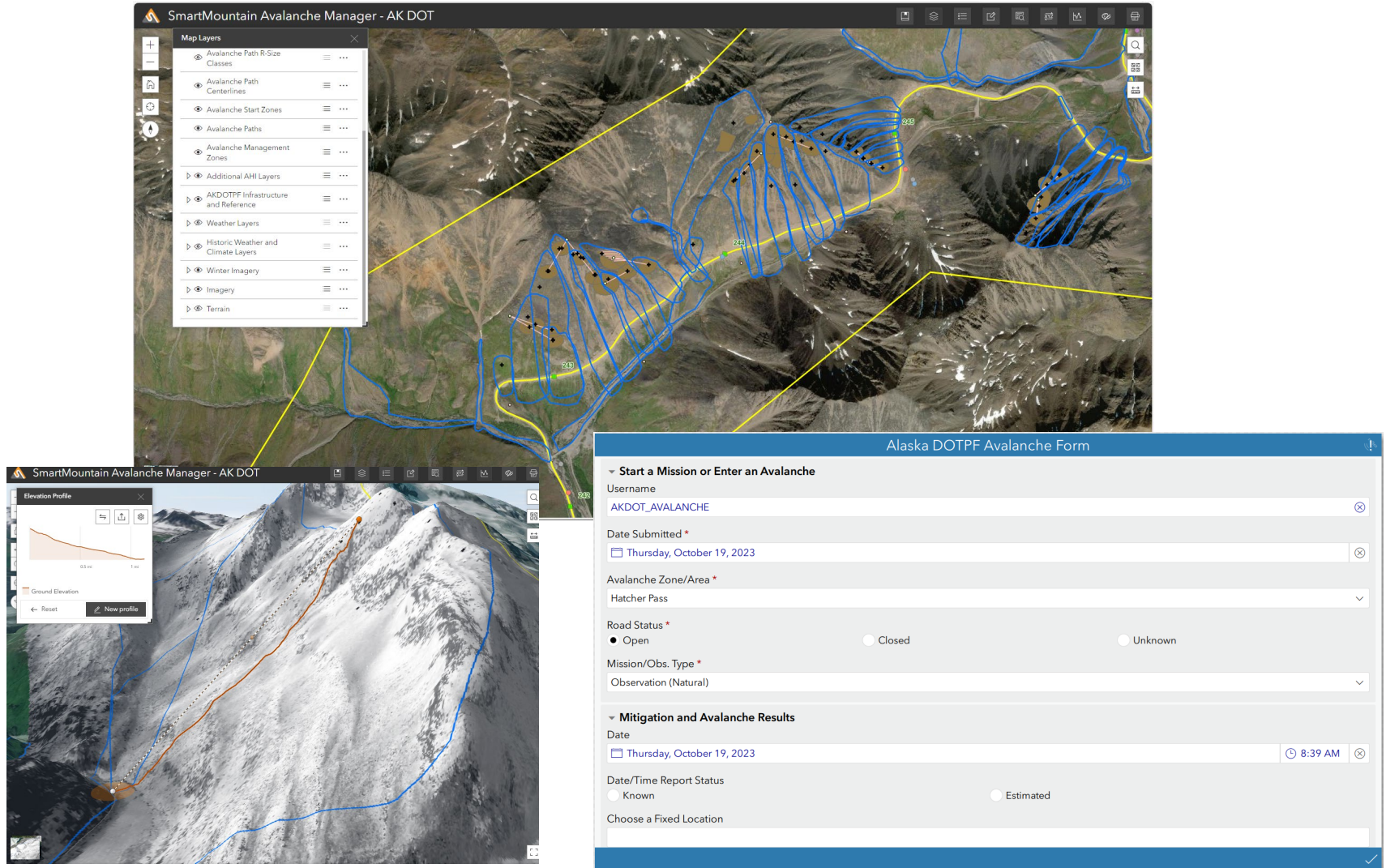
Program Oversight

Innovations



Innovations

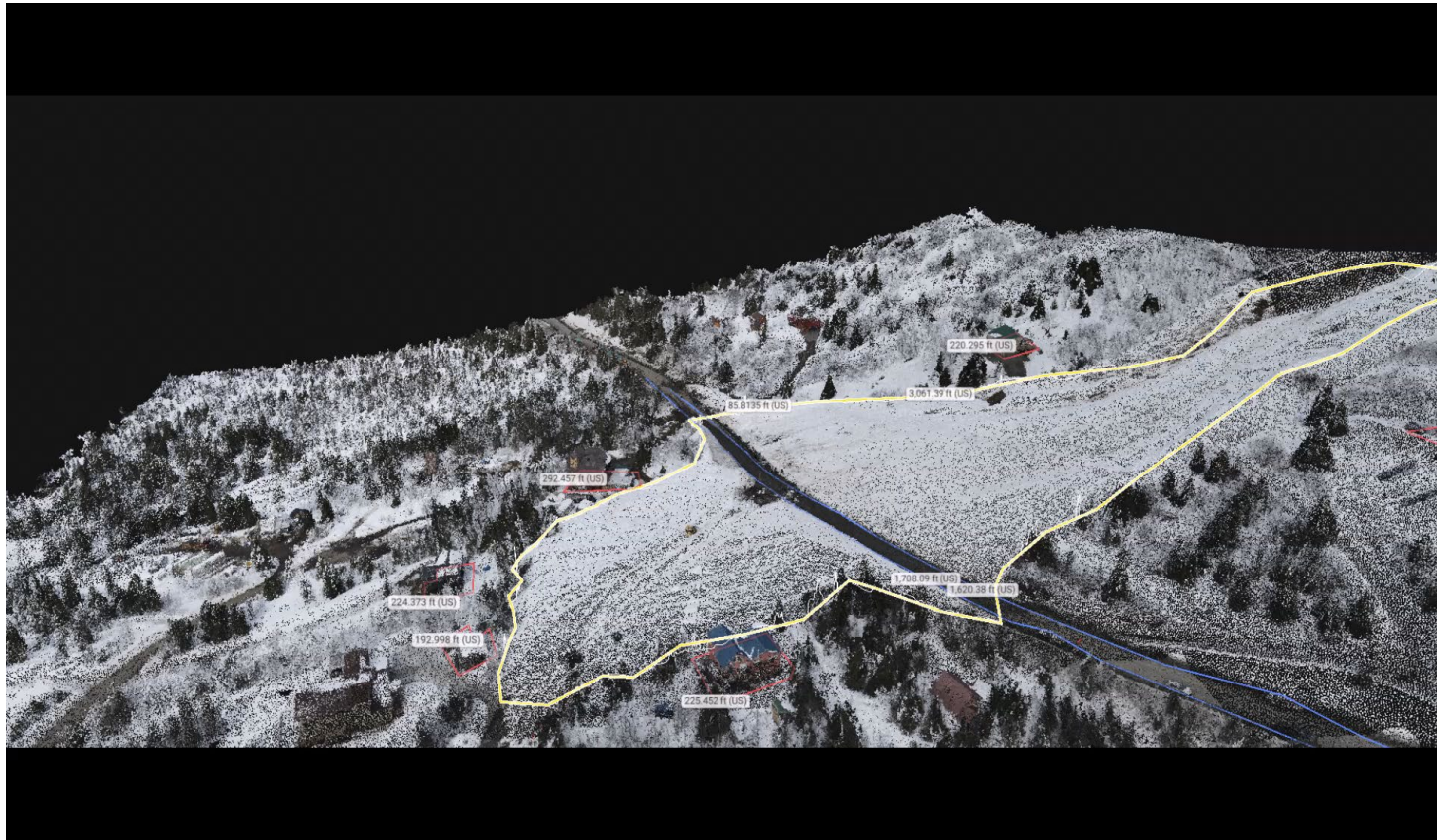
GIS Database Smart Mountain





Innovations

UAS for Avalanche Monitoring and Mitigation





(a) In General.--**Unless authorized by the FAA Administrator,** a person may not operate an unmanned aircraft or unmanned aircraft system that is equipped or armed with a dangerous weapon. — Sec 363, 2018 FAA Reauthorization

ALASKA
RAILROAD



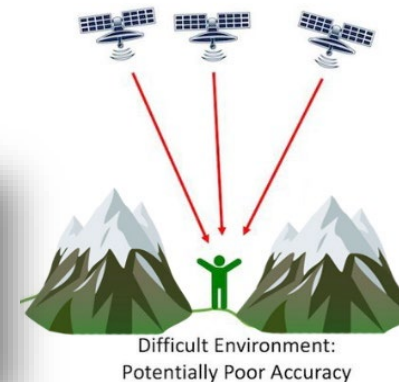
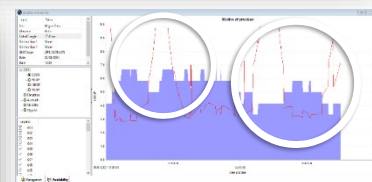
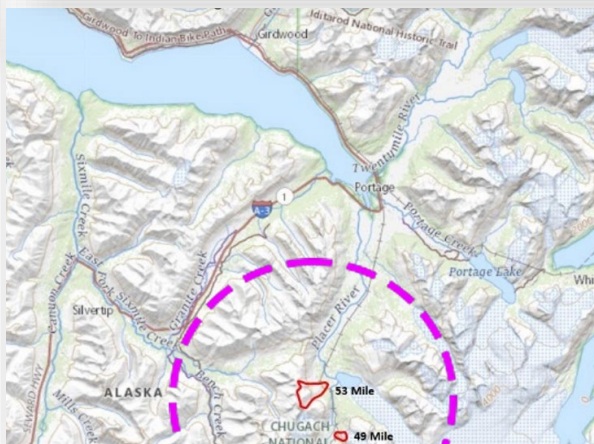
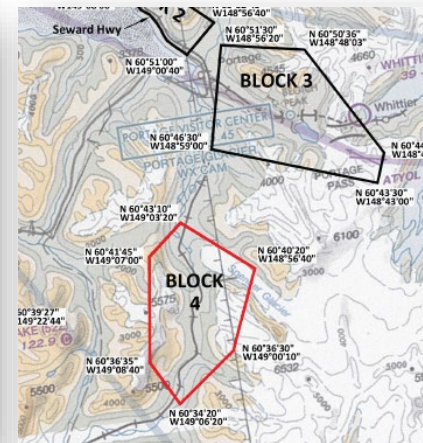
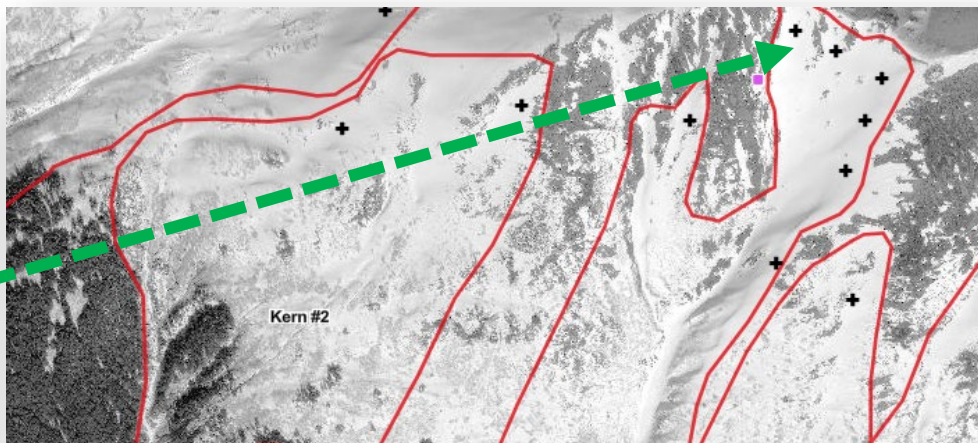
BEYOND



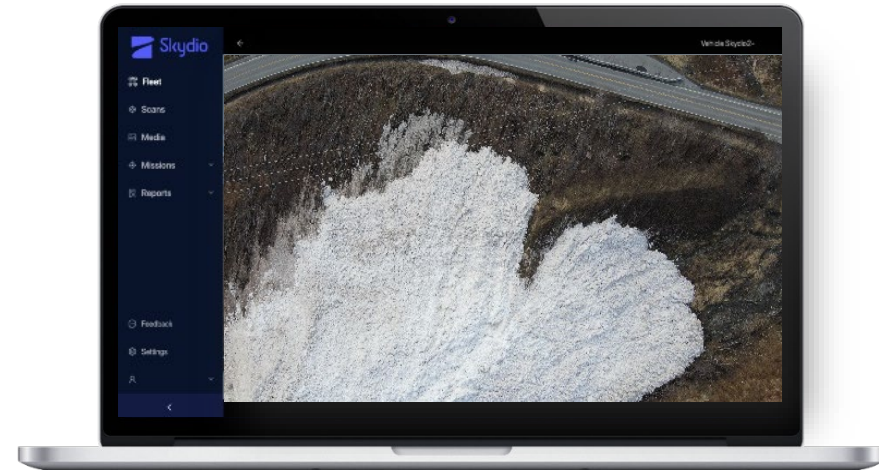
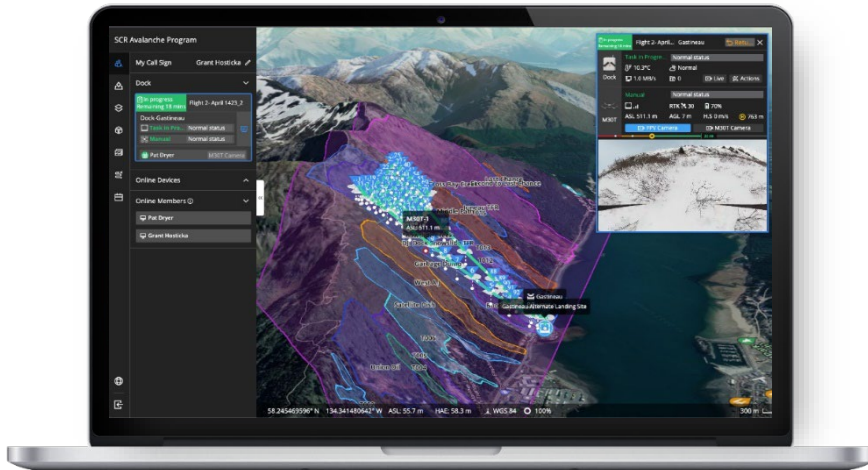
ACUASI

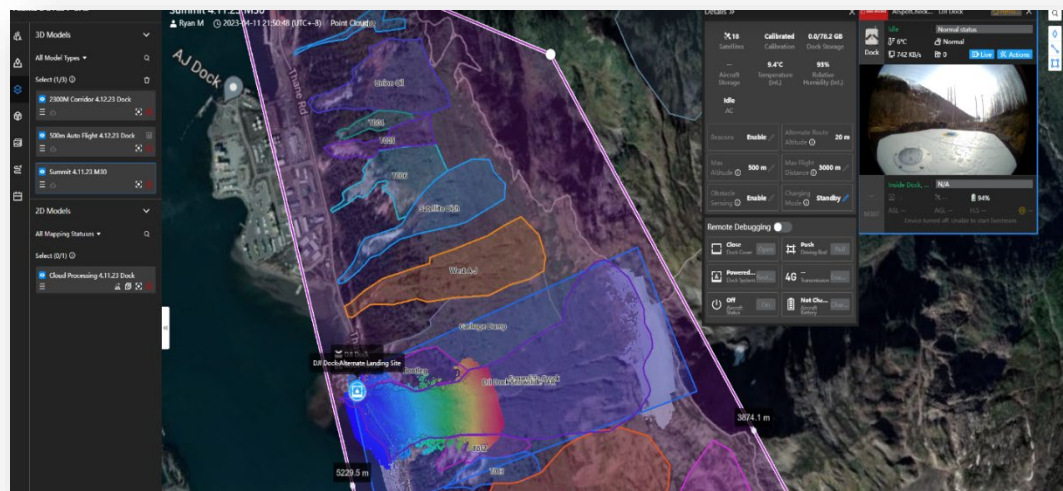
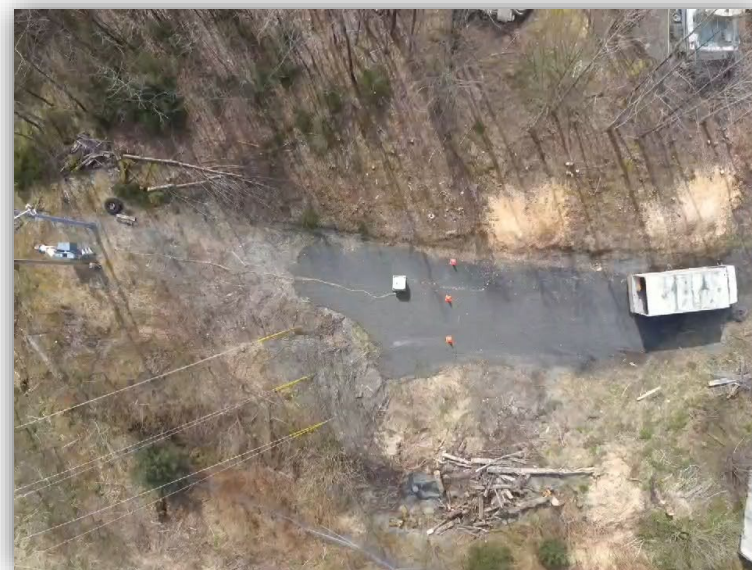


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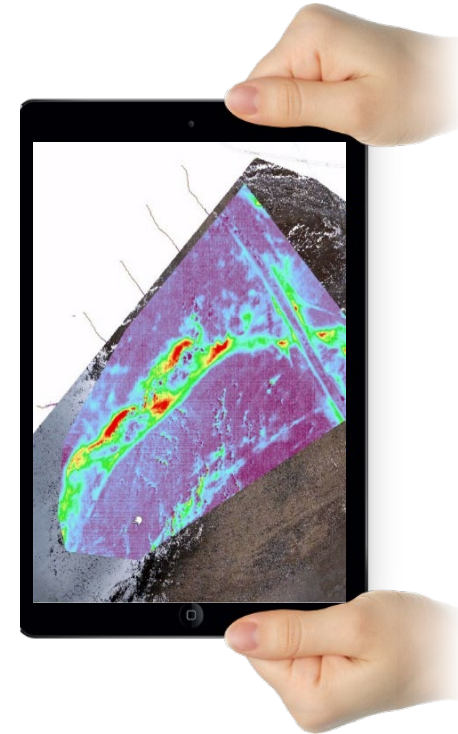
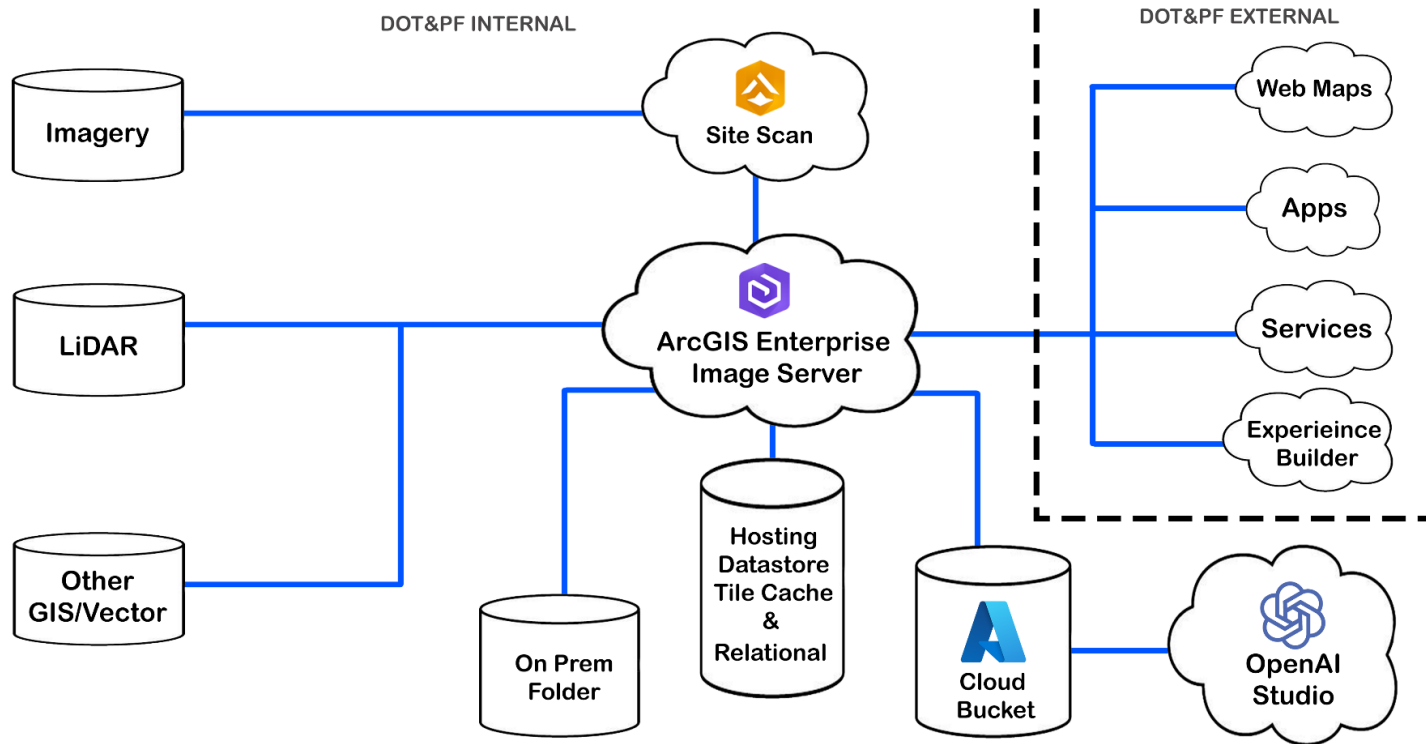
SCHEDULED, EVENT TRIGGERED & TELEOP DRONE DOCKS





DRONE DOCKS AND AUTOMATING CLOUD DATA WORKFLOWS

20Tb+
PER YEAR



Conclusion



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