July 25th, 2026

Revisiting the Aguadilla Trans-medium UAP

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Aguadilla: Analysis Status – *Work in Progress*

I Will *Quickly* Provide You With:

- Historical refresher
- Our analytical approach
- What technologies we have developed to reanalyze this video
- What technologies we are working on now
- What technologies we plan to develop
- Status of the Analysis of Competing Hypotheses (ACH) Evaluation

Aguadilla: Historical Refresher

- April 25th, 2013 at about 9:20 pm local time, an unknown object at low altitude flew directly across the Rafael Hernandez airport runway at Aguadilla, Puerto Rico
- A US Customs and Border Protection aircraft captured an IR video of the UAP
- In some frames it appears to go underwater
- Video was extensively analyzed by SCU resulting in an unknown determination who released a 159-page report that was released in August of 2015
- Subsequent analysis performed in following years suggested a pair of Sky Lanterns from the Villa Montaña Beach Resort were the likely culprit, including an US Gov't report from AARO that corroborated these other analyses
- SCU Executive Board Members requested a revisit of the case by SCU members who were not a part of the original analysis team

Revisiting the

Aguadilla Trans-medium UAP

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Our Analytical Approach

- Discussed with Mick West, "flarkey", and Dr. Randy Bostick (AARO's) analytical approaches and theories
- Considering where the disagreements are we decided to build our own analytical tools, to reach our own conclusions:
  - A frame-by-frame AI/ML OCR extraction of the data values in the video
  - An object tracker that used Google's Photorealistic 3D Maps looking from the aircraft's location to the Line of Sight (LOS) identified target's projected ground position with GPS grid, ground control points with an IR overlay to get more accurate ground projected object locations
  - Bearings Only-Target Motion Analysis (BO-TMA) analytical capability with Dr. Cai's and my own (independent) Sequential Monte Carlo (SMC aka particle filter) analysis
  - Thermal Ocean, Citiscape and Physics Simulators
- Finish it by using the Analysis of Competing Hypotheses (ACH) method to analyze the results, a method introduced to the UAP field by Dr. Pierson

Visit Save

isisphotography.net

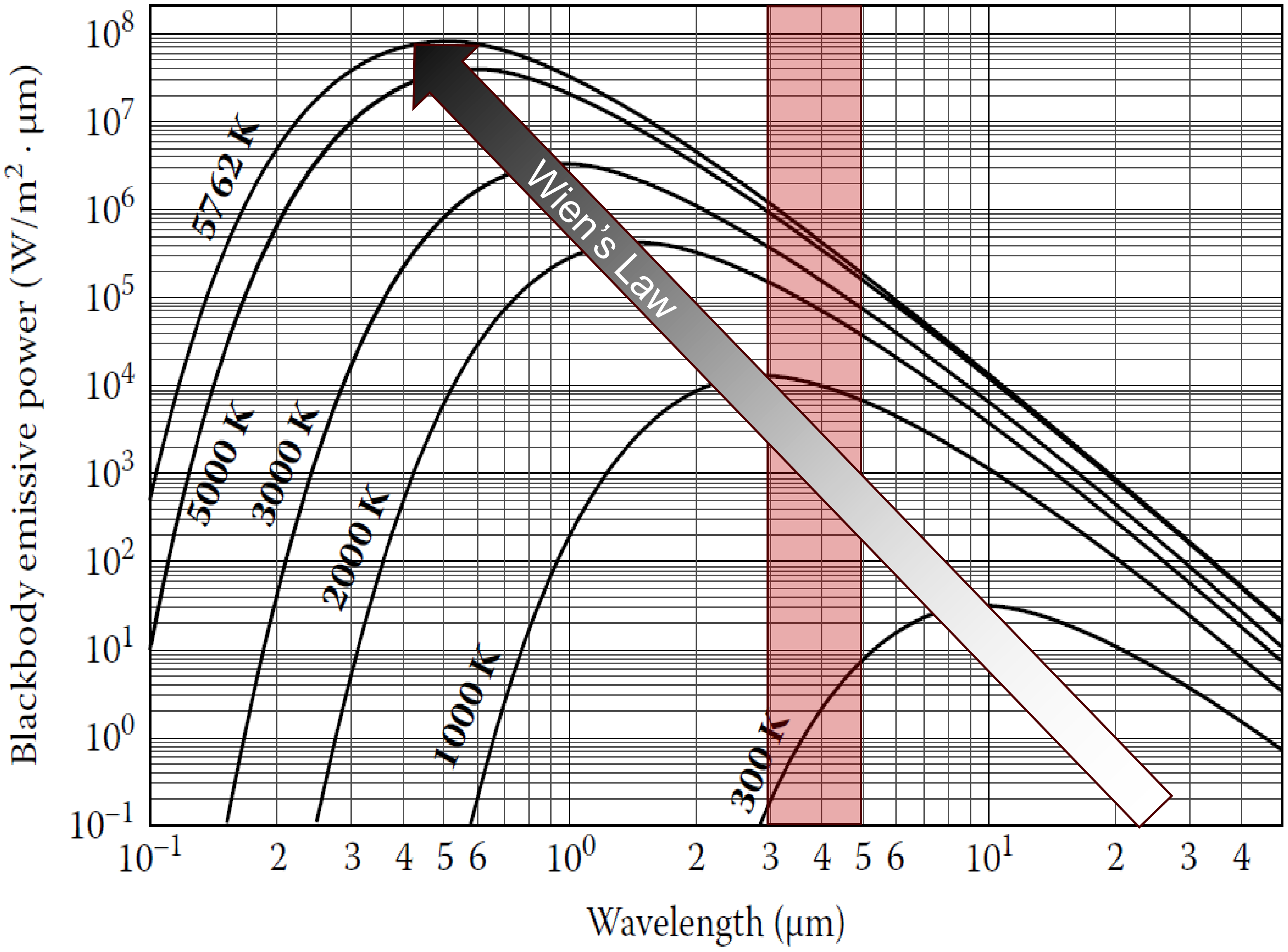
Wedding Lanterns Release

Wedding Lantern Release - After Party - Villa Montana Beach Resort - Puerto Rico

https://www.pinterest.com/pin/350788258448744602/

Basic MWIR Sensor Physics: MX-15D

- Planck's & Wein's Law say that the hotter something is … the more IR photons should reach the sensor…
- Right!?

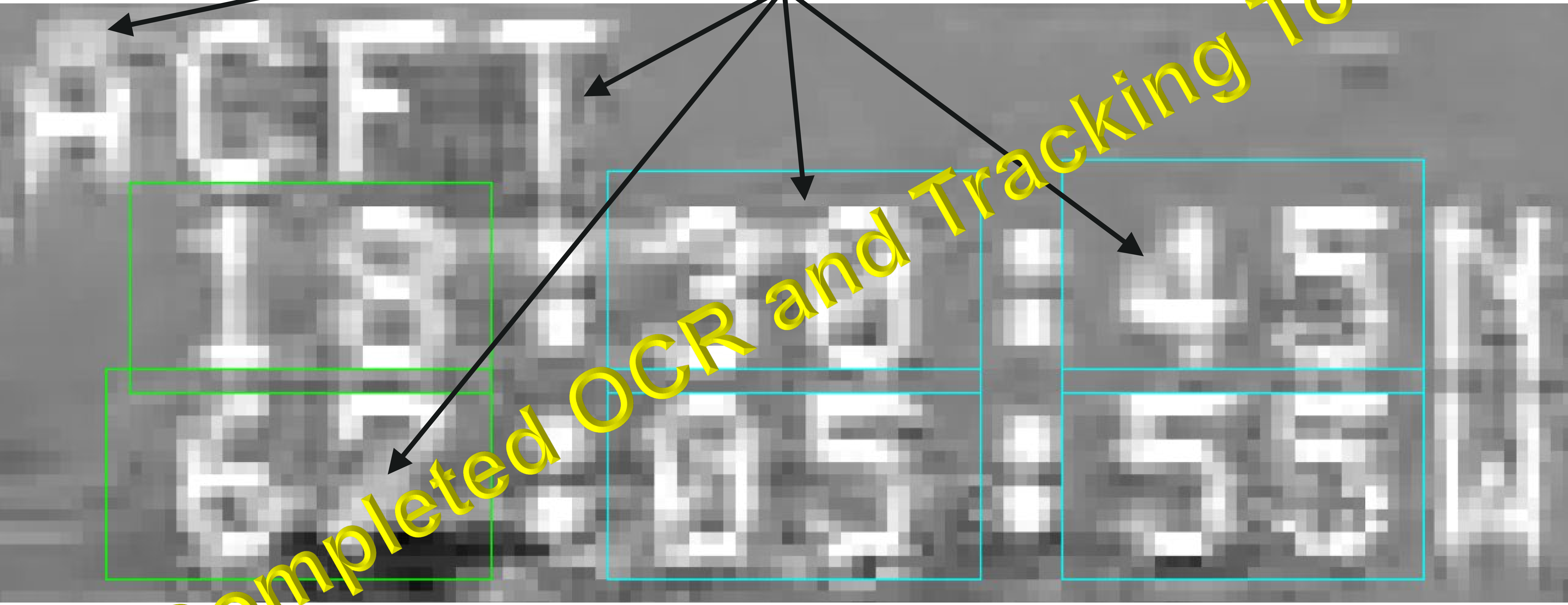


Now … hold that thought!

Aguadilla OCR: OCRROItool

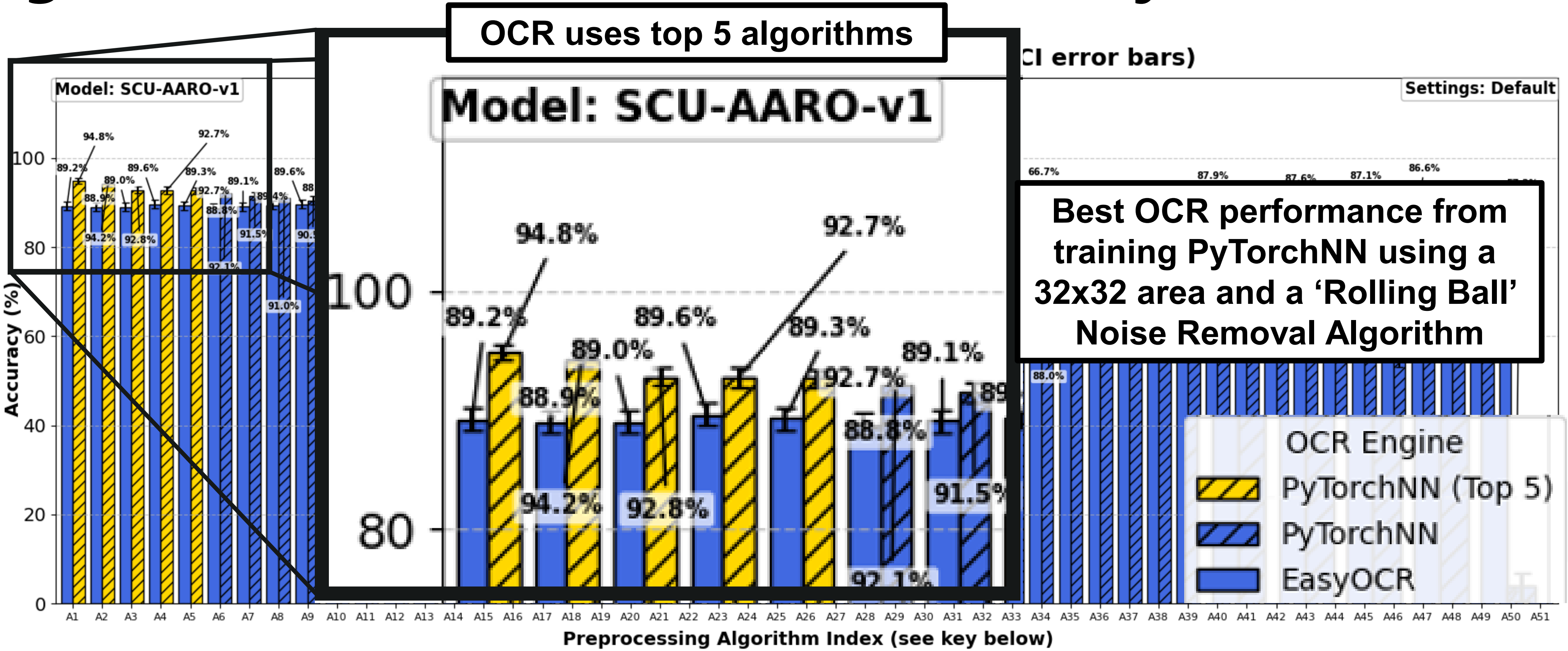
Aguadilla OCR: OCRROItool

H264 Compression Artifacts



Completed OCR and Tracking Tool

Aguadilla OCR: OCRROItool's Accuracy



Algorithm Key Index Legend

A1: u32_Rolling_Ball
A2: u16_FFT_Bandpass
A3: u16_Unsharp
A4: u32_FFT_Bandpass
A5: u32_PeronaMalik
A6: u16_NLMeans
A7: u32_SauvolaBinarize
A8: u32_NLMeans
A9: u32_Unsharp
A10: u32_Bilateral
A11: u32_GPU_Restore_Post
A12: u32_FFT_NotchGrid
A13: u64_FFT_NotchGrid
A14: u64_FFT_Bandpass
A15: u64_Unsharp
A16: u32_DoG_Bandpass
A17: u16_DoG_Bandpass
A18: u16_Guided
A19: u16_FFT_NotchGrid
A20: u64_Rolling_Ball
A21: u64_Guided
A22: u64_PeronaMalik
A23: u64_DoG_Bandpass
A24: u32_Guided
A25: u32_GPU_SR_Pre
A26: u32_Identity
A27: u64_GPU_Restore_Post
A28: u64_SauvolaBinarize
A29: u16_PeronaMalik
A30: u16_Rolling_Ball
A31: u16_MorphTophat
A32: u64_NLMeans
A33: u16_Identity
A34: u32_MorphTophat
A35: u16_Bilateral
A36: u64_Identity
A37: u64_GPU_SR_Pre
A38: u16_GPU_SR_Pre
A39: u64_MorphTophat
A40: u16_CLAHE
A41: u64_Bilateral
A42: u32_Gamma
A43: u16_Gamma
A44: u16_SauvolaBinarize
A45: u64_Gamma
A46: u32_raw
A47: u64_CLAHE
A48: u32_CLAHE
A49: u16_GPU_Restore_Post
A50: u16_raw
A51: u64_raw

Aguadilla OCR: OCRROItool's Trend Anal

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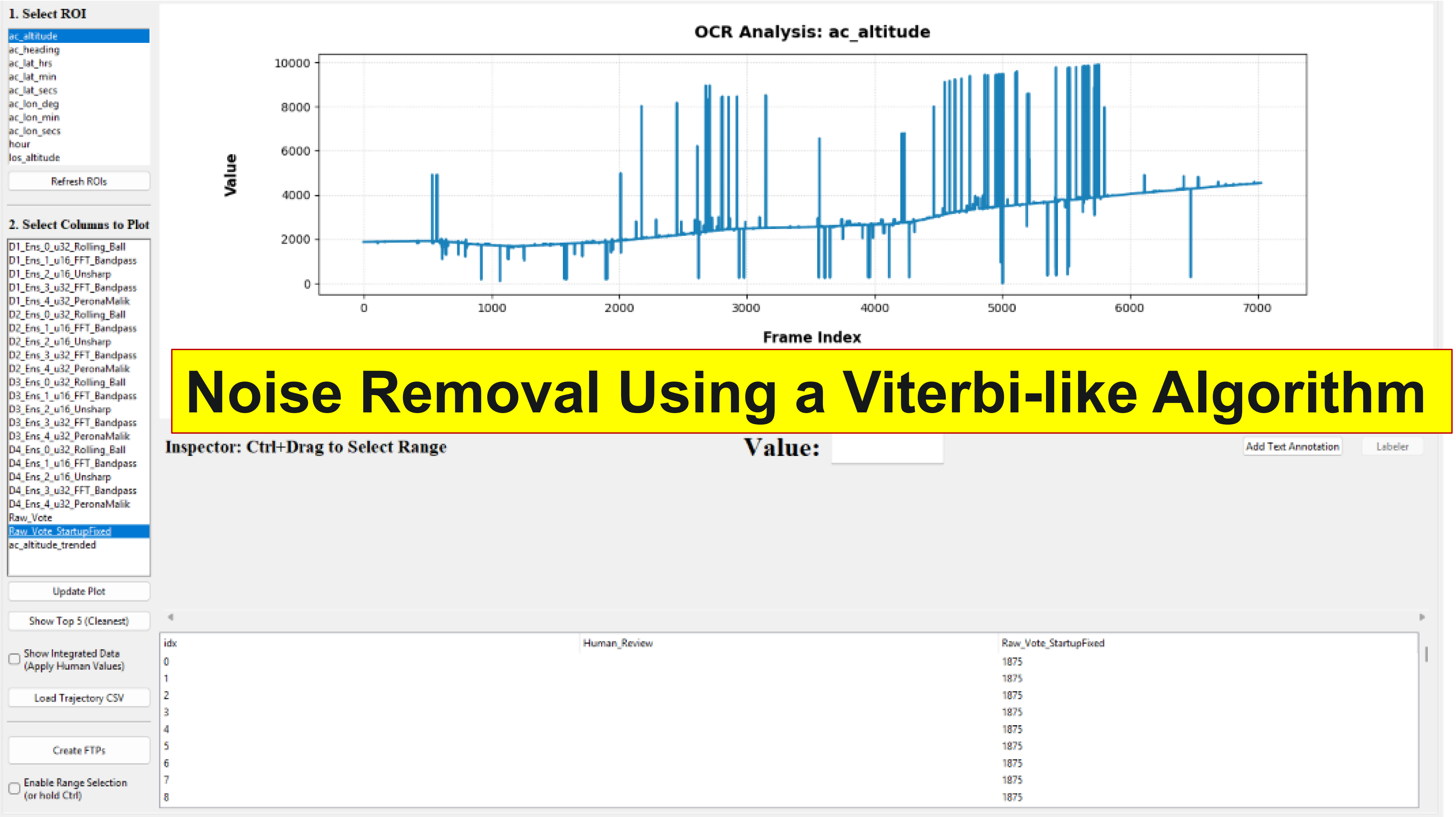
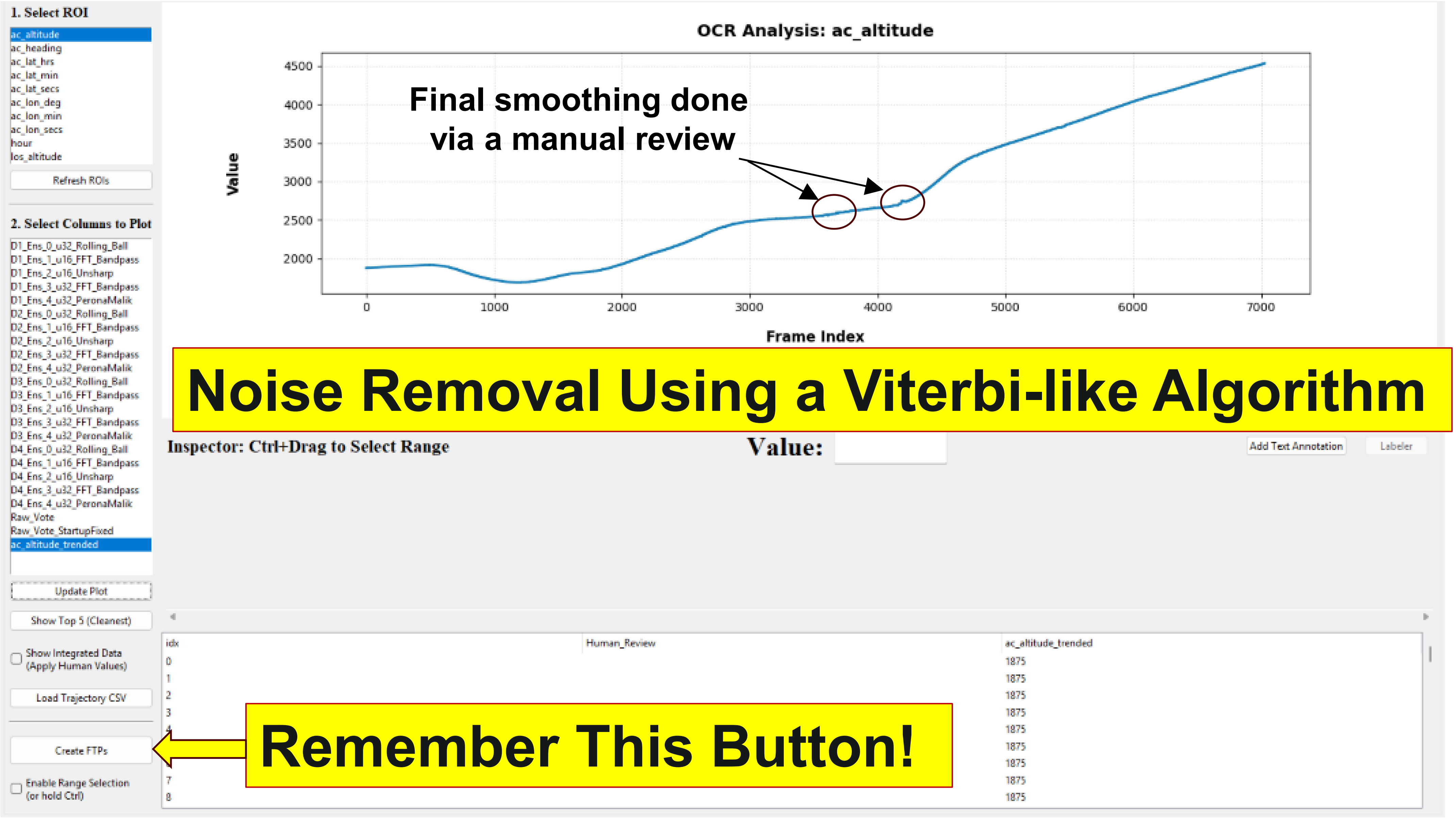
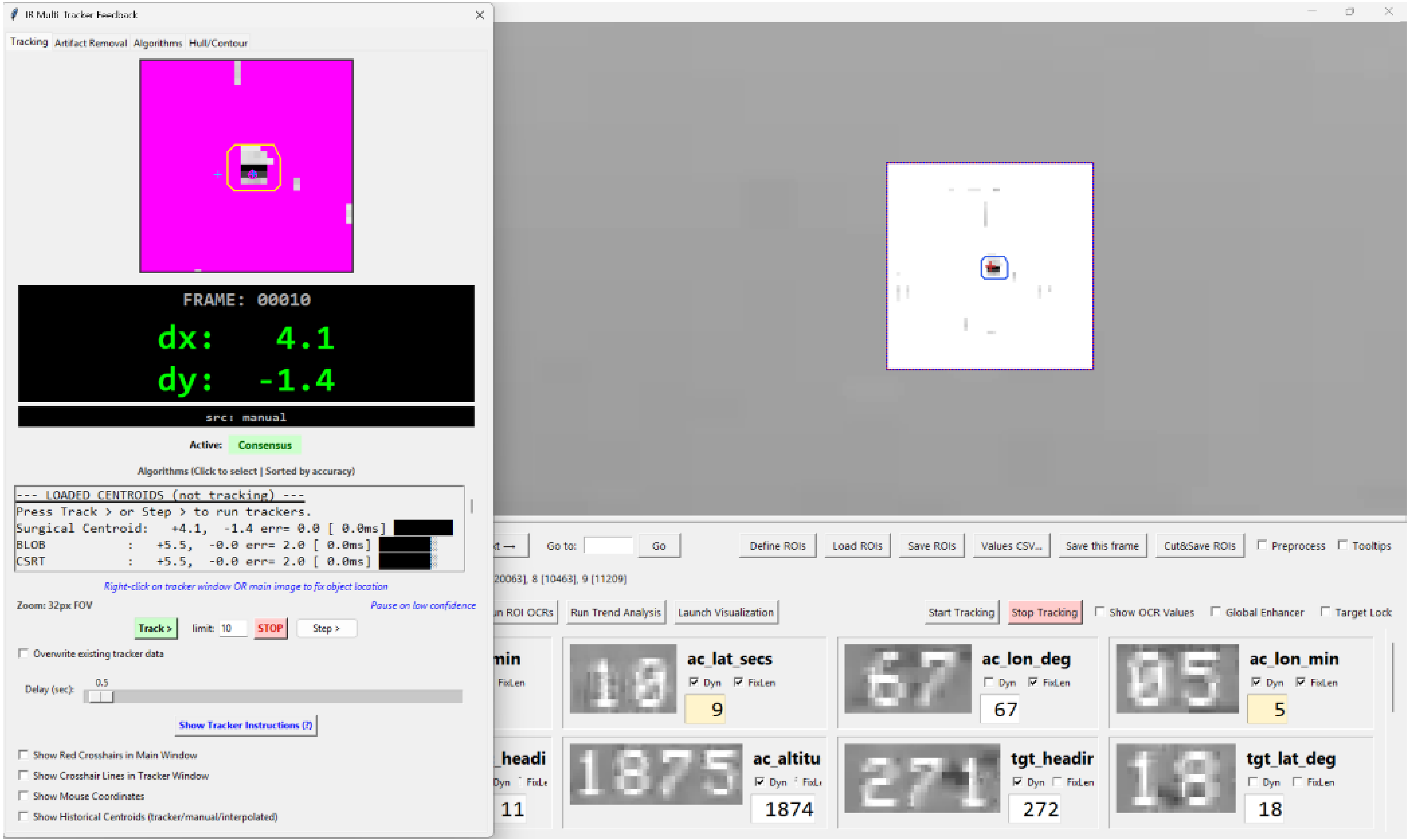


Noise Removal Using a Viterbi-like Algorithm

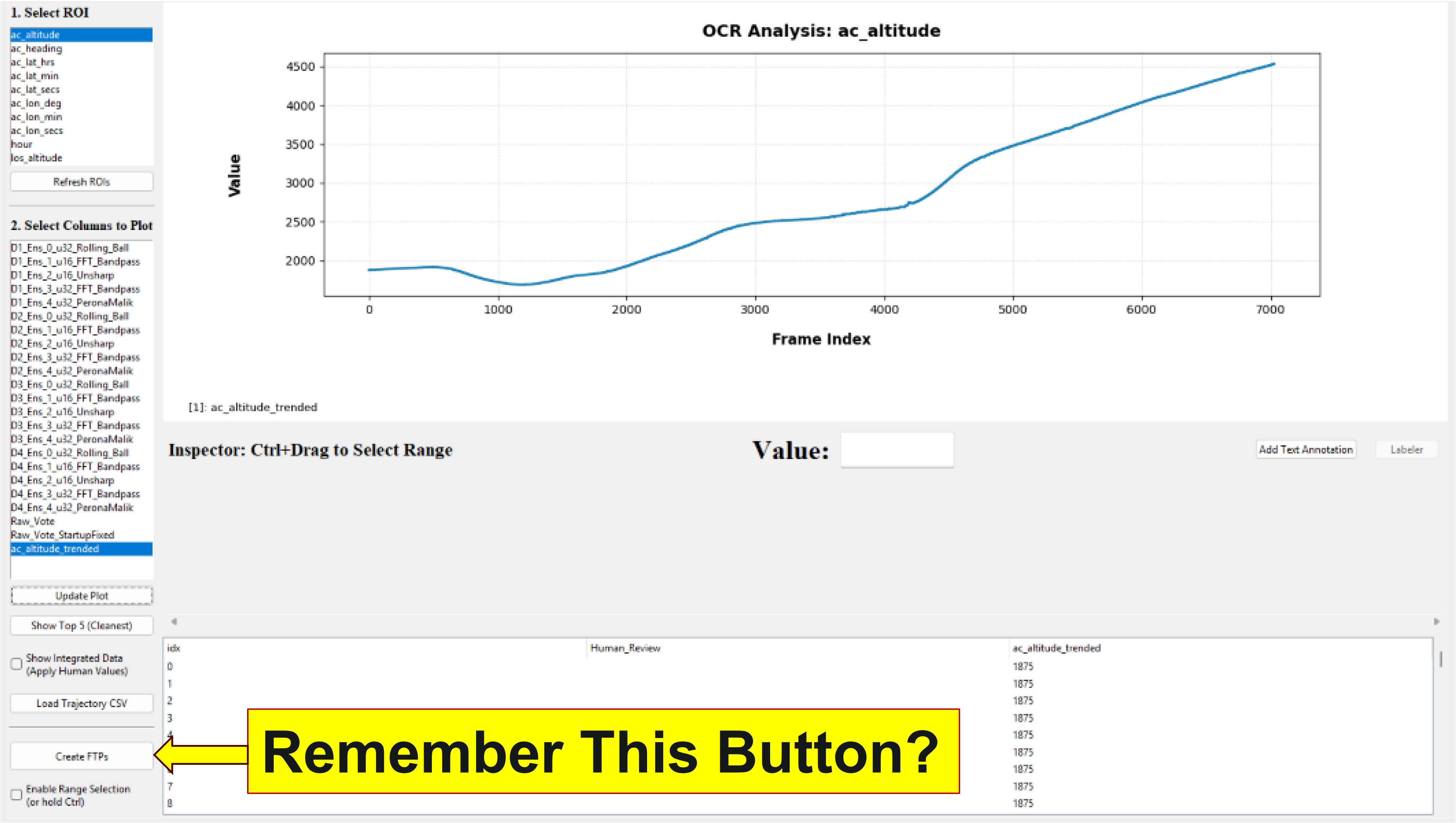
Aguadilla OCR: OCRROItool's Trend Anal



Aguadilla OCR: OCRROItool's Tracker

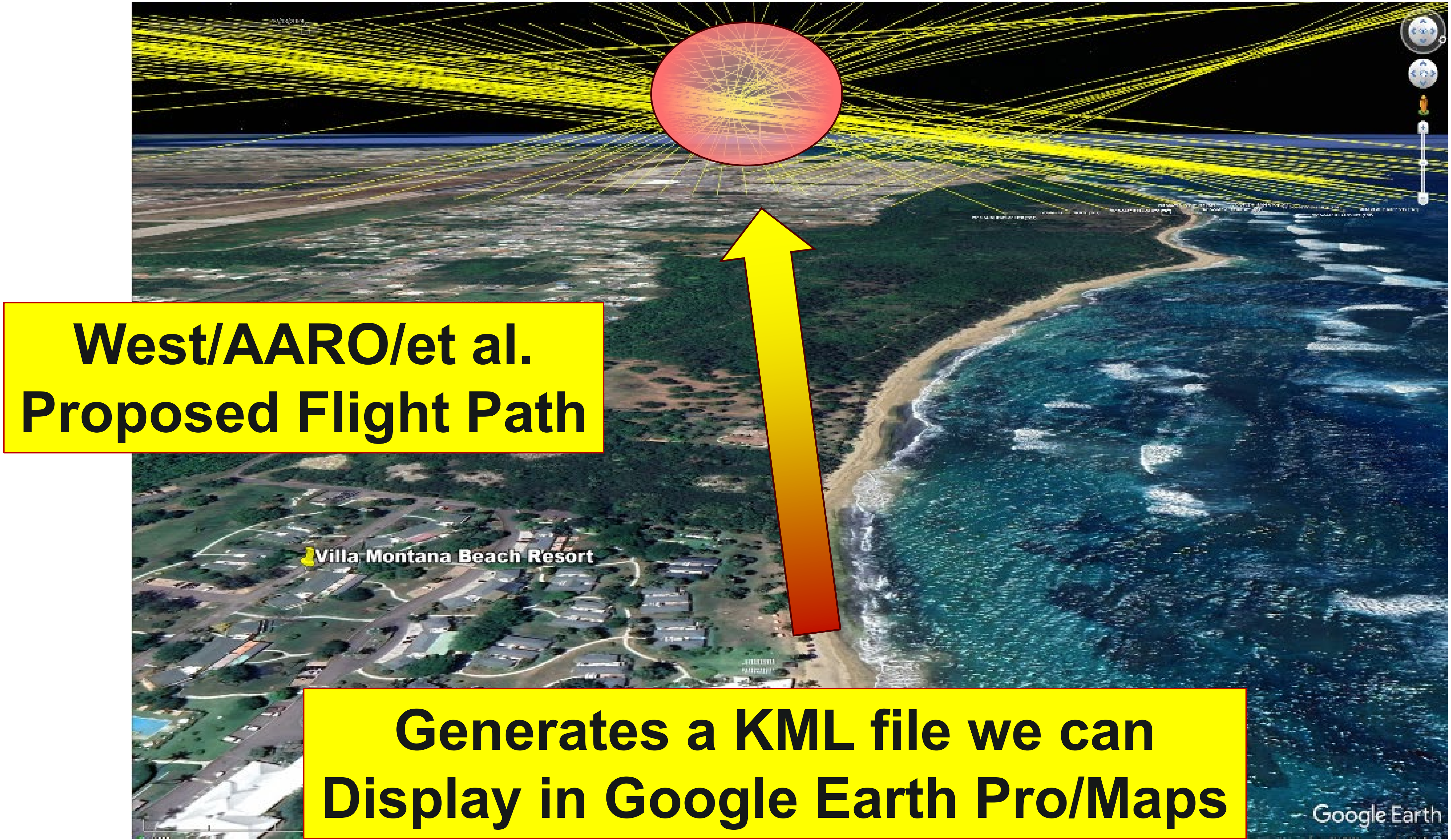


Aguadilla OCR: FTP + Tracker Results



Remember This Button?

Aguadilla OCR: FTP + Tracker Results



Aguadilla IR Overlap on GPS Grid *(done)*

Aguadilla: BO-TMA *(working not "done")*

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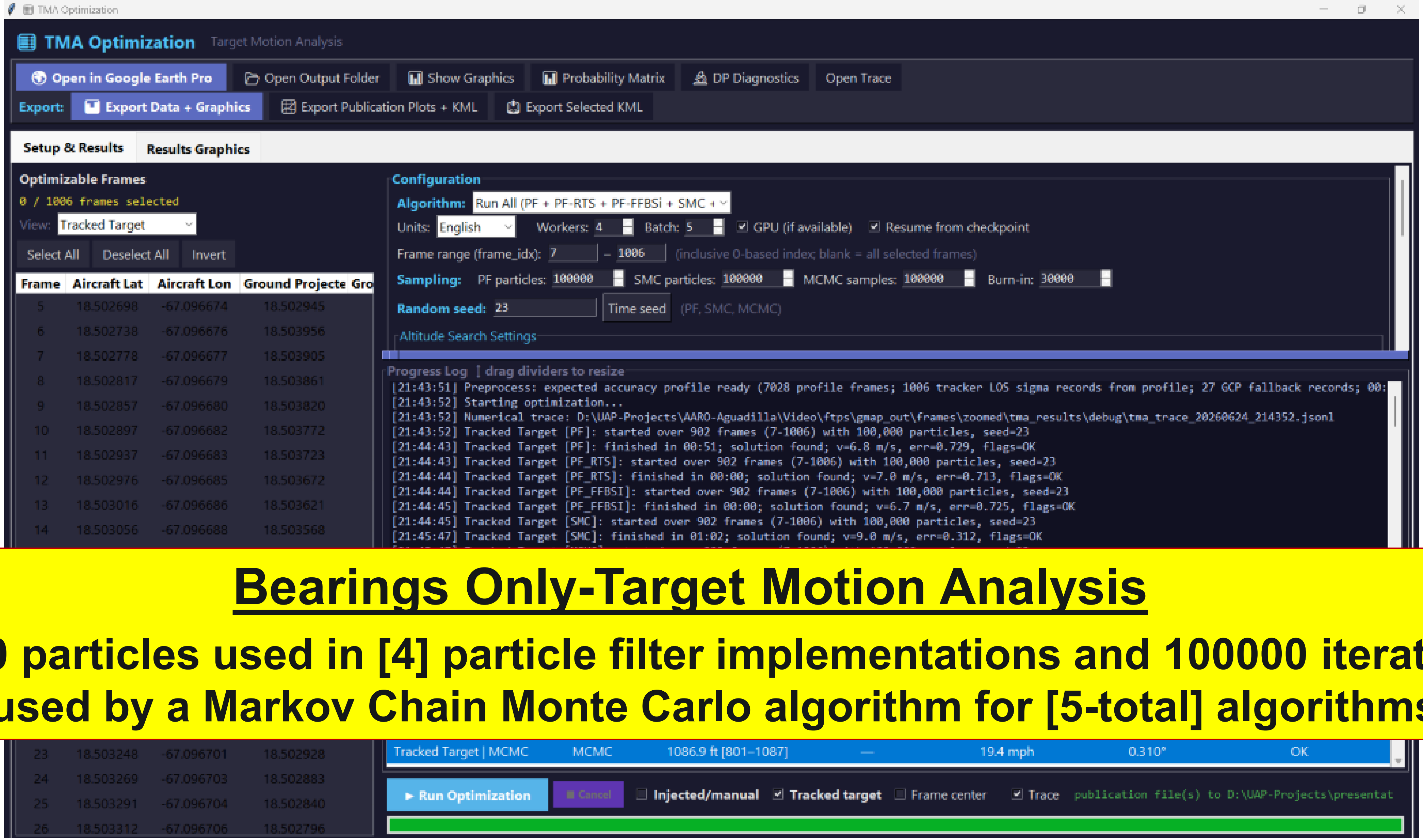
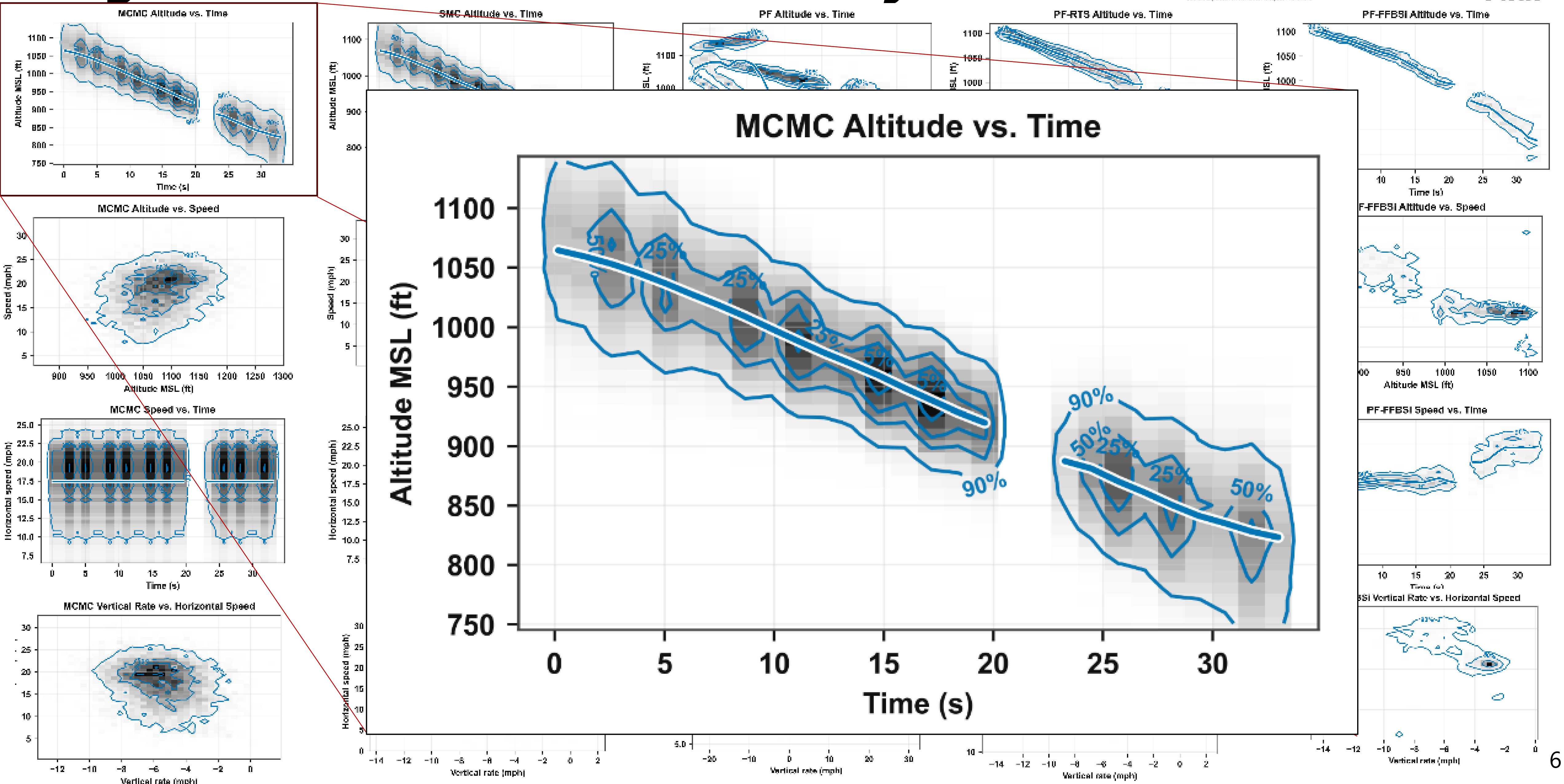


Bearings Only-Target Motion Analysis

100000 particles used in [4] particle filter implementations and 100000 iterations is used by a Markov Chain Monte Carlo algorithm for [5-total] algorithms

Aguadilla: BO-TMA *Preliminary Results*



Thermal Ocean Simulator (*under development*)

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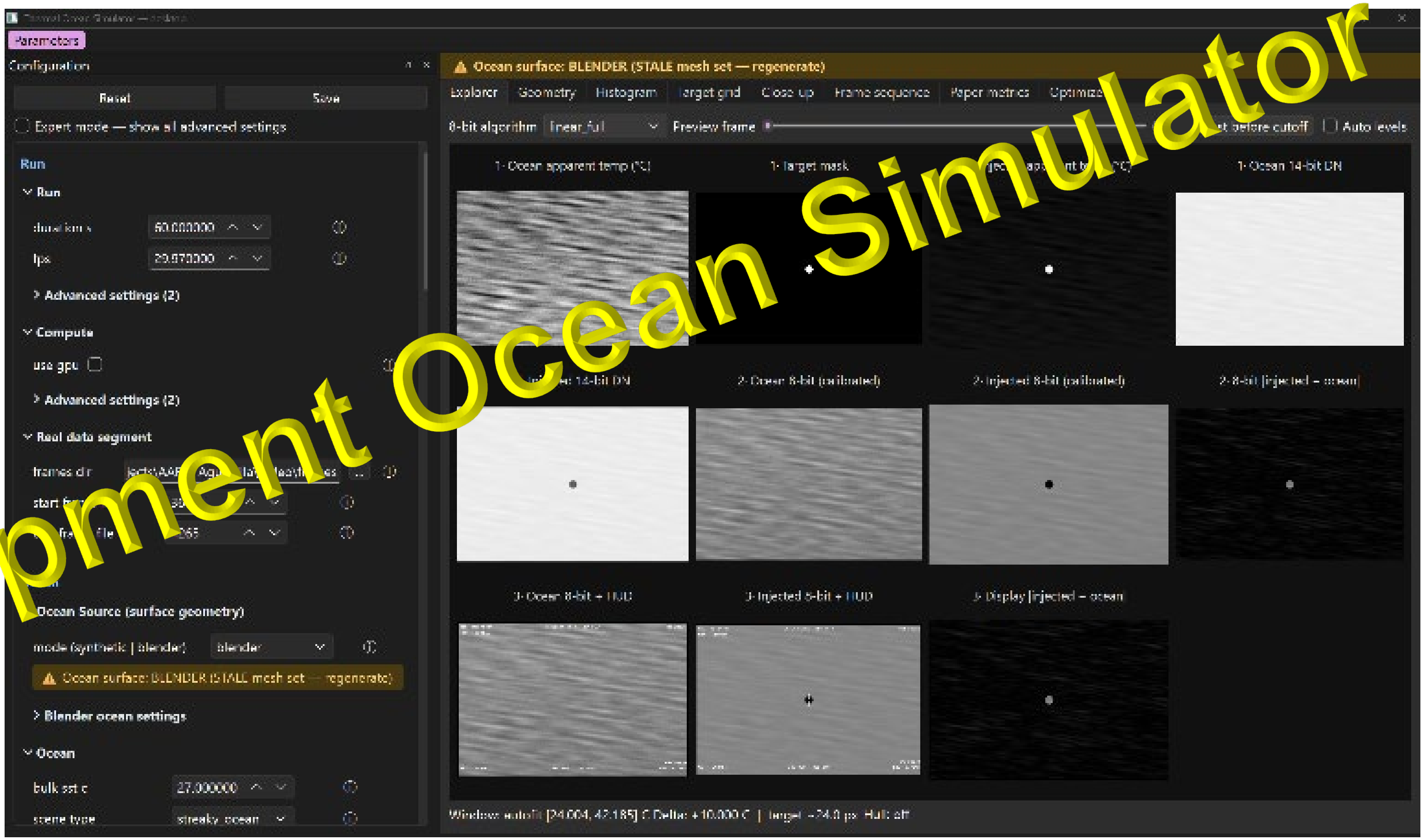
- **Goals**
  - Thermally simulate the ocean
  - Statistically match the observed ocean
  - Inject various objects
  - Replicate 14 to 8-bit down sample
    - > Try various down sample gain algorithms
  - Replicate H.264 compression effects
  - Replicate (*or not*) thermal cross over
  - Replicate 'size' vs zoom level and compare it to the PO-TMA derived altitudes



Under Development Ocean Simulator

Thermal Cityscape Simulator *(planned)*

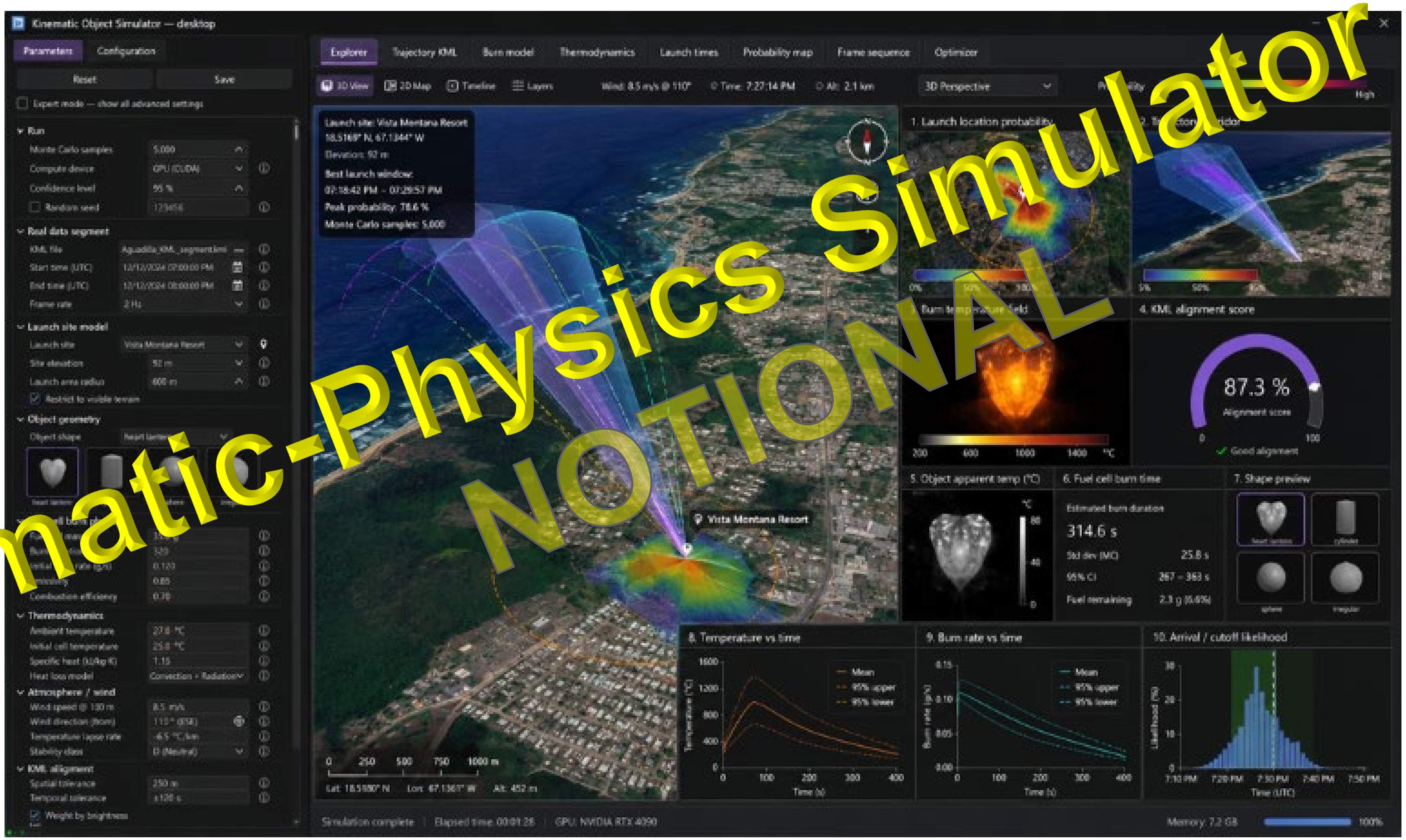
- **Goals**
  - Thermally simulated cityscape
  - Inject various objects
  - Replicate 'size' vs zoom level
  - Replicate 14 to 8-bit down sample
    - > Try various down sample gain algorithms
  - Replicate (*or not*) thermal cross over
    - > Where object 'disappears' (near runway and telephone pole)
  - Replicate H.264 compression effects

Planned Cityscape Simulator

NOTIONAL

Kinematic-Physics Simulator *(planned)*

- **Goals**
  - Derive statistical balloon release times and locations from TMA derived probable trajectories and speeds
  - Use fuel cell burn times and temperature distributions to derive thermodynamics for Chinese Lanterns
  - Can rotation dynamics of two lanterns replicate what was seen in the video?



Analysis of Competing Hypotheses (ACH) *Right Now*

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Objective

Evaluate competing explanations using the reconstructed Aguadilla dataset through a structed analytic framework that emphasizes disconfirming evidence rather than confirmation.

Incorporating ACH into the Scientific Process

Reconstructed Dataset → Evidence Evaluation (E1-E24) → Consistency Assessment (C / I / N/A) → Diagnostic Value Assessment → Hypothesis Evaluation

Key Principle

Hypotheses are evaluated by identifying evidence that is inconsistent with them, not by accumulating affirming evidence.

Hypothesis	Assessment
H1 – Sky Lantern(s)	Not yet sustained (waiting for in work simulation results)
H2 – Conventional Object	Viable, but weakened
H3 – Artifact / Perspective	Most Consistent
H4 – Unresolved Physical Object	Viable, Conditional
H5 – Indeterminate	Dataset remains unresolved

IN WORK

Aguadilla: Findings So Far

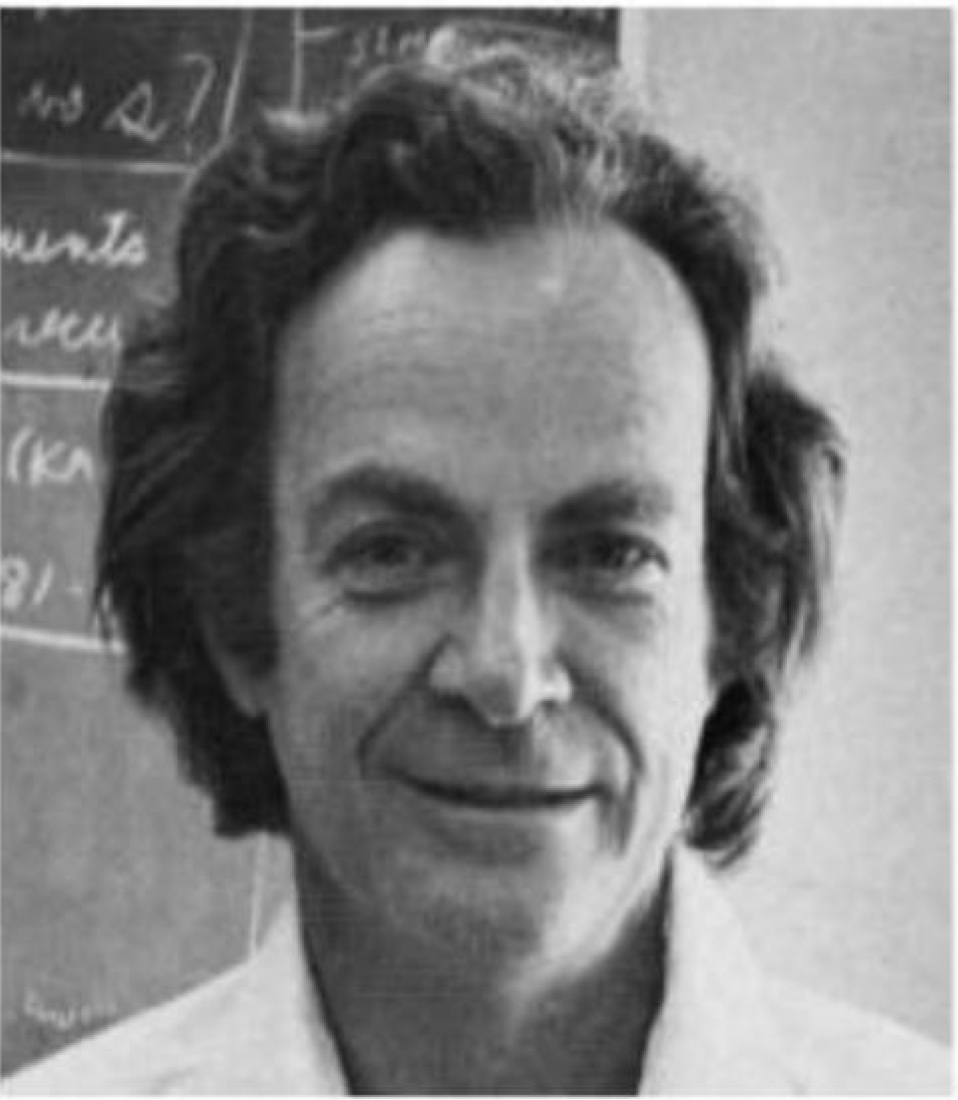
- SCU's Original Aguadilla Report
  - No mention in the report about H.264 video compression (impacts OCR accuracy)
  - Only alluded to the camera's 14-bit raw data used by MX-15D and 8-bit (256) gray level video i.e. this is NOT raw data, i.e. data down sampling from 14 to 8 bits is NOT discussed
    - Claiming the camera is sensitive to 0.1 degrees C may be correct for raw data, but that is likely NOT the case after the 14 to 8-bit down sampling which easily removes this accuracy, especially after H.264 compression
  - Fluid impact reaction does NOT match physics for a water entry (no bow wave its all 'wake'), see for example: Bouncing Bullets off Water in Ultra Slow Motion - The Slow Mo Guys
- L3 Wescam did not respond to an email inquiry requesting info about the 14- to 8-bit down sample algorithm for the MX-15D
  - Hence, unless someone can pull some strings at L3, we are on our own!
- Able to simulate having a thermal target "appear to go in water" achieved, creating a rapid prototype thermal ocean simulator to try to replicate the "wake-effect"
  - Working now to "calibrate" the simulator to the ocean based on physics

Aguadilla: Conclusion

- We can get quite far with the mapping approach used to get at BO-TMA … and physics-based simulations, however …
  - If you really want to know if the simulation is correct/true, we need one of these with one of these to capture some of these over this at night!

https://www.pinterest.com/pin/350788258448744602/

DHC-8 Turboprop.Courtesy of Homeland Security



“ The first principle is that you must not fool yourself—and you are the easiest person to fool. ”

Richard Feynman (Surely You're Joking, Mr. Feynman!)

Disclaimer

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Compression Confirmation

Original video obtained from Morgan Beall

ExifTool Version Number	:	12.83
File Name	:	**PRHCV42013.avi**
Directory	:	.
File Size	:	50 MB
Zone Identifier	:	Exists
File Modification Date/Time	:	2026:06:12 19:04:58-06:00
File Access Date/Time	:	2026:06:12 19:05:27-06:00
File Creation Date/Time	:	2026:06:12 19:04:56-06:00
File Permissions	:	-rw-rw-rw-
File Type	:	AVI
File Type Extension	:	avi
MIME Type	:	video/x-msvideo
Frame Rate	:	29.971
Max Data Rate	:	31.14 MB/s
Frame Count	:	7028
Stream Count	:	2
Image Width	:	720
Image Height	:	480
Stream Type	:	Video
Video Codec	:	**H264**
Video Frame Rate	:	29.97
Video Frame Count	:	7028
Quality	:	0
Sample Size	:	Variable
BMP Version	:	Windows V3
Image Width	:	720
Image Height	:	480
Planes	:	1
Bit Depth	:	24
Compression	:	**H264**
Image Length	:	345600

Original file date NOT confirmed!

Compression confirmed!

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