

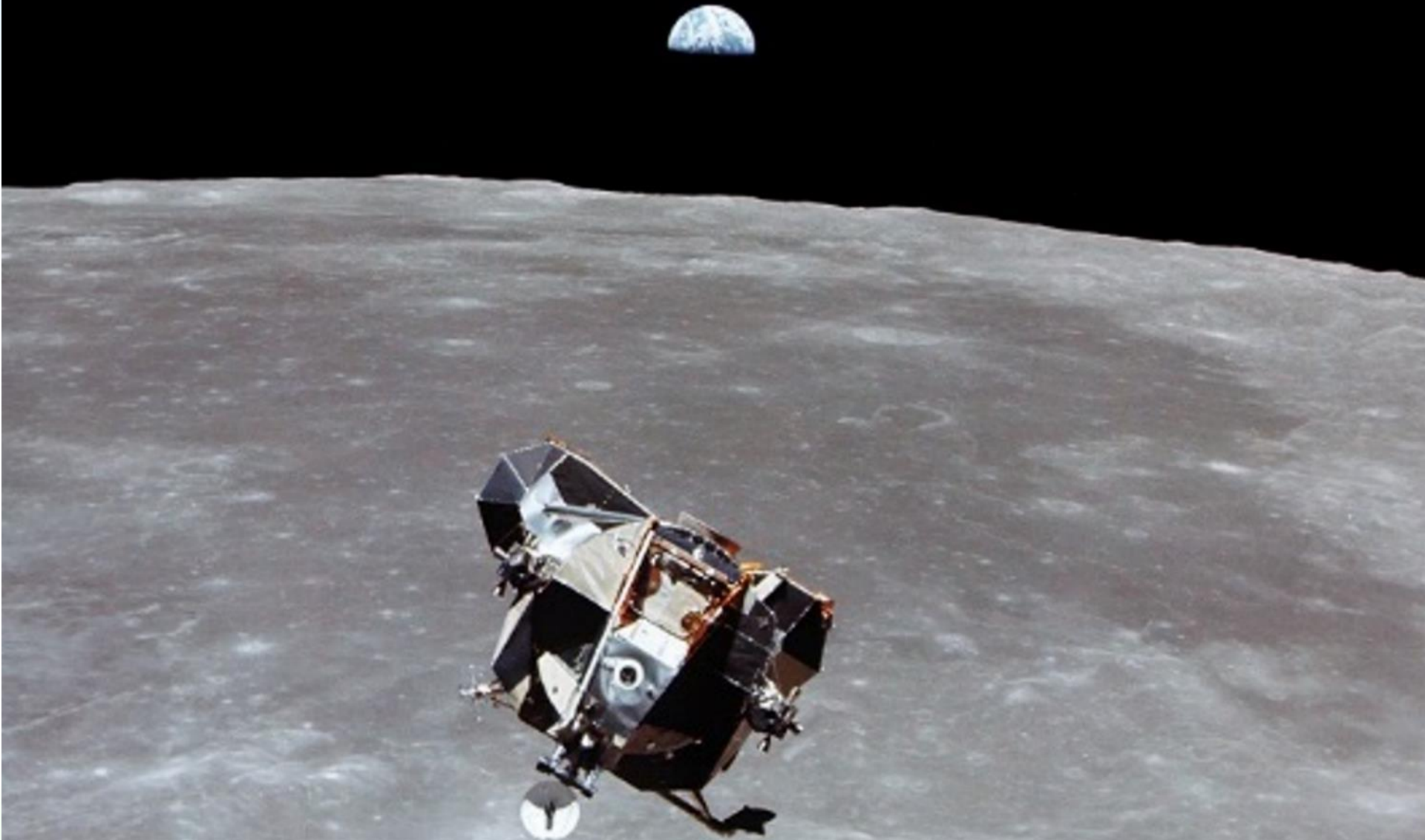
AEROKATS



Geoff Bland (NASA/GSFC/613)

AEROKATS and ROVER Education Network (AREN/Ogiemwonyi)

Earth Science Week Oct 8 – 14, 2023



July 21, 1969 - Apollo 11, AS11-44-6642

NASA Earth Science

Capturing The Global View from Space





EARTH FLEET

INVEST/CUBESATS

- NACHOS 2022
- CTIM 2022
- NACHOS-2 2022
- MURI-FD 2023
- SNOOPI* 2024
- HYTI* 2024
- ARGOS* 2024

JPSS INSTRUMENTS

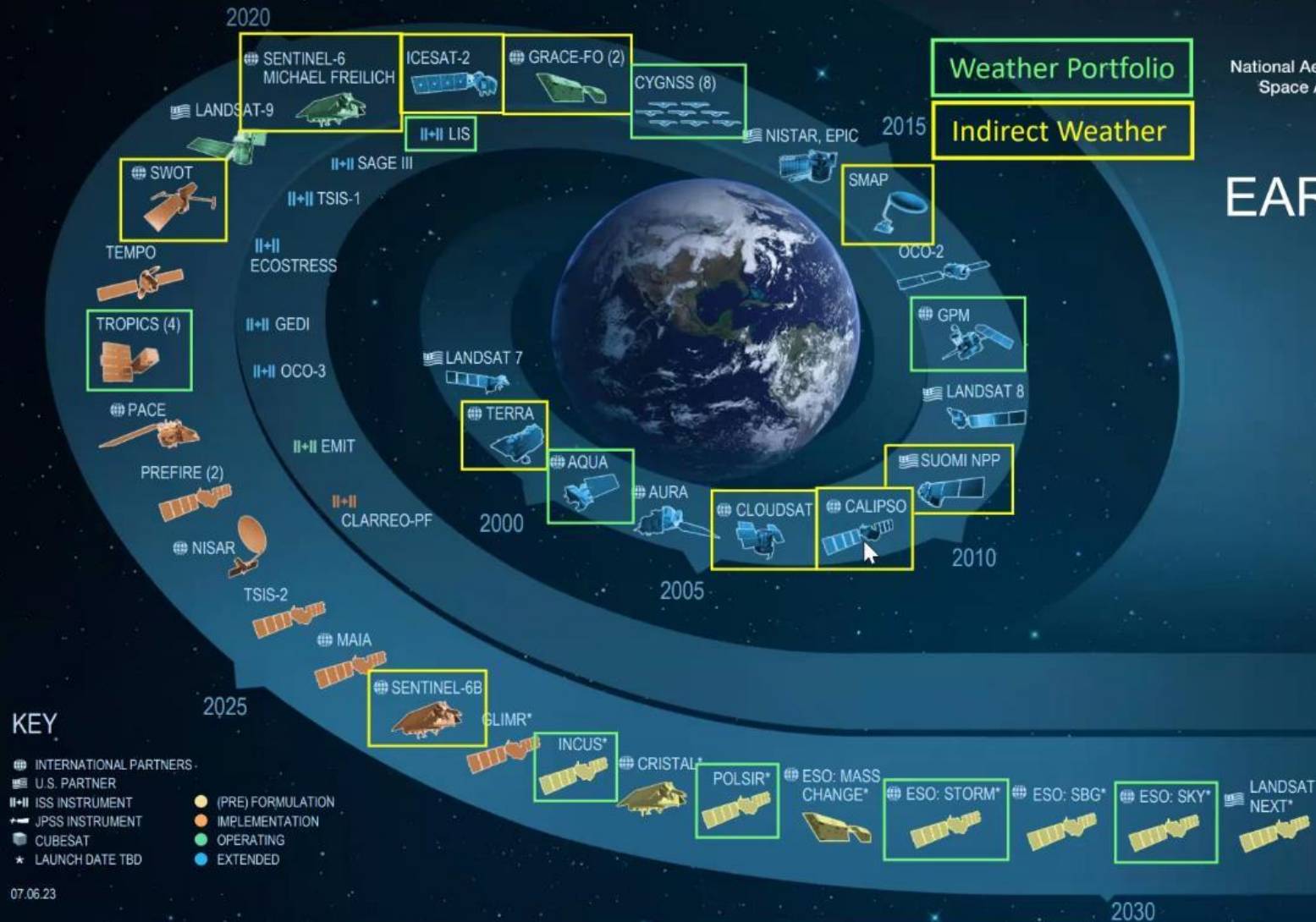
- OMPS-LIMB 2022
- LIBERA 2027
- OMPS-LIMB 2027
- OMPS-LIMB 2032

ISS INSTRUMENTS

MISSIONS

Weather Portfolio

Indirect Weather



Unmute

Start video

Share

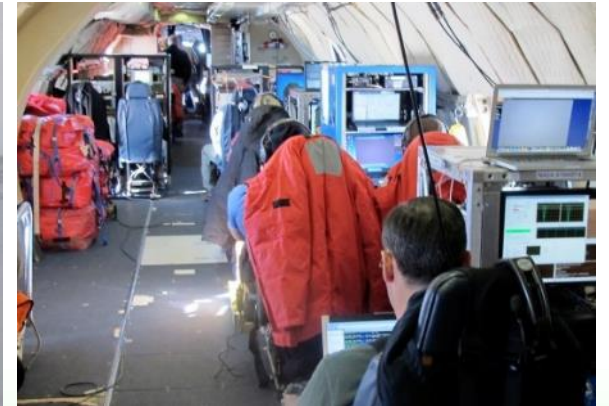


Will McCarty (NASA HQ)

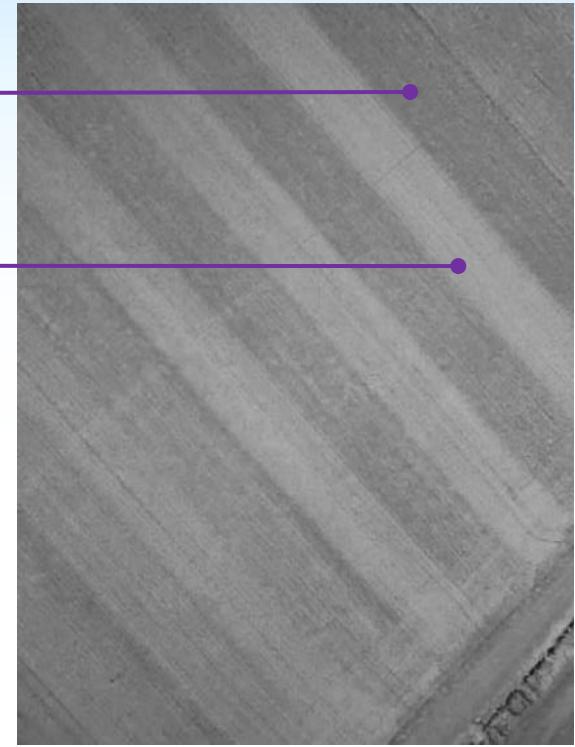
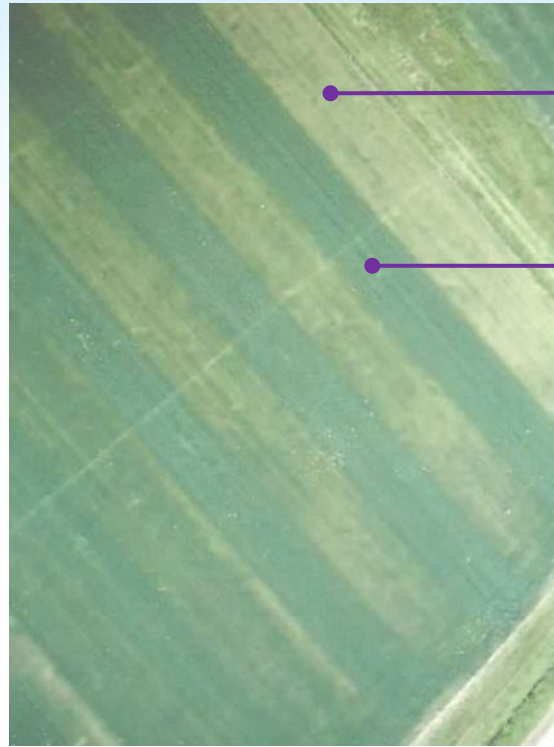
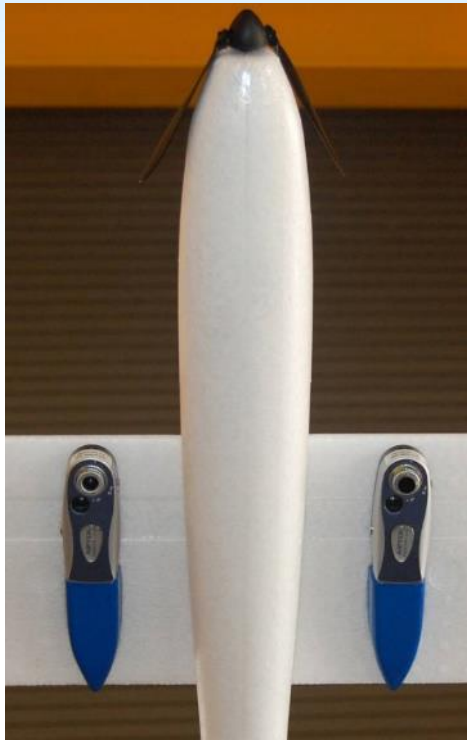


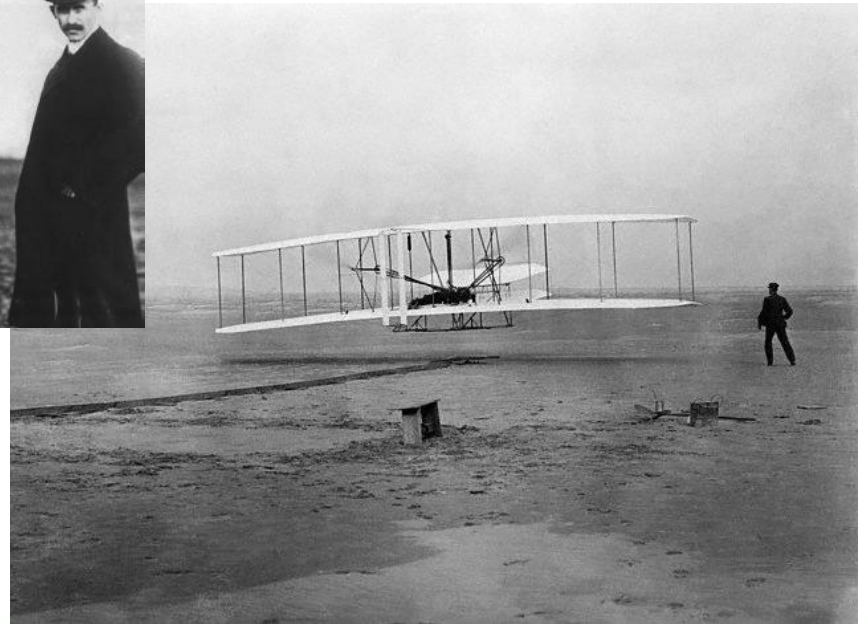
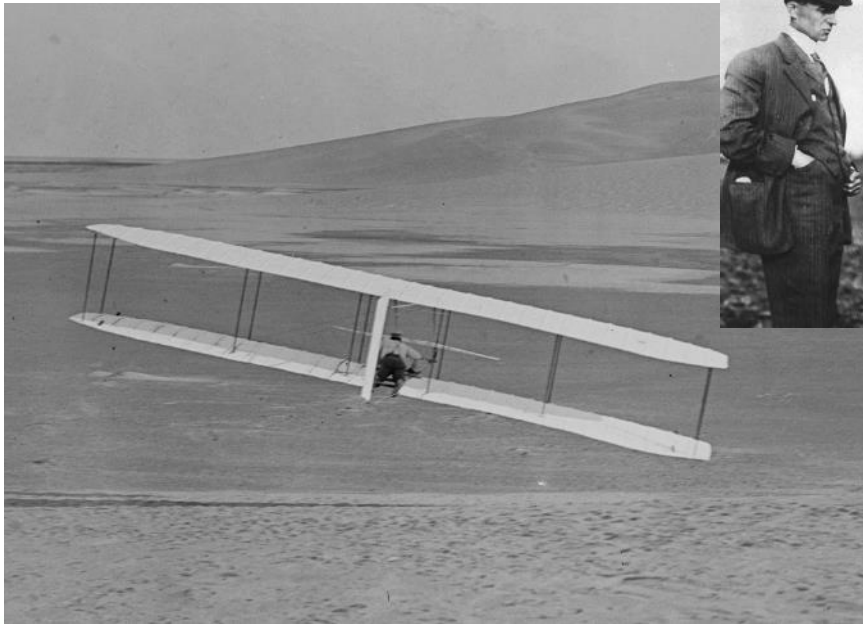
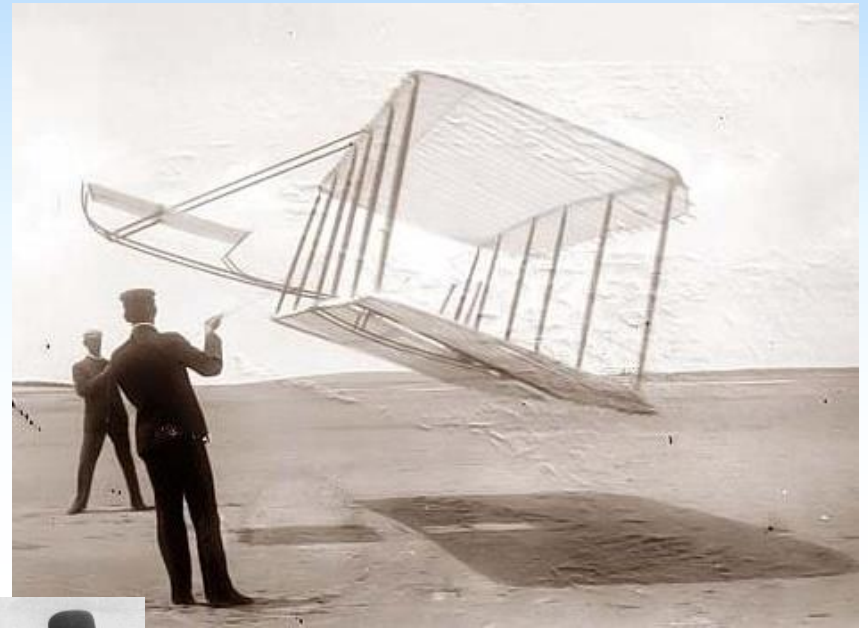
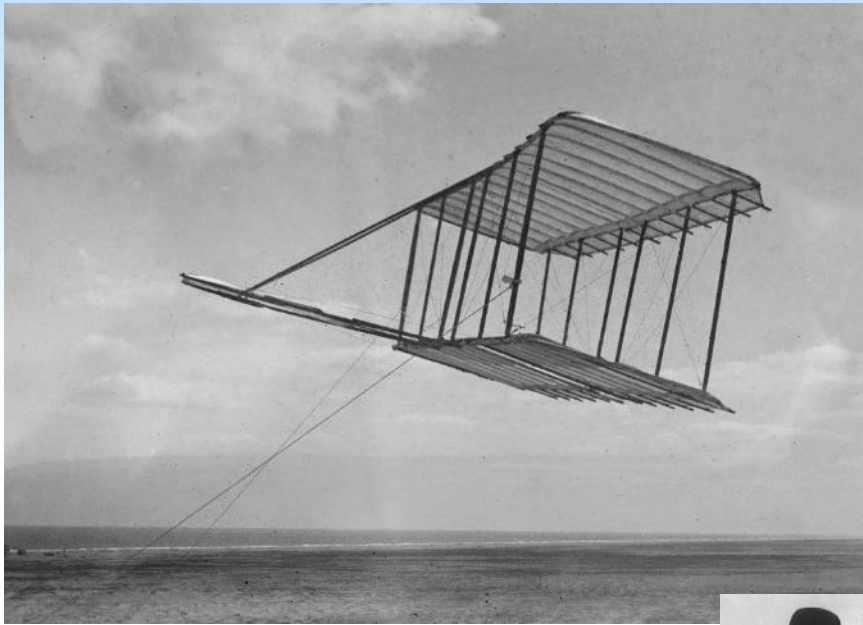
NASA Airborne Science Program

A Detailed Perspective

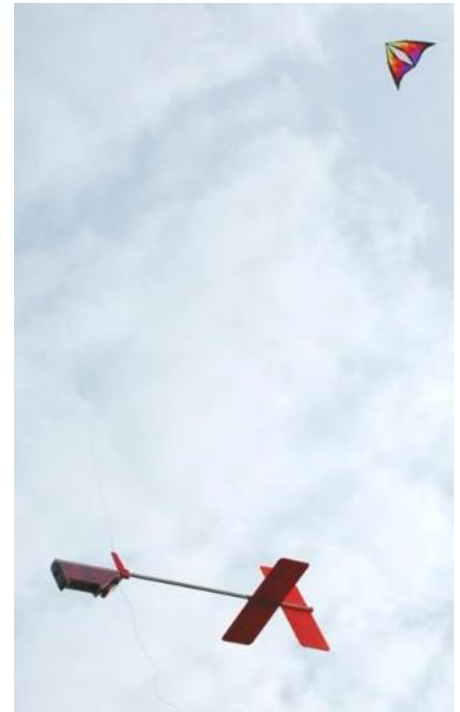
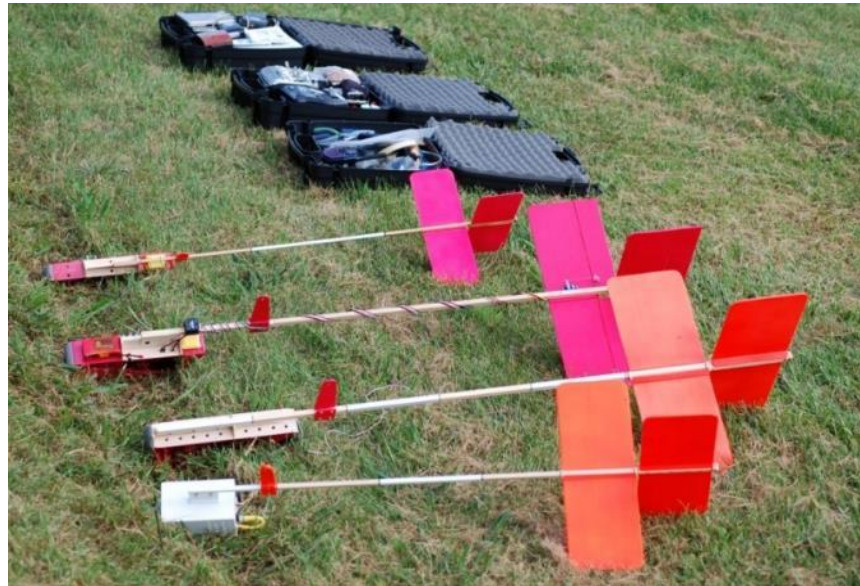


TwinCam – Near Infrared Imaging





1912: Picavet; 2012: Aeropod - a NASA Technology

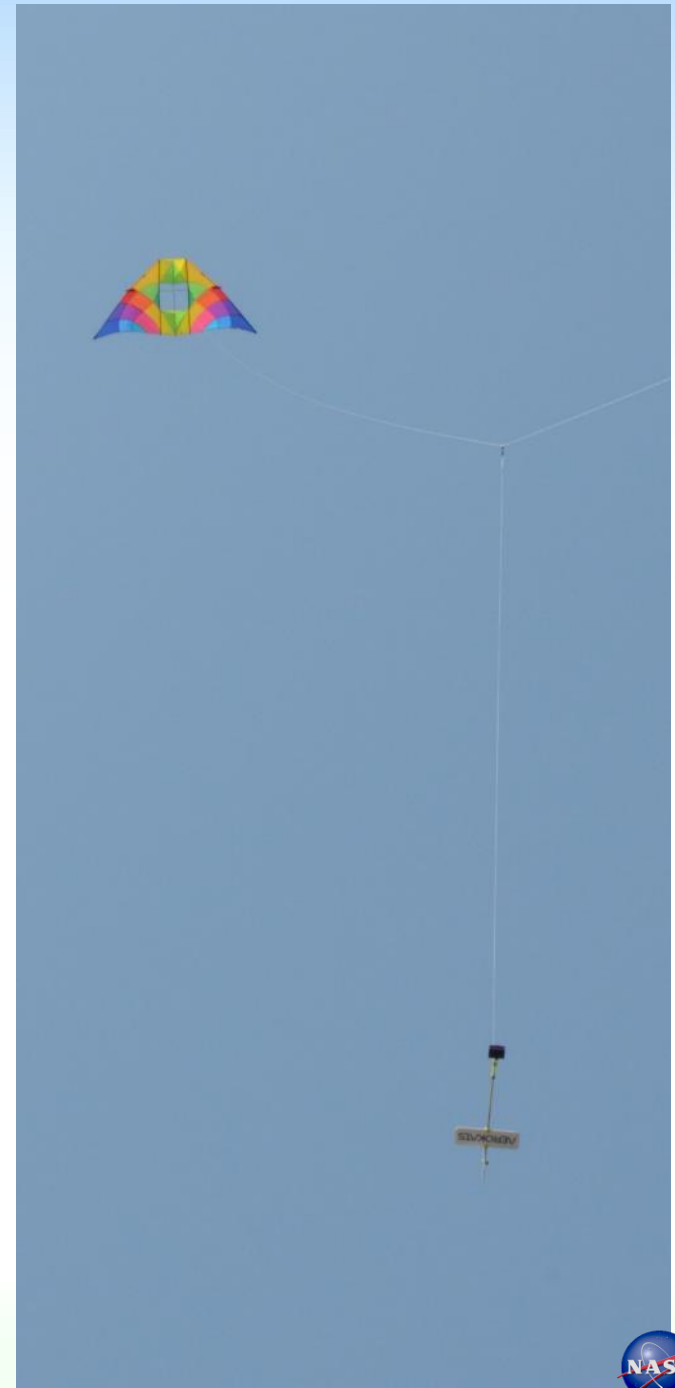
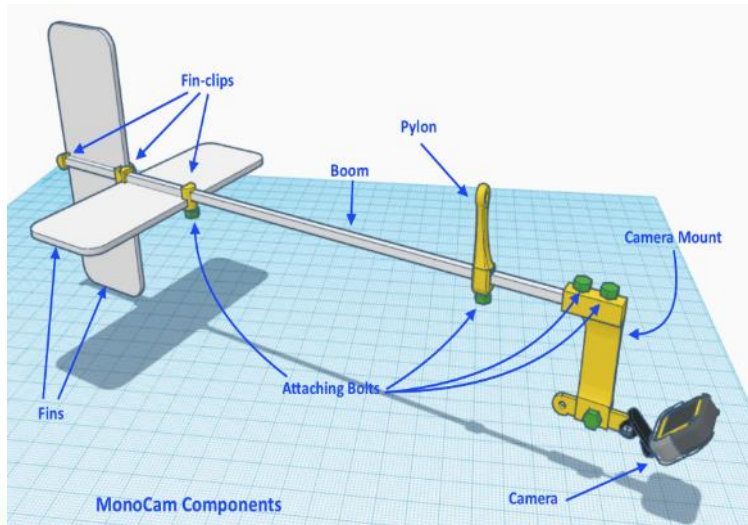
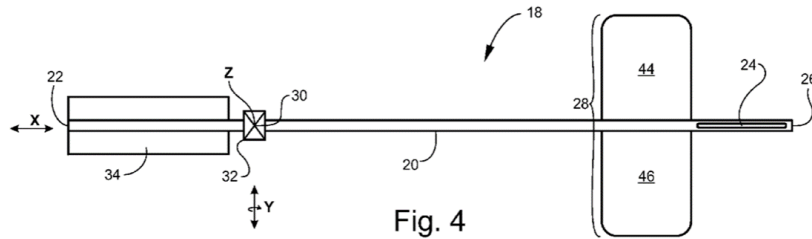
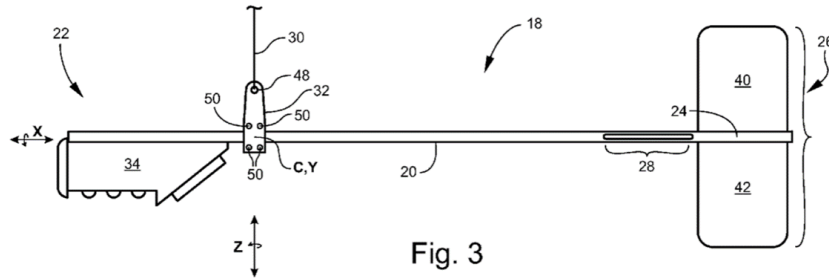


MultiPod

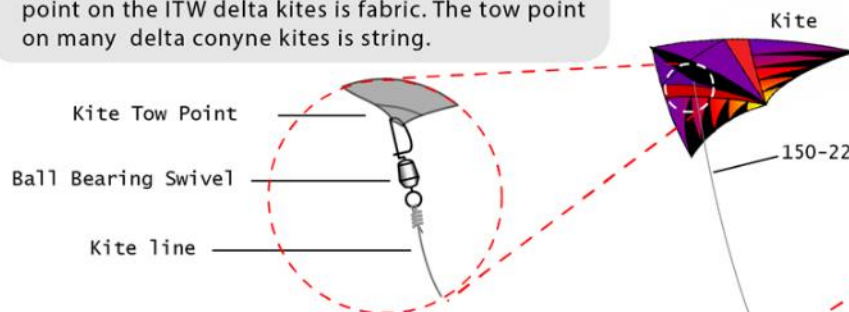


Aeropod

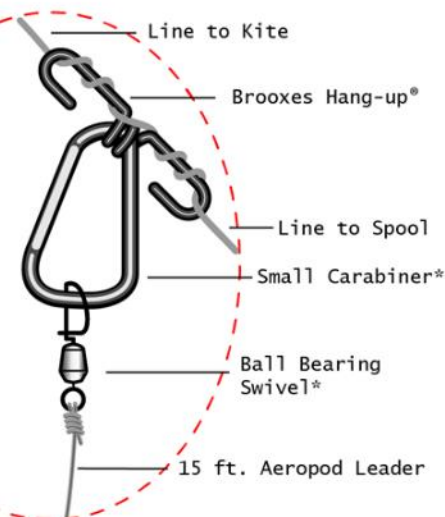
Aerodynamically Stabilized Instrument Platform
US Patent # 8,196,853, 2012



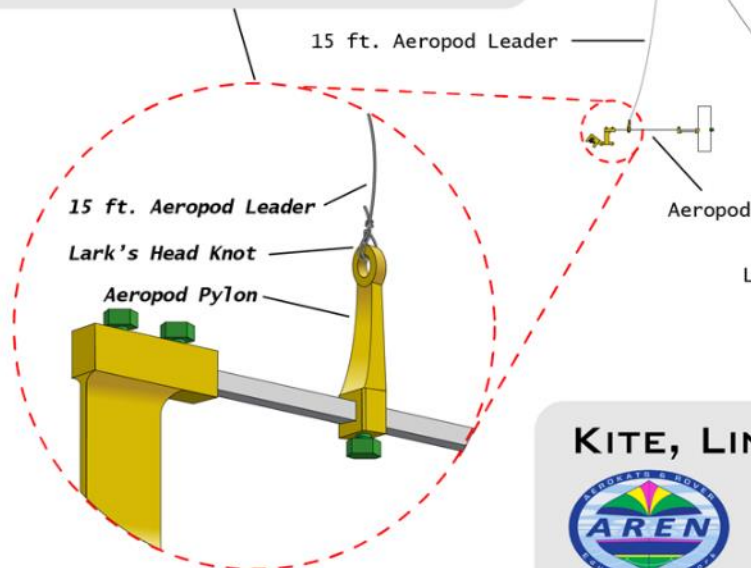
The Kite attaches directly to the line with a ball bearing swivel at the *tow point* on the kite. The tow point on the ITW delta kites is fabric. The tow point on many delta conyne kites is string.



The *Brooxes Hang-up* assembly attaches between 150 and 225 ft from the kite, depending on wind conditions.



The Aeropod attaches to the 15 ft *Aeropod Leader*. That leader attaches with a ball bearing swivel to the small carabiner, which is attached to the kite line using a *Brooxes Hang-up*®.



* Note: The small carabiner and ball bearing swivel pictured above are used to help prevent line twists and allow quick attachment. You can attach the line directly to the rings in the *Brooxes Hang-up*® with a lark's head knot if you prefer.



NOTE: Drawing not to scale

KITE, LINE, AND AEROPOD CONNECTIONS



AEROKATS

©AREN Project 20181022

Schmidt Ocean Institute R/V *Falcor*

Images Captured by Stephanie Uz (NASA)



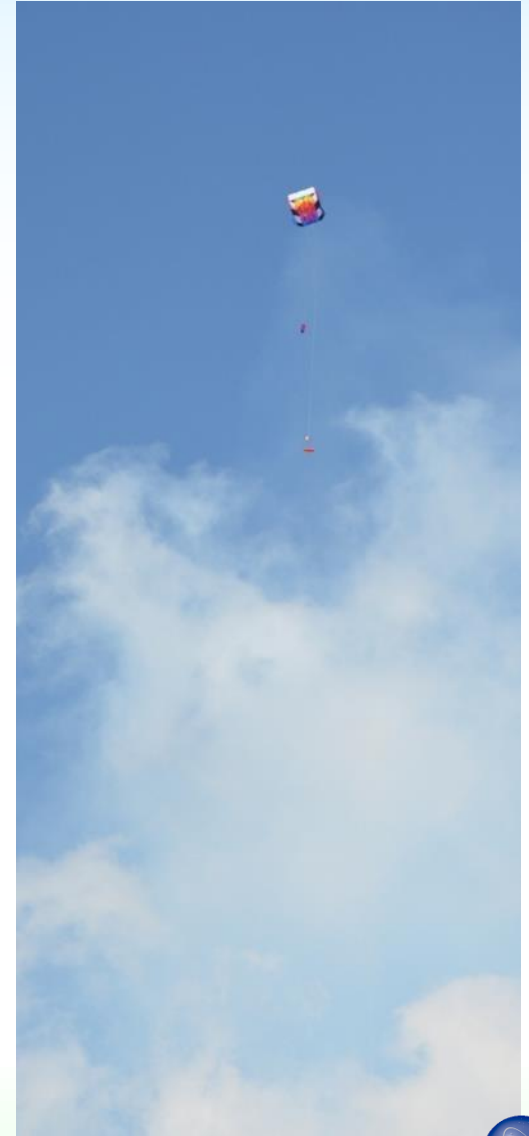
Arenal & Turrialba Volcanoes

w/ David Pieri (JPL), Andres Diaz (Univ. Costa Rica)



VEREX

Volcanic Retrievals Emissions Experiment Pieri, et al (2017)





Andy Henry/Wayne County Regional Educational Services Agency (RESA)
NNX16AB95A

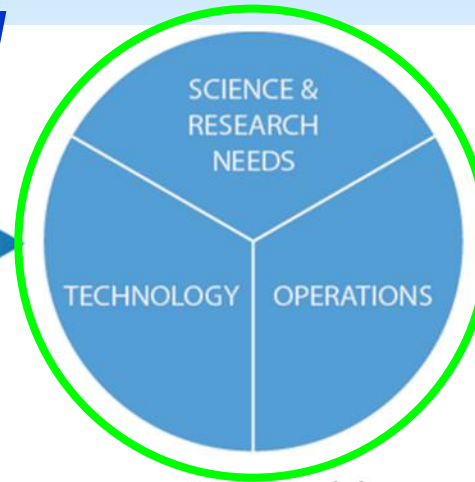
<https://science.nasa.gov/learners/science-activation-teams>

AEROKATS and ROVER Education Network

AREN



Typical NASA Mission Model

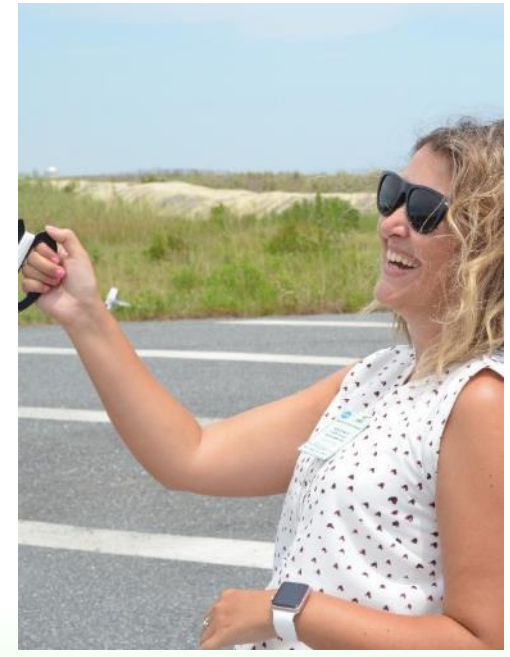


AREN Model



geoff.bland@nasa.gov

AEROKATS – Getting Started ...







MonoCam

MonoCam

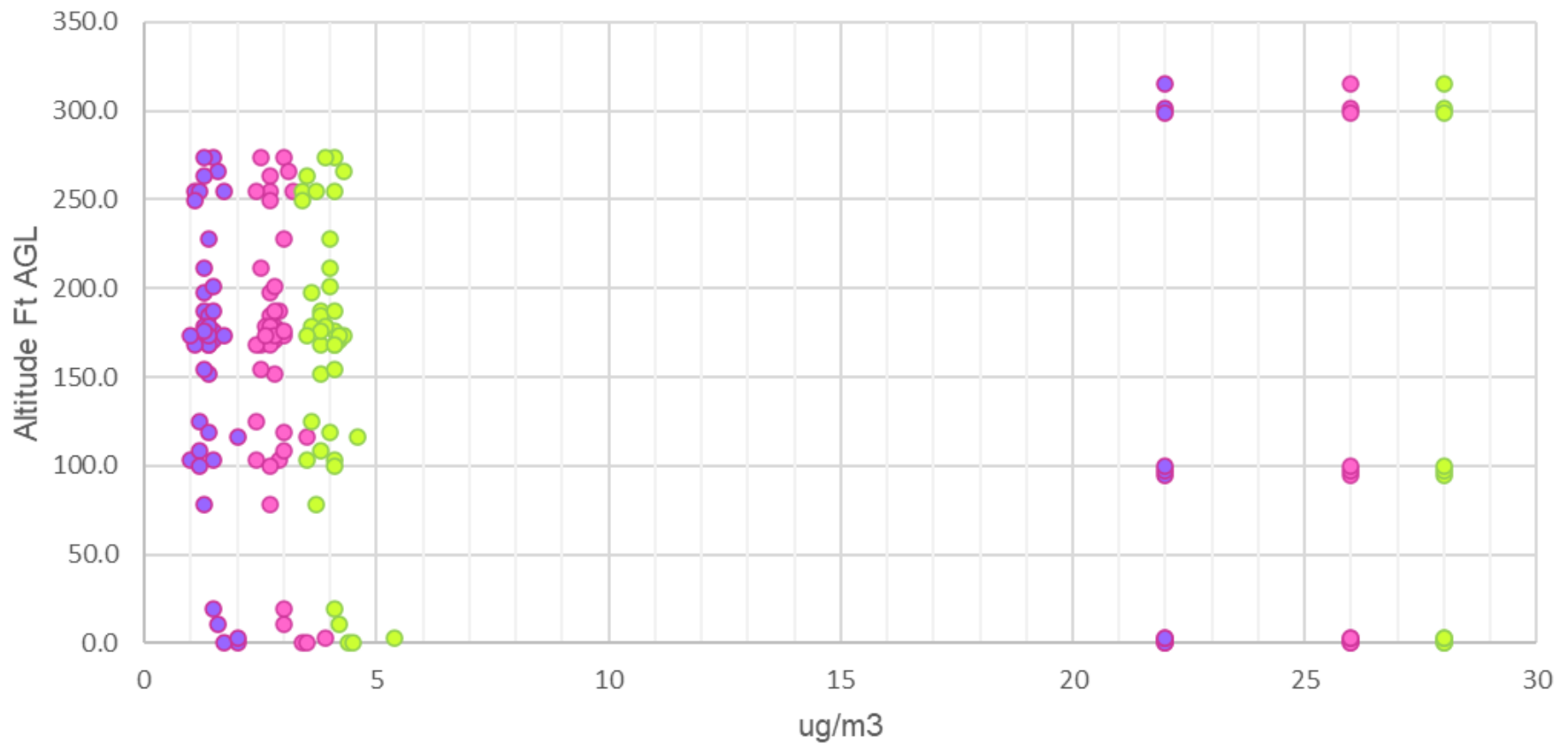


Profiler



AtmoTube Pro 9-1-23 WW

● PM 1 vs Alt Ft AGL ● PM 2.5 vs Alt Ft AGL ● PM 10 v Alt Ft AGL





What Kite will fly a ~~25~~ 40 g Aeropod?





MiniCam developed and produced by Ted Miles/Black Swift Technologies

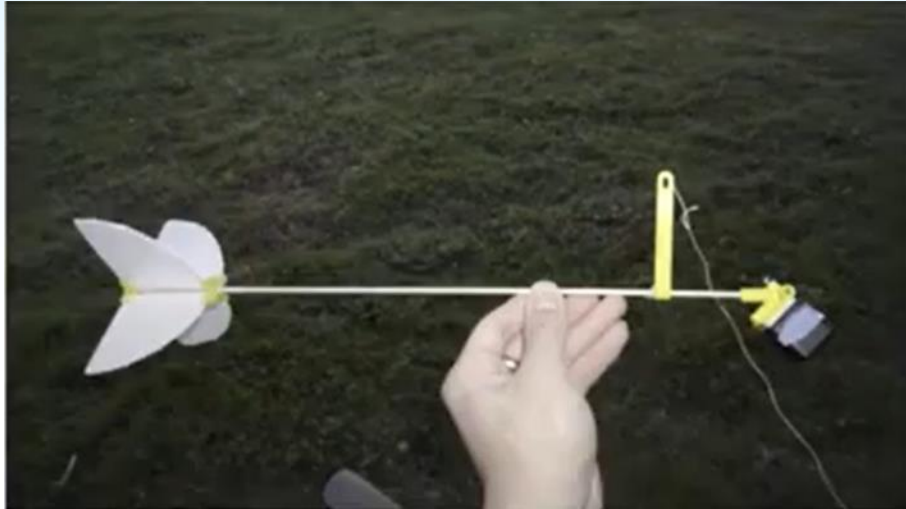


MiniCam developed and produced by Ted Miles/Black Swift Technologies

2022 Workshop co-presented with Rich Cairncross and DJ Viray



Rich and DJ Flights (Drexel University)



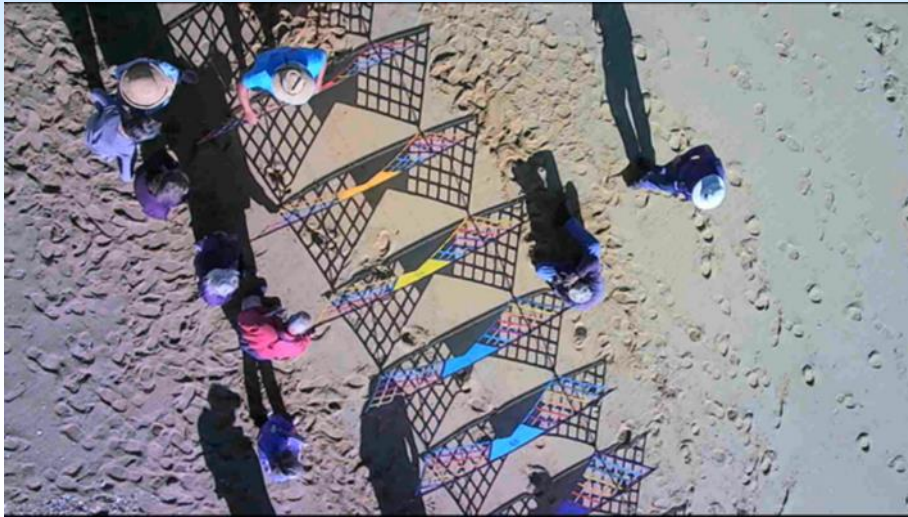




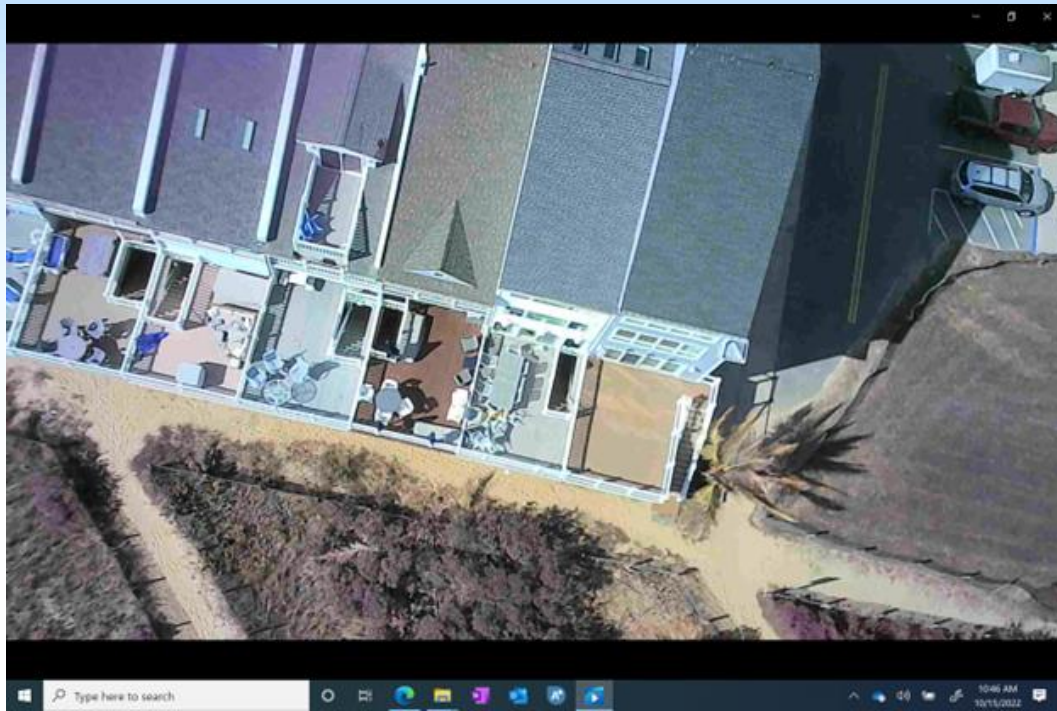
... from 2022 Ocean City MD ...



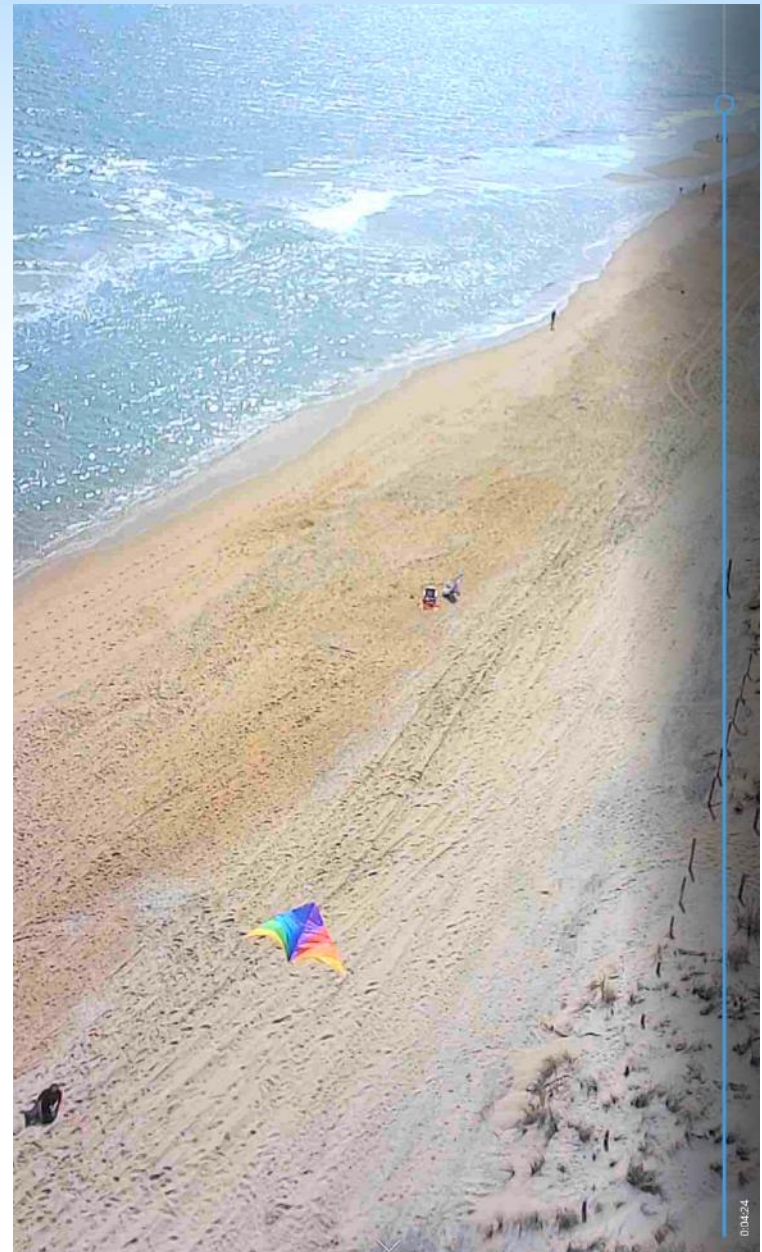
Still Images via “*Prt Sc*” (Print Screen) from Video



Kay Brassell



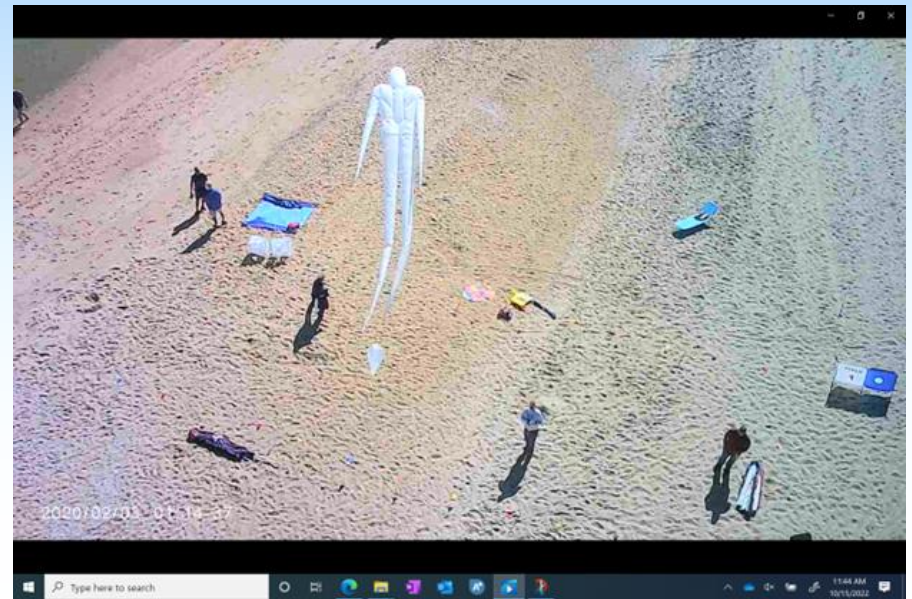
Mitch Cordover



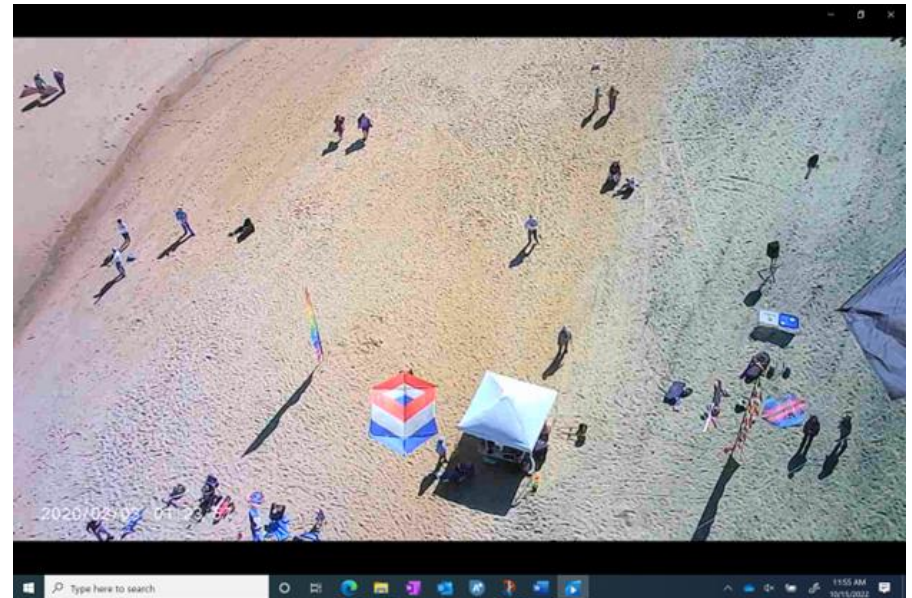


Mark Ledvina

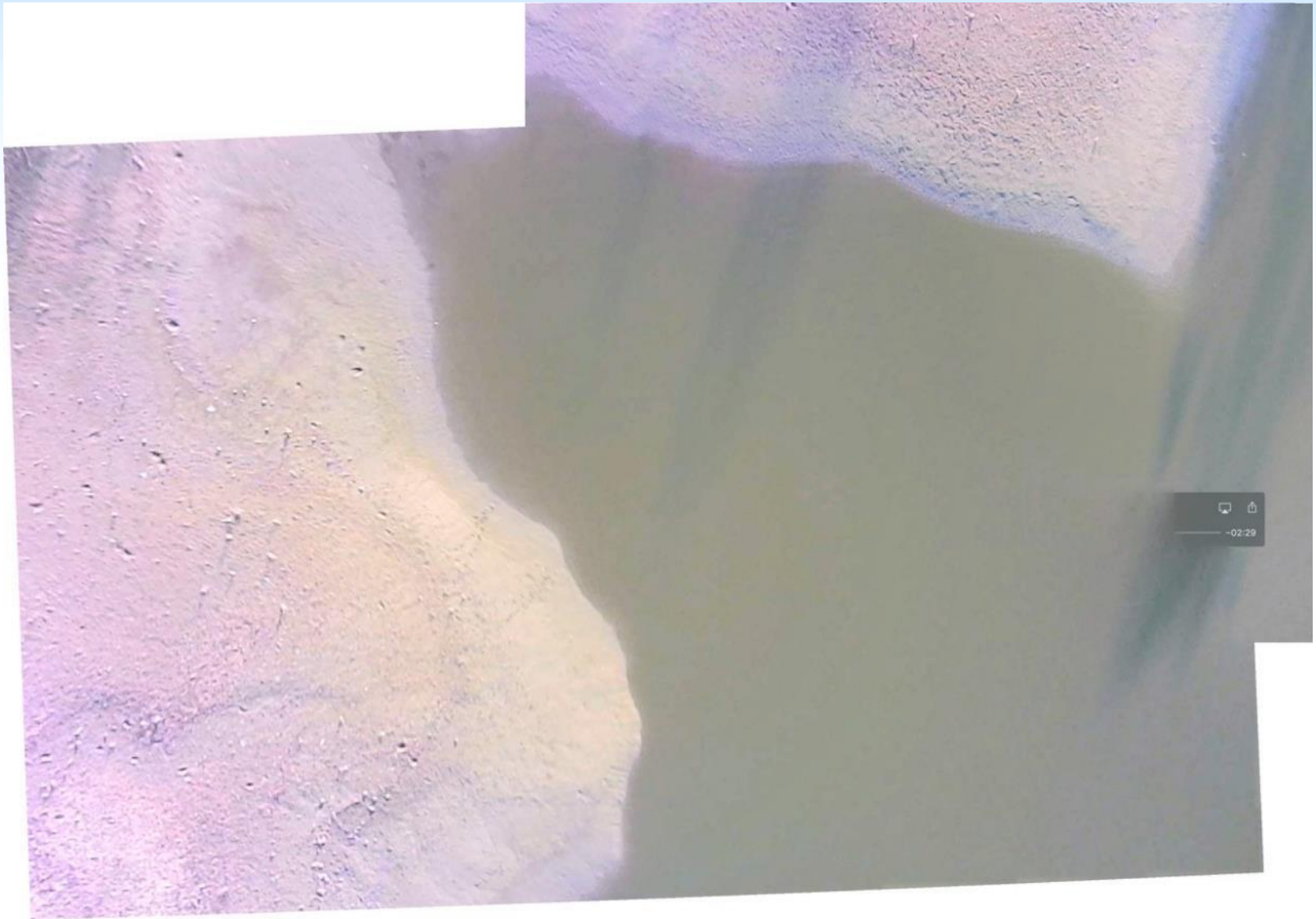




Chuck Jones



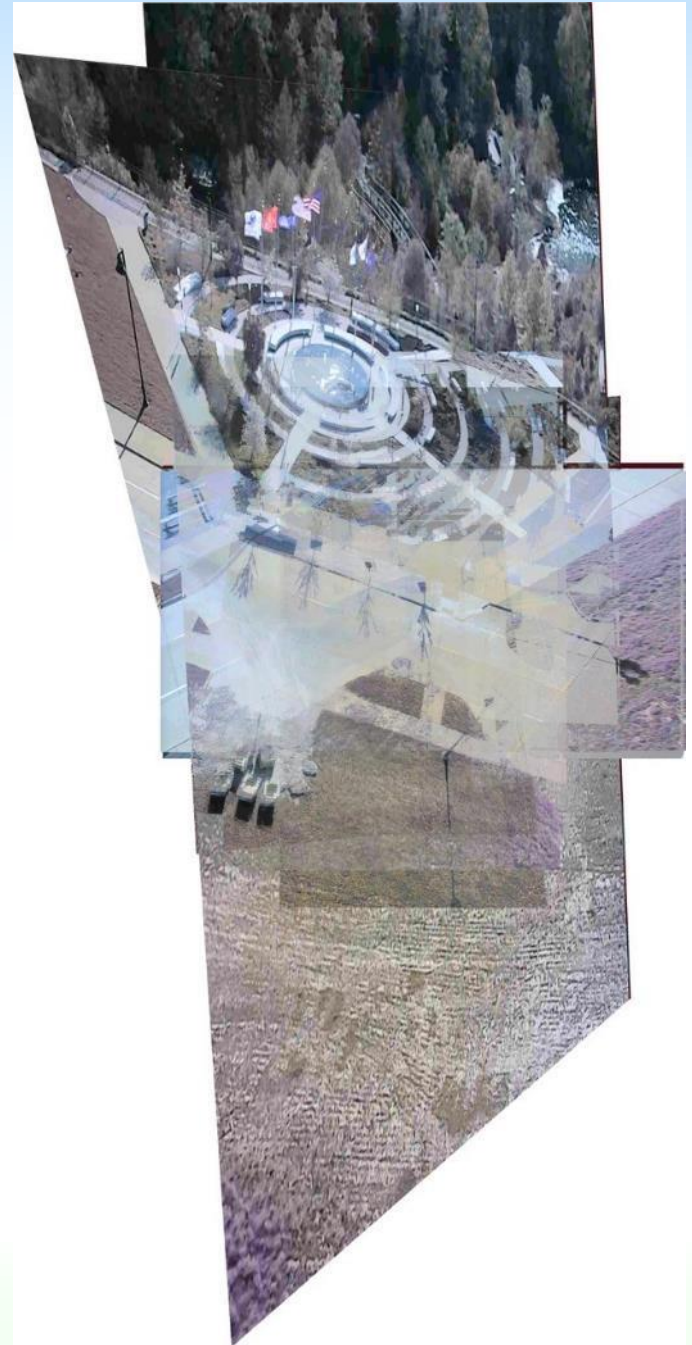
Mitch Cordover "Stack"... via *Affinity Photo 2*



newly flooded area ... note wildlife tracks

Mitch Cordover “Stack”... via *Affinity Photo 2*

newly constructed public arena

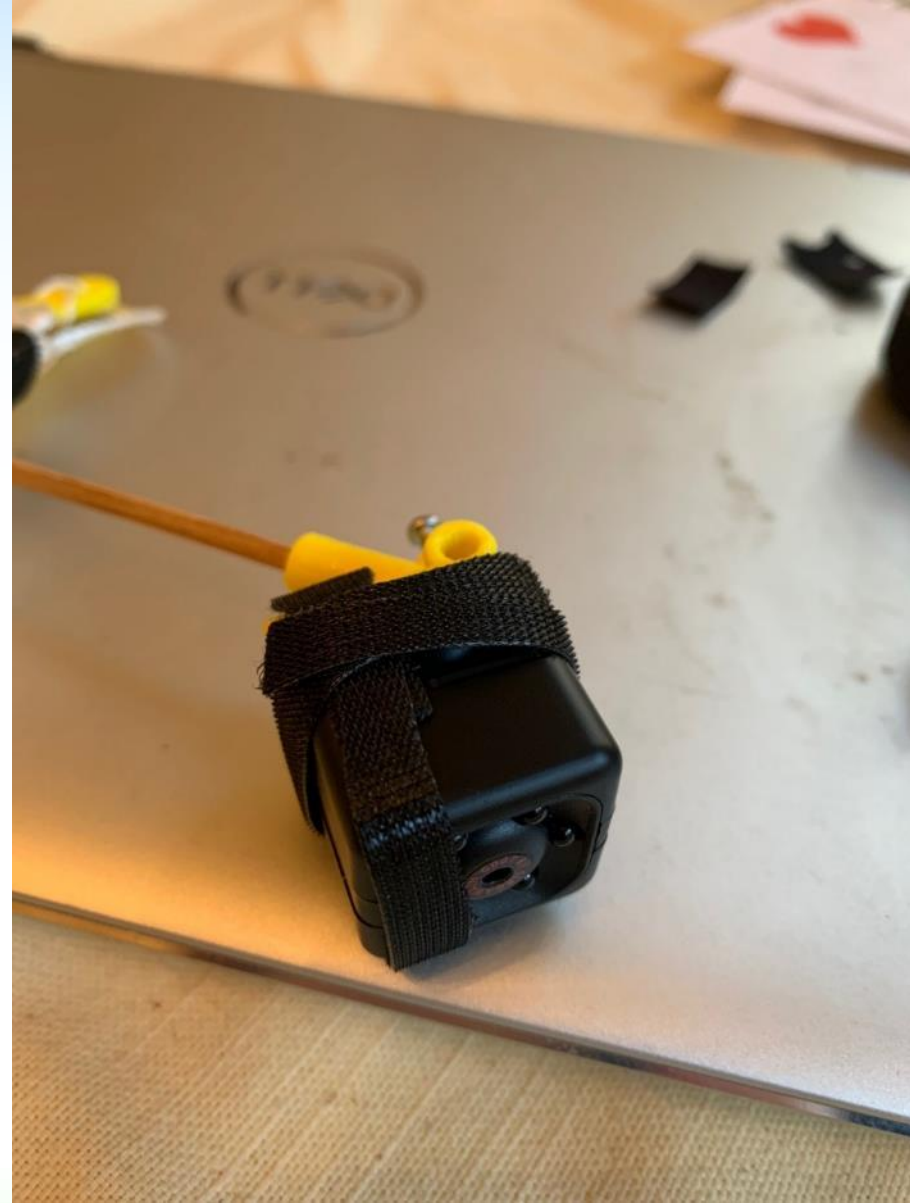
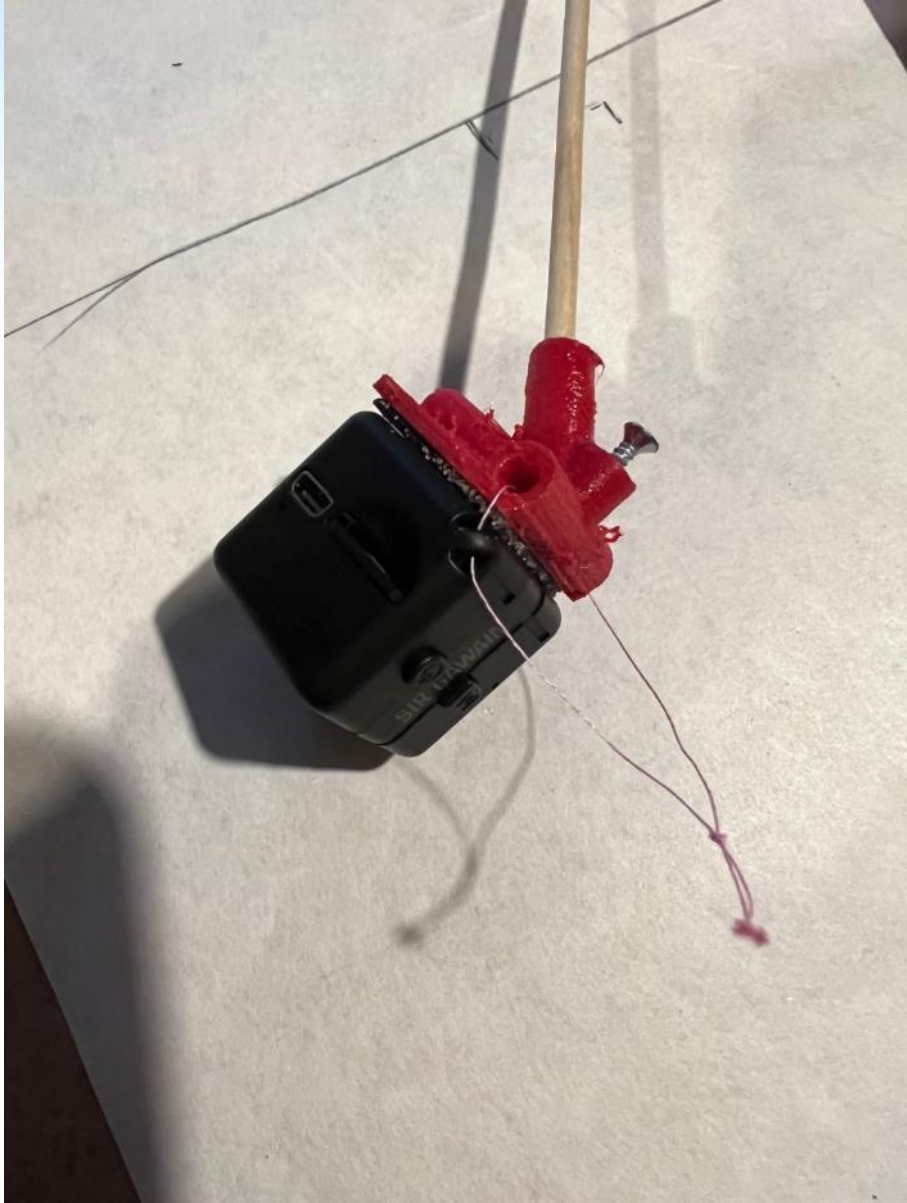


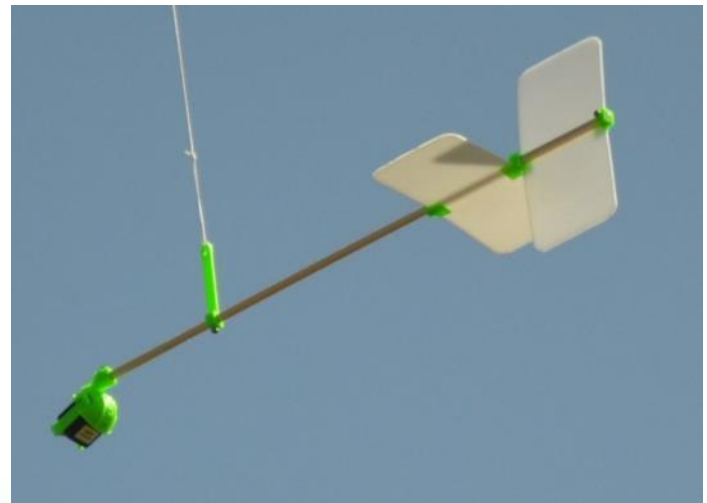
Mitch Cordover “Stack”... via *Affinity Photo 2*



invasive species in an area that could not be mowed

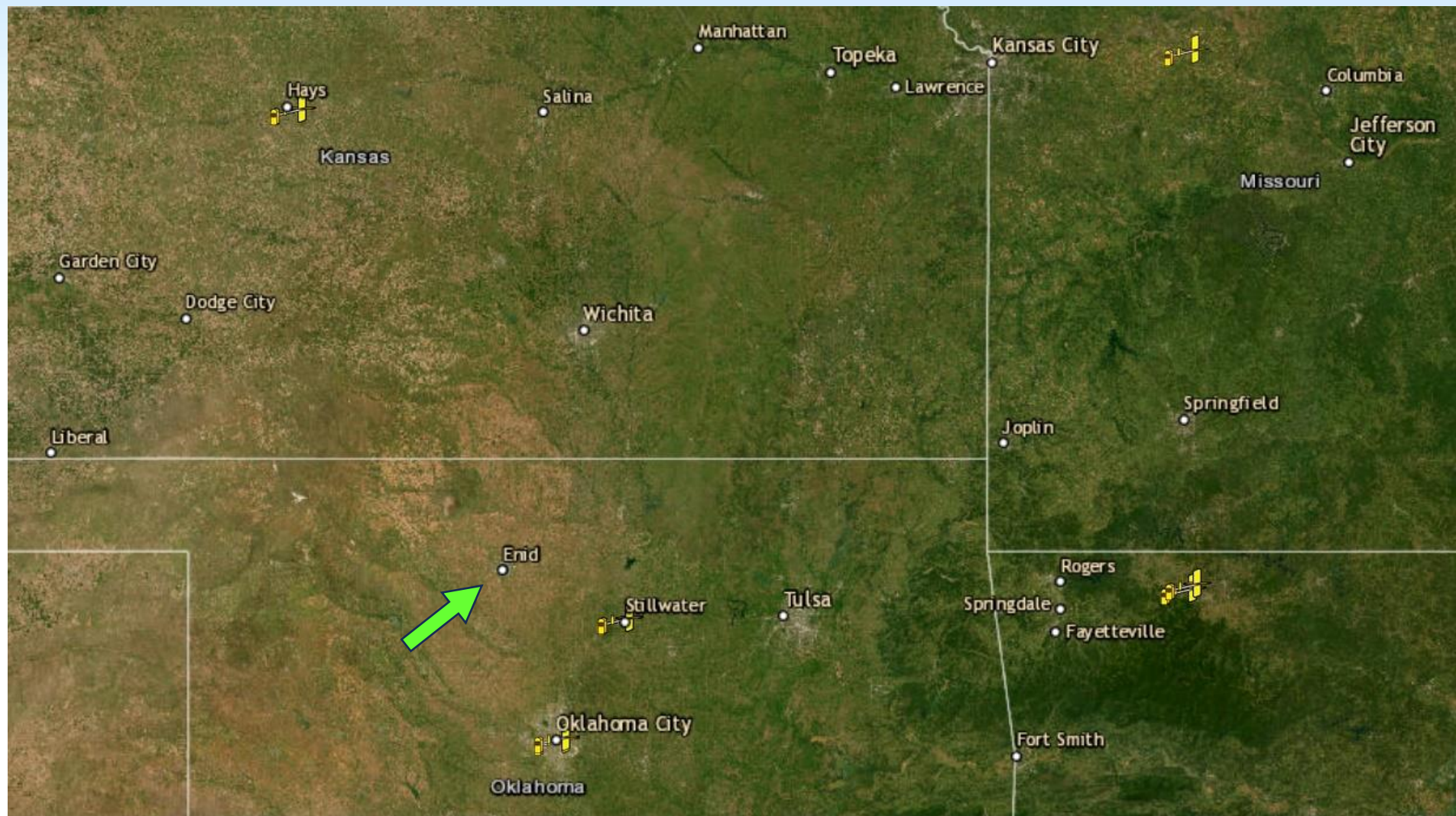
Richard Hawkins and Steve Clarke Mounting Fixes

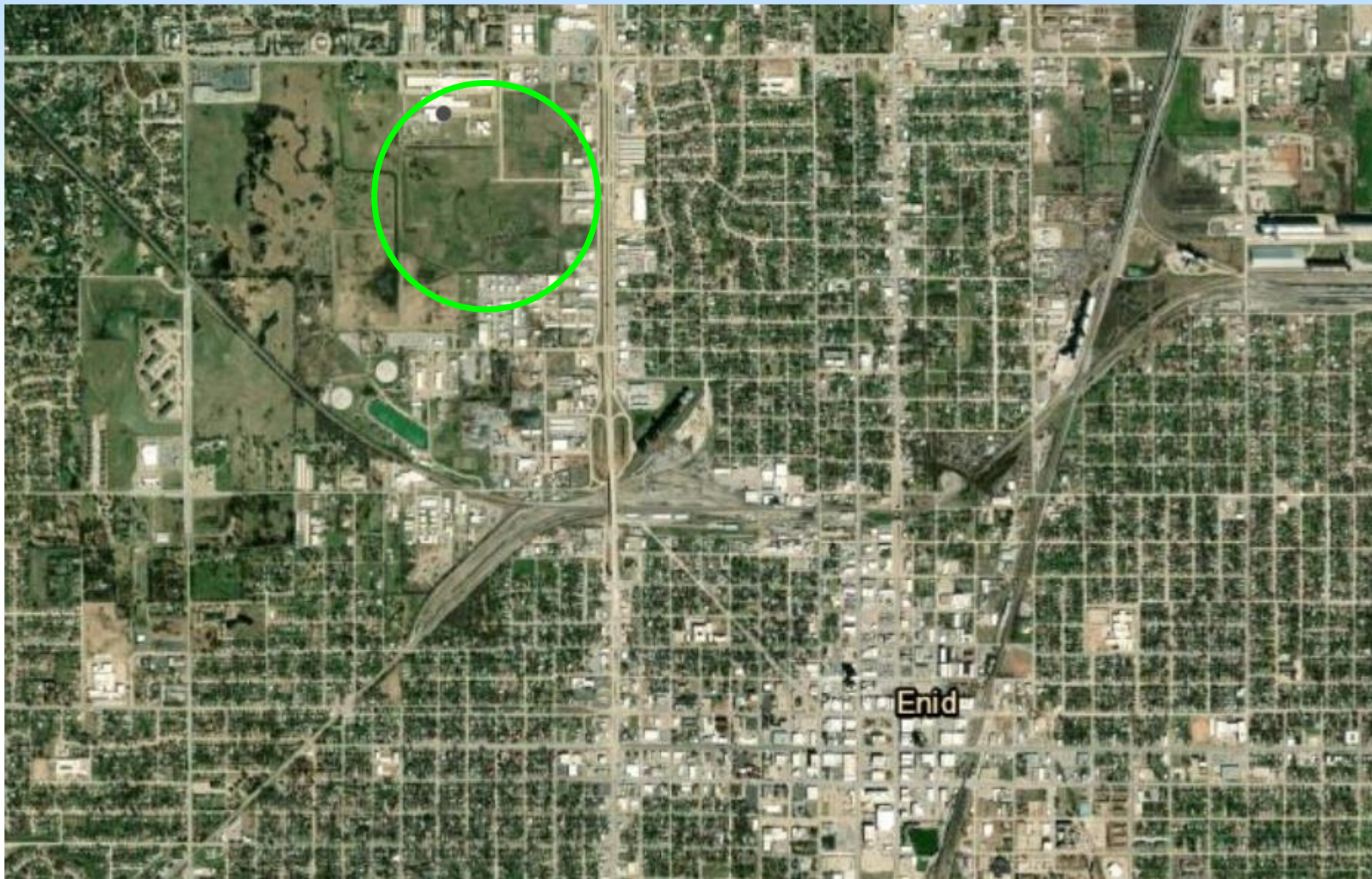






<https://survey123.arcgis.com/share/5ba09b15ef074953abf818fce6d504f2?portalUrl=https://www.arcgis.com&open=menu>





<https://survey123.arcgis.com/share/5ba09b15ef074953abf818fce6d504f2?portalUrl=https://www.arcgis.com&open=menu>

MiniCam CAMERA CHARGING AND FILE ACCESS

(Ted Miles/BST/AREN)

If charging the camera using a USB power adapter, be sure to remove the data card to prevent the camera auto-starting and **recording** which would completely fill the card and not allow the camera to charge properly.

The card can be left in the camera if charging from a computer/device with the provided USB charge/data cable and **will also allow access to the video files stored on the card**. After confirming a successful copy of the video files from the data card, delete the files from the card in preparation for the next mission.

The user is encouraged to review the USER MANUAL to get better acquainted with the camera's features and operation.



MiniCam CAMERA INSTRUCTIONS

(Ted Miles/BST/AREN)

1. To TURN ON the camera, PRESS AND HOLD the **ON/OFF** button until the **BLUE** LED light turns on. If the LED is **BLUE**, the camera is in STANDBY mode for **720p**.
2. To change to Full HD 1080p, MOMENTARILY PRESS the **MODE** button once. The LED will change from **BLUE** to **BLUE/RED**, indicating STANDBY mode for **1080p**.
3. While in STANDBY mode with the BLUE OR BLUE/RED on all time, MOMENTARILY PRESS ON/OFF button once to begin video recording. The LED will flash 3 times, then turns OFF. The camera will record video in LOOP mode until stopped or the battery runs out.
4. MOMENTARILY PRESS the ON/OFF button again to stop video recording. The LED will return to the STANDBY mode.



MiniCam CAMERA INSTRUCTIONS

.... Continued

5. To TURN OFF the camera, make sure the camera is not recording, then PRESS AND HOLD the ON/OFF button for 6 seconds. If left in STANDBY mode, the camera will automatically shut down after 1 minute of inactivity.

6. The camera has many modes described in the manual which can accidentally be activated by improper operating sequence. If at any time there is confusion as to the state of the camera, PRESS AND HOLD the ON/OFF button for 6 seconds to TURN OFF, then start over with STEP 1.



Please Note:

AKA has an Educational Use License for Aeropods!
(2020)

**NONEXCLUSIVE NON-ROYALTY BEARING EDUCATIONAL PATENT
LICENSE AGREEMENT**

This License Agreement (“AGREEMENT”) is entered into between the National Aeronautics and Space Administration (NASA), an agency of the United States, hereinafter referred to as LICENSOR, having its headquarters in Washington, D.C., and American Kitefliers Association, Inc. (AKA), a non-profit organization, having its principal place of business at 11550 Alpine Way, Nevada City, CA 95959, hereinafter referred to as LICENSEE, as of the date of execution of the last PARTY hereto.

Kindly send pics, info, questions, etc. to:

geoff.bland@nasa.gov

cc: Lisa Ogiemwonyi: ogiemwl@resa.net ; Ted Miles ted59@msn.com





Thank You!
from the *AEROKATS and ROVER Education Network*
(*AREN/Ogiemwonyi/NNX16AB95A*)

<https://sites.resa.net/aerokats/>

<https://www.globe.gov/ru/web/aren-project/overview/aerokats/data-collection>





AEROKATS



Geoff Bland (NASA/GSFC/613)

AEROKATS and ROVER Education Network (AREN/Ogiemwonyi)



<https://survey123.arcgis.com/share/5ba09b15ef074953abf818fce6d504f2?portalUrl=https://www.arcgis.com&open=menu>



NASA AEROKATS Mapper



Images

Videos

News

Shopping

Maps

Books

Flights

Finance

About 466 results (0.31 seconds)



Wayne RESA

<https://sites.resa.net> › aerokats › map



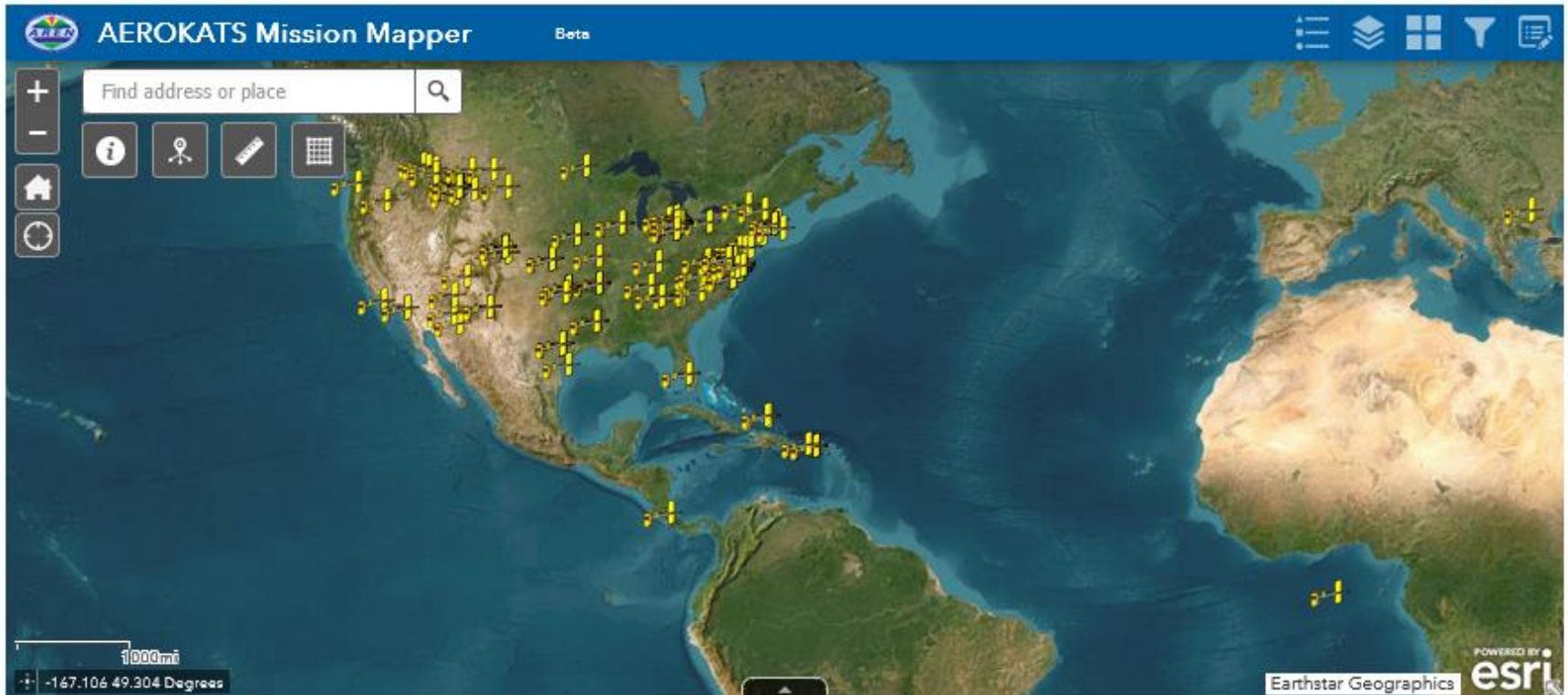
AEROKATS Mission Mapper

Copyright © 2023 **AEROKATS** and ROVER Education Network | Funding provided by **NASA**
CAN Award # NNX16AB95A | Powered by Astra WordPress Theme. Loading...

<https://sites.resa.net/aerokats/map/>



AEROKATS Mission Mapper



Upload AEROKATS Field Data

My Survey

Mission Details ▾

Mission ID*

Short identifier for the mission/flight

Date*

Date of the Mission

School or Group

School, Organization or Group name

Site Name/Description*

Name or description of mission location

Mission Objective*

What do you intend to accomplish with this mission

Equipment ▾

Kite Type*

What kite format are you using (shape/style)

☐ Delta

☐ Delta-Conyne

☐ Diamond/Hata

☐ Parafoil

☐ Sled

☐ Rokkaku

☐ Roller

☐ Other

Kite Model*

Specific kite model (if known)

Wingspan (ft.)*

What is the kite wingspan (long edge)

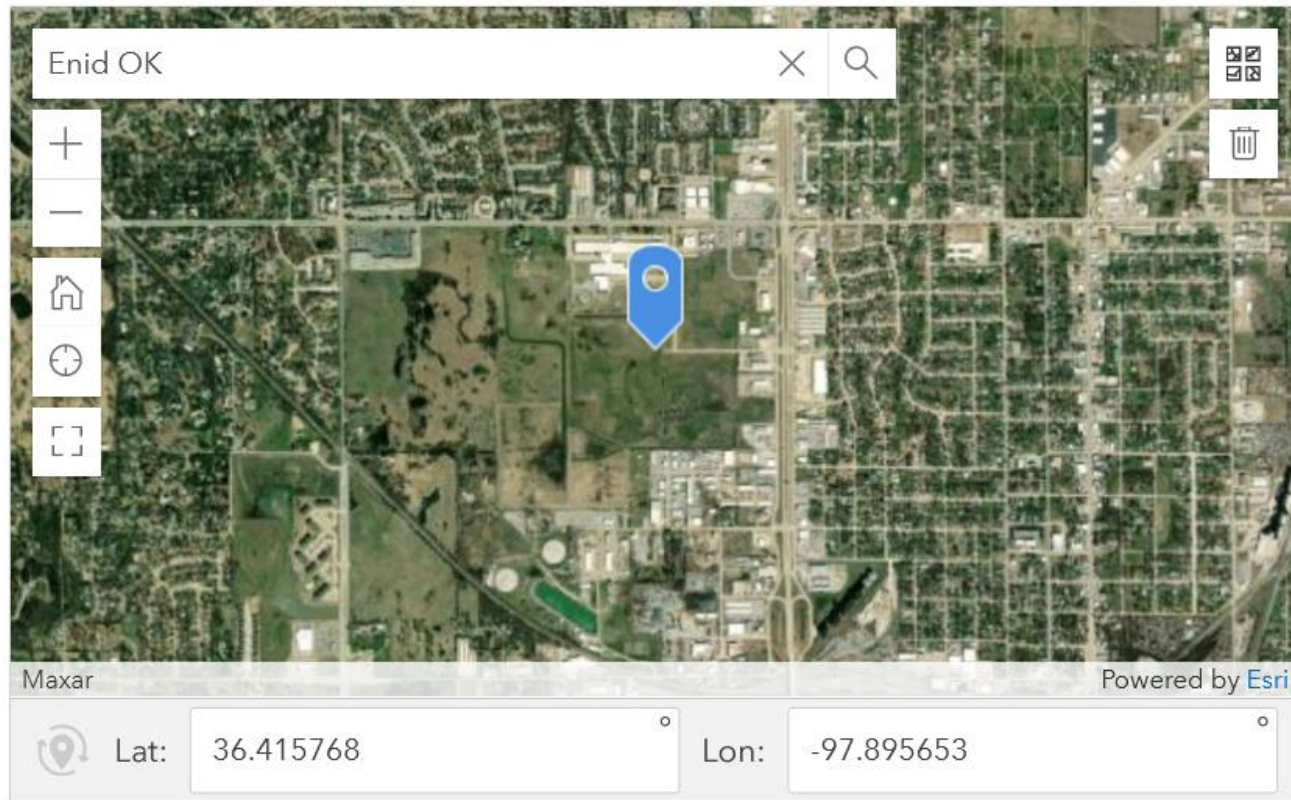
Aeropod Model*

Select from list

☐ MiniCam

Location Lon/Lat*

Use map to locate



The image shows a web-based map interface. At the top, a search bar contains the text "Enid OK" and has a magnifying glass icon. To the left of the map is a vertical toolbar with icons for zooming in (+), zooming out (-), home, compass, and full-screen. To the right are icons for a grid and a trash can. The map itself is an aerial view of a suburban area with a blue location pin. Below the map, the text "Maxar" is on the left and "Powered by Esri" is on the right. At the bottom, there are two input fields: "Lat: 36.415768" and "Lon: -97.895653", each with a degree symbol (°) to its right. A location pin icon is to the left of the latitude field.

Enid OK

Maxar

Powered by Esri

Lat: 36.415768°

Lon: -97.895653°

Flight Details ▾

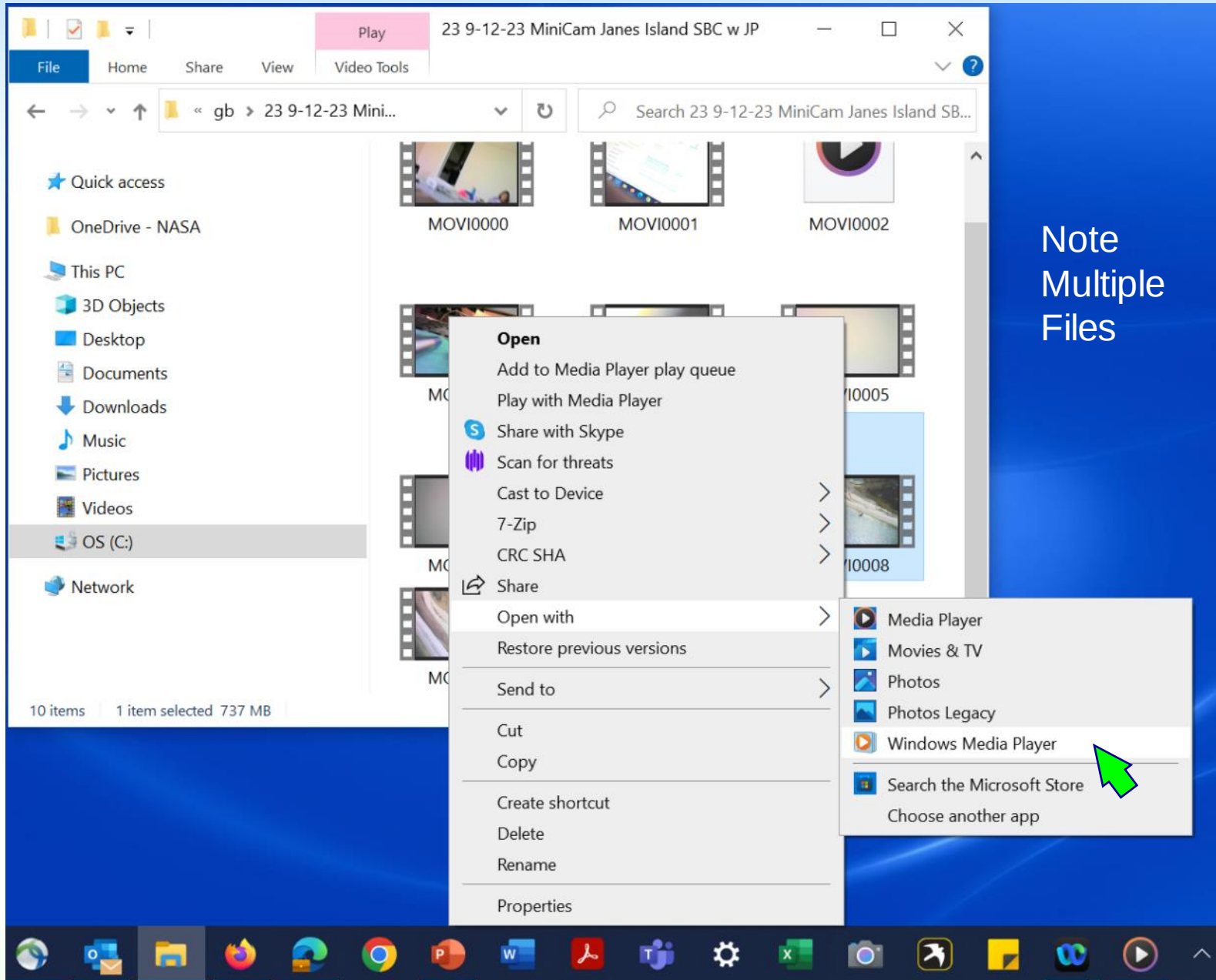
Time of Launch - Kite*

hh:mm





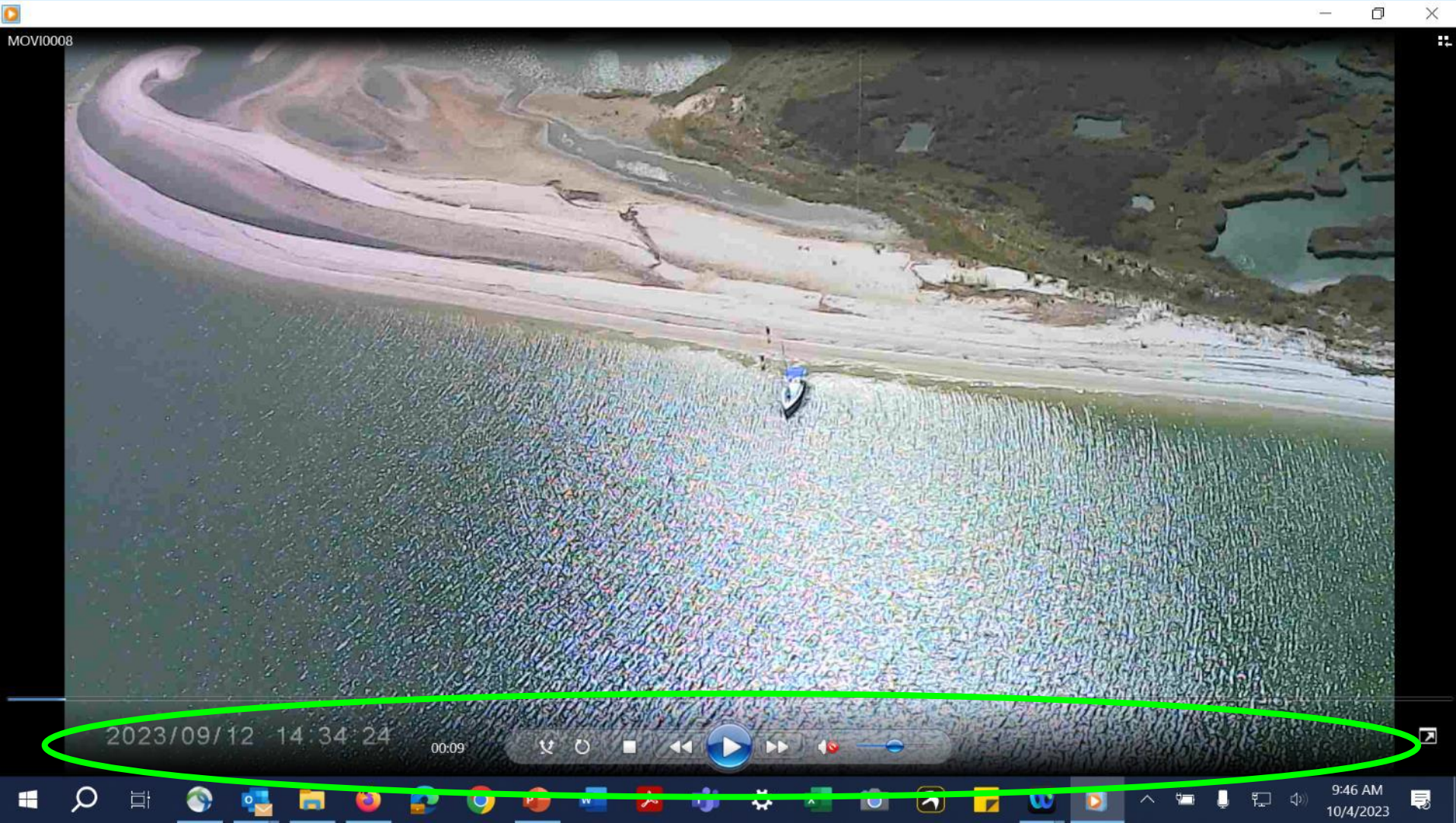
1) Open Video in application such as Windows Media Player



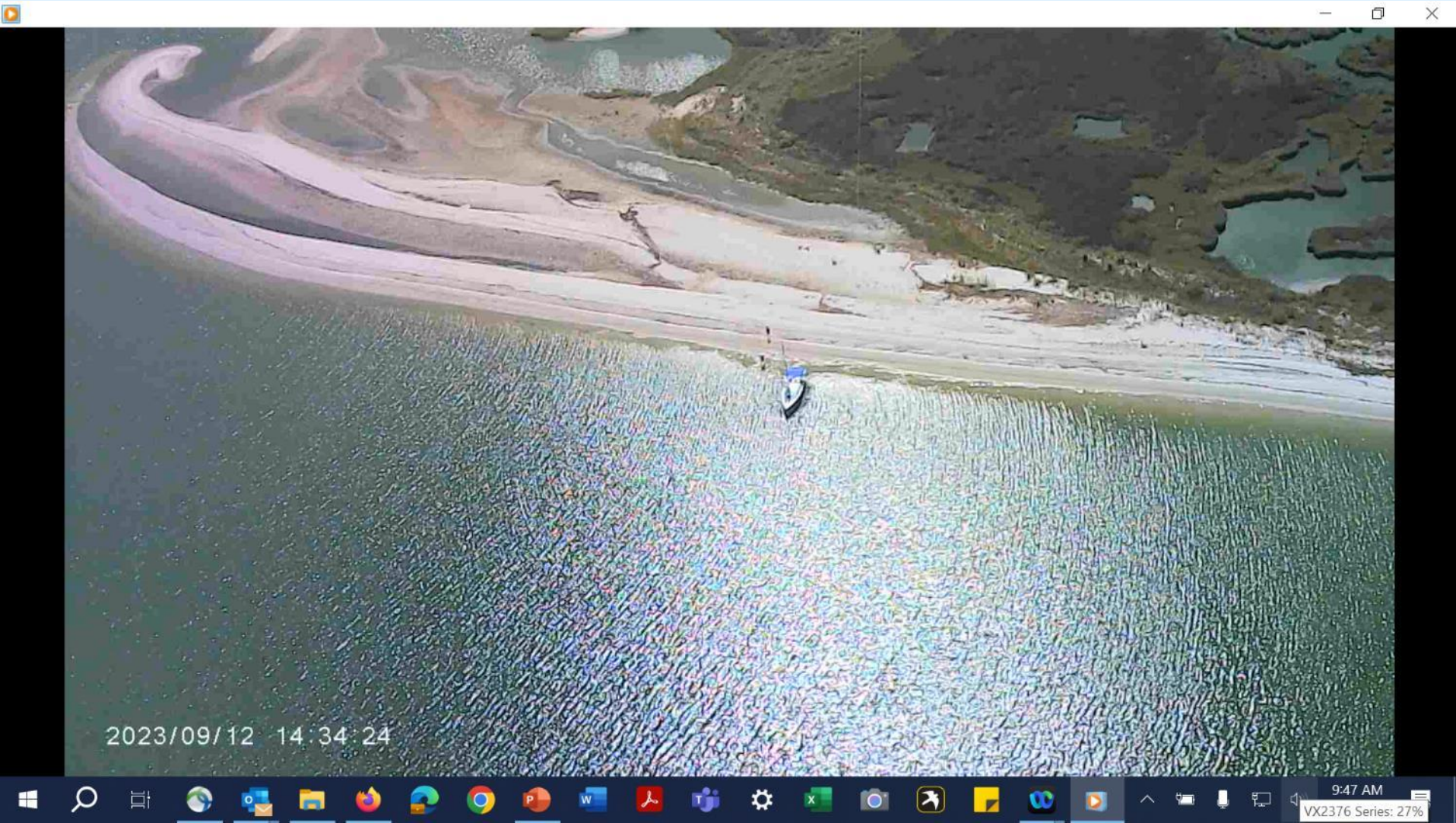
The screenshot shows a Windows File Explorer window titled "23 9-12-23 MiniCam Janes Island SBC w JP". The left sidebar shows the "Videos" folder selected under "This PC". The main pane displays a list of video files with thumbnails, including "MOVI0000", "MOVI0001", "MOVI0002", "MOVI0005", and "MOVI0008". A right-click context menu is open over a selected file, and the "Open with" submenu is displayed, showing the following options: "Media Player", "Movies & TV", "Photos", "Photos Legacy", "Windows Media Player" (highlighted with a green arrow), "Search the Microsoft Store", and "Choose another app".

Note
Multiple
Files

2) Play or Scroll and Pause note Controls Might Remain Visible for a moment



3) Controls may disappear if cursor is moved off of page



4) Print Screen and Paste Picture into Document, Slides, etc.

AutoSave OFF AEROKATS and MiniCam - for 2023 No Label • Saved to this PC Bland, Geoffrey L. (GSFC-6130) BG

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help

Record Present in Teams Share

3) Controls may disappear if cursor is moved off of page

59 60 61 62 63

2023/09/12 14:34:24

9:47 AM VX2376 Series: 27%

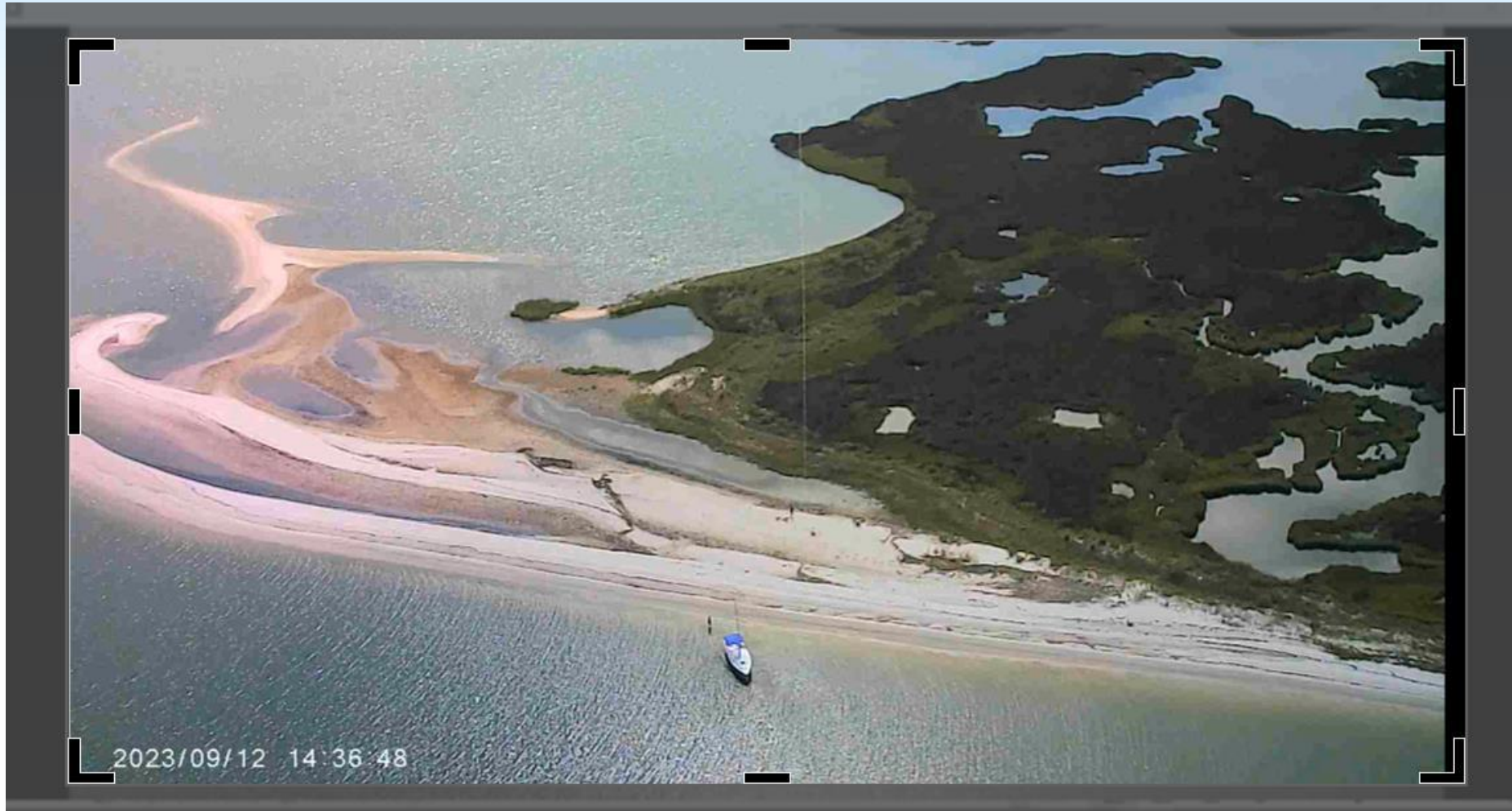
geoff.bland@nasa.gov

Slide 60 of 67 English (United States) Accessibility: Investigate

Notes

9:48 AM 10/4/2023

5) Crop Image - optional



Cropped Image Example



2023/09/12 14:36:48

6) Save Image as Picture (Windows - Right Click)

AutoSave OFF AEROKATS and MiniCam - for 2023 No Label - Saved to this PC Bland, Geoffrey L. (GSFC-6130) BG

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Picture Format

62 63 64 65 66

6) Save Image as Picture

Style Crop New Comment

Search the menus

- Cut
- Copy
- Paste Options:
- Change Picture
- Group
- Bring to Front
- Send to Back
- Lock
- Link
- Save as Picture...
- View Alt Text...
- Size and Position...
- Format Picture...
- New Comment

2023/09/12 14:36:48

geoff.bland@nasa.gov

Slide 64 of 67 English (United States) Accessibility: Investigate

10:04 AM 10/4/2023

7) Verify Picture is Filed

23 9-12-23 MiniCam Janes Island SBC w JP

File Home Share View

« pix > Aerovators > gb > 23 9-12-23 MiniCam Janes Island SBC w JP

Search 23 9-12-23 MiniCam Janes Island SB...

Quick access

- OneDrive - NASA
- This PC
- 3D Objects
- Desktop
- Documents
- Downloads
- Music
- Pictures
- Videos
- OS (C:)

Name	Date	Type	Size	Length
MiniCam Example 3 SBC Janes 10-3-23	10/4/2023 10:10 AM	PNG File	1,808 KB	
MOVI0000	6/14/2023 2:10 PM	AVI File	54,683 KB	00:00:29
MOVI0001	6/21/2023 6:29 PM	AVI File	4,830 KB	00:00:07
MOVI0002	6/21/2023 6:29 PM	AVI File	2,313 KB	00:00:03
MOVI0003	9/11/2023 3:31 PM	AVI File	313,288 KB	00:03:32
MOVI0004	9/12/2023 2:19 PM	AVI File	4,440 KB	00:00:08
MOVI0005	9/12/2023 2:24 PM	AVI File	281,921 KB	00:04:59
MOVI0006	9/12/2023 2:29 PM	AVI File	289,957 KB	00:04:59
MOVI0007	9/12/2023 2:34 PM	AVI File	799,203 KB	00:04:59
MOVI0008	9/12/2023 2:39 PM	AVI File	755,464 KB	00:04:59
MOVI0009	9/12/2023 2:41 PM	AVI File	350,769 KB	00:02:43

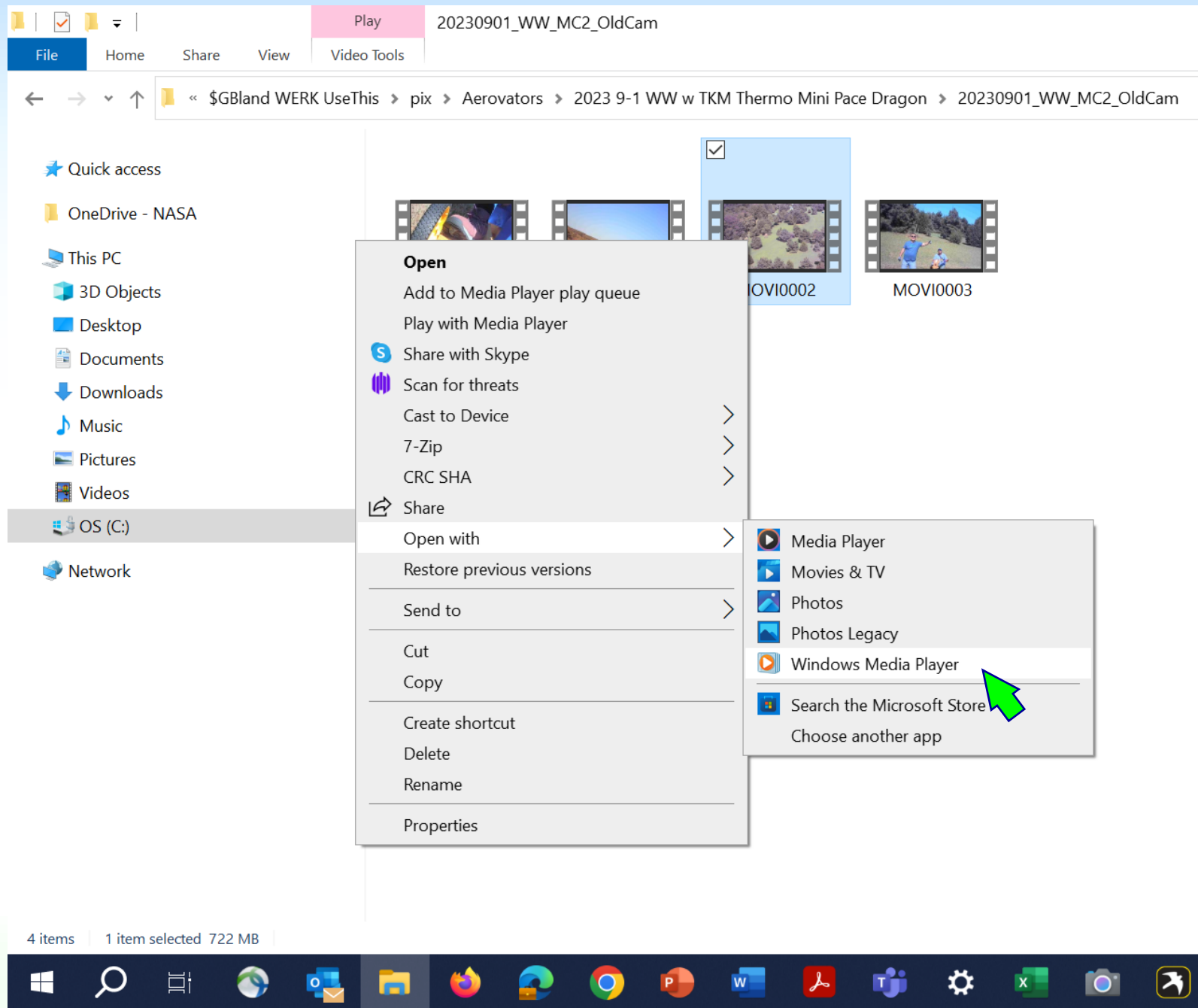


2023/09/12 14:32:26

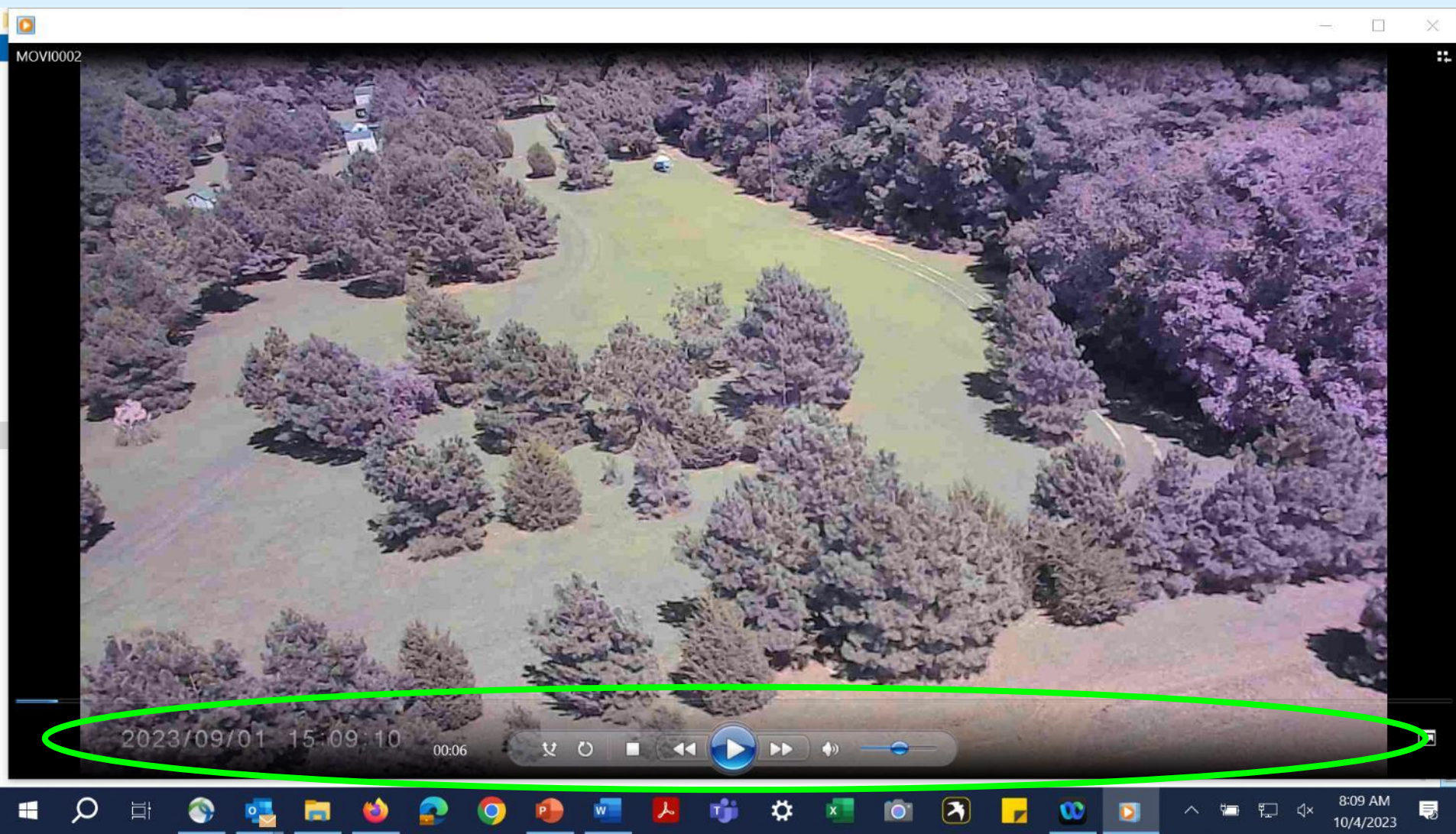




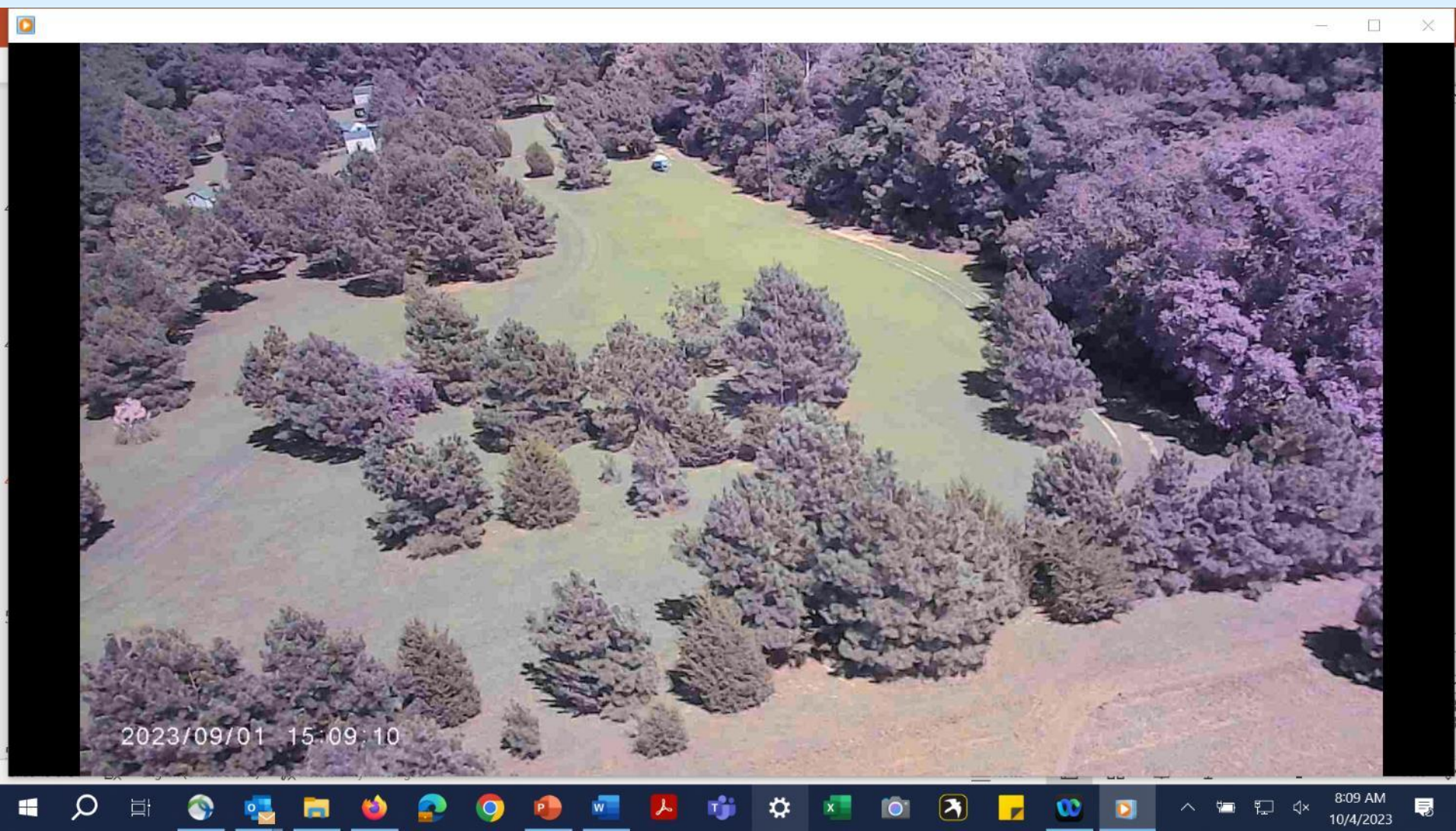
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AutoSave OFF AEROKATS and MiniCam - for 2023 No Label • Saved to this PC Bland, Geoffrey L. (GSFC-6130) BG

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Record Present in Teams Share

48 49 50 51

2023/09/01 15:09:10

geoff.bland@nasa.gov

Slide 51 of 51 English (United States) Accessibility: Investigate Notes 77%

8:10 AM 10/4/2023

5) Crop Image - optional



Cropped Image example



2023/09/01 15:09:10

6) Save Image as Picture

A screenshot of a Microsoft PowerPoint presentation titled "AEROKATS and MiniCam - for 2023" with the subtitle "No Label - Saved to this PC". The presentation is in the "Picture Format" tab. The main slide displays an aerial photograph of a golf course with a date stamp "2023/09/01 15:09:10". A context menu is open over the image, showing options such as "Cut", "Copy", "Paste Options", "Change Picture", "Group", "Bring to Front", "Send to Back", "Lock", "Link", "Save as Picture...", "View Alt Text...", "Size and Position...", "Format Picture...", and "New Comment". A green arrow points to the "Save as Picture..." option. The left sidebar shows a list of slides, with slide 53 highlighted. The bottom status bar indicates "Slide 53 of 55", "English (United States)", and "Accessibility: Investigate". The Windows taskbar at the bottom shows various application icons and the system clock displaying "8:16 AM 10/4/2023".

7) Verify Picture is Filed



← → ↕ ↑ « Users > gbland > \$GBland WERK UseThis > pix > Aerovators > 2023 9-1 WW w TKM Thermo Mini Pace Dragon > ▾ ↺

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★ Quick access

Microsoft PowerPoint

OneDrive - NASA

This PC

3D Objects

Desktop

Documents

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Music

Pictures

Videos

OS (C:)

Network

☐	Name	Date modified	Type	Size
☐	20230901_WW_DTV3AeroPod	9/5/2023 10:18 AM	File folder	
☐	20230901_WW_MC2_OldCam	9/1/2023 7:51 PM	File folder	
☐	20230901_WW_MC3_NewCam	9/1/2023 7:46 PM	File folder	
☐	20230901_WW_PacePod	9/1/2023 7:47 PM	File folder	
☐	20230901_WW_ThermoPod	9/5/2023 1:58 PM	File folder	
☐	FUJI gb 9-1-23 WW	9/7/2023 8:00 AM	File folder	
☐	MiniCam selects	9/7/2023 6:49 PM	File folder	
☐	NIKON gb 9-1-23 WW	9/7/2023 7:49 AM	File folder	
☒	Example MiniCam 2 pic	10/4/2023 8:17 AM	PNG File	815 KB

