

Chasing Bizarre Reality: Apparent UFOs, Physics, and the Everyday Impossible

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NATM Special Lecture
October 19, 2013

Overview

- Intro
 - Chasing UFOs
 - Why So Serious?
 - How to Assess UFOs
 - The Bizarre All Around Us!
 - Key UFO Case Examples
- ↓
- Recognizing the Unexplained?

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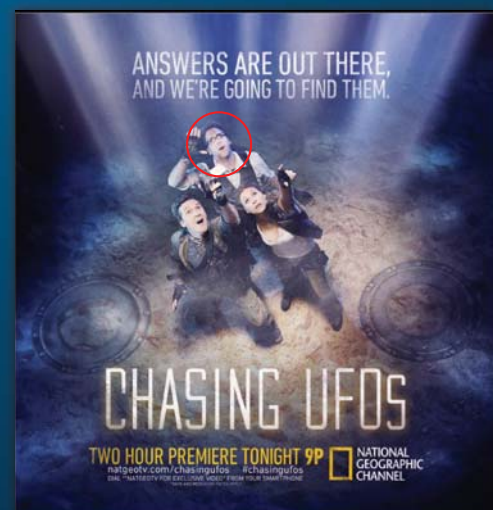
Introduction

- A little about my background:
 - B.S. Geology (Glaciology and Planetary Science)
 - M.S. Space Studies (almost) – nuclear thermal rocketry, asteroid mineral resource ops
 - Radiological Engineer: 5 yrs
 - Hydrogeologist/Env. Scientist: 5 yrs
 - Aspiring commercial astronaut (NASTAR, Astrowright)
 - Published on xenoarcheology, theoretical physics (time, lightspeed barrier), exotic physical processes
 - Adjunct college instructor (CSN), and...

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(Premiered June, 2012)



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Chasing UFOs Investigations

- Roswell, NM
- Varginha, BZ
- Yucatan, MX
- Popokatepetl, MX
- Sao Tome Das Letras, BZ
- Titusville, FL
- Snowflake, AZ (Walton)
- Everglades... (& more!)



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Chasing UFOs - Investigations

- Hard Science!:
 - e.g., 200m² radiological/geomagnetic survey at Roswell “skip” site w/ laser-ranging, high-res GPS Total Station.

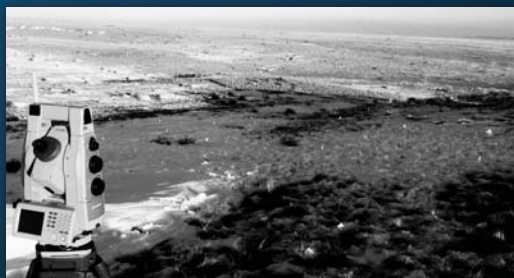


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Chasing UFOs - Investigations

- Hard Science! (...but...):
 - Discovery! Driven rebar, which suggests prior high-resolution survey, apparently not USGS
 - Makes exactly 1.5 seconds on TV.



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Role on Chasing UFOs

As the scientist on the show, I was viewed by many as the “straight man,” “wet blanket,” etc.



On Chasing UFOs

Led to a “debunker” label along w/ some amusing counter-alien-culture stereotyping...



Conflict of Interest?

- In my opinion, no!
- “Debunker” implies intent. I have no agenda to disprove any specific hypothesis.
- Just want the facts! (“Friendly skeptic”?)

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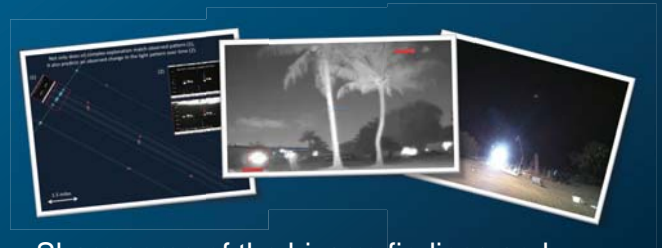
Conflict of Interest?

- Am very interested in the possibility of extraterrestrial life, (particularly extinct life in the cosmos – xenoarchaeology)
- Would be fantastic if alien life were here – hard work done for us! (No difficult space exploration required!)

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Objective



- Share some of the bizarre findings and experiences on my journey in the UFO world toward the unexplained; arm you to recognize the unexplained if/when you encounter it!

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Why a “Skeptic”?

- But, if at least open to the idea of ET,



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SCIENCE:

Perception
vs.
Reality

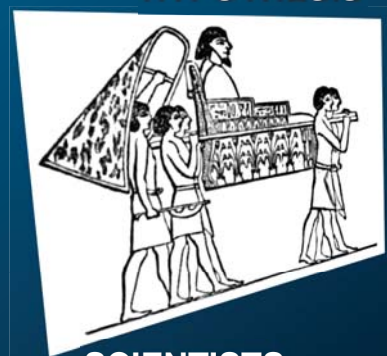
SCIENCE:

Perception
vs.
Reality

(or, BAD SCIENCE VERSUS
GOOD SCIENCE)

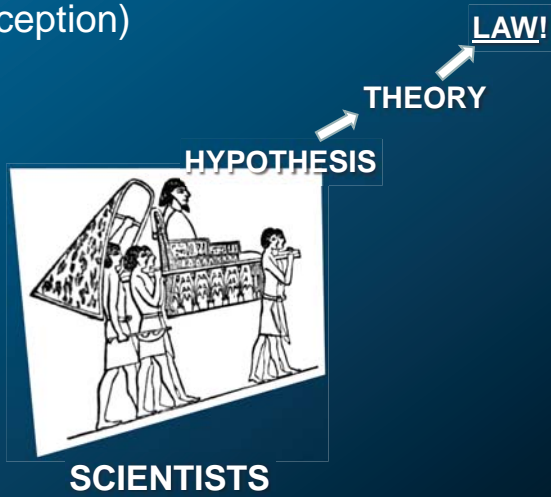
(Perception)

HYPOTHESIS

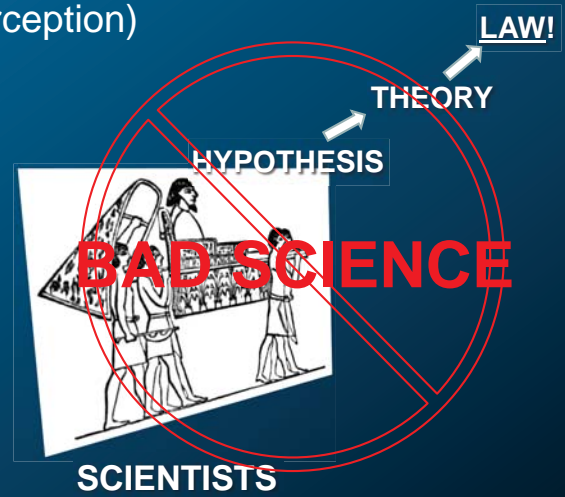


SCIENTISTS

(Perception)



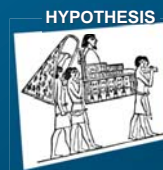
(Perception)



(Reality)



WHY?



- One can almost always find evidence *for* something if one looks hard enough. ("Cherry-picking")



- Trying to produce evidence *against* something and *failing* is a much more robust test of validity.

WHY?

Basically, good science says,

“Have a great idea?
Try your hardest to break it!”

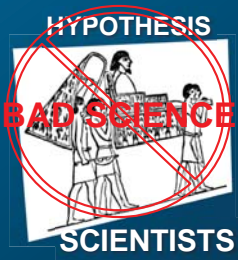
(GOOD SCIENCE):

SCIENTIST

1. HYPOTHESIS FALLS DOWN
2. HYPOTHESIS HOLDS UP

HYPOTHESIS

BIAS FLAW:



- Seeking only to prove a hypothesis *right* makes it very hard to figure out if it's *wrong*!

1. ~~HYPOTHESIS FALLS DOWN~~
2. HYPOTHESIS HOLDS UP

OPTION 1

SCIENTIST



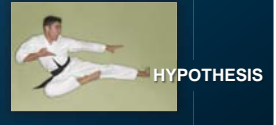
OPTION 1 cont'd

NEW HYPOTHESES
NEEDED;
DISCOVERY AWAITS!



OPTION 1 cont'd

NEW HYPOTHESES
NEEDED;
DISCOVERY AWAITS!



OPTION 2

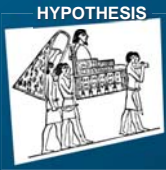


OPTION 2 cont'd

=
REINFORCED
UNDERSTANDING
AND KNOWLEDGE!



EXAMPLE

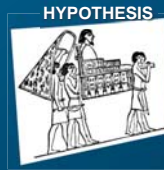


- Flat Earth hypothesis:



The Earth's horizon is flat.
Therefore, the Earth is flat.

EXAMPLE



- Test it Everywhere!



A “preponderance” of evidence could be collected demonstrating a Flat Earth.

EXAMPLE



-Is the Earth *really* flat?
(Try to break hypothesis!)



The more elaborate or innovative
challenge, the better!

EXAMPLE



-Is the Earth *really* flat?
(Try to break hypothesis!)

Circumnavigation!
(Coloumbus):



EXAMPLE



HYPOTHESIS

-Is the Earth *really* flat?
(Try to break hypothesis!)

Measure length of
shadows of same
height objects at
different locations
(Greeks):



EXAMPLE

No matter how
much of this data:



The Earth is Not Flat!



So, our journey toward the truly
unexplained w/ "UFOs" will involve a
little:



...to explore the truly bizarre, obscure
but *explainable* things going on around
Earth before proposing something new.

So,



=



How to Assess UFOs: Physical Scientist's Crash Course

Assessing UFOs - Crash Course

- “Unidentified Flying Object” – UFO – or...
(b/c “flying” implies process)
- “Unidentified Aerial Phenomena” – UAP
- Only three relevant characteristics:

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Assessing UFOs - Crash Course

- 1: The sighting **recording mechanism**

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Assessing UFOs - Crash Course

- 1: The sighting recording mechanism
- 2: The object's **motion** (geometry)

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Assessing UFOs - Crash Course

- 1: The sighting recording mechanism
- 2: The object's motion (geometry)
- 3: The object's **appearance**

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Context:

The Bizarre All Around (& Within!) Us

The Bizarre Around

- Current estimates avg 100 tons of meteors/meteoritic dust fall to Earth every day.
- *(That nearly 7 new Volkswagen Beetles' worth of cosmic material coming out of the sky every hour!)*

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The Bizarre Around

[Object's motion]

- Meteors enter atmosphere (based on orbital mechanics) at approach velocities of **24 miles-per-second** and up(!).
- Cross through the entire Earth's atmosphere straight down in **<2 seconds** and *long ways* in **<4 seconds**.



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The Bizarre Around

[Object's appearance]

- Any meteor bigger than 1/16" diam. lights up.
- Meteor's burn color related to composition:
 - Blue/Green: Copper
 - Yellow: Sodium/Iron
 - Violet: Nickel

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The Bizarre Within

- On Planet Earth, Benjamin Franklin advises:

**"Believe none of what you hear,
and only half of what you see."**

- Why?

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The Bizarre Within

- Things are not necessarily what they seem!
(The strange and unusual we ignore...)
- **Example - Physiology of vision**

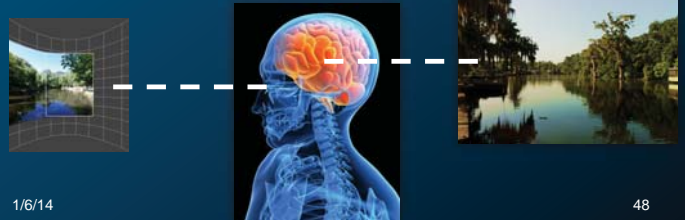
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The Bizarre Within

[Recording Mechanism]

- Human eye bounces around *eight times per second* to collect multiple images.
- Brain assembles them into what we *think* is one picture of the world.



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The Bizarre Within

[Recording Mechanism]

- (Even amongst astronomy enthusiasts and non-UFO-seeking skywatchers, this often makes stationary celestial objects appear to move erratically...)



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The Bizarre Around and Within

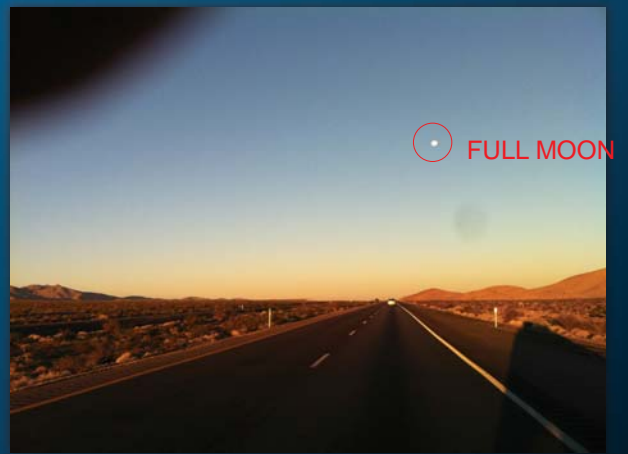
- **Example - Planetary Atmosphere**

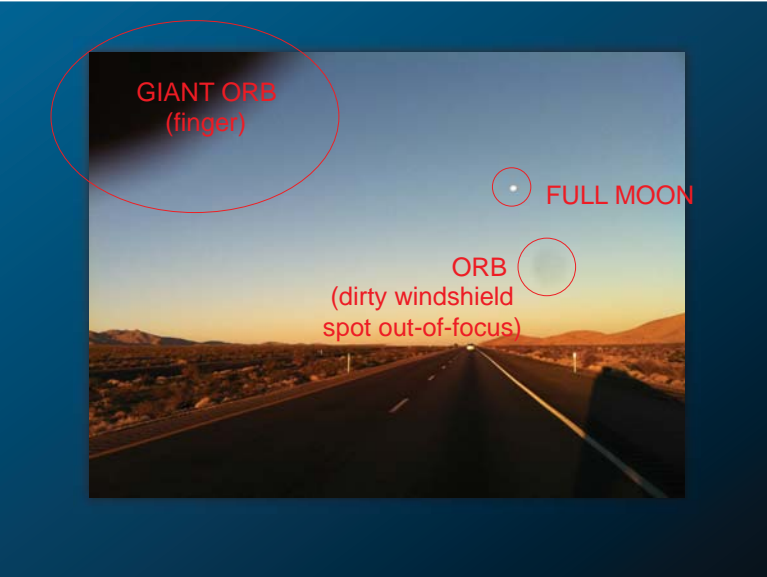
(Rare photo!)

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The Bizarre Around and Within







- “Superior” mirage
- Hot air above visual plane bends image below (ground) up into sky
- (May be able to see *beyond* the horizon!)



- Opposite of ‘ordinary’ mirage, which bends image above down below:



- So, what does this mean?

Not Real!





Seeing is Not Believing!



- Superior mirage is prime example: Even something as solid as ground & mountains may not be real on Planet Earth!

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CASE STUDY 1: Stephenville, TX – Constable Dashcam

Stephenville Constable Dash Cam

- Constable Leroy Gaitan films UFO with cruiser dashcam



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Stephenville Constable Dash Cam

- How to investigate? Remember three things!
- Recording mechanism? Date/time-stamped video. (Awesome!)
- Apparent motion of object?
- Appearance of object?

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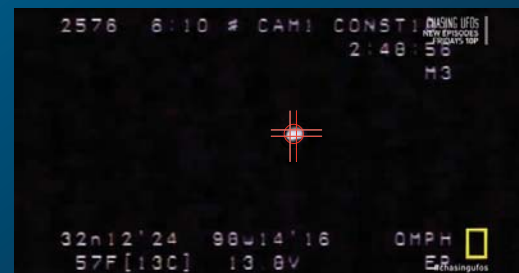
Stephenville Constable Dash Cam



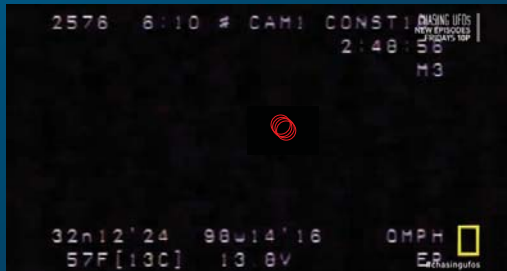
Stephenville Constable Dash Cam



Stephenville Constable Dash Cam



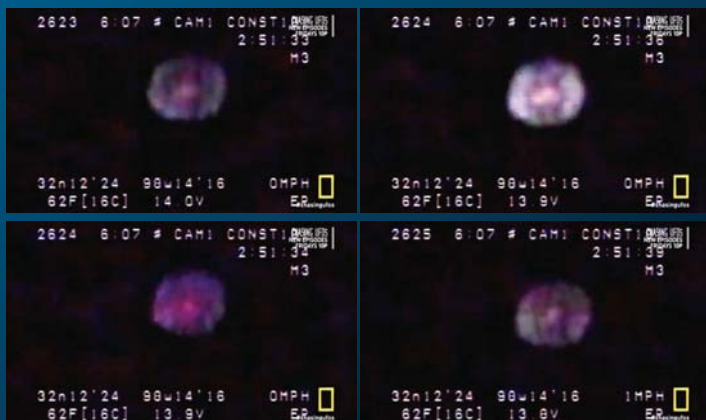
Stephenville Constable Dash Cam



Stephenville Constable Dash Cam



Stephenville Constable Dash Cam



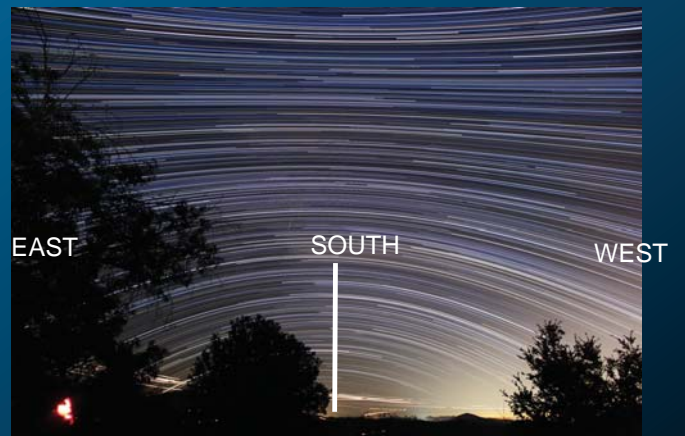
Stephenville Constable Dash Cam



Stephenville Constable Dash Cam



Stephenville Constable Dash Cam





Stephenville Constable Dash Cam

- Object's motion: Like a planet/star!
- ...but object's appearance?

A screenshot from a dash cam showing a dark night sky with a small red dot and a dashed arrow indicating its motion. The text overlay on the screenshot includes:

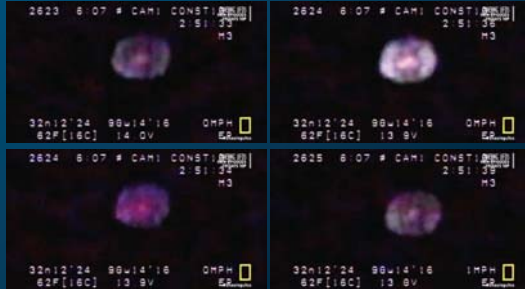
2576 6:10 # CAM1 CONST: CHASING DEETS
2:48:56
M3

32n12'24 98w14'16 OMPH 57F[13C] 13 BV ER

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Stephenville Constable Dash Cam

- But *this* is a planet or star? How??

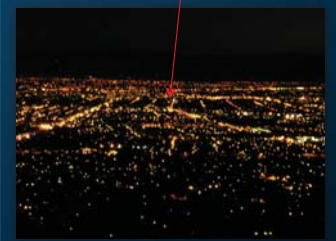


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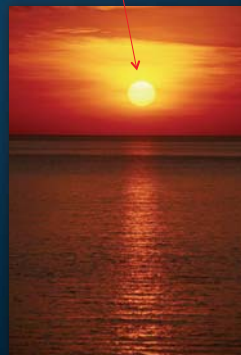
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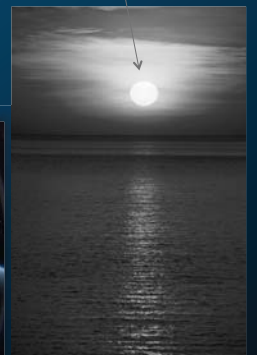
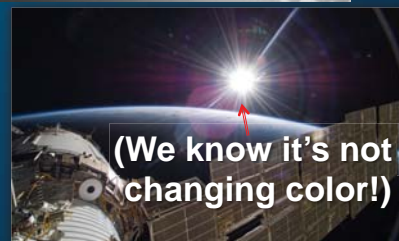
Street lights don't flicker, so why do city lights twinkle?



Same star, different color. Why?



Same Star, different color. Why?



Stephenville Constable Dash Cam

- Answer: "Atmospheric Scintillation"
- Means the atmosphere is moving, bouncing light around, filtering light!



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Stephenville Constable Dash Cam

- This is why astronomers want to get telescopes in space (Hubble)
- Field of astronomy "adaptive optics" tries to get around this effect ruining astronomy measurements!



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CASE STUDY 2:

Campeche, MX – Military FLIR Flight Cam

Mexico Military FLIR Footage

- Compelling footage! Military cargo aircraft captures images of multiple UFOs at 10k ft



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Mexico Military FLIR Footage

- Crew excited – possibly air-to-air footage
- (Independence Day stuff!)



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Mexico Military FLIR Footage



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Mexico Military FLIR Footage

- Investigate? Revisit three attributes.
- What is the footage recording mechanism?



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Mexico Military FLIR Footage



- GPS, Azimuth, Inclination, Date/time (to the second!)-stamped video.
- (Very Awesome!! Hard to get better!)

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Mexico Military FLIR Footage

- Appearance of objects?
- Apparent motion of objects?



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Mexico Military FLIR Footage

- Objects never break formation (interesting):



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Mexico Military FLIR Footage

- Leading skeptical hypothesis is that the lights were of the Canatrell Oil complex 100 miles away.
- Set up a recreation to test hypothesis:



Mexico Military FLIR Footage

- Got to altitude, same GPS coordinates, same azimuth, and.... ...Couldn't see a thing.



- (But using less-sophisticated FLIR camera system.)

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Mexico Military FLIR Footage

- Abandon oil field hypothesis?
- *Well...* Pattern? Flight formation, or...

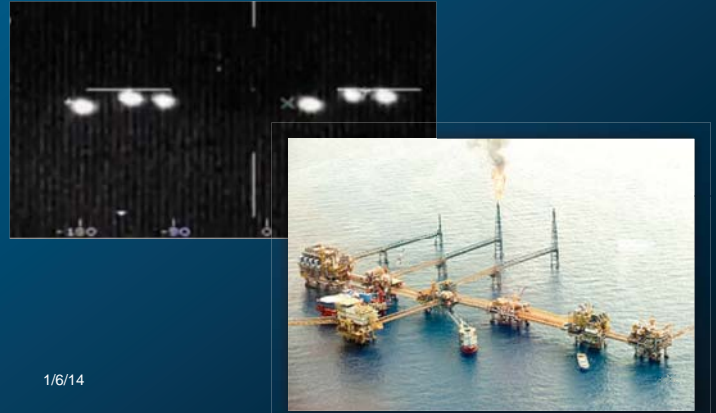


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Mexico Military FLIR Footage

- Matches oil platform tower geometry!



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Mexico Military FLIR Footage

- Matches oil platform tower geometry!



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Mexico Military FLIR Footage

- So, play the hypothesis *forward* instead.
- *IF* the FLIR camera could see the oil complex, what would the arrangement of lights look like? Would it look like FLIR footage?
- (Geometry!)

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PART I
GEOGRAPHIC/GEOMETRIC IDENTIFICATION
OF POTENTIAL LIGHT SOURCES

Satellite Image of Canatrell complex area.



Satellite Image of Canatrell complex itself.
Note the points of light as flames from the oil complex towers.



The well flame plume locations are marked:



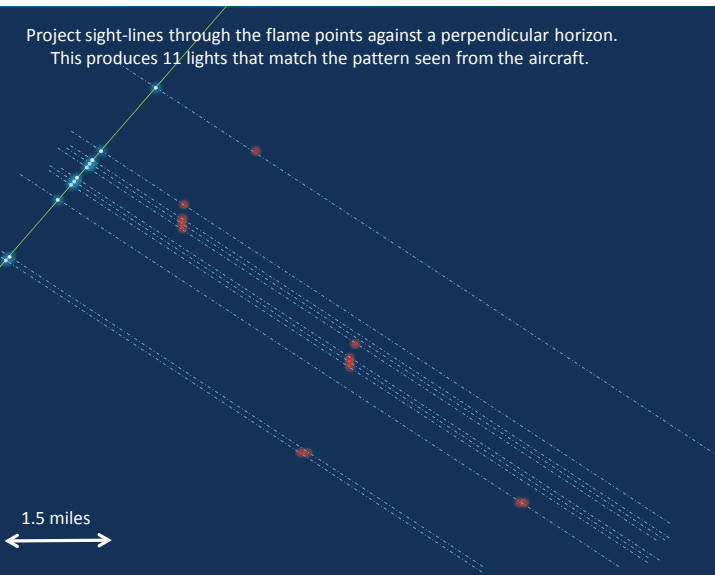
The original image is removed,
leaving only the flame plumes as reference points.



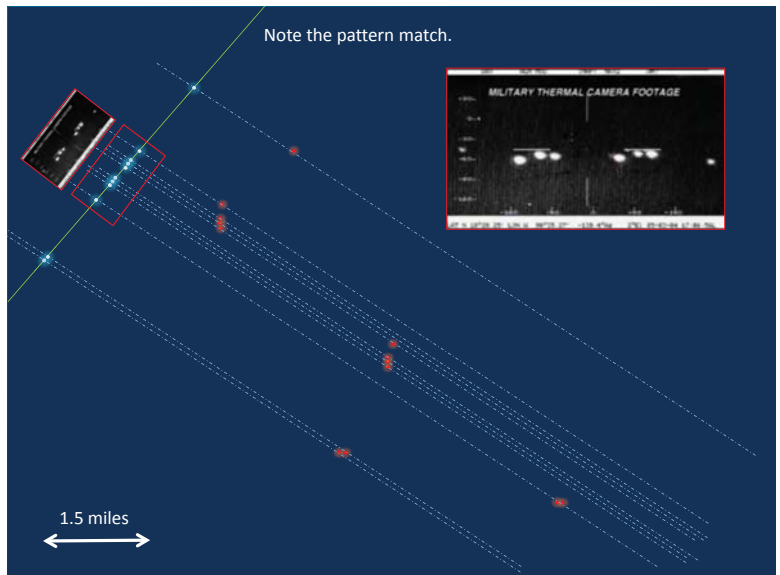
Canatrell flame plumes reference points:



Project sight-lines through the flame points against a perpendicular horizon.
This produces 11 lights that match the pattern seen from the aircraft.



Note the pattern match.



Note: One light is actually two overlapping sources.



1.5 miles

As the plane changes position, moving SW to NE,
The two light sources would appear to separate:



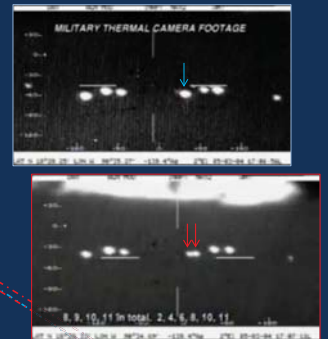
1.5 miles

As the plane changes position, moving SW to NE,
The two light sources would appear to separate:

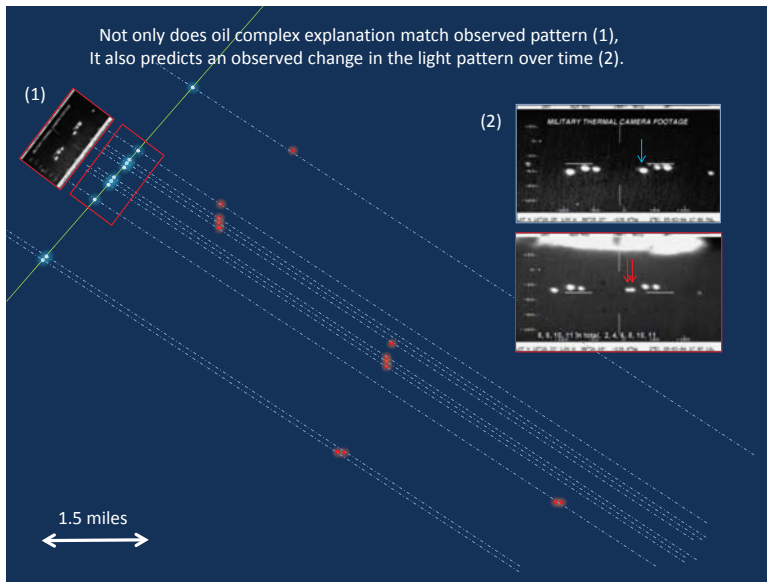


1.5 miles

Side-by-side Comparison:



1.5 miles



Mexico Military FLIR Footage

CONCLUSION:

GEOMETRIC ANALYSIS CONFIRMS THAT THE LIGHTS
AS SEEN IN THE MEXICO MILITARY FLIR FOOTAGE
ARE PRODUCED BY THE CANATRELL OIL COMPLEX.

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Mexico Military FLIR Footage

- Either something was hovering stationary, directly over each oil complex tower, or...
- The sighting is just the oil complex.

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Parting Thoughts

- Truly unexplained? Requires:



- See if hypothesis:



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Parting Thoughts

Remember:

- Three physical characteristics to evaluate w/ any potential UFO:
 - 1: The sighting **recording mechanism**
 - 2: The object's **motion** (geometry)
 - 3: The object's **appearance**

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Parting Thoughts

Beware:

- Cum Hoc Ergo Propter Hoc ("With This, Therefore Because of This") logic fallacy...
- Believe none of what you hear, only half of what you see...

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Parting Thoughts

THEN:



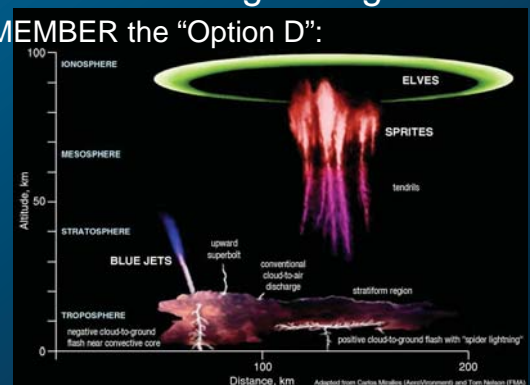
- We can recognize the Truly Unexplained when we see it!

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Parting Thoughts

REMEMBER the "Option D":



- The universe can be stranger than we have imagined...

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Questions?

www.benwmcgee.com