



Witnesses
David L. Mayer, Ph.D.

National Transportation Safety Board
Investigations Into Trans World Airlines Flight 800



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Why study witnesses?

- Speculation that the streak of light was a missile
- Witness accounts were the first and only indication of a missile attack
- Public interest
- Consistent with physical evidence?
- What were they observing?



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Witness group

- Received FBI documents in April 1998
- NTSB staff sorted and organized documents
- Group representatives from ALPA, Boeing, the FAA, the IAM, and TWA
- Developed procedures and definitions to study the documents
- Documents contain 736 witnesses

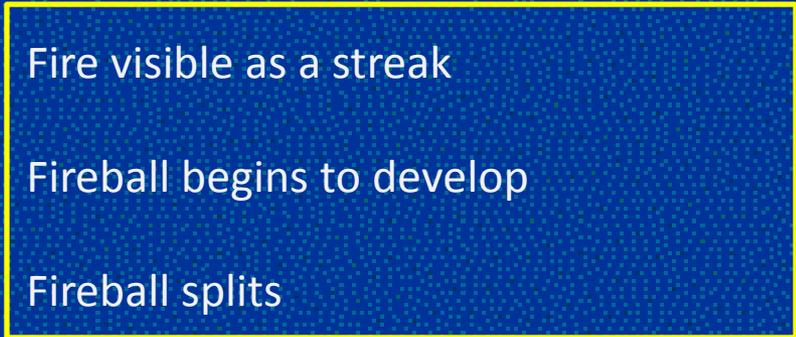


National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

What would a witness see?

- Intact airplane → Visible, not very noticeable
- CWT explosion → Unlikely visible
- Nose departure → Unlikely visible
- Crippled flight & fire → Fire visible as a streak
- Outboard wings fail → Fireball begins to develop
- Left wing separates → Fireball splits
- Water impact → Fireball goes below horizon





National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

A Witness...

- He was inside his residence, walking towards a glass door. He noticed a red flare descending. It was on a slight downward arc from west to east. There was a thin white smoke trail following a red dot. He watched the red dot for three or four seconds. He then saw a fireball erupt.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

A Witness...

- She saw a red dot of light that appeared to be a roman candle moving east parallel to the horizon. One or two seconds later the dot became bigger and started to fall fast. The dot then blew up into a fireball. A second fireball developed and the two fireballs fell separately.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

A Witness...

- He saw a flare blossom into a larger flame in the sky. This larger flame came down into the ocean in two columns.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

736 Witnesses

- 258 streak of light witnesses
- 599 fireball witnesses
 - 200 fireball split



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Group Conclusions

- Streak may have been the accident airplane during crippled flight
- Generally consistent with calculated flight path
- Fireball was the accident airplane during structural breakup



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

The Streak

...looked like fireworks...

...was like a boat flare...

...appeared to be a shooting star...

...a glowing dot...



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

NTSB Experience

- Safety Board experience confirms witness reports often inconsistent with:
 - physical evidence
 - recorded data
 - other witness reports



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Streak of Light

- 258 streak of light witnesses
- 56 reported that the streak:
 - originated at the surface or horizon, and/or
 - traveled straight up or nearly so



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Potential Explanations

- Crippled flight
- Poor summaries
- Memory errors



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Research shows...

- Memory is not like a videotape
- People do not retrieve a memory and replay the experience
- People combine knowledge from various sources with their own personal experience
- All memories are constructions



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Memory errors

- Repeated questioning
- Co-witness information
- Interviewer seems knowledgeable
- Leading questions
- Multiple sources
- Re-interviews
- Group interviews
- FBI Agents and experts
- Questions lists
- Many opportunities



National Transportation Safety Board

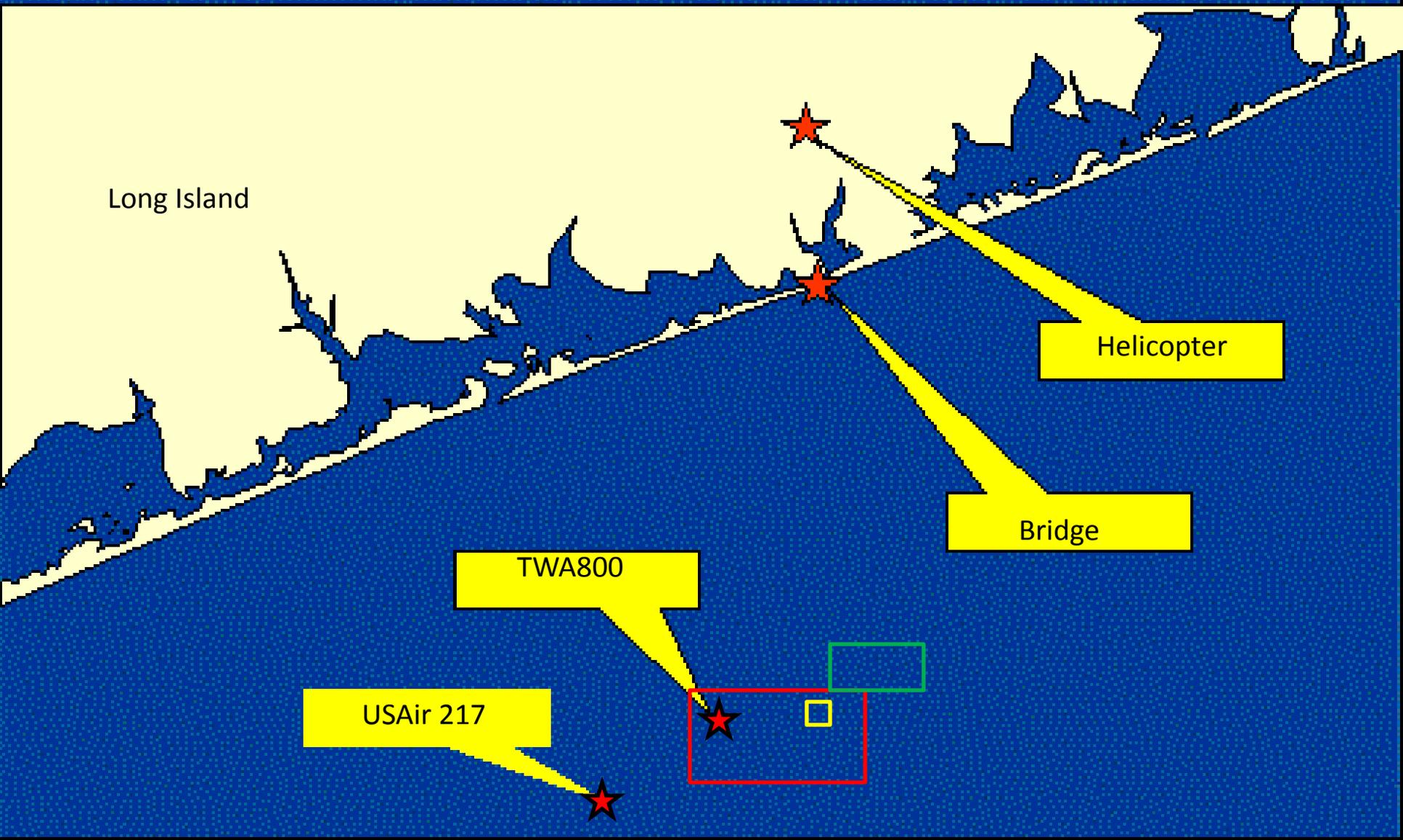
Investigation Into Trans World Airlines Flight 800

- Breakup sequence is well understood
- Remarkable consistency among witnesses



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800



Long Island

TWA800

USAir 217

Helicopter

Bridge



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

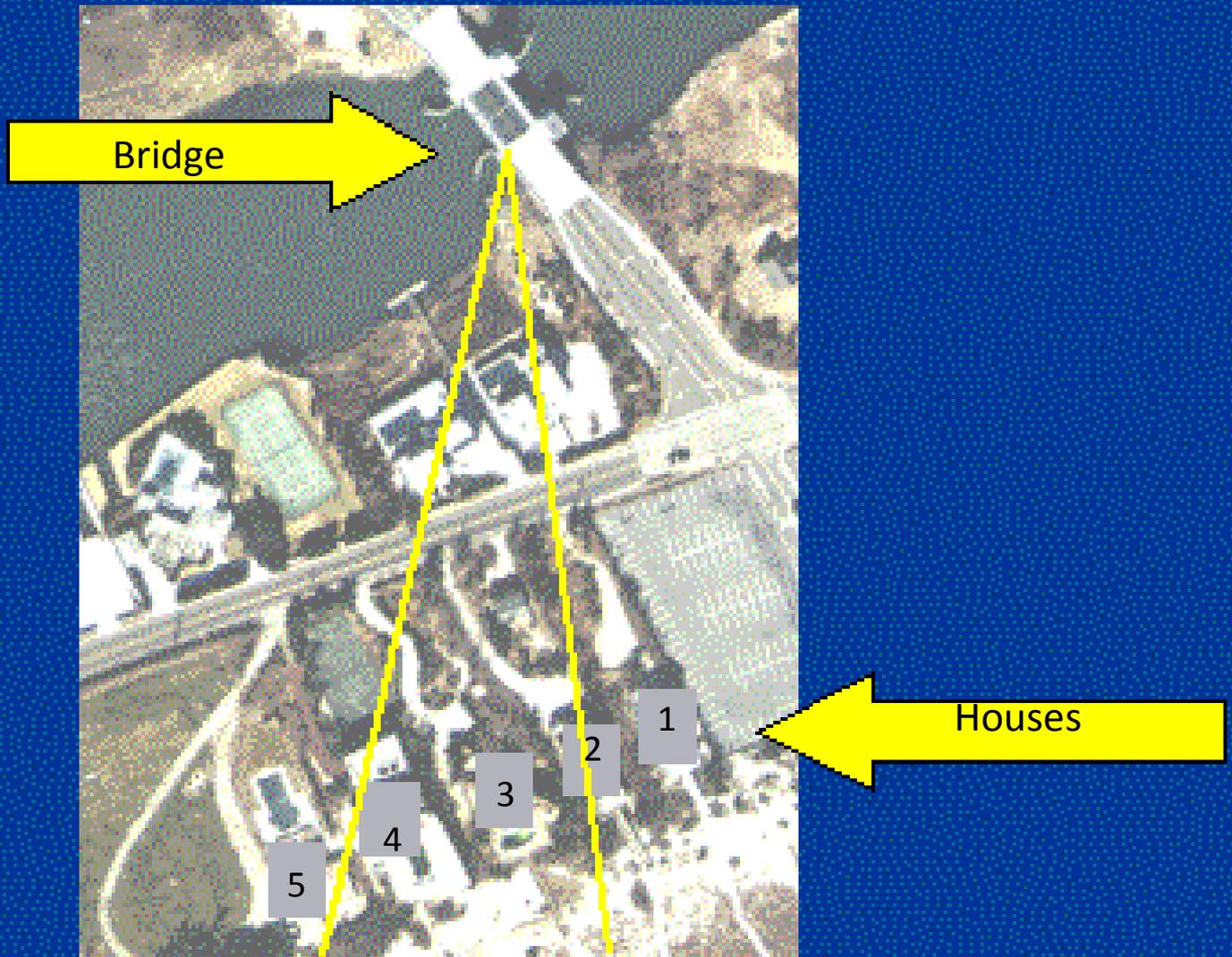
Beach Lane Bridge

- Appeared to be cheap firework coming off the beach about 4 or 5 houses west of the bridge.
- The firework was like a white spark that went up and arched across the sky.
- A short time later, he observed an orange fireball in the sky to the south of the bridge.
- Fireball disappeared behind the second house to the west of the public parking area.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

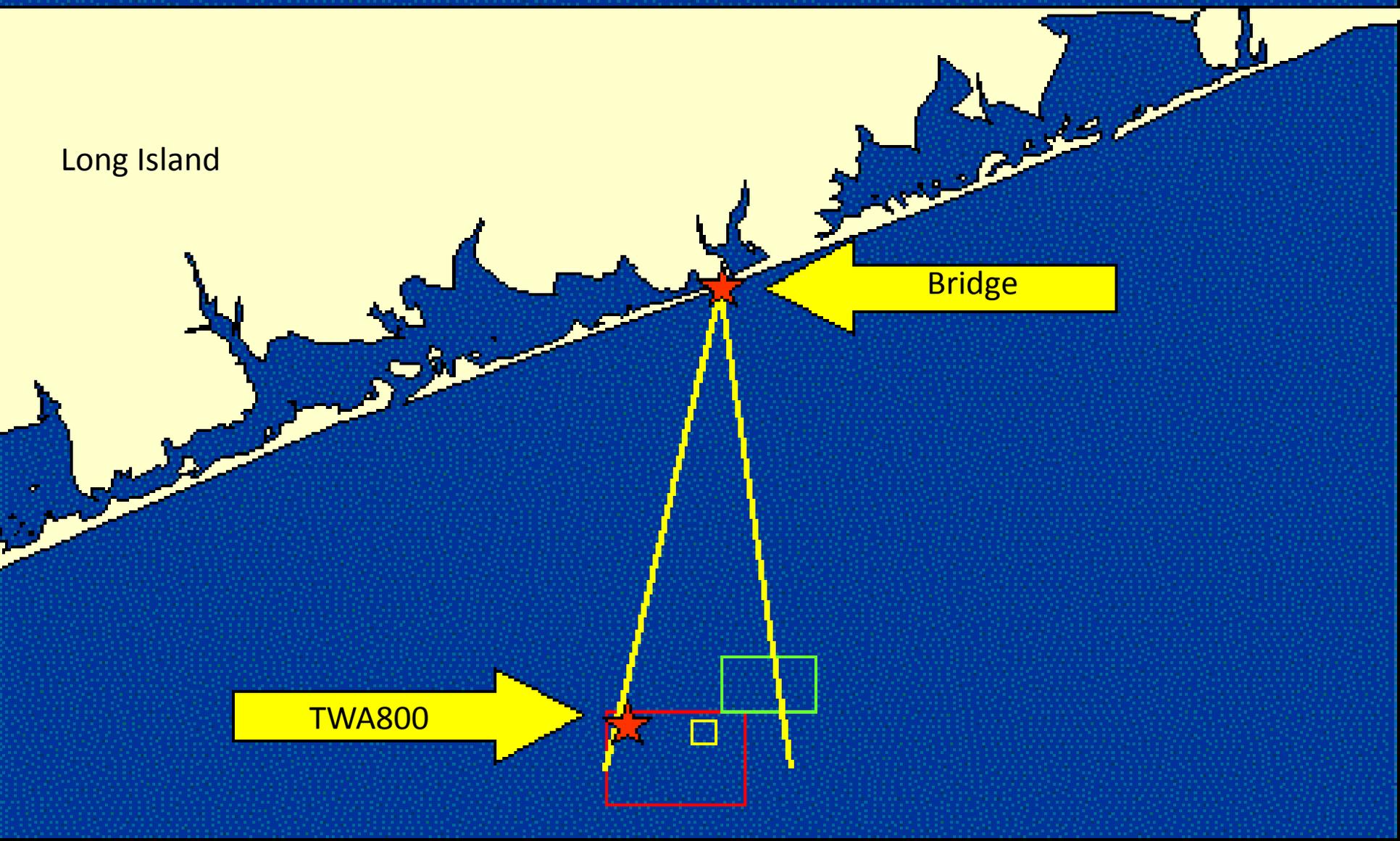




National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Long Island



Bridge

TWA800



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Beach Lane Bridge

- Witness reported first seeing the streak of light near where the CWT explosion occurred.
- Witness reported seeing the fireball disappear near where the airplane impacted the water.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

USAir Flight 217

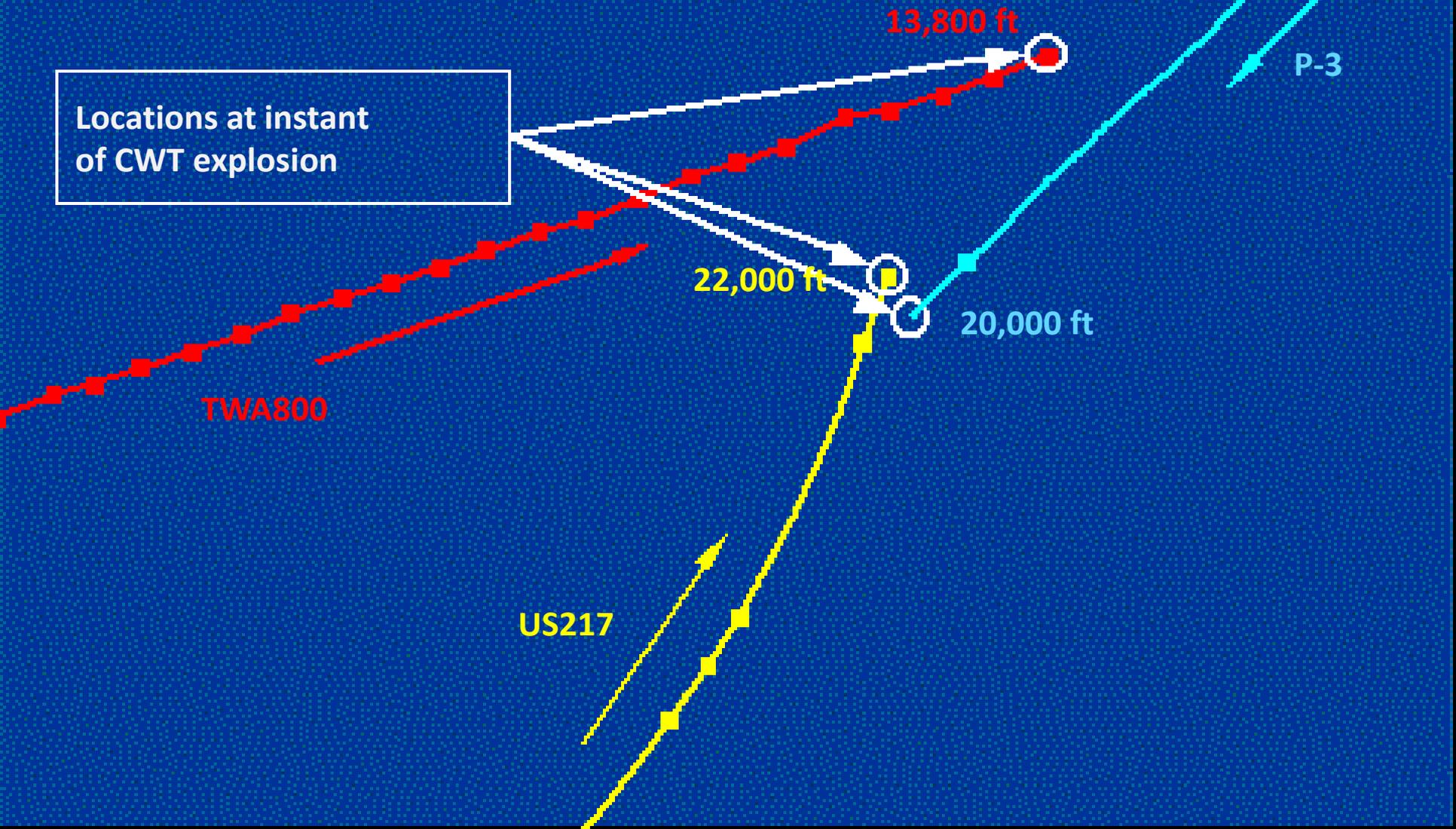
- Observed blinking lights of an airplane flying underneath USAir flight 217.
- About 15-20 seconds later, observed a light that appeared to be a “flare.”
- Observed an initial small explosion in the same area that he last observed the flare.
- Within a second later, the small explosion turned into a large explosion.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Locations at instant of CWT explosion

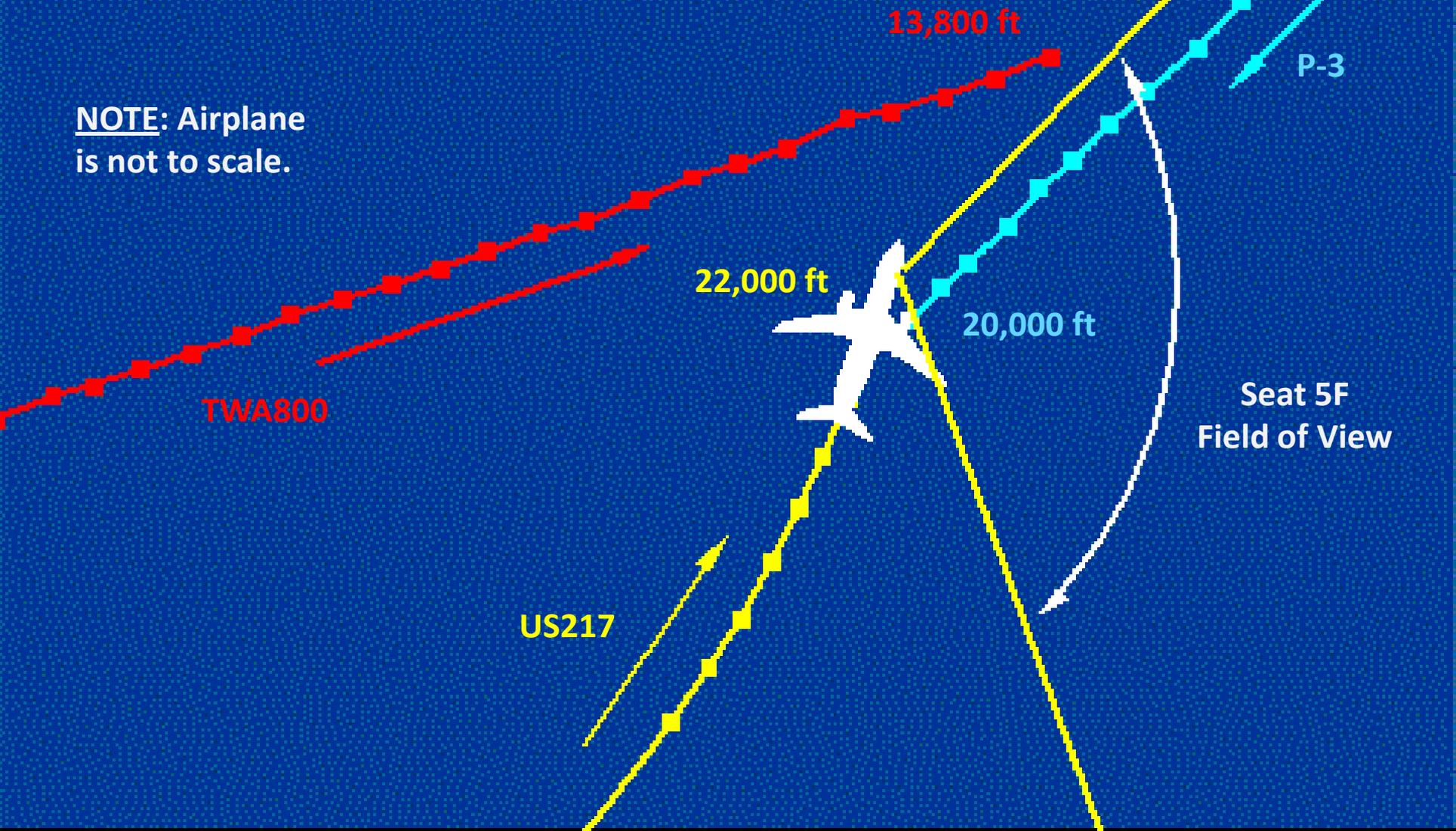




National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

NOTE: Airplane is not to scale.





National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

USAir Flight 217

- Radar data demonstrate that the CWT explosion not visible to this witness.
- The flare he saw was not a missile that hit flight 800.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Helicopter Pilot

- Saw a streak of red light moving very fast from his right to his left. It moved almost horizontal in a gently descending curve.
- Observed the streak for 1 or 2 seconds, saw explosion, second explosion
- Fireball developed, and took 8 to 10 seconds to fall to the ocean



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

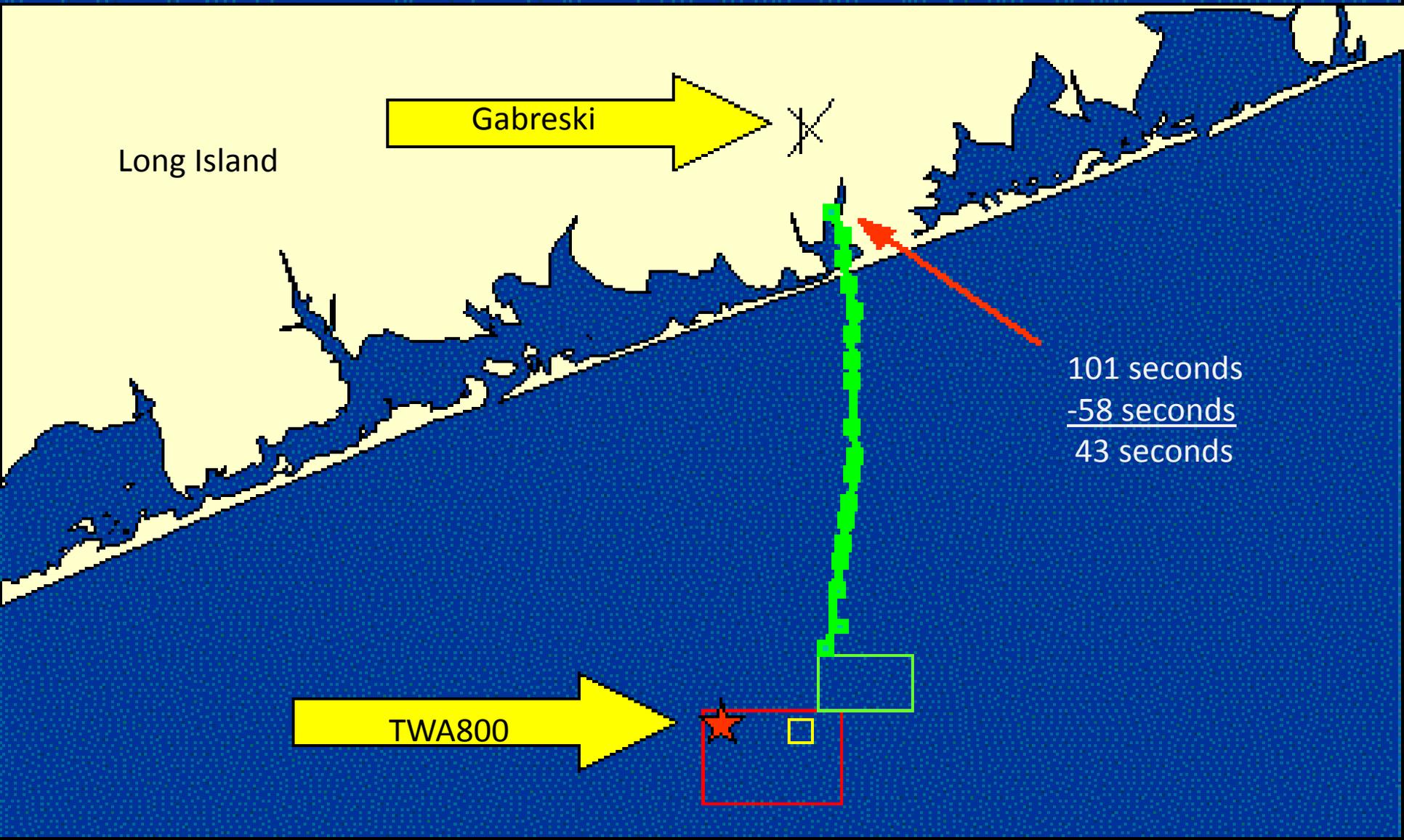
Helicopter Co-Pilot

- Was flying the helicopter
- Told the tower over the radio that two aircraft had just had a mid-air off the coast, and that I was proceeding there immediately. And did.
- Maximum power



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800





National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Helicopter Pilot

- Flew directly to green zone
- Began flight to green zone about 43 seconds after CWT explosion
- Saw a fireball late in breakup sequence



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Missile Visibility Test

- Not conducted to determine if a missile struck flight 800
- What would a missile look like?
- No data available
- Conducted a test



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Missile Visibility Test

- April 2000
- Eglin AFB, Florida
- Same or better visibility conditions
- Observers up to 14 miles from launch
- All observers saw the launch
- Appeared like a rapidly rising light



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Hypothetical missile attack

- The missile:
 - Light would ascend rapidly
- The crippled airplane:
 - Second streak of light moving slower
- Fireball



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Hypothetical missile attack

- Did the witnesses describe something like this?
- No.



National Transportation Safety Board

Investigation Into Trans World Airlines Flight 800

Summary

- Carefully considered all the witness accounts.
- Witness reports consistent with crippled flight—not a missile.