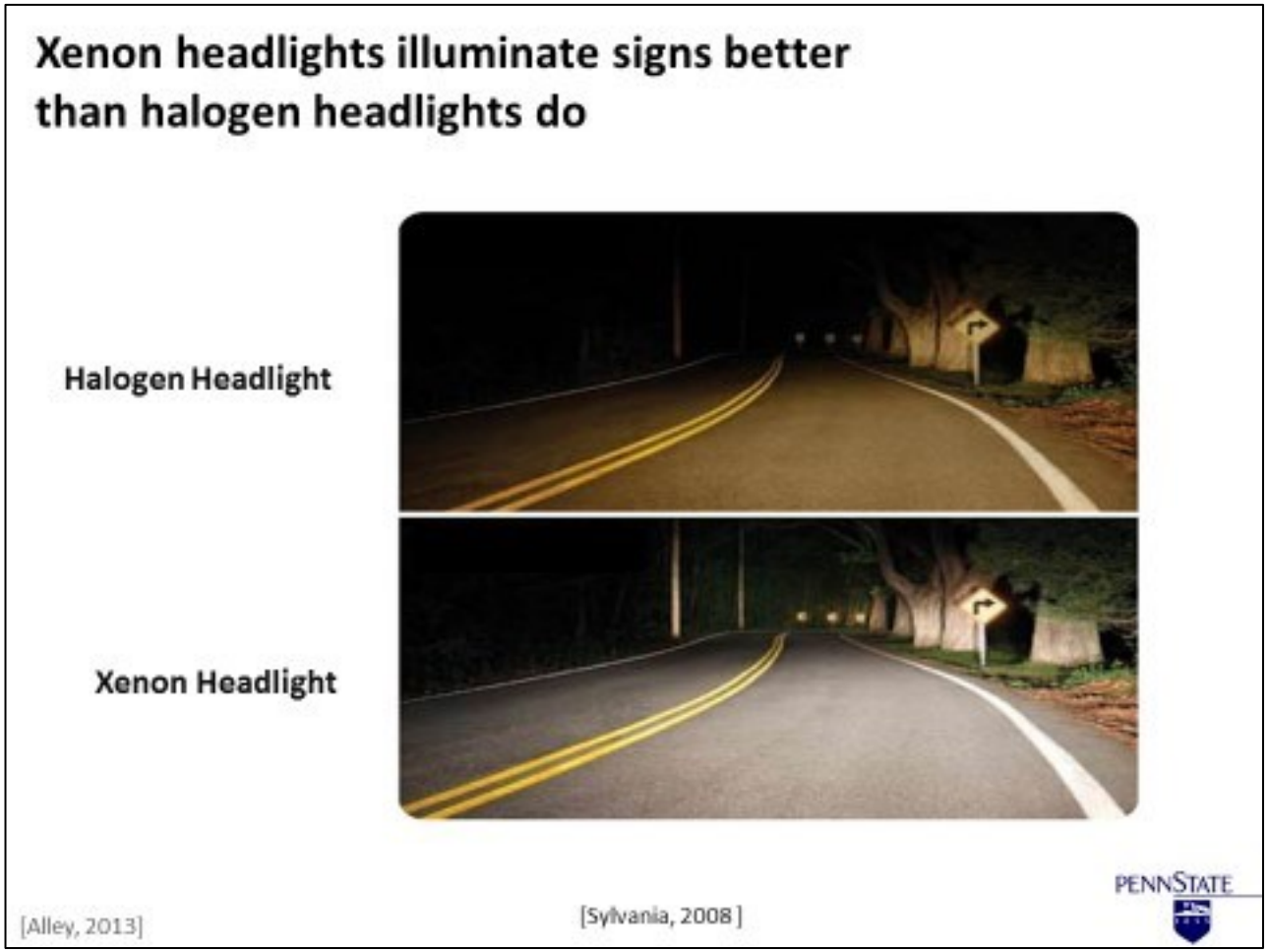
Rethinking Technical Presentations: The Assertion-Evidence Approach

Adapted from Work of Michael Alley
College of Engineering
Penn State



[Alley, 2013]

Build your talk on

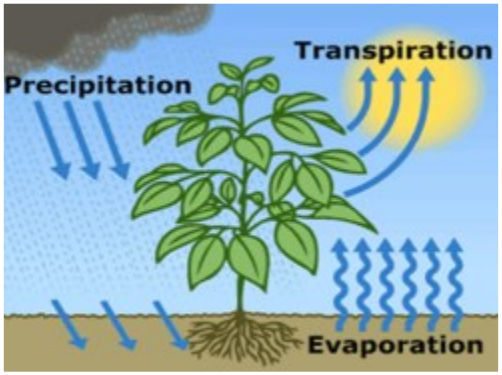
messages

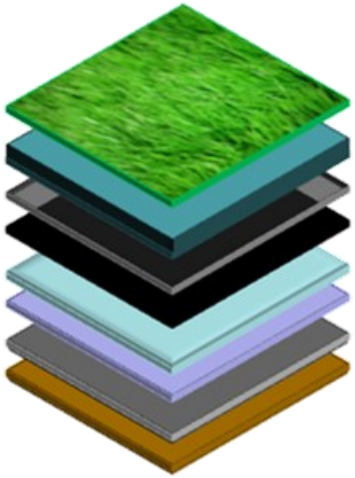
not

on topics

[Alley, 2013]

Support your messages with visual evidence





[Alley, 2013]

not

bullet points

Build your talk on

messages

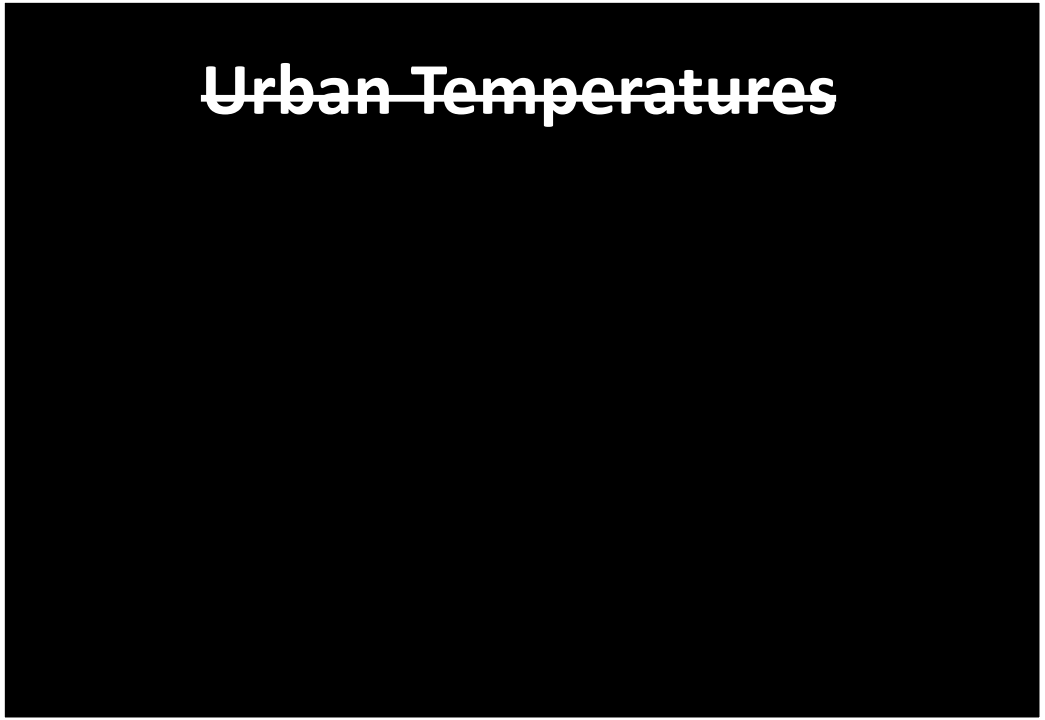
Urban Temperatures

- Often warmer than surrounding areas
- Caused by materials in roofs and roads
- Also caused by lack of shade and vegetation
- Lead to higher temperatures in buildings
- Require more energy for cooling

[Alley, 2013]

Build your talk on

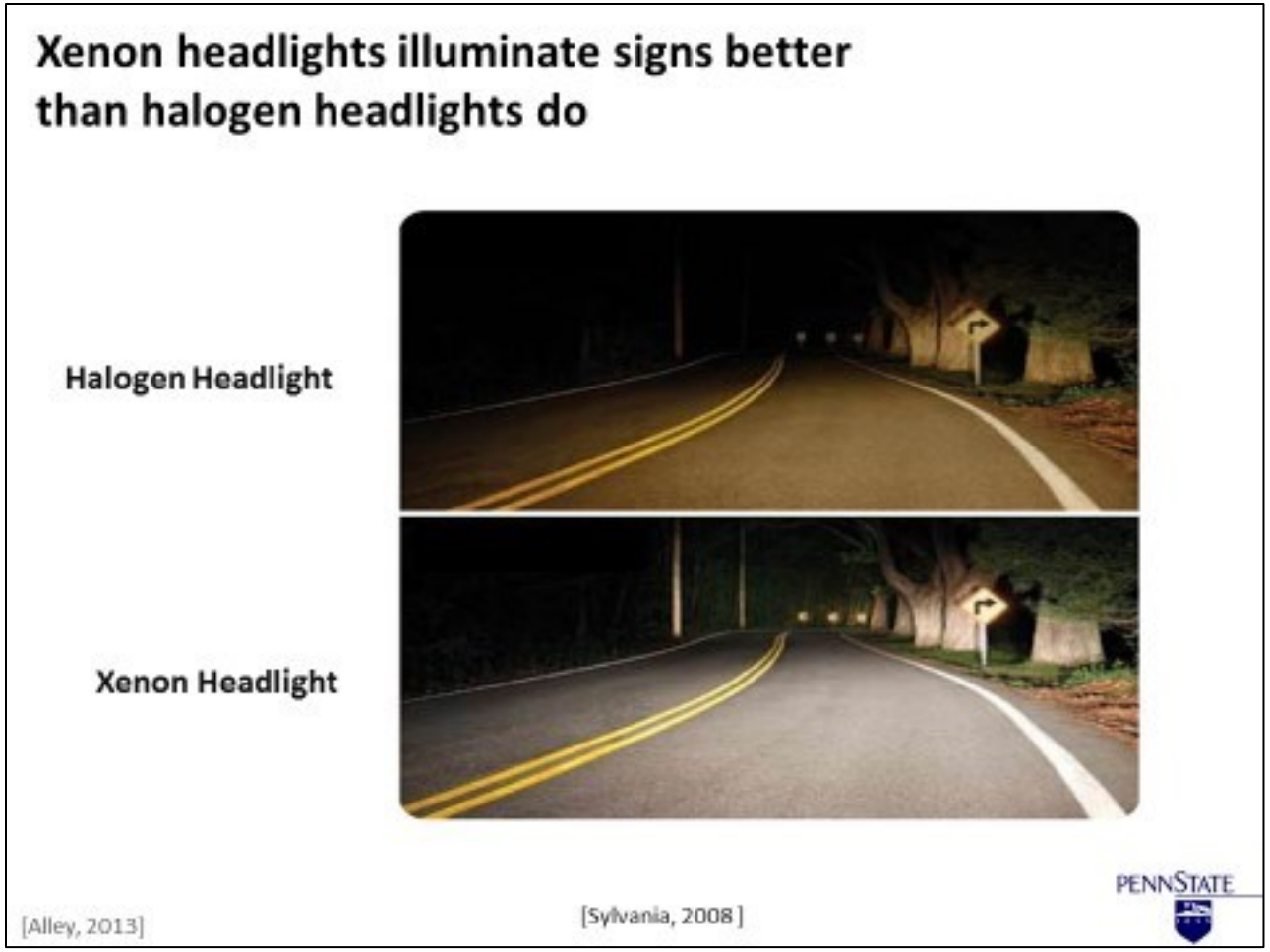
messages



[Alley, 2013]


Temperatures in urban centers are often
much warmer than in surrounding rural areas

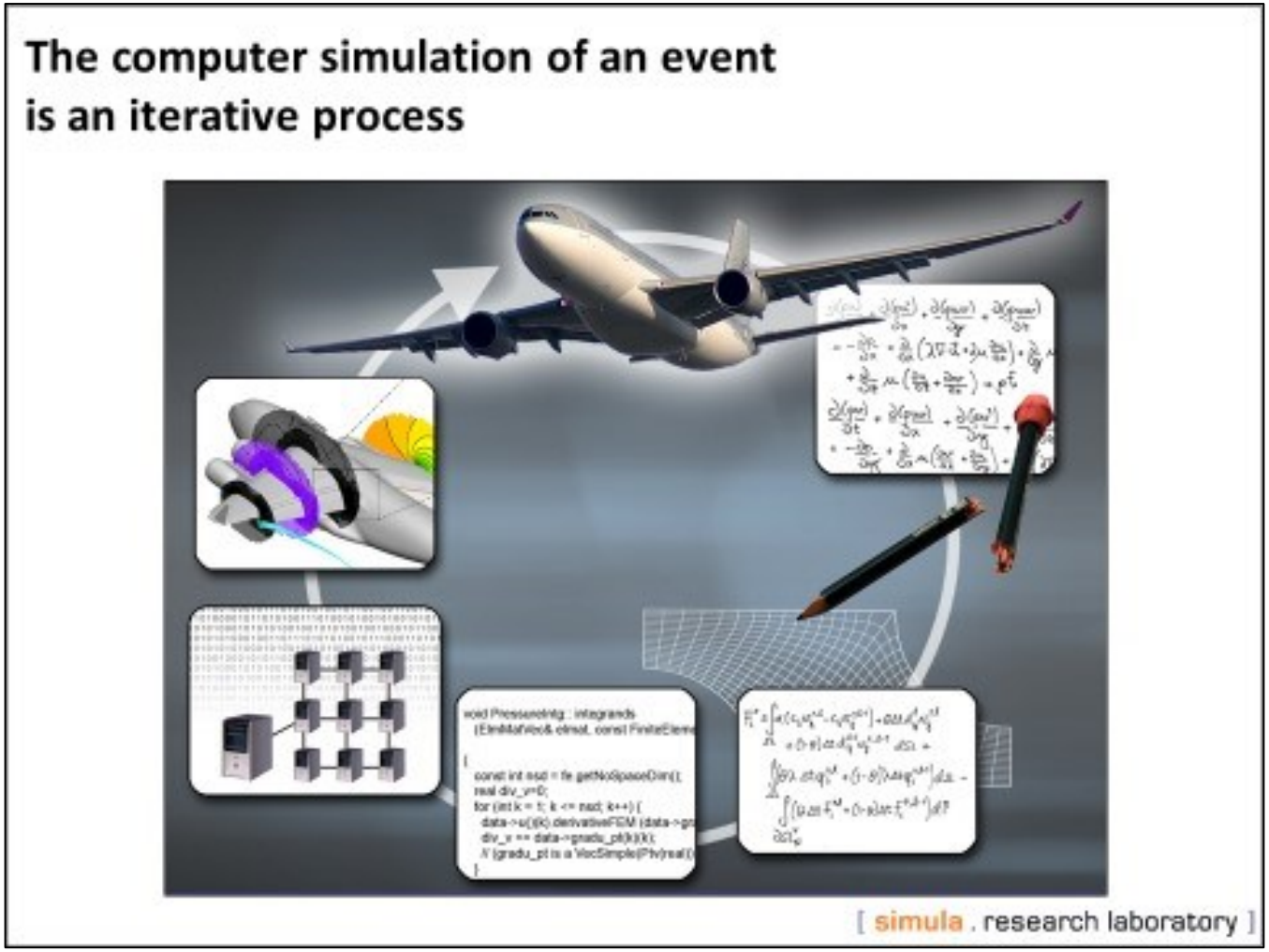
The first step is to write a sentence headline that states the main message of the slide



← sentence headline

[Alley, 2013]

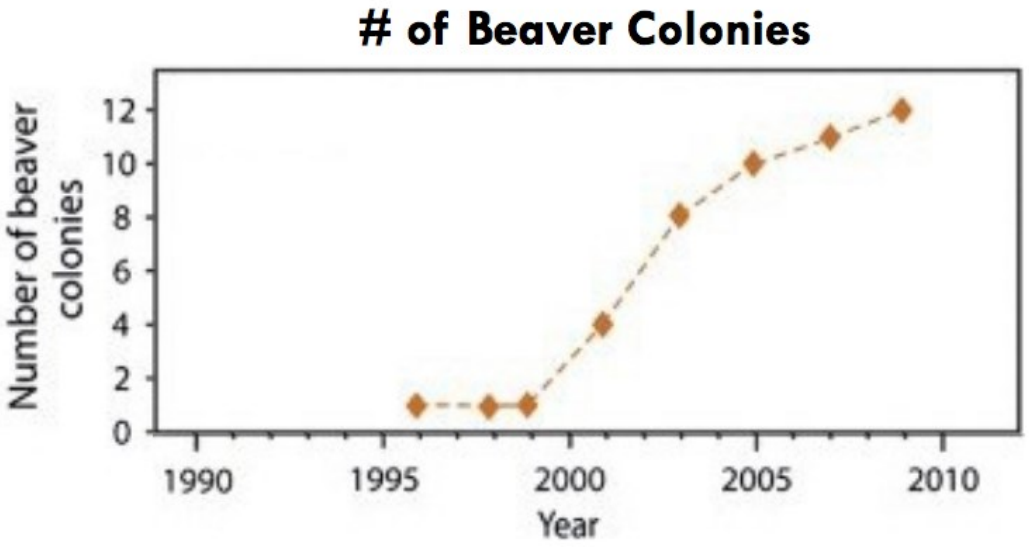
The second step is to find or create visual evidence that supports the sentence headline



visual evidence

[Alley, 2013]

Increased willow tree ring area correlated with an increase in numbers of a nearly extinct beaver population.



[Alley, 2013]

Since its construction in 1952, traffic across the bridge has grown exponentially

1952
1.1 million vehicles

[Alley, 2013]

[Maryland Transportation Authority, 2007]

Since its construction in 1952, traffic across the bridge has grown exponentially

1952
1.1 million

1961
1.5 million

[Alley, 2013]

[Maryland Transportation Authority, 2007]

Since its construction in 1952, traffic across the bridge has grown exponentially

1952
1.1 million

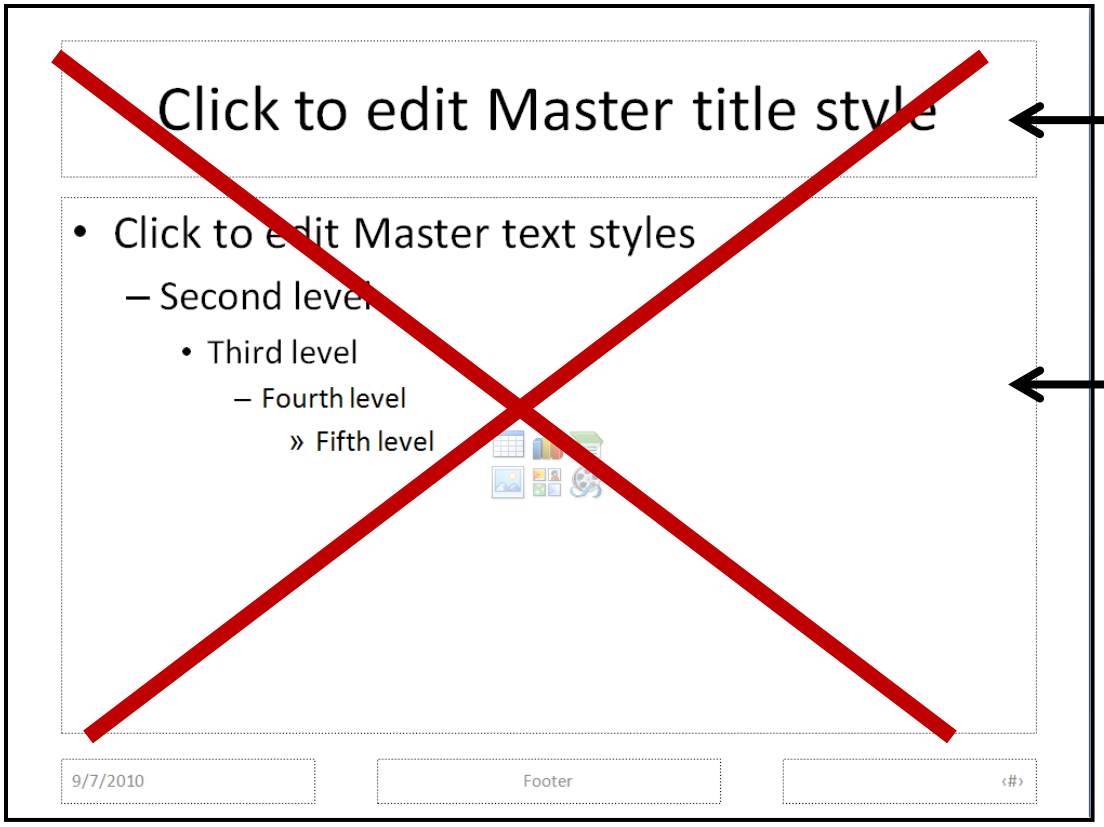
1961
1.5 million

2007
27 Million

[Alley, 2013]

[Maryland Transportation Authority, 2007]

The third step in creating assertion-evidence slides is to breakout of the default PowerPoint layout



Encourages topics as titles

Encourages long text, not visuals

[Alley, 2013]

Title of Presentation in Initial Capitals: 36 Points, Calibri Bold

Name
Name
Name

Department
Institution

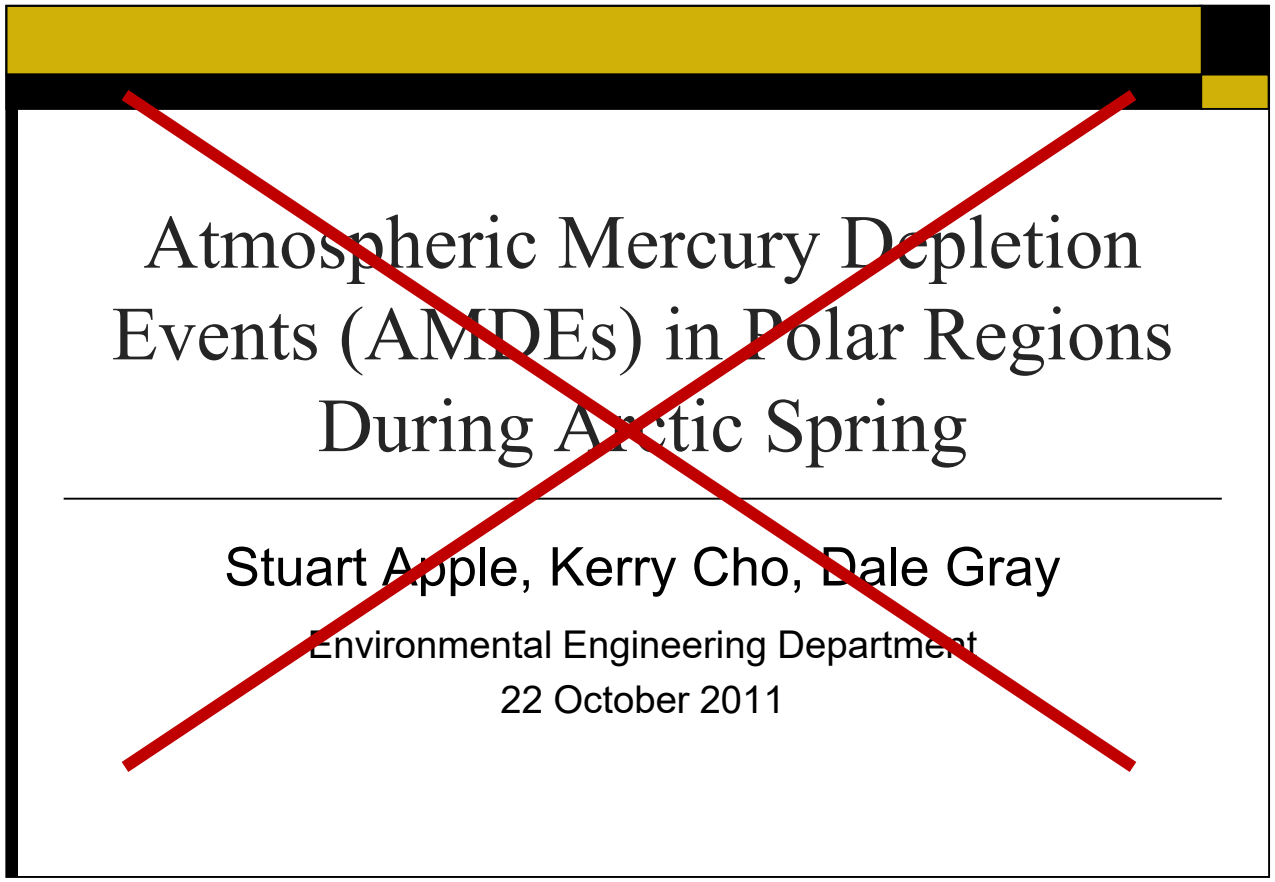
Date

Replace this box with key image to introduce talk's scope, importance, or background

Replace with your Logo

[Alley, 2013]

A common error in the beginning of scientific talks is to leave the audience behind



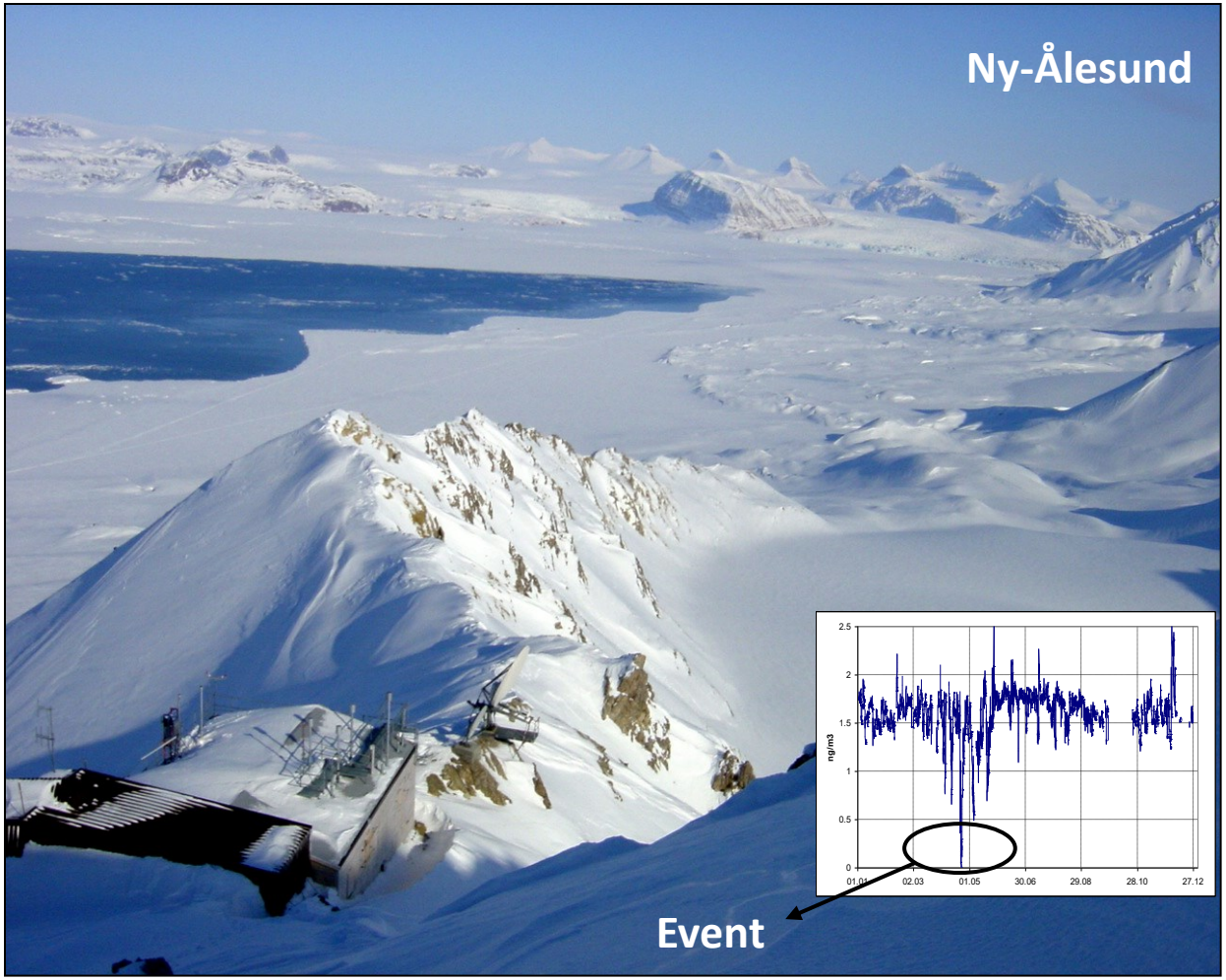
[Alley, 2013]

Determining Whether Atmospheric Mercury Goes into Surface Snow after a Depletion Event

Katrine Aspmo
Torunn Berg
Norwegian Institute for Air Research

Grethe Wibetoe
University of Oslo, Dept. of Chemistry

June 16, 2004



[Alley, 2013]

This presentation focuses on… (complete sentence, but go no more than two lines)

Image for Topic 1

Topic 1

Image for Topic 2

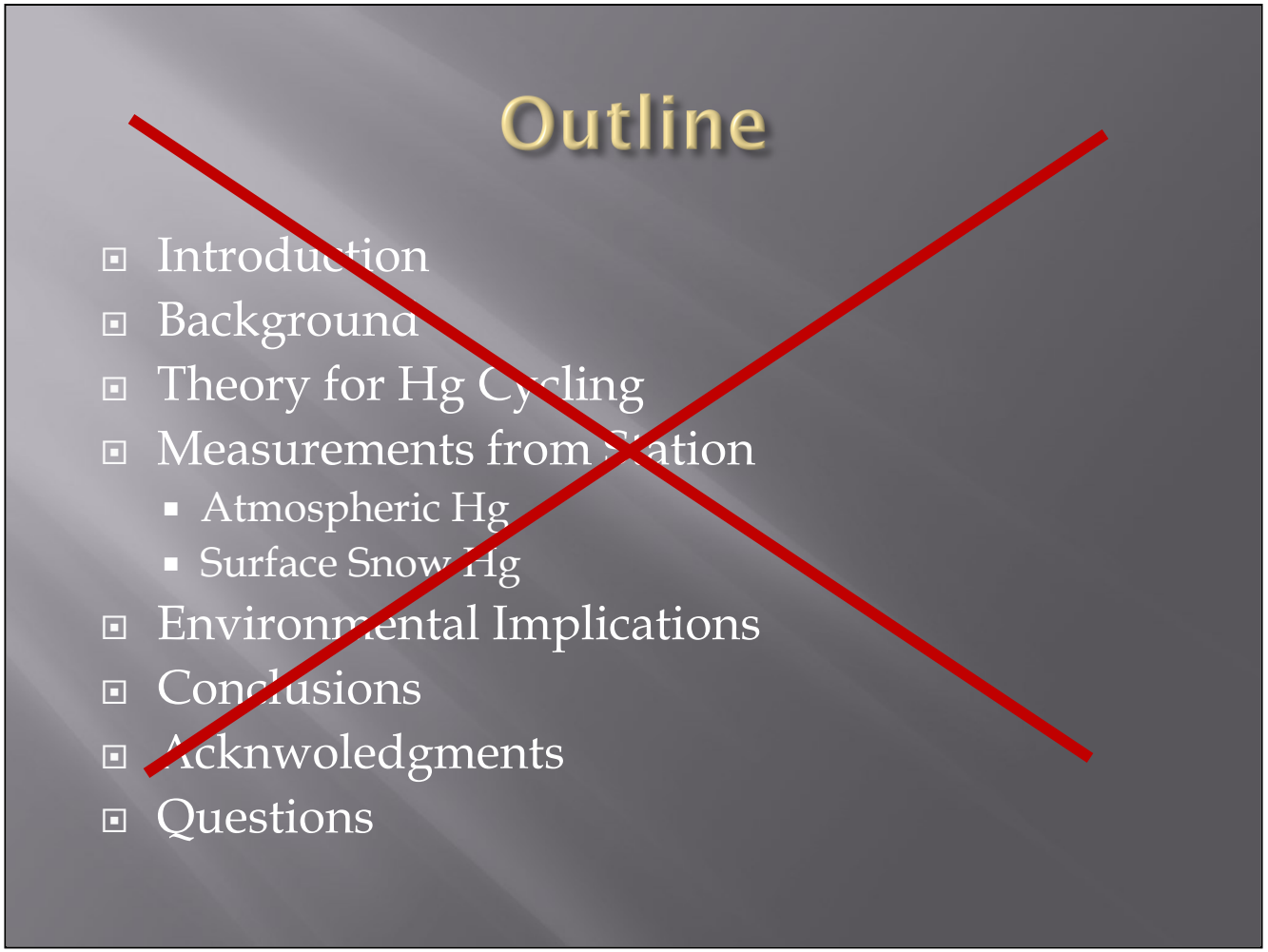
Topic 2

Image for Topic 3

Topic 3

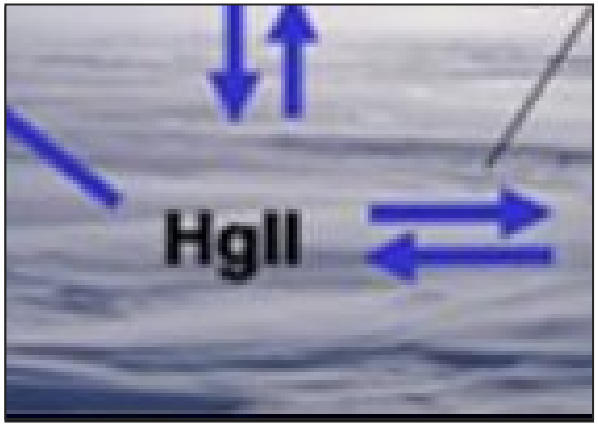
[Alley, 2013]

A common error in the mapping of scientific talks is to show a list that is not memorable



[Alley, 2013]

This talk traces what happens to mercury after it depletes from the atmosphere in arctic regions



Theory for mercury cycling

Measurements from Station

Environmental implications

[Alley, 2013]

This sentence headline makes an assertion on the first topic in no more than two lines

Image(s)
supporting
above assertion

If necessary, identify key assumption or background for audience—keep to two lines (18–24 point type)

[Alley, 2013]

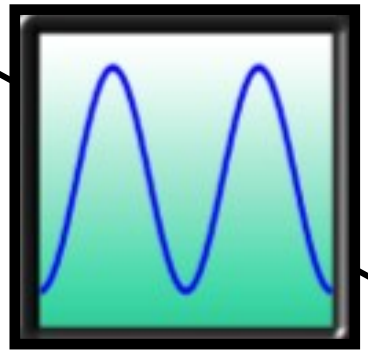
Digital Acquisition System Sampling

- Vibration measured by accelerometer
  - Analog voltage produced
  - Sinusoidal shape
- Analog signal converted to digital signal
- Signal sampled at a specific rate
- Rate → high enough to retain analog shape

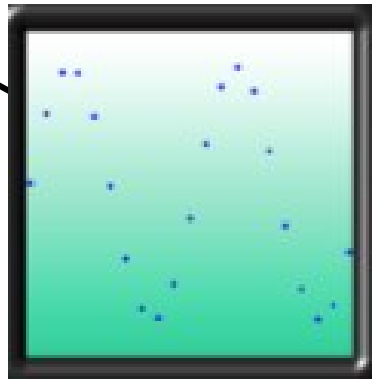
[Alley, 2013]

A digital acquisition system has to sample at a rate fast enough to retain the shape of the analog signal

Measurement Device



Analog-to-Digital Converter



[Alley, 2013]

Fragments quickly outpace the blast wave and become the primary hazard to personnel

[Alley, 2013]

Tsunamis cause devastating destruction, especially to sparsely vegetated areas

Before

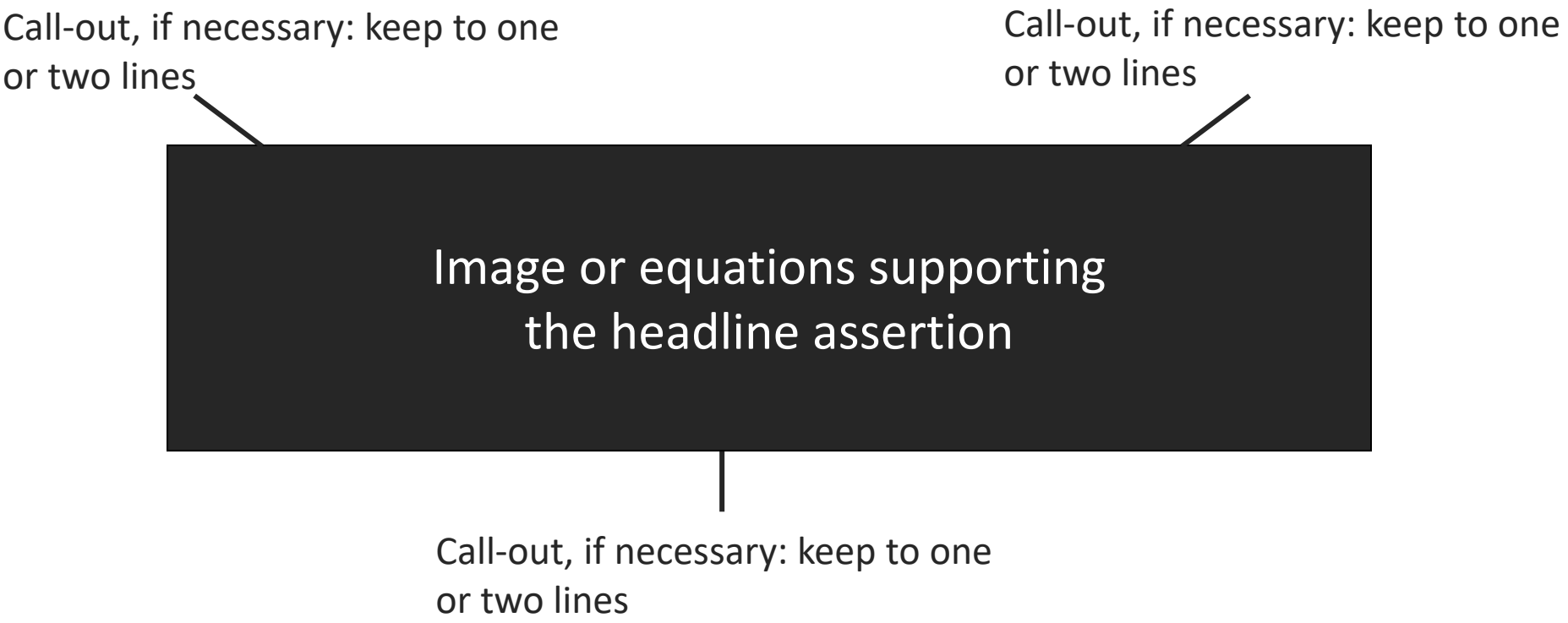
After

2004 Indian Ocean Tsunami: Gleebruk Village, Sri Lanka

[Alley, 2013]

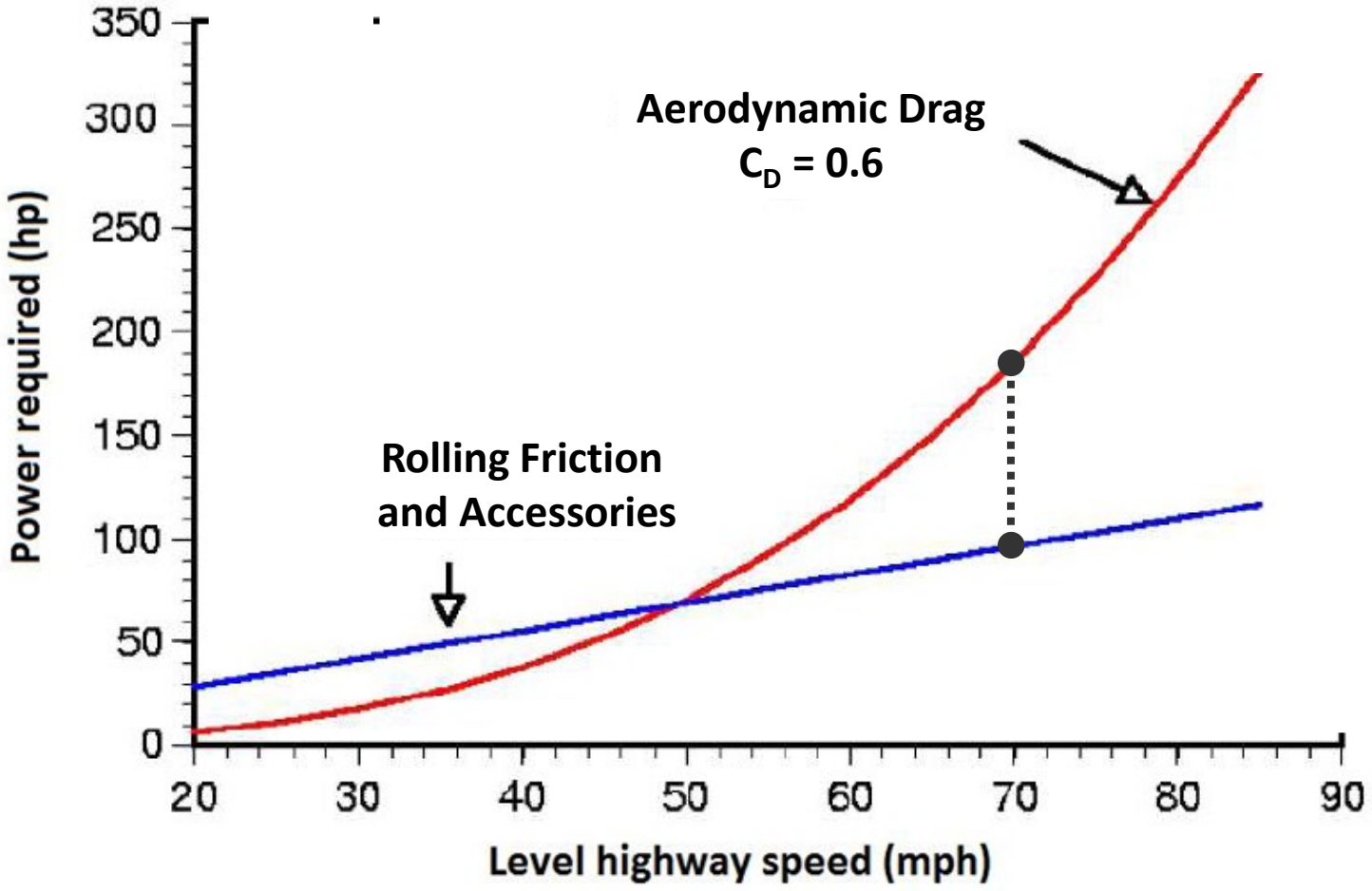
[homepage.mac.com/demark/]

This sentence headline makes an assertion on the second topic in no more than two lines



[Alley, 2013]

At typical highway speeds, overcoming drag requires about two-thirds of a truck engine's output



[Alley, 2013]

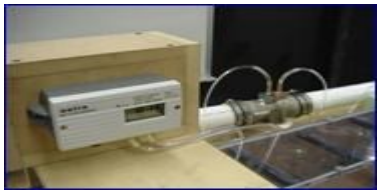
[McCallen, 2004]

PENNSTATE
1855

Normalized friction factors and Nusselt numbers correlated our data with the data of others

Pressure Taps

Venturi Meter



Voltmeter

Thermocouples

Pressure Drop

$$f = \frac{dP_{tap} \cdot D_h}{2 \cdot \Delta x \cdot \rho_{air} \cdot u_{bulk}^2}$$

Reynolds Number

$$f_0 = 0.046 \cdot \mathrm{Re}^{-0.2}$$

$$Nu_0 = 0.023 \cdot \mathrm{Re}^{0.8} \cdot \mathrm{Pr}^{0.4}$$

Heat Flux, q″

T_{inlet}

T_{wall}

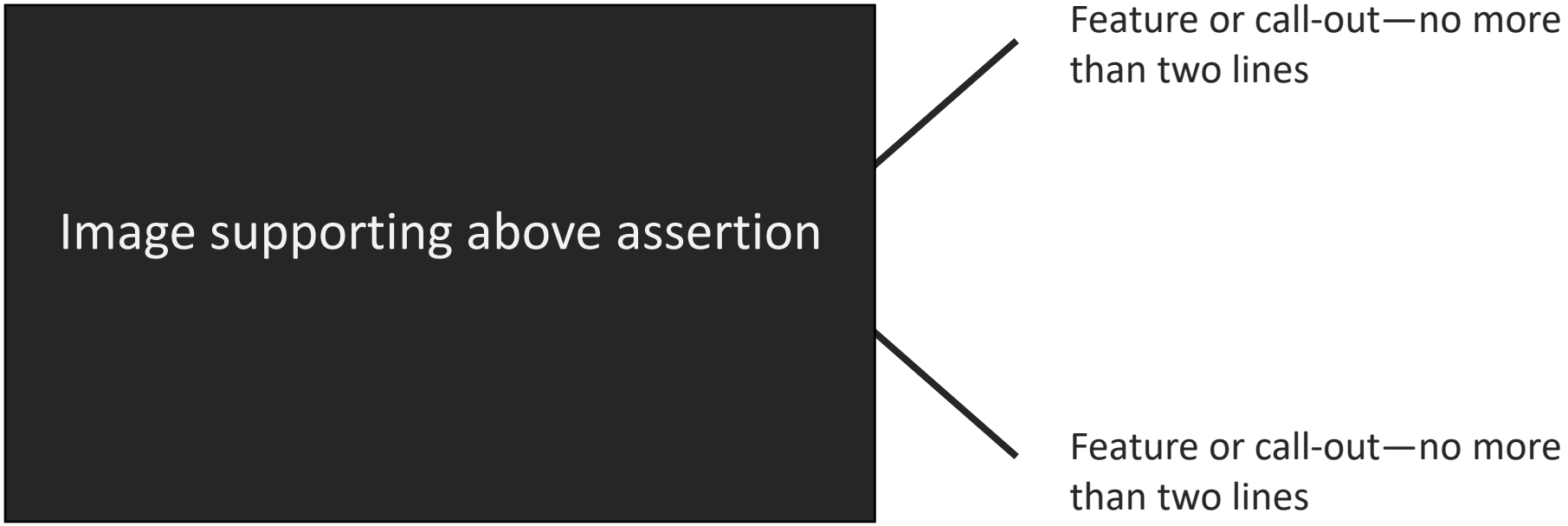
T_{bulk}

h

$$Nu = \frac{h \cdot D_h}{k_{air}}$$

[Alley, 2013]

This sentence headline makes an assertion on the third topic in no more than two lines

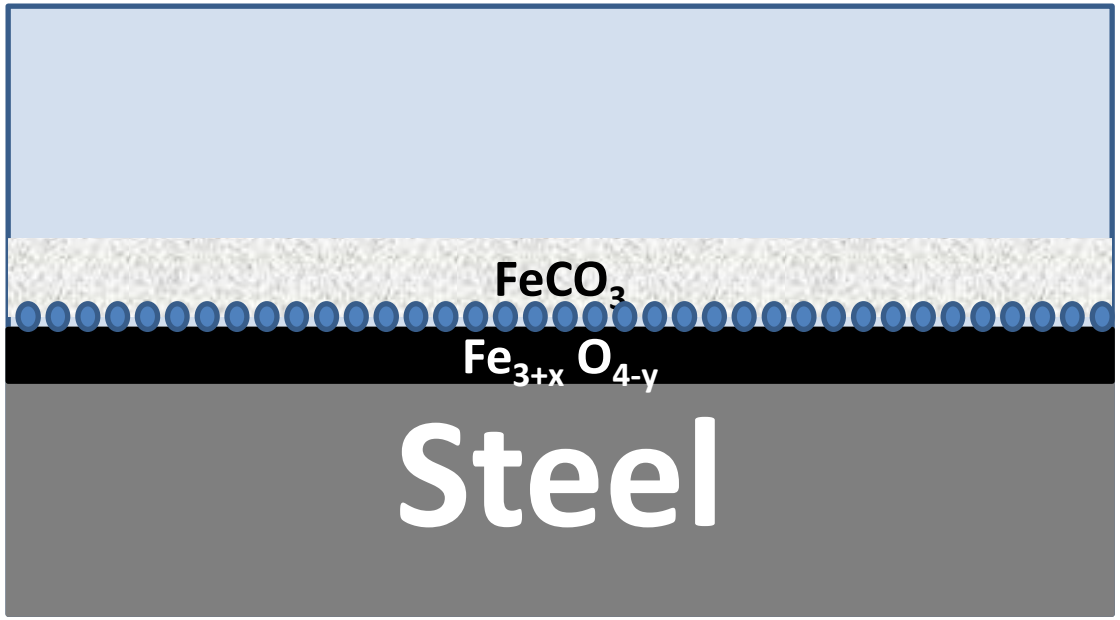


[Alley, 2013]

High concentrations of acetic acid help protect steel from corrosion

Adsorbed HOAc allows the growth of siderite

A thick siderite layer protects the steel from corrosion

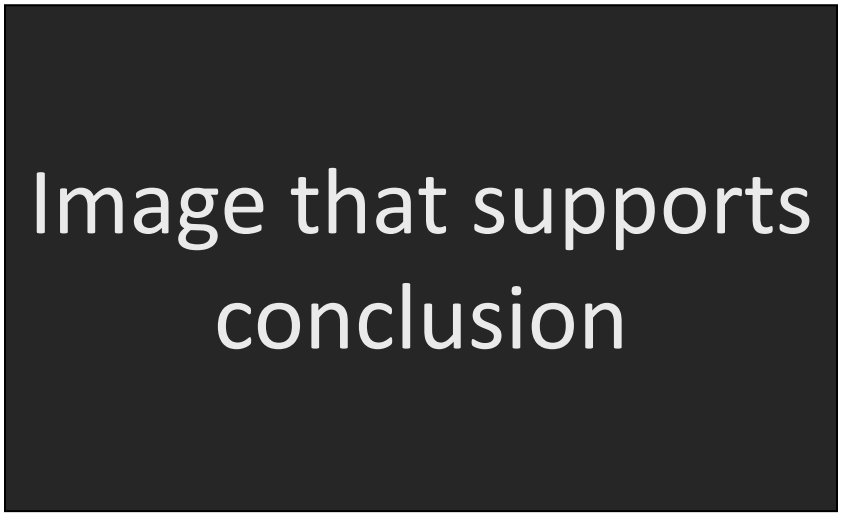


[Alley, 2013]

In summary, this sentence headline states the most important assertion of the presentation

Supporting point (no more than two lines)

Another supporting point (parallel to the first)

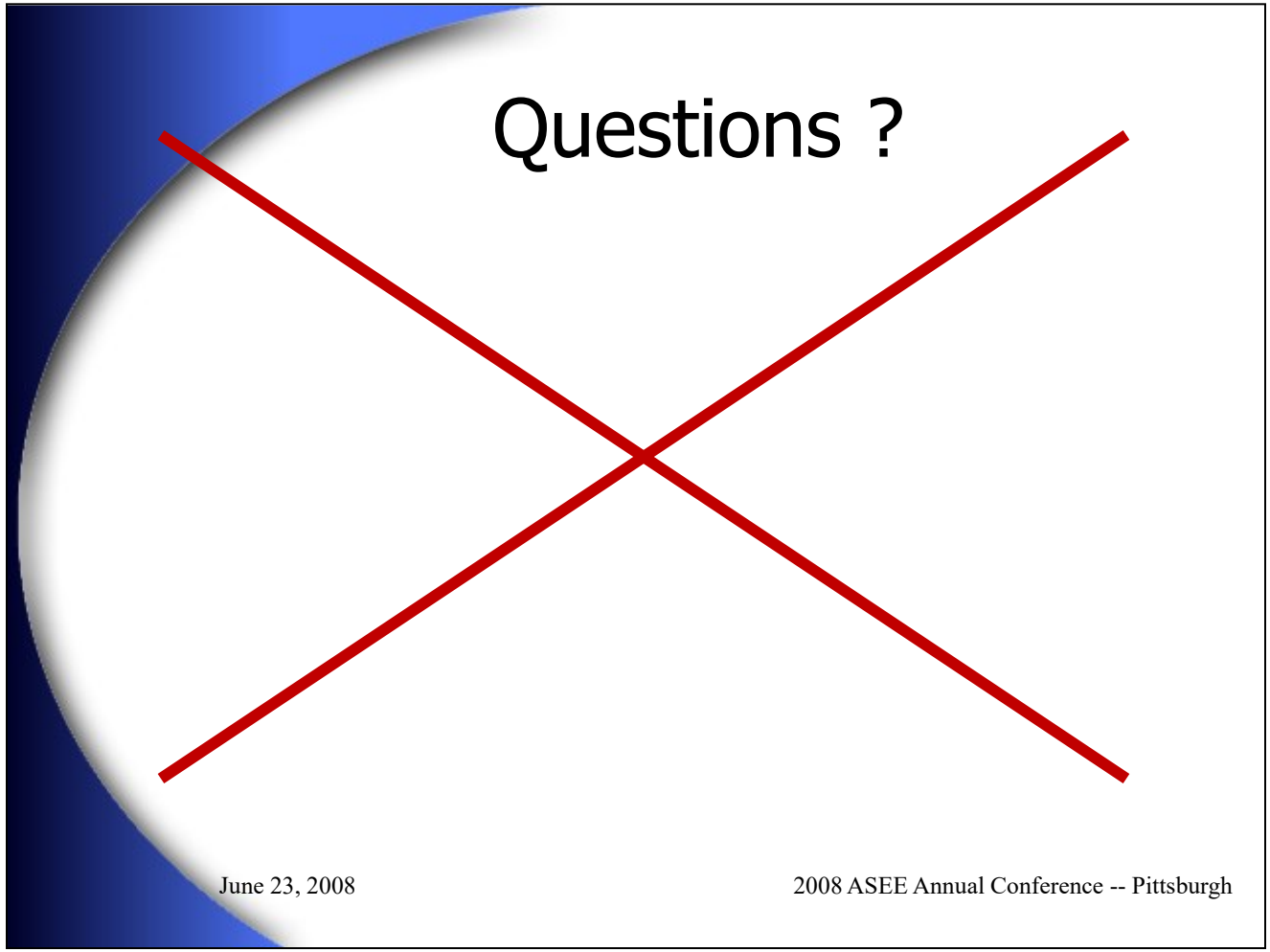


Questions?

Logo

[Alley, 2013]

A common error in the endings of scientific talks is to waste the last slide



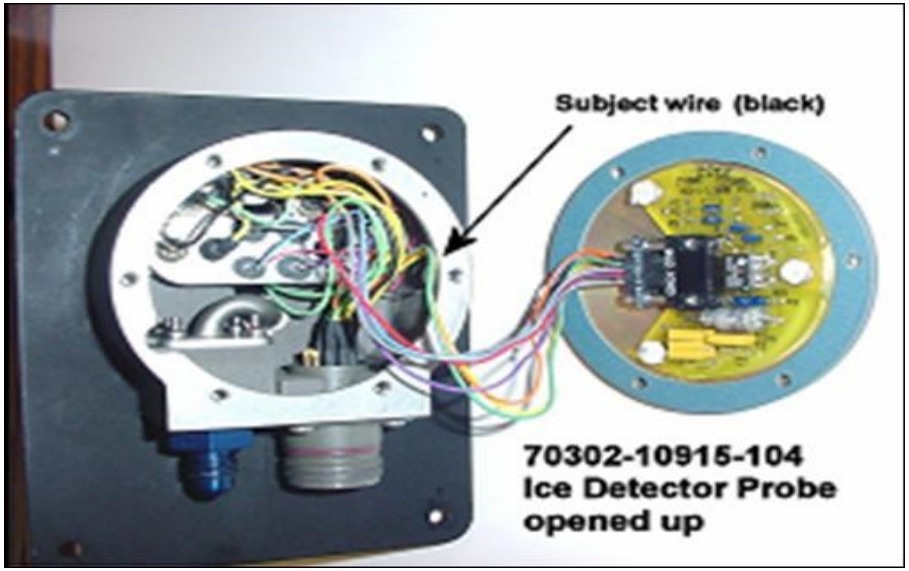
[Alley, 2013]

In summary, the detector failed because of a short-circuit created by the abrasion of wire insulation

Wires not harnessed to prevent contact with housing

⬇

Short circuit to ground created where wire contacted housing



Questions?

Sikorsky
A United Technologies Company

[Alley, 2013]

No need to be religious in using assertion-evidence; Rather, I want to open up your minds to new possibilities

- **Look here, I'm using a bullet point. It's not a sin. ☺**
- **Regardless of which format you choose, there are takeaways**
- **Takeaway 1: Organize around messages, not topics**
- **Takeaway 2: Title should express message for whole slide**

[Alley, 2013]