

How to Give a Good Talk

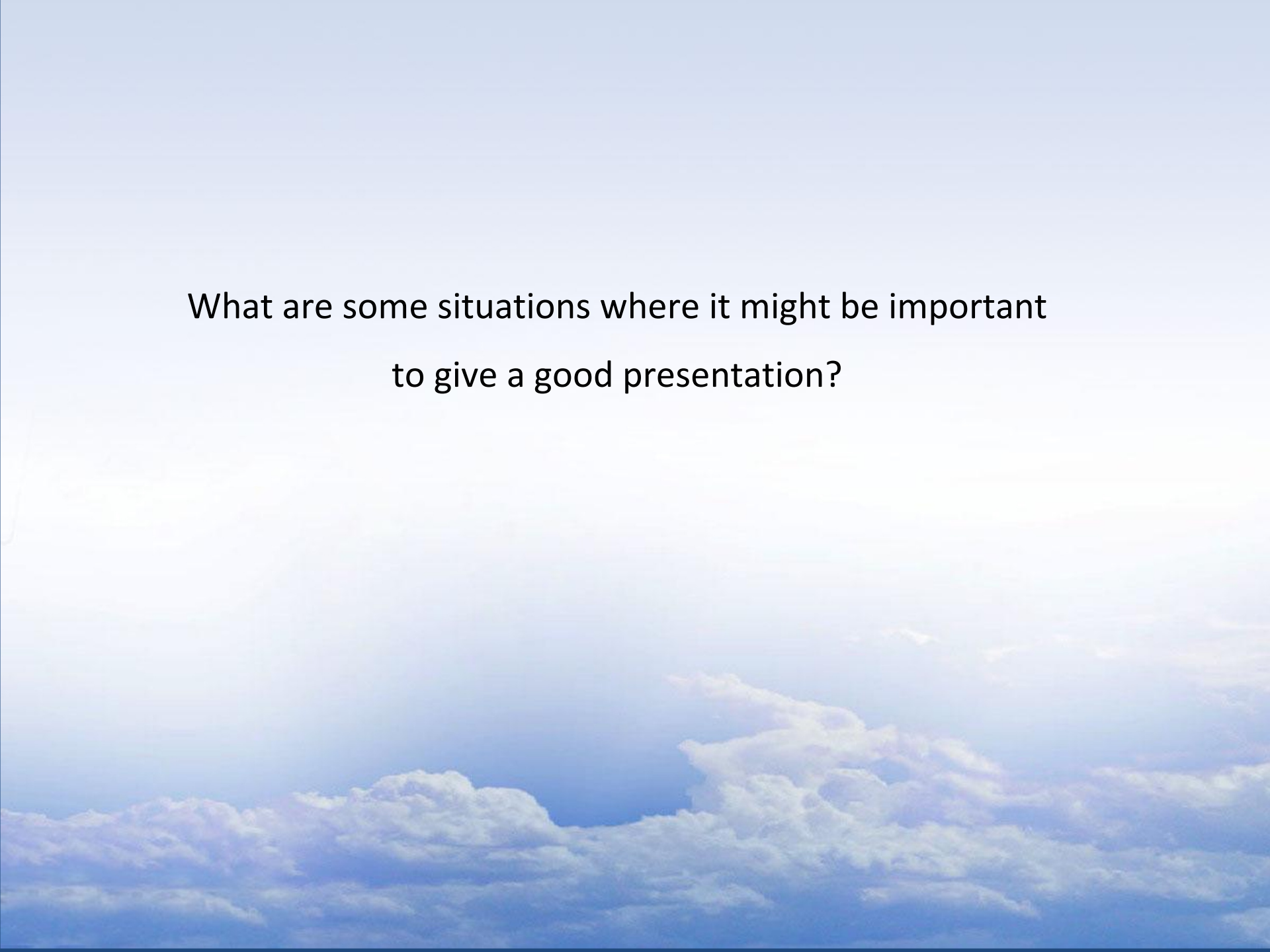
(and avoid giving a bad one)



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What are some situations where it might be important
to give a good presentation?



CHAPTER 11 PART 2 - THE CHI-SQUARE INDEPENDENCE TEST

In part 1, we assessed whether the data we observed fit a particular model when the model had more than 2 categories.

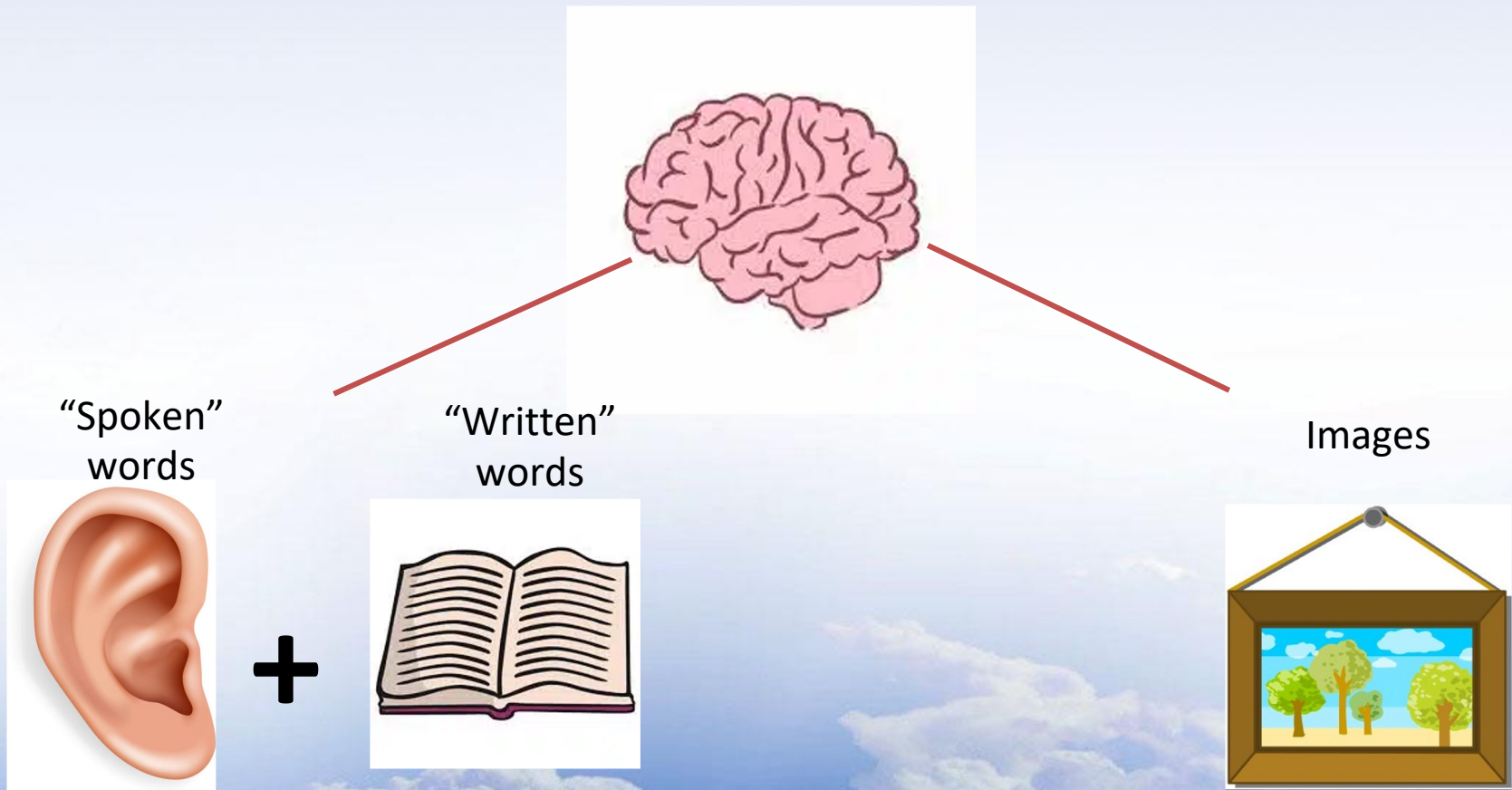
In the real example, there were 13 categories and the model was that each category was equally likely. Now suppose we wanted to compare the distribution of anatomical signs among female and convicted to those of serial killers. Thus whether someone ends up a CEO or a serial killer is not dependent on age? To examine that question we'd have to do a χ^2 Independence test.

Note: The χ^2 Independence test can be used to test a χ^2 Independence test for the 2 variables, but for each of 2 categories, you may see either the 1st Independence Test or the 2nd sample χ^2 test. For example, we could examine whether men or women are more likely to fall in love at first sight in either a 1 sample or a χ^2 Independence Test.

If you just have 1 variable (like signs) with more than 2 categories, then you do a χ^2 Contingency of fit test.



People can't listen and read at the same time





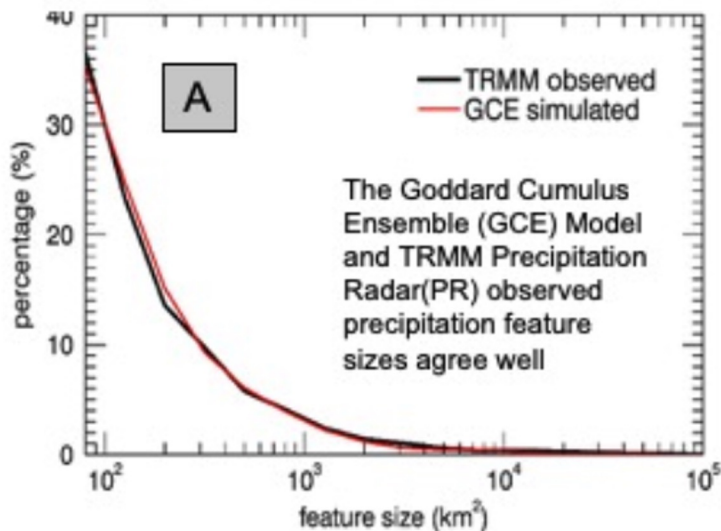
Lifecycle of An Madden Julian Oscillation (MJO) Event Simulated with Cloud-Resolving Models and Well Validated with Multiple Radars



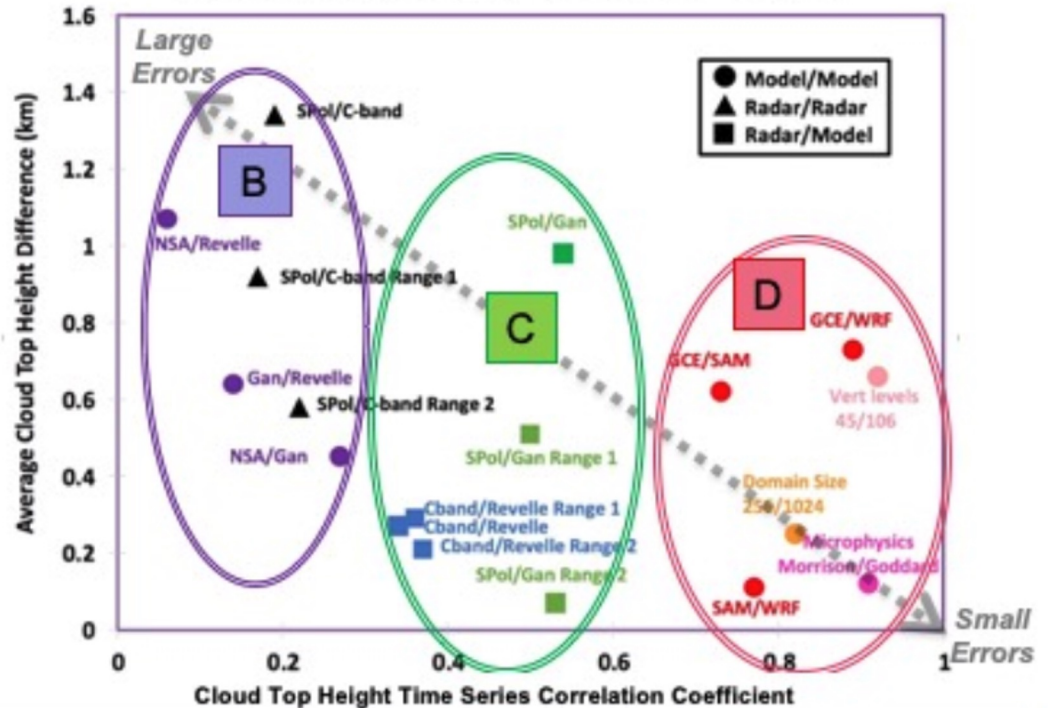
Code 612, NASA/GSFC

Xiaowen Li (MSU), Wei-Kuo Tao and Toshihisa Matsui (UMD)

TRMM Satellite Precipitation Radar for Precipitation Feature Size Validation (Storms Horizontal Structure)



Two Ground-Based Radars for Echo Top Height Validation - Vertical



NASA's first space-borne precipitation radar (TRMM PR) data are used to contribute to the US component of an international field program

to collect in situ observations to advance the understanding and prediction of MJO (DYNAMO/CINDY2011).

Both space-borne and ground-based radars are exploited to validate three different cloud-resolving models. The TRMM PR with its large footprint is used to compare precipitation feature sizes (A). The surface radars are used to compare convection strengths and their temporal evolutions over an MJO's lifecycle. Two surface radars 825 km apart do not agree well (B); models and radars compare reasonably well, provided with site-specific large-scale forcing (C); the three models show best comparisons, indicating robustness of models (D).

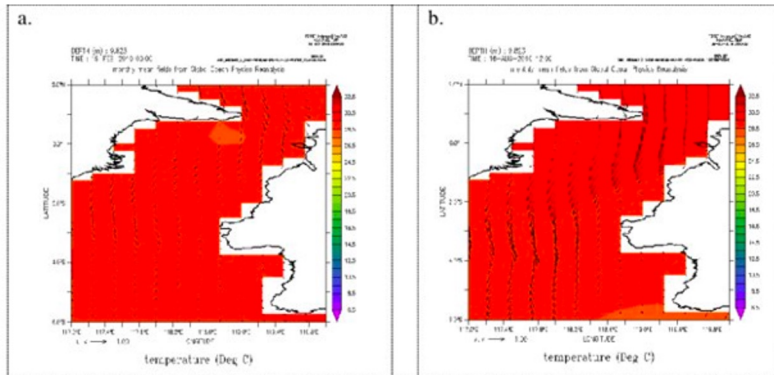
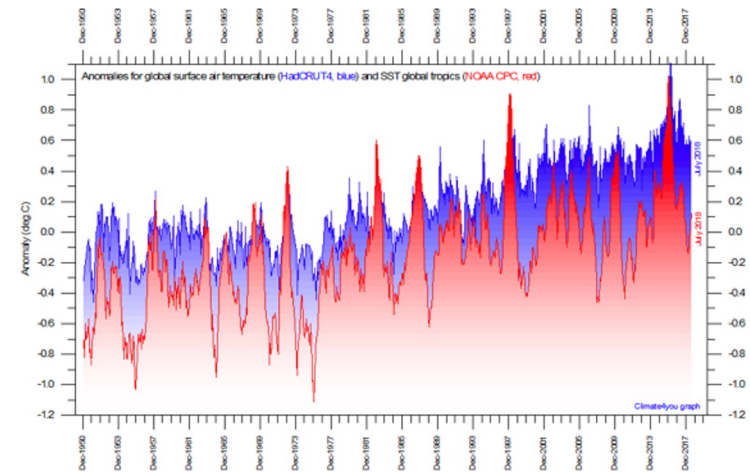
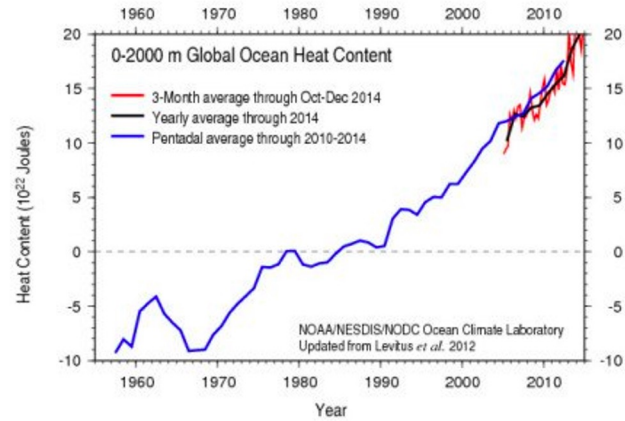


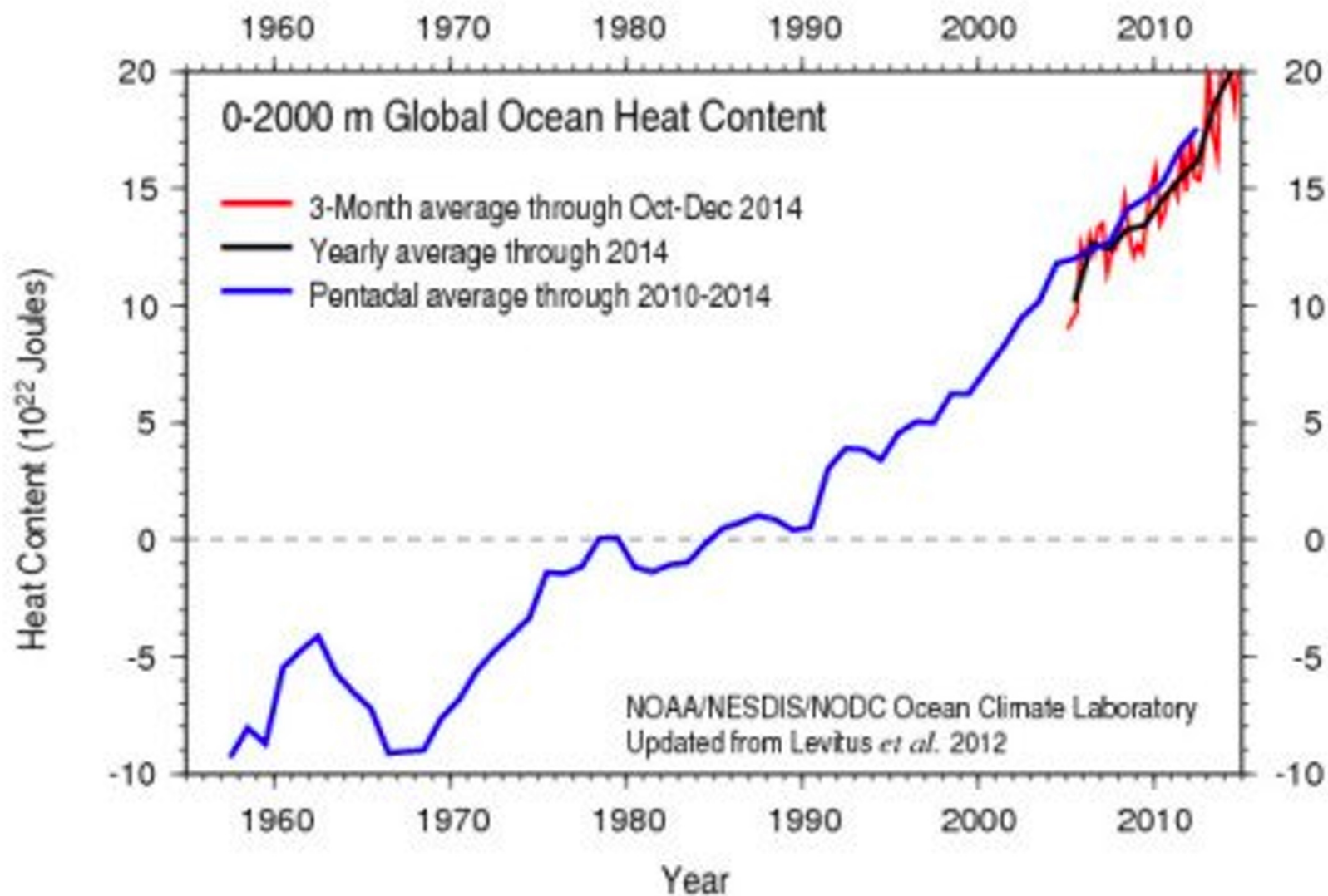
Common Mistake:

- People tend to put every word they are going to say on their PowerPoint slides. Although this eliminates the need to memorise your talk, ultimately this makes your slides crowded, wordy, and boring. **You will lose your audience's attention before you even reach the bottom of your.... SLIDE**

Dr. V. Rao MD

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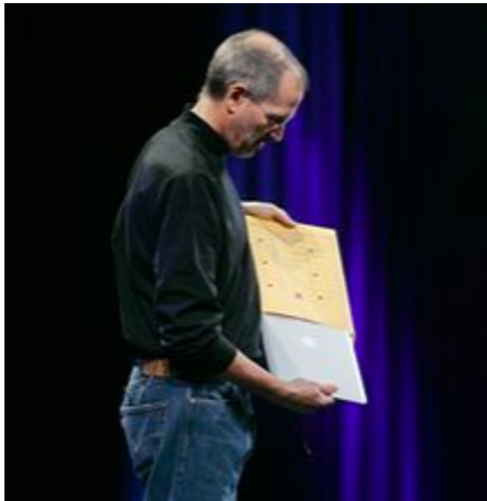




MacBook Air

- We are really excited to:
 - Introduce a really thin, light notebook computer
 - It has a 13.3 inch wide screen display
 - Backlit keyboard
 - Intel Processor

The world's thinnest notebook. **MacBook Air**.



The assertion-evidence approach is effective

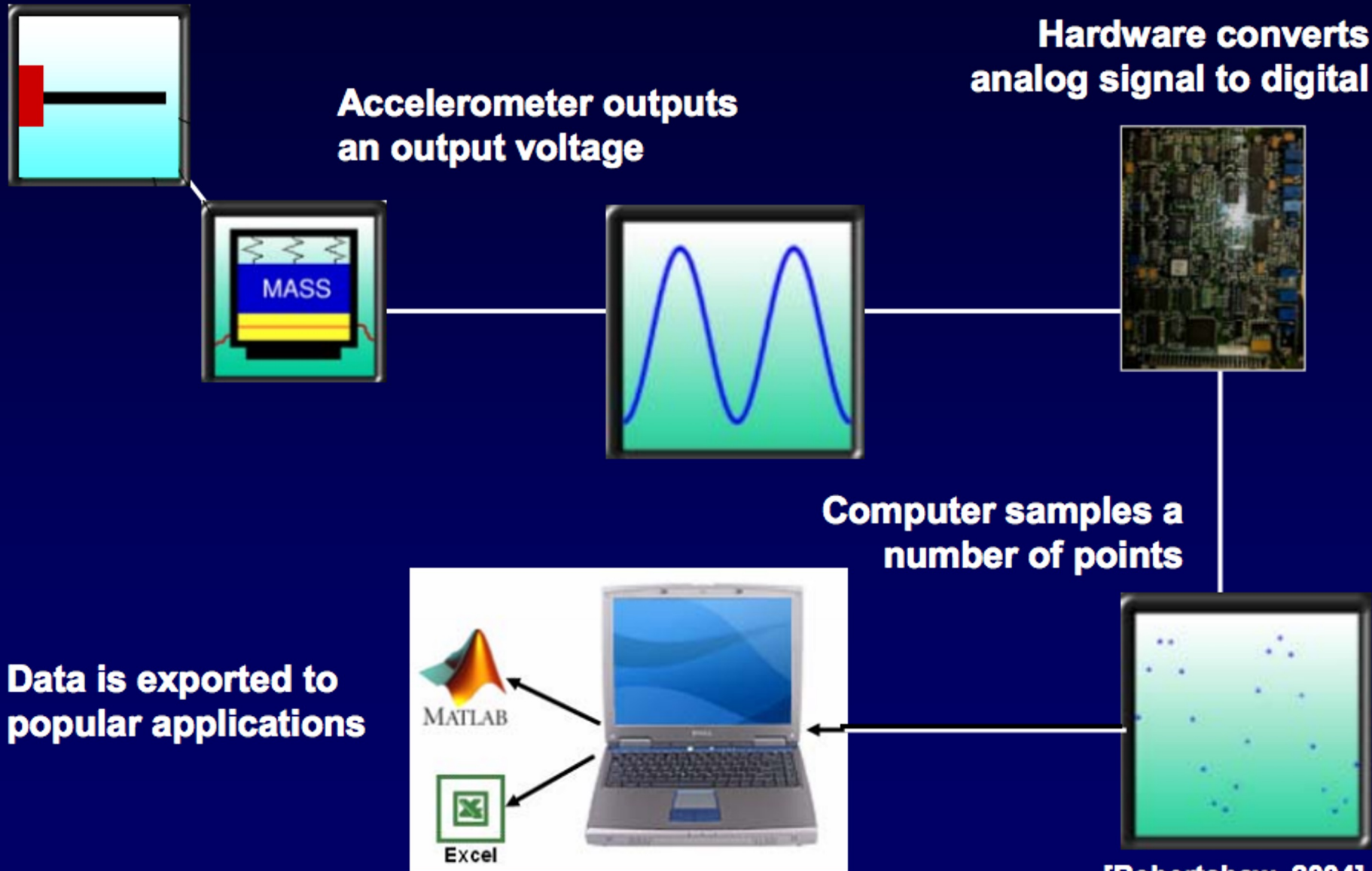
The assertion-evidence approach calls on you to build your talks on messages, not topics. In this approach, you support those messages with visual evidence, not bulleted lists.

<https://www.assertion-evidence.com/principles.html>

Bullets are not memorable, because bullets do not show the connections

- **Accelerometer outputs an analog voltage**
- **Hardware converts analog signal to digital**
- **Computer samples a number of points**
- **Data is exported to popular applications**

Audiences can remember more when details are presented visually

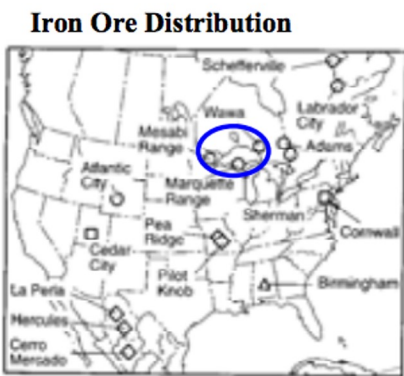


When the tested assertion was in the sentence headline, students performed significantly better

Q: How abundant is iron in the earth's crust?

Iron

- An abundant metal, makes up 5.6% of earth's crust
- Properties:
 - shaped, sharpened, welded
 - strong, durable
- Accounts for >95% of metals used
- Iron ores discovered in 1844 in Michigan's Upper Peninsula
- Soon found other ores in upper Wisconsin and Minnesota



Kesler 1994

Iron ores make up 5.6% of the earth's crust and account for 95% of the metals used

Iron Ore Distribution



Is strong and durable

Can be shaped, sharpened, and welded

[Kesler 1994]

Led to 59% recall

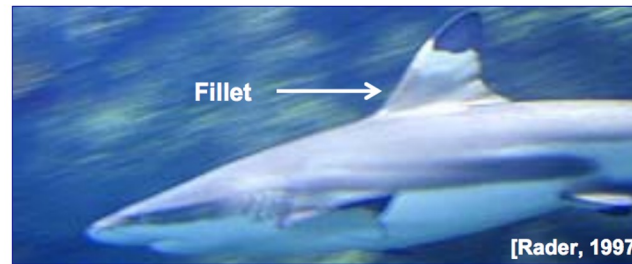
Led to 77% recall

Level of significance < .001

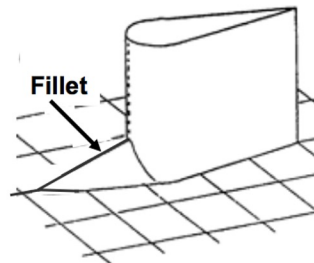
Make a statement in the heading to convey the take-home message of the slide

Fillets reduce leading edge vortices in nature and in engineering

Fillet on dorsal fin of shark



Fillet on Seawolf submarine



[Devenport et al., 1991]



Plate Tectonics

- The Earth's crust is divided into 12 major plates which are moved in various directions.
- This plate motion causes them to collide, pull apart, or scrape against each other.
- Each type of interaction causes a characteristic set of Earth structures or "tectonic" features.
- The word, tectonic, refers to the deformation of the crust as a consequence of plate interaction.

Class 3: Plate Tectonics and Origins

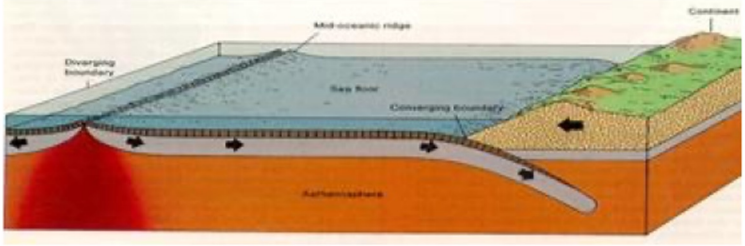
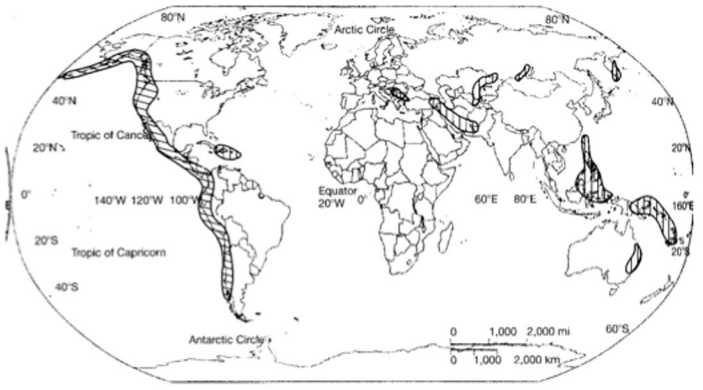


Plate Movement

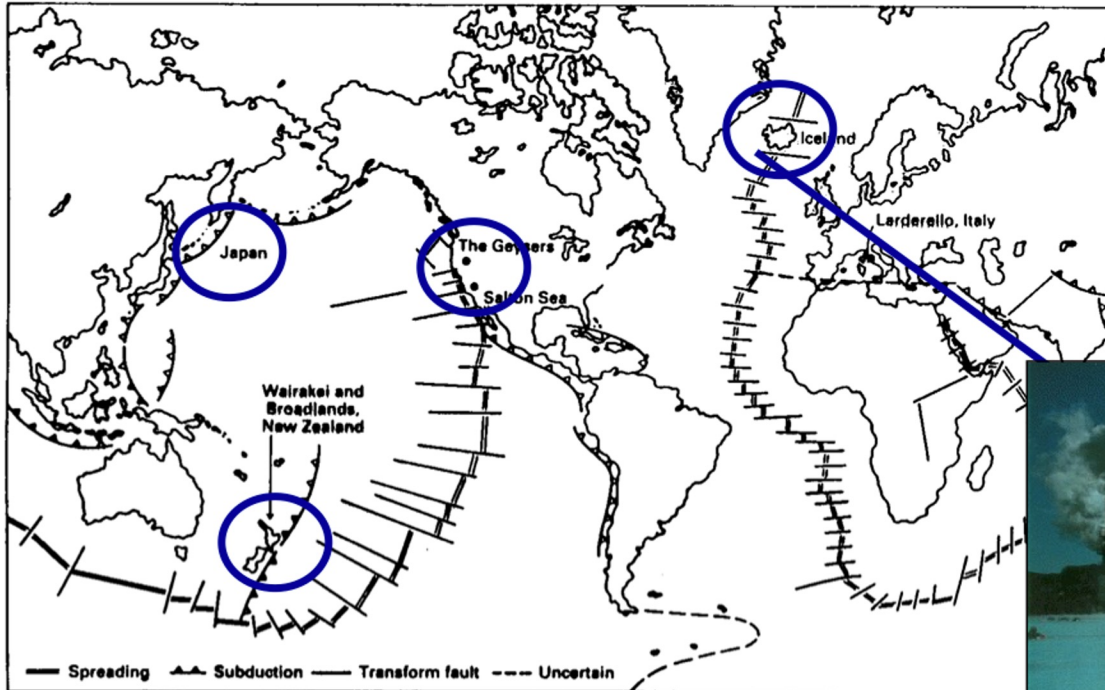


Earth's Layers



Resource Distribution

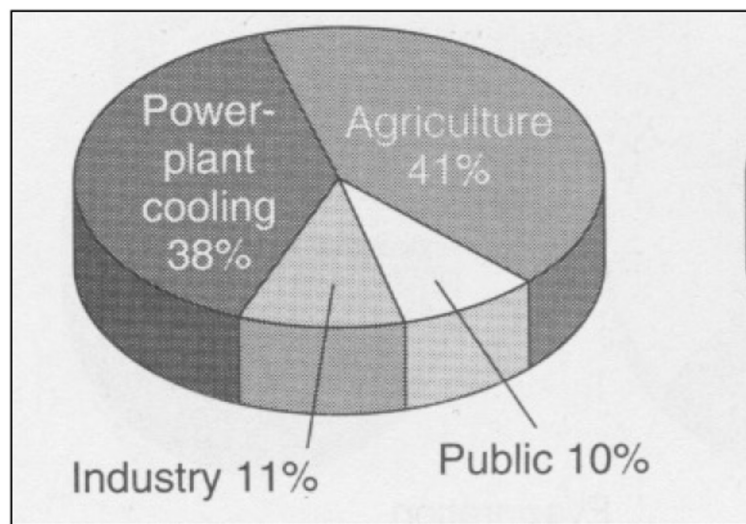
The best places to harness geothermal energy are at the plate boundaries



Iceland is almost entirely run on geothermal energy

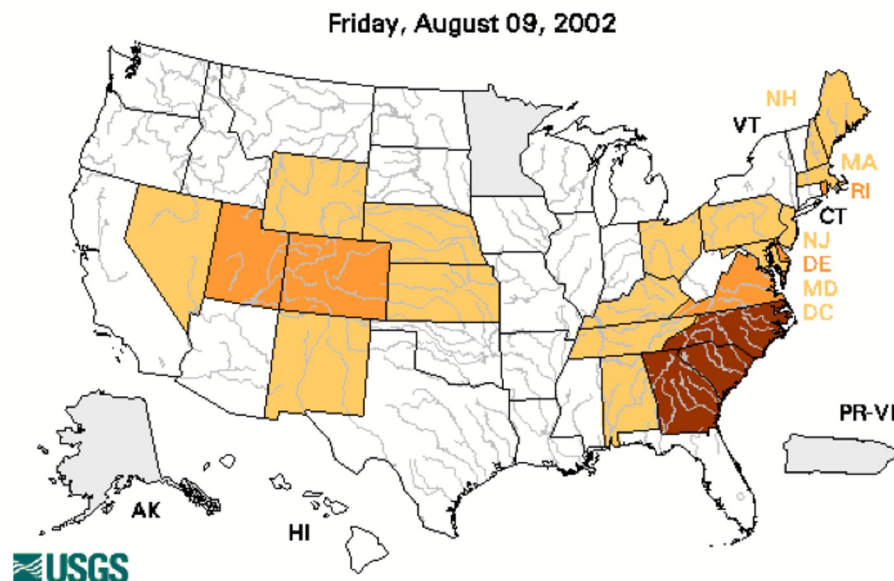
In summary, only a small percentage of water on Earth is readily available

In the U.S., water is mainly used for agriculture and power-plant cooling



[Miller 2002]

Water shortages are caused by climatic conditions

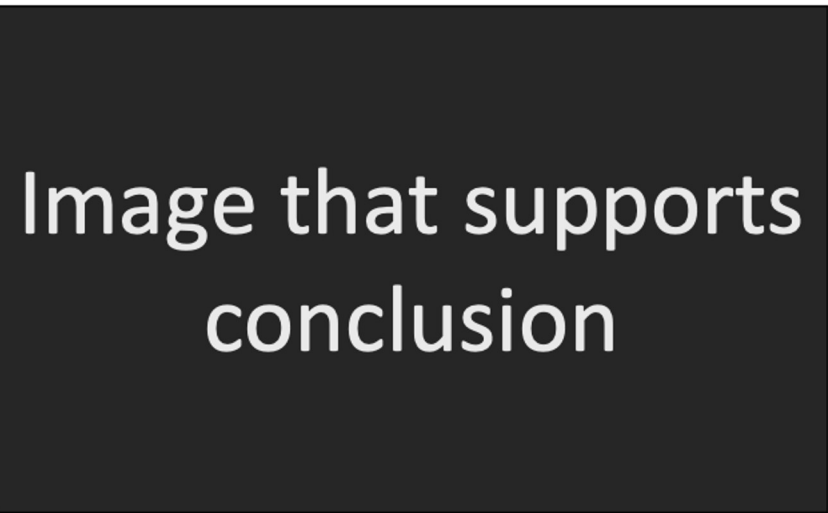


The concluding slide . . .

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?

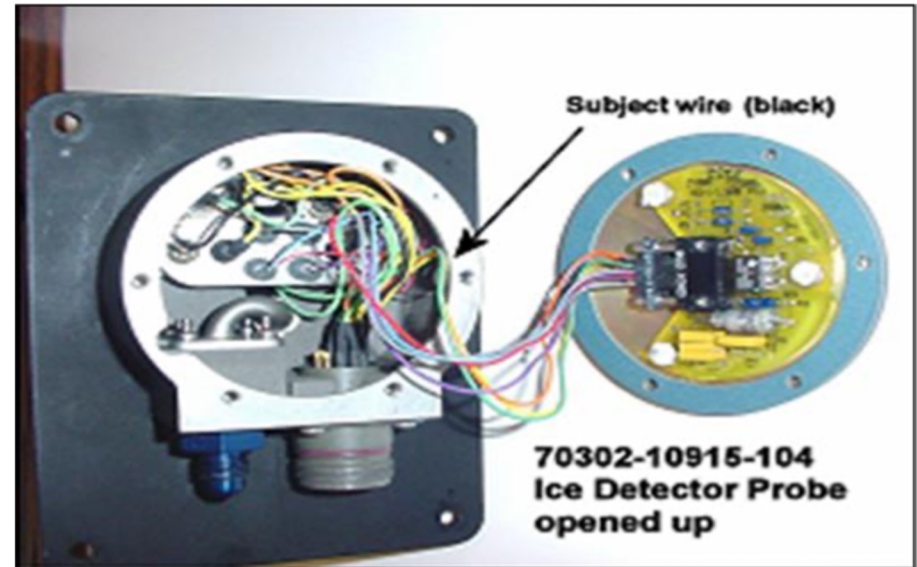
Logo

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

What could be a possible title for your talk if you hope to convey a message rather than simply a topic?

Put it in the chat. It doesn't have to be perfect.

1. Title
2. Introduction: What? Why?
3. Methods: How?
4. Results: What happened?
5. Conclusions and implications for society/future research

Workshopping Time:

1. Using PPT, open one of the Assertion-Evidence templates (4 x 3 or 12 x 9 ratio).
2. Create a draft presentation of 3 to 5 slides on your research
3. Use random photos from the web, a mock title, the logo of your REU/program, and mock graphs (or your own data).

1. *Title* - and perhaps the *acknowledgements*, the REU program, funder, lab technician, mentor, etc.
2. *Introduction*
 - a. The larger problem being considered
 - b. The question being investigated
 - c. Why is this important?
3. *Methods, Results, Conclusions:*
 - a. Use the statement headings and accompanying images (linked, when needed) to walk the audience through.
4. *Implications & future points of investigation*