

The Art of Giving Talks: Some Thoughts, Advice, and Lessons Learned the Hard Way



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Your mileage may vary!

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- ❖ This talk may not make you a gifted speaker
- ❖ None of the rules that I give you are iron-clad
- ❖ You will need to modify these rules to suit your personal speaking style

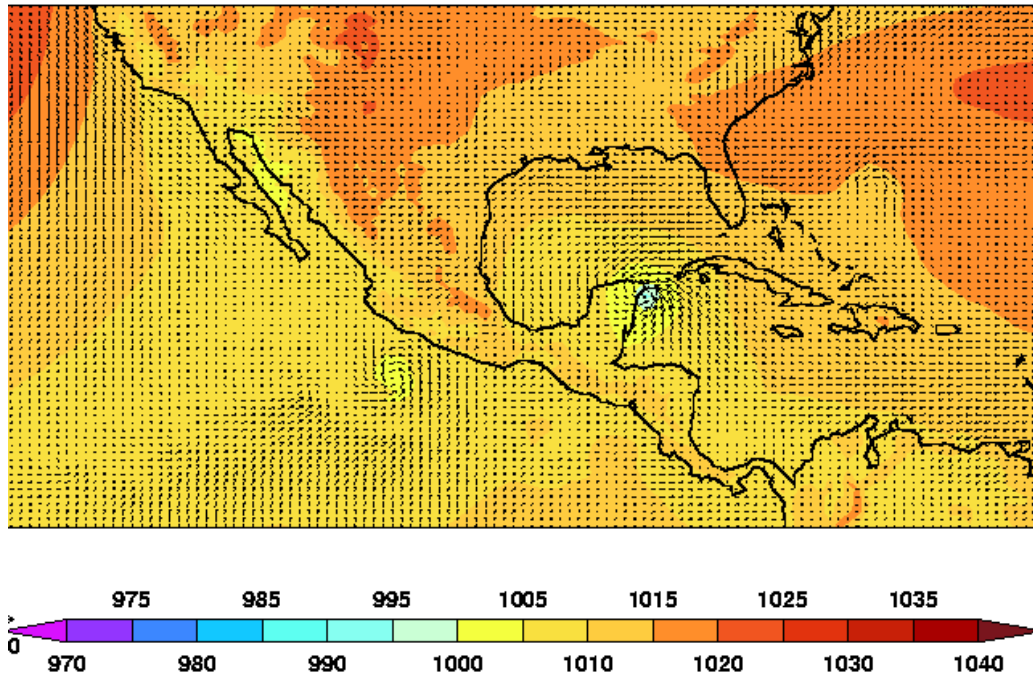
What is a talk?

*A good talk is
nothing more than a story*

Climate modeling and predicting hurricane patterns

Maximum surface wind speed = 76.703981490904894 mph

Minimum sea level pressure = 993.58273437499997 mb



- ❖ Tropical cyclones are not generally seen in integrations of global atmospheric general circulation models at climate model resolutions ($\sim 300\text{km}$ or T42)
- ❖ In CCM3 at 50km (T239), the lowest pressure attained is 995mb. No realistic cyclones are simulated.
- ❖ In high resolution simulations of the finite volume dynamics version of CAM2, strong tropical cyclones are common.

Michael Wehner, Scientific Computing, LBNL

Some reasons for sharpening your communication skills

- 1) Probably **the single most important** aspect in job hunting is your interview talk. The interview talk can make or break the interview.
- 2) Giving talks is expected in many jobs and is a critical factor in job success.
- 3) If you're heading into academia then you'll be giving talks almost every day!

What types of talks are there?

- ❖ Job interview
- ❖ Present a new result (e.g. at a conference) or a status report for a project
- ❖ Argue for/against something

Each of these talks will be different but the basic structure will be the same !

There are three key elements

- ❖ The message - what is the main idea that you would like to get across to your audience
- ❖ The audience - who are the people that you want to give your message to
- ❖ The connections - how do the pieces of your talk fit together

The Message

or

What's your point?

What is your message ?

- ❖ You should be able to answer the question –
What's your point?
- ❖ The message should be short, 2-3 sentences at most and understandable at a high level
- ❖ Short talks (15 minutes or less) should have only one message

**Most common mistake in a talk
is not having a clear message**

Everything in your talk should support your message

- ❖ Start with the message and work backwards in developing your talk
- ❖ It's incredibly easy to fall into the trap of thinking that
 - _____ is just too interesting to let the audience miss
- ❖ If you're not sure, ask yourself once again –
What's your point?

The Audience

You need to tune the talk to the audience

- ❖ You need to be able to answer the question – *Why should I care?*
- ❖ Find out what the makeup of the audience will be and why they are there
- ❖ Emphasize or de-emphasize parts of your argument to suit the audience - respect your audience

Second most common mistake is using the same talk for all audiences

The Connections: Putting it Together

Structuring your talk

- ❖ It's not enough to lay out the key elements – you need to show how the elements fit together
- ❖ Walk the audience through your key points and show them how they are related
- ❖ Most talks suffer from too much detail and not enough overview - ***a talk is not a paper***

Third most common mistake is to give details rather than showing the connections

Some Tips and Tricks

Lessons Learned the Hard Way

Keep your main points simple

- ❖ Use at most 3 main points at any given time
- ❖ Most people/societies/cultures have a hard time dealing with more than 3 ideas at one time
- ❖ Remember that for a large part of your audience the material is new

Give specific examples wherever possible

- ❖ Examples can be used to clarify a given point
- ❖ Examples can be used to create a big impact
- ❖ Most audiences relate to visual examples better than to written examples

Drug Design

- ❖ Drug design can be formulated as an energy minimization problem.
- ❖ A single new drug may cost between \$800 million and \$1.8 billion to develop from start to finish.
- ❖ The design process typically takes over 10 years due to the large number of trial drugs that need to be considered.
- ❖ There are various energy functions used to describe the molecules involved.
- ❖ There are thousands of parameters because the size of the drugs is large.
- ❖ Due to physical constraints the optimization problem contains numerous nonlinear constraints.
- ❖ It can be shown that there are thousands of local minima which makes it difficult for most optimization methods.
- ❖ We are working on special optimization methods to solve this minimization problem.
- ❖ By using visualization techniques we can speed up the optimization methods.

Protein T162 from CASP5

QuickTime™ and a
YUV420 codec decompressor
are needed to see this picture.

- ❖ A single new drug may cost over \$800 million to develop and the design process typically takes over 10 years.
- ❖ Energy minimization computed using OPT++/LBFGS. Initial configuration created using ProteinShop (S. Crivelli et al)
- ❖ Total simulation took approximately 32 hours

Some essential elements that should be included in a seminar talk

- ❖ Why is this problem important?
 - Why should I care?
- ❖ What was the outcome/product/....
 - Is there a tangible result?
- ❖ What was **your** contribution?
 - Use words like, “*This is my main result*”

Handling questions

- ❖ Anticipate and prepare for the obvious questions
- ❖ Make sure you understand the question
- ❖ Try to answer all questions, but some questions can/should be deferred.

Don't Panic !

Top 10

- 1) Have a clear message you want to deliver
- 2) Prepare for your audience
- 3) Tie the pieces together into a story
- 4) Only use material that supports your message
- 5) Avoid unnecessary details
- 6) Use (visual) examples to clarify your points
- 7) State the importance of your problem
- 8) Present your contribution
- 9) Prepare for questions
- 10) Practice, practice, practice

The End

Sample 30 minute talk

- ❖ Set the stage (5-10 minutes)
 - Tell the audience what the main issues are
 - Lay out your problem/issue
 - Describe why it's important!
- ❖ What happened (10-15 minutes)
 - How was the problem resolved
 - Only need the key ideas here
 - Don't necessarily need chronological order
- ❖ Summarize (5 minutes)
- ❖ Questions?

Turbulent Premixed V-Flame

Experimental Turbulent V-Flame



Recent Calculations

QuickTime™ and a
BMP decompressor
are needed to see this picture.