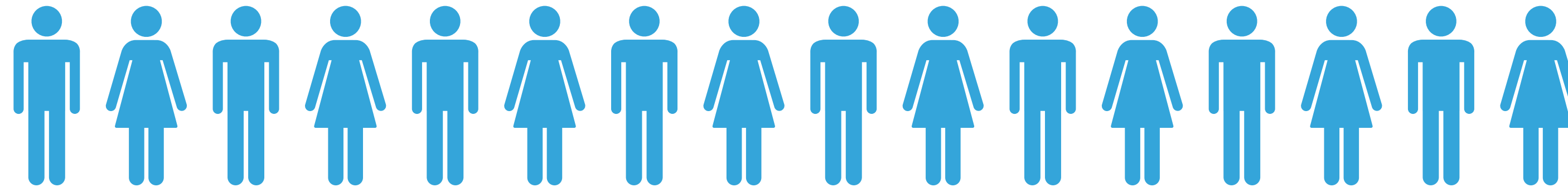


DISCLAIMER: THE PERSONAL THOUGHTS OF NATASHA BATALHA & EMILY MARTIN

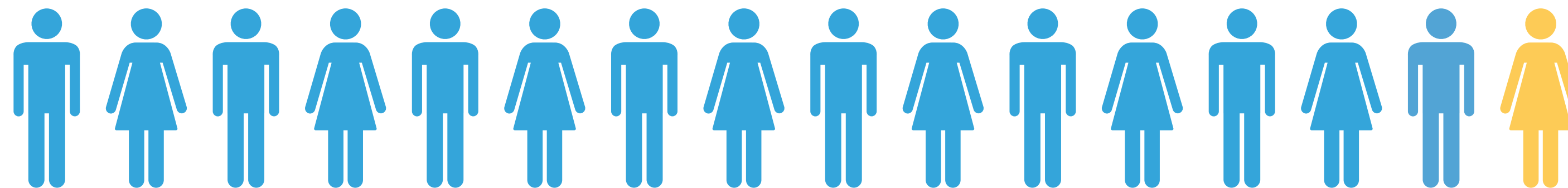
THE GOOD TALK TALK

SOME (MAYBE OBVIOUS) THINGS TO CONSIDER

People attending your talk



People who already care/understand your work



*These people are interested
and have the **potential** to stay
engaged. But will more
broadly just remember how
you made them feel.*

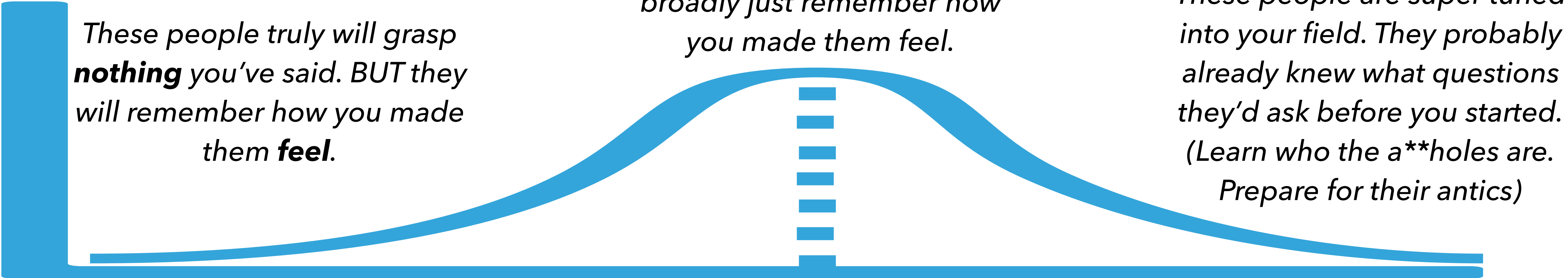
*These people truly will grasp
nothing you've said. BUT they
will remember how you made
them **feel**.*

*These people are super tuned
into your field. They probably
already knew what questions
they'd ask before you started.
(Learn who the a**holes are.
Prepare for their antics)*

SOME (MAYBE OBVIOUS) THINGS TO CONSIDER

*I've learned that people will forget what you said,
people will forget what you did, but people will never
forget how you made them feel.*

- Maya Angelou



*These people truly will grasp
nothing you've said. BUT they
will remember how you made
them **feel**.*

*These people are interested
and have the **potential** to stay
engaged. But will more
broadly just remember how
you made them feel.*

*These people are super tuned
into your field. They probably
already knew what questions
they'd ask before you started.
(Learn who the a**holes are.
Prepare for their antics)*

STEP 1: WHAT IS THE MESSAGE?

- ▶ **Exercise:** Sally and Bob are walking out from your session. Sally turns to Bob and says, "I missed __ (insert your name) __'s talk. What was it about?". Bob says..... ???
- ▶ **This is key!** What would you want Bob to say to Sally?

| | |
|--|--|
| <i>Something about planet detection but nothing special</i> | They retained nothing & were bored |
| <i>That cool planet system .. Uhh.. HD-something something. Or maybe that was a different talk? Tbh I dont know.</i> | Retained maybe 1% of your talk |
| <i>It was a pretty cool talk on modeling atmospheres</i> | You made them feel good and they retained the broader subject |
| <i>They did an analysis of HD 209458b</i> | They remembered your title slide |
| <i>It was about how NIRISS and NIRSpec are the best observing modes for exoplanet science.</i> | They remembered your conclusions |

STEP 1: WHAT IS THE MESSAGE?

- ▶ This is especially hard when there are different expertise levels in the room. I usually try and go 1 step further. There are usually one or all of these groups members in any audience:
 - ▶ **1. What do I want the undergrad to retain?**
 - ▶ *E.g. I want them to understand why Hot Jupiters matter*
 - ▶ **2. What do I want my peers in my sub-specialty to retain?**
 - ▶ *E.g. I want them to know we discovered H2O in some target which is interesting because...*
 - ▶ **3. What do I want hot-shot-professor-who-knows-my-work-super-well** to retain?**
 - ▶ *E.g. I want them to know we crafted a new data reduction technique to pull out that H2O feature. It's better than previous data reduction techniques.*
 - ▶ **4. What do I want the other 50% of the general audience to retain, who may not care too much about your specific research topic?**
 - ▶ *This often relates to your field's "big picture questions". E.g. By studying the water abundance in this atmosphere, we can gain insights into the formation history of planets.*

| | |
|-----------------------|---------|
| General rule of thumb | |
| Outside your dept. | 1, 4 |
| Colloq | 1, 2, 4 |
| Lunch seminar | 2 & 4 |
| Specialty conference | 2 & 3 |

**Usually this is extremely targeted. Find out which professors are attending the conference, seminar, colloq, etc! Talk to your advisors about what you might want those people to know.

***Oh yeah. I've heard them give talks.
They are an expert in _____.***

As a grad student you can start to build a reputation by having "common themes" across the talks that you give. Don't panic and think this means you have to stick to doing one narrowly defined topic. But, you may think about having a common thread (however small) between your talks. Think about the "hot shot" postdocs and grad students in your field. I bet for all those people you can fill in the blank above with ease.

STEP 2: BACKWARDS BUILDING YOUR STORY

This is where you will quickly start to lose people. That is okay!



1. The intro.
Prepare your
first two
sentences!

2. The build up.
Why should you
be paying
attention?

3. The culmination.
"And therefore..."
clearly state your
goals

4. Explain goal #1

By reminding people throughout the talk where you've been and where you are going, you'll have a larger chance of retaining attention.



5. Clearly state the
result of Goal #1

6. Okay we've
done this, so now
we can tackle the
next thing .. Goal
#2

7. Rinse repeat, but
no more than 2
times (people
won't retain more
than 3 points)

Hugely important. Don't just slap up your conclusion.



8. The wind down.
Connect all the
dots, bring back
the "big picture
topic".

Use this opportunity to grab back the people who stopped paying attention or who couldn't follow the nitty gritty of the explanation

STEP 2: AN EXAMPLE

This is where you will quickly start to lose people. That is okay!

1. Excited to be here to talk about reflected light spectroscopy of exoplanets

2. The field of exo-atmospheres is full of codes. None of them do reflected light calculations.

3. Therefore, I created an open source code to do this cool thing.

4. The code needed to be versatile because... Explain physics behind problem.

By reminding people throughout the talk where you've been and where you are going, you'll have a larger chance of retaining attention.

Hugely important. Don't just slap up your conclusion.

5. We solved the versatility problem by adding new features and expanding documentation

6. Now that we have a versatile code, we needed to solve this other opacity problem.

7. Rinse repeat, but no more than 2 times (people won't retain more than 3 points)

8. Reflected light calculations are hard, this tool will help.

Use this opportunity to grab back the people who stopped paying attention or who couldn't follow the nitty gritty of the explanation

STEP 2: ANOTHER EXAMPLE

This is where you will quickly start to lose people. That is okay!

1. I'm here to tell you about how we used Spitzer to measure parallaxes of brown dwarfs

2. Nobody thought Spitzer could measure precise astrometry, but turns out it can!

3. Our goal was to measure parallaxes of many nearby BDs and then analyze their physical properties

4. Here's how we measured the parallaxes. Explain some nitty gritty methodology and systematics

By reminding people throughout the talk where you've been and where you are going, you'll have a larger chance of retaining attention.

Hugely important. Don't just slap up your conclusion.

5. Look we measured a bunch of parallaxes (distances) YAY

6. Now that we have distances, let's look at their absolute physical properties

7. Rinse repeat, but no more than 2 times (people won't retain more than 3 points)

8. Spitzer can measure parallaxes of Y dwarfs. By measuring distances to lots of them, we learned some about their fundamental properties

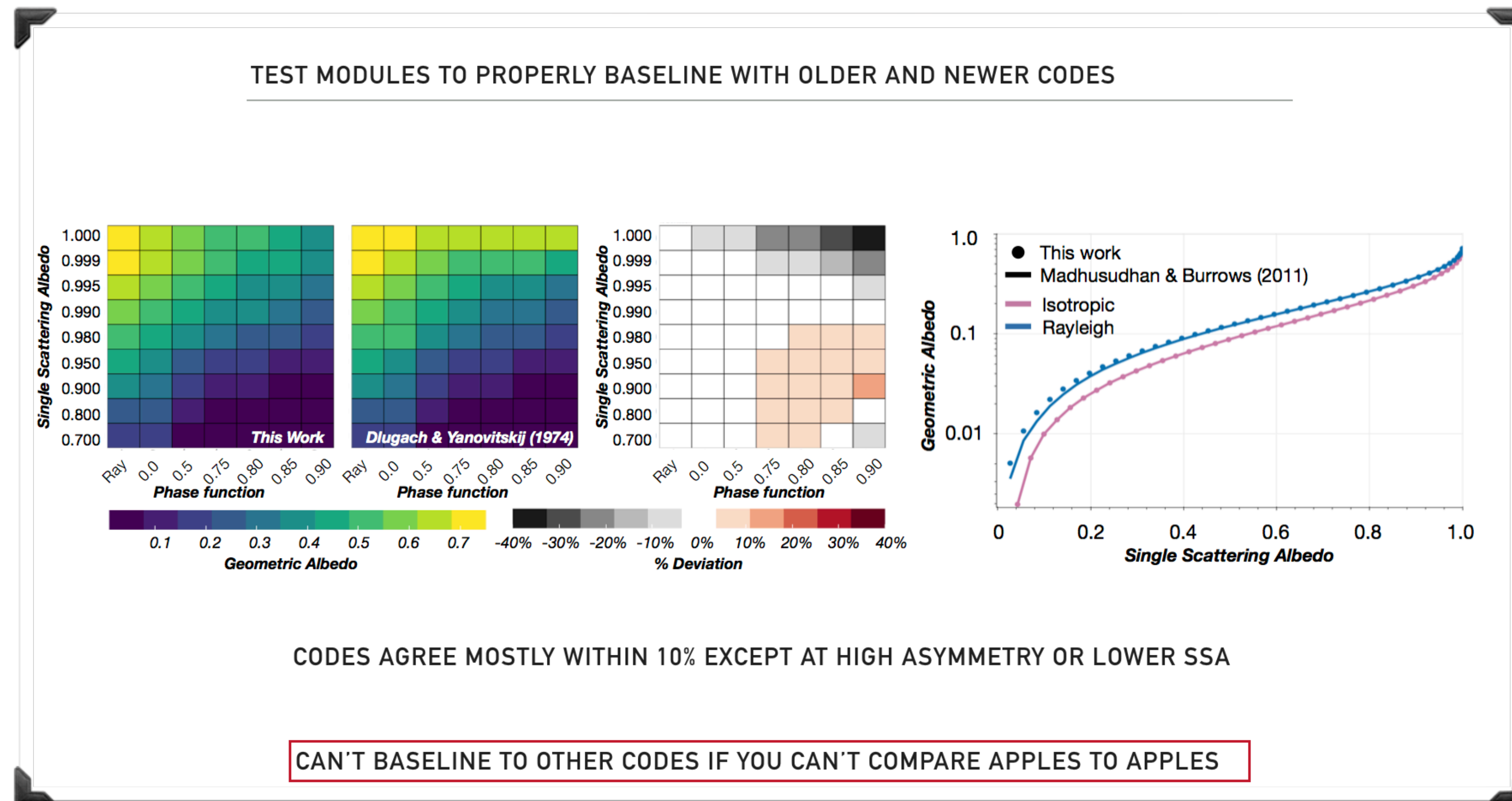
Use this opportunity to grab back the people who stopped paying attention or who couldn't follow the nitty gritty of the explanation

EXERCISE: PRACTICE MAKING AN OUTLINE FOR A TALK

- ▶ Start with the big picture (#8) and work backwards
- ▶ Break that down into (max) 3 sub-topics
- ▶ List ~2-3 sub-sub topics for each
- ▶ You should be able to “colloquially” go through your story board as if you were talking to a friend. Your slide-to-slide transitions should be just as natural as telling a story.
Choppiness makes presentations exponentially harder.

MAKING FIGURES AND SLIDES

- Any single slide should at most have 1-2 major points. Those points should be easily grasped by anyone who just started paying attention half way through you talking about the slide. Effective titles are your best friend. E.g. "The methods" doesn't tell someone anything.

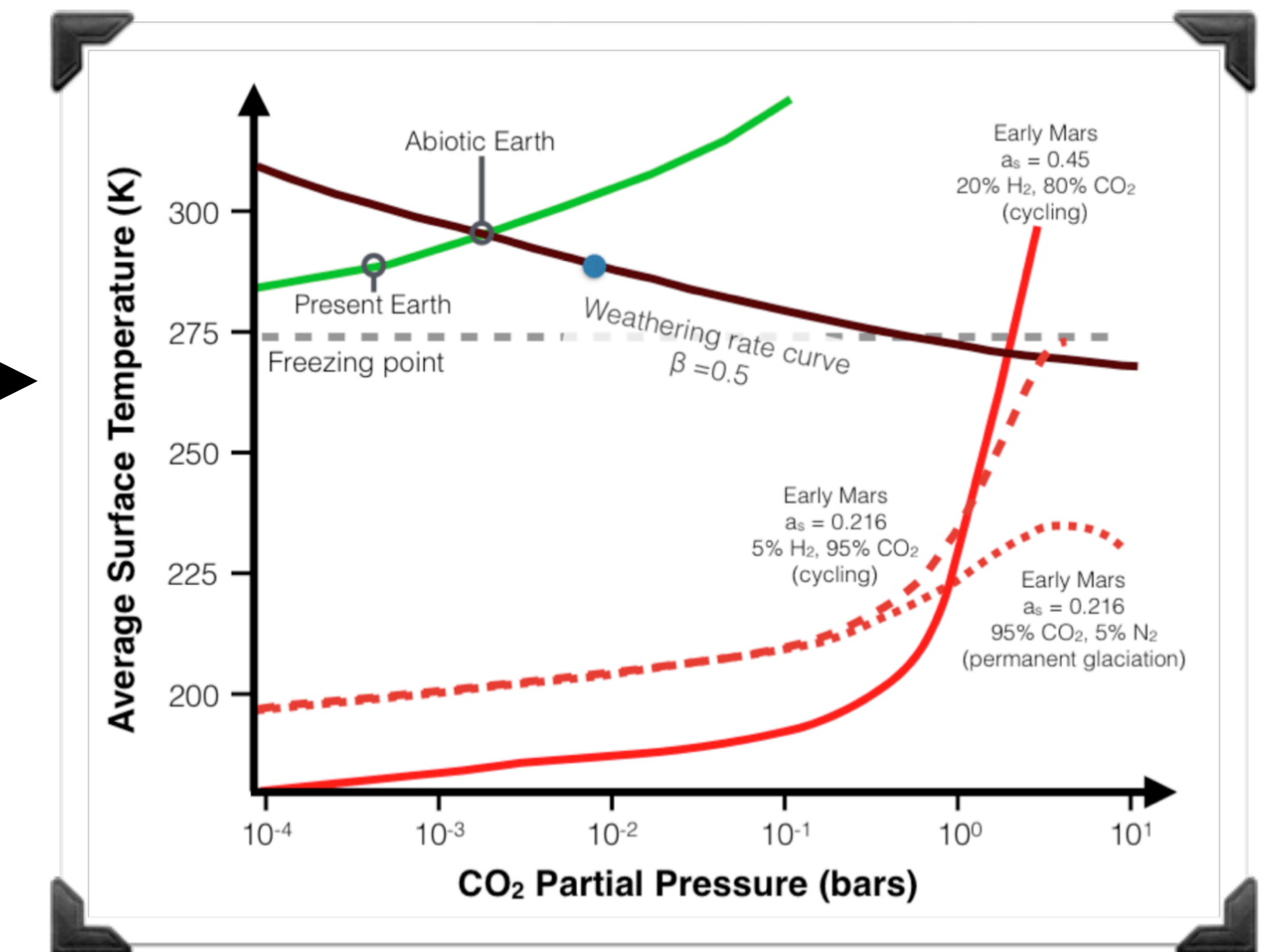


MAKING FIGURES AND SLIDES

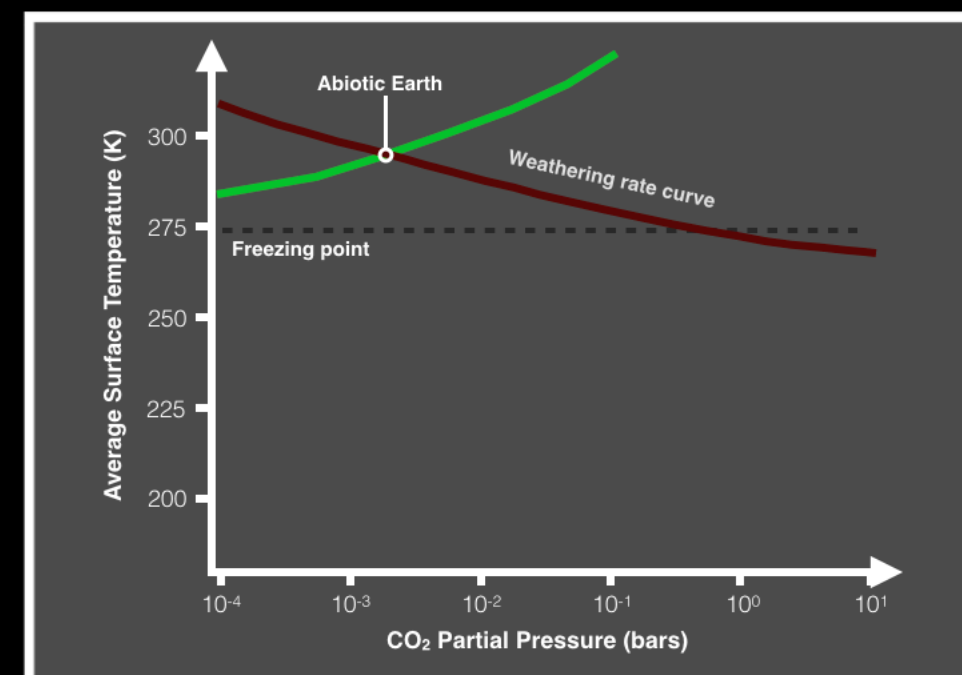
- Sometimes figures just get a tad complex. At that point, using builds/animations to walk the audience through something can be very useful.

The original paper figure. Can you kind of grasp the point? Probz not.

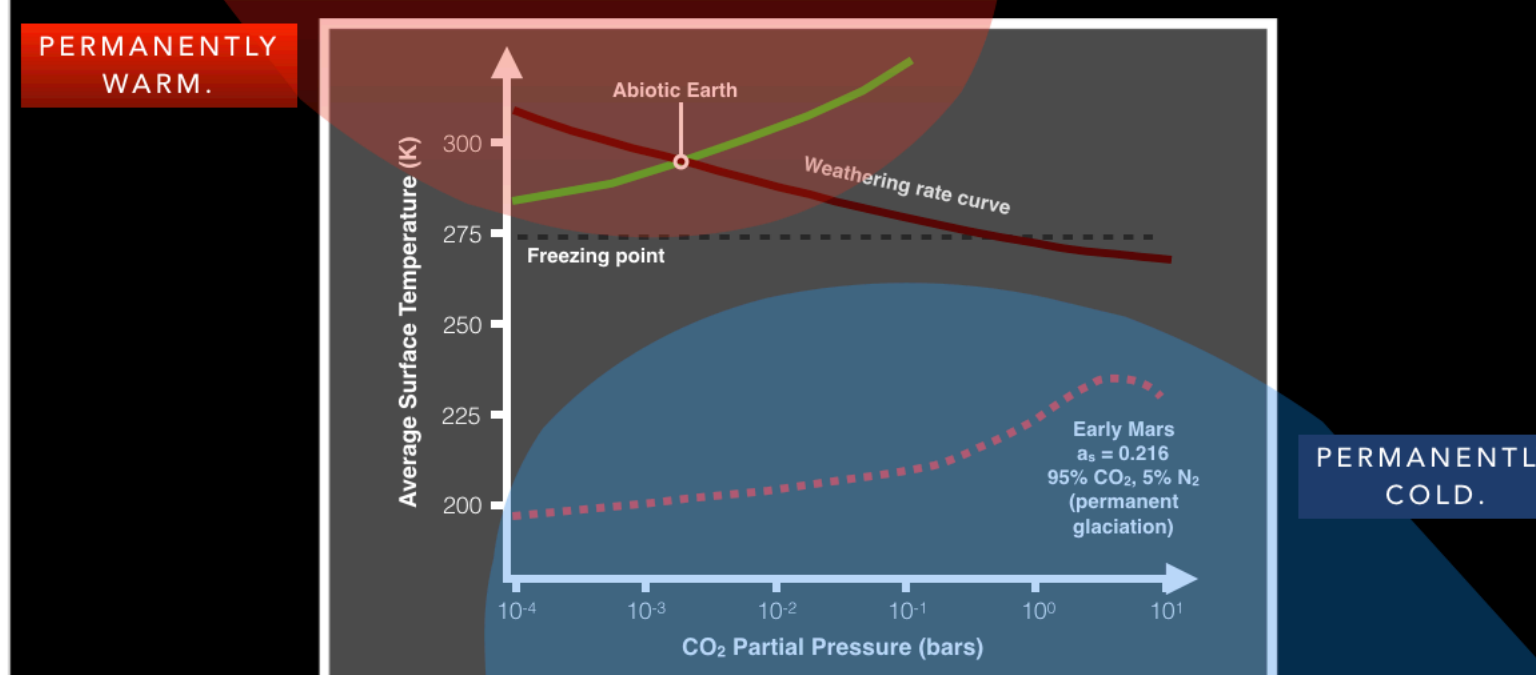
The final presentation build. Even if you don't get the subject, you hopefully can tell a tad more info about the store I am telling.



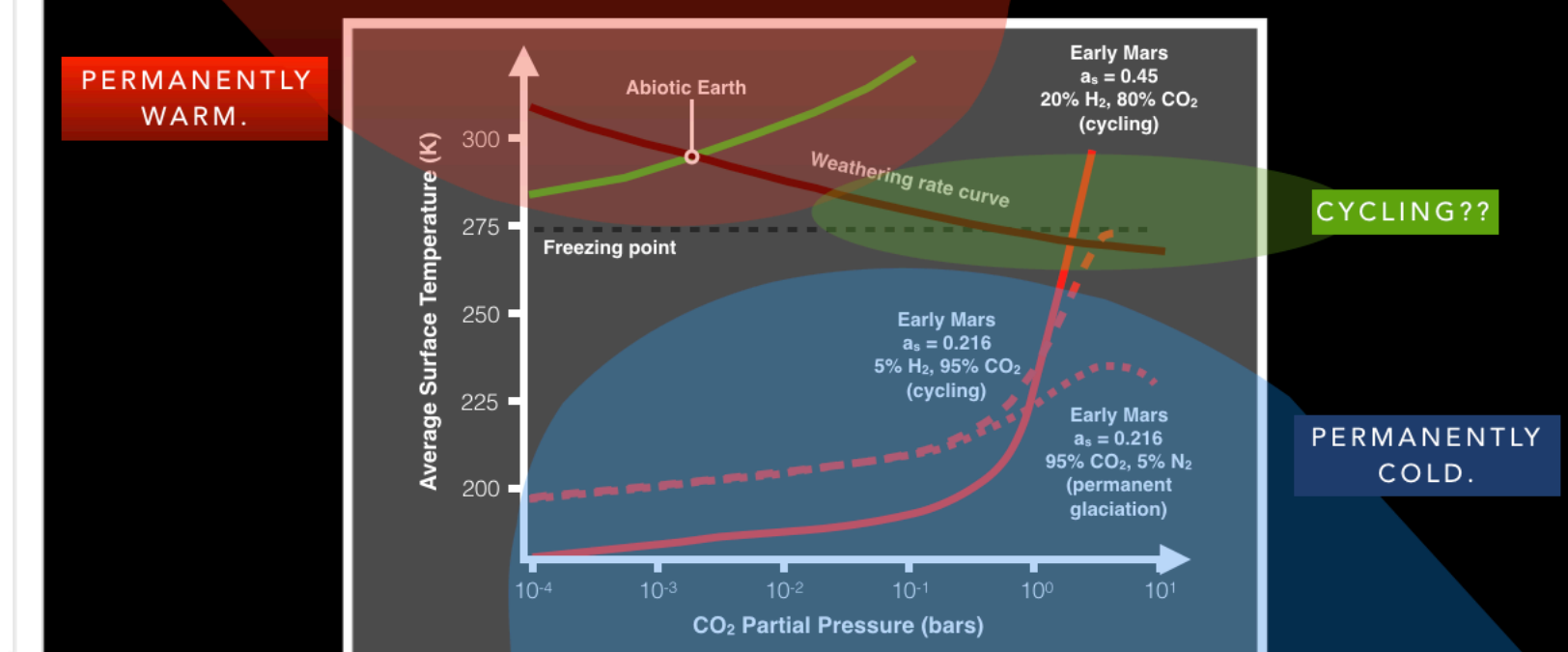
WHERE SHOULD WE EXPECT CYCLING TO OCCUR?
STEP 1: CLIMATE MODELING



STEP 1: CLIMATE MODELING



STEP 1: CLIMATE MODELING

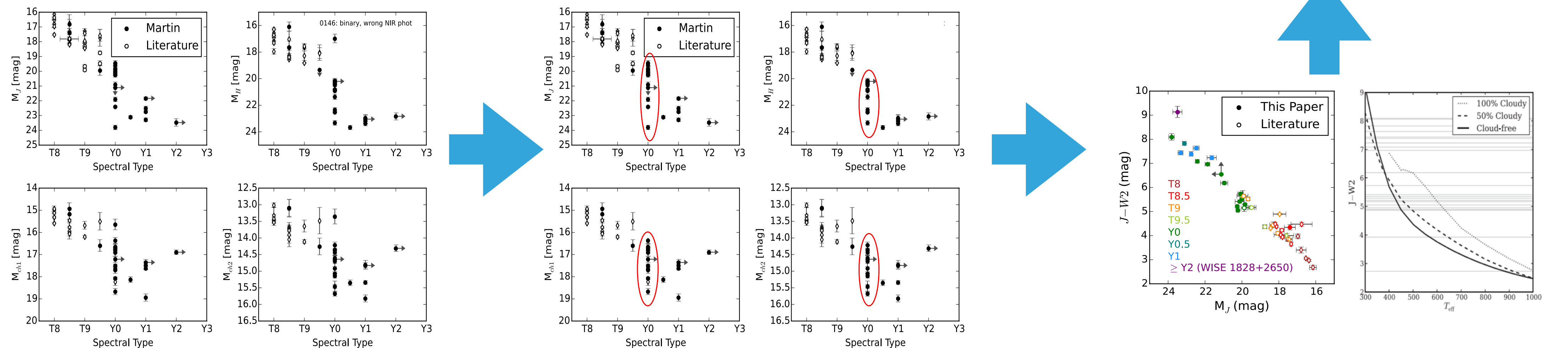


MAKING FIGURES AND SLIDES

□ Sometimes figures just get a tad complex. At that point, using builds/animations to walk the audience through something can be very useful.

The original paper figure.
There's a lot going on

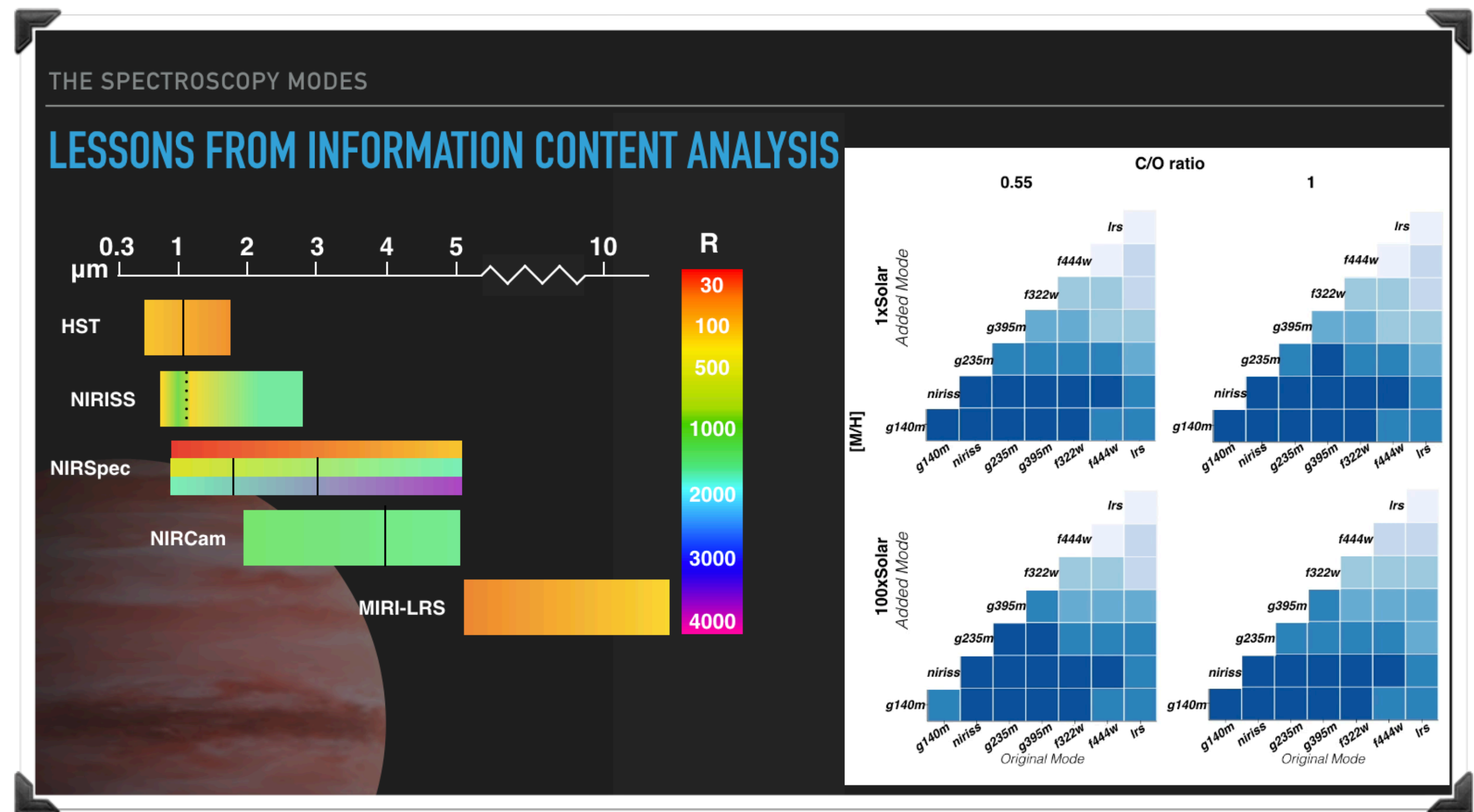
By breaking it down, I can walk people through the steps to understand the bigger picture



MAKING FIGURES AND SLIDES

- Utilize your space effectively. Using wide screen (16:9) aspect ratio allows you to have side by side plots. Instead of cramming more info onto a slide, use it to have helpful reference info, while you are explaining another concept.

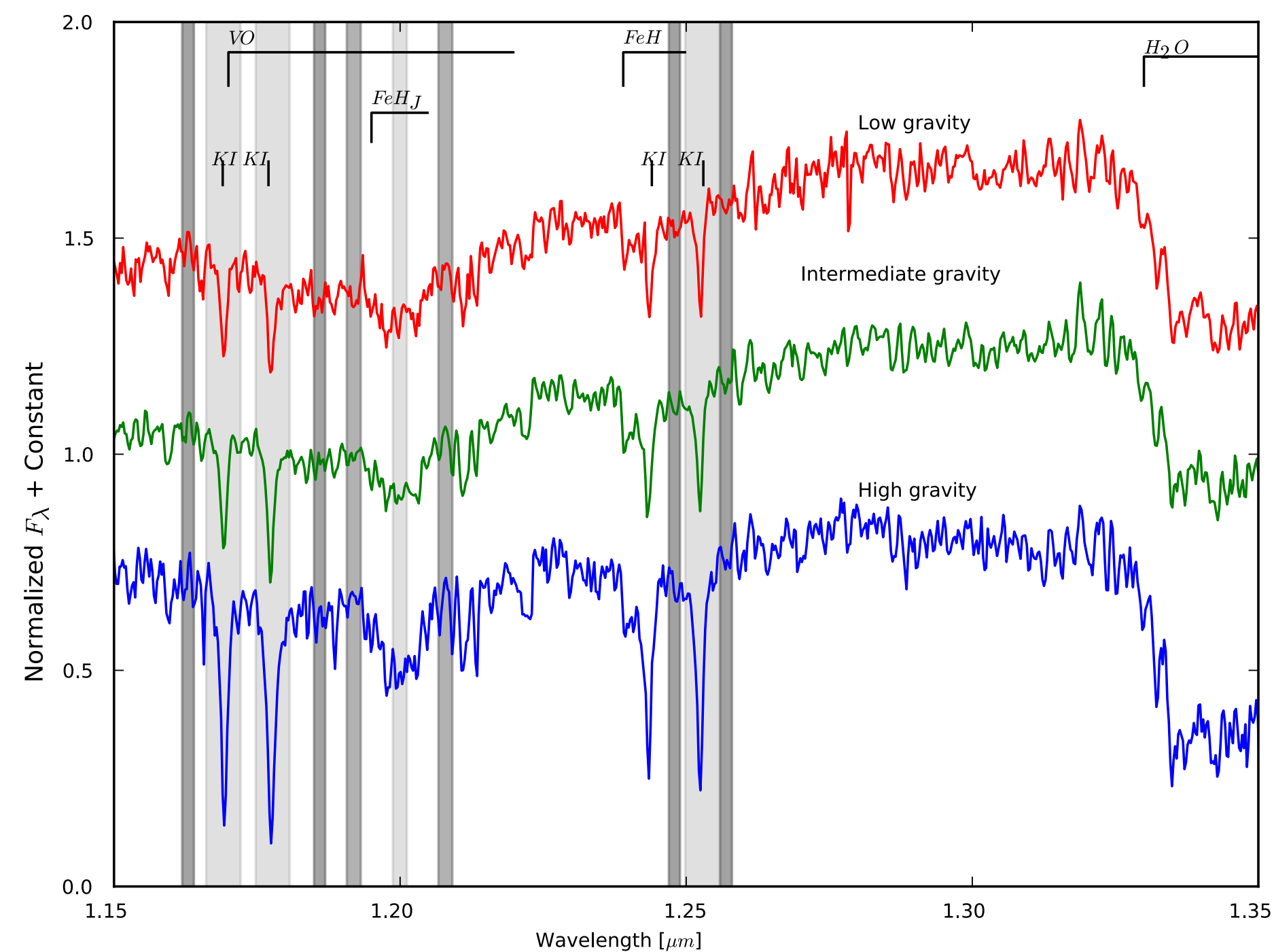
I know there is no shot people could retain the little acronyms for the instrument modes on the right hand heat map. Having the graphic of JWST modes on the left hand side allows me to point to it while chatting about which modes are best and why



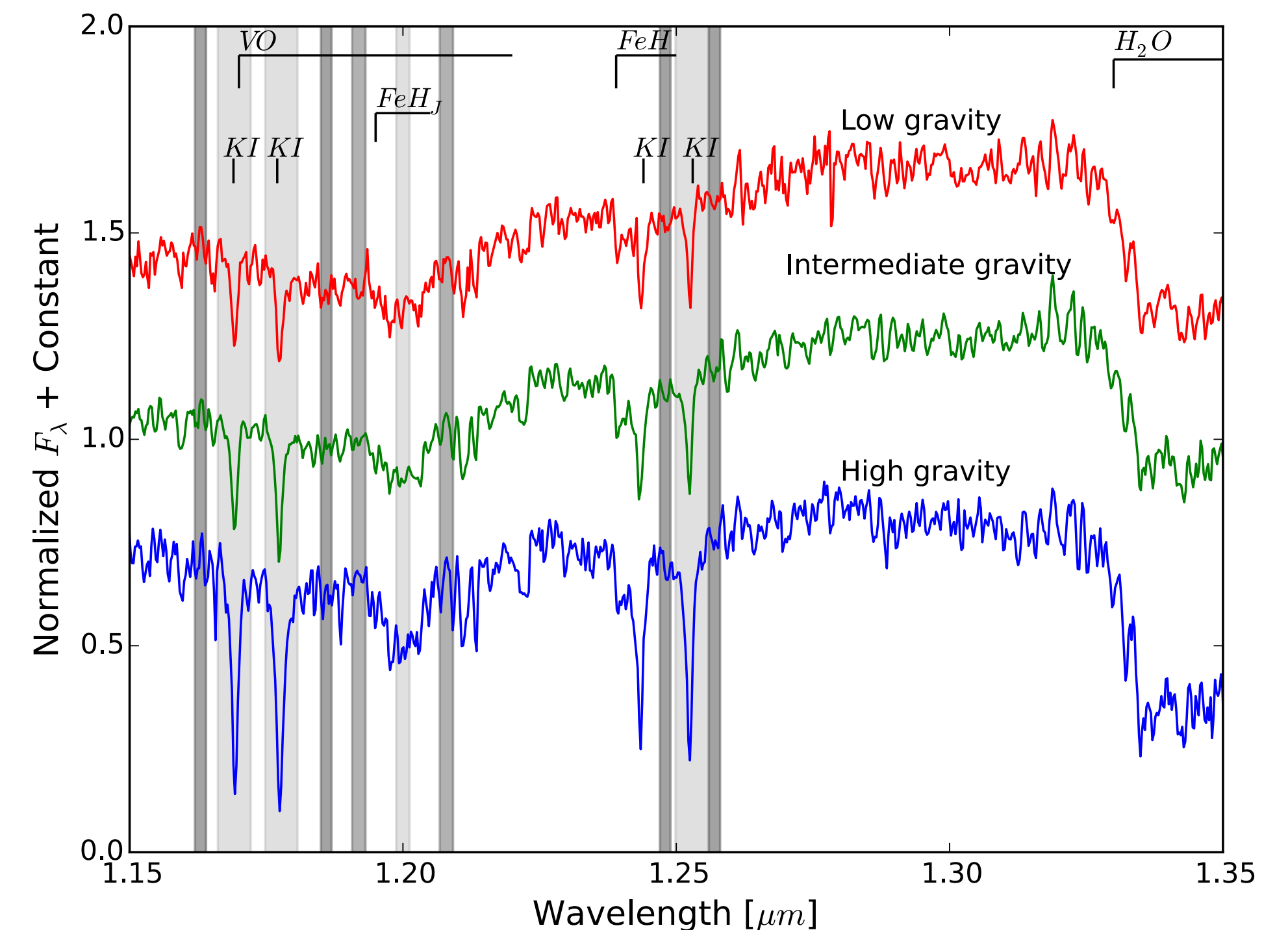
MAKING FIGURES AND SLIDES

❑ *Pay attention to axes! One of the most common mistakes people make is to use the tiny axes fonts from their papers. Cover them up with a rectangle and write over it in power point/ keynote with a larger font, or remake it with bigger axes fonts! This is useful for papers, too.*

HUH???



MUCH BETTER!



EXERCISE: THINKING ABOUT FIGURE LAYOUT AND SIGNAL TO NOISE

- ▶ One way to think about cleaning up figures for a talk is to focus on ***improving the signal to noise*** of your figure. If there is extra information in your figure that you will not be addressing, that's noise to the audience, and it will drown out your message that you are trying to get across.
- ▶ Take a look at the figure you brought. What can you do to alter the figure to make it easier to understand? Can you remove parts of it to focus on one key point? Can you break it into smaller steps?

- ▶ I use "**Tables**" for x and y axis numbers to make things bigger and bolder (it evenly spaces things so I don't have to worry about it)
- ▶ I use "**Edit Mask**" on figures constantly
- ▶ If I have really simplistic lines, sometimes I will trace them for a presentation using the **draw tool** to make cooler graphics
- ▶ **Keynote charts** are surprisingly useful and pretty for making simplistic and very pretty charts from data that is in a csv
- ▶ Keynote "**Magic move**" let's you build seamless transitions between slides with zero effort. Also is great for keeping people on track with the connections you are drawing between slides.

- ▶ PRACTICE!!!
- ▶ Memorize your first two sentences if you need help getting started, but a fully memorized talk comes across weird
- ▶ Video tape yourself giving a talk so you can see your ticks
 - ▶ Common problems: saying “um”, waving hands a lot, pacing, up-talking
- ▶ Have trusted mentors/peers listen to your talk and provide detailed feedback
- ▶ Make eye contact! Don't be weird about it, but try not to look only at your slides (or the floor, or the back wall)

QUESTIONS TO ASK BEFORE GIVING THE TALK

- ▶ ***What is the venue?*** Is it a small informal lounge area? Or a big lecture hall? This will dictate how you dress, how you act (informal/colloquial, or serious/to the point)
- ▶ ***Who is the audience?*** Is there a large undergrad attendance? If it's at a department, what is the majority expertise of the room?