How to make a scientific presentation at an international meeting

D G Rossiter / 罗大伟
Visiting Scientist / 教授

Institute of Soil Science, Chinese Academy of Sciences
中国科学南京院土壤研究所

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Why present at an international conference?

- This is your chance to become known to your international peers!
- It opens the door to collaboration or exchanges.
- so you want to ...
  - Publicize **yourself**
    - Other scientists now know **who** you are
  - Publicize your **research**
    - They also know **what** you work on
- (tourism, shopping, good food ...)

Your objectives

- **publicize yourself** and **make** (the right) **contacts**
- **impress** people with your work
  - you want to **meet** these contacts **at the conference**
  - they will only want to talk to you if they are **impressed** with you and your work
- when they **go home** you want them to remember:
  - what was the topic? and what did you do about it?
  - what was new and interesting in your work?
  - who you are, so they will **contact** you when there is something you can do together
- you also want them to **read your paper**

Format of scientific conferences

- organized into **sessions** or **symposia** with a common **theme**
  - so the audience for your talk with usually be **specialized** in that theme
- theme may be **narrow** or **broad** – check the programme
- many talks, short time – **How do you make your talk stand out?**

Timing

- most conferences now allow 12 (most common), 10, 8 or even 5 minutes per presentation, including questions
- **Do not exceed the time**
  - it is **bad manners** and not appreciated – you will get a bad reputation
  - with **parallel sessions** people will come at specific times, so the moderator must keep the schedule
  - so, you will probably be **cut off** by the moderator – quite embarassing *and* you can't present your conclusions bad reputation

Why such short times?

- Lots of science, many people want to present
- Avoid information overload / fatigue in conference participants
- It's plenty of time to make your **main point** and for participants to **know who you are**
  - for **details** they can (1) **read** your paper, (2) **talk** to you at the conference

Oral vs. written communication

- Note the word communication! You want to **communicate** the importance of your work to the audience/reader.
- **You are not talking or writing to yourself!**
- These two forms of communication have very different **purposes**, so very different **formats**

Written communication

Purpose: **report** on research

- gives **all details**, reproducible research
- reader can take **as much time as necessary** (e.g., consult references, check formulas . . .)
- reader can go **backwards** if something later in the article is not clear
- reader can **pick and choose** what to read

Oral communication

Purpose: **communicate in real time** the **most important** aspects of research

- time **flows** in one direction! no going back – the audience must **understand** in **real time**
- time is **limited**
- listener can only **absorb** a limited amount of new information – and will **remember** even less

Effective presentation

1. timing
2. time allocation
3. sequencing
4. interaction with the audience

Timing

- General rule: one minute per slide
  - not including title and final "thank you"
  - this does not mean you need to speak about each slide for exactly one minute!; it is an average
- Additional material can be held in **hidden slides** to answer questions
  - PPT: "Hide slide" (隐藏幻灯片); to display a hidden slide: right-click in any slide, "go to slide" (转到幻灯片...); select the slide in the list
  - using LaTeX presentations (e.g., `beamer`), place extra slides in an "Appendix" section; navigate in PDF with hyperlinks provided by class

Time allocation

- Allocate time according to **importance**
  - especially what is **new** and **interesting** . . .
  - . . . and is **your** special contribution
    - e.g., no need to explain normal lab. methods, just enough to understand results
- Plan to use 90% of allotted time, this gives some margin for error

Sequencing

- Introduction, Methods, Results, Discussion, Conclusion – boring!
- Instead, try a "story line" approach
  1. What was the problem we were trying to solve? Why hadn't others solved it?
  2. What was new about the way we went about it?
  3. What was our hypothesis?
  4. What did we discover? What was expected, what was unexpected? Can we explain the unexpected?
  5. So, where does that leave our hypothesis? our future research? can we conclude anything definite or is more needed? if so, what exactly?

Interaction with the audience

1. dress
2. speaking style
3. text on slide vs. what you say

Dress

- Although your science should "speak for itself", remember you are presenting **in person** and the audience, as humans, will react to your **appearance**
- You want the audience to take you seriously as a professional research scientist
- Professional, neat, clean, simple but attractive
  - Don't **underdress** (ripped jeans, t-shirt)
  - Don't **overdress** (beauty contest, fashion show)

Speaking

- speak **clearly**
- slow and distinct, separate words
- **look at the audience** and **speak to them** . . .
- . . . **not** to the computer screen or presentation screen!
- Avoid “um”, “eh”, etc.; speak confidently
- Unless you are **very** confident, **do not improvise!** (临时凑成), follow the text as you've prepared it
  - especially if you are not a fluent English speaker

Slide text vs. what you say

They are **not** the same!

- **slide** text: few words, large type, easily-readable,
- **your** text: to **explain** what they see on the slide
  - PPT: these are the **speaker's notes** (备注) which can be entered under the slide and printed separately
  - LaTeX/`beamer`: prepare a separate set of notes

Humour, remarks on politics, religion, culture . . .

Don't do it – stick to the science

The risks of offending or being mis-understood outweigh the benefits of "lightening" the presentation or making it memorable.

Rules for slides

1. complexity
2. slide text
3. technical terms
4. slide style

Slide complexity

- The audience must have enough time to understand **everything** on the slide at a **reasonable** viewing speed
- **Never** pass over a slide too quicky
- If there is too much material:
  - split into several slides
  - show **only most important points**
  - (not as good): **highlight** the most important points

An overly-complex slide

Mineral weathering and soil formation rates

Water sheds	Si net output with stream	Uptake Si by plant		Si from mineral weathering		Si in secondary clay	
		Min	Max	Min	Max	Min	Max
F	1744	381	1006	2125	2750	1063	1375
FA1	1654	577	2902	2231	4556	1116	2278
FA2	1705	641	3522	2346	5227	1173	2614

Unit: mol ha^{-1} yr^{-1}

The contribution of plant in the watersheds to weathering was 18-67%

There will be a factor of 0.2-2 if the effects of plant were ignored.

Compared with F watershed, weathering rates increased by 10-94 % in FA1 and FA2 watersheds because of 18-24% paddy

Clay formation rate: 294 -722 kg ha^{-1} yr^{-1}

Weathering rate of silicate: 408-954 kg ha^{-1} yr^{-1}

source: 杨金玲 IUSS Division 1 2013 Ulm (D)

Problems with this slide

- Too much (good) information, two related themes (weathering, soil formation)
- One slide should be about the contribution of plants to weathering (blue text) but shortened (not complete sentences)
- One slide could compare clay formation with silicate weathering and **explain** the implication of the comparison
- Table presents 8 x 3 = 24 numbers – which shold the audience look at? Highlight relevant comparisons.

If there is too much material for one slide . . .

- use **phrases**, not complete sentences
- split into several slides
- show **only most important points**
- (not as good): **highlight** the most important points

Technical terms

- Any unfamiliar terms must be **shown on the slide** and you must **point to them** when speaking about them
- i.e., any word that a moderate-level English language listener will not recognize on hearing
  - unfamiliar place names ("Qinghai province")
  - trade names ("Bruker MPA FT-NIR Analyzer")
  - unusual technical terms ("Fourier transform")
- this depends on technical and English level of the audience

Style

I favour a conservative slide style; this is science not advertising

- Save the "cute" drawings for your backpack
- **colour scheme** and (maybe) **background**: attractive (爽目) but not garish (扎眼)
- **animations** (动态图形) only if they adds to **understanding** (e.g., to illustrate a dynamic process)
- **complicated slide transitions** – how do they add anything?

Graphics

1. tables
2. figures
3. graphic elements; colours
4. photographs

Tables

- Hard to use in presentations, **too much information** in one slide. Either:
  - **simplify** to the most important numbers
  - and/or **highlight** the important numbers **as you talk**

Simplified table – main point emphasized

Conference participants, 2012, proportion by location

Europe						**Other**		
total 76						*total 24*		
NL	D	B	F	UK	other	Americas	Asia	Africa
32	22	9	5	5	3	10	12	2

How can we get more participants from Africa?

(Example of highlighting the information you want to talk about)

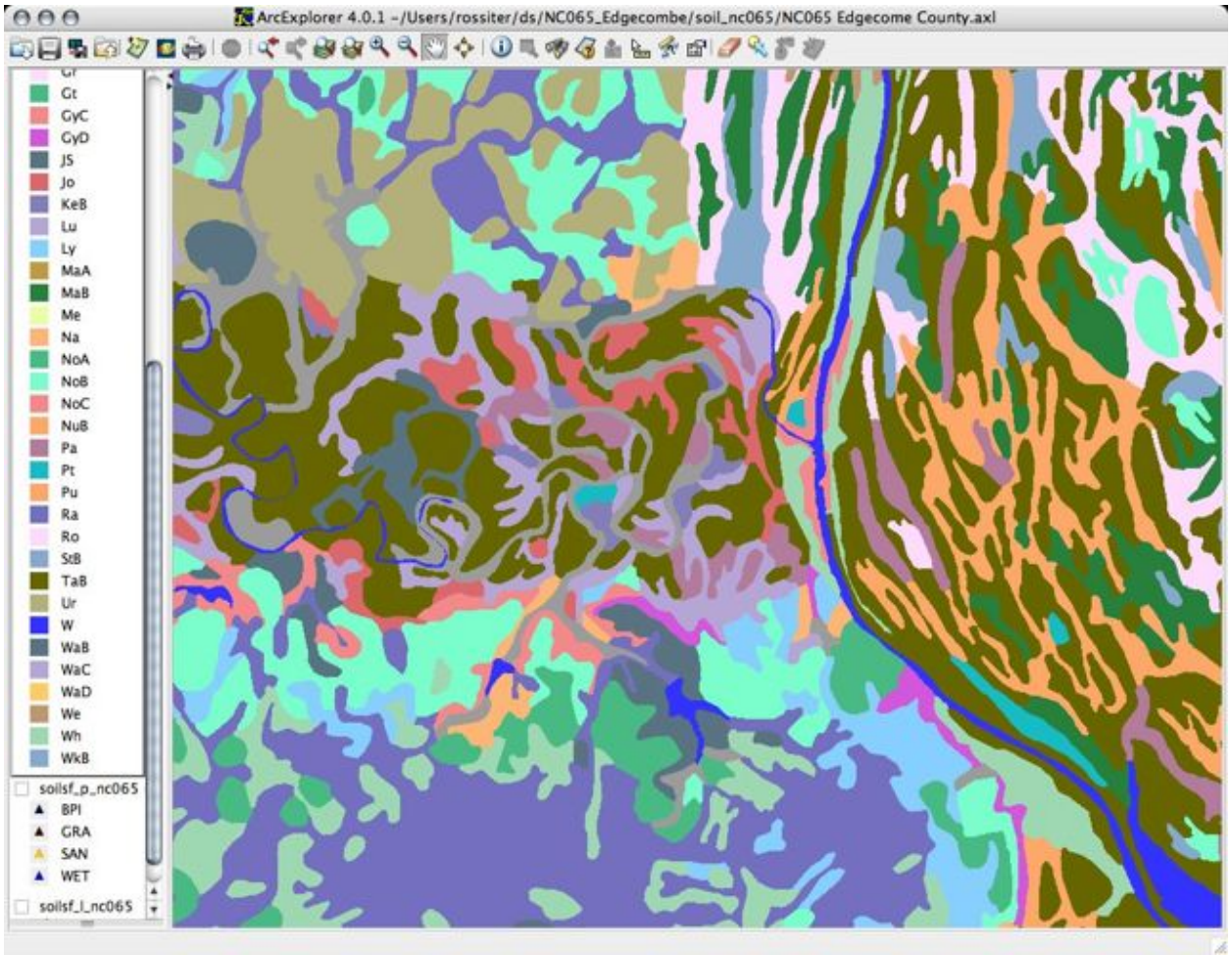
Figures

- **Very important** for understanding (also in papers!)
- "One picture is worth a thousand words" – but only if the picture tells the story clearly
- Prepare carefully! Make sure the most important information stands out
- **Simplify** as much as possible.

Graphic elements

- Making effective graphics is quite difficult! Try to find a specialist
  - Proper use of symbols
  - Proper use of colours: they must be **meaningful** and not just "eye candy"
  - The elements must show the meaning of the underlying data

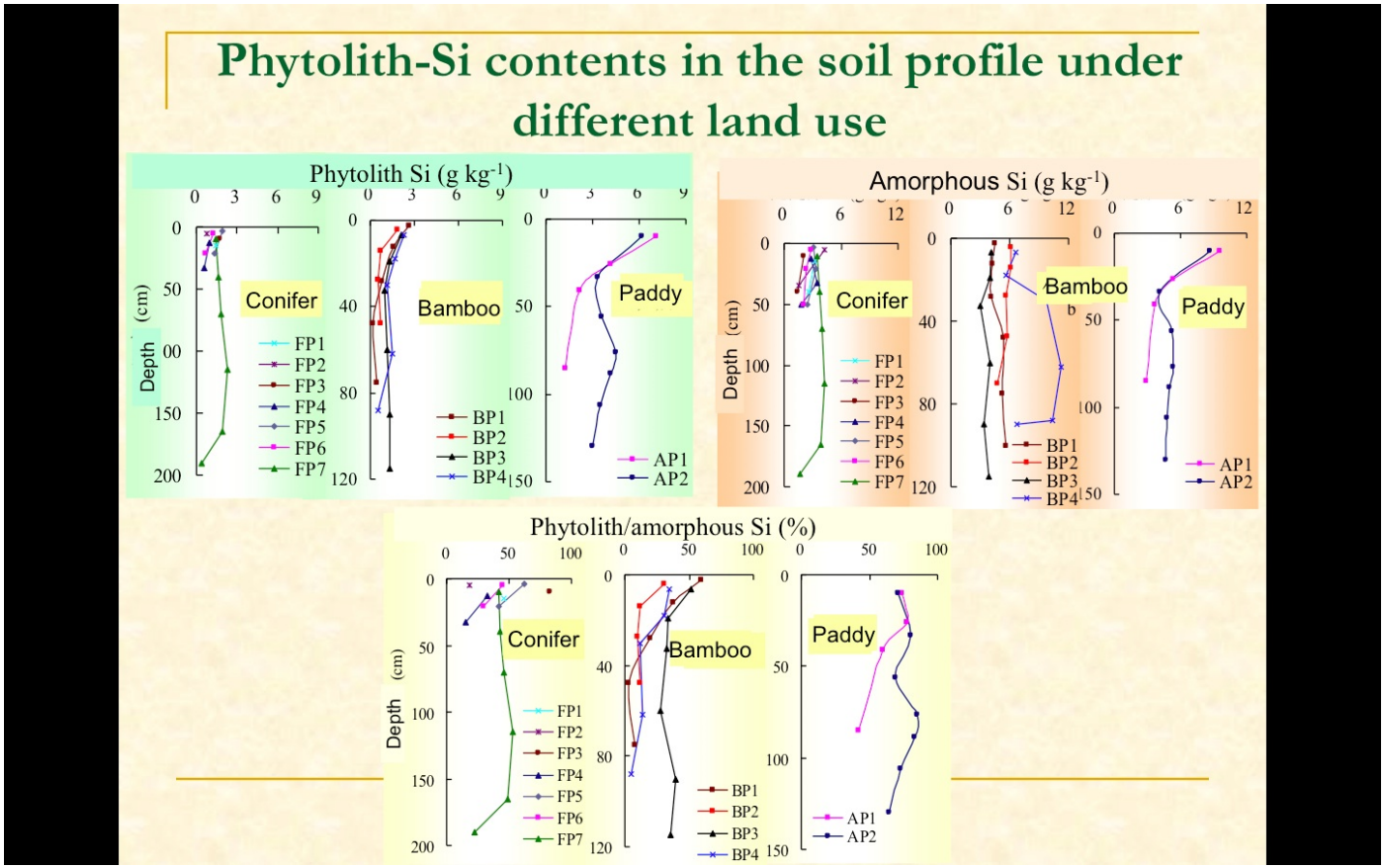
Improper use of colours – no meaning



Problem with this colour scheme

- This is a digitized soil map from Edgecombe County, North Carolina, originally at 1:20 000. The map units are phases (slope and surface texture) classes of soil series.
- The colours are **assigned randomly** to map units – they have **no relation** to any soil property or class
- Similar soils can have strongly contrasting colours
- **Solution**: assign colour according to similiarity in some attribute (e.g., depth to groundwater, agricultural suitability)
- Can use **colour variables** (hue, value, chroma) to represent continuous variables.

An overly-complex figure

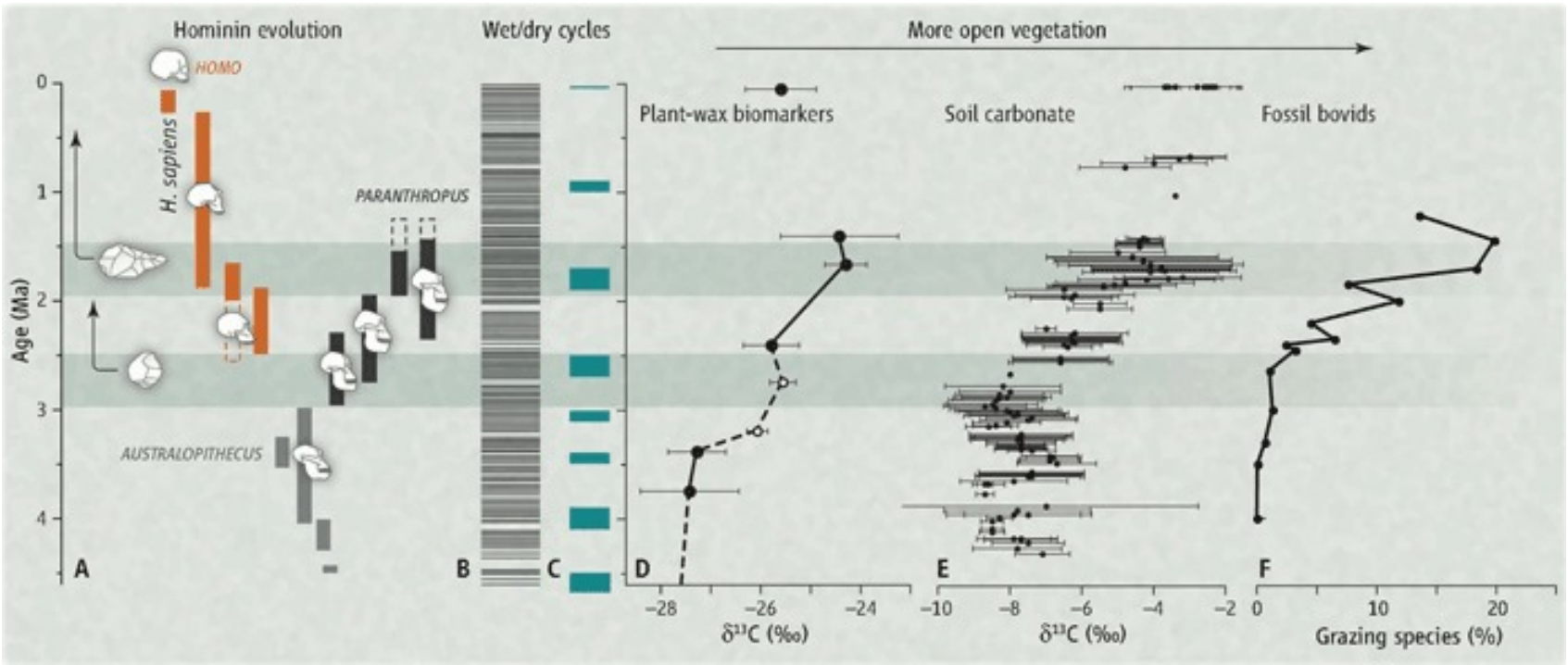


source: 杨金玲 IUSS Division 1 2013 Ulm (D)

Issues with this figure

- **Too many** sub-figures (9), too much to understand within one minute
- So, each figure is **too small**
- **No highlighting** to draw the eye to the most important information in the sub-figures
- Solution 1: split into multiple slides, each telling part of the story
  - may need to repeat a sub-figure
- Solution 2: only show some of the sub-figures, if not all are needed

An effective complex figure



Source: de Menocal, P.B., "Climate and human evolution", *Science* 331:540 (2011)

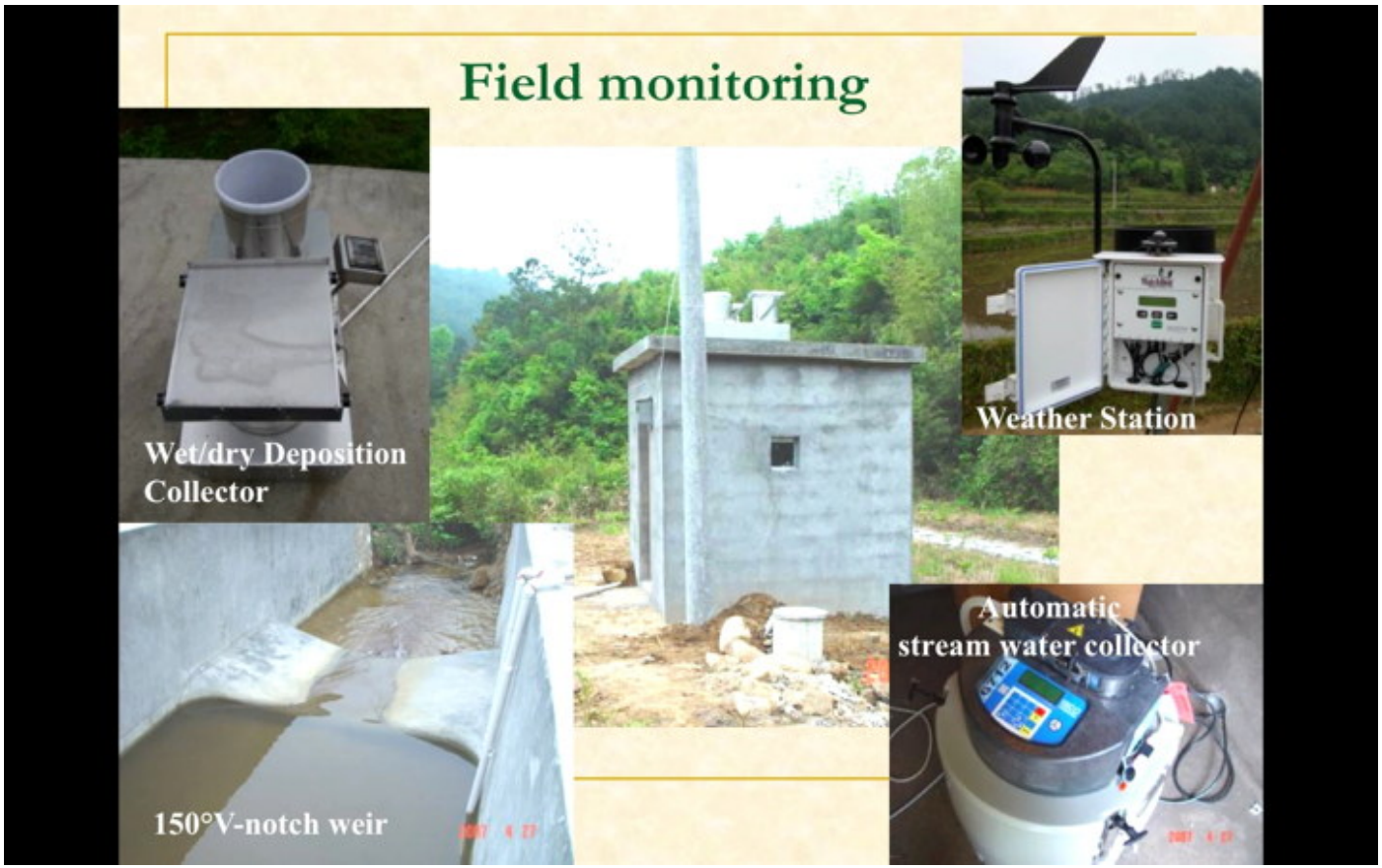
Why is this effective?

- the vertical axis ties all information together: it is time before present
- the special time frames to discuss are shown with light-gray horizontal background
- the family tree of hominoids and apes uses colours to show the different species at a glance; pictures of skulls also help
- the three indicators on the right clearly show parallels

Photographs

- Very helpful for audience to **visualize** procedures or study areas
- They should clearly show the main features that you want to explain

Showing the field situation



source: 杨金玲 IUSS Division 1 2013 Ulm (D)

Photo and explanation together

Practice!

- **Practice the presentation** several times with your friends and your research group
- They should **time** the different parts – is the balance correct?
- If possible **record on video** and then view it yourself, from the point of view of the audience
- Check for all the issues explained in this talk

Finally . . .

- It's your big day!
- It's your big chance!
- Prepare properly, present properly, and then enjoy the results!

End

Shanghai Meterological Service 上海市气象局预报公室房

Q1

- Q: What should I do if I don't understand a question from the audience?
- A: Two cases:
  1. You don't understand the English: have a **more fluent English-speaking** colleague explain to you in Chinese – it's about communication, no need to be embarassed
  2. You don't understand the question itself: Interpret as best as possible, then **ask the questioner**: "If I understand you correctly, you are asking about ...". He or she either says "yes", then answer; or "no", and will re-phrase the question.

Q2

- Q: What if I understand the question, I know the answer, but I can't explain in English?
- A1: prepare **hidden slides** for possible questions (parts of the research you didn't have time to present, or more detailed explanations), then show these if there is question they answer
- A2: explain your answer in Chinese to a **more fluent English-speaking** colleague, who will then explain in English – it's about communication, no need to be embarassed

Q3

- Q: What should I do if there are no questions from the audience?
- A1: make sure to wait **8 seconds**, usually a question comes within that time
- A2: have a colleague ready with a question – if no one asks within 8 seconds, they should ask. The question should be about some part of the work you didn't have enough time to show but which you would like to show, given more time.

Q4

- Q: How to overcome nervousness?
- A1: prepare properly: you have a good story, well-designed slides, a good sequence; be confident it will be interesting to the audience
- A2: **practice!** with your friends, your research group ... until you are sure you can present in the proper time
- A3: musician/actor's trick: **pick out one person** in the audience and **talk to that one person**, ignore the others. This is like explaining one-to-one, which is usually not a nervous situation

Q5

- Q: How can I tell if the audience is following me?
- A1: there is no time to adjust during a short talk, you just have to give your presentation and wait for questions
- A2: but, you can prepare for the **anticipated audience** – look at the programme and review the other speakers and their topics, this will tell you how narrow or wide is the scope of the symposium. You may have to adjust the proportion of time and the technical level accordingly.