UCL Geography ECR Grant Writing Workshop
Grant Writing a Story

https://www.ifm.eng.cam.ac.uk/research/grant-writers-handbook/cartoons/
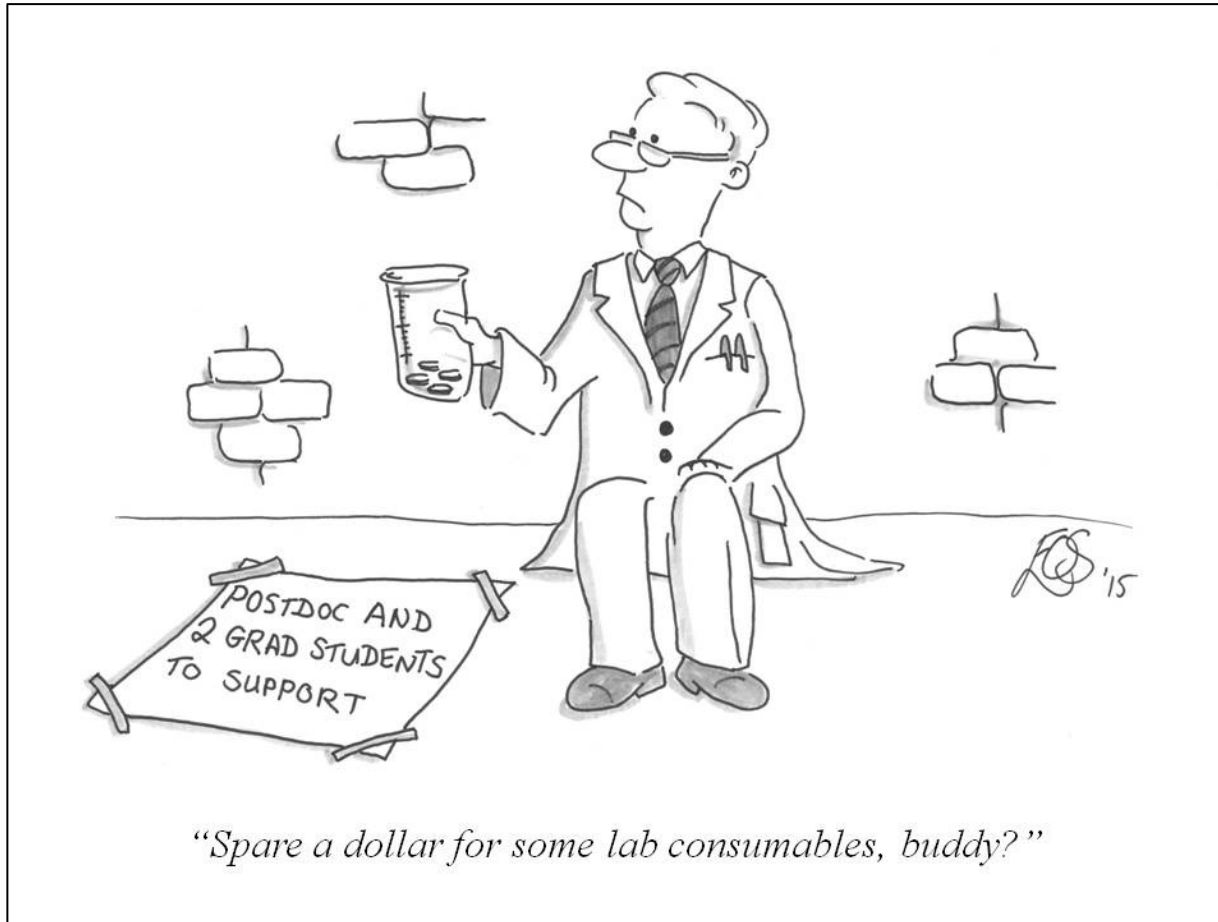
Eloise Marais, 17 July 2023
e.marais@ucl.ac.uk, https://maraisresearchgroup.co.uk/

Credentials

I've submitted many proposals. Some have actually been funded.

Fellowships:
Fulbright, Harvard Centre for the Environment, Marie Curie (turned it down), UKRI-funded Researcher in Residence

Grants:
Principal or co-investigator funded by ERC, EPSRC, Defra, ESA, NERC

I've served as reviewer and on many grant award decision panels.

Reviewer:
ERC, NERC, EPSRC, USEPA, NOAA, NASA, Irish and Canadian funding agencies, BELSPO.

I've mentored others through the process.

Much of my advice may be obvious; hopefully some of it is useful!

General Comments and Advice and the Process

Cast a wide net. Rejection is the most likely outcome, so increase your probability of success.

If your proposal is rejected, welcome to the club! Persist. Once you get one successful grant, it can lead to a cascade of new successful grants.

Success folder: 22 proposals
Rejection folder: 46 proposals

Learn from and rise above the failures and rejections.

Chat with others who have gone through this process.

Get copious feedback and insight from the start.

General Grant Proposal Structure

Once you've identified your fundable idea (talks by Jenny and Lewis) and formulated an initial research design (talks by Mat and Elena), ...

Pour over the guidelines, get access to a recently awarded application

Typical proposal structure. Reads like a speculative publication:

- **Summary** (similar to an paper abstract)
- **Introduction** (what's known, what isn't known and why we should care)
- **Objectives** (what this proposal seeks to achieve)
- **Investigators** (who is your team, what do they bring)
- **Work Programme** (includes individual tasks, tools, timeline, people)
- Expected **Outcomes** (emphasis on new knowledge)
- **Budget** (with justification of resources)

Other sections that are often also required: data management, risks and risk mitigation, diversity, pathways to impact, public engagement, support letters

The Proposal: Tell A Story

Give your proposal a narrative or story arc
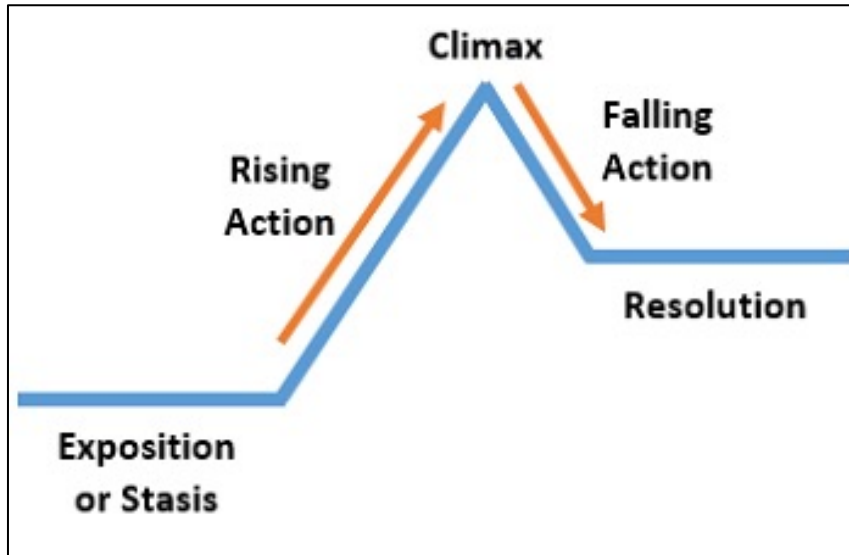
Story:
Set Up → Event → Conclusion

Proposal:
Introduction → Methods &
Expected Results → Outcome

Doesn't diminish a proposal, but keeps the reviewer engaged and is a powerful information retention tool. Use it!

Your Brain on StoryTelling: https://www.npr.org/transcripts/795977814

Many elements of a good story to draw on: hero, villain, conflict, intrigue, plot twists, winners, losers, underdogs, conundrums, mystery, adventure

Get inspiration from well-structured podcasts and well-written books.

Summary Section: catch reviewer's attention

See it as a future tense abstract that captures the story arc

A well-written abstract answers these 4 questions:

1. **What is the question?** What questions is the proposal seeking to answer? What specific ideas will be tested? [**Set up**]

2. **What will be done?** How will the proposers go about answering these questions? What methods will they use? [**Event**]

3. **What are they likely to find?** What are the anticipated outcomes from the proposal? [**Climax**]

4. **Why is it important?** Why is the answer to the question meaningful? How general/transferable are the findings? What will change when this study is complete? [**Resolution**]
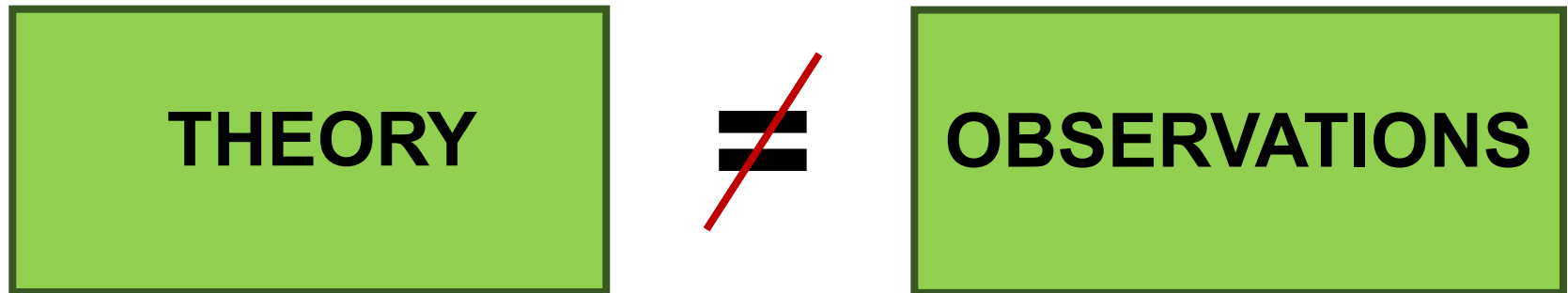
Pitch it right. Consider who you are writing this for (reviewers, panel).

Start early.

First draft should never be the same as the final draft.

What's the Question / Issue?

There's a conundrum: Theory doesn't match observations.
Demonstrates we don't fully understand something

Theory might come from a model

Differences between model and observations really large

Lots of implications!

Anthropogenic climate and air quality assessments, widely used data products derived with models

Could quantify how many others this knowledge gap impacts (large research community/communities)
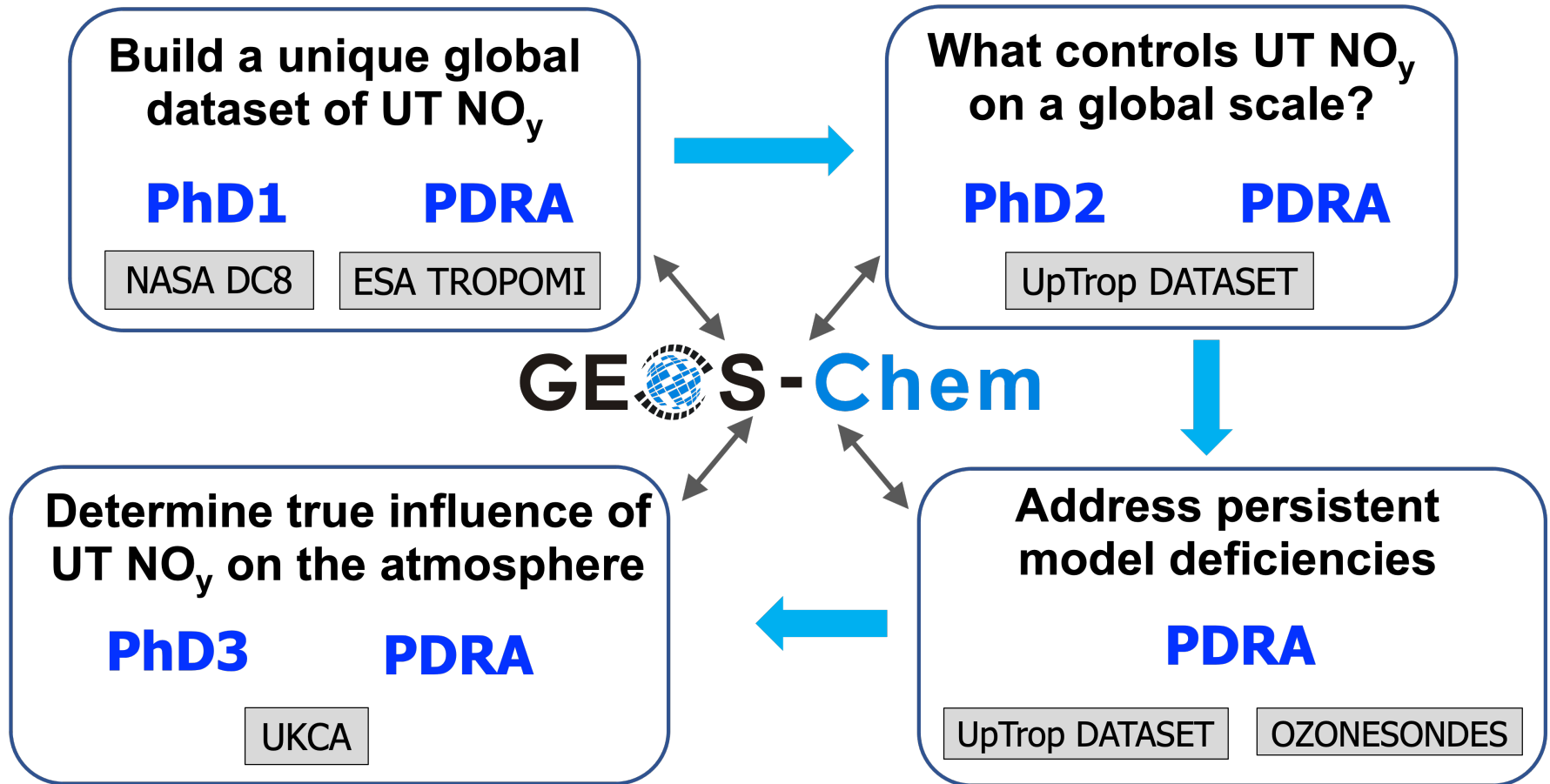
What's Will Be Done?

- Assemble a research team of postdocs and graduate students

- Apply fundamental knowledge

- Make innovative use of world-leading tools, techniques, resources

- Conduct the work at a world-leading institute. Build world-leading institute from the ground up

- Seek guidance from leading expertise as mentors or advisory committee

- Address knowledge gaps

- Apply new knowledge / mechanistic understanding for renewed assessment of climate, air quality impacts

- Develop new datasets, collect new data, build new research tools/platforms

What's Will Be Done?

Break up into work packages.

Illustrate how everything fits together. Shows vision. Makes it easier for reviewers to comprehend

Build a unique global dataset of UT NO$_y$

PhD1   **PDRA**

NASA DC8   ESA TROPOMI

What controls UT NO$_y$ on a global scale?

PhD2   **PDRA**

UpTrop DATASET

GE S-Chem

Determine true influence of UT NO$_y$ on the atmosphere

PhD3   **PDRA**

UKCA

Address persistent model deficiencies

PDRA

UpTrop DATASET   OZONESONDES

Demonstrate innovation and that you're the best person to do this

What will Result from this Work?

Hard to predict, so must be defensible and a balance of ambitious and realistic (budget, timeline, expertise)

- Fundamental understanding of core aspect / knowledge gap of discipline

- Provide renewed understanding of implication of improved core knowledge on ... (climate/environment/data products...)

- Create new resources: website, data / software, publications / reports, knowledge exchange events, conference presentations / sessions

- Train and supervise the next generation of scientists (PhD students, postdocs)

- Develop own research identity / group

- Grow / expand institutional capacity

- Make innovative use of world-leading tools, techniques, resources

- New research avenues, new collaborations, extended network
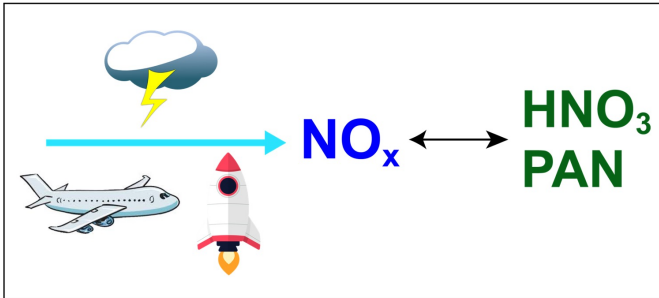
What Changes After this Study?

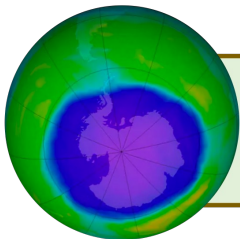Aspects of and beyond discipline that the work will inform / change
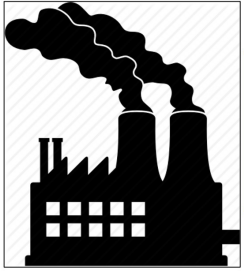
Air pollution sources and trends
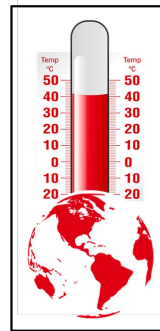
Climate effect of tropospheric ozone

$NO_x \longleftrightarrow HNO_3$ PAN

Air quality and climate impact of future NO_x

Ozone abundance in the lower stratosphere

Persistence of pollutants and potent GHGs

$CH_4 + OH \rightarrow$

Opportunity to convey that results /outcomes extend well beyond research group, institute, discipline and could even have societal implications

Steps to Take to Develop a Strong Narrative

Merely a suggestion that works for me

- Prepare powerpoint slides to convey the core narrative

- Slides should answer the 4 summary questions and explore ways to visualize these

- Present it to others that you trust with your ideas and you trust to be honest and constructive (mentor, group members, PhD cohort)

- Take on board useful feedback. Iterate

- Use this feedback and the slides to build the proposal

Writing Best Practices
Far from exhaustive!

Writing is a humbling experience. Always room to improve!

A well-written proposal reflects attentiveness to research.

Be plain, be simple, be clear, be brief (No room for superfluous text)

Ensure the proposal is clear and concise and that the important points stand out (repetition, illustration, map objectives/outcomes to scope).

If you must use acronyms and jargon, use sparingly, as these often stand in the way of effective communication.

Prevent typos and grammar errors that impede effective communication and give the impression of a sloppy proposal.

Don't let tight word/page limits be a crutch. Write all you think needs to be said, then edit to meet the word limit.

Get diverse feedback at all stages (research support, PhD/postdoc advisor, mentor, past awardees/panelists/reviewers, colleagues at all levels).

Edit, edit, edit. If you can, set it aside for 2 weeks. Then edit again.

Resources for Improved Writing

Elements of Style by Strunk & White
(curt, quick to get through, profoundly useful)

Plain Words by Ernst Gowers
(very dated references, but the writing advice still holds up)

On Writing by Stephen King
(the craft of writing. Spoiler: it's discipline over muse / writer's block)

Happy (?) Grant Writing!!!

The research grant application process.