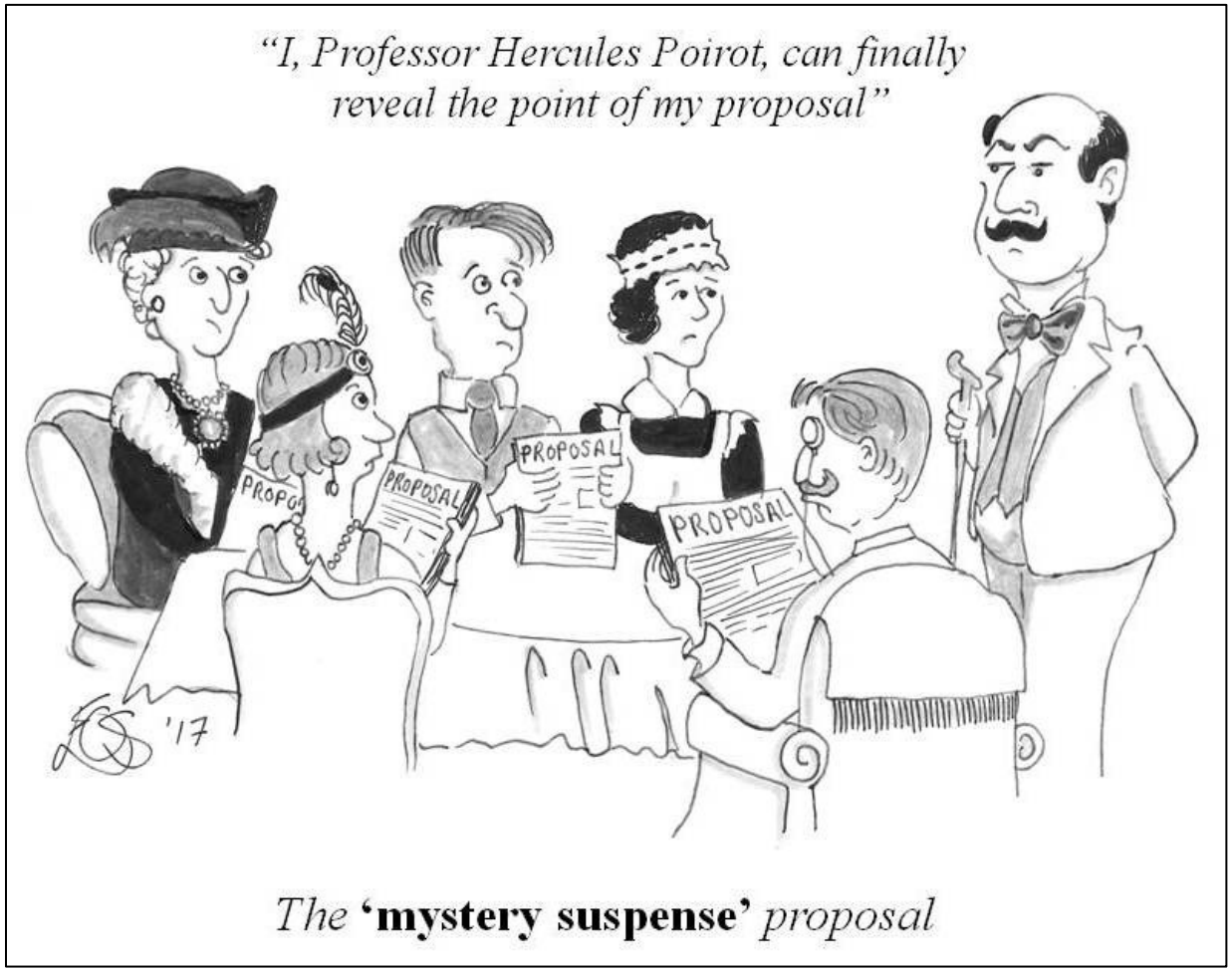
UCL Geography ECR Grant Writing Workshop

Good Grant Writing



https://www.ifm.eng.cam.ac.uk/research/grant-writers-handbook/cartoons/

Eloise Marais, 29 June 2022

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Credentials

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

Fellowships:
Fulbright, Harvard Centre for the Environment, UKRI-funded Researcher in Residence

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

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

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

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 leads to a cascade of new successful grants.

Success folder: 22 proposals
Rejection folder: 45 proposals

Rise above the failures and rejections.

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

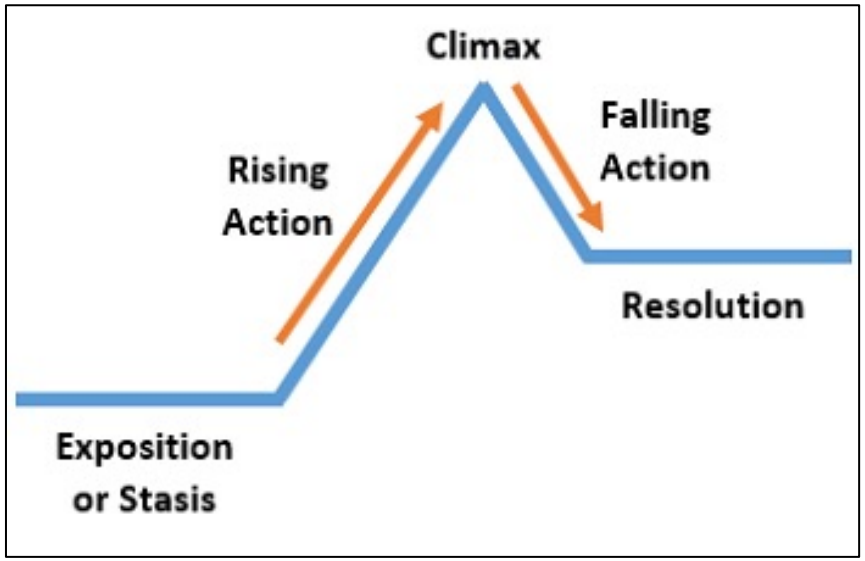
Typical proposal structure. Reads like a speculative publication:

- **Summary** (similar to an 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.

Develop a Strong Narrative

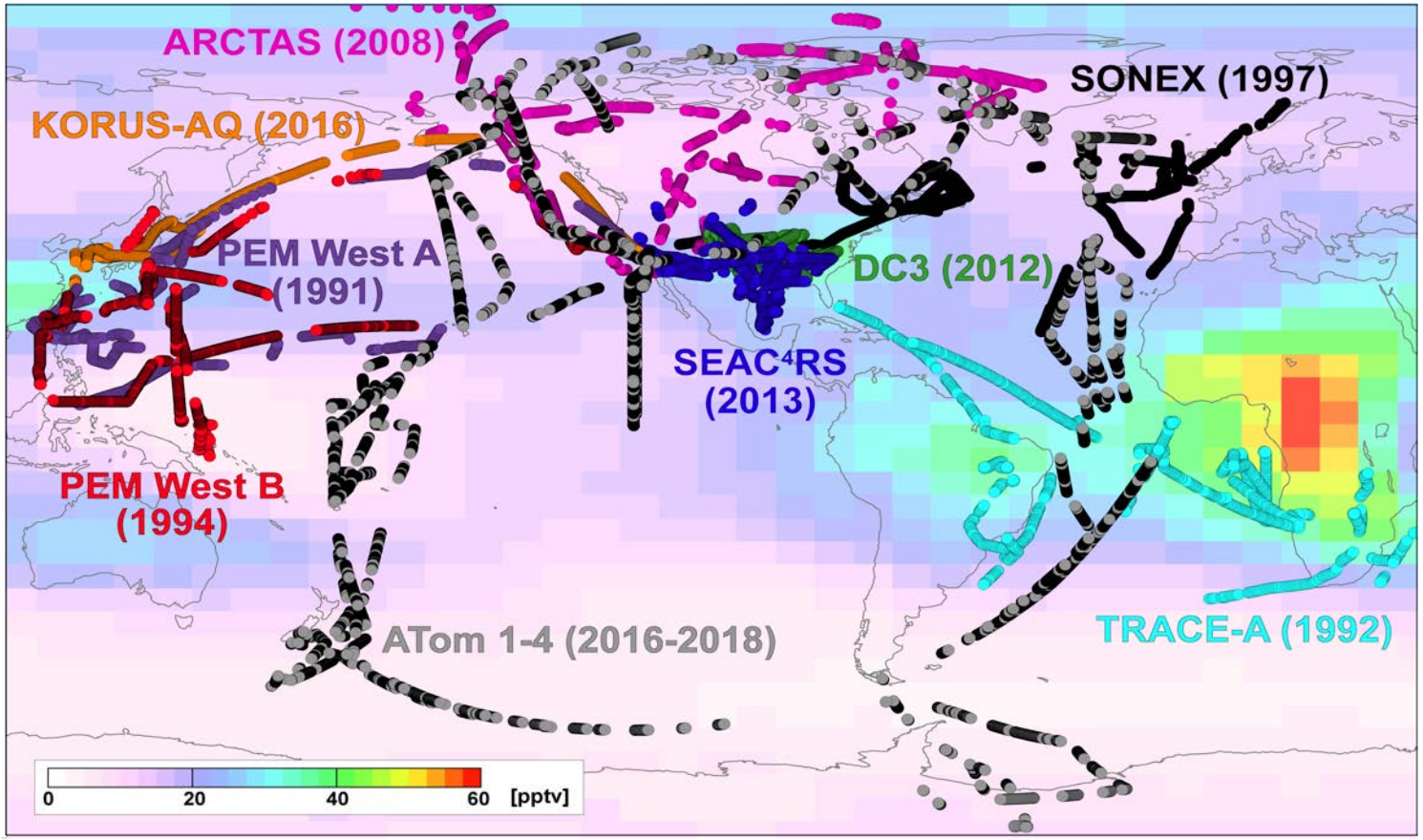
Set Up, Event, and Conclusion of the story of Black Panther

Set Up:
T’Challa’s father dies. He must return to Wakanda, as he is heir to the throne.

Event:
He is usurped by a powerful enemy, leaving his family and Wakanda vulnerable.

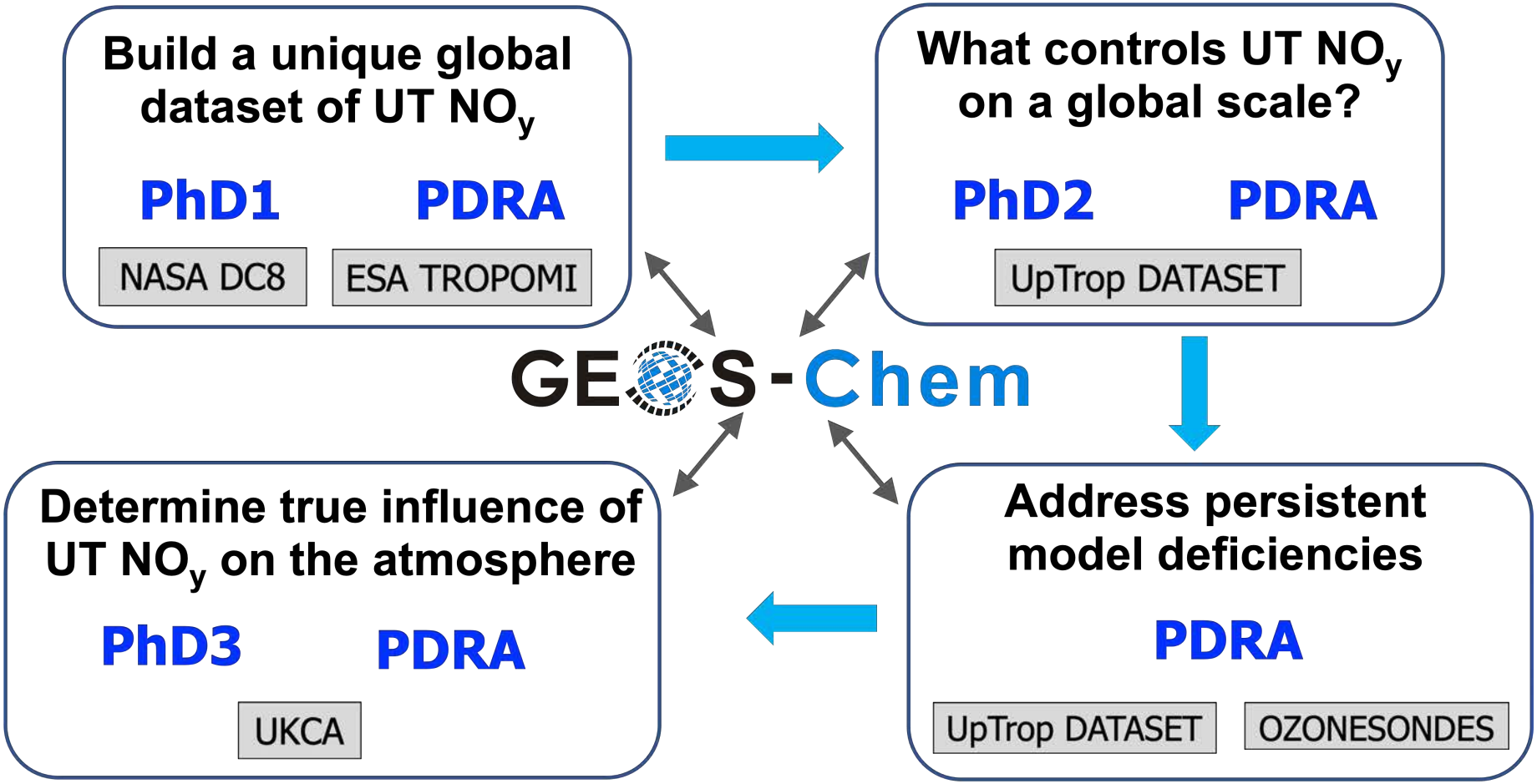
Conclusion: He reclaims his place as leader of Wakanda when he proves his worth by uniting the tribes and defeating an army of foes.

Set Up, Event, and Conclusion of Your Grant Proposal



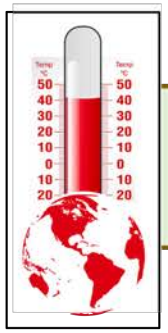
Set Up:

There's a conundrum in science: we don't understand reactive nitrogen in the atmosphere, because we are devoid of observations.

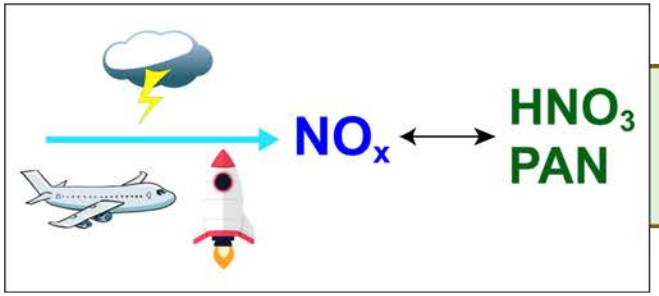


Event:
We have all the tools, resources and innovation needed to address this using advanced retrieval methods, new observations from the space-based instruments, a state-of-art model, and sophisticated data analytics techniques.

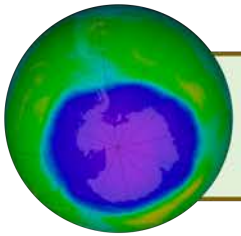
Air pollution sources and trends



Climate effect of tropospheric ozone



Air quality and climate impact of future NO_x



Ozone abundance in the lower stratosphere

Persistence of pollutants and potent GHGs

$CH_4 + OH \rightarrow$

Conclusion:

Once we do this, we will have addressed a data deficit in the global atmosphere and refined our understanding of the influence of atmospheric reactive nitrogen on multiple environmental sciences issues.

Summary: the hook to draw in the reader

A good summary has the key components of a good abstract in the future tense and captures the story arc:

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

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

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

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?

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.

Other Elements to the Proposal

Lots of additional proposal elements to consider:

- Support letters from Head of Department, partners, collaborators, stakeholders
- Data Management Plan
- Personal Statements / CVs (modesty doesn't pay off!)
- Dissemination
- Budget (my kryptonite – very grateful for Maria and Suse's expertise!)
- Justification of Resources
- Arranging reviewers (Leverhulme, Newton)
- Ethics forms
- Pathways to Impact

Spend as much time on these as on the proposal. Everything is being judged!

Often it's on you to write letters of support (advantage is it's at a quality you want)

General Tips and Pointers

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

Use acronyms and jargon very sparingly, as these often stand in the way of effective communication.

Prevent typos and grammar errors that also 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 go back and edit to meet the word limit.

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

Edit, edit, edit. Then edit again. The finally draft will and should be vastly different to the first draft.

Prevent typos, spelling errors, grammar issues. Reflects poorly on the quality of the proposal.

If you have the luxury of time, set aside the proposal for a few days (2 weeks ideally) to look at it later with fresh eyes. This is where a poor memory like mine is advantageous!

Happy Grant Writing!!!

Research grant writing in progress.

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Introduction: the Set Up

Convince the reviewer that your topic is important and that there's a knowledge gap (that you will address by the end of the proposal).

Provide copious and appropriate references to demonstrate you are knowledgeable of the state-of-art.

Be brief. Not an exhaustive literature review. Provide only the necessary information for the reviewer to follow along and to motivate your proposal.

Layout:

Paragraph 1:	What's the problem
Paragraphs 2-3:	Background information and further justification for your proposal and approach.
Paragraph 4:	Say what you will do: "Here we/I propose to …"

Work Programme: The Event

Possibly the most challenging to write, as it's speculative and involves many moving parts (budget, timeline, investigators, risk mitigation)

Individual tasks should fit thematically into larger work packages.

All steps in the process should be clear and follow a logical sequence that can be mapped to objectives, research questions, overall aim, deliverables, budget.

Entertaining YouTube video on giving clear instructions for making a PB&J sandwich: https://www.youtube.com/watch?v=FN2RM-CHkuI

Requires allocation of tasks: who will do what, for how long and why (certain tasks are better suited to PhD students, postdocs, technicians, investigators).

Mitigate or identify contingency plans for all foreseen risks.

Illustrate how tasks interlinked, when these will occur and for how long, who will do what, what resources are allocated. Get ideas of what works (and doesn't) from past successful applications.

Expected Outcomes: The Conclusion

What will have changed at the end of the project:

- New way of doing things
- Upended the status quo (prove the establishment to be wrong!)
- New knowledge/evidence
- Mystery solved
- Ability to do something not possible before

And by the way, there will also be:

- Peer-reviewed papers (demonstrates rigour)
- Presentations (share with and get feedback from the community)
- Conference sessions (many researchers interested in or impacted by focus)
- Public engagement events (advertise beyond the field)
- New data sets, new technology (software/instrument)
- Press release (get media's attention to share widely)
- Workshops (targeted involvement of relevant stakeholders)
- Training or capacity building (enhance uptake of knowledge or technology, address debilitating capacity deficits)
- Highly skilled next-generated of scientists (PhD students, postdocs)