Strategies for HDR students seeking to publish their research in high impact journals
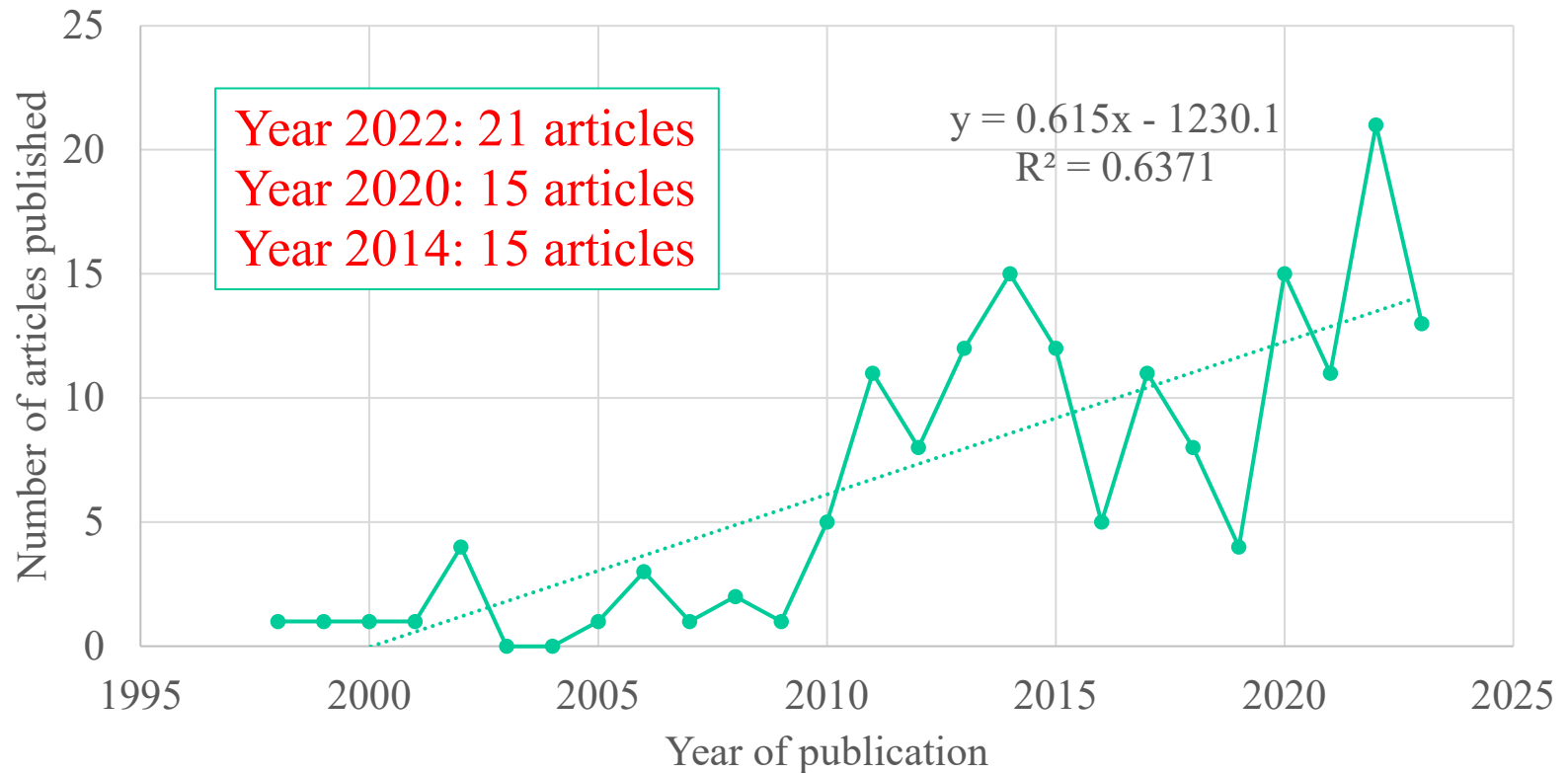
Prof Ataur Rahman

School of Engineering, Design and Built Environment

Western Sydney University

A story on my first paper

- My first paper in 1996

- My second paper in 1999

- My third paper in 2002

- My 166th journal article in 2023
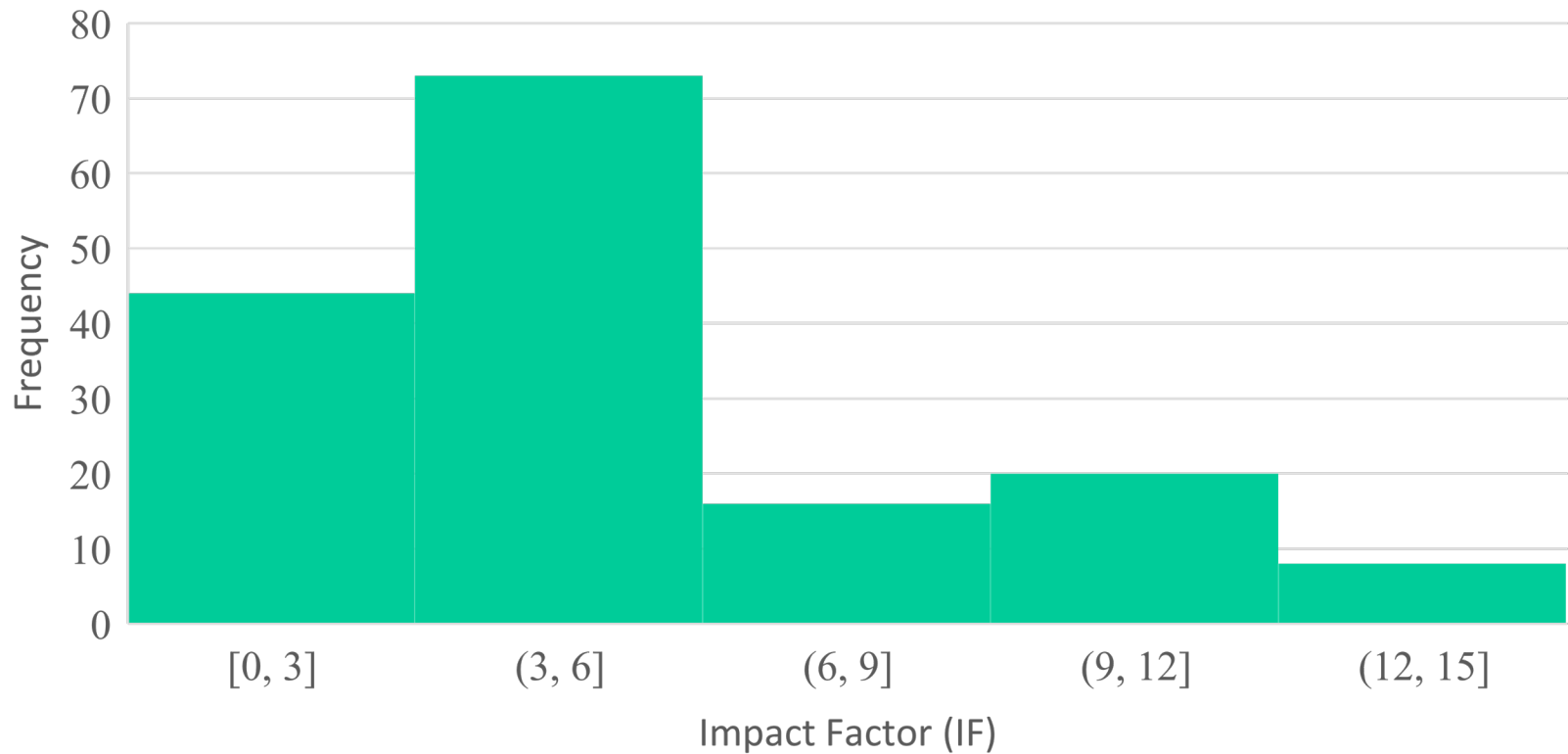
Trend in my journal publication

$y = 0.615x - 1230.1$
$R^2 = 0.6371$

Year 2022: 21 articles
Year 2020: 15 articles
Year 2014: 15 articles

Average per year: 6.42
Average per year (last 10 years): 11.5
Total: 166 in 26 years

Impact Factors of my Journal Publications

Distribution of Journal Impact Factors: journal articles by Prof Ataur Rahman

Papers with my HDR students

PhD student	No. of journal articles
Haddad	13
Haque	9
Amos	6
Loveridge	5
Van der Sterren	5
Hajani	5
Ishak	4
Zalnezhad	4
Kuruppu	4
Yildirim	4

Few small recognitions

- One of the authors of Australian Rainfall and Runoff National Guideline (regarded as Bible of Flood Hydrology) (2019)

- Winning of the G N Alexander Medal from the Institution of Engineers Australia (2002)

- Best PhD Supervisor Award from Western Sydney University (2015 and 2017)

Few small recognitions

- One of top 2% scientists globally

- 12 books

- 33 book chapters

- 166 journal articles

- 258 refereed conference paper

- Total publications: 539

Few small recognitions

- Google Scholar citations: 8,400, h-index: 45

- Supervised 23 PhD students to completion

- Examined 28 PhD theses

Why do you want to publish journal articles?

- Convey your research findings to scientific communities

- Influence your peers/make an impact in your research field

- Build up your research career

Who are your audience/readers?

- Early career researchers
- Professionals
- Policy makers
- Reviewers/editors
    - Reviewers are gate keepers!

Think before you start

- Is there any innovation?

- Will this paper be widely read and cited?

- Talk with your mentors/supervisors/co-researchers to know their views

Scholarly writing is challenging

- Reading is good, talking is better, but writing is the best to perfect one's experience

- Make an outline before starting to write
  - How many figures/tables/word-limit
  - Authors' guide is really useful

Step 1: Ready to go

- Put your note in front of you, read it and ponder upon it

- Read one or two most relevant articles just before start

- Think the innovations that you want to convey

Step 2: Writing methodology/data section

- Use flow chart to illustrate your complex methodology
  - very clear to you, but may not be to reviewers

- Consider length, quality and limitations of your data, source of your data (secondary data or primary data)

- Input garbage: output garbage!

Step 3: Writing results section

- Refer to each figure and table and point out important features

- State things that can be overlooked from tables and figures easily

- Use good number of figures and tables

Step 4: Writing discussion

- Why my results are similar with few previous studies?

- Why my results are different compared to few previous studies

- Limitations of my study

- Future directions

Step 5: Writing conclusion

- Point out major findings

- Compare your results very briefly with highly cited papers

- Significance/practical application of your results

- Limitations, if any and future study opportunities

Step 6: Writing Introduction

- Background information to create interest on the topic
  - Flood damage over $2 b in 2022 NSW flood

- Critical review of relevant previous research

- Limitations/ gaps/ controversies
  - How is your study addressing these gaps?

Step 7: Writing Abstract

- Background

- Data/methodology

- Major findings

- Contributions/innovations/significance

Selection of keywords

- These keywords should pick your paper from popular database during searching

- Five to seven

Refinement of title and abstract

- Ask Chat GPT?

Step 8: References

- Be consistent

- Do not miss important relevant references

- Do not miss relevant references of the proposed reviewers

Common mistakes by beginners

- Want to make a perfect first draft
  – A complete first draft not a perfect one

- Incorrect referencing

- Disregarding Authors Guide

- Lack in flow of ideas/clarity/compactness

Common mistakes by beginners

- Where and how to define an abbreviation?

- How to write an equation?

- Repetitions/inconsistency of terms/keywords

- Do not alter/invent keywords

Common mistakes by beginners

- Do not placing figures and tables at right place and do not quote/discuss them in the body of the paper

- No good checking of the first draft before sending to supervisor
  - Supervisor will fix for me
  - I have done my part, what a relief!

Few Examples

Abstract (Example) (177 words)

Regional flood frequency analysis (RFFA) is widely used to estimate design floods in ungauged catchments. Most of the RFFA techniques are based on the annual maximum (AM) flood model; however, research has shown that the peaks-over-threshold (POT) model has greater flexibility than the AM model. There is a lack of studies on POT-based RFFA techniques. This paper presents the development of POT-based RFFA techniques, using regularised linear models (least absolute shrinkage and selection operator, ridge regression and elastic net regression). The results of these regularised linear models are compared with multiple linear regression. Data from 145 stream gauging stations of south-east Australia are used in this study. A leave-one-out cross-validation is adopted to compare these regression models. It has been found that the regularised linear models provide quite accurate flood quantile estimates, with a median relative error in the range of 37 to 47%, which outperform the AM-based RFFA techniques currently recommended in the Australian Rainfall and Runoff guideline. The developed RFFA technique can be used to estimate flood quantiles in ungauged catchments in the study region.

Abstract: Example

Background: Regional flood frequency analysis (RFFA) is widely used; however, most of the RFFA techniques are based on annual maximum (AM) flood model; but not on peaks-over-threshold (POT) model.

Knowledge gap: There is a lack of studies on POT-based RFFA techniques.

Objectives of the paper: This paper presents the development of POT-based RFFA techniques, using regularised linear models ….

Abstract: Example

Methods/Data: The results of these regularised linear models are compared with multiple linear regression. Data from 145 stream gauging stations from south-east Australia are used.

Findings: It has been found that the regularised linear models provide quite accurate flood quantile estimates ….

Significance/Application: The developed RFFA technique can be applied to estimate flood quantiles in ungauged catchments.

Introduction: last paragraph

- As noted above, numerous studies have investigated the identification of homogeneous regions, but there are limited studies on …

- To fill this knowledge gap, this study examines the identification of homogeneous regions ….

- This study also investigates the impact of heterogeneity on the accuracy of flood quantile estimation, which has not been undertaken previously in a critical way using Australian data.

Introduction: last paragraph

- Based on the above literature review, it is found that research on the detention performance of a purple roof is still limited.

- Therefore, the innovation of the current study is the construction of a purple roof in the Western Sydney region ….

- To the best of the authors' knowledge, this research is Australia's first field experimental study on a purple roof based on the detention principle.

Nomination of reviewers

- Nomination of reviewers is critical

- The best selection: known to co-authors and experts in the field

- Journal Editor may not select your nominated reviewers (a luck)

Example forwarding letter: highlighting significance

- A new regional flood frequency analysis (RFFA) technique has been developed.

- In Australia, there has been no previous study on POT-based RFFA.

- It has been found that the developed RFFA models can provide more accurate results.

What happens after submission?

- Editor may reject without sending it to reviewers (disappointing outcome!): 1 in 15 of my papers

- It may be sent to the reviewers (lucky)

- Wait for 3-16 weeks to get reviewers' comments

Review reports are available

- Most of the time: review reports are highly critical

- Impossible to address all the comments?

- Should we withdraw the paper?

Addressing the review report

- Start with the easiest one

- If you want to disagree with a comment, do it respectfully

- Thank you for the comment; however, we humbly state that your suggested approach may make the paper too lengthy, more complex, …

My experience

- I have addressed comments of reviewers of over 100 journal papers

- Once we address the first round of comments, reviewers generally come back with fewer comments

- My 166 journal articles never got accepted in the first go

One example: 18 comments by one reviewer

- **Comment by reviewer:** The manuscript is overall well written, and the purpose is stated clearly. However, given the very sophisticated framework, some details remain unclear. I have listed the major points that require clarification below.

- **Response by authors:** Thanks for the positive comments and constructive suggestions. All your comments are addressed below.

One example

- **Comment by reviewer:** Are there any extraordinary events in your samples that might increase uncertainty when using short record lengths?

- **Response by authors:** Weighted least squares approach adopted here considers the impacts of record lengths in modelling (please see equation 2). The following sentence is added in Section 3: "It should be noted …."

One example

- **Comment by reviewer:** Line 179: how are baseflow volume and peak factors defined? Are these really available for ungauged basins, where no discharge records are available?

- **Response by authors:** Thanks for the comment. The following sentences are added to explain this: "Baseflow volume factor … in Australia for catchment size of 7 to 7800 km^2 (Ball et al., 2019)."

One example

- **Comment by reviewer:** The Introduction section should be revised extensively. It is insufficient to depict the importance of the research problem and the novelty of the study.

- **Authors' response:** The introduction section is significantly updated.

- **Comment by reviewer:** Please add more discussion about how MDS provides more insights.

- **Authors' response:** The following sentence is added to explain more on this point: "Since the clusters … catchment characteristics."

One example: How to disagree?

- **Comment by reviewer:** Several references to names have been deleted, yet Table 3 and Figure 3 could (and should) be omitted too.

- **Response by authors:** As per your suggestion, Figure 3 is now deleted. However, Table 3 is a vital part of this paper as it shows the most productive/cited authors in RFFA. We humbly argue that this should be retained in the manuscript. Its deletion will undermine the quality of this bibliometric analysis. The authors appeared in this table are based on scientific analysis without any bias.

Reviewers may ask to include his/her papers in the citation list

- **Comment by reviewer:** Before jumping in to RFFA, authors need to mention something about extreme value analysis and it's drawbacks while mentioning some relevant papers. The following papers are worthy to be mentioned in the Introduction section: "Investigation of Non-stationarity of Extreme Rainfalls and Spatial Variability …, International Journal of Climatology, Vol. 37(1), pp. 430-442. doi: 10.1002/joc.4716

- **Response by authors:** These references are now added.

The revised manuscript should be marked to show changes made

148   Once regions are formed, two regression techniques are applied for each POTk flood series: OLS and WLS.

149   In the regression, flood quantiles are dependent variables and climatic and catchment characteristics (as shown

150   in Table 1) are independent variables. OLS technique adopts stepwise elimination based on p-value (10%

151   significance level) (OP) (similar to Rahman et al., 2020) and AIC value (OA), while WLS adopts statistical

152   (WS) and hydrological (WH) weights. It should be noted that other significance levels like 5% or 1% instead

153   of 10% could have been adopted. Baseflow factors (volume factor (VF) and peak factor (PF)) are additional

All the comments be addressed

- Prepare a word document where all the comments by the reviewers and responses by authors are included.

- Prepare a new forwarding letter stating what are the major changes made in the revised manuscript.

My experience in revision

- Revision 1: about 40% success
- Revision 2: about 70% success
- Revision 3: about 90% success

Conclusion

- Publication of a high impact/good journal article is a challenging task.

- It needs significant efforts: some of these are presented here.

- Guidance from senior researchers/supervisors are essential for a success.

Thanks for your kind attention

Any question/suggestion/comment?