

# Research Ethics Workshop

## Session 1: recognizing and avoiding plagiarism

Ashwin K Seshadri

CAOS, 26 October 2016

# What is Plagiarism?

- Plagiarism: “the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit.” (US Office of Science and Technology Policy)
- "taking over the ideas, methods, or written words of another, without acknowledgment and with the intention that they be taken as the work of the deceiver." American Association of University Professors

# Authorship and copyright

- “In addition to the harm that plagiarism does to the pursuit of truth, it can also be an offense against the literary rights of the original author and the property rights of the copyright owner”, American Historical Association statement on plagiarism.
- Authorship, literary rights, and copyright are relatively recent ideas, but now they are realities

# Example 1: An example of a retraction

MENU 

 Altmetric: 19 Views: 1,836 [More detail >>](#)




RETRACTION

**RETRACTION: Early magnitude estimation for the  $M_W$ 7.9 Wenchuan earthquake using progressively expanded P-wave time window**

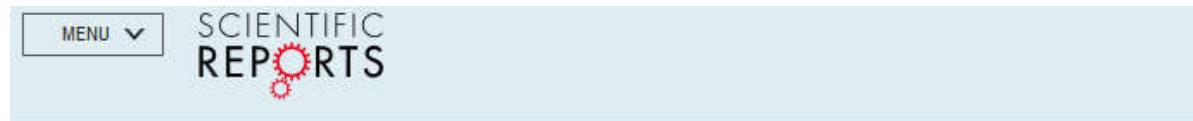
[Chaoyong Peng](#), [Jiansi Yang](#), [Yu Zheng](#), [Zhiqiang Xu](#) & [Xudong Jiang](#)

*Scientific Reports* 5, Article number: 7602 (2015)  
doi:10.1038/srep07602  
[Download Citation](#)  
Geophysics | Seismology

Published online: **16 January 2015**  
[Original article \(27 October 2014\)](#)

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# Example 1: An example of a retraction



  Altmetric: 19 Views: 1,836 [More detail >>](#)

RETRACTION

**RETRACTION:** Early magnitude estimation for the  $M_W 7.9$  Wenchuan earthquake using progressively expanded P-wave time window

[Chaoyong Peng](#), [Jiansi Yang](#), [Yu Zheng](#), [Zhiqiang Xu](#) & [Xudong Jiang](#)

*Scientific Reports* **4**, Article number: 6770 (2014); Published: 27 October 2014;

Updated: 16 January 2015

The authors wish to retract this Article because large sections of the text were copied from a Colombelli *et al.* study, which was cited as reference 37. The results and data presented in the Article have not been contested.

# Example 1: More on this case from Retraction Watch

## Far from earth-shatteringly new: Plagiarism topples Chinese quake paper

with 8 comments

A group of scientists at the Chinese Earthquake Administration in Beijing have lost their 2014 paper in *Nature Scientific Reports* for lifting chunks of text from a previously published article.



Aldo Zollo, a co-author of the Colombelli paper, told us:



The authors of the plagiarism did not use our data, they just copied large part of the text and reproduced the figures using exactly the same format and style of the ones published in our paper.

We developed a new methodology and applied it to data from the Great 2011 Tohoku-Oki earthquake in Japan. They applied exactly the same methodologies to data from a smaller size earthquake in China. Although the two earthquakes differed for their size and tectonic environment where they occurred, they copied large part of the discussion of results and Conclusions from our article.

# Example 1

## Peng et al., 2014

Colombelli et al.<sup>37</sup> generalized this approach by expanding the analysis to larger PTW (up to 60 s) and epicentral distances (up to 530 km), showing that the early measurements of  $P_d$  and  $\tau_c$  at the whole Japanese accelerometric network provided relevant insights on the ongoing earthquake rupture process and reliable estimations of the potential damage area. In this paper, the same method will be used to analyze strong-motion records of the Wenchuan earthquake which magnitude is one order smaller than the 2011 Tohoku-Oki earthquake, in order to check the validity of this method and whether there is saturation effect after applying this method to the Wenchuan earthquake strong-motion records.

# Example 1

*Colombelli et al. (2012) (Ref. 37)*

Although the complexity of the rupture process for large earthquakes has not yet been fully understood, the application of EW methodologies to the Tohoku-Oki strong motion records can represent a useful tool to reveal new insights into the very delicate issue of early magnitude estimation for large earthquakes and the prediction of the potential damage area while the rupture process is still ongoing

*Peng et al. (2014)*

Although the complexity of the rupture process for large earthquakes has not yet been fully understood, the application of early warning methodologies to the Wenchuan strong-motion records can represent a useful tool to reveal new insights into the very delicate issue of early magnitude estimation for large earthquakes and the prediction of the potential damage area while the rupture process is still ongoing.



Peng et al. obtained their own data, but copied much of the text. What makes this wrong?

- No quotation marks (inverted commas)
- Large-scale plagiarism
- Borrowed extensively but failed to cite in every place what they had borrowed

# Example 2

Ghosh et al., Applied Phys Letters, 2010  
(Ref. 22)

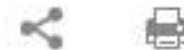
In addition, controlled reduction in GO via chemical and/or thermal route allow the tunability of optoelectronic properties.<sup>[14–16](#)</sup> Thin films prepared from solution processed GO offer ease of material processing, low cost of fabrication, mechanical flexibility, and compatibility with various substrates making them an attractive candidate for large area devices. GO based thin films have already been used as a transparent and flexible material for electronic devices,<sup>[8](#)</sup>

Chitara et al. 2011, Advanced Materials

In addition, controlled reduction of GO by chemical or thermal means allows the tunability of optoelectronic properties.<sup>[14–16](#)</sup> Thin films prepared from solution\_processed GO offer ease of material processing, low cost of fabrication, mechanical flexibility, and compatibility with various substrates, making them attractive candidates for large-area devices. GO\_based thin films have already been used as transparent and flexible materials for electronic devices.<sup>[17–22](#)</sup>

# Mistakes in Example 2

- No quotation marks to denote that text was copied verbatim



## Indian science adviser caught up in plagiarism row

Apology for small oversight has been misinterpreted, says adviser.

**K. S. Jayaraman**

24 February 2012

**BANGALORE**

 [Rights & Permissions](#)

A cut-and-paste job by a PhD student has embroiled co-author C. N. R. Rao — science adviser to India's Prime Minister — in controversy.



# “Questionable Research Practices”

- Paper in *Advanced Materials* by authors in IISc and JNCASR
  - First two sentences had been copied from another paper, which had been cited
  - Software detected plagiarism, paper published with apology
  - According to co-author C N R Rao, “the apology was interpreted by Indian media to mean that the entire paper had been plagiarized” (Nature magazine)
  - Student had intended to modify the sentences but forgot, according to Nature magazine

# Example 3

## Do decadal forecasts provide decision-relevant skill?

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### Summary

- 1. A robust and transparent forecast evaluation procedure is desirable**
  - Important because of decision-relevance
  - Forecast skill is necessary, but not sufficient to establish value to a user
  - Evaluation and post-processing methods need to be made clear in advance
  - Appropriate measures of skill and value evaluated
- 2. A framework for in-sample skill evaluation of ensemble prediction systems is demonstrated**
  - Approach addresses the value added compared to a 'zero skill' benchmark model
- 3. Significant skill is not found for any of the ENSEMBLES GCMs against a simple data-based model**
  - Demonstrated at GMT and Giorgi region scale for ENSEMBLES models
  - Small sample size is part of the problem – results should inform future design
  - How do we use scientific insight given low model skill?

E. B. Suckling and L. A. Smith, Do decadal predictions from GCMs yield decision-relevant skill?  
*in preparation.*



From Suckling and Smith, “Do quantitative decadal forecasts from GCMs provide decision-relevant skill?” EGU 2012

## Example 3 (a hypothetical paper that does not cite the previous poster)

Our study shows that decadal temperature forecasts in GCMs do not provide any improvement when compared to the ensemble-mean of long-term GCM runs

# Mistakes in Example 3

- No citation to poster
- Plagiarism does not apply only to written material or to words, but also to ideas and results
- “Plagiarism also includes the limited borrowing, without attribution, of another person's distinctive and significant research findings, hypotheses, theories, rhetorical strategies, or interpretations, or an extended borrowing even with attribution. “, AHA statement on plagiarism



# Example 4

## *Scientists Recover First Genome of Ancient Human From Africa*

ARL ZIMMER OCT. 8, 2015

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A team of scientists [reported](#) on Thursday that it had recovered the genome from a 4,500-year-old human skeleton in [Ethiopia](#) — the first time a complete assemblage of DNA has been retrieved from an ancient human in Africa.

The DNA of the Ethiopian fossil is strikingly different from that of living Africans. Writing in the journal *Science*, the researchers conclude that people from the Near East spread into Africa 3,000 years ago. In later generations, their DNA ended up scattered across the continent.



Source: NYTimes, Oct 8, 2015.

# Example 4

Science DOI: 10.1126/science.aad2879


 Read Full Text to Comment (1)

REPORT


HUMAN EVOLUTION

## Ancient Ethiopian genome reveals extensive Eurasian admixture throughout the African continent

M. Gallego Llorente<sup>1,\*,†</sup>, E. R. Jones<sup>2,\*,†</sup>, A. Eriksson<sup>1,3</sup>, V. Siska<sup>1</sup>, K. W. Arthur<sup>4</sup>, J. W. Arthur<sup>4</sup>, M. C. Curtis<sup>5,6</sup>, J. T. Stock<sup>7</sup>, M. Coltorti<sup>8</sup>, P. Pieruccini<sup>8</sup>, S. Stretton<sup>9</sup>, F. Brock<sup>10,11</sup>, T. Higham<sup>10</sup>, Y. Park<sup>12</sup>, M. Hofreiter<sup>13,14</sup>, D. G. Bradley<sup>2</sup>, J. Bhak<sup>15</sup>, R. Pinhasi<sup>16,\*</sup>, A. Manica<sup>1,\*</sup>

 Author Affiliations

\*Corresponding author. E-mail: [mq632@cam.ac.uk](mailto:mq632@cam.ac.uk) (M.G.L.); [joneser@tcd.ie](mailto:joneser@tcd.ie) (E.R.J.); [ron.pinhasi@ucd.ie](mailto:ron.pinhasi@ucd.ie) (R.P.); [am315@cam.ac.uk](mailto:am315@cam.ac.uk) (A.M.)

† These authors contributed equally to this work.

### ABSTRACT

Characterizing genetic diversity in Africa is a crucial step for most analyses reconstructing the evolutionary history of anatomically modern humans. However, historic migrations from Eurasia into Africa have affected many contemporary populations, confounding inferences. Here, we present a 12.5x coverage ancient genome of an Ethiopian male ('Mota') who lived approximately 4,500 years ago. We use this genome to demonstrate that the Eurasian backflow into Africa came from a population closely related to Early Neolithic farmers, who had colonized Europe 4,000 years earlier. The extent of this backflow was much greater than previously reported, reaching all the way to Central, West and Southern Africa, affecting even populations such as Yoruba and Mbuti, previously thought to be relatively unadmixed, who harbor 6-7% Eurasian ancestry.

# Example 4

- From intro. to a hypothetical paper: It has been established that humans migrated out of Africa. It has also been speculated that humans migrated into Africa thousands of years ago. Recently this speculation was confirmed when a human genome from a 4500-year skeleton in Africa was sequenced. *(no citation)*

# Mistake in Example 4

- No citation to Liorente et al. 2015
- Press coverage does not diminish a distinctive finding's personal reference.
- “As knowledge is disseminated to a wide public, it loses some of its personal reference. What belongs to whom becomes less distinct. But even in textbooks a historian should acknowledge the sources of recent or distinctive findings and interpretations, those not yet a part of the common understanding of the profession, and should never simply borrow and rephrase the findings of other scholars. “, AHA statement on plagiarism

# Example 5

## Where do winds come from? A new theory on how water vapor condensation influences atmospheric pressure and dynamics

A. M. Makarieva<sup>1,2</sup>, V. G. Gorshkov<sup>1,2</sup>, D. Sheil<sup>3,4,5</sup>, A. D. Nobre<sup>6,7</sup>, and B.-L. Li<sup>2</sup>

<sup>1</sup>Theoretical Physics Division, Petersburg Nuclear Physics Institute, 188300, Gatchina, St. Petersburg, Russia

<sup>2</sup>XIEG-UCR International Center for Arid Land Ecology, University of California, Riverside, CA 92521, USA

<sup>3</sup>School of Environment, Science and Engineering, Southern Cross University, P.O. Box 157, Lismore, NSW 2480, Australia

<sup>4</sup>Institute of Tropical Forest Conservation, Mbarara University of Science and Technology, Kabale, Uganda

<sup>5</sup>Center for International Forestry Research, P.O. Box 0113 BOCBD, Bogor 16000, Indonesia

<sup>6</sup>Centro de Ciência do Sistema Terrestre INPE, São José dos Campos SP 12227-010, Brazil

<sup>7</sup>Instituto Nacional de Pesquisas da Amazônia, Manaus AM 69060-001, Brazil

*Correspondence to:* A. M. Makarieva (ammakarieva@gmail.com) and D. Sheil (douglassheil@itfc.org)

Received: 5 August 2010 – Published in Atmos. Chem. Phys. Discuss.: 15 October 2010

Revised: 29 April 2011 – Accepted: 3 December 2012 – Published: 25 January 2013

**Abstract.** Phase transitions of atmospheric water play a ubiquitous role in the Earth's climate system, but their direct impact on atmospheric dynamics has escaped wide attention. Here we examine and advance a theory as to how condensation influences atmospheric pressure through the mass removal of water from the gas phase with a simultaneous account of the latent heat release. Building from fundamental physical principles we show that condensation is associated with a decline in air pressure in the lower atmosphere. This

### 1 Introduction

Phase transitions of water are among the major physical processes that shape the Earth's climate. But such processes have not been well characterized. This shortfall is recognized both as a challenge and a prospect for advancing our understanding of atmospheric circulation (e.g., Lorenz, 1983; Schneider, 2006). In *A History of Prevailing Ideas about the General Circulation of the Atmosphere* Lorenz (1983) wrote:



# Example 5

## Where do winds come from? A new theory on how water vapor condensation influences atmospheric pressure and dynamics

A. M. Makarieva<sup>1,2</sup>, V. G.

<sup>1</sup>Theoretical Physics Divisi

<sup>2</sup>XIEG-UCR International

<sup>3</sup>School of Environment, S

<sup>4</sup>Institute of Tropical Fores

<sup>5</sup>Center for International Fo

<sup>6</sup>Centro de Ciência do Siste

<sup>7</sup>Instituto Nacional de Pesq

Correspondence to: A. M.

Received: 5 August 2010 –

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**Abstract.** Phase transition ubiquitous role in the Earth impact on atmospheric dyn Here we examine and adv sation influences atmosphe moval of water from the g count of the latent heat rel physical principles we show with a decline in air pressu

*Editor Comment.* The authors have presented an entirely new view of what may be driving dynamics in the atmosphere. This new theory has been subject to considerable criticism which any reader can see in the public review and interactive discussion of the manuscript in ACPD (<http://www.atmos-chem-phys-discuss.net/10/24015/2010/acpd-10-24015-2010-discussion.html>). Normally, the negative reviewer comments would not lead to final acceptance and publication of a manuscript in ACP. After extensive deliberation however, the editor concluded that the revised manuscript still should be published – despite the strong criticism from the esteemed reviewers – to promote continuation of the scientific dialogue on the controversial theory. This is not an endorsement or confirmation of the theory, but rather a call for further development of the arguments presented in the paper that shall lead to conclusive disproof or validation by the scientific community. In addition

# Example 5

A hypothetical paper using Makarieva et al. (2013)

It has been suggested that the removal of mass from the gas phase during condensation of water vapor by itself reduces surface pressure and contributes significantly to atmospheric winds. (no citation)

# Mistake in Example 5

- Theories (even if controversial) are to be cited
- “Plagiarism includes more subtle and perhaps more pernicious abuses than simply expropriating the exact wording of another author without attribution.

Plagiarism also includes the limited borrowing, without attribution, of another person's distinctive and significant research findings, hypotheses, theories, rhetorical strategies, or interpretations, or an extended borrowing even with attribution.”, AHA statement on plagiarism



# Example 6

## The effect of malaria control on *Plasmodium falciparum* in Africa between 2000 and 2015

S. Bhatt, D. J. Weiss, E. Cameron, D. Bisanzio, B. Mappin, U. Dalrymple, K. E. Battle, C. L. Moyes, A. Henry, P. A. Eckhoff, E. A. Wenger, O. Briët, M. A. Penny, T. A. Smith, A. Bennett, J. Yukich, T. P. Eisele, J. T. Griffin, C. A. Fergus, M. Lynch, F. Lindgren, J. M. Cohen, C. L. J. Murray, D. L. Smith, S. I. Hay <sup>✉</sup> *et al.*

[Affiliations](#) | [Contributions](#) | [Corresponding author](#)

*Nature* **526**, 207–211 (08 October 2015) | doi:10.1038/nature15535

Received 06 August 2015 | Accepted 01 September 2015 | Published online 16 September 2015

The analytical framework is shown schematically in [Extended Data Fig. 1](#). Data on ITN use and access to ACTs from over one million households were combined with national malaria control programme data<sup>1</sup> on ITN, ACT and IRS provision to develop time-series models of coverage of these interventions within each country<sup>1</sup>. These were combined within a spatiotemporal Bayesian geostatistical model<sup>17</sup> with *PfPR* data from 27,573 georeferenced population clusters between 1995 and 2014, along with an optimised suite of temporally dynamic environmental and sociodemographic covariates<sup>18</sup>.

## Example 6

We found that infection prevalence in children age 2-up-to-10 across endemic Africa has halved since the year 2000 (population-weighted mean  $PfPR_{2-10}$ : year 2000 = 33%, 95% credible interval 31–35%; year 2015 = 16%, 14–19%), with around three-quarters of this decline occurring after 2005

# Example 6

A hypothetical paper that uses Bhatt et al.

Bhatt et al. (2015) combine data on bed net use, indoor residential spraying, and artemisinin-based combination therapy with a geostatistical model of infection prevalence to, for the first time, estimate malaria infection rates and prevention effectiveness in sub-Saharan Africa.

One of the goals of the WHO is to reduce global malaria incidence by 75% compared to 2000 levels. In sub-Saharan Africa the prevalence of infection in young children has reduced by 50% since 2000. (no citation)

# Mistake in Example 6

- Extended borrowing without attribution
- All points owing to Bhatt et al. (2015) must be referenced in the correct location.
- One citation somewhere in the paper is not enough.

# Example 7

Citation to Newton's 2<sup>nd</sup> law

$F = m \cdot a$  (Newton, ca1688)

(Newton, Isaac, "Mathematical Principles of Natural Philosophy", Royal Society, ca 1688)

# Example 8

A contrasting scenario is that *H. sapiens* first dispersed eastwards (probably by way of the Arabian Peninsula) during the last interglacial period, and entered South Asia well before 60,000 years ago, and perhaps before the volcanic super-eruption that occurred 74,000 years ago at present-day Lake Toba in Indonesia<sup>7, 8, 9</sup>.....One place where these hypotheses can be tested is in southern China, which is dotted with karst caves that are rich fossil sources. But descriptions of this material have so far been ambiguous because of doubts over the stratigraphic context of skeletal specimens, their dating and/or their identification..... Liu and colleagues' discoveries at Fuyan Cave are especially welcome because they seem to lack these usual problems surrounding context, dating and identification.

**Dennell, R, 2015, "Palaeoanthropology: *Homo sapiens* in China 80,000 years ago, Nature.**

# Example 8

## A hypothetical paper citing Dennell, 2015

It has been suggested that *H. sapiens* migrated east of Africa towards South Asia during the last interglacial, entering South Asia prior to 60,000 years before the present (Dennell, 2005). This hypothesis could be tested in karst caves in southern China, because they are rich in human fossils (Dennell, 2005). However studies of these fossils has been made difficult and uncertain by difficulties in properly identifying and dating them, in addition to placing them in a proper prehistoric context (Dennell, 2005). Liu et al.'s findings at Fuyan Cave are helpful because they are not limited by these traditional challenges (Dennell, 2005).

# Mistake in Example 8

- Repeated paraphrasing with citation.
- The writer is borrowing the structure of Dennell et al.
- “When a historian simply links one paraphrase to the next, even if the sources are cited, a kind of structural misuse takes place; the writer is implicitly claiming a shaping intelligence that actually belonged to the sources.”, AHA Statement



# Example 9: What if Ghosh et al. 2010, had actually been written by Chitara et al.?

Hypothetical Chitara et al., Applied Phys Letters, 2010 (Ref. 22)

In addition, controlled reduction in GO via chemical and/or thermal route allow the tunability of optoelectronic properties.<sup>14-16</sup> Thin films prepared from solution processed GO offer ease of material processing, low cost of fabrication, mechanical flexibility, and compatibility with various substrates making them an attractive candidate for large area devices. GO based thin films have already been used as a transparent and flexible material for electronic devices,<sup>8</sup>

Chitara et al. 2011, Advanced Materials

In addition, controlled reduction of GO by chemical or thermal means allows the tunability of optoelectronic properties.<sup>14-16</sup> Thin films prepared from solution-processed GO offer ease of material processing, low cost of fabrication, mechanical flexibility, and compatibility with various substrates, making them attractive candidates for large-area devices. GO-based thin films have already been used as transparent and flexible materials for electronic devices.<sup>17-22</sup>

# Mistake in Example 9

- Failure to include quotation marks for text from one's own paper
- The same rules apply to borrowing from one's previous work

# Example 10

From an actual article (Dennell, 2015),  
citations correctly placed

Most researchers agree that our species first appeared in East Africa around 190,000 to 160,000 years ago, and then dispersed into the eastern Mediterranean around 100,000 to 60,000 years ago, after which it was replaced by Neanderthals. Following this apparent 'failed dispersal' (Shea, 2008), one suggested scenario is that *H. sapiens* did not progress eastwards until around 60,000 years ago — a date based on the estimated divergence time of genetic lineages in South Asian people (Mellars et al. (2013)), and the probable arrival date of humans in Australia (Roberts et al., 1994).

# Example 10a

## Citations in the wrong place

Most researchers agree that our species first appeared in East Africa around 190,000 to 160,000 years ago, and then dispersed into the eastern Mediterranean around 100,000 to 60,000 years ago, after which it was replaced by Neanderthals. Following this apparent 'failed dispersal' (Shea, 2008), one suggested scenario is that *H. sapiens* did not progress eastwards until around 60,000 years ago — a date based on the estimated divergence time of genetic lineages (Mellars et al. (2013)) in South Asian people, and the probable arrival date of humans in Australia (Roberts et al., 1994).

# Example 10b

## Citations in the wrong place

Most researchers agree that our species first appeared in East Africa around 190,000 to 160,000 years ago, and then dispersed into the eastern Mediterranean around 100,000 to 60,000 years ago, after which it was replaced by Neanderthals. Following this apparent 'failed dispersal', one suggested scenario is that *H. sapiens* did not progress eastwards until around 60,000 years ago — a date based on the estimated divergence time of genetic lineages in South Asian people, and the probable arrival date of humans in Australia (Shea, 2008; Mellars et al., 2013; Roberts et al., 1994).

# Guidelines (adapted from Roig, ORI)

- Acknowledge source of ideas
- Enclose verbatim text in quotation marks
- Cite every source
- When summarizing others' ideas, condense
- When paraphrasing, cite
- Be accurate about meaning
- Use your own words

Roig, M, "Avoiding plagiarism, self-plagiarism, and other questionable writing practices: A guide to ethical writing" (US Office of Research Integrity)

# Guidelines (adapted from Roig, ORI), continued

- When in doubt as to whether something is common knowledge, cite
- Avoid self-plagiarism
- Avoid copyright violation
- Practice correct citation
- Cite only what you read
- Avoid irrelevant citations
- When borrowing heavily, make clear what is not yours

# Exercise 1

## from Lovelock et al., 2015

Lovelock et al. (2015)

Intertidal mangrove forests occur on tropical and subtropical shorelines, and provide a wide range of ecosystem services, including the support of fisheries, coastal protection and carbon sequestration, which are collectively and conservatively estimated to be worth US\$194,000 per hectare per year (refs [11](#), [12](#)).

Paper citing Lovelock et al. (2015)

Intertidal mangrove forests occur on tropical and subtropical shorelines, and provide a wide range of ecosystem services, including the support of fisheries, coastal protection and carbon sequestration, which are collectively and conservatively estimated to be worth US\$194,000 per hectare per year (Lovelock et al., 2015).



# Exercise 2

## (from Robel 2015)

Estimating the likelihood that climate change will cause widespread Antarctic ice-shelf loss, and the duration of ice-flow acceleration in response to such a loss, is crucial for constraining future sea-level rise. However, accurately modelling ice sheets, ice shelves and their interactions with the ocean and atmosphere is computationally intensive.... In contrast to earlier studies, Golledge and colleagues use a comprehensive ice-sheet model, with forcing of precipitation, ocean and air temperature from global climate models, to simulate mass loss from the Antarctic ice sheet from the present to the year 5000 under various scenarios of climate change. They find that ocean warming, rather than atmospheric warming or changes in precipitation, is the dominant driver of mass loss. ....

# Exercise 2

.... Golledge *et al.* ultimately confirm the suspicions of earlier glaciologists that the fate of ice shelves largely determines whether Antarctica contributes less than 1 metre or up to 9 metres to long-term sea-level rise. .... If such a rapid ice-shelf break-up does occur, then Golledge and colleagues' simulations might represent a best-case scenario for future sea-level rise.

(Robel, 2015)

## Exercise 2

What is wrong with this use of Robel 2015?

The magnitude of sea-level rise is sensitive to the future of Antarctic ice shelves (Robel 2015). These are difficult to model because of the many processes involved (Robel 2015). Golledge et al. use a more comprehensive model than ever before to show that ice shelf behavior depends mainly on ocean warming, and confirm the belief that the behavior of these shelves governs Antarctica's contribution to sea level rise (Robel 2015). If these shelves disintegrate rapidly, then their simulations would represent the best-case scenario (Robel 2015).

# Exercise 3a

Robel (2015)

Most projections of Antarctic ice melting in response to climate change extend a maximum of a few centuries into the future, a timescale that has clear relevance to immediate human affairs. But to capture the total Antarctic contribution to sea-level rise caused by climate change, it is necessary to consider the possibility that ice-sheet mass loss will continue for thousands of years.

Paper citing Robel (2015)

Most of the projections of Antarctic ice melting following global warming extend for a maximum of few centuries. This is a timescale that is of obvious relevance to human affairs. But for capturing the total Antarctic contribution to sea-level rise, it is necessary to consider ice-sheet mass loss over thousands of years (Robel, 2015).

# Exercise 3b

Robel (2015)

Most projections of Antarctic ice melting in response to climate change extend a maximum of a few centuries into the future, a timescale that has clear relevance to immediate human affairs. But to capture the total Antarctic contribution to sea-level rise caused by climate change, it is necessary to consider the possibility that ice-sheet mass loss will continue for thousands of years.

An acceptable paraphrase

It is important to consider ice-sheet mass loss from the Antarctic over thousands of years (Robel, 2015).

# Exercise 4

What is wrong with this use of Robel 2015?

It is important to consider ice-sheet mass loss from the Antarctic over thousands of years.

# If paraphrasing

- Use your own words
- Use your own structure
- Ask yourself, what is the necessary idea from the original text, and then write that in your own words
- Condense, but preserve essential meaning
- Always place a citation at the end of the paraphrase (even if you have completely rewritten the idea)