

Scientific English

M2 Marine Physics

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Lecture

Introduction

- Brief history of Science and scientific writing

Scientific writing

- Structure and content of a paper
- Writing and revision papers
- Writing reports, proposal, etc ...

Effective Scientific writing

- How to write more effectively

The peer-review process

- What? And How?

Activities

- Read and discuss scientific articles
- Write a short article
Due date: **Jan. 23rd**
- Review articles
Due date: **Jan. 30th**

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Tentative paper instructions

Text requirements for your paper:

- 6 publication units (1 PU = 500 words or 1 figure or table)
- Using a standard structure:
 - Abstract
 - Introduction
 - Methods
 - Results
 - Conclusion
- Use Overleaf, Curvenote, Authorea, LaTeX or Microsoft Word templates available here: <https://www.agu.org/publications/authors/journals>

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I. Subjects and Actions

II. Cohesion, Coherence and Emphasis

III. Concision and Simplicity

IV. A few grammar tips

V. Writing and self-revising (summary)

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IV. A few grammar tips

- a) Using the right tense
- b) Which/that
- c) Data
- d) Compared to/with
- e) Associated ~~to~~/with
- f) Use of punctuation
- g) i.e. and e.g.
- h) Parallelism

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IV. A few grammar tips

a) Using the right tense

Use verb tenses (past, present, and future) exactly as you would in ordinary writing:

- **Past** (*most of what you will write*): report what happened in the **past**:
 - What you did
 - What someone reported
 - What happened in an experiment, ...
- **Present** (*some of what you will write*): express **general truths**:
 - Conclusions (drawn by you or by others)
 - Atemporal facts
(including information about what the paper does or covers).
- **Future** (*few (if any) of what will write*): express **perspectives**:
 - What you will do in the coming months or years.

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IV. A few grammar tips

a) Using the right tense

- **Past** (*most of what you will write*):

Work done	We collected samples from . . . Sakai et al. determined the growth rate of . . . Consequently, astronomers decided to rename . . .
Work reported	Paldor reported a similar growth rate . . . Marshall et al. (2009) published an alternative method Bower et al. (1994) observed the opposite behavior ...
observations	The floats in Group A moved , on average, twice faster... The number of events increased sharply . . . The conversion rate was close to 95% . . .

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IV. A few grammar tips

a) Using the right tense

- **Present** (*some of what you will write*):

General truths	The Reynolds number provides a measure of . . . The Navier-Stokes 3D equations are ... In an inviscid non-stratified medium, the angular momentum is conserved ...
Atemporal facts	This paper presents the results of . . . Section 3.1 explains the difference between . . . Behbood's 1969 paper provides a framework for . . .

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IV. A few grammar tips

a) Using the right tense

- **Future** (*few (if any) of what you will write*):

Perspectives	
	In a follow-up experiment, we will study the role of . . . The influence of temperature will be the object of future research . . .

- **Past + Present:**

In 1905, Albert Einstein **postulated** that the speed of light **is** constant .

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IV. A few grammar tips

b) Which/that

Example:

The main term acting to balance βV in western boundary currents is the bottom pressure torque **[which/that]** is also the term responsible for meridional excursions of the ACC.

The part of βV **[which/that]** is not explained by Sverdrup balance is plotted in Fig. 4.

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IV. A few grammar tips

b) Which/that

Example:

The main term acting to balance βV in western boundary currents is the bottom pressure torque, **which** is also the term responsible for meridional excursions of the ACC.

The part of βV **that** is not explained by Sverdrup balance is plotted in Fig. 4.

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IV. A few grammar tips

b) Which/that

Rule

- **That** → restrictive clause
- **Which** → everything else

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IV. A few grammar tips

b) Which/that

- Restrictive clause = **that**
 - **Restrict** other part of the sentence
 - You can't get ride of!

Example:

*The pairs of nearest neighbours **that satisfy** the criterion...
are pairs of false neighbours.*

- “that satisfy” restrict the kind of pairs you are talking about.
- If your remove them, the meaning changes
(all pairs are false neighbours)

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IV. A few grammar tips

b) Which/that

- Non-restrictive clause = **which**
 - Add a complement to the sentence
 - You can get ride of!

Example:

The main term acting to balance βV in western boundary currents is the bottom pressure torque, ~~which is also the term responsible for meridional excursions of the ACC.~~

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IV. A few grammar tips

b) Which/that

- See the difference explicitly:

The vial that contained her RNA was lost
The vial, which contained her RNA, was lost

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IV. A few grammar tips

c) Data

The word DATA is **plural**

- The data show an unusual trend
- The data support the conclusion
- The data are critical

The singular form is **datum** (i.e. one data point, rarely used)

*I need to collect one last **datum** to complete the study.*

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IV. A few grammar tips

d) Compared to/with

- Compare to: to point out *similarities* between *different things*
- Compare with: to point out *differences* between *similar things*
(e.g what we usually do in science)

Examples:

- Life is good this days **compared to** the past
- Brain tumors are relatively rare **compared with** more common cancers such as those of the lung, breast, and prostate

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IV. A few grammar tips

e) Associated ~~to~~/with

*“Enfin le grand prix est réservé pour “associated to”.
Cela mérite un commandement tout seul.
Tu ne dis jamais associated to!
Tu dis **associated with**.
Il n’y a pas d’exception!”*

[Le Décalogue, Nick Hall]

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IV. A few grammar tips

f) Use of punctuation

Punctuation can help in structuring your ideas, and ultimately to make the structure more creative.

Example:

Many types of cells in tissue develop a kind of directionality. Certain events happen toward one end of the cell or tissue. It's a phenomenon called cell polarity.

Many types of cells in tissues develop a kind of directionality, called cell polarity: certain events happen toward one end of the cell or tissue.

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IV. A few grammar tips

f) Use of punctuation

Punctuation can help in structuring your ideas, and ultimately to make the structure more creative.

A list of punctuation:

- Comma -- ,
- Colon -- :
- Dash -- -
- Parentheses -- ()
- Semicolon -- ;
- Period -- .



- Shorth pause
- Bigger pause
- More abrupt pause
- an extra in a sentence
- separate 2 related sentences
- Complete stop

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IV. A few grammar tips

f) Use of punctuation

French vs. English rules for colon and semicolon:

- in French: a 'space' **BEFORE and after** colon and semicolon
- in English: a 'space' **ONLY after** colon and semicolon

No upper case after colon and semicolon ... unless:

1. It is a proper noun
2. The second clause is a complete sentence (*in case of colon only*).

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IV. A few grammar tips

f) Use of punctuation

Semicolon:

1. Connects 2 independent clauses

i.e. clauses that can stand alone as complete sentences.

- Example: Kennedy could be a cold and vain man, and he led a life of privilege. But he knew something about the world; he also cared about it.
- With a comma = *lose the emphasis*:
But he knew something about the world, and also cared about it.
- With a period = *lose the connection between the 2 ideas*:
But he knew something about the world. He also cared about it.

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IV. A few grammar tips

f) Use of punctuation

Semicolon:

2. Separate items in lists that contain internal punctuation

i.e. clauses that can stand alone as complete sentences.

- Example: It happened
because people organized and voted for better prospects;
because leaders enacted smart, forward-looking policies;
because people's perspectives opened up, and with them, societies did too.

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IV. A few grammar tips

f) Use of punctuation

Parentheses:

- Insert an afterthought, an explanation, some additional details in a sentence that is grammatically complete without it.
- Give the reader permission to skip over the material.
- Example: They also have a specialized tail, kind of like a monkey's tail, that allows them to cling to a piece of grass (or a lucky diver's finger).

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IV. A few grammar tips

f) Use of punctuation

Colon:

- Use after an independent clause to introduce a list, a quote, an explanation, a conclusion, or an amplification.
- Examples:
 - The hydrogen bonds are made as follows: purine position 1 to pyrimidine position 1; purine position 6 to pyrimidine position 6
 - That's one reason why I'm so optimistic about the future: the constant churn of scientific progress.

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IV. A few grammar tips

f) Use of punctuation

Colon:

- Use after an independent clause to introduce a list, a quote, an explanation, a conclusion, or an amplification.
- Join two independent clauses if the second amplifies or extends the first.
- Examples:
 - Companies use Marsh for the same reason that home sellers use real-estate agents: the agent's knowledge and experience is supposed to help the client get the right deal at the right price.

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IV. A few grammar tips

f) Use of punctuation

Dash:

- Examples:
 - What makes SMCs dynamically distinct from geostrophic mesoscale currents — a more fundamental distinction than simply their smaller size — is a Rossby number, $Ro = V/f$, and Froude number, $Fr = V/Nh$, that are not asymptotically small.
 - To establish that the marrow cells — also called adult stem cells or endothelial precursor cells — can colonize the eye, Friedlander and his colleagues first transplanted stem cells from an adult mouse into the eyes of newborn mice.

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IV. A few grammar tips

f) Use of punctuation

Practice:

- Evidence-based medicine teaches clinicians the practical application of clinical epidemiology, as needed to address specific problems of specific patients. It guides clinicians on how to find the best evidence relevant to a specific problem, how to assess the quality of that evidence, and perhaps most difficult, how to decide if the evidence applies to a specific patient.
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IV. A few grammar tips

f) Use of punctuation

Practice:

- Finally, the lessons of clinical epidemiology are not meant to be limited to academic physician-epidemiologists, who sometimes have more interest in analyzing data than caring for patients. Clinical epidemiology holds the promise of providing clinicians with the tools necessary to improve the outcomes of their patients.
-

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IV. A few grammar tips

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- Finally, the lessons of clinical epidemiology are not meant to be limited to academic physician-epidemiologists, who sometimes have more interest in analyzing data than caring for patients. Clinical epidemiology holds the promise of providing clinicians with the tools necessary to improve the outcomes of their patients.
- Finally, clinical epidemiology is not limited to academic physician-epidemiologists — who are sometimes more interested in analyzing data than caring for patients — but provides clinicians with the tools to improve their patients' outcomes.

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IV. A few grammar tips

f) Use of punctuation

Practice:

- The spatial pattern of this first EOF mode mainly reflects the NAO, which provides a measure of the leading mode of atmospheric variability over the North Atlantic sector. It is signified by positive wind-stress curl south of Iceland and a negative wind stress curl in the subtropics close to the Azores. The positive wind-stress curl south of Iceland is usually referred to as the Icelandic low, and the the negative wind-stress curl in the subtropics is usually referred to as the Azores high.

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IV. A few grammar tips

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Practice:

- The spatial pattern of this first EOF mode mainly reflects the NAO, which provides a measure of the leading mode of atmospheric variability over the North Atlantic sector. It is signified by positive wind-stress curl south of Iceland and a negative wind stress curl in the subtropics close to the Azores. The positive wind-stress curl south of Iceland is usually referred to as the Icelandic low, and the negative wind-stress curl in the subtropics is usually referred to as the Azores high.
- The spatial pattern of this first EOF mode mainly reflects the NAO — the leading mode of atmospheric variability over the North Atlantic sector — that is signified by positive and negative wind-stress curl south of Iceland (i.e., the Icelandic low) and in the subtropics close to the Azores (i.e., the Azores high), respectively.

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IV. A few grammar tips

g) i.e. and e.g.

- i.e. ('that is'):
 - Introduce a word or phrase that restates what has been said previously.
 - Clarify the earlier statement.
- e.g. ('for example'):
 - Provide example(s) to illustrate and clarify a statement.
- Both can be easily placed within parentheses

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IV. A few grammar tips

h) Parallelism

Pairs of ideas that are joined by "and", "or" or "but" should be written in parallel form (i.e. follow the same grammatical structure)

- Good example (SVX **but** SVX):
 - The velocity decreased by 50 percent, **but** the pressure decreased by only 10%.
- Bad example:
 - The velocity decreased by 50 percent, **but** the decreased was only 10% for the pressure.

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IV. A few grammar tips

h) Parallelism

Pairs of ideas that are joined by "and", "or" or "but" should be written in parallel form (i.e. follow the same grammatical structure)

- Good example (infinitive phrase **and** infinitive phrase):
 - We aimed to increase the resolution **and** to improve picture quality.
- Bad example:
 - We aimed to increase the resolution **and** improving picture quality.

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IV. A few grammar tips

h) Parallelism

Lists of ideas should be written in parallel form

- Good example (parallel):
 - Locusts denuded fields in Utah, torrents washed away rural Iowa, and blazing heat shrivel Arizona's cotton.
- Bad example (unparalleled):
 - Locusts denuded fields in Utah, rural Iowa was washed away by torrents, and in Arizona the cotton was shrivelled by the placing heat

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IV. A few grammar tips

h) Parallelism

Lists of ideas should be written in parallel form

- Good example (parallel):

-

-

- Bad example (unparalleled):

- If you want to be a good doctor, you must study hard, critically think about the medical literature, and you should be a good listener.

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IV. A few grammar tips

h) Parallelism

Lists of ideas should be written in parallel form

- Good example (parallel):
 - If you want to be a good doctor, you must study hard, listen well and think critically about the medical literature.
 - If you want to be a good doctor, you must be a good student, a good listener and a critical thinker.
- Bad example (unparalleled):
 - If you want to be a good doctor, you must study hard, critically think about the medical literature, and you should be a good listener.

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IV. A few grammar tips

h) Parallelism

Lists of ideas should be written in parallel form

- Good example (parallel):
 - This research follows four distinct phases: (1) establishing measurement instruments; (2) measuring pattern measurement; (3) developing interventions; and (4) disseminating successful interventions to other settings and institutions.
- Bad example (unparalleled):
 - This research follows four distinct phases: (1) establishing measurement instruments; (2) pattern measurement; (3) developing interventions; and (4) the dissemination of successful interventions to other settings and institutions.