# Writing Scientific Abstracts

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# Why do I need an abstract?

Professional meetings, conferences, journal articles, theses

- Introduces the article/paper/poster
- Informs reader of the main contents
- Helps a reader decide if they want to know more

# Why should I know how to write an abstract?

- Helps you present your work in a clear, concise manner.

- Helps you condense information into a short format.

- Helps you read abstracts more effectively.

# Effective Abstracts

* Generally are one to two paragraphs, between 150-300 words (often restricted for a given publication)
* Adds no new information – just summarizes what is in the paper/poster.
* The abstract can be understood without reading the whole paper/poster.
* Intelligible to a wide audience.

# Effective Abstracts

- Uses an introduction-body-conclusion format.
- Generally discuss your work in this order:  purpose, research questions, methods, findings, conclusions, recommendations.

# Constructing your abstract

1.  Write 1-2 introduction sentences that explain topic, purpose, and research question(s).
2.  Write 1-2 sentences describing your research methods (this may also include the type of data analysis you used).
3.  Write 3-4 sentences describing the results /findings.
4.  Write 1-2 sentences containing your conclusions and recommendations.

# Effective abstracts

- Title – summarize the work, be catchy
- Introduction – should emphasize why the research question was important
- Background – can provide a hook that draws in the reader
- Methods – no detail here (save it for the paper)
- Findings – avoid hand-waving words (very, small, significant)
- Interpretation – What do the results mean?
- Conclusion – one sentence!

# Revising your abstract

- Read your abstract all the way through:

– add transition words to tie ideas together,

– eliminate unnecessary content and add in things that are missing,

– correct errors in mechanics, and

– proofread.

# Examples:AGU

## Microbial Community Analysis of the Costa Rica Margin from a Metagenomic Perspective

### Details

| | |
|---|---|
| **Meeting** | 2015 Fall Meeting |
| **Section** | Biogeosciences |
| **Session** | Uncultured Microorganisms and Their Geochemical Roles in Deep-Sea Environments I Posters |
| **Identifier** | B11I-0555 |
| **Authors** | Leon Zayas, R I*, University of Delaware, Newark, DE, United States<br>Martino, A J, |
| **Index Terms** | Biogeochemical cycles, processes, and modeling [0414]<br>Geomicrobiology [0448]<br>Life in extreme environments [0456]<br>Microbiology: ecology, physiology and genomics [0465] |

### Abstract

The taxonomic distribution and metabolic capabilities of microbial communities in the subseafloor are poorly understood. In this study we aimed to analyze the microbial community of samples obtained from the Costa Rica margin in two different sites, one where three samples were collected at 2 meters below the sea floor (mbsf), 33 mbsf and 93 mbsf, and another from 22 mbsf to 45 mbsf. Whole community analysis of conserved gene markers show that the microbial community varies with depth, in composition as well as in average genome size. Genome sizes do not increase with depth and metabolic strategies change with streamlined functions at depth. Specific metabolic processes are found to be performed by distinct members of the microbial community. Changes within the microbial populations related to depth, age and geochemistry are able to be investigated.

**Cite as:** Author(s) (2015), Title, Abstract B11I-0555 presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.

# Examples:GSA

**GSA Annual Meeting in Denver, Colorado, USA - 2016**

Paper No. 103-12
Presentation Time: 11:15 AM

## TRACKING HURRICANE HISTORY IN THE BAHAMAS—FROM JOAQUIN AND BEYOND

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On September 28, 2015, Hurricane Joaquin formed in the SW Atlantic, making landfall as a CAT 4 hurricane several days later, striking Acklins, Crooked Island, Long Island, Rum Cay and San Salvador Island, and causing at least $60million USD in damages. This event represented the third CAT 3 hurricane or higher striking the island of San Salvador in the past eleven years. San Salvador as well as Long Island experience a tropical cyclone every 2.23-2.47 years, with the average years between direct hits approximately 5 years. The historical records of hurricanes are significant, but longer-term records are needed to understand the true relationship between climate change and tropical cyclone formation.

We reconstructed the paleotempestological record of tropical cyclones in the Bahamas from coastal ponds on Eleuthera and San Salvador. Sediment cores from Shad Pond (Eleuthera), Salt Pond and Clear Pond (San Salvador), establish a >6,000 year record based on multi-proxy indicators of loss on ignition, grain size analysis and elemental concentrations of Ca, Br and Fe. Based upon these comparative records, we found a strong relationship between hurricanes and ENSO. Three major phases have been developed in the late Holocene beginning with a closing off of all three ponds at approximately 3700-3900 ybp. This was followed by a period of climatic variability. During the Medieval Climatic Optimum, storminess increased. In recent centuries, tropical cyclones have reached the levels of that time period.

As sea level increases at rates estimated between 20-80 cm in the next 50 years, and as global air and sea surface temperatures rise, it is anticipated that hurricane intensity and frequency will increase accordingly, especially in non-El Nino years. Further, with increased sea levels, coastal erosion also will likely increase, causing major property losses in the future.

Session No. 103

T126. Geological Effects of Extreme Storm Events on Small Tropical Island Nations
Monday, 26 September 2016: 8:00 AM-12:00 PM

Room 507 (Colorado Convention Center)

# Examples: Am. Journal of Botany

## The role of polyploidy in shaping morphological diversity in natural populations of *Phlox amabilis*

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## ABSTRACT

**PREMISE OF THE STUDY**: Studies of natural populations of polyploids increasingly highlight complex patterns of variation in ploidy and geographic distribution of cytotypes. As our understanding of the complexity of polyploidy grows, our understanding of the morphological correlates of polyploidy should expand as well. Here we examine in what ways, and to what degree, polyploidy affects the overall phenotype of a species across its distribution when there are three ploidies and geographic complexity in cytotype distribution.

**METHODS**: We measured 31 morphological traits from stems, leaves, and flowers from up to 25 individuals from 11 sites across the distribution of *Phlox amabilis*. Chromosome counts and flow cytometry confirmed and expanded upon earlier research documenting diploid, tetraploid, and hexaploid populations, and also identified a site with two ploidies. Univariate and multivariate statistics were used to characterize the morphological effects of polyploidy.

**KEY RESULTS**: We detected significant associations between morphology and ploidy in 11 traits spread across vegetative and reproductive structures. Generally, diploid individuals differed from polyploid individuals to a greater extent, and in different ways, than tetraploid and hexaploid plants differed from each other. Multivariate morphometrics demonstrated that the two primary axes of overall variation are driven by morphological traits associated with polyploidy, and individuals of different ploidies can be discriminated with 95% success.

**CONCLUSIONS**: Polyploidy plays a major role in shaping overall morphological diversity in natural populations of *P. amabilis*.

**Key words**:

cytotypic variation    multivariate morphometrics    phenotypic diversity    *Phlox*    plant morphology    Polemoniaceae    polyploidy

# Other resources

- American Psychological Association

http://blog.apastyle.org/apastyle/2011/03/making-a-concrete-abstract.html

- American Chemical Society Style Guide

http://www.oup.com/us/samplechapters/0841234620/?view=usa

- Modern Language Association

http://library.osu.edu/help/research-strategies/cite-references/mla