The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement n° [608069].

ISONOSE

ISOTOPIC TOOLS AS NOVEL SENSORS OF EARTH SURFACE RESOURCES

How to design a poster

Maja Tesmer – GFZ

July 2015

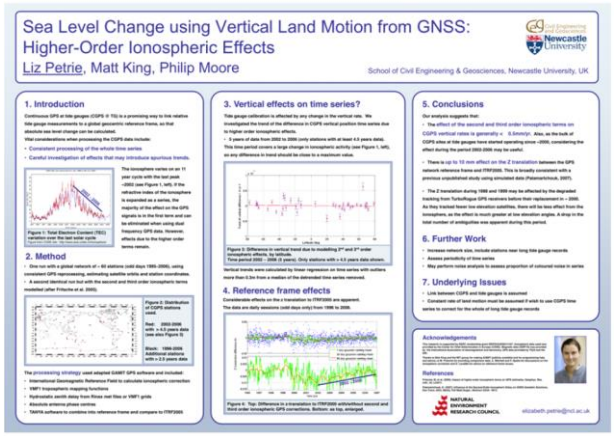
Why a poster?


European Geosciences Union
Blue Posters (Halls X|Y|XL)
Rooms B15, B16
B950

Motivation

- Presenting (communicating) own research
- Discussion within community to get a feedback
- Getting ideas for the future research
- Finding contacts
- Practicing the presentation of own results

⇒ **poster more effective than a talk** (recyclable, more interaction with people, reaching more people,...)


Sea Level Change using Vertical Land Motion from GNSS: Higher-Order Ionospheric Effects

Liz Petrie, Matt King, Philip Moore

School of Civil Engineering & Geosciences, Newcastle University, UK

1. Introduction

2. Method

3. Vertical effects on time series?

4. Reference frame effects

5. Conclusions

6. Further Work

7. Underlying Issues

Acknowledgements

References


Buisiness Cards


Mini Posters

It‘s your poster ……

- It’s your research story
- It’s your way of communication
- It‘s you, who will present the poster and **answer the questions**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Marie Küßner
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US


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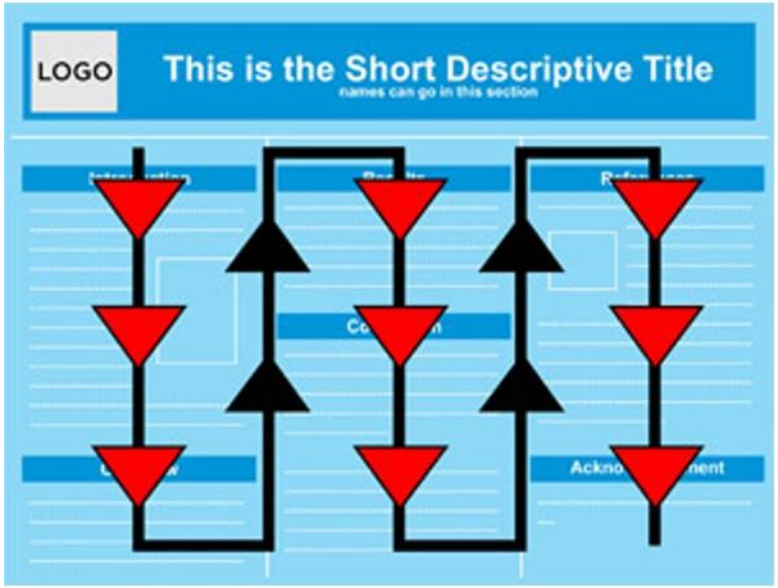
..... your eye catcher

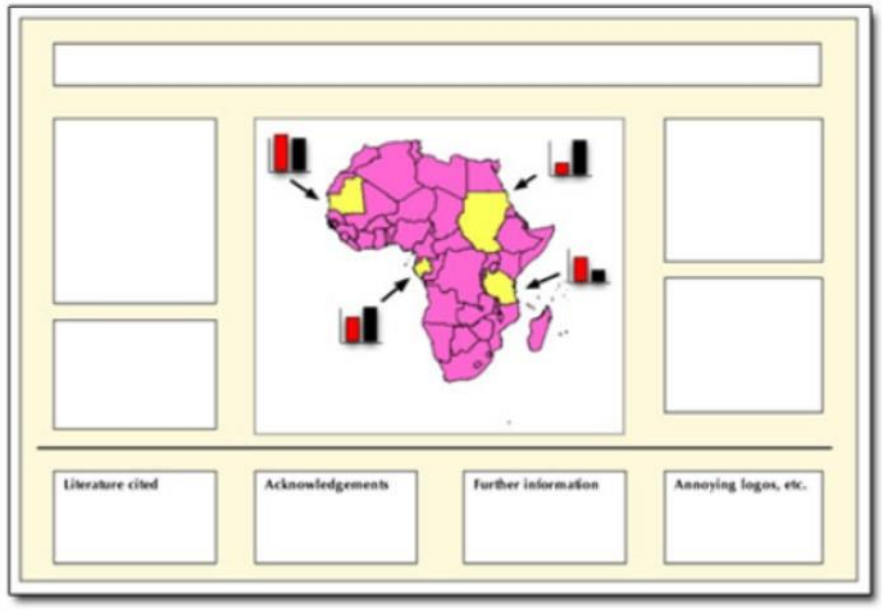
Use:

- Neighbouring colours
- 2 to 3 colours
- High contrast (e.g. light colour for the background with a dark coloured text)

A great poster:

- Tells a story.
- Can be read from more than 1.5 m away.
- Is interesting and **eye-catching.**
- Has a simple, uncluttered design.
- Uses clear language and images in a logical sequence
- Summarizes key points without excess detail (**take home message**)





Final Layout

Only start final poster layout after:

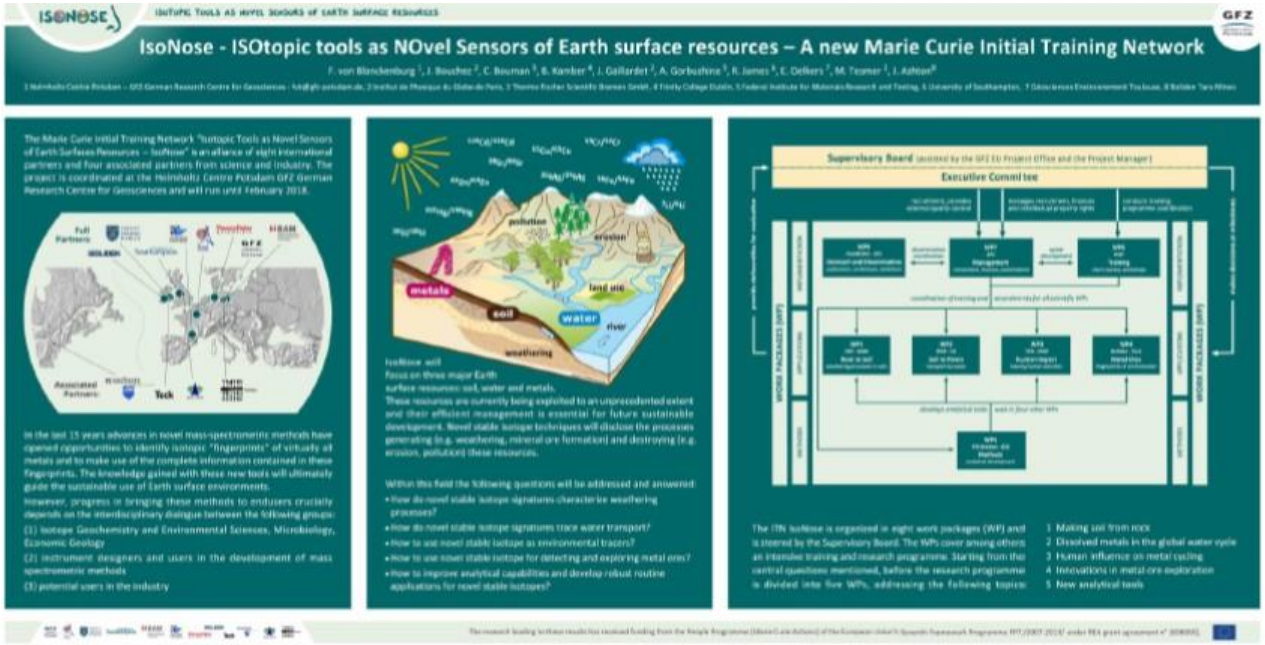
- you have your story,
- you have the graphs, tables etc. and
- **everyone** involved **agreed** on the poster content!

http://www.123rf.com/photo_23883543_time-concept-computer-keyboard-with-hourglass-icon-and-word-save-time-selected-focus-on-enter-button.html

Plan .....

- Start the process early.
- Define your audience.
- Define your **key message.**
- Write down a rough draft of the story you want to tell.

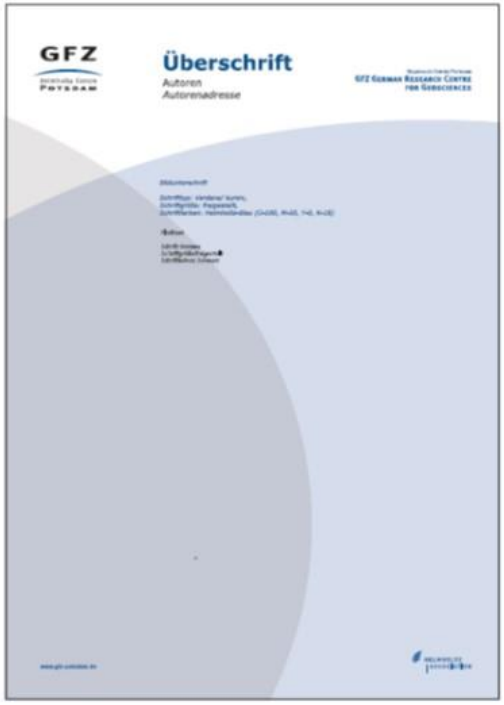
⇒ In case of a conference specify and **visualize your abstract!**



Plan, Plan…..

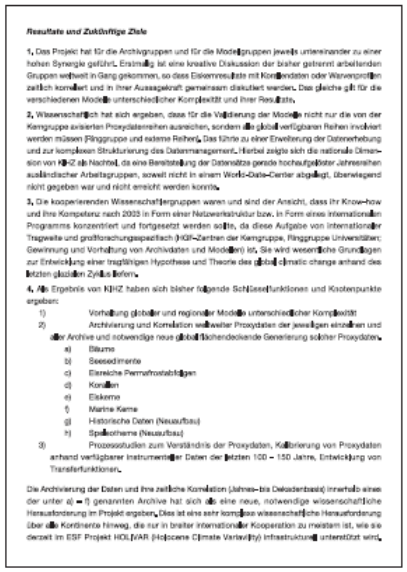
- Find out the exact size allotted for your poster (size, portrait, landscape).
- Do you have to use corporate design?
- Check paper size format of the printer.
- Make an appointment for printing.

⇒ Find someone to **proof read** the text including figure and table captions!!!



Plan, Plan, Plan

- What are the most important results of my work?
- Choose photos and graphs or tables that support and explain your text
- Sketch out your design and start laying out the poster components



Resultate und Zukünftige Ziele

1, Das Projekt hat für die Archivgruppen und für die Modellgruppen jeweils untereinander zu einer hohen Synergie geführt. Erstmalig ist eine kreative Diskussion der bisher getrennt arbeitenden Gruppen weltweit in Gang gekommen, so dass Eisbemessungsdaten mit Korallendaten oder Warvenprofilen zeitlich korreliert und in ihrer Aussagekraft gemeinsam diskutiert werden. Das gleiche gilt für die verschiedenen Modelle unterschiedlicher Komplexität und ihrer Resultate.

2, Wissenschaftlich hat sich ergeben, dass für die Validierung der Modelle nicht nur die von der Kerngruppe avisierten Proxydatenreihen ausreichen, sondern alle global verfügbaren Reihen involviert werden müssen (Ringgruppe und externe Reihen). Das führte zu einer Erweiterung der Datenerhebung und zur komplexen Strukturierung des Datenmanagements. Hierbei zeigte sich die nationale Dimension von KIHZ als Nachteil, da eine Bereitstellung der Datensätze gerade hochaufgelöster Jahreszeiten ausländischer Arbeitsgruppen, soweit nicht in einem World-Data-Center abgelegt, überwiegend nicht gegeben war und nicht erreicht werden konnte.

3, Die kooperierenden Wissenschaftergruppen waren und sind der Ansicht, dass ihr Know-how und ihre Kompetenz nach 2003 in Form einer Netzwerkstruktur bzw. in Form eines internationalen Programms konzentriert und fortgesetzt werden sollte, da diese Aufgabe von internationaler Tragweite und großforschungsspezifisch (HGF-Zentren der Kerngruppe, Ringgruppe Universitäten; Gewinnung und Vorhaltung von Archivdaten und Modellen) ist. Sie wird wesentliche Grundlagen zur Entwicklung einer tragfähigen Hypothese und Theorie des global climatic change anhand des letzten glazialen Zyklus liefern.

4, Als Ergebnis von KIHZ haben sich bisher folgende Schlüsselfunktionen und Knotenpunkte ergeben:

1) Vorhaltung globaler und regionaler Modelle unterschiedlicher Komplexität
2) Archivierung und Korrelation weiterer Proxydaten der jeweiligen einzelnen und aller Archive und notwendige neue global flächendeckende Generierung solcher Proxydaten.
   a) Biturne
   b) Seesedimente
   c) Eisreiche Permafrostabfolgen
   d) Korallen
   e) Eiskerne
   f) Marine Kerne
   g) Historische Daten (Neuaufbau)
   h) Speicherkerne (Neuaufbau)
3) Prozessstudien zum Verständnis der Proxydaten, Kalibrierung von Proxydaten anhand verfügbarer instrumenteller Daten der letzten 100 – 150 Jahre, Entwicklung von Transferfunktionen.

Die Archivierung der Daten und ihre zeitliche Korrelation (Jahres- bis Dekadenbasis) innerhalb eines der unter a) – f) genannten Archive hat sich als eine neue, notwendige wissenschaftliche Herausforderung im Projekt ergeben. Dies ist eine sehr komplexe wissenschaftliche Herausforderung über alle Kontinente hinweg, die nur in breiter internationaler Kooperation zu meistern ist, wie sie derzeit im ESF Projekt HOLIVAR (Holocene Climate Variability) Infrastruktur unterstützt wird.

Das Projekt hat für die Archivgruppen und für die Modellgruppen jeweils untereinander zu einer hohen Synergie geführt. Erstmalig ist eine kreative Diskussion der bisher getrennt arbeitenden Gruppen weltweit in Gang gekommen, so dass Eisbemessungsdaten mit Korallendaten oder Warvenprofilen zeitlich korreliert und in ihrer Aussagekraft gemeinsam diskutiert werden. Das gleiche gilt für die verschiedenen Modelle unterschiedlicher Komplexität und ihrer Resultate.

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⇒ **2 pages**: 12 pt. A4, 1,5 spacing = **800 words** (less is even better)

⇒ DIN A0 poster should be **legible as DIN A4 print**

⇒ Print first a A4

Poster components

- Title: Short, sharp, and compelling – 1 to 2 lines
- *(Abstract)* *only if asked*
- Introduction state clearly your aim
- *(Materials and Methods)* *only if needed*
- Results make them visible with graphics
- Graphics: usually 3 to 6, better than tables
- Headings: help guide individuals through your poster
- Conclusions **take home message**
- References: not to many **-** *it's not a paper*
- **Acknowledgments**

The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement n° [608069].

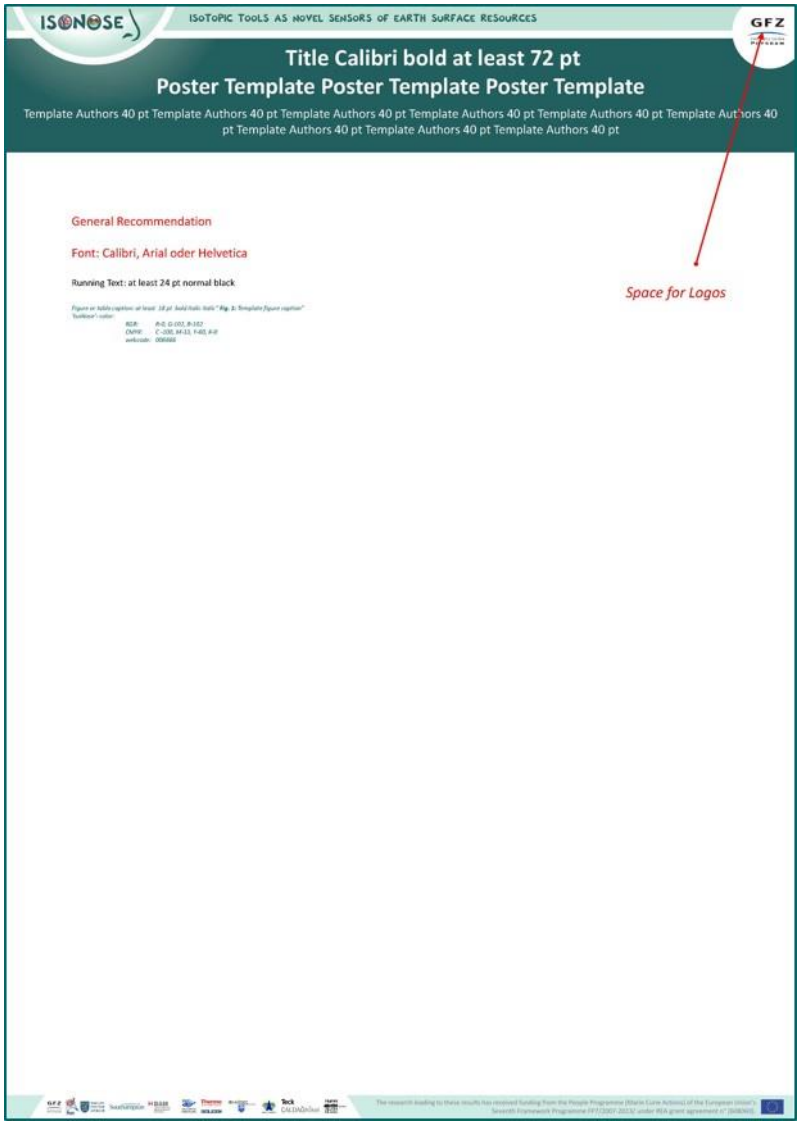
Judging Criteria for Poster Presentation

First Impression:	How difficult is it to read the poster?
	How are colour schemes used, are they easy on the eye?
	How crowded is the poster?
	Is there a good flow of information (logical, layout of information)?
	Does the poster stimulate interest and discussion?
Layout:	Is the poster visually jumbled?
	How easy is it to follow the sequence in the poster?
Readability:	Is font size or style easily readable?
	How much text does the poster contain?
	Are there many grammar or spelling mistakes?
Title:	How specific/adequate/long/short is the title?

Judging Criteria for Poster Presentation cnt.

Aims/ Objectives:	Are they clearly stated?
Methods:	How detailed, appropriate, original are the methods and is there enough explanation?
Results:	How clear and well labelled are graphs and figures? How complex are graphs? How well are the results presented?
Conclusions:	Are any conclusions presented and if so do they reflect the aims and are they supported by the data? Is there a memorable **"take-home" message**?
Scientific content:	Was the research put into broader context/ justification for research? Was there sufficient scientific explanation?

Corporate Design /General Layout



General recommendations:

- Font: Calibri, Arial, Helvetica
- Title: ≥ 72 pt, bold
- Headings: ≥ 40 pt, bold
- Authors: ≥ 40 pt
- Running text: ≥ 24 pt
- References: ≥ 18 pt
- Figure captions : ≥ **18 pt**; *bold-italic italic“*

⇒ ***Fig. 1:*** *Template figure caption”*

IsoNose will focus on three major Earth surface resources: soil, water and metal resources. Novel stable isotope techniques will disclose the processes generating (e.g. weathering, mineral ore formation) and destroying (e.g. erosion, pollution) these resources (***Fig. 1***)

Example 1

Title of the Research Study

PEOPLE WHO DID THE STUDY

UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH

Logo

Introduction

We hope you find this template useful! This one is set up to yield a 48x36" (4x3') horizontal poster.

We've put in the headings we usually see in these posters, you can copy and paste and change to your hearts content! We suggest you use keep black text against a light background so that it is easy to read. Background color can be changed in format-background-drop down menu.

The boxes around the text will automatically fit the text you type, and if you click on the text, you can use the little handles that appear to stretch or squeeze the text boxes to whatever size you want. If you need just a little more room for your type, go to format-line spacing and reduce it to 90 or even 85%.

The dotted lines through the center of the piece will not print, they are for alignment. You can move them around by clicking and holding them, and a little box will tell you where they are on the page. Use them to get your pictures or text boxes aligned together.

How to bring things in from Excel® and Word®

Excel- select the chart, hit edit-copy, and then edit-paste into PowerPoint®. The chart can then be stretched to fit as required. If you need to edit parts of the chart, it can be ungrouped. *Watch out* for scientific symbols used in imported charts, which PowerPoint will not recognize as a used font and may print improperly if we don't have the font installed on our system. It is best to use the Symbol font for scientific characters.

Word- select the text to be brought into PowerPoint, hit edit-copy, then edit-paste the text into a new or existing text block. This text is editable. You can change the size, color, etc. in format-text. We suggest you not put shadows on smaller text. Stick with Arial and Times New Roman fonts so your collaborators will have them.

Scans

We need images to be 72 to 100 dpi in their final size, or use a rule of thumb of 2 to 4 megabytes of uncompressed .tif file per square foot of image. For instance, a 3x5 photo that will be 6x10 in size on the final poster should be scanned at 200 dpi.

We prefer that you import tif or jpg images into PowerPoint. Generally, if you double click on an image to open it in Microsoft Photo Editor, and it tells you the image is too large, then it is too large for PowerPoint to handle too. We find that images 1200x1600 pixels or smaller work very well. Very large images may show on your screen but PowerPoint cannot print them.

Preview: To see your in poster in actual size, go to view-zoom-100%. Posters to be printed at 200% need to be viewed at 200%.

Feedback: If you have comments about how this template worked for you, email to sales@megaprint.com

Methods

Xxxx

Example 2

Sea Level Change using Vertical Land Motion from GNSS: Higher-Order Ionospheric Effects

Liz Petrie, Matt King, Philip Moore

School of Civil Engineering & Geosciences, Newcastle University, UK

1. Introduction

Continuous GPS at tide gauges (CGPS @ TG) is a promising way to link relative tide gauge measurements to a global geocentric reference frame, so that absolute sea level change can be calculated.

Vital considerations when processing the CGPS data include:

- Consistent processing of the whole time series
- Careful investigation of effects that may introduce spurious trends.

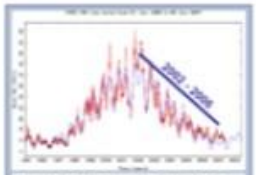


Figure 1: Total Electron Content (TEC) variation over the last solar cycle

The ionosphere varies on an 11 year cycle with the last peak ~2002 (see Figure 1, left). If the refractive index of the ionosphere is expanded as a series, the majority of the effect on the GPS signals is in the first term and can be eliminated when using dual frequency GPS data. However, effects due to the higher order terms remain.

2. Method

- One run with a global network of ~ 60 stations (odd days 1995–2006), using consistent GPS reprocessing, estimating satellite orbits and station coordinates.
- A second identical run but with the second and third order ionospheric terms modelled (after Fritsche et al. 2005).

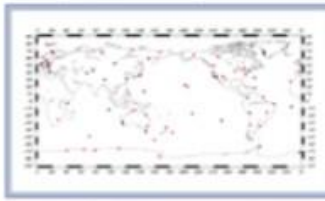


Figure 2: Distribution of CGPS stations used.

Red: 2002-2006 with > 4.5 years data (see also Figure 3)

Black: 1996-2006 Additional stations with > 2.5 years data

The processing strategy used adapted GAMIT GPS software and included:

- International Geomagnetic Reference Field to calculate ionospheric correction
- VMF1 tropospheric mapping functions
- Hydrostatic zenith delay from Rinex met files or VMF1 grids
- Absolute antenna phase centres
- TANYA software to combine into reference frame and compare to ITRF2005

3. Vertical effects on time series?

Tide gauge calibration is affected by any change in the vertical rate. We investigated the trend of the difference in CGPS vertical position time series due to higher order ionospheric effects.

- 5 years of data from 2002 to 2006 (only stations with at least 4.5 years data).

This time period covers a large change in ionospheric activity (see Figure 1, left), so any difference in trend should be close to a maximum value.

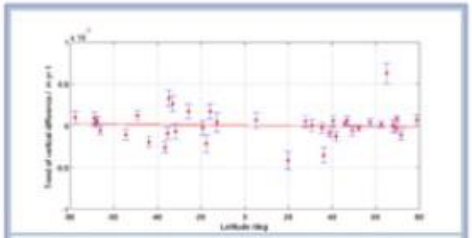


Figure 3: Difference in vertical trend due to modelling 2nd and 3rd order ionospheric effects, by latitude.
Time period 2002 – 2006 (5 years). Only stations with > 4.5 years data shown.

Vertical trends were calculated by linear regression on time series with outliers more than 0.3m from a median of the detrended time series removed.

4. Reference frame effects

Considerable effects on the z translation to ITRF2005 are apparent.

The data are daily sessions (odd days only) from 1996 to 2006.

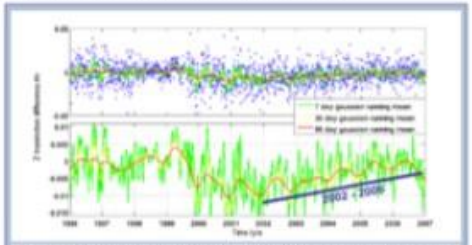


Figure 4: Top: Difference in z-translation to ITRF2005 with/without second and third order ionospheric GPS corrections. Bottom: as top, enlarged.

5. Conclusions

Our analysis suggests that:

- The effect of the second and third order ionospheric terms on CGPS vertical rates is generally < 0.5mm/yr. Also, as the bulk of CGPS sites at tide gauges have started operating since ~2000, considering the effect during the period 2002-2006 may be useful.
- There is up to 10 mm effect on the Z translation between the GPS network reference frame and ITRF2005. This is broadly consistent with a previous unpublished study using simulated data (Palamartchouk, 2007).
- The Z translation during 1998 and 1999 may be affected by the degraded tracking from TurboRogue GPS receivers before their replacement in ~ 2000. As they tracked fewer low elevation satellites, there will be less effect from the ionosphere, as the effect is much greater at low elevation angles. A drop in the total number of ambiguities was apparent during this period.

6. Further Work

- Increase network size, include stations near long tide gauge records
- Assess periodicity of time series
- May perform noise analysis to assess proportion of coloured noise in series

7. Underlying Issues

- Link between CGPS and tide gauges is assumed
- Constant rate of land motion must be assumed if wish to use CGPS time series to correct for the whole of long tide gauge records

Acknowledgements

References

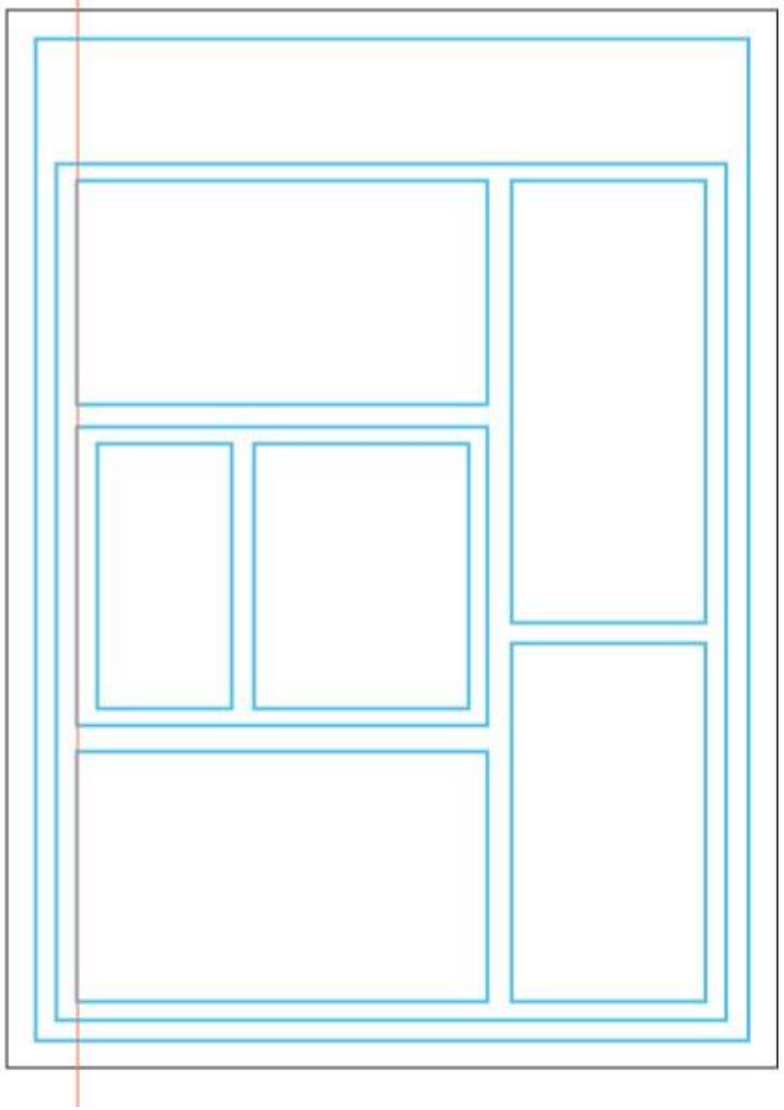
Fritsche, M. et al. (2005), Impact of higher-order ionospheric terms on GPS estimates, Geophys. Res. Lett., 32, L23311.

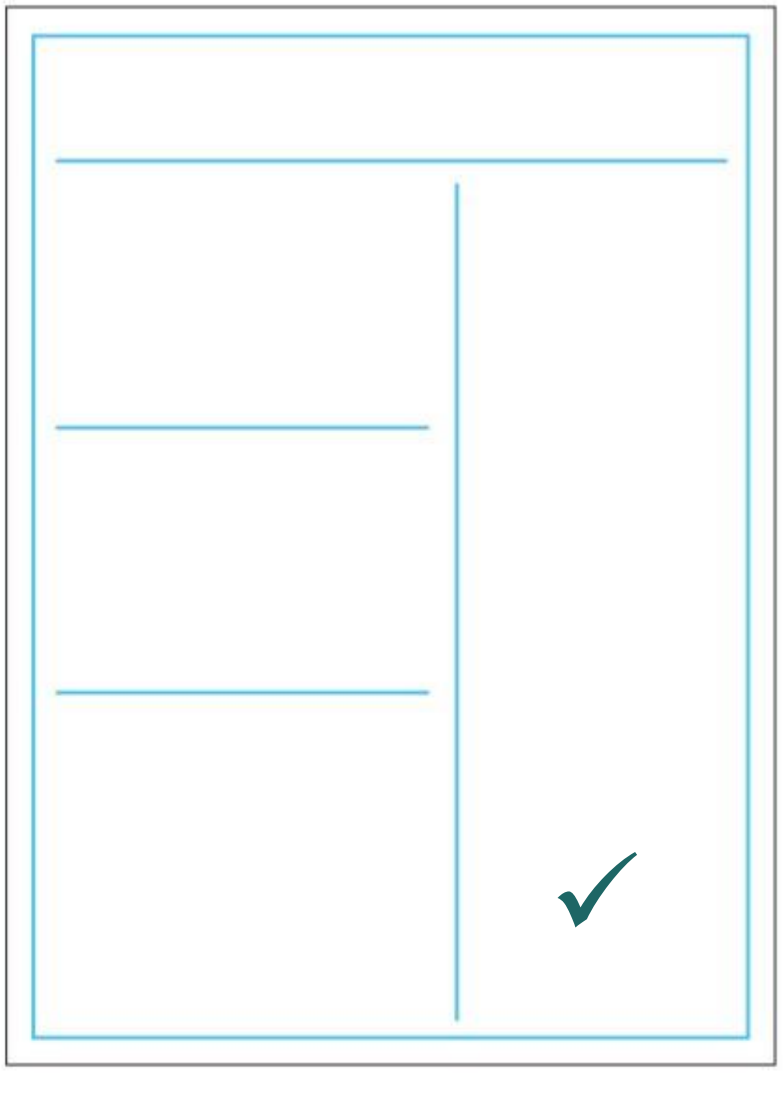
Palamartchouk, K. (2007), Influence of the Second-Order Ionospheric Delay on GNSS Geodetic Solutions, Proc Trans. AGU, 88(52), Fall Meet Suppl., Abstract G43A - 0812.

NATURAL ENVIRONMENT RESEARCH COUNCIL

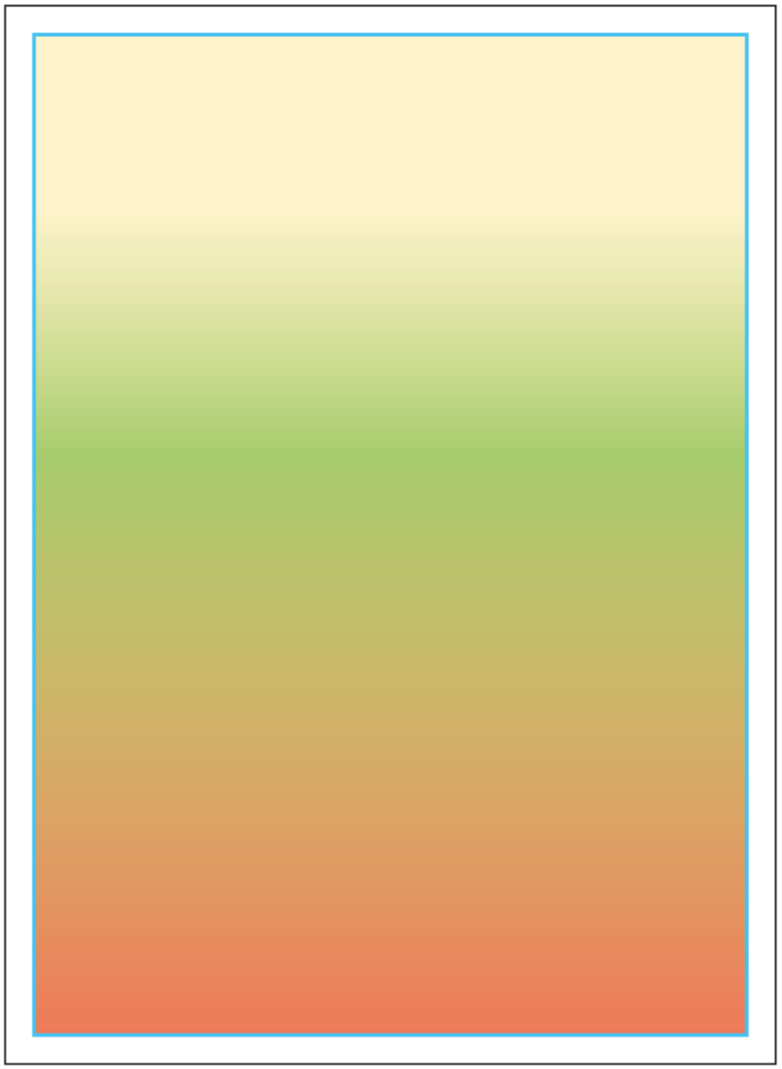
elizabeth.petrie@ncl.ac.uk

Frame





Background



Alignment and Sizing

National Oceanography Centre

ISONOSE
ISOTOPIC TOOLS AS NOVEL SENSORS OF EARTH SURFACE RESOURCES

University of Southampton

Behaviour of lithium isotopes during estuarine mixing of ice melt from the Greenland Ice Sheet and offshore waters

D.M. FRIES*[1], R.H. JAMES[1], M.J. HOPWOOD[2], D.P. CONNELLY[3], D.A.H. TEAGLE[1]

[1]Ocean and Earth Science, National Oceanography Centre, Southampton SO14 3ZH, UK. (*dmf1g14@soton.ac.uk)
[2]GEOMAR Helmholtz Centre for Ocean Research Kiel, 24148 Kiel, Germany
[3]Marine Geoscience, National Oceanography Centre, Southampton, SO14 3ZH, UK

Introduction

The analysis of the **lithium isotopic composition δ⁷Li** is a **powerful proxy of weathering processes** (Figure 1). The lithium isotopes (^{6}Li and ^{7}Li) are only **fractionated** during **the formation of secondary mineral phases**, and are not affected by catchment lithology.

However in **glacial estuarine environments**, where glacial meltwater and continental sediments are mixed with sea water, changes in the dynamics, physical and chemical properties of certain elements can **modify the "fingerprint" of lithium isotopes delivered to the ocean**.

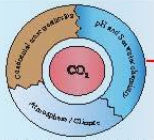


Figure 1 : Linkages between continental weathering, seawater chemistry, climate and CO_2

Field description

All the water samples (Figure 2) were taken from **Godthåbsfjord (64° N, 51° W)** in 2014 along a section from the inner parts of the fjord, close to the Greenland Ice Sheet, to the offshore parts in both summer and winter (seasonal analyses).

Figure 3 : Iceberg floating in the middle part of the fjord

Godthåbsfjord covers is formed of predominantly Archaen rocks[1]. The fjord is strongly influenced by recent pronounced increases in temperature over the Arctic, in fact the runoff in the Nuuk region has doubled over the past two decades[2].

Figure 2 : Sampling stations in Godthåbsfjord, West Greenland. I/E = Ice Edge

Results

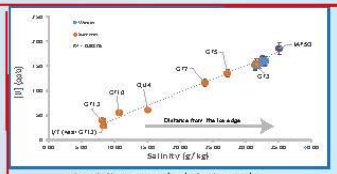


Figure 4 : Concentration of Li versus salinity

In the surface layer (0-10m), dissolved Li concentrations in estuarine waters are directly related to the **input of fresh water**. The **[Li] shows a conservative behaviour** with the salinity.

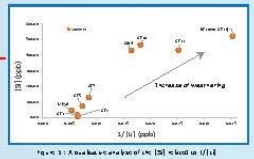


Figure 5 : A qualitative analysis of the [Si] related to 1/[Li]

An **increase [Si]** is indicative of **basal weathering processes beneath marine terminating glaciers that enter the fjord**.

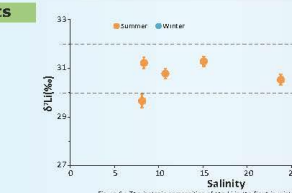


Figure 6 : The isotopic composition of the Li in the fjord in winter and summer. Errors bars are 2σ, and have been propagated from the errors on the ICP-MS analyses

The Li isotopic compositions of the estuarine waters **do not change with the seasons.** The δ⁷Li of the fjord, **from 29.53‰ to 31.47‰**, is also similar to the global isotopic signature of the oceans.

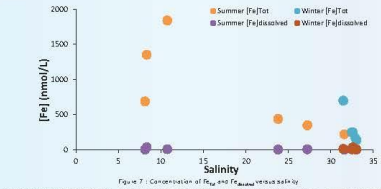


Figure 7 : Concentration of Fe_{Tot} and $Fe_{dissolved}$ versus salinity

The relatively high $[Fe]_{tot}$ at low salinity suggests that formation of **Fe-oxyhydroxides** occurs and **cause isotopic fractionation*** at the early stage of the mixing.

The **Li/Na ratio** can be used as a **proxy of the amount of Li remaining in the dissolved phases***. **This ratio appears to be low** in all the system assuming then that **the quasi totality of the Li is adsorbed or included in secondary mineral phases.** According to the relatively important [Fe], the phases should be **Fe-oxyhydroxides** where the Li isotopes are associated and can cause potential fractionation*.

Conclusions

The **isotopic signature is this fjord system is not influenced by** the **temperature** and the **melting** of the ice edge, despite the relative important **modifications of the Li concentrations** and others elements from the offshore water to the inland fjord. **The signal of the Li isotopes** delivered by the fresh water **is affected by the concentration of the secondary mineral phases** suggesting that at **the early conditions of the mixing** between salty and fresh waters **most of the light isotopes are adsorbed or included in these phases.**

- Li content of glacial meltwaters is low (at zero salinity [Li]= 148 nmol/kg) and [Li] in estuary is dominated by seawater.
- Mass balance calculations show that glacial input appears to have little effect on the isotopic composition of the fjord due to the low [Li].
- High δ⁷Li, close to the ice edge, suggest that fractionation occurs during uptake of Li onto Fe-oxyhydroxides that form as the meltwater enters the estuary.
- Li and δ⁷Li show conservative behaviour over the salinity range of our samples (8.14-33.03).

References/ Acknowledgement

[1] T. Negrel et al. Nature 485, 627-630 (2012) doi:10.1038/nature11140
[2] Van As, D., et al., Increasing meltwater discharge from the Nuuk region of the Greenland ice sheet and implications for mass balance (1960-2012). Journal of Glaciology, 2014, 60(220): p. 314-322.
[3] James, R.H. and M.R. Palmer, The lithium isotope composition of international rock standards. Chemical Geology, 2000. 166(1-4): p. 319-326.
[4] Liu, X.-M., et al., Processes controlling δ7Li in rivers illuminated by study of streams and groundwaters draining basalts. Earth and Planetary Science Letters, 2015. 409(0): p. 212-224.
[5] Wimpenny, J., et al., Glacial effects on weathering processes: New insights from the elemental and lithium isotopic composition of West Greenland rivers. Earth and Planetary Science Letters, 2010. 290(3-4): p. 427-437.

The May 2014 cruise onboard RV Sanna was conducted as part of the climate monitoring program "MarineBasis-Nuuk", a component of the Greenland Ecosystem Monitoring Programme. The crew of RV Sanna and staff at the Greenland Institute of Natural Resources are thanked for assistance with boat work.

The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement n° [608069].

References & Acknowledgements

[1] Murphy, M.J., et al., Li isotope behaviour in the low salinity zone during estuarine mixing. Geochemistry of the Earth's Surface Gas-10, 2014. 10: p. 204-207.
[2] T. Negrel et al. Nature 485, 627-630 (2012) doi:10.1038/nature11140
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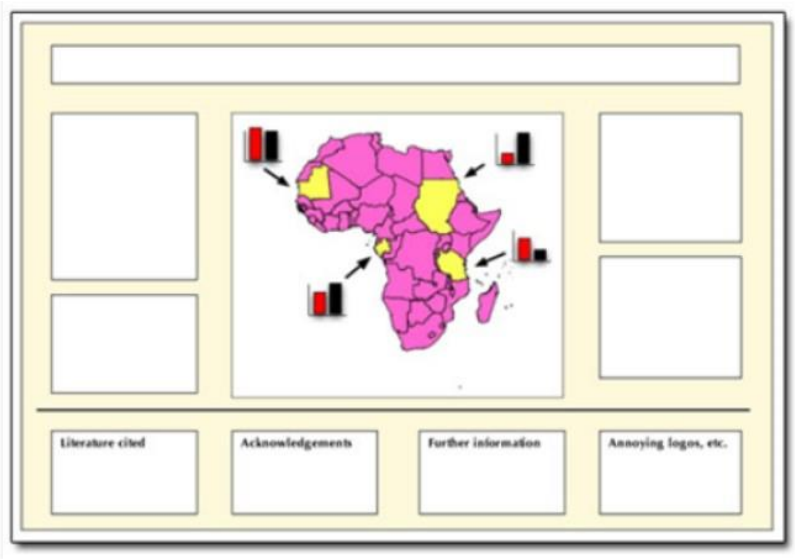
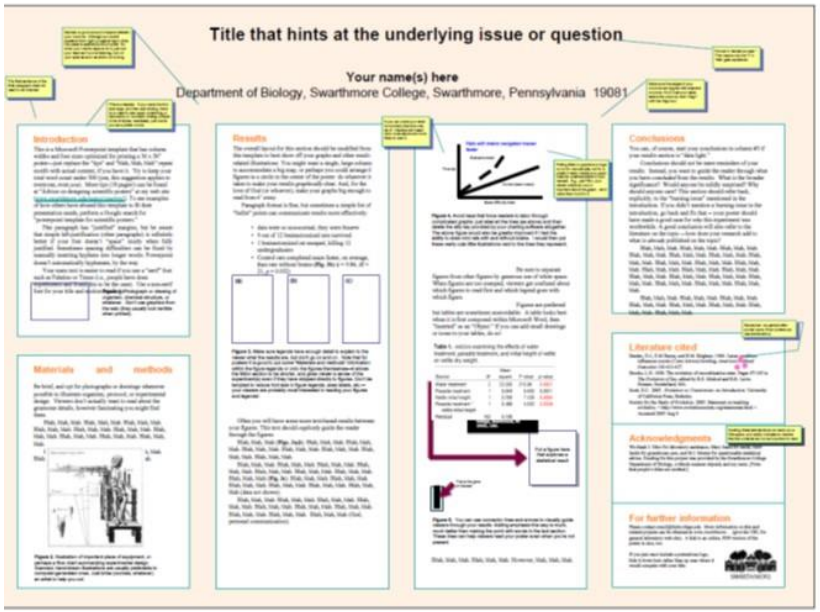
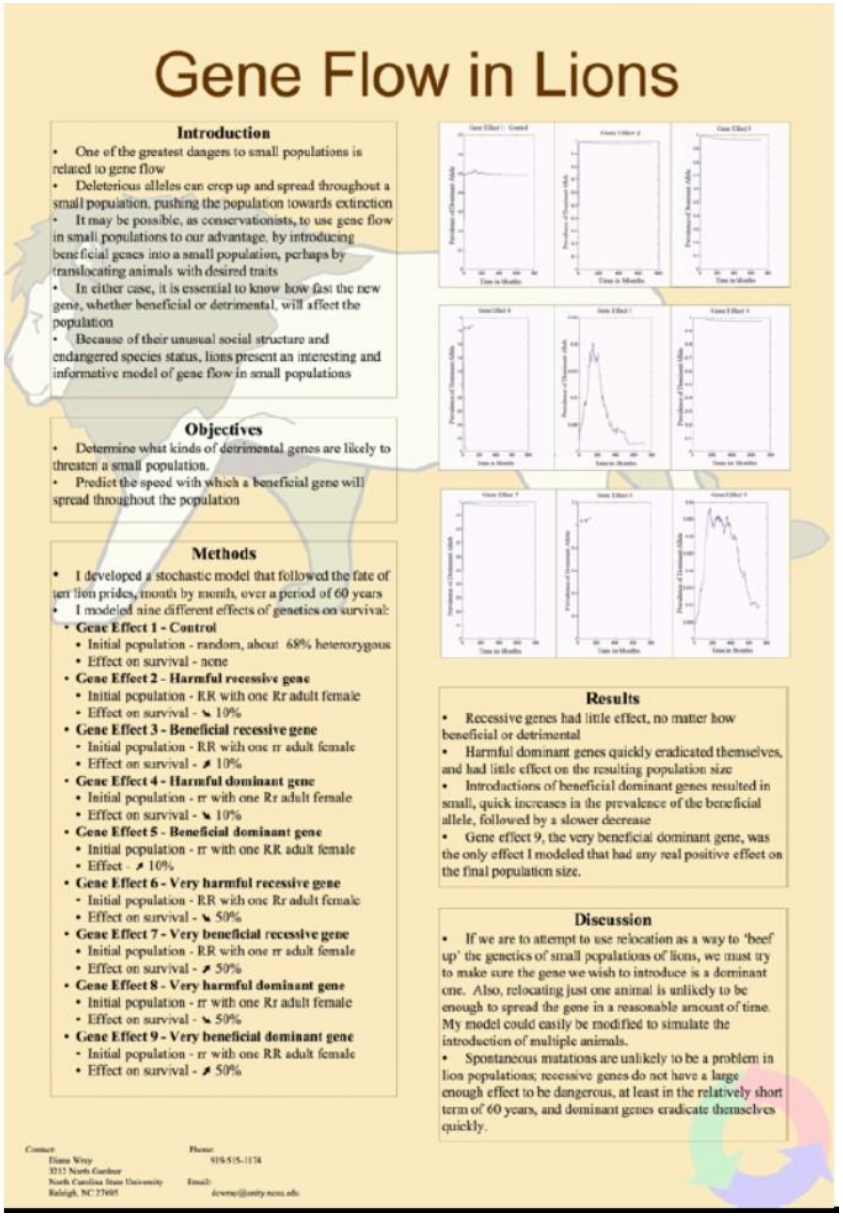
Example 3


Literature cited
Acknowledgements
Further information
Annoying logos, etc.


Title that hints at the underlying issue or question
Your name(s) here
Department of Biology, Swarthmore College, Swarthmore, Pennsylvania 19081
Introduction
Results
Conclusions
Materials and methods
Literature cited
Acknowledgements
For further information


Gene Flow in Lions
Introduction
One of the greatest dangers to small populations is related to gene flow
Deleterious alleles can crop up and spread throughout a small population, pushing the population towards extinction
It may be possible, as conservationists, to use gene flow in small populations to our advantage, by introducing beneficial genes into a small population, perhaps by translocating animals with desired traits
In either case, it is essential to know how fast the new gene, whether beneficial or detrimental, will affect the population
Because of their unusual social structure and endangered species status, lions present an interesting and informative model of gene flow in small populations
Objectives
Determine what kinds of detrimental genes are likely to threaten a small population.
Predict the speed with which a beneficial gene will spread throughout the population
Methods
I developed a stochastic model that followed the fate of ten lion prides, month by month, over a period of 60 years
I modeled nine different effects of genetics on survival:
Gene Effect 1 - Control
Initial population - random, about 68% heterozygous
Effect on survival - none
Gene Effect 2 - Harmful recessive gene
Initial population - RR with one Rr adult female
Effect on survival - ↘ 10%
Gene Effect 3 - Beneficial recessive gene
Initial population - RR with one rr adult female
Effect on survival - ↗ 10%
Gene Effect 4 - Harmful dominant gene
Initial population - rr with one Rr adult female
Effect on survival - ↘ 10%
Gene Effect 5 - Beneficial dominant gene
Initial population - rr with one RR adult female
Effect - ↗ 10%
Gene Effect 6 - Very harmful recessive gene
Initial population - RR with one Rr adult female
Effect on survival - ↘ 50%
Gene Effect 7 - Very beneficial recessive gene
Initial population - RR with one rr adult female
Effect on survival - ↗ 50%
Gene Effect 8 - Very harmful dominant gene
Initial population - rr with one Rr adult female
Effect on survival - ↘ 50%
Gene Effect 9 - Very beneficial dominant gene
Initial population - rr with one RR adult female
Effect on survival - ↗ 50%
Results
Recessive genes had little effect, no matter how beneficial or detrimental
Harmful dominant genes quickly eradicated themselves, and had little effect on the resulting population size
Introductions of beneficial dominant genes resulted in small, quick increases in the prevalence of the beneficial allele, followed by a slower decrease
Gene effect 9, the very beneficial dominant gene, was the only effect I modeled that had any real positive effect on the final population size.
Discussion
If we are to attempt to use relocation as a way to 'beef up' the genetics of small populations of lions, we must try to make sure the gene we wish to introduce is a dominant one. Also, relocating just one animal is unlikely to be enough to spread the gene in a reasonable amount of time. My model could easily be modified to simulate the introduction of multiple animals.
Spontaneous mutations are unlikely to be a problem in lion populations; recessive genes do not have a large enough effect to be dangerous, at least in the relatively short term of 60 years, and dominant genes eradicate themselves quickly.
Contact:
Diana Wray
3213 North Gardner
North Carolina State University
Raleigh, NC 27695
Phone:
919-515-1174
Email:
dcwray@unity.ncsu.edu

Fonts

Serif

Texture-residual strain relation within
(crossing the Gotthard-Basal T
Poster 1: Experiments on Zucke

GFZ

by Alexander Frischbutter[1], Kurt Walther[2,3],

Background

Nearby its southern gate the new Gotthard Basis Tunnel (57 km) crosses the Piora Mulde (Figs. 1, 2), which is an imbricate folded tectonic structure nearby the thrust between Gotthard Massif and Lucomagno nappe. A specific material there is Zuckerdolomit, – a rock already for a long time discussed because of its specific geomechanical properties: From the rock is known sudden loss of grain cohesion, which may be followed by streams of mud burying miners as well as their machinery.
The Piora-Mulde (100 km E-W trending) have to be drilled through by the Gotthard Basis Tunnel.
Rocks are mainly dolomite, anhydrite, rauhwacke, gypsum, slaty metasediments, in places Zuckerdolomit (Fig. 3).

Aim of experiments

Generally, in literature the geomecha is explained as a result of the hydr of our experiments was to test the i texture, the elastic constants and the rock components.

The sample

Material was available to produce a specimen for only one expe- riment (cylin-der (60 long, 30 diameter). The sample was composed of dolomite (55 %) and anhydrite (35 %), containing no gypsum (Figs. 3 and 8, down left).

Fig. 1: Geology nearby the Gotthard Basal Tunnel region. Zuckerdolomit is lenshke, imbricate folded within the sediment formations of the Piora Mulde (Lo & Wyss, 1999).

Fig. 2: View (from north) onto the thrust belt between Pen-ninicum and Helvetikum: The district of the Piora Mulde is characterised by carst forma-tion (especially within the sediment formations). Mi-krokalzit is seen within the background of the image.

Fig. 3a: Thin section of Zuckerdolomit.

Fig. 3a-c: Microstructures of the studied sample.

Sans Serif

Texture-residual strain relation within cc
(crossing the Gotthard-Basal Tur
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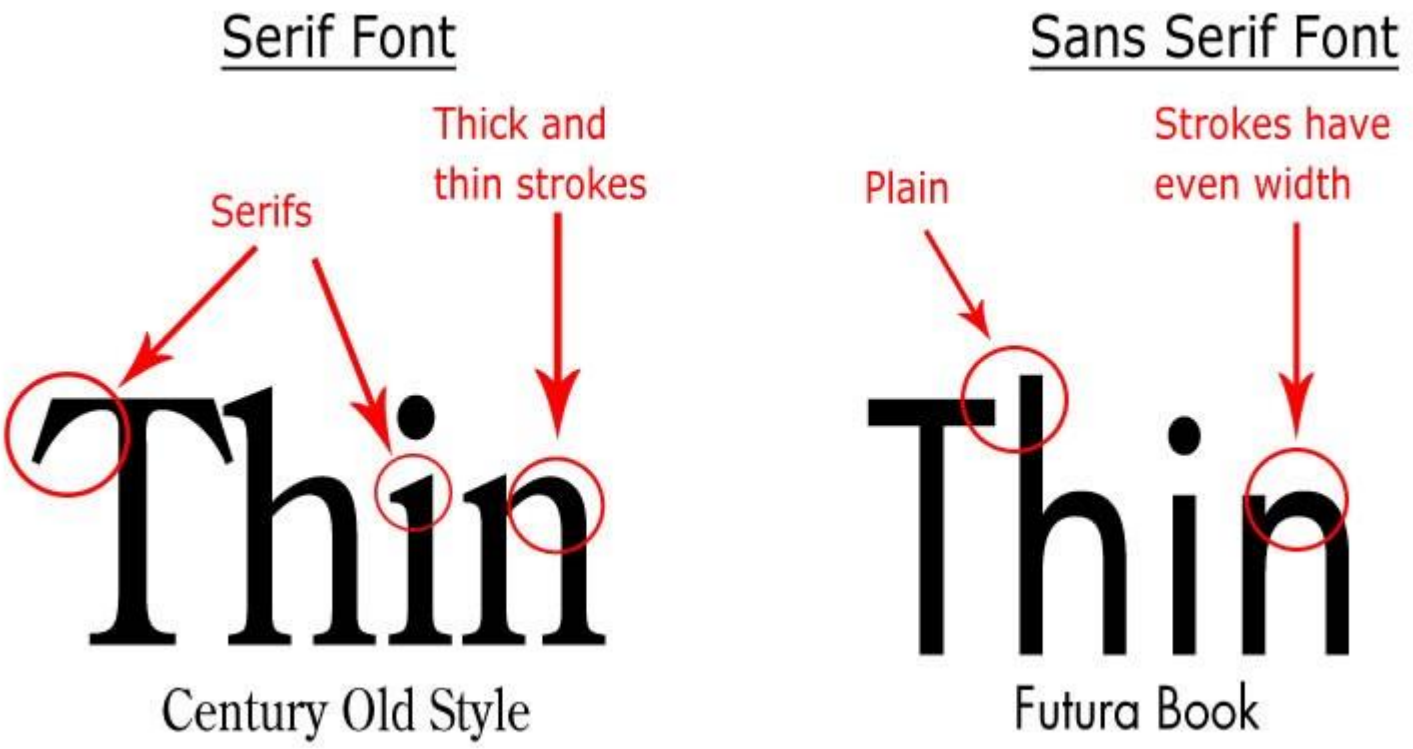
Difference between fonts



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⇒ Sant-Serif fonts easier to read

Line length

Regionalgeologisch liegt der Aral See in einer aktiven Grabenstruktur, die über den Turgai-Korridor den See mit Süd-Sibirien verbindet. Seit dem späten Pliozän wurden Störungen im Bereich des Aral Sees reaktiviert. Ein N-S verlaufender Horst beginnt in Muynak und trennt den See über die Insel Vozrojdenia in zwei Teile [LETOLLE, MAINGUET, 1997].
Rezente geologische Prozesse sind geprägt durch den Sedimenttransport der Flüsse.
Das Flussdelta des Amu Darya ist bedeckt von alluvialen Sanden, Lehmen und Tonen, sodass gespannte oder halbgespannte Grundwasserverhältnisse vorliegen. Die oberen Grundwasserschichten sind hydraulisch mit dem Fluss verbunden und werden oft durch das Flusswasser, Bewässerungskanäle oder bewässerte Felder gespeist. Oberflächennahe Grundwasserleiter sind infolge des Grundwasseranstiegs durch Bewässerung oft versalzen (Wasserstände: 1980: 15-20 m unter Geländeoberkante, 2000: 1 m unter Geländeoberkante). Die artesischen Wässer steigen aus tiefen kreidezeitlichen Schichten auf [RAKHMATULLAEV et al., 2009].
Die Absenkung des Seewasserspiegels im Aral See hat eine prinzipielle Erhöhung des Grundwasserabfluss aus alluvialen Flussablagerungen im Unterlauf des Amu Darya und aus trocken gefallenen Seesedimenten des östlichen und westlichen Seebeckens zur Folge.

At most: 40 cm

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Typography

Aligned text (left)

Following [z] of the drilled cylinder a scan of residual strain was recorded (*Figs. 3, 5, 6*) at seven positions, three lattice spacing and due to the collimator block directions L2, L5 and L8 of EPSILON-MDS.
Residual strain of detectable lattices spacing may be calculate from the quartz TOF-diagram due to their scan position (here we show only three quartz spacing) and three collimator block directions. If the folded foliation is shown as single great circles (*Fig. 8*), the points of intersection with the axes [x], [y], [z] and L2, L5, L8 – directions can be used to characterize the residual strain distribution within the fold. It is to recognize that residual strain (negative) is maximal around the fold axis (β-pole) and the field of such data is stretched with decreasing intensity along the fold crest, respectively. Moreover, these results may be combined with texture data.

Fig. 2: View (from north) onto the thrust belt between Penninikum and Helvetikum: The district of the Piora Mulde is characterised by carst formation (especially within the sediment formations). Altkristallin is seen within the background of the image.

Fully aligned text

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Line spacing

100 %

Variations in the influx of alkalibasaltic debris are more sensitively documented by the Nd and Sr isotope record of the SHL sediments. We consider independent evidence for the low concentration of alkalibasaltic debris in the SHL-sediments (c. 5 %), a silt/clay ratio of 1, and own analytical data for $^{87}Sr/^{86}Sr$ in the clay fraction of loess to estimate hypothetical end member compositions for dust-silt and dust-clay in the SHL sedimentation record.

120 %

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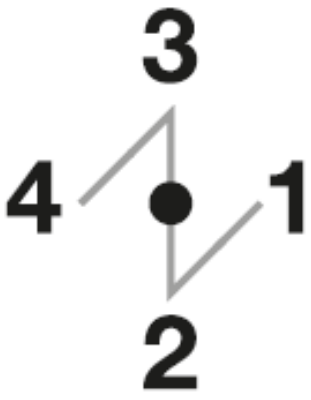
Labelling 1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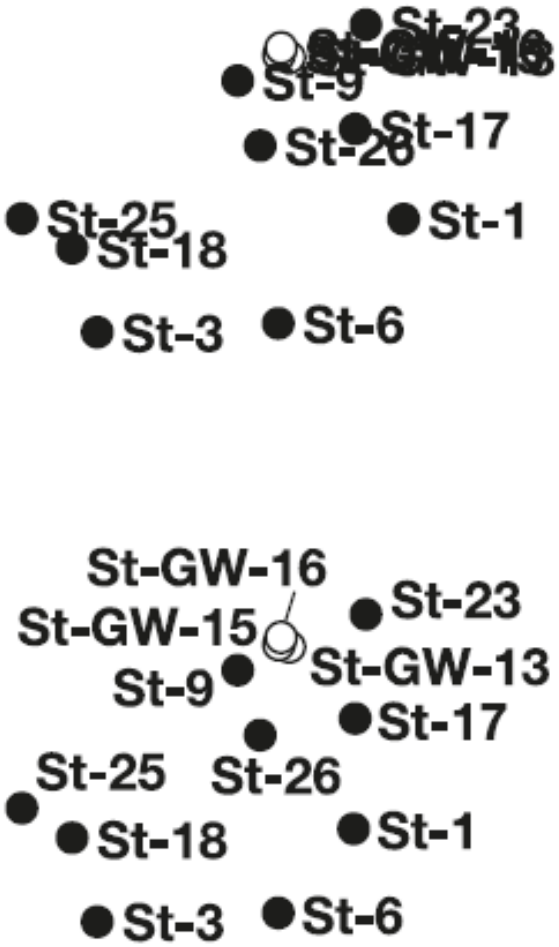
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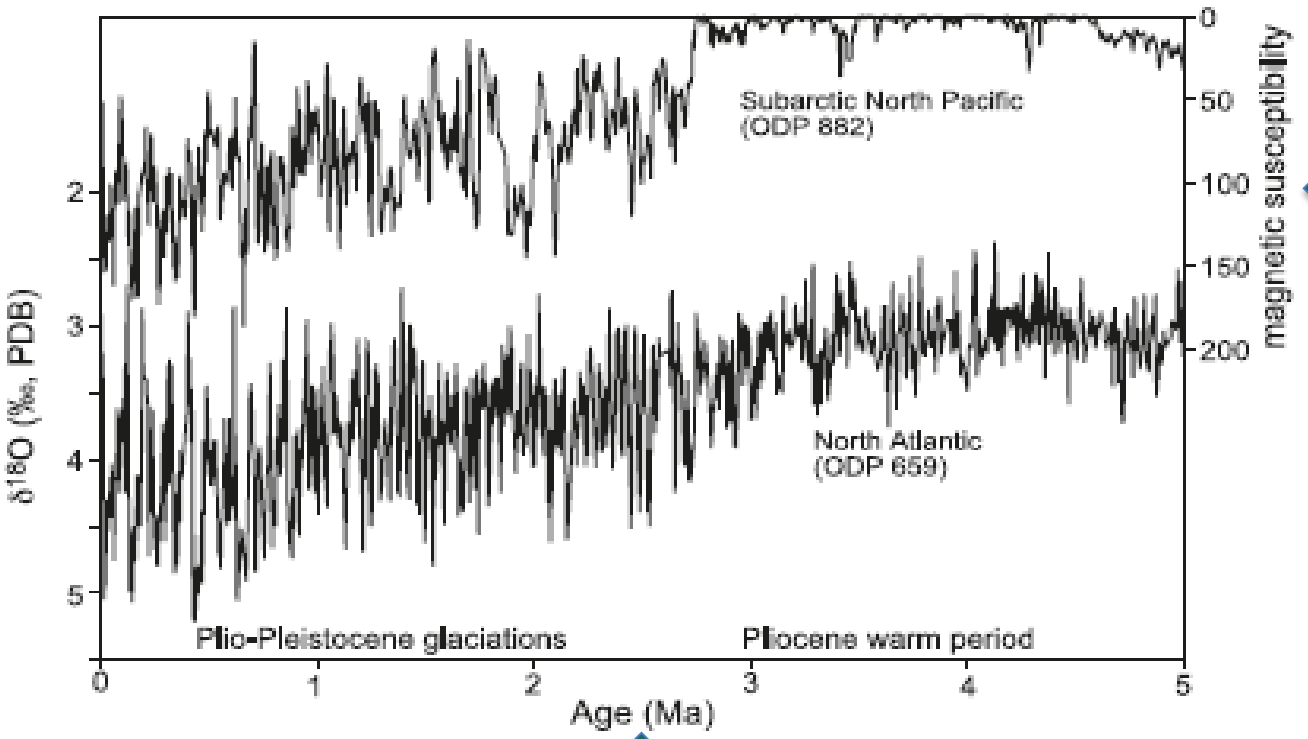
Labelling 2



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Scale / North Arrow

Numerical scale

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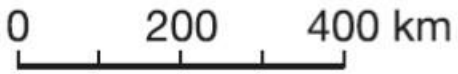
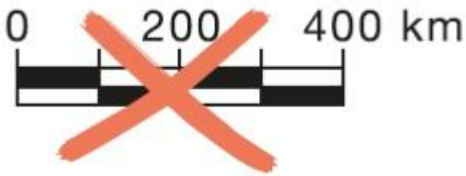
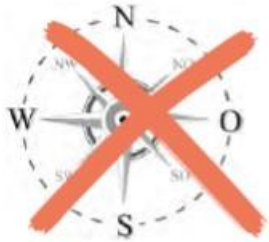
Graphical scale







Software

Use

- Align & distribution tool
- Rulers, guidelines
- Group items to keep an overview

Poster Presentation

Presentation

- Use your poster as visual aid
- Use the graphic elements to explain your work
- Plan and practice a three-minute presentation
  - ⇒ Introduction: 0.5 min.
  - ⇒ Main points: 2 min
  - ⇒ Closing: 0.5 min

Questions

- Anticipate many of the questions individuals will have
- Prepare and practice answers
- Interact with the visitors

Web links (17. July 2015)

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2. **Designing conference posters (Purrington, C.B) :** http://colinpurrington.com/tips/poster-design

3. **Developing an Effective Poster Presentation (San Francisco Edit):** http://www.sfedit.net/poster.pdf

4. **Colrade State University:** http://www.ext.colostate.edu/staffres/poster.pdf

5. **Ten Simple Rules for a Good Poster Presentation:** http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.0030102

   ⇒ **Read rule 10:** The impact of a poster happens both during and after the poster session

Thank you for your attention!

Content Presentation:
Manuela Dziggel
Andreas Hendrich
Maja Tesmer

Layout Presentation :
Manuela Dziggel
Maja Tesmer