An example SEG expanded abstract

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SUMMARY

This is an example of using segabs.cls for writing SEG expanded abstracts.

INTRODUCTION

This is an introduction. LaTeX is a powerful document typesetting system (Lamport, 1994). An excellent reference is (Kopka and Daly, 2004). The new segabs.cls class complies with the LaTeX2e standard.

THEORY

This is another section.

Equations

Section headings should be capitalized. Subsection headings should only have the first letter of the first word capitalized.

Here are examples of equations involving vectors and tensors:

$$\mathbf{R} = \begin{pmatrix} R_{XX} & R_{YX} \\ R_{XY} & R_{YY} \end{pmatrix} = \mathbf{P}_{M \to R} \, \mathbf{D} \, \mathbf{P}_{S \to M} \;\; \mathbf{S} \;\; , \qquad (1)$$

and

$$R_{j,m}(\omega) = \sum_{n=1}^{N} P_j^{(n)}(\mathbf{x}_R) \, D^{(n)}(\omega) \, P_m^{(n)}(\mathbf{x}_S) \;\; . \qquad (2)$$

Note that the macros for the \tensor command has been changed to force tensors to be bold uppercase, in compliance with current SEG submission standards. This is so that documents typeset to the old standards will print out according to the new ones: e.g., tensor $\mathbf{T}$ (note converted to uppercase).

Figures

Figure 1 shows what it is about.

Multiplot

Sometimes it is convenient to put two or more figures from different files in an array (see Figure 2). Individual plots are Figures 2a and 2b.

The first argument of the multiplot command specifies the number of plots per row.

Tables

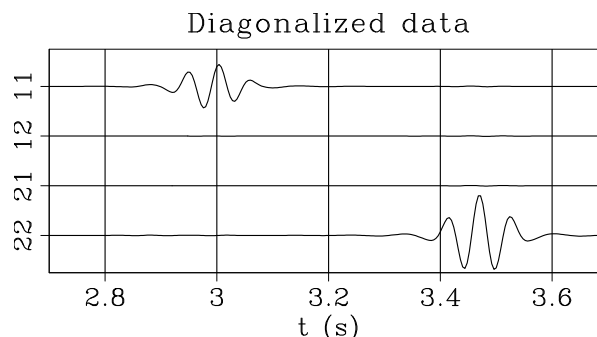The discussion is summarized in Table 1.

Figure 1: This figure is specified in the document by `\plot{waves}{width=\columnwidth}{This caption.}`.
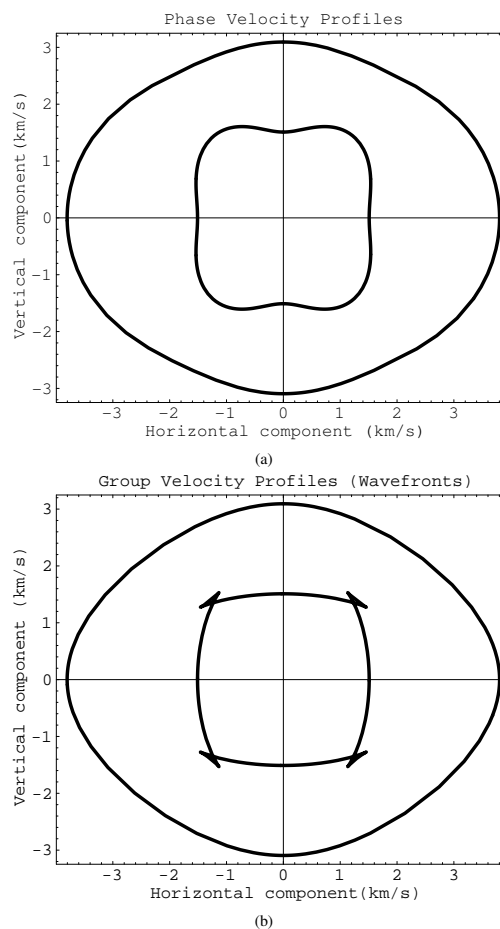

Figure 2: This figure is specified in the document by `\multiplot{2}{exph,exgr}{width=0.4\textwidth}{This caption.}`.

Table Example		
migration	$\omega \rightarrow k_z$	$k_y^2 + k - z^2 \cos^2 \psi = 4\omega^2/v^2$
zero-offset diffraction	$k_z \rightarrow \omega_0$	$k_y^2 + k_z^2 = 4\omega_0^2/v^2$
DMO+NMO	$\omega \rightarrow \omega_0$	$\frac{1}{4}v^2 k_y^2 \sin^2 \psi + \omega_0^2 \cos^2 \psi = \omega^2$
radial DMO	$\omega \rightarrow \omega_s$	$\frac{1}{4}v^2 k_y^2 \sin^2 \psi + \omega_s^2 = \omega^2$
radial NMO	$\omega_s \rightarrow \omega_0$	$\omega_0 \cos \psi = \omega_s$

Table 1: This table is specified in the document by `\tabl{example}{This caption.}{...}`.

ACKNOWLEDGMENTS

I wish to thank Ivan Pšenčík and Frédéric Billette for having names with non-English letters in them. I wish to thank Červený (2000) for providing an example of how to make a bib file that includes an author whose name begins with a non-English character and Forgues (1996) for providing both an example of referencing a Ph.D. thesis and yet more non-English characters.

APPENDIX A

APPENDIX EXAMPLE

According to the new SEG standard, appendices come before references.

$$\frac{\partial U}{\partial z} = \left\{ \sqrt{\frac{1}{v^2} - \left[\frac{\partial t}{\partial g}\right]^2} + \sqrt{\frac{1}{v^2} - \left[\frac{\partial t}{\partial s}\right]^2} \right\} \frac{\partial U}{\partial t} \quad \text{(A-1)}$$

It is important to get equation A-1 right.

APPENDIX B

ANOTHER APPENDIX

$$\frac{\partial U}{\partial z} = \left\{ \sqrt{\frac{1}{v^2} - \left[\frac{\partial t}{\partial g}\right]^2} + \sqrt{\frac{1}{v^2} - \left[\frac{\partial t}{\partial s}\right]^2} \right\} \frac{\partial U}{\partial t} \quad \text{(B-1)}$$

Too lazy to type a different equation but note the numeration.
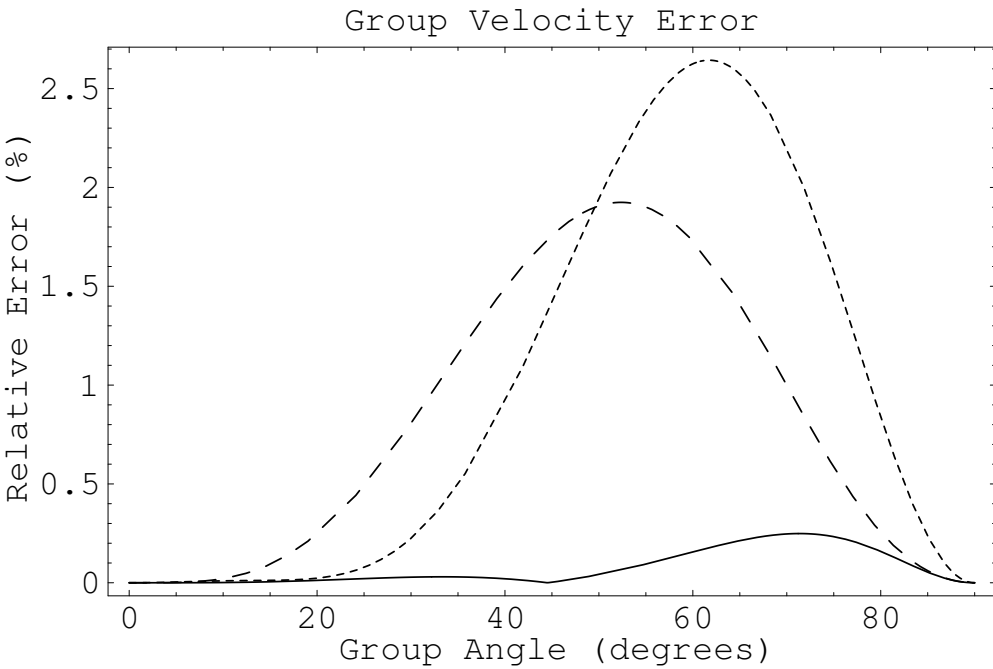
The error comparison is provided in Figure B-1.

Group Velocity Error

Figure B-1: This figure is specified in the document by `\plot*{errgrp}{width=0.8\textwidth}{This caption.}`.

APPENDIX C

THE SOURCE OF THE BIBLIOGRAPHY

```
@Book{lamport,
  author =  {L[eslie] Lamport},
  title =   {{\LaTeX: A} Document Preparation System},
  publisher =  {Addison-Wesley},
  year =   1994
}

@Book{kopka,
  author =  {H[elmut] Kopka and P[atrick] W[] Daly},
  title =   {Guide to {\LaTeX}},
  publisher =  {Addison-Wesley},
  year =   2004
}

@preamble{"\newcommand{\SortNoop}[1]{}"}
@Book{Cerveny,
  author = {V[] {\SortNoop{Cerveny}}\v{C}erven\'{y}},
  title = {Seismic Ray Method},
  year = {2000},
  publisher = {Cambridge University Press}
}

@PHDTHESIS{forgues96,
  author = {E. Forgues},
  title  = {Inversion linearis\'ee multi-param\`etres via la th\'eorie des rais},
  school = {Institut Fran\c{c}ais du P\'etrole - University Paris VII},
  year   = {1996}
}

@inproceedings{wenyi2014fwi,
title={FWI without low frequency data-beat tone inversion},
author={Hu, Wenyi},
booktitle={2014 SEG Annual Meeting},
year={2014},
organization={Society of Exploration Geophysicists}
}

@article{wenyi2018fwi,
title={Retrieving Low Wavenumber Information in FWI},
author={Hu, Wenyi and Chen, Jiefu and Liu Jianguo and Abubakar, Aria},
journal={IEEE Signal Processing Magazine},
volume={35},
number={2},
pages={132--141},
year={2018},
publisher={IEEE}
}

@inproceedings{szegedy2017inception,
title={Inception-v4, inception-resnet and the impact of residual connections on learning.},
author={Szegedy, Christian and Ioffe, Sergey and Vanhoucke, Vincent and Alemi, Alexander A},
booktitle={AAAI},
volume={4},
pages={12},
year={2017}
```

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}

@article{ma2013wave,
title={Wave-equation reflection traveltime inversion with dynamic warping and full-waveform inversion},
author={Ma, Yong and Hale, Dave},
journal={Geophysics},
volume={78},
number={6},
pages={R223--R233},
year={2013},
publisher={Society of Exploration Geophysicists}
}

@article{baek2014velocity,
title={Velocity estimation via registration-guided least-squares inversion},
author={Baek, Hyoungsu and Calandra, Henri and Demanet, Laurent},
journal={Geophysics},
volume={79},
number={2},
pages={R79--R89},
year={2014},
publisher={Society of Exploration Geophysicists}
}

@article{warner2016adaptive,
title={Adaptive waveform inversion: Theory},
author={Warner, Michael and Guasch, Llu{\'\i}s},
journal={Geophysics},
volume={81},
number={6},
pages={R429--R445},
year={2016},
publisher={Society of Exploration Geophysicists}
}

@article{van2013mitigating,
title={Mitigating local minima in full-waveform inversion by expanding the search space},
author={Van Leeuwen, Tristan and Herrmann, Felix J},
journal={Geophysical Journal International},
volume={195},
number={1},
pages={661--667},
year={2013},
publisher={Oxford University Press}
}

@inproceedings{tang2013tomographically,
title={Tomographically enhanced full wavefield inversion},
author={Tang, Yaxun and Lee, Sunwoong and Baumstein, Anatoly and Hinkley, Dave and others},
booktitle={2013 SEG Annual Meeting},
year={2013},
organization={Society of Exploration Geophysicists}
}

@article{alkhalifah2014scattering,
title={Scattering-angle based filtering of the waveform inversion gradients},
author={Alkhalifah, Tariq},
journal={Geophysical Journal International},
volume={200},
```

```
number={1},
pages={363--373},
year={2014},
publisher={Oxford University Press}
}


@article{li2016full,
title={Full-waveform inversion with extrapolated low-frequency data},
author={Li, Yunyue Elita and Demanet, Laurent},
journal={Geophysics},
volume={81},
number={6},
pages={R339--R348},
year={2016},
publisher={Society of Exploration Geophysicists}
}


@inproceedings{szegedy2015going,
title={Going deeper with convolutions},
author={Szegedy, Christian and Liu, Wei and Jia, Yangqing and Sermanet, Pierre and Reed, Scott and Anguelov, Dragom
year={2015},
organization={Cvpr}
}
```

REFERENCES

Červený, V., 2000, Seismic ray method: Cambridge University Press.

Forgues, E., 1996, Inversion linearisée multi-paramètres via la théorie des rais: PhD thesis, Institut Français du Pétrole - University Paris VII.

Kopka, H., and P. W. Daly, 2004, Guide to LaTeX: Addison-Wesley.

Lamport, L., 1994, LaTeX: A document preparation system: Addison-Wesley.