

# The **georeport** class for writing collective reports\*

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## **Abstract**

This package provides...

## **1 Introduction**

L<sup>A</sup>T<sub>E</sub>X is a powerful system...

## **2 Usage**

The following macros are defined in the package:

## **3 Implementation**

Our package is a derivative of the standard `book` class. Load ifthen package for conditionals.

```
1 \RequirePackage{ifthen}
```

Catch the `twocolumn` option to implement it internally.

```
2 \newboolean{@twoc}
```

```
3 \setboolean{@twoc}{false}
```

```
4 \DeclareOption{twocolumn}{\setboolean{@twoc}{true}}
```

```
5 \DeclareOption{onecolumn}{\setboolean{@twoc}{false}}
```

```
6 % A short paper option
```

```
7 %   \begin{macrocode}
```

```
8 \newboolean{@shrt}
```

```
9 \setboolean{@shrt}{false}
```

```
10 \newcommand{\shortpaper}{\setboolean{@shrt}{true}}
```

```
11 \newcommand{\longpaper}{\setboolean{@shrt}{false}}
```

---

\*This document corresponds to `gereport` v1.0, dated 2004/10/10.

Book option

```
12 \newboolean{@book}
13 \setboolean{@book}{false}
14 \DeclareOption{book}{\setboolean{@book}{true}}
15 \DeclareOption{report}{\setboolean{@book}{false}}
16 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}
```

We will use 11pt fonts by default.

```
17 \ExecuteOptions{onecolumn}
18 \ProcessOptions*
19 \ifthenelse{\boolean{@twoc}}{%
20   \LoadClass[9pt]{book}}{%
21   \LoadClass[11pt]{book}}
```

Load SEG style package

```
22 \RequirePackage{seg}
```

For reports, load a package for attaching files

```
23 \ifthenelse{\boolean{@book}}{}{%
24   \RequirePackage{attachfile2}}
```

Do separate bibliographies for different papers

```
25 \RequirePackage{chapterbib}
```

Table of contents entries

```
26 \newlength{\toc@width}%
27 \setlength{\toc@width}{\textwidth}%
28 \addtolength{\toc@width}{-6em}%
29 \newcommand{\TOCentry}[3][.]{
30   \ifthenelse{\boolean{@book}}{}{%
31     \noindent\hspace*{4em}{\begin{minipage}[b]{\toc@width}
32       \setlength{\parindent}{-5em}%
33       \ifthenelse{\equal{#1}{.}}{}{\textit{#1}, }%
34       #2\dotfill\
35     \end{minipage}\hfill#3\par}}
```

Empty handle for the report name

```
36 \newcommand{\REPORT}{}
37 \newcommand{\GROUP}{}%
```

Copyright statement

```
38 \newcommand{\GEOcopyr}[2]{%
39   \ \vfill
40   \mainauthor{Copyright \copyright\ #1}
41   \mainauthor{by #2}
42   \vfill \ \newpage}
```

Page style

\GEOheader

```
43 \newcommand{\geo@header}{}
44 \newcommand{\GEOheader}[1]{\renewcommand{\geo@header}{#1}}
```

## Appendix

\append

```
45 \newcounter{@append}
46 \providecommand{\append@name}{A}
47 \providecommand{\appendname}[1]{\renewcommand{\append@name}{#1}}
48 \renewcommand{\appendix}{%
49   \ifthenelse{\equal{\append@name}{A}}{%
50     \renewcommand{\append@name}{\Alph{@append}}}%
51   \setcounter{equation}{0}%
52   \renewcommand{\theequation}{\mbox{\append@name-\arabic{equation}}}%
53   \setcounter{figure}{0}%
54   \renewcommand{\thefigure}{\append@name-\arabic{figure}}%
55   \stepcounter{@append}
56 }
57 \providecommand{\append}[1]{%
58   \appendix\section{Appendix \append@name}\section{#1}}
```

Including papers

```
59 \newcommand{\paper@dir}{.}
60 \newcommand{\paper@tag}{self}
61 \newcommand{\GEOpaper}[2]{%
62   \ifthenelse{\boolean{@book}}{}{%
63     \setcounter{@append}{0}%
64     \setcounter{equation}{0}\setcounter{figure}{0}%
65     \setcounter{table}{0}\setcounter{footnote}{0}%
66     \renewcommand{\theequation}{\arabic{equation}}%
67     \renewcommand{\thefigure}{\arabic{figure}}%
68     \renewcommand{\thetable}{\arabic{table}}%
69 % \header{, pages \pageref{#1.start}--\pageref{#1.end}}%
70 \cleardoublepage
71 \label{\paper@tag.end}%
72 \thispagestyle{segtwo}%
73 \longpaper%
74 \label{#2.start}
75 \renewcommand{\paper@dir}{#1}
76 \renewcommand{\paper@tag}{#2}
77 }
```

### 3.1 Figures and Tables

Load the `graphicx` package for included figures. Possible suffices for graphics files depend on whether we are running `pdflatex` or `latex`.

```
78 \RequirePackage{ifpdf}
79 \ifpdf
80 \RequirePackage[pdftex]{graphicx}
81 \DeclareGraphicsExtensions{.pdf,.png}
82 \else
83 \usepackage{graphicx}
```

```

84 \DeclareGraphicsExtensions{.eps,.ps}
85 \fi

\figdir is a variable. It will need to be redefined to specify the figure directory.

86 \providecommand{\figdir}{.}
87 \providecommand{\setfigdir}[1]{\renewcommand{\figdir}{#1}}
88 \providecommand{\fig@file}[1]{\paper@dir/\@path/\figdir/#1}

\plot Define commands for figure inclusion.

89 \newcommand{\plotdir}{\figdir}
90 \newcommand{\plot@file}[1]{\plotdir/#1}
91 \newcommand{\plotbox}[2]{%
92   \begin{figure*}[htbp]
93     \centering
94     \includegraphics[#2]{\plot@file{#1}}
95 \end{figure*}}

Reproducible-research button contains the figure name and a link to SConstruct
or other file.

96 \newcommand{\rr@button}[1]{\ifthenelse{\boolean{@book}}{}{}}
97 \IfFileExists{\paper@dir/\@path/.rsfproj}{\setlength{\fboxsep}{0.5ex}}
98 \textattachfile[mimetype=text/plain,color=0 0 1]{\paper@dir/\@path/SConstruct}{\fbox{\paper@dir/\@pa
99 }{}%
100 \ifthenelse{\equal{\paper@dir/\@path}{Math}}{\setlength{\fboxsep}{0.5ex}}
101 \textattachfile[mimetype=text/plain,color=1 0 1]{\paper@dir/\@path/#1.ma}{\fbox{\paper@dir/\@pa
102 }{}%
103 \ifthenelse{\equal{\paper@dir/\@path}{Gnuplot}}{\setlength{\fboxsep}{0.5ex}}
104 \textattachfile[mimetype=text/plain,color=0 1 1]{\paper@dir/\@path/#1.gp}{\fbox{\paper@dir/\@pa
105 }{}%
106 \ifthenelse{\equal{\paper@dir/\@path}{Sage}}{\setlength{\fboxsep}{0.5ex}}
107 \textattachfile[mimetype=text/plain,color=1 0 1]{\paper@dir/\@path/#1.sage}{\fbox{\paper@dir/\@pa
108 }{}%
109 \ifthenelse{\equal{\paper@dir/\@path}{Matlab}}{\setlength{\fboxsep}{0.5ex}}
110 \textattachfile[mimetype=text/plain,color=1 0 1]{\paper@dir/\@path/#1.ml}{\fbox{\paper@dir/\@pa
111 }{}%
112 \ifthenelse{\equal{\paper@dir/\@path}{Pylab}}{\setlength{\fboxsep}{0.5ex}}
113 \textattachfile[mimetype=text/plain,color=1 0 1]{\paper@dir/\@path/#1.py}{\fbox{\paper@dir/\@pa
114 }{}%
115 \ifthenelse{\equal{\paper@dir/\@path}{XFig}}{\setlength{\fboxsep}{0.5ex}}
116 \textattachfile[mimetype=text/plain,color=0 1 1]{\paper@dir/\@path/#1.fig}{\fbox{\paper@dir/\@pa
117 }{}%
118 \ifthenelse{\equal{\paper@dir/\@path}{Tikz}}{\setlength{\fboxsep}{0.5ex}}
119 \textattachfile[mimetype=text/plain,color=0 1 1]{\paper@dir/\@path/#1.tex}{\fbox{\paper@dir/\@pa
120 }{}%
121 }}}}}}}}}

122 \newcommand{\fullplot}[4][htbp]{%
123   \begin{figure*}[#1]
124     \centering
125     \setlength{\fboxsep}{0.5ex}
126     \includegraphics[#3]{\fig@file{#2}}

```

```

127     \caption[#4]{#4 \rr@button{#2}}
128     \label{fig:#2}
129 \end{figure*}
130 }
131 \newcommand{\sideplot}[4][htbp]{%
132 \ifthenelse{\boolean{@twoc}}{%
133     \begin{figure}[#1]
134         \centering
135         \setlength{\fboxsep}{0.5ex}
136         \includegraphics[#3]{\fig@file{#2}}
137         \caption[#4]{#4 \rr@button{#2}}
138         \label{fig:#2}
139     \end{figure}
140 }{%
141     \begin{figure*}[#1]
142         \makebox{%
143             \begin{minipage}{0.4\textwidth}
144             \setlength{\fboxsep}{0.5ex}
145             \caption[#4]{#4 \rr@button{#2}}
146             \label{fig:#2}
147             \end{minipage}
148             \hfill
149             \begin{minipage}{0.6\textwidth}
150             \flushright
151             \includegraphics[#3]{\fig@file{#2}}
152             \end{minipage}}
153     \end{figure*}
154 }
155 }

\multiplot

156 \ifthenelse{\boolean{@twoc}}{%
157     \def\plot{\@ifstar{\fullplot}{\sideplot}}}%
158     \def\plot{\@ifstar{\fullplot}{\fullplot}}}%
159 \RequirePackage{subfig}
160 \def\next@item#1,#2?{#1}
161 \def\rest@item#1,#2?{#2}
162 \newcounter{sub@fig}
163 \newcommand{\seg@fullmultiplot}[5][htbp]{
164     \begin{figure*}[#1]
165         \centering
166         \setlength{\fboxsep}{0.5ex}
167         \setcounter{sub@fig}{0}
168         \edef\list@i{#3}
169         \loop
170             \edef\item@i{\expandafter\next@item\list@i,\empty?}
171             \edef\list@i{\expandafter\rest@item\list@i,\empty?}
172             \ifx\item@i\empty
173             \else
174                 \stepcounter{sub@fig}

```

```

175 \subfloat{\includegraphics[#4]{\fig@file{\item@i}}%
176 \label{fig:\@path-\item@i}
177 \label{fig:\item@i}}
178 \ifthenelse{\value{sub@fig} = #2}{\ \setcounter{sub@fig}{0}}{}
179 \repeat
180 \caption[#5]{#5 \rr@button{#3}}
181 \label{fig:\@path-#3}
182 \label{fig:#3}
183 \end{figure*}
184 }
185 \newcommand{\seg@sidemultiplot}[5][htbp]{
186 \begin{figure}[#1]
187 \centering
188 \setlength{\fboxsep}{0.5ex}
189 \setcounter{sub@fig}{0}
190 \edef\list@i{#3}
191 \loop
192 \edef\item@i{\expandafter\next@item\list@i,\empty?}
193 \edef\list@i{\expandafter\rest@item\list@i,\empty?}
194 \ifx\item@i\empty
195 \else
196 \stepcounter{sub@fig}
197 \subfloat{\includegraphics[#4]{\fig@file{\item@i}}%
198 \label{fig:\@path-\item@i}
199 \label{fig:\item@i}}
200 \ifthenelse{\value{sub@fig} = #2}{\ \setcounter{sub@fig}{0}}{}
201 \repeat
202 \caption[#5]{#5 \rr@button{#3}}
203 \label{fig:\@path-#3}
204 \label{fig:#3}
205 \end{figure}
206 }
207 \ifthenelse{\boolean{@twoc}}{%
208 \def\multiplot{\@ifstar{\seg@fullmultiplot}{\seg@sidemultiplot}}{%
209 \def\multiplot{\@ifstar{\seg@fullmultiplot}{\seg@fullmultiplot}}
210 \renewcommand{\thesubfigure}{\alph{subfigure}}

```

Tables.

\tabl

```

211 \providecommand{\seg@sidetabl}[4][htbp]{
212 \begin{table}[#1]
213 #4
214 \caption{#3}
215 \label{tbl:#2}
216 \end{table}
217 }
218 \providecommand{\seg@fulltabl}[4][htbp]{
219 \begin{table*}[#1]
220 #4

```

```

221 \caption{#3}
222 \label{tbl:#2}
223 \end{table*}
224 }
225 \def\tabl{\@ifstar{\seg@fulltabl}{\seg@sidetabl}}

```

## 3.2 Collecting papers

Ignoring old and accepting new

```

226 \newcommand{\new}[1]{#1}
227 \newcommand{\old}[1]{}
228 \newcommand{\ms}[1]{}
229 \newcommand{\published}[1]{}

```

Redefine input

\input

```

230 \def\first@char#1#2\end{#1}
231 \def\geo@input#1{\ifthenelse{\equal{\paper@dir}{.}\or\equal{\expandafter\first@char#1\end}{.}}{
232 \def\input{\@ifnextchar\bgroup\geo@input\@@input}

```

## 3.3 Page layout

Specify page dimensions. *This should be adjusted for A4 paper format!*

```

233 \setlength{\textheight}{9in}
234 \setlength{\textwidth}{6in}
235 \setlength{\parskip}{1.5ex plus 0.1ex minus 0.1ex} % should be a *rubber* length
236 \setlength{\oddsidemargin}{.26in}
237 \setlength{\evensidemargin}{.26in}
238 \setlength{\topmargin}{-.51in}
239 \setlength{\textfloatsep}{30pt plus 3pt minus 6pt}
240 \setlength{\headsep}{0.5in}

```

## 3.4 Title and author

\title \title is redefined for consistency. It changes the internal \seg@title.

```

241 \newcommand{\seg@title}{}
242 \newenvironment{geo@title}{%
243 \begin{minipage}{\textwidth}%
244 \bfseries\seg@Large\ifthenelse{\boolean{@twoc}}{\flushleft}{\centering}}
245 {\end{minipage}\vspace{.2in}}%
246 \ifthenelse{\boolean{@book}}{}{}%
247 \renewcommand{\title}[1]{%
248 \renewcommand{\seg@title}{%
249 \noindent\begin{geo@title}\setlength{\parindent}{0em}\par%
250 {\smallskip #1}\end{geo@title}}}%
251 \newcommand{\maintitle}[1]{\ifthenelse{\boolean{@book}}{}{\title{#1}\seg@title}}

```

`\address` The `\address` macro will save the address in the internal `\seg@address`.

```

252 \providecommand{\seg@address}{}
253 \providecommand{\address}[1]{\renewcommand{\seg@address}{#1}}

```

`\author` Finally, everything goes to nd is stored in `\seg@author`.

```

254 \providecommand{\seg@author}{}
255 \newcommand{\mainauthor}[1]{
256   \ifthenelse{\boolean{@twoc}}{%
257     \begin{flushleft}
258       \Large #1\footnote{\seg@address}
259     \end{flushleft}\vspace{0.2in}
260   }{%
261     \begin{center}
262       \textit{#1}\ifthenelse{\equal{\seg@email}{.}}{}{%
263         \footnote{\textbf{e-mail: }\seg@email}} \\\
264       \end{center}
265     }
266   }
267   \ifthenelse{\boolean{@book}}{}{%
268     \renewcommand{\author}[1]{%
269       \renewcommand{\seg@author}{%
270         \ifthenelse{\boolean{@twoc}}{%
271           \seg@title \\\
272           \mainauthor{#1}
273         }{%
274           \seg@title
275           \mainauthor{#1}
276         }
277       }
278     }}

```

`\maketitle` `\maketitle` is disabled for reports

```

279 \newcommand{\geo@ignore}[1]{}
280 \ifthenelse{\boolean{@book}}{
281   \let\geo@toc\tableofcontents
282   \renewcommand{\tableofcontents}{\geo@toc%
283     \def\title{\chapter}%
284     \def\author{\geo@ignore}}{}%
285   \renewcommand{\maketitle}{\ifthenelse{\boolean{@shrt}}{%
286     \ifthenelse{\boolean{@twoc}}{\twocolumn[\seg@author]}{\seg@author}}{}}

```

`abstract` The abstract appears in a box.

```

287 \newsavebox{\seg@abstract}
288 \setlength{\fboxsep}{10pt}
289 \newenvironment{abstract}{
290   \ifthenelse{\boolean{@twoc}}{%
291     \twocolumn[\vspace{1.8in}\seg@author]}{\vspace{0.3in}\seg@author}
292   \begin{lrbox}{\seg@abstract}\begin{minipage}{0.95\columnwidth}%
293     \centerline{\ifthenelse{\boolean{@twoc}}{}{\Large}\textbf{ABSTRACT}}\medskip}%

```



```

294 \medskip\end{minipage}\end{lrbox}%
295 \ifthenelse{\boolean{@shrt}}{\{\noindent\fbbox{\usebox{\seg@abstract}}\}}

```

### 3.5 Biography information

bios

```

296 \newenvironment{bios}{%
297 \begin{list}{}%
298 \setlength{\leftmargin}{1cm}\setlength{\rightmargin}{1cm}%
299 \setlength{\listparindent}{0cm}\setlength{\topsep}{0cm}%
300 \setlength{\baselineskip}{0.5cm}\setlength{\partopsep}{0cm}%
301 \setlength{\parsep}{0cm}\setlength{\parindent}{0cm}%
302 \setlength{\itemsep}{1.5cm plus0.5cm minus0.5cm}%
303 }
304 }\end{list}}

```

\bioplot

```

305 \newcommand{\bioplot}[2]{%
306 \begin{figure*}[htbp]
307 \setlength{\fbboxsep}{0.5ex}
308 \makebox{\parbox{0.71\textwidth}{#2}
309 \hfill
310 \begin{minipage}{0.29\textwidth}
311 \protect\centering
312 \fbbox{\includegraphics[height=1.6in]{#1}}
313 \end{minipage}}
314 \end{figure*}}

```

### 3.6 Page style

Define a page style

```

315 \newcommand{\ps@georeport}{%
316 \renewcommand{\@oddhead}{%
317 \seg@foot\hfill\textit{\seg@rhead}\hfill\thepage}
318 \renewcommand{\@evenhead}{%
319 \thepage\hfill\textit{\seg@lhead}\hfill\seg@foot}
320 \renewcommand{\@oddfoot}{\}\renewcommand{\@evenfoot}{\}}
321 \newcommand{\ps@geobook}{%
322 \renewcommand{\@oddfoot}{\hfill\textit{\seg@foot}\hfill}%
323 \renewcommand{\@evenfoot}{\@oddfoot}}
324 \ifthenelse{\boolean{@book}}{%
325 \newcommand{\ps@segtwo}{\ps@geobook}\pagestyle{geobook}}{%
326 \newcommand{\ps@segtwo}{%
327 \renewcommand{\@oddfoot}{\hfill\thepage\hfill}%
328 \renewcommand{\@evenfoot}{\@oddfoot}
329 \renewcommand{\@oddhead}{%
330 \footnotesize\textit{\geo@header\seg@head}\hfill\normalsize}%
331 \renewcommand{\@evenhead}{\@oddhead}}\pagestyle{georeport}}

```

### 3.7 Section headings

Capitalize section headings and redefine their size from `\Large` to `\large`<sup>1</sup>.

```

332 \let\seg@large\large
333 \let\seg@Large\Large
334 \renewcommand{\Large}{\protect\seg@large}
335 \let\seg@section\section
336 \let\seg@subsection\subsection
337 \let\seg@subsubsection\subsubsection
338 \newcommand{\geosection}{%
339 \@startsection {section}{1}{\z@}%
340 {-3.5ex \@plus -1ex \@minus -.2ex}%
341 {1ex \@plus .2ex}%
342 {\centering%
343 \normalfont\ifthenelse{\boolean{@twoc}}{\Large}{\bfseries}}
344 \newcommand{\segsection}{%
345 \@startsection {section}{1}{\z@}%
346 {-3.5ex \@plus -1ex \@minus -.2ex}%
347 {1ex \@plus .2ex}%
348 {\centering%
349 \normalfont\ifthenelse{\boolean{@twoc}}{\Large}{\bfseries\MakeUppercase}}
350 \newcommand{\segsubsubsection}{%
351 \@startsection{subsubsection}{3}{\z@}%
352 {-3.25ex \@plus -1ex \@minus -.2ex}%
353 {1.5ex \@plus .2ex}%
354 {\normalfont\normalsize\itshape}}
355 \newcommand{\seg@subsubsubsection}[2][{}]{%
356 \underline{#2}.--}
357 \ifthenelse{\boolean{@book}}{\%
358 \def\section{\@ifstar{\segsection*}{\segsection*}}
359 \def\subsection{\@ifstar{\seg@subsection*}{\seg@subsection*}}%
360 \def\subsubsection{\@ifstar{\seg@subsubsubsection*}{\seg@subsubsubsection*}}}
```

### 3.8 References

Load the `natbib` package for natural-science-style citations.

```

361 \RequirePackage{natbib}
```

The following is `natbib`'s default.

```

362 \bibpunct[,]{(}{)}{;}{a}{,}{,}
```

Redefine the reference section name.

```

363 \DeclareRobustCommand{\refname}{REFERENCES}
364 \ifthenelse{\boolean{@book}}
365 {\renewcommand\bibsection{\section*{\refname}}}
366 {\renewcommand\bibsection{\section{\refname}}}
```

---

<sup>1</sup>Thanks to Joerg Schleicher for the `ifstar` trick.

### 3.9 Listings

```
367 \RequirePackage{listings}
```

Modify input path for listings

```
368 \renewcommand{\lstinputpath}{./\paper@dir/}
```