

# Package ‘npwbs’

July 22, 2025

**Type** Package

**Title** Nonparametric Multiple Change Point Detection Using WBS

**Version** 0.2.0

**Author** Gordon J. Ross

**Maintainer** Gordon J. Ross <gordon.ross@ed.ac.uk>

**Description** Implements the procedure from G. J. Ross (2021) - ``Nonparametric Detection of Multiple Location-Scale Change Points via Wild Binary Segmentation" <[doi:10.48550/arXiv.2107.01742](https://doi.org/10.48550/arXiv.2107.01742)>. This uses a version of Wild Binary Segmentation to detect multiple location-scale (i.e. mean and/or variance) change points in a sequence of univariate observations, with a strict control on the probability of incorrectly detecting a change point in a sequence which does not contain any.

**Depends** R (>= 3.6.0)

**License** GPL-3

**Encoding** UTF-8

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2021-07-06 16:00:06 UTC

## Contents

detectChanges . . . . .	<a href="#">1</a>
<b>Index</b>	<a href="#">3</a>

---

detectChanges	<i>Nonparametric detection of multiple change points using Wild Binary Segmentation</i>
---------------	---

---

**Description**

Returns the estimated number and locations of the change points in a sequence of univariate observations. For full details of how this procedure works, please see G. J. Ross (2021) - "Non-parametric Detection of Multiple Location-Scale Change Points via Wild Binary Segmentation" at <https://arxiv.org/abs/2107.01742>

**Usage**

```
detectChanges(y,alpha=0.05,prune=TRUE,M=10000,d=2,displayOutput=FALSE)
```

**Arguments**

y	The sequence to test for change points
alpha	Required Type I error (i.e. false positive) rate. Can be set to either 0.05 or 0.01
prune	Whether to prune potential excess change points via post-processing. Most likely should be left as TRUE.
M	Number of subsequences to sample during WBS. Should be left as M=10000
d	Minimum number of observations between change points. Should be left as d=2.
displayOutput	If TRUE then will print some information while searching for change points

**Value**

A vector containing the location of the detected change points

**Author(s)**

Gordon J. Ross <[gordon@gordonjross.co.uk](mailto:gordon@gordonjross.co.uk)>

**Examples**

```
set.seed(100)
y <- c(rnorm(30,0,1),rnorm(30,3,1), rnorm(30,0,1),rnorm(30,0,3))
detectChanges(y)
```

# Index

`detectChanges`, [1](#)