

Wavelet Methods for Time Series Analysis

One-Day Workshop for CSIRO

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Overview of Workshop

- four sessions, each 90 minutes long
 - I: discrete wavelet transform (DWT), its inverse and basic descriptors based upon analysis/synthesis phases of DWT
 - II: wavelet variance or spectrum (builds on analysis phase)
 - III: signal extraction via wavelet shrinkage (builds on synthesis)
 - IV: DWT-based decorrelation of time series
- R software demonstrations at end of each session

1

Resources

- overheads for workshop based partially on *Wavelet Methods for Time Series Analysis*, D. B. Percival and A. T. Walden, Cambridge University Press, Cambridge, UK, 2000 (softcover edition with corrections issued in 2006; translation into Chinese (available from China Machine Press) issued in 2006); when applicable, lower left-hand corner of overheads indicate relevant pages in WMTSA

- software in R (available from <http://cran.r-project.org/> except for latest version of `wavethresh`, which is available from <http://www.stats.bris.ac.uk/~wavethresh>)

`wavelets` (*)

`waveslim` (*)

`wavethresh` (†)

`wmtsa` (*)

- software in Matlab:

WaveCov: <http://www2.imperial.ac.uk/~bwhitche/software/> (*)

wavelab: <http://www-stat.stanford.edu/~wavelab/>

WMTSA: <http://www.atmos.washington.edu/~wmtsa> (*)

(*) indicates software compatible with conventions used in overheads and WMTSA book

(†) G. P. Nason, *Wavelet Methods in Statistics with R*, Springer, Berlin, 2008

2