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

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