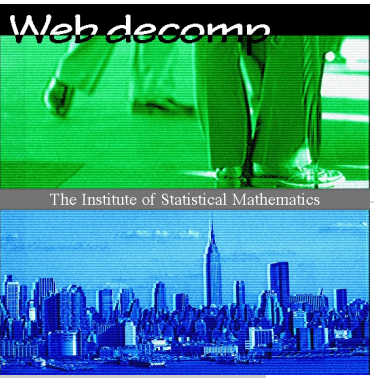

Web Decomp and E-decomp -Time Series Analysis using R

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Decomp

- originally developed by Kitagawa(1984).
- for seasonal adjustment and trend estimate.
- written by Fortran.
- using Square Root Filter.

Decomp family

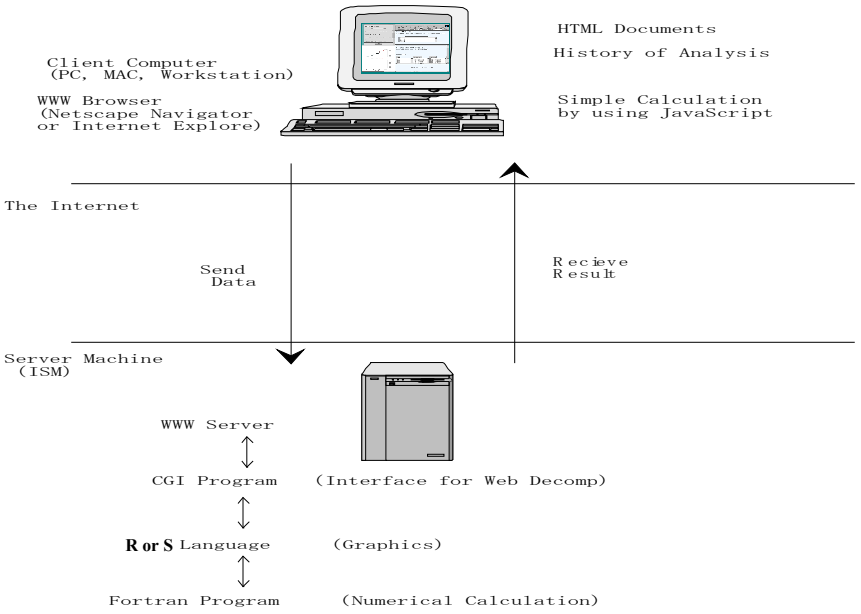
- Timsac84 (Fortran)
- Tsview.uni (S)
- Web Decomp (CGI & S or R)
- S-Decomp (S)
- MITI-Decomp (S & Excel)
- E-Decomp (Excel VBA & R)

R-(D)COM interface
(by Thomas Baier)

Concepts of "Web Decomp"

- **A WWW Site**
- **Statistical Software of Time Series model including Seasonal Adjustment model (Decomp)**
- **All Calculation can be done by server machine**

Fig 1. **System of Web Decomp**



Menu of "Web Decomp"

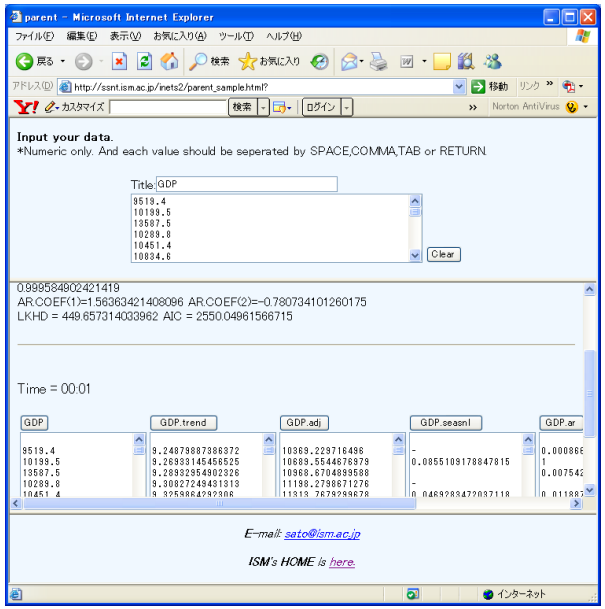
- Decomp ————
  State space modeling of seasonal adjustment (Kitagwa and Gersh 1984)
- plot ————
  Time series plot
- autocor ————
  Plot of autocorrelation (TIMSAC72)
- spectrum ————
  Non-parametric spectrum (TIMSAC72)
- ARfit ————
  Fitting AR model (TIMSAC72)
- ARMAfit ————
  Fitting ARMA model (Kitagawa(1993))
- log ————
  Log-transformation

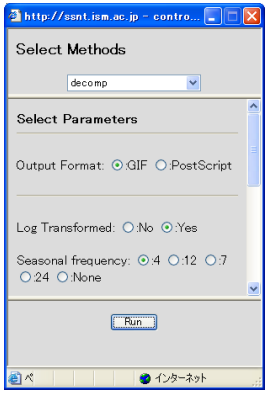
Menu of "Web Decomp"

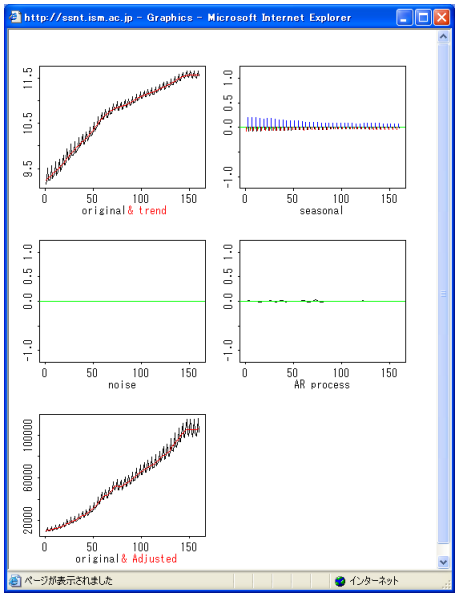
- diff ————
  First difference
- diff4 ————
  Seasonal difference for quarterly data
- diff12 ————
  Seasonal difference for monthly data
- Volatility ————
  Fitting Stochastic Volatility model

(More methods will be added)

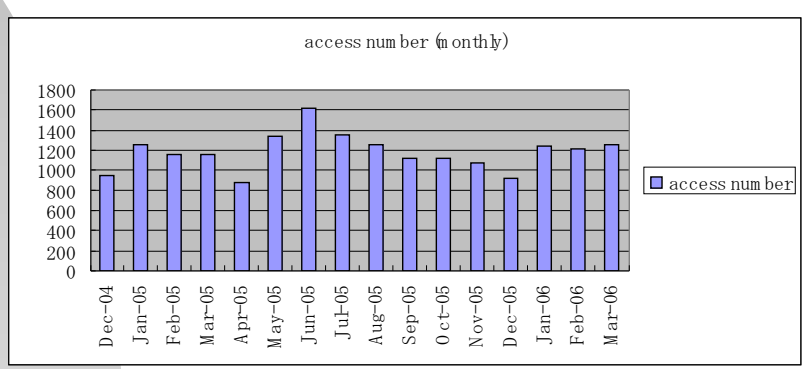
Windows of Web Decomp







access numbers of Web Decomp



Total = 18871

About Decomp

- State Space Model

$\Delta^d T(t) = e1(t)$

$S(t) = -S(t-1) - \ldots -S(t-p) + e2(t)$

$A(t) = a1\ A(t-1) + \ldots + aq\ A(t-q) + e3(t)$

$y(t) = T(t) + S(t) + A(t) + TD(t) + e4(t)$

T: Trend

S: Seasonal

A: AR (Cyclical component)

TD: Trading day

y: Observation

e1-e4: i.i.d noise

Parameter of Decomp

- Log transform:
- Seasonal frequency:
- Trend Order:
- AR Order:
- Trading Day Effects:

Output

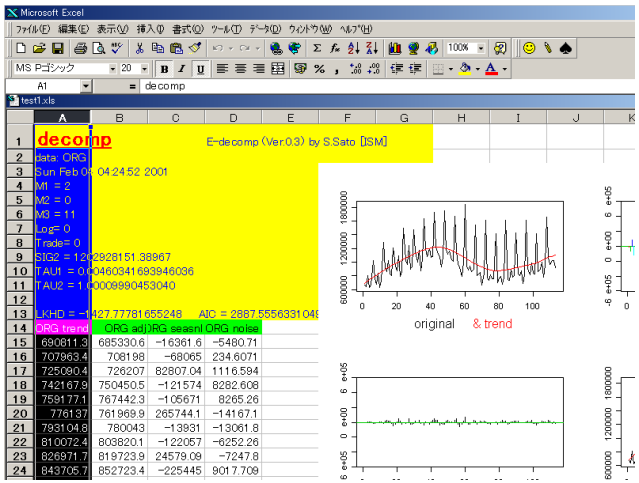
- **Graph output**
- **Data output**
- **Value of parameter and other statistics**

Summary of access list

(Jun. 1997 - Jan. 1998)

*.AC.JP	(Japanese Education)	1414
*.OR.JP	(Provider etc.)	786
*.NE.JP	(Provider, OCN etc)	759
*.CO.JP	(Japanese company)	726
*.COM	(US company)	284
*.GO.JP	(Japanese goverment)	171
*.AD.JP	(Provider, Mesh etc)	152
*.NET	(US)	66
*.EDU	(US Education)	53
*.TW	(Taiwan)	23
*.HR	(Croatia)	17
*.DE	(Germany)	17
*.UK, *.GB	(UK)	14
*.TOKYO.JP	(Tokyo Metro)	14
(unknown)		1439

E-Decomp



E-Decomp