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jam\_orak@yahoo.com :

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(Mixed distributions)

(Hidden Markov Models)

(Bayesian approach)

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(Goodness of fit)

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(Cough 2005)

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(Perlin 2006)

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Classical or frequentist

( Painter 2003)

)

( Seasonality

Cyclic Regression

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$$(\ ) \mu(t) = \beta_0 + \beta_1 t + \beta_2 \cos\left(\frac{2\pi t}{a}\right) + \beta_3 \sin\left(\frac{2\pi t}{a}\right)$$

Linear trend

$S_t$   
 $Y_t$

$S_t$

( Bilmes 2002)

$Y_t$

$\{S_t\}$

)

(Painter 2003)

(

$\{Y_t\}$

(Tan Say 2001)

$Y_t$

$\{S_t\}$

:

$\{Y_t\}$

$\{S_t\}$

$\{S_t\}$

States sequence

$\{S_t\}$

Centers for Disease Control (CDC)

Observed sequence

$\{Y_t\}$

$( )^{\delta}$

$\{Y_t\} \{S_t\}$

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$S_t$

$Y_t$

$\{S_t\}$

%

$\{Y_t\}$

(CDC 2006)

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(WHO 2004)

$(\pi_1)$

Winbugs

<http://www.mrc-bus-cam.ac.uk/bugs>

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$$\beta_2 \quad \beta_1 \quad \beta_0$$

$$10^{-6}$$

$\beta_3$

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Winbugs

$$\mu(t) = 3.08 - 0.01t - 1.46 \cos\left(\frac{\pi t}{6}\right) + 0.65 \sin\left(\frac{\pi t}{6}\right)$$

$$\mu(t) = 7.91 - 0.07t - 3.38 \cos\left(\frac{\pi t}{6}\right) + 1.59 \sin\left(\frac{\pi t}{6}\right)$$

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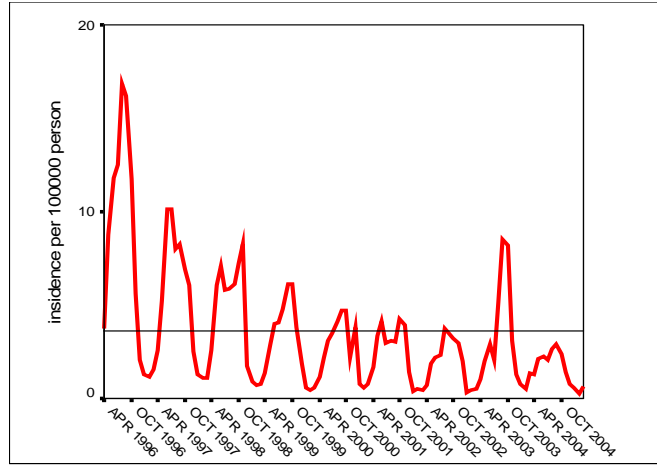
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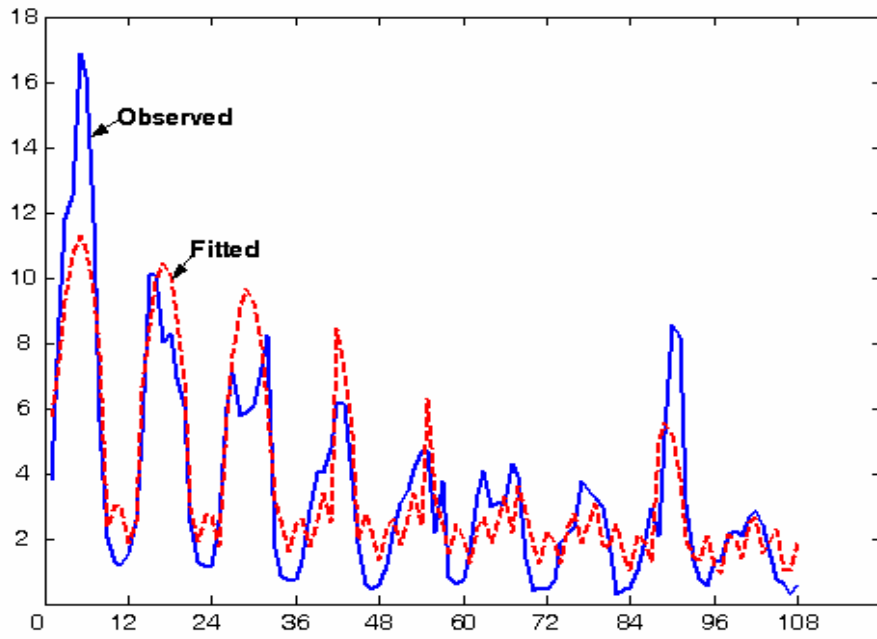
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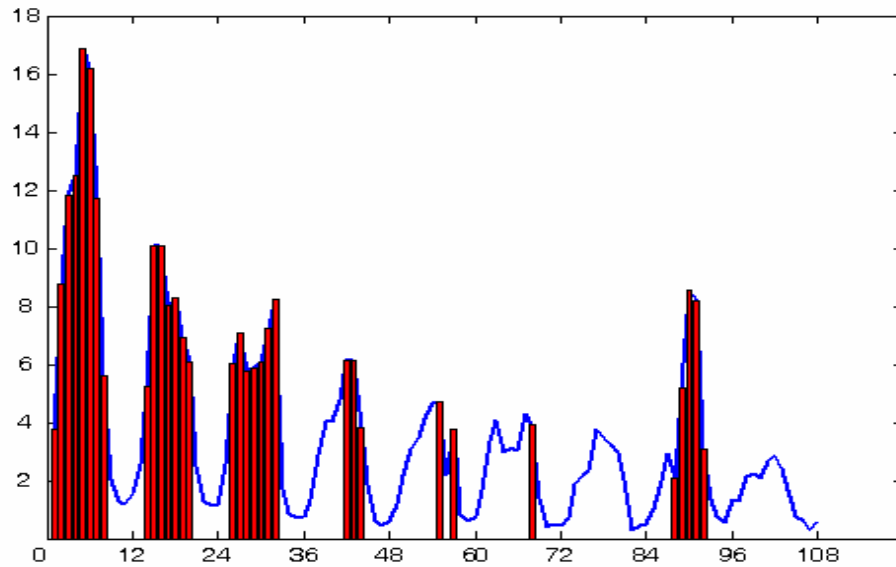
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