

How to tame time in statistical modeling



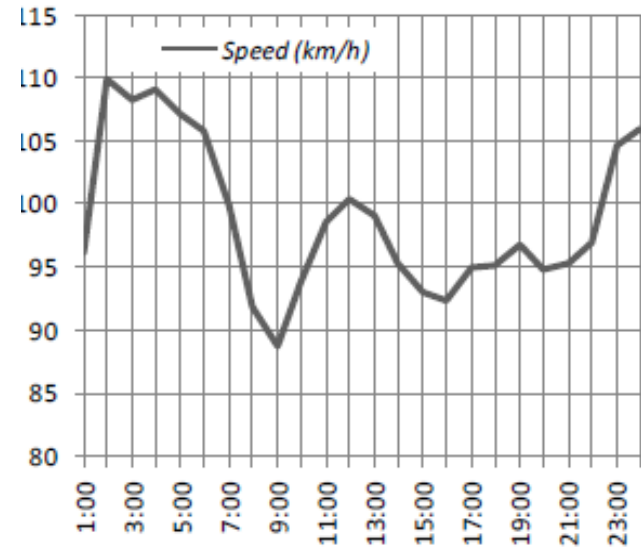
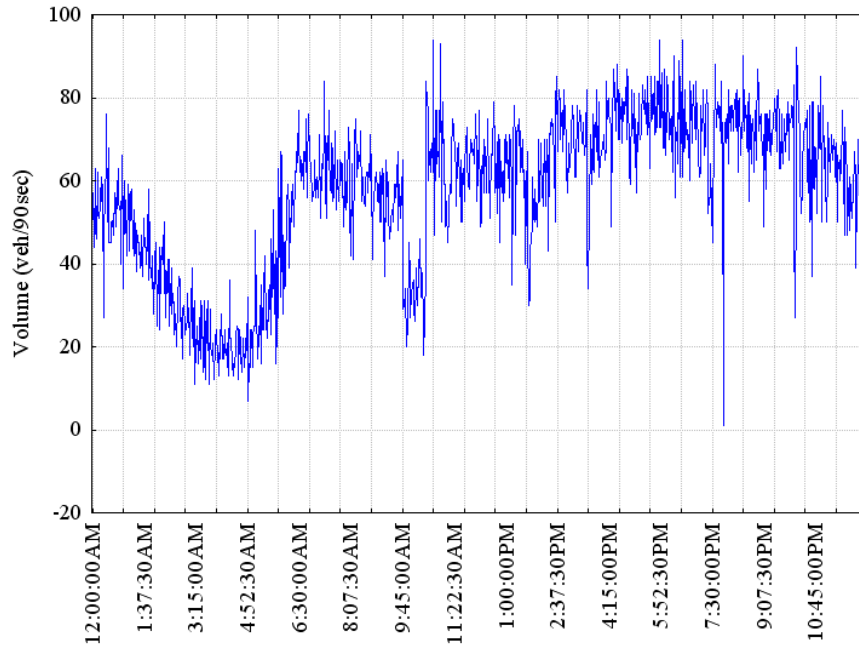
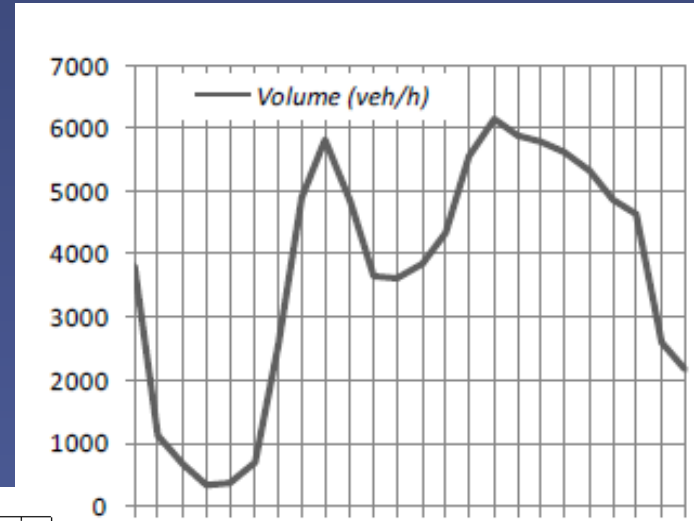
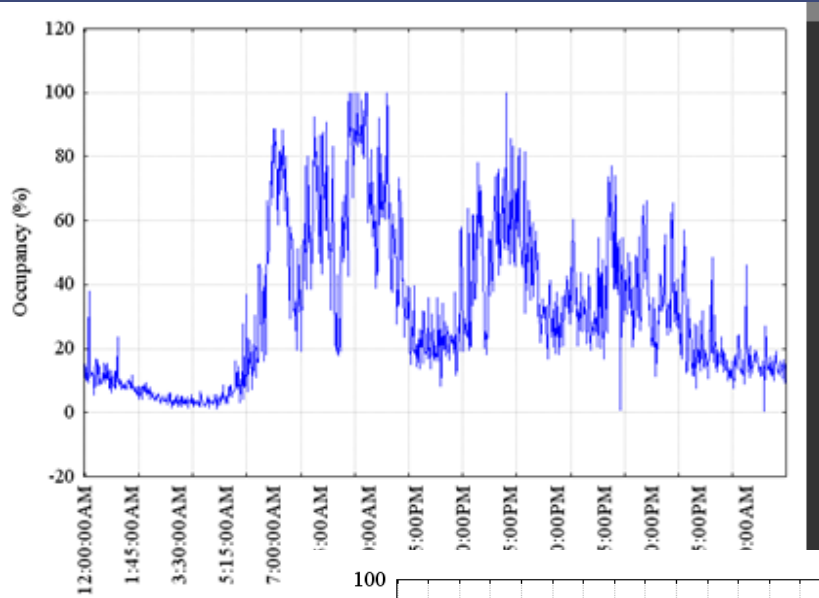
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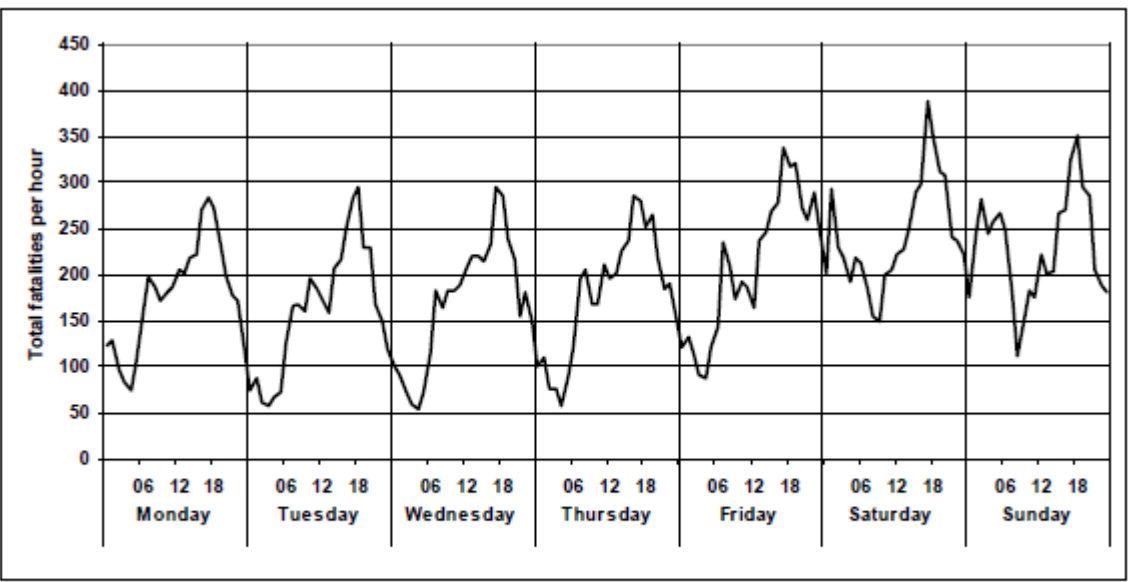
Outline

- What are Time Series?
- Decomposition
- Analysis Considerations
 1. Autocorrelation
 2. Dynamic Dependence
 3. Volatility
 4. Forecasting
- Conclusions

Some examples of time series

Traffic Variables

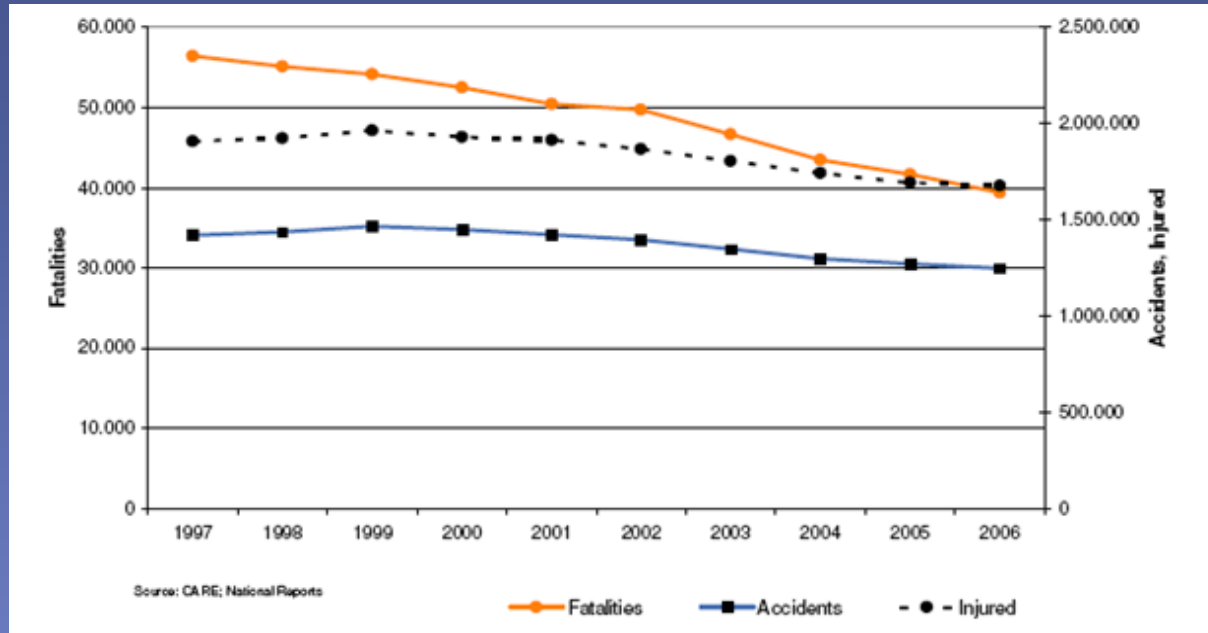




Fatalities by day of week and time of day (2005, EU-18)

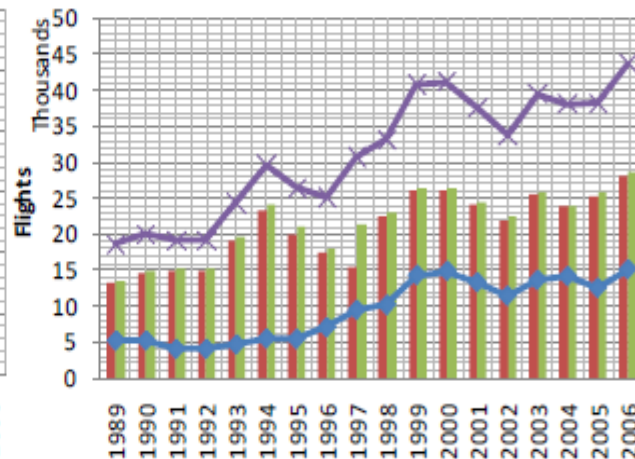
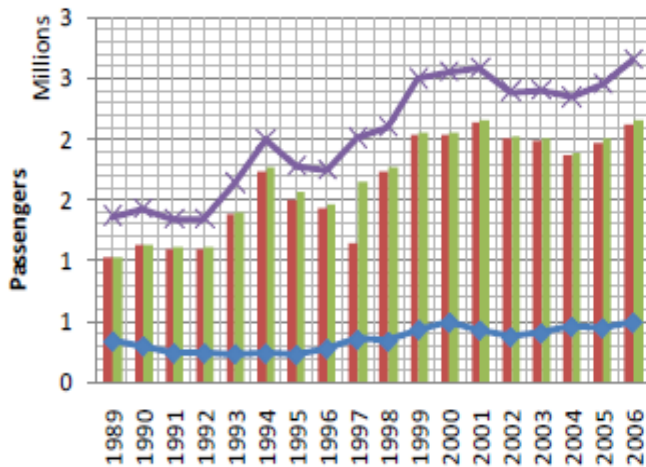
Source: CARE Database / EC
Date of query: October 2007

Annual Fatalities, Injury Accidents and Injured People



Source: CARE; National Reports

—●— Fatalities —■— Accidents -●- Injured



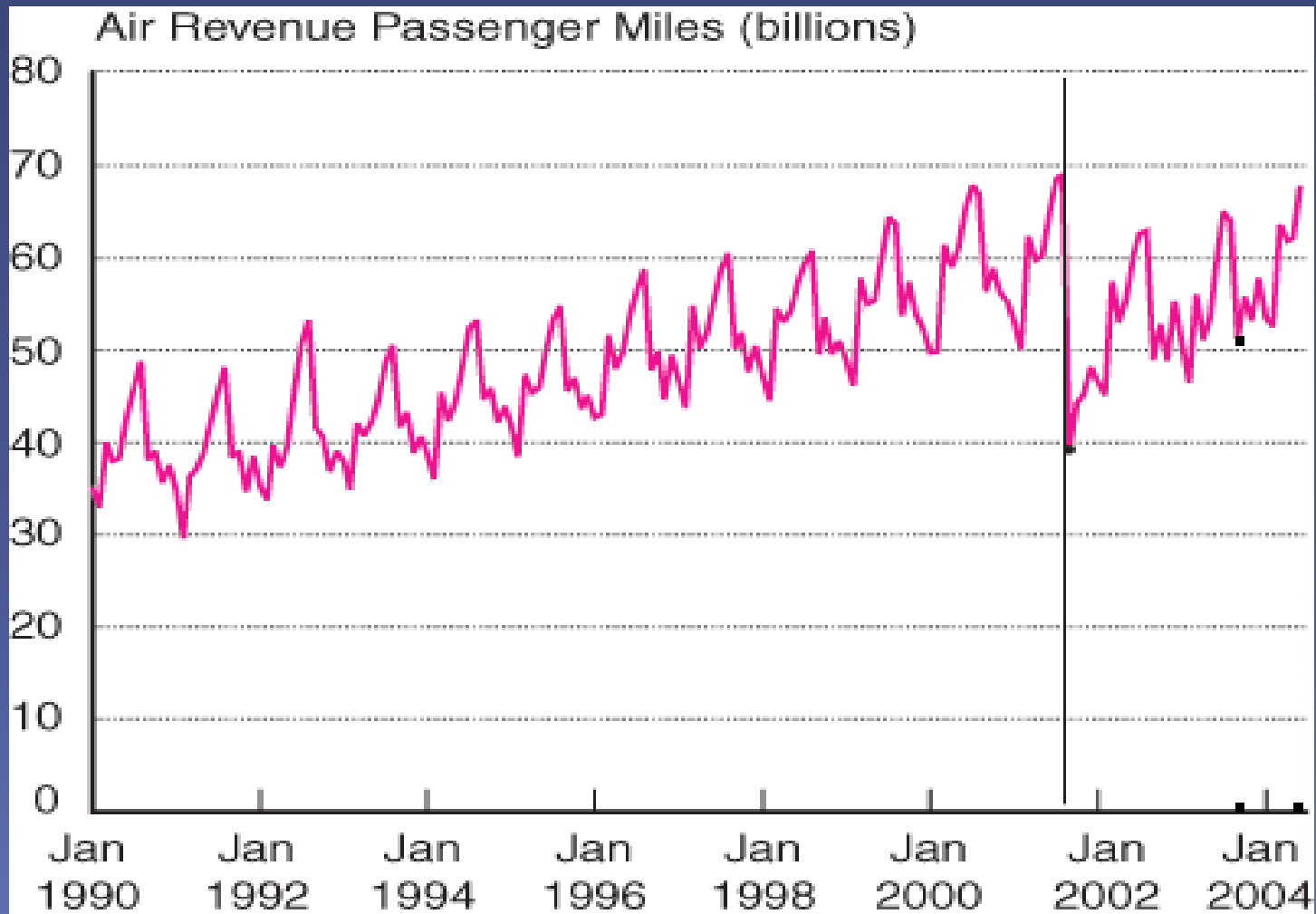
■ NSI Arrivals
■ Total International Arrivals
◆ Domestic Arrivals
✕ Total Arrivals

■ NSI Flights
■ International Flights
◆ Domestic Flights
✕ Total Flights

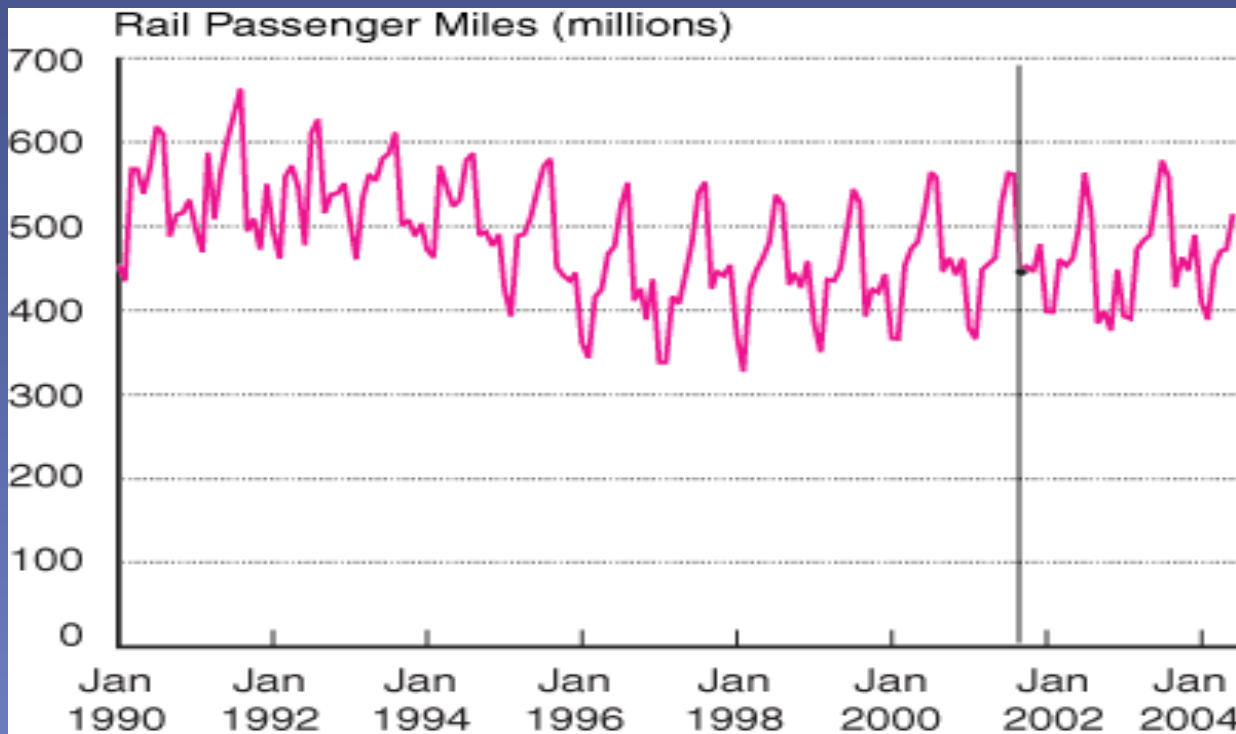
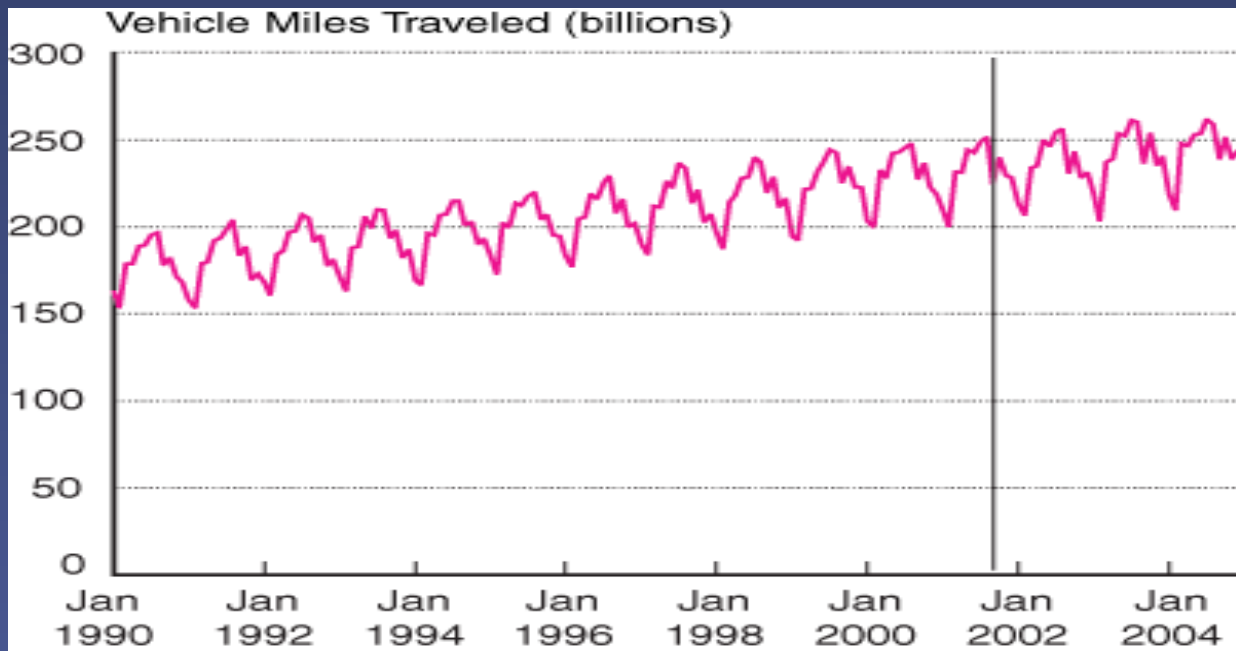
Passengers in the Greek Airport of Keffalonia (1989 – 2006)



Air Revenue Passenger Miles (Billions)



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, Air Carrier Traffic Statistics (Monthly T-100).



Decomposition & Classification

Simple Time Series Patterns

