

# Hour by Hour Energy Forecasting

## Data:

- Historical consumption and prices: multivariate time series

## To forecast:

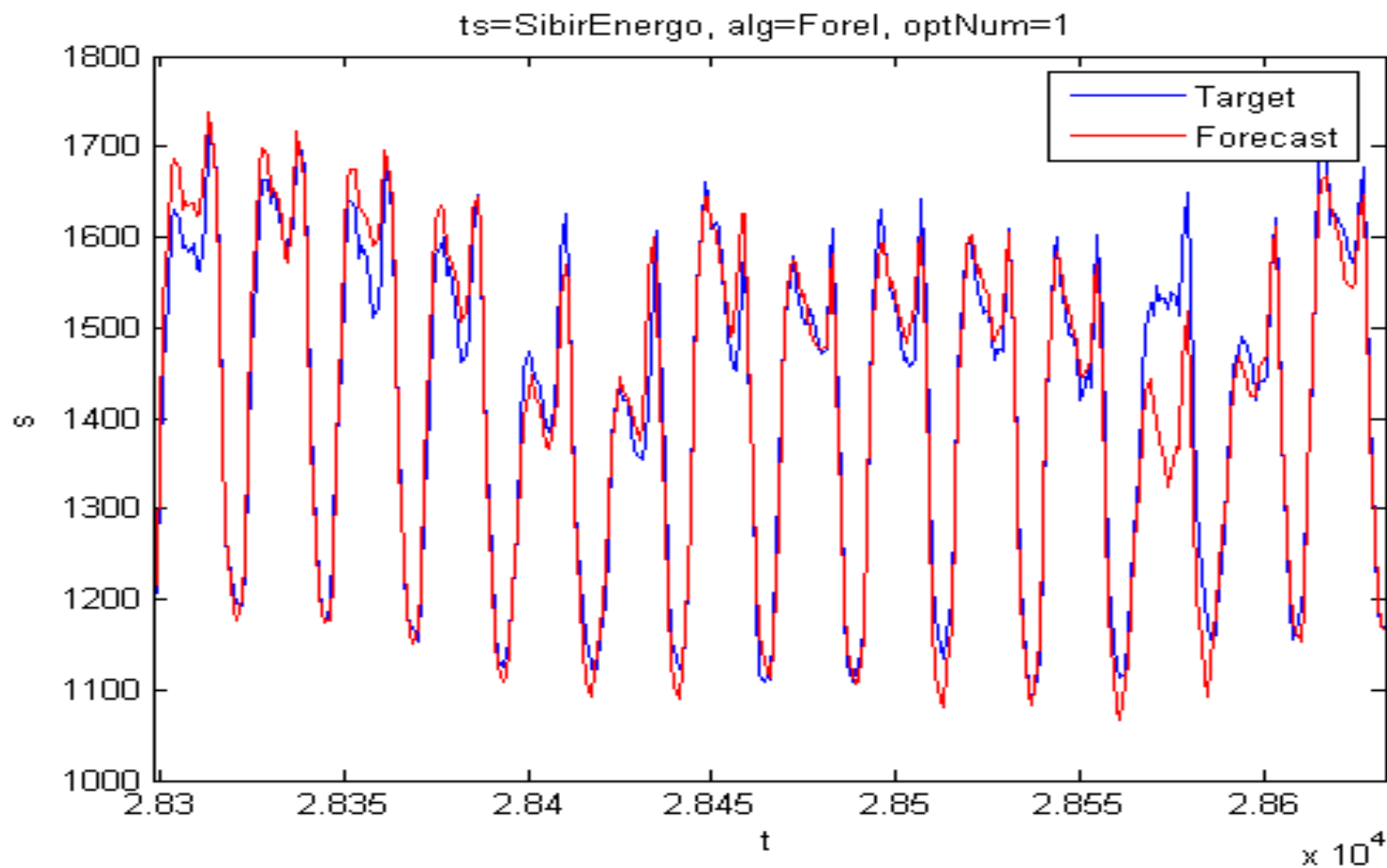
- Hour-by-hour, the next day
  - ✓ Consumption
  - ✓ Price

## Solution:

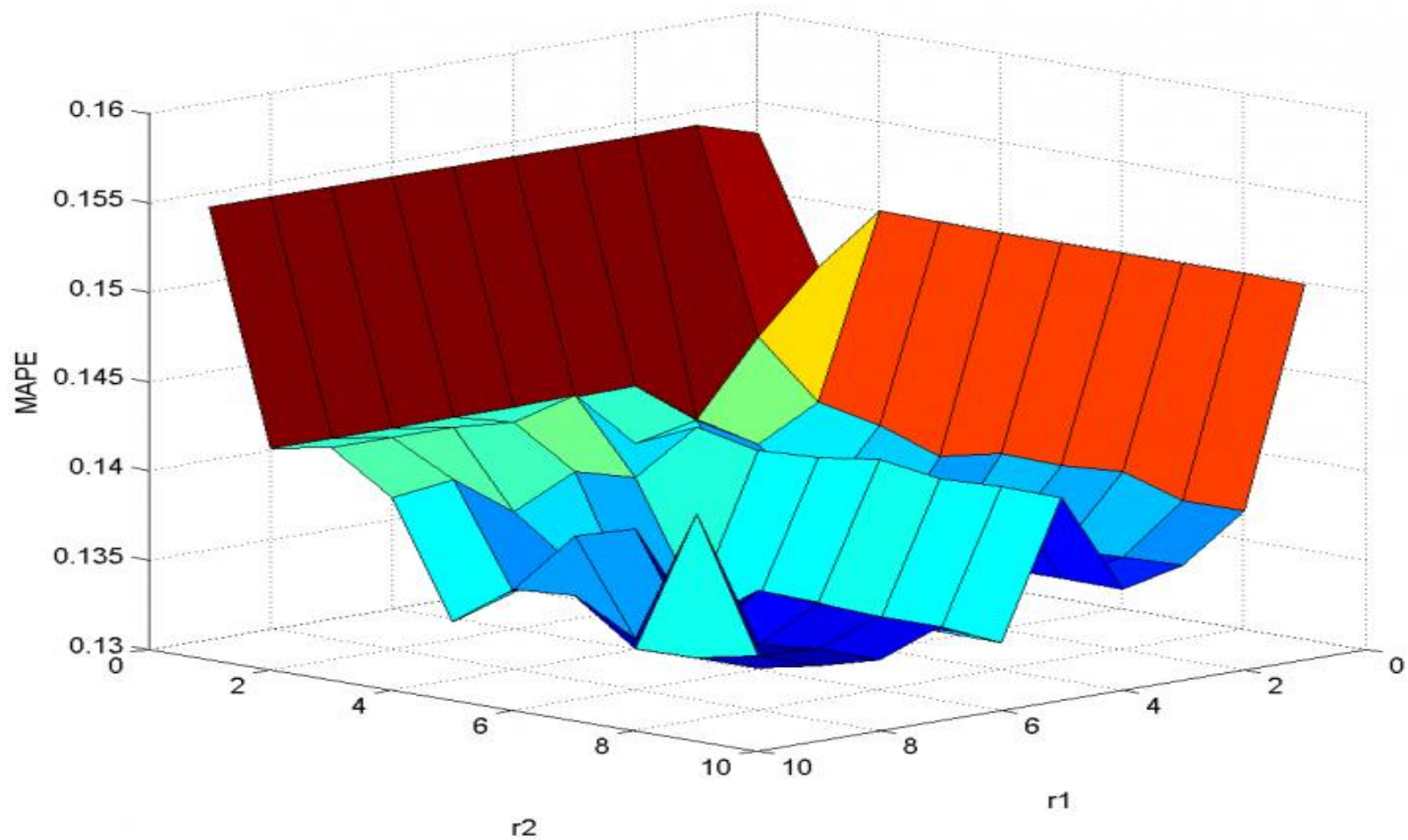
- Autoregression: model generation and selection



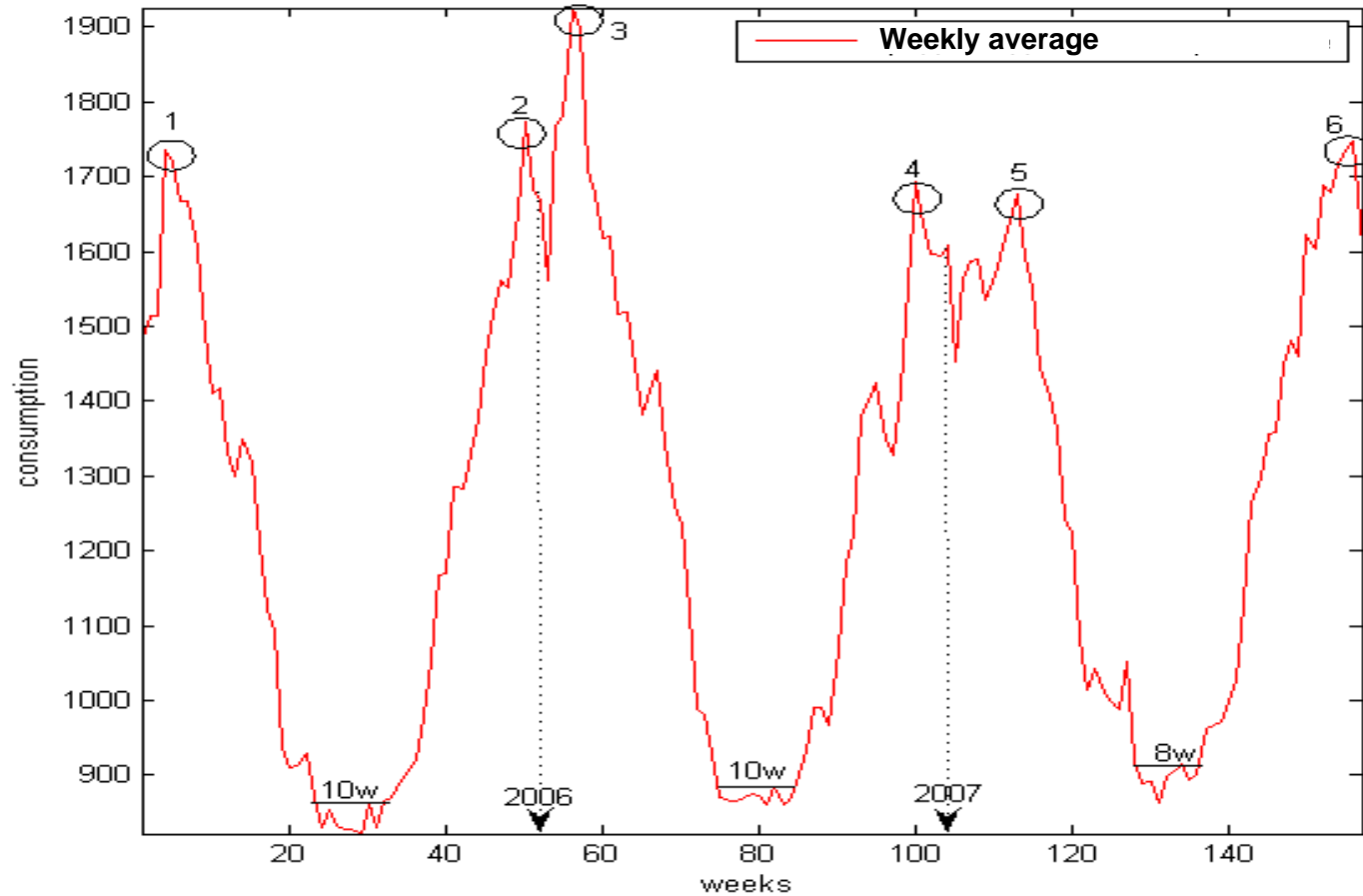
# Hour-by-hour, two weeks



# Quality of the forecasting model

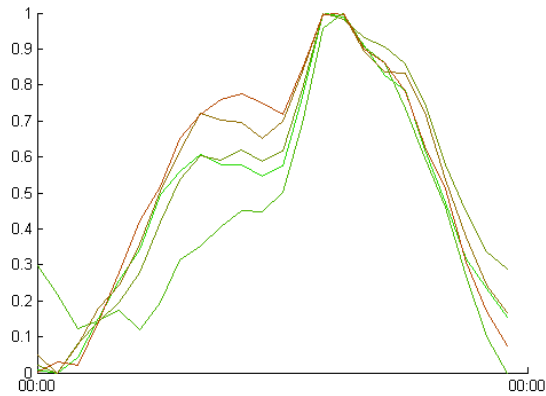


# Structure of consumption

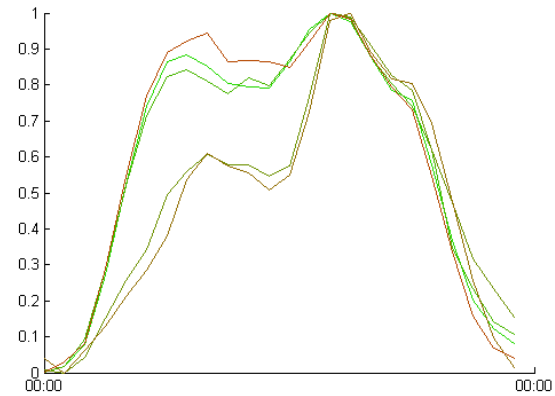


# Daily consumption

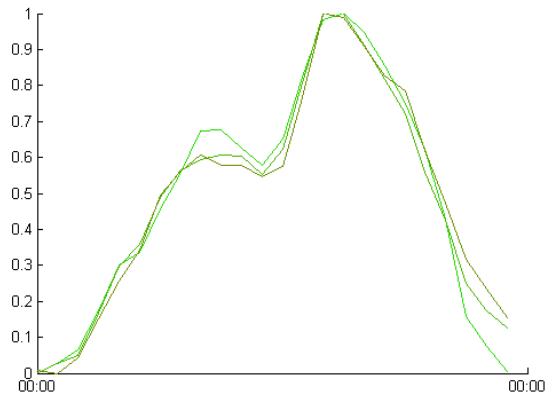
**One week**



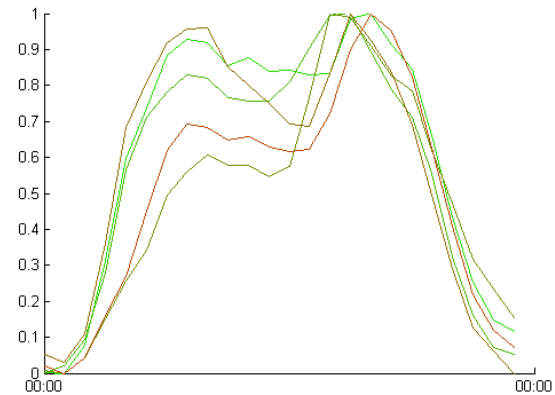
**Three consequent weeks**



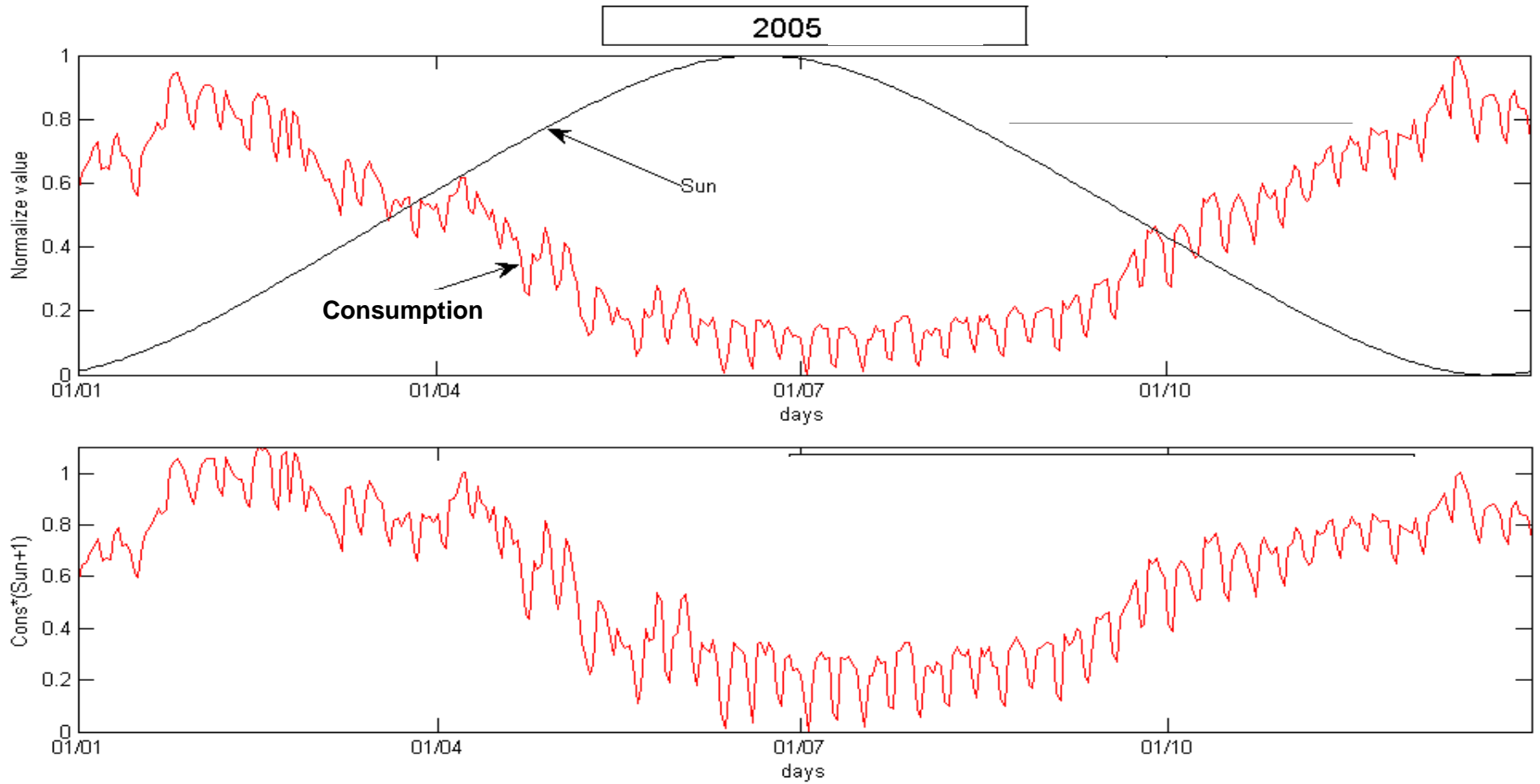
**One day in 2005, 2006, 2007**



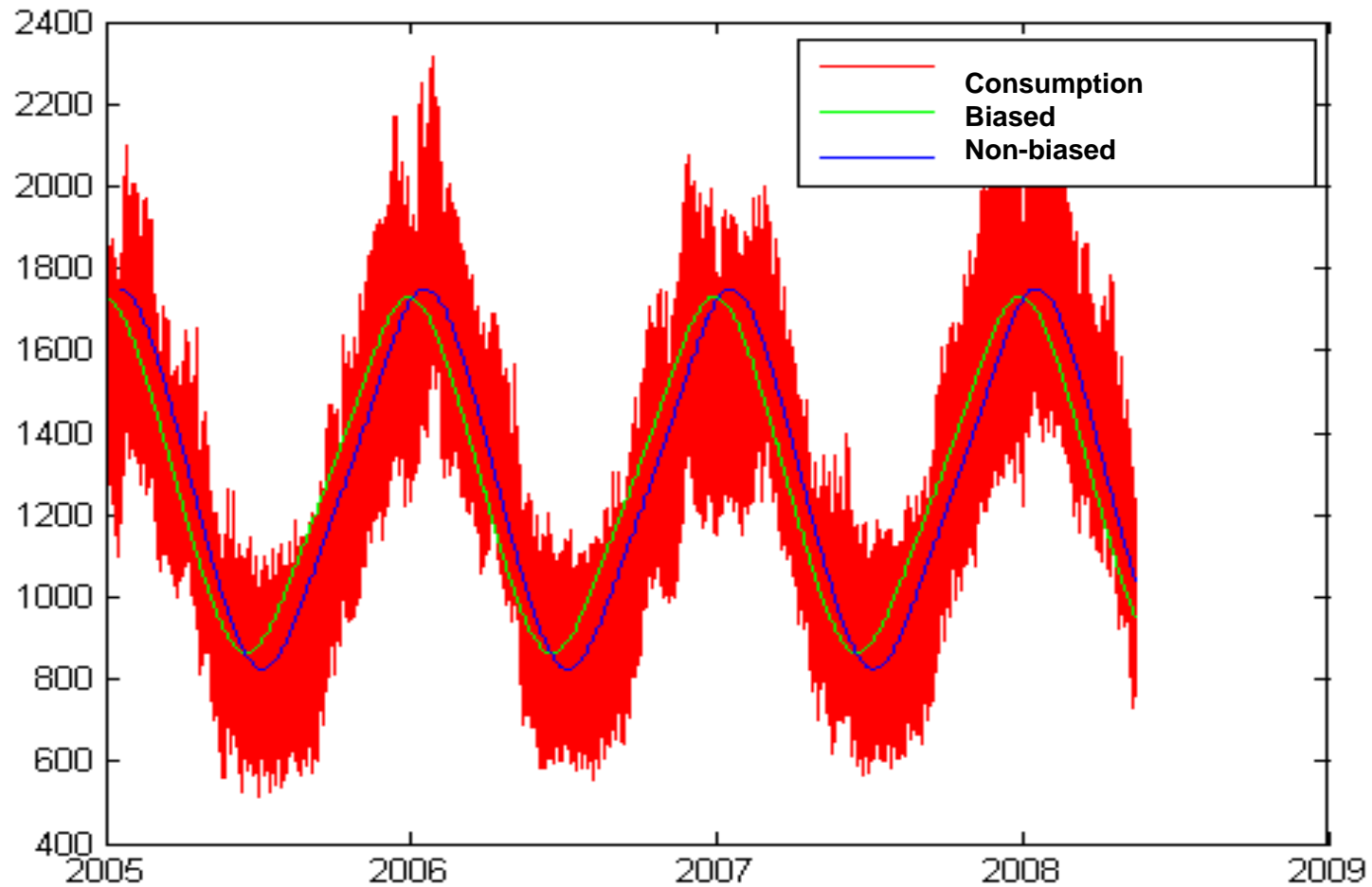
**Two months**



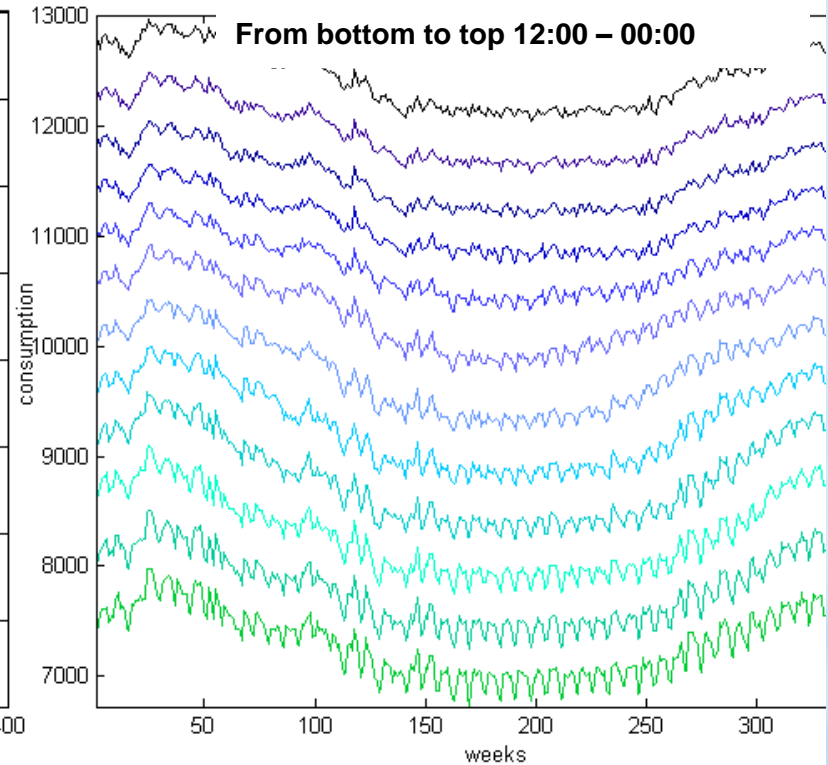
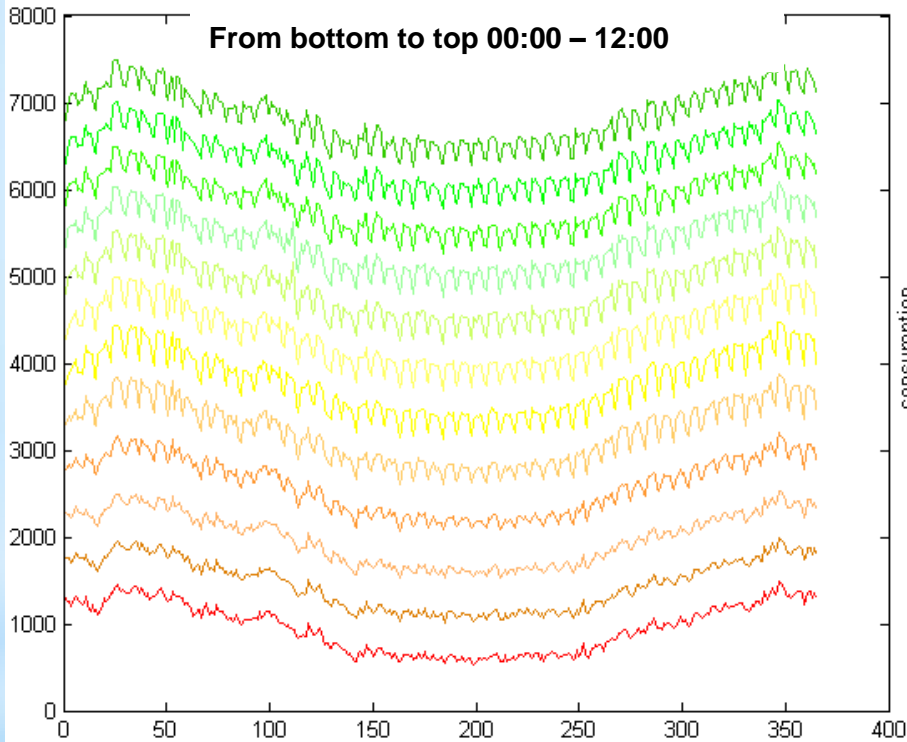
# Sunrise bias



# Sunrise bias

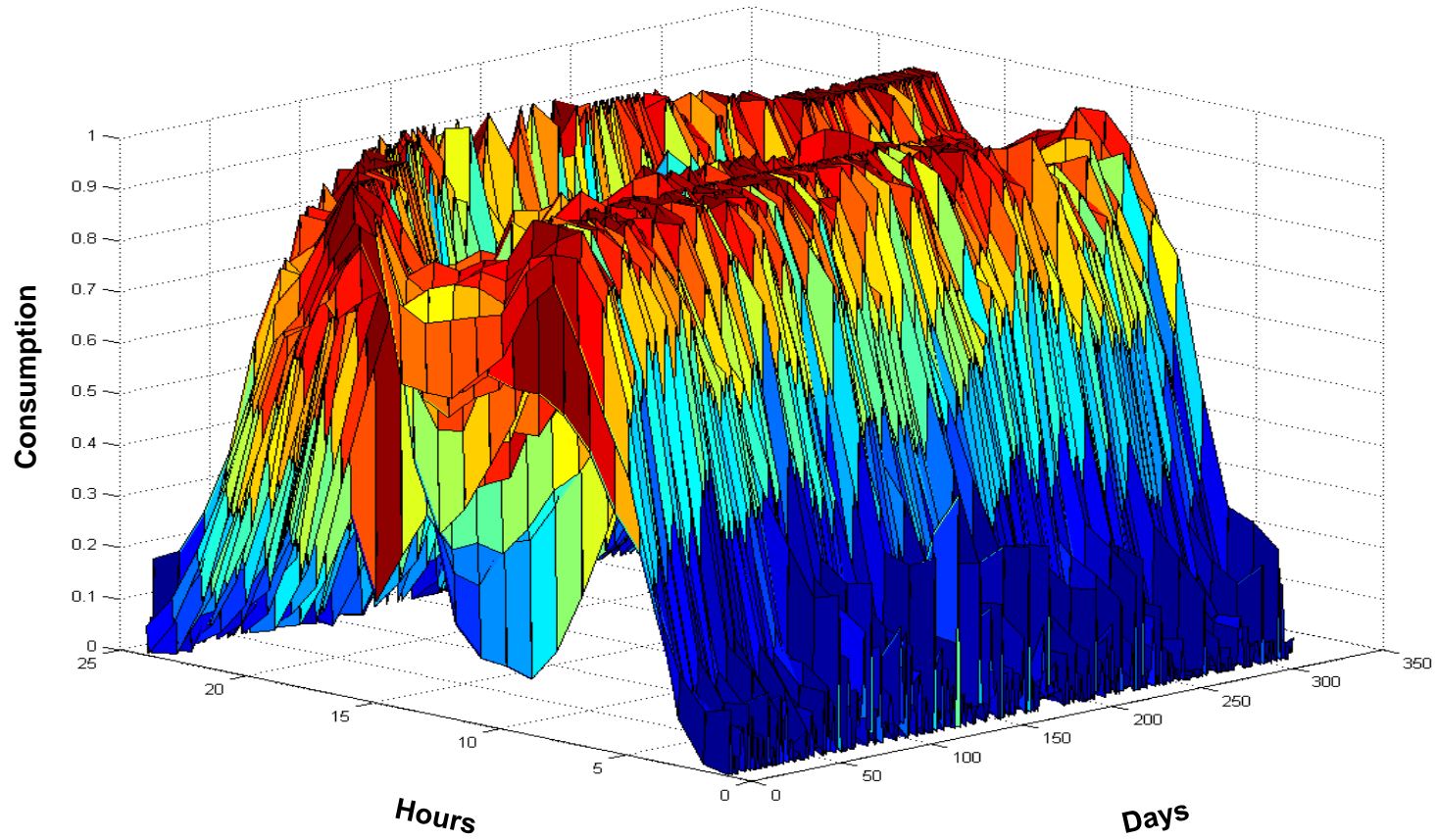


# Autoregression analysis



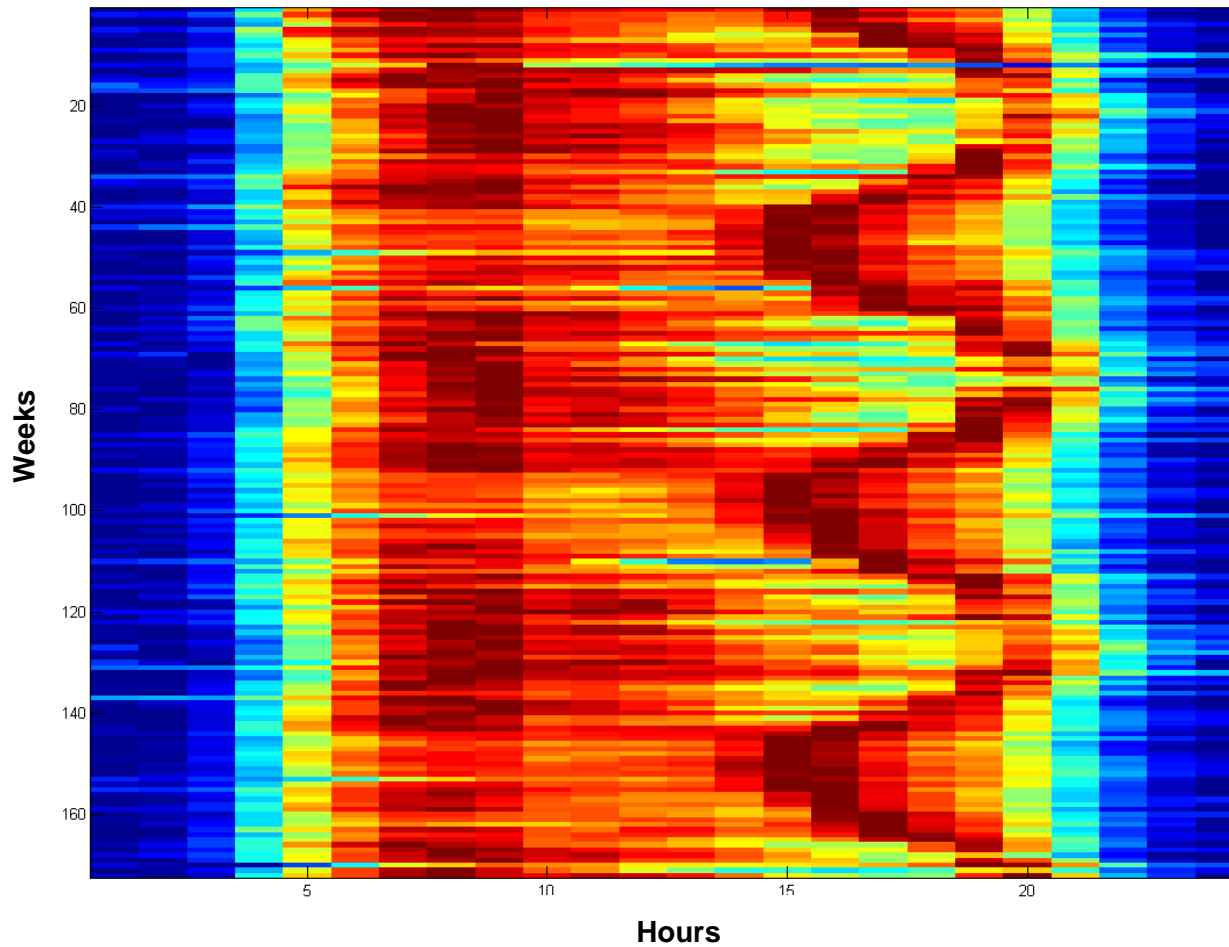


# Daily similarity

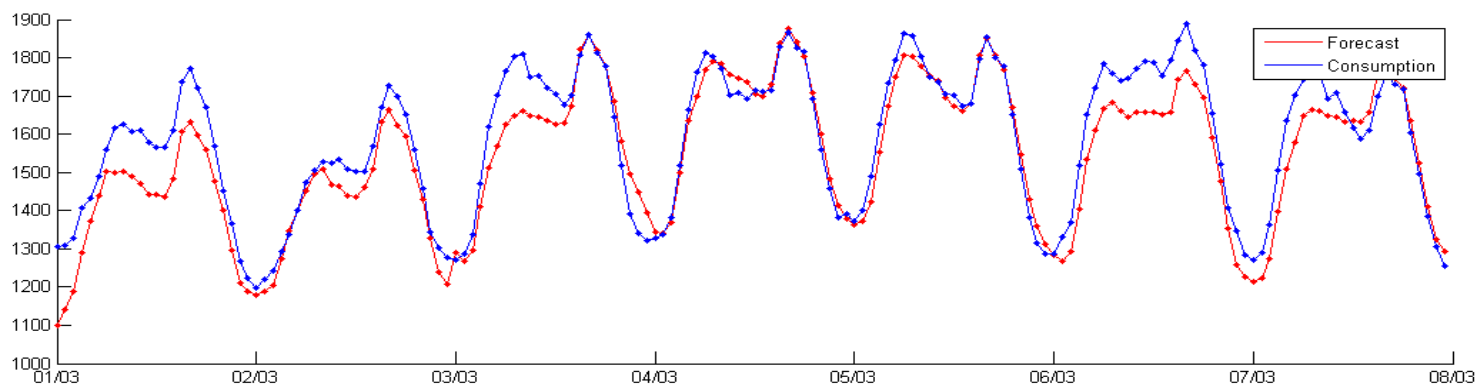
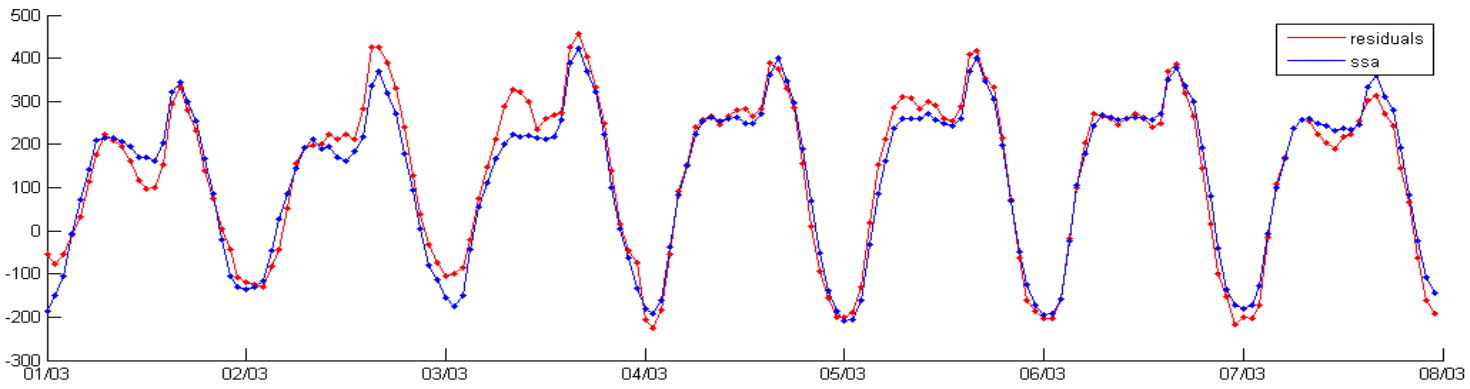


# Daily similarity

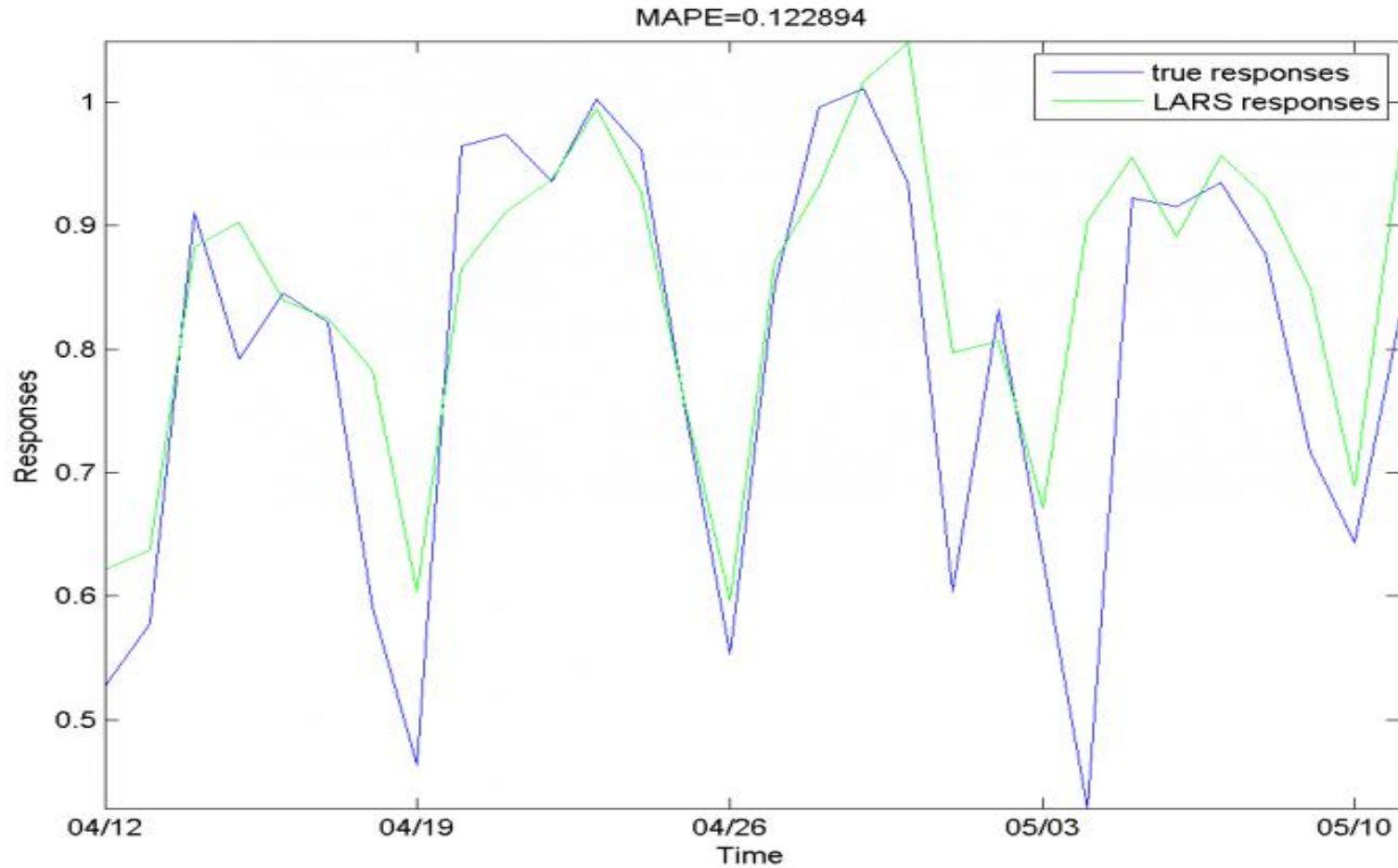
Thursdays



# Energy consumption forecast, next two weeks



# Energy consumption forecast, the next week



## The time series:

- Energy price
- Consumption
- Sunrise
- Temperature
- Humidity
- Wind force
- Holiday schedule

