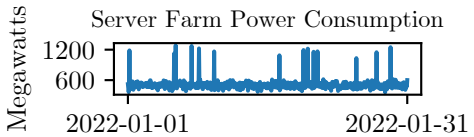
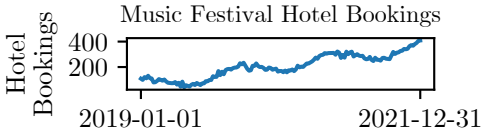
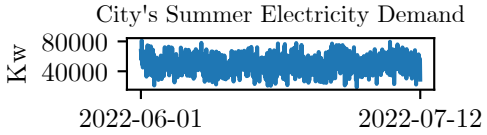


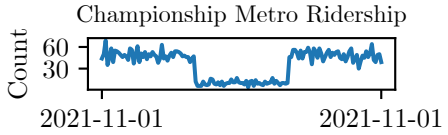

The time series describes the power consumption of a server farm, measured in megawatts, every hour for a month. An external event, like a DoS attack, might cause a sudden spike in power consumption as servers work overtime to mitigate the attack.



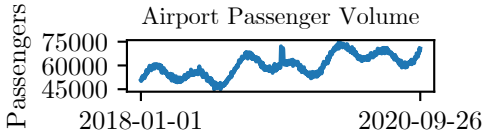

A small town hosts a local music festival every summer. This event greatly impacts the local economy, especially its hotel bookings. A time series of weekly hotel bookings over three years is produced, where a clear pattern of much higher bookings during summer festival weeks can be seen. The sample rate of this time series is weekly, and its duration is three years (156 weeks).



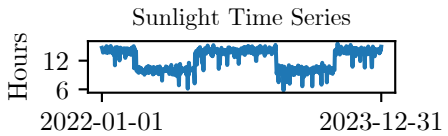

Consider time series data for a city's electricity demand over summer season. Electricity demand changes over time due to fluctuations in temperature and events like heatwaves. The data is sampled hourly over a period of 42 days (1008 hours), starting from June 1.



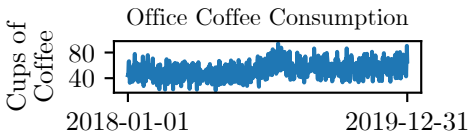

A championship game hosted at a city-center stadium creates an increased traffic flow in the city. The public transportation department records the increase in metro ridership every 10 mins from the start to the end of the game for a total duration of 5 hours. This will be a series of 30 observations per hour for 5 hours giving a total of 150 observations.



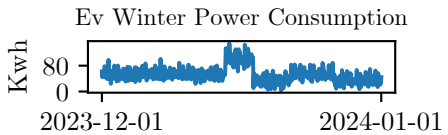

Airport traffic pattern is strongly influenced by a range of factors, including the time of year and external events. This scenario involves monitoring passenger volume at a major airport, sampled every day for 3 years. The external event is the occurrence of a global sporting event (like the Olympics), which results in a significant spike in traffic.



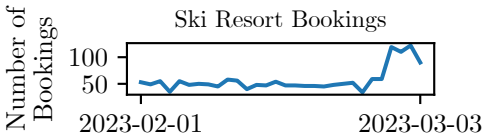

We imagine a scenario where we monitor daily sunlight duration in Sydney, Australia. We gather this data for two full calendar years. An external event like a series of bushfires might produce a noticeable dip in sunlight duration due to smoke cover. The sample rate is daily, and the time series covers two consecutive years making a total of 730 observations.



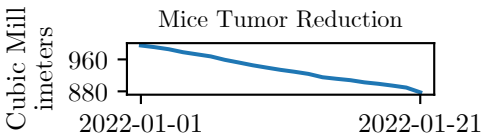

The scenario is the amount of coffee consumed in a corporate office. The sample rate would be each day over a period of two years. The external event would be the implementation of a new human resource policy that encourages the employees to take regular breaks leading to an increase in coffee consumption.




The scenario chosen involves power consumption of electric vehicles (EVs) during a winter holiday season. The sample rate of the time series is 1 hour over a month. The external event is a snowstorm which affects EVs by decreasing their efficiency thus resulting in higher consumption rates.




Consider a vacation resort located at a ski resort. It records the number of guests booked for the next 30 days every morning at 9 AM. An external event such as a heavy snowfall alert in the region could significantly increase the number of bookings due to an influx of tourists hoping to enjoy snow sports.




A pharmaceutical research company is testing a new cancer drug on laboratory mice, and the sample represents volume of the tumor over a period of 21 days at a daily sampling rate. The external event here is the application of a new drug dosage at the start of each week; this intervention is expected to decrease tumor volume over time.