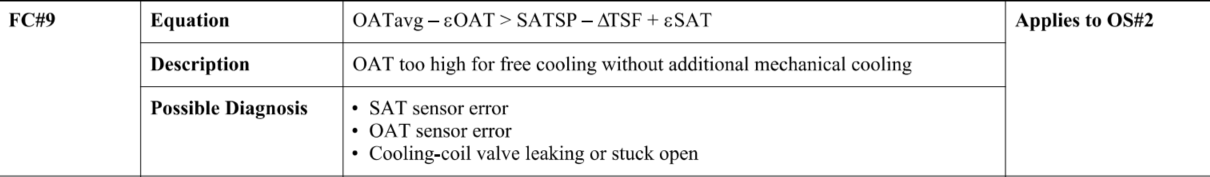
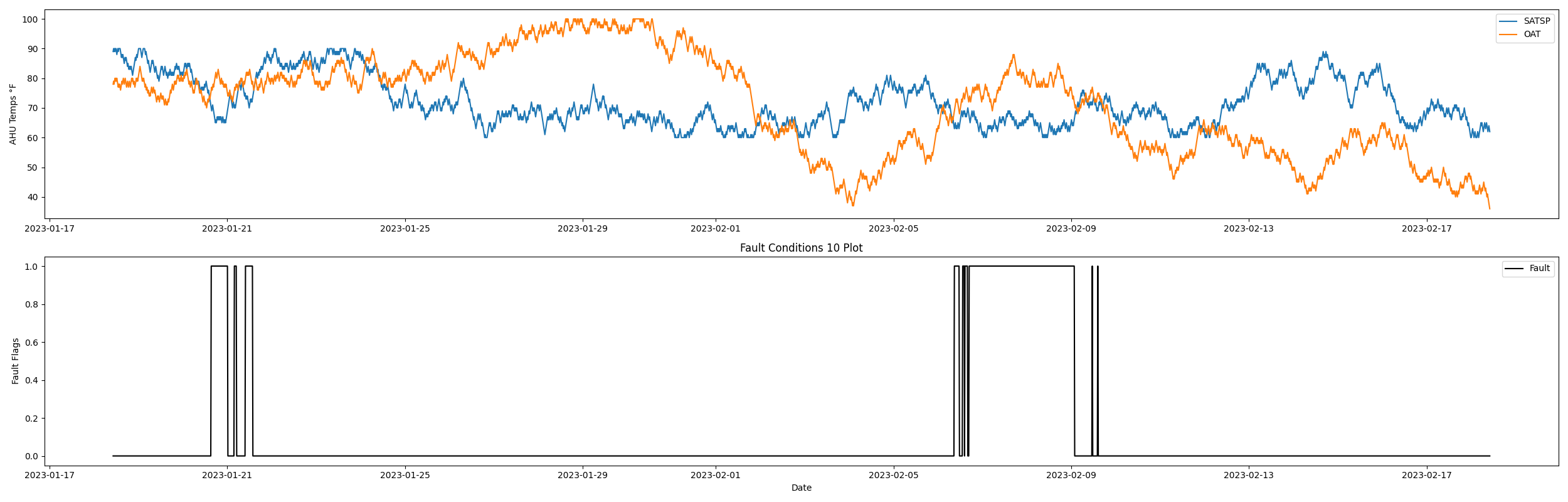
Fault Condition Nine Report

Fault condition nine of ASHRAE Guideline 36 is an AHU economizer free cooling mode only with an attempt at flagging conditions where the outside air temperature is too warm for cooling without additional mechanical cooling. Fault condition nine equation as defined by ASHRAE:



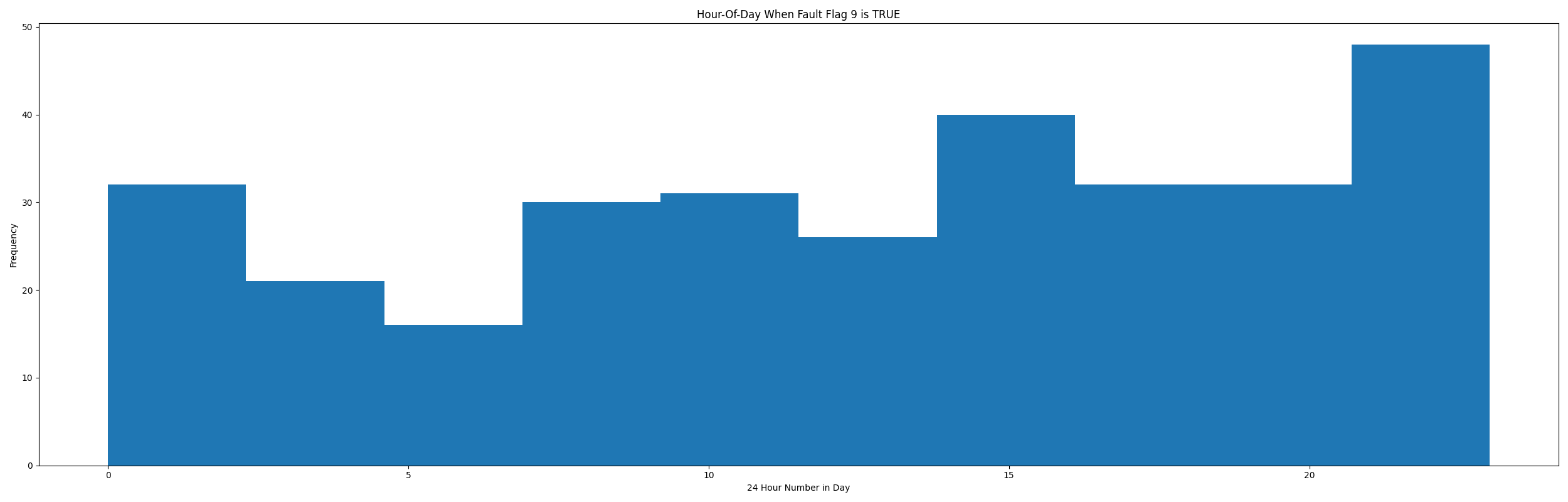
## Dataset Plot



## Dataset Statistics

* Total time in days calculated in dataset: 30.99
* Total time in hours calculated in dataset: 743.75
* Total time in hours for when fault flag is True: 77.0
* Percent of time in the dataset when the fault flag is True: 10.35%
* Percent of time in the dataset when the fault flag is False: 89.65%
* Calculated motor runtime in hours based off of VFD signal > zero: 278.0

## Time-of-day Histogram Plots



* When fault condition 9 is True the average outside air is 78.07 in °F and the supply air temperature setpoinht is 65.33 in °F.

# Summary Statistics filtered for when the AHU is running

### Supply Air Temp Setpoint

* count 1112.000000  
  mean 72.760791  
  std 7.915529  
  min 60.000000  
  25% 66.000000  
  50% 71.000000  
  75% 79.000000  
  max 90.000000  
  Name: satsp, dtype: float64

### Outside Air Temp

* count 1112.000000  
  mean 67.285072  
  std 14.533076  
  min 36.000000  
  25% 53.000000  
  50% 74.000000  
  75% 79.000000  
  max 88.000000  
  Name: oat, dtype: float64

## Suggestions based on data analysis

* The percent True metric that represents the amount of time for when the fault flag is True is high indicating temperature sensor error or the cooling valve is stuck open or leaking causing overcooling. Trouble shoot a leaking valve by isolating the coil with manual shutoff valves and verify a change in AHU discharge air temperature with the AHU running.

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