

# NERC GridEye Frequency Data Transmission and Visualization

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## Introduction

This project is to develop a series of applications that can efficiently make use of both streaming synchrophasor data and raw burst event data from the GridEye's and develop analytic and visualization tools. The overall objective is to help NERC fulfill its mission to ensure the frequency reliability and security of North American interconnections. The tools developed could be used by the DOE to obtain information through SAFNR-3 and later Eagle-I to help the department gain situational awareness of the North America grids.

## Time Error Calculation based on Synchrophasor Measurement

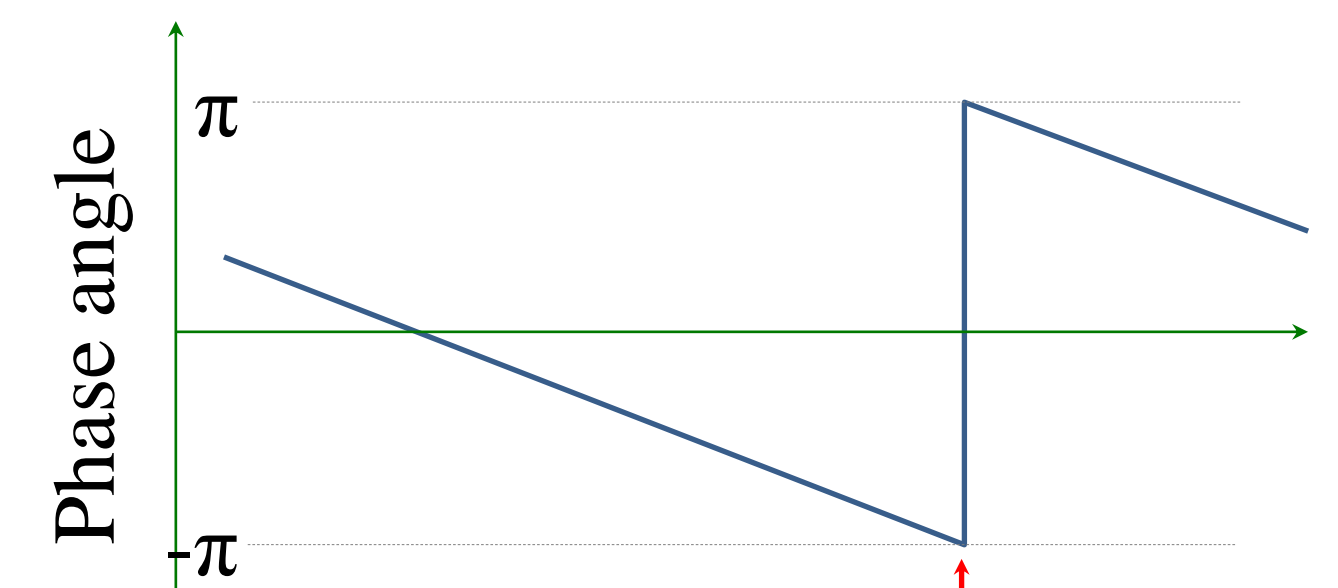
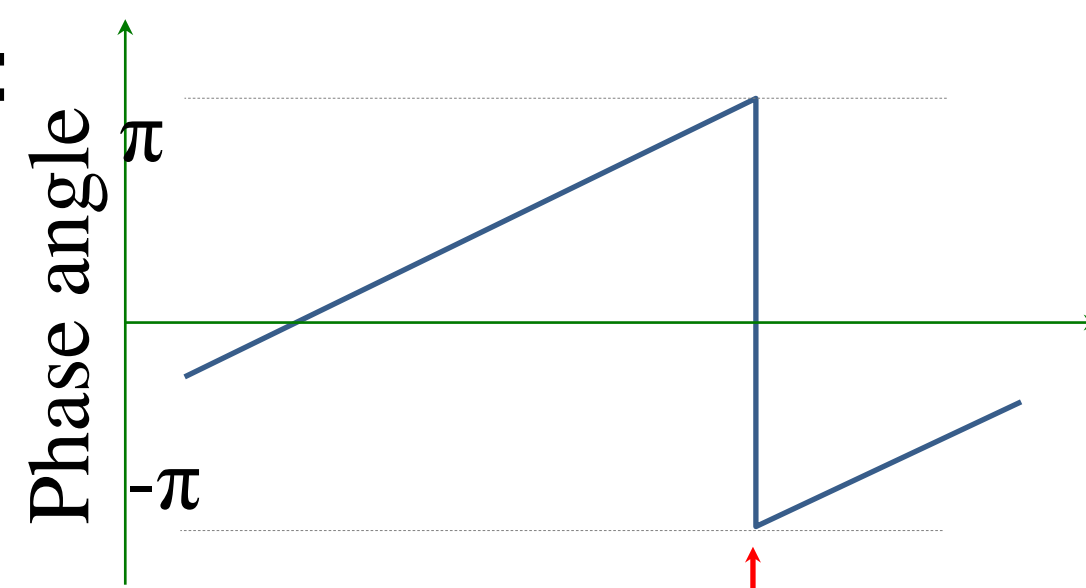
System median frequency based time error calculation:

$$T_{err} = \sum \frac{(f_{sys} - 60) \times 0.1}{60}$$

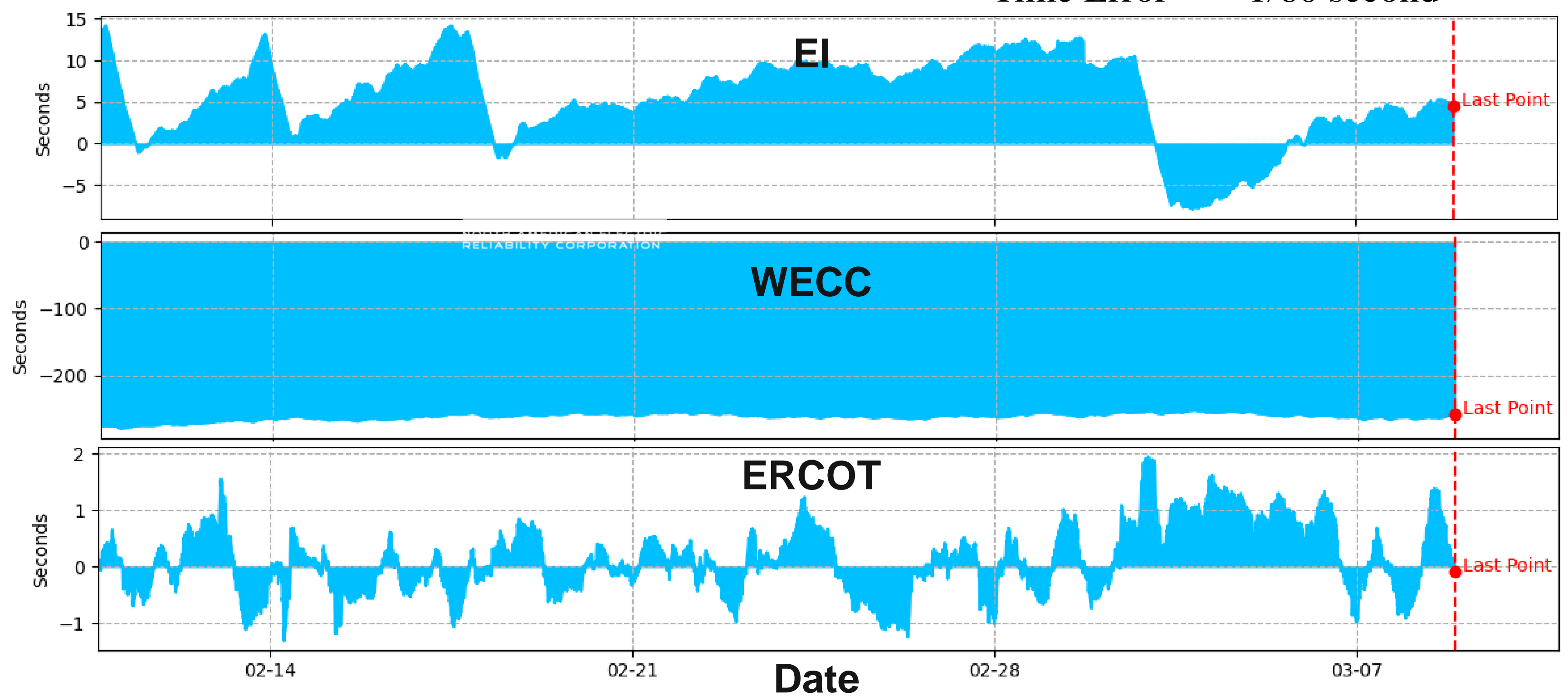
Phase angle based time error calculation:

The time error  $T_{err}$  will be added or subtracted by 1/60 second once phase angle wrapping was captured.

The calculation accuracy is 0.14s in 9 month.



## Time Error Tracking and Visualization



## Automation of NERC Candidate Event Detection and Confirmation

Automate the procedure of NERC frequency event detection and confirmation

Under Development

