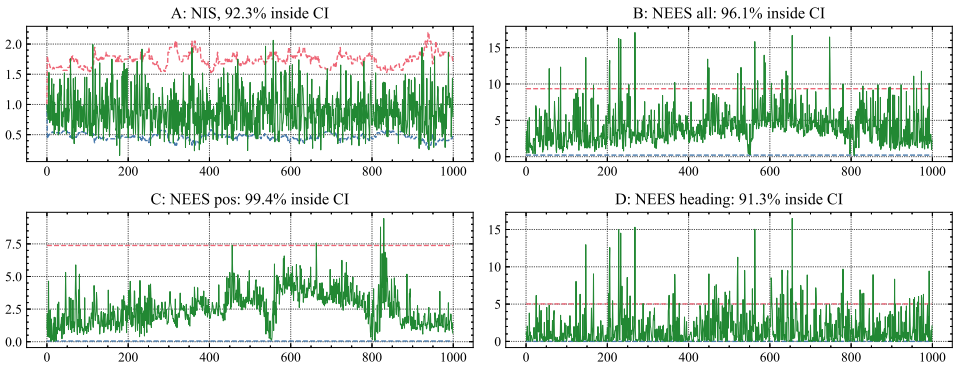


Figure 1: Consistency for simulated dataset

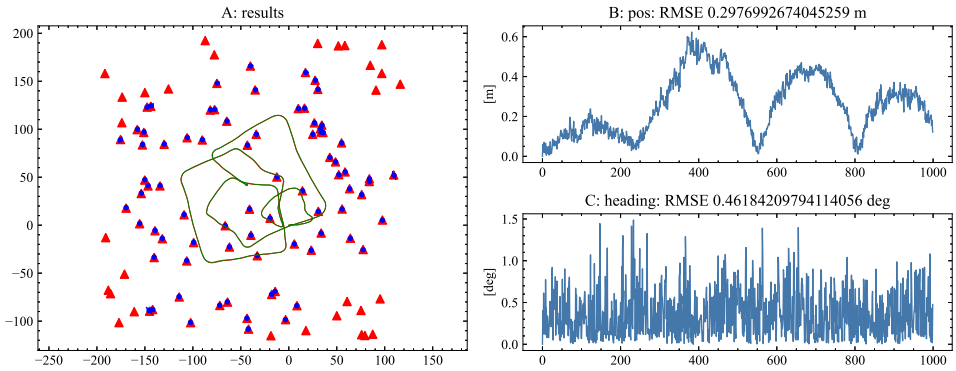


Figure 2: Result and RMSE for simulated dataset

# 1 Tuning

## 1.1 Thoughts on tuning VP

- Higher $R_1$ Less landmarks
- Trust odometry to much causes predicted position to change making it harder to make associations
- Too large R, we overfit and NIS becomes small
- Avoid detecting same object as different
- Make sure Q is tuned so that P contains reasonable values

# 2 Consistency

## 2.1 Fit to GNSS

- For NEES with GNSS, remove outliers

One way of showing a fit between the GNSS data and the estimated positions is to attempt a translation of the GNSS data onto the estimates and analyse the error. We found the rotation using SVD and the translation was found by solving a linear least squares problem.

To compare with GNSS we computed NIS values by finding each odometry measurement closest in time to the GNSS measurements.