

Management and Evaluation on Team Logging Operation by GPS

Efficiency and Process Improvement

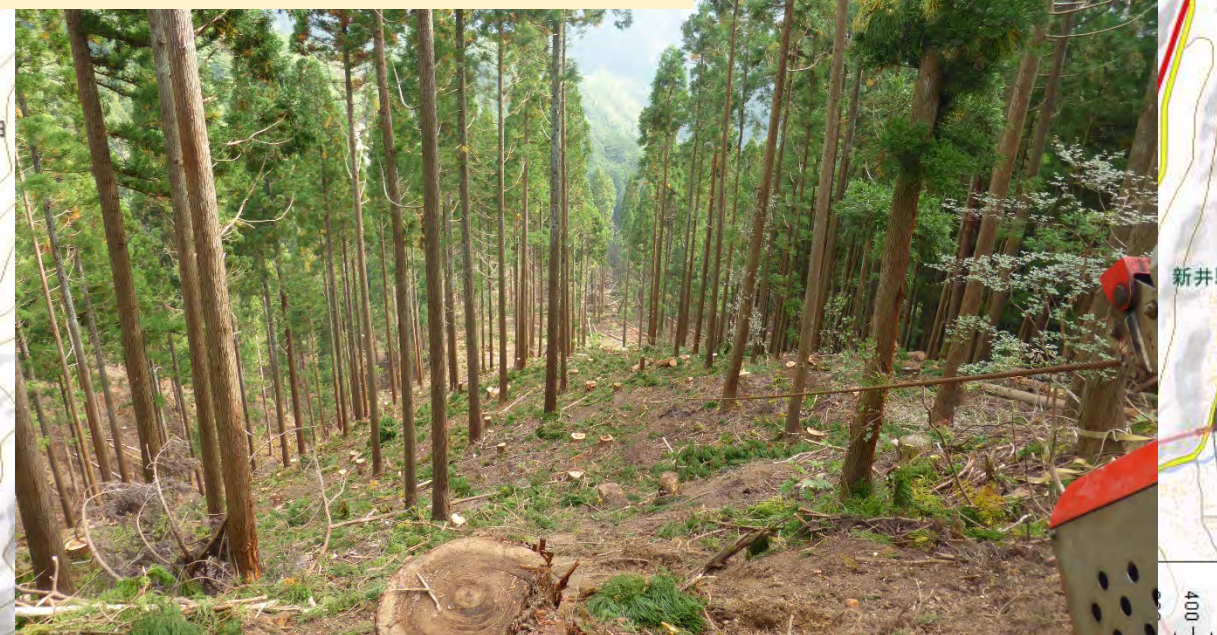
2015/10/06

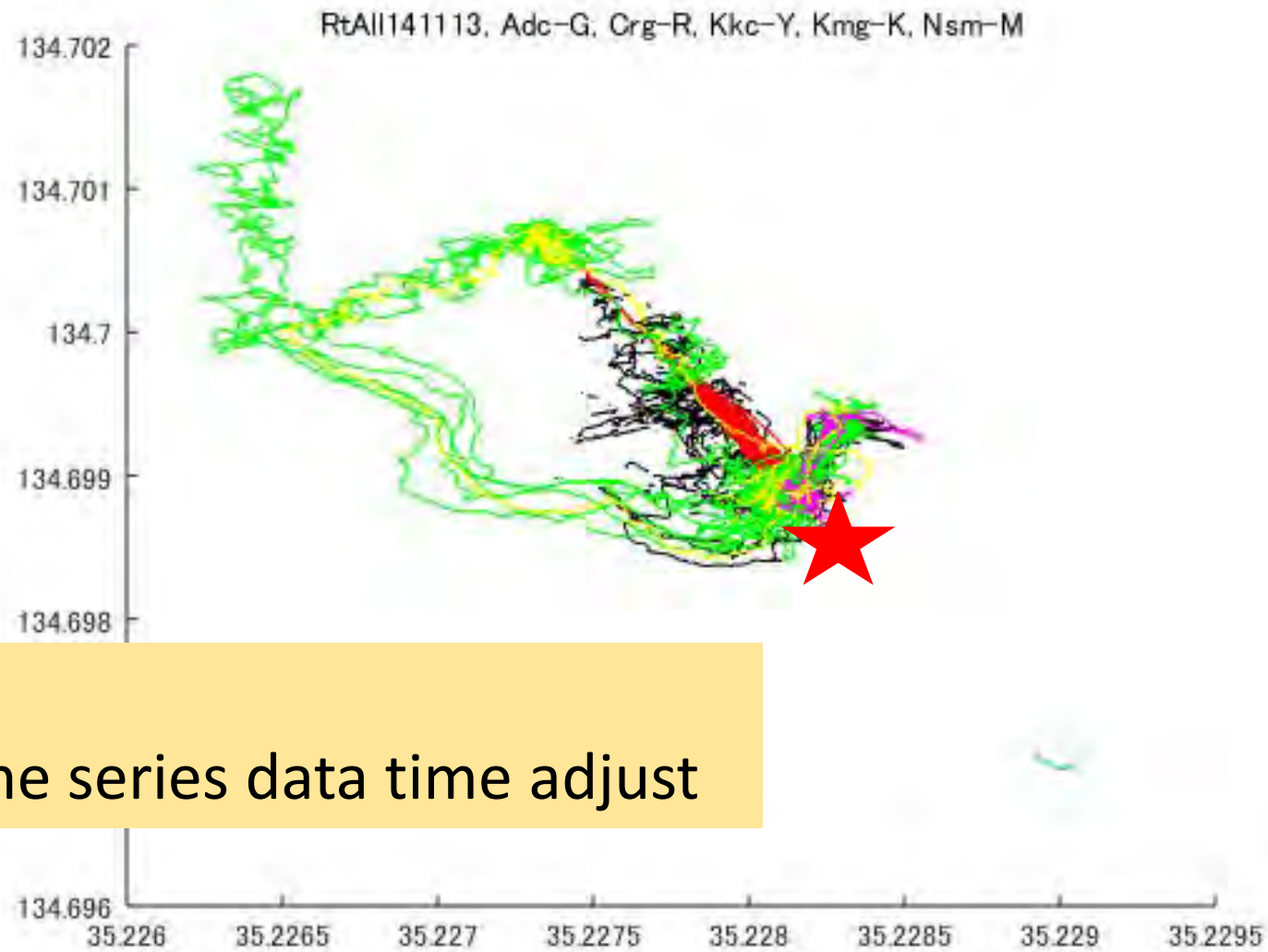
FORMEC2015, Linz

Toshio Nitami, Ph.D., Asoc. Prof., University of Tokyo

Site and Method

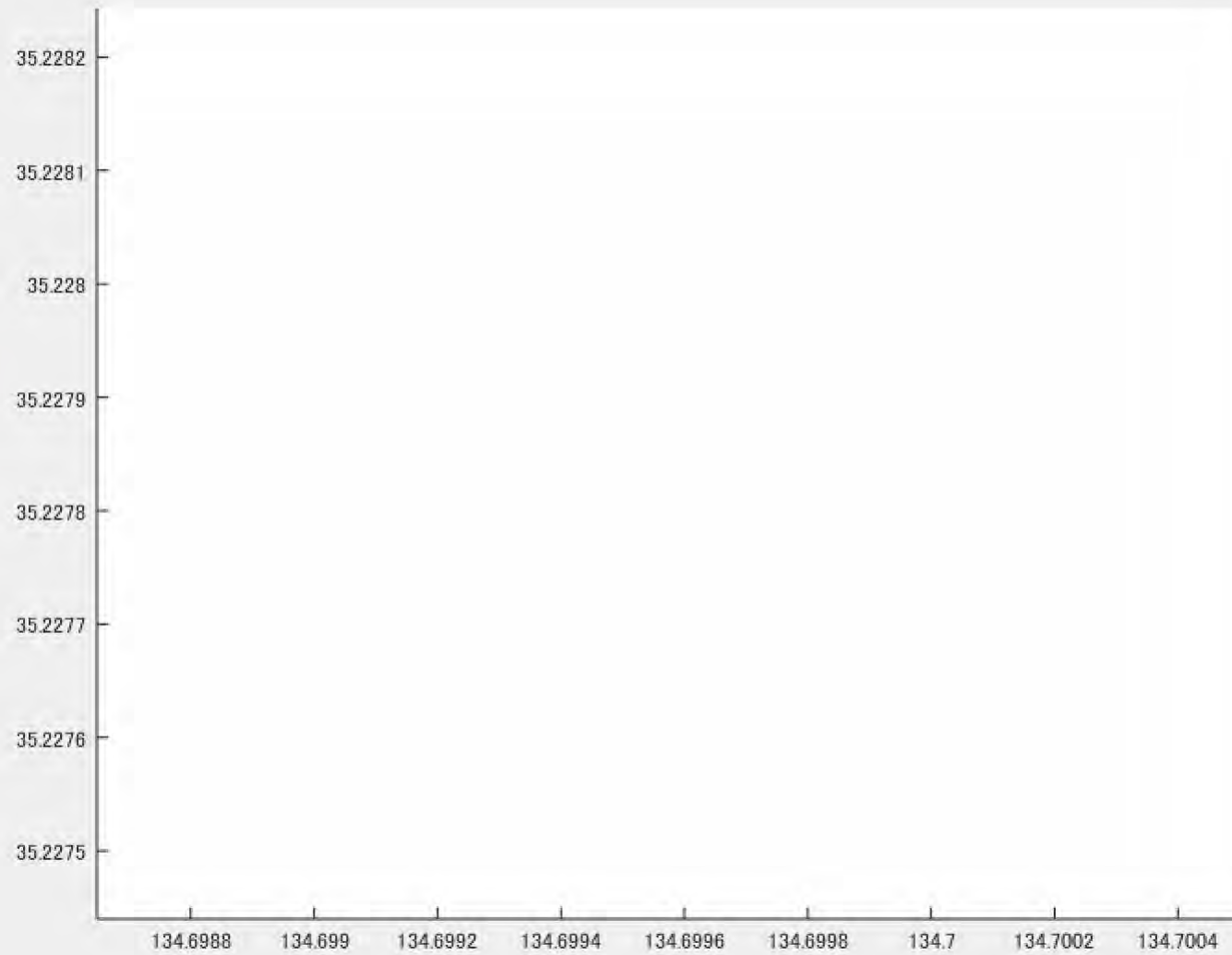
- A tower yarder uphill yarding
- Four men crew
- Thinning, selective
- Medium(4t) truck transport to Intermediate landing

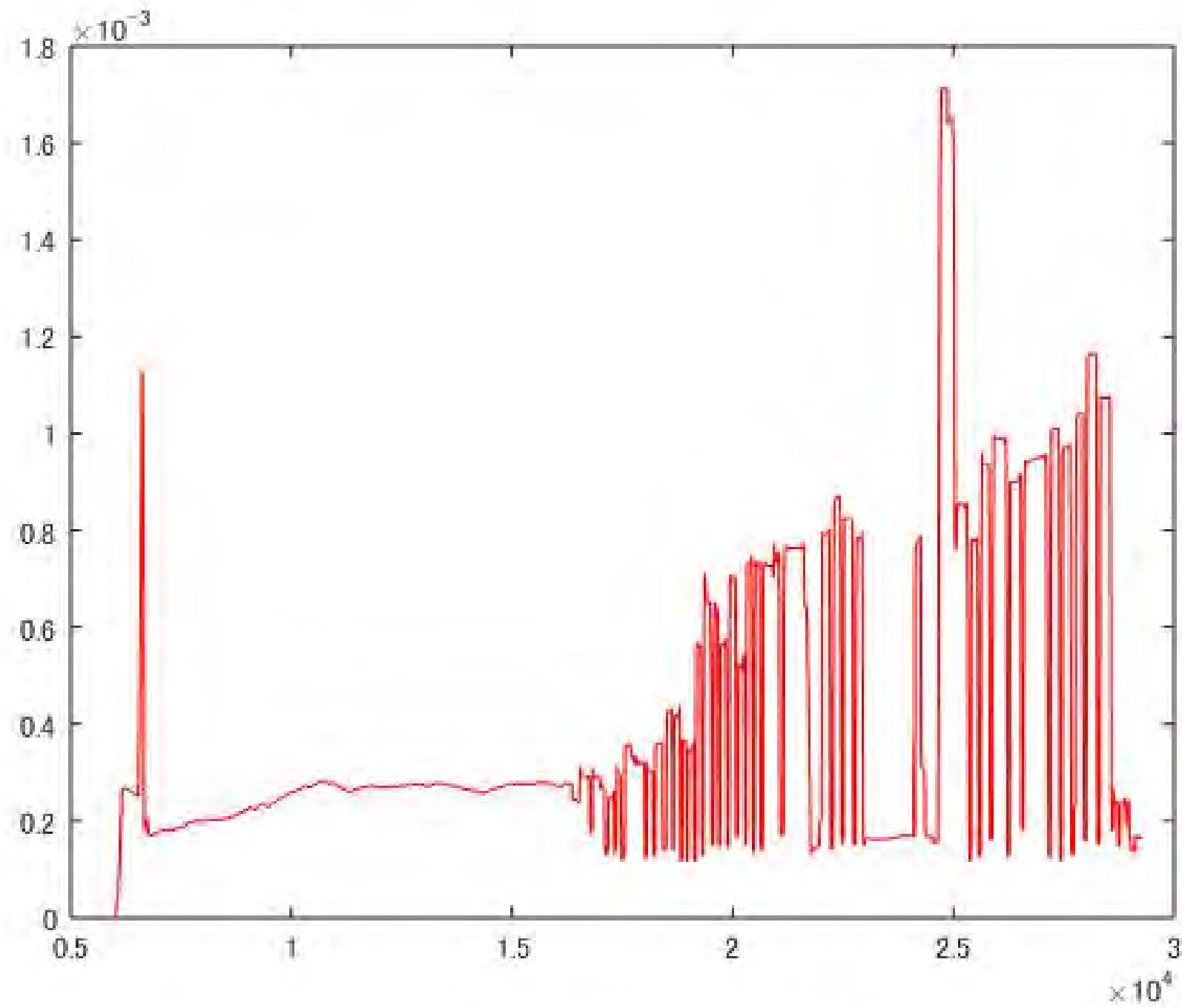




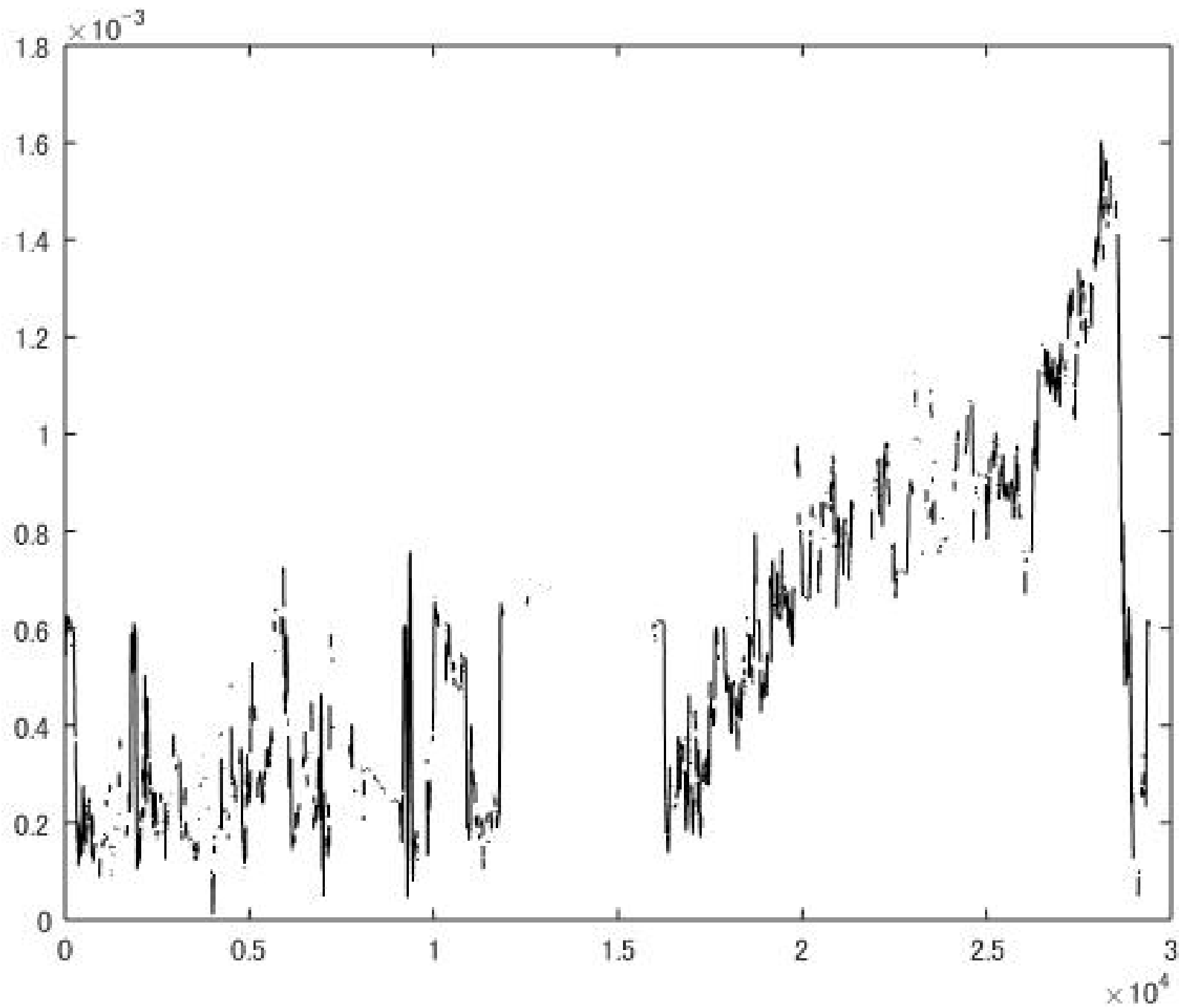
- Big data
- Require for time series data time adjust

Operation work loci, GPS location

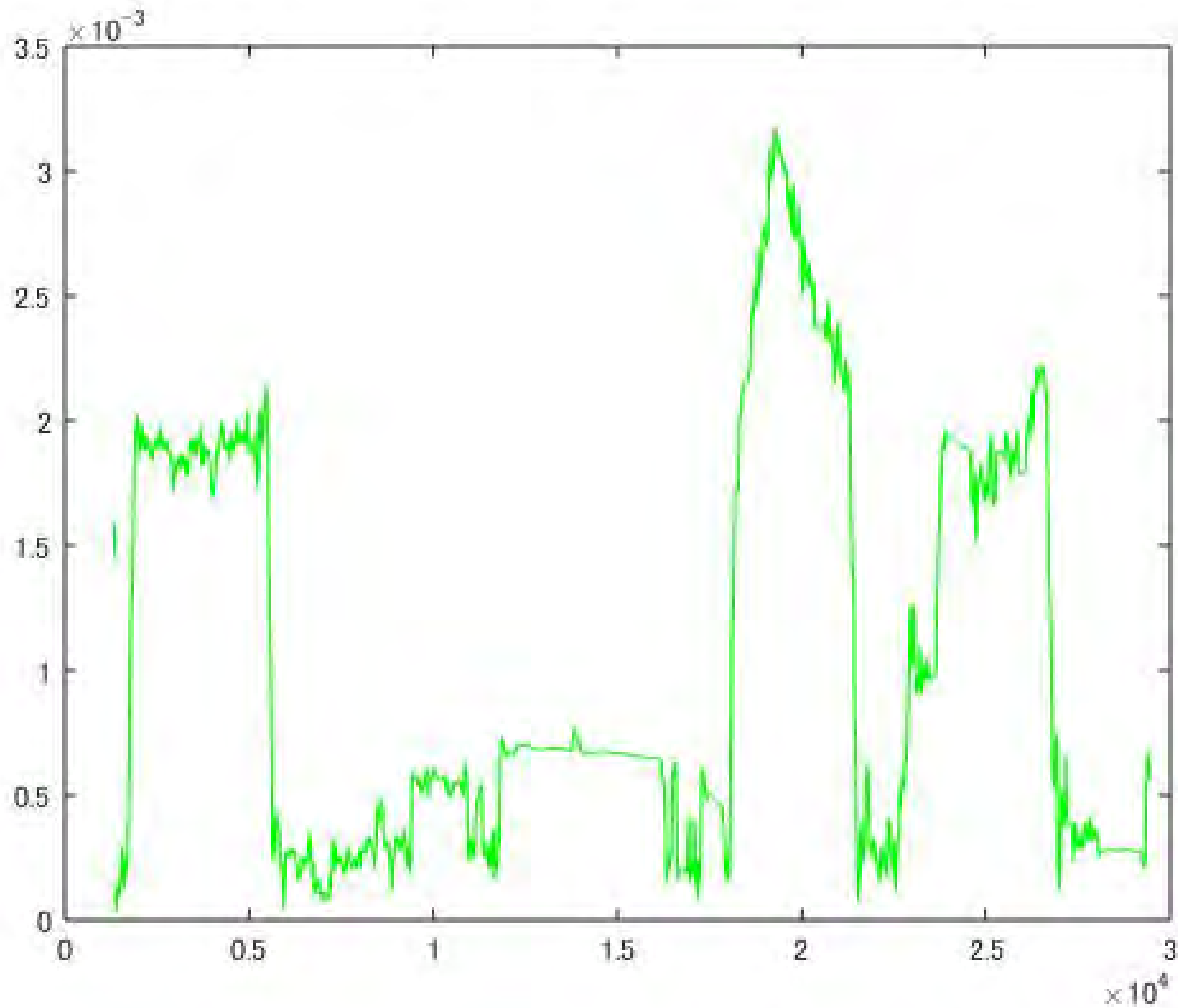




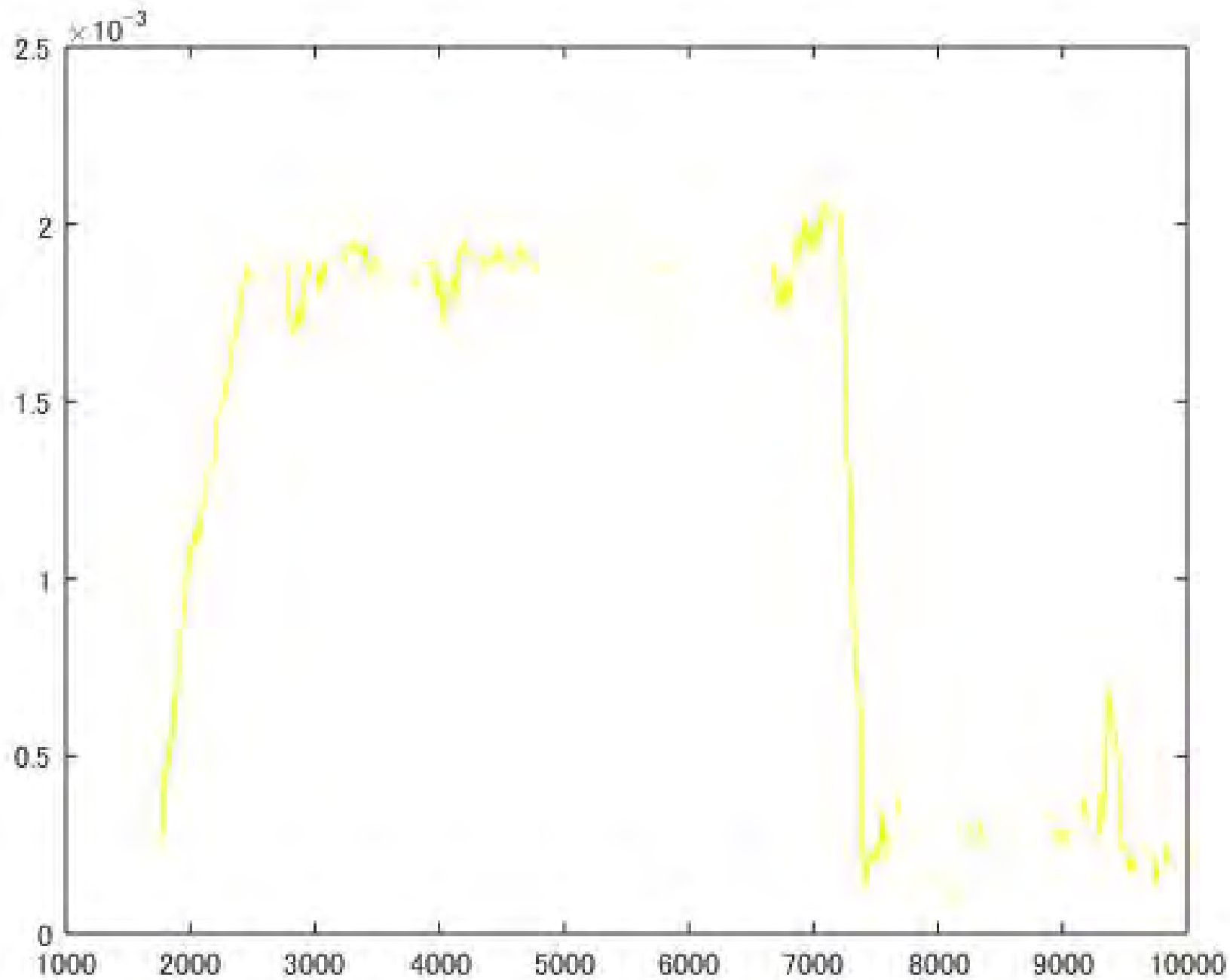
Work point distance
for task
- Carriage



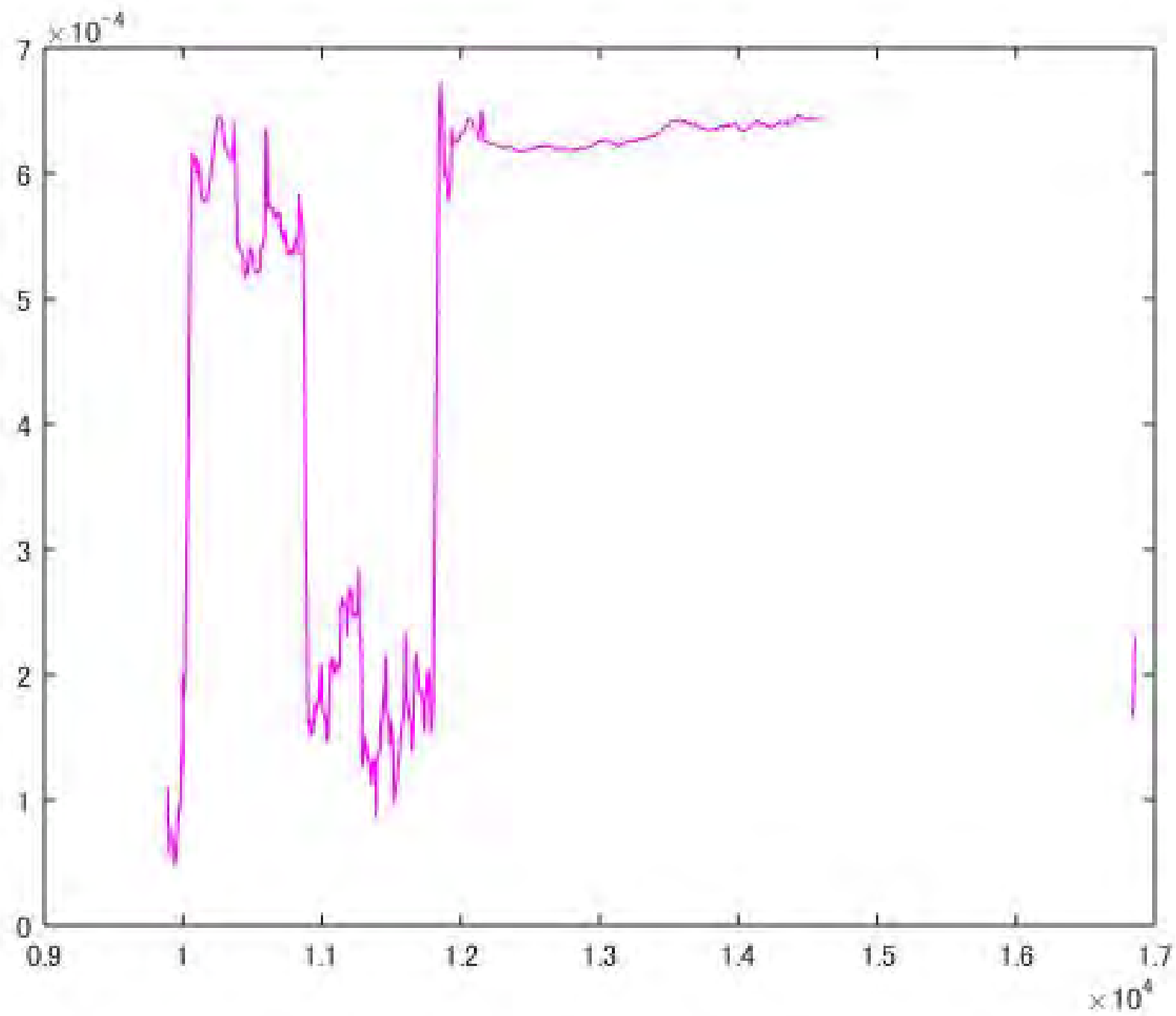
Work point distance
for task
- assistant, feller,
choker-man



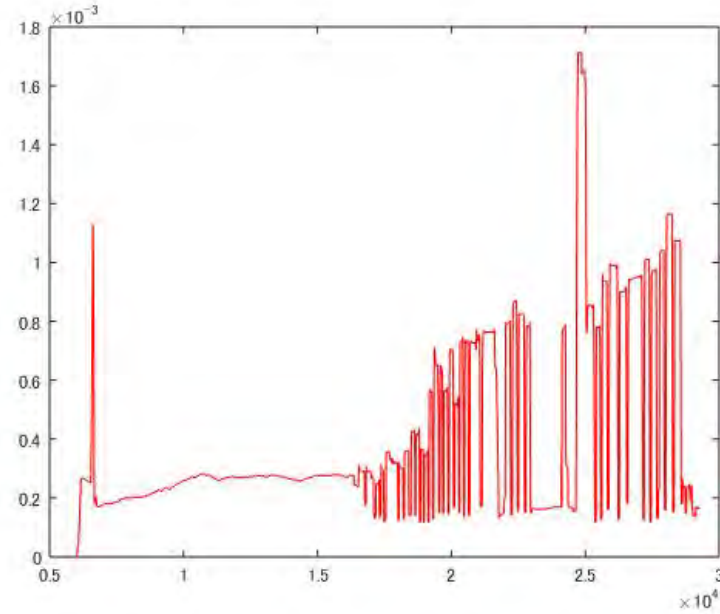
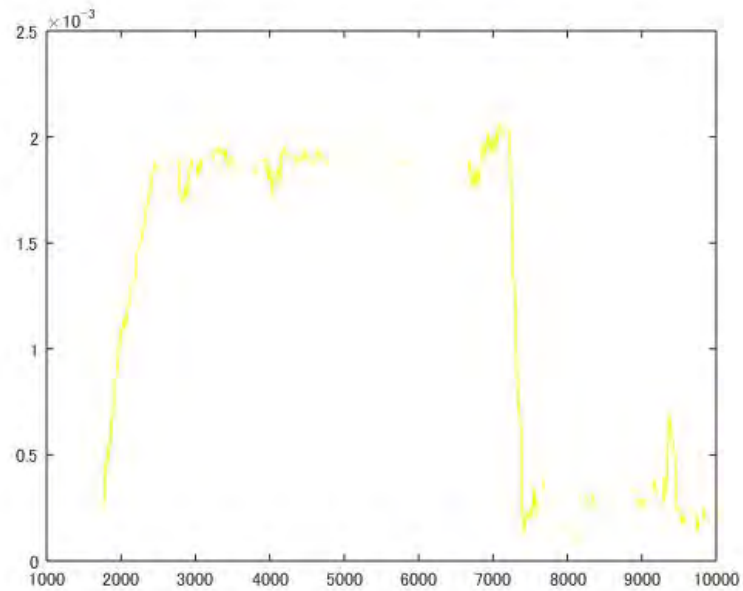
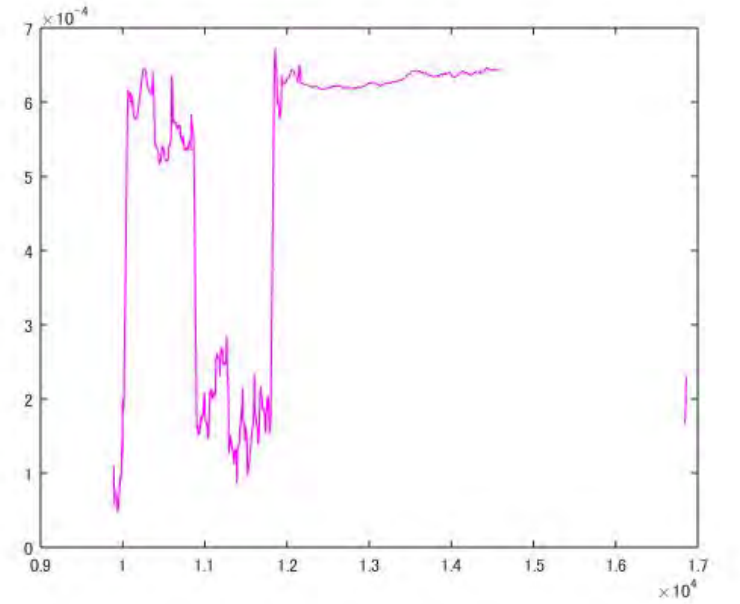
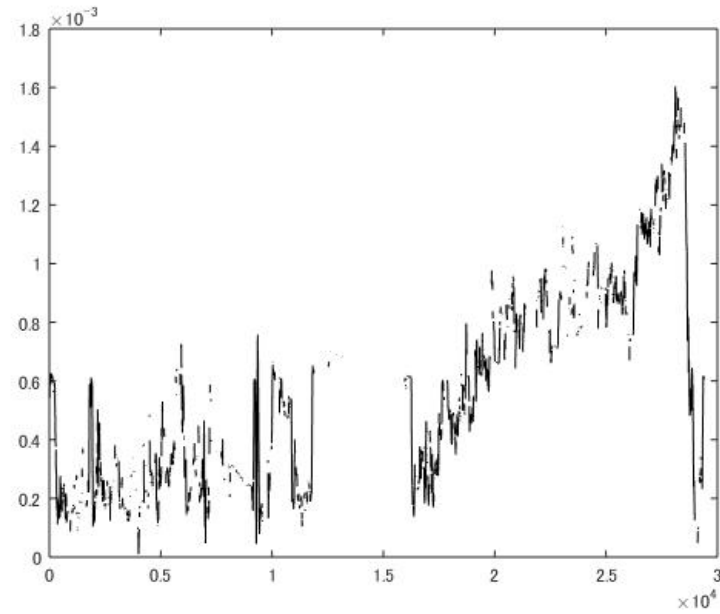
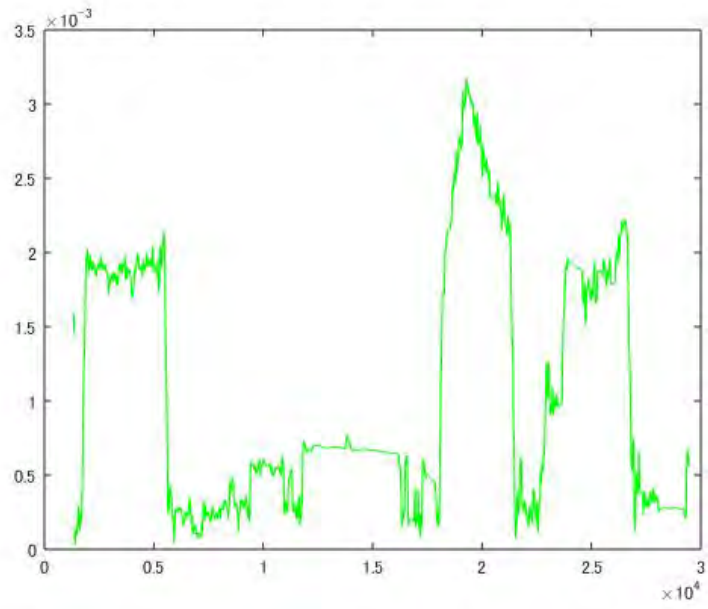
Work point distance
for task
- Leader



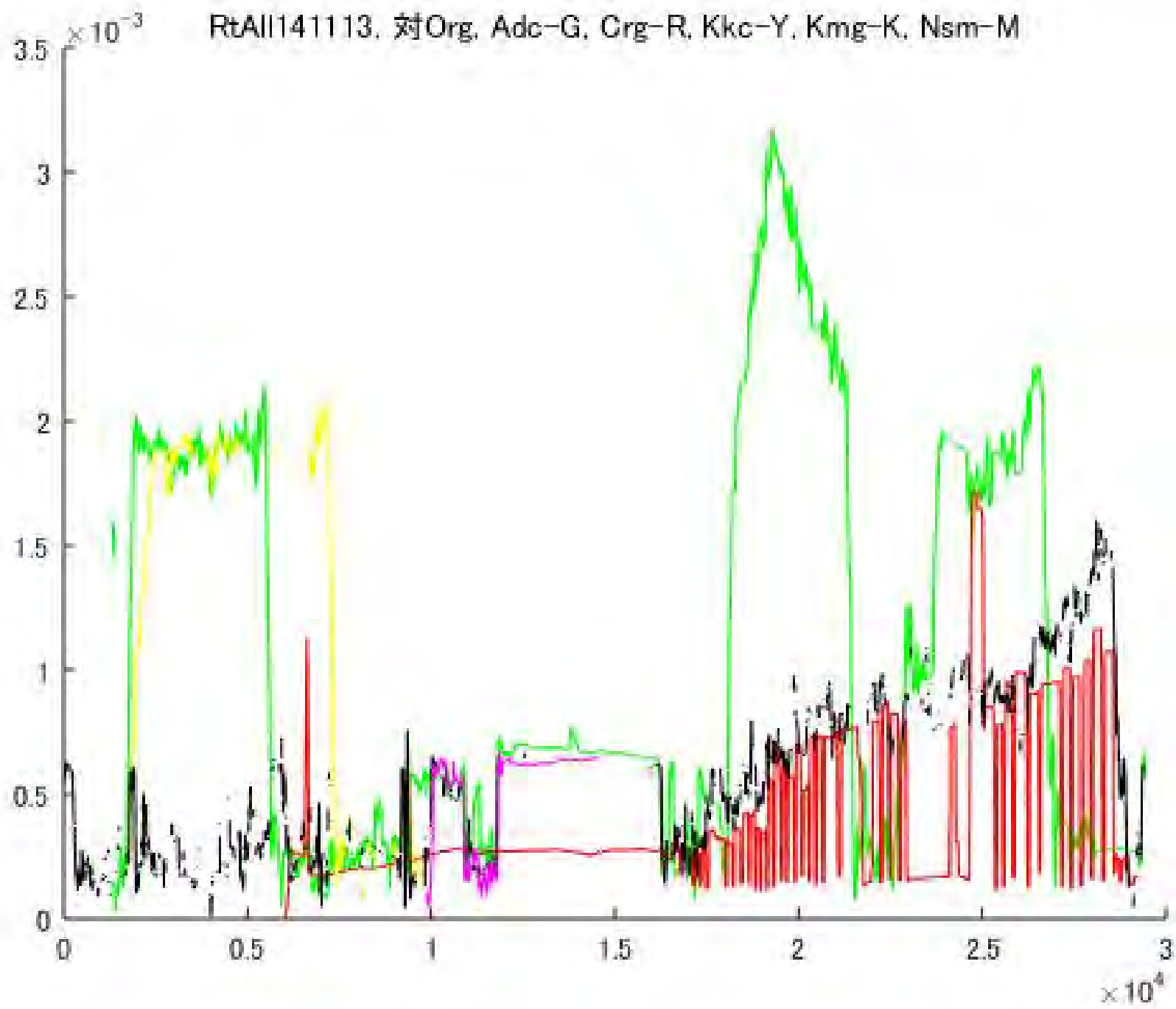
Work point distance
for task
- assistant, feller
choker-man



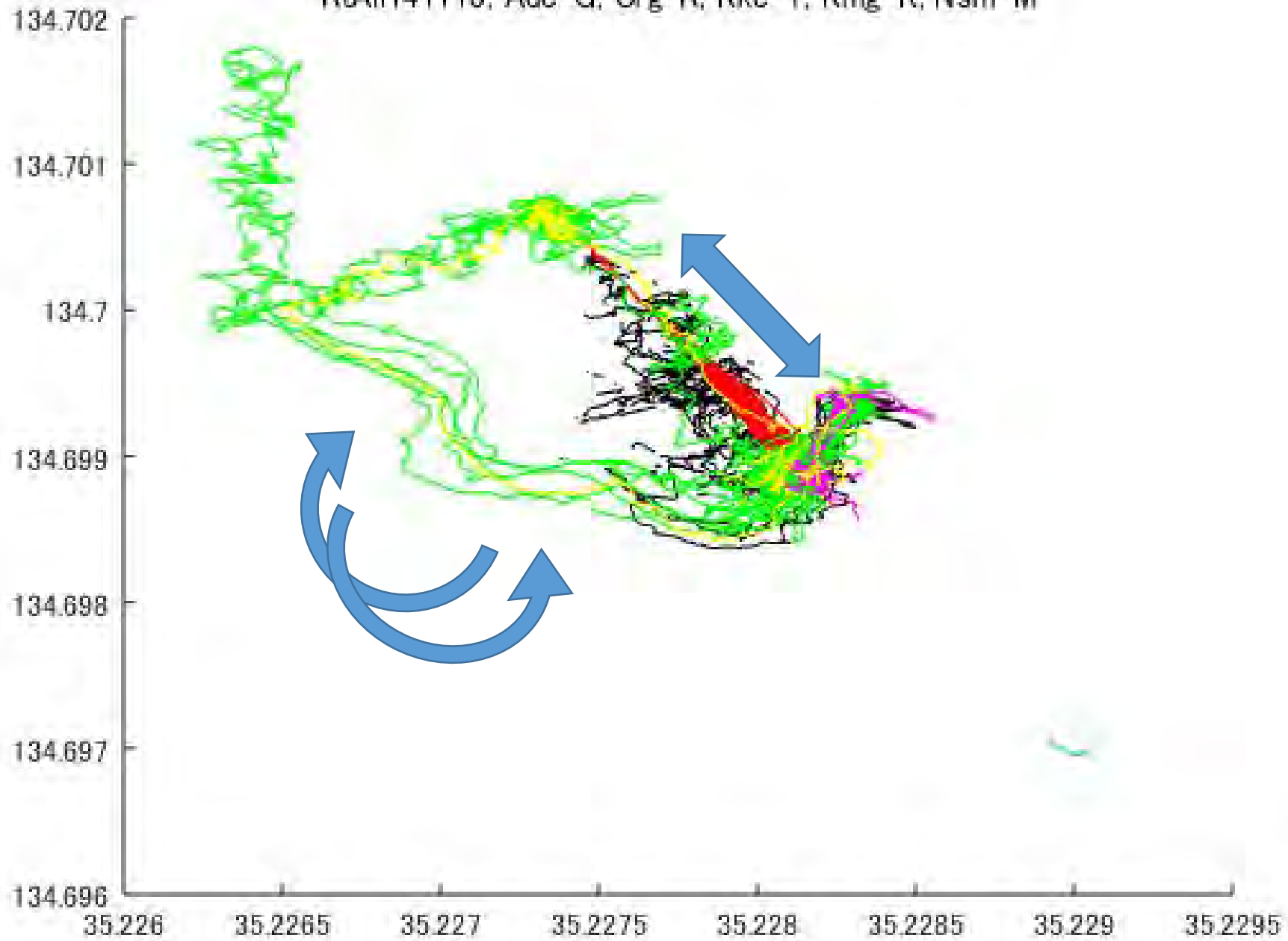
Work point distance
for task
- assistant, (feller)

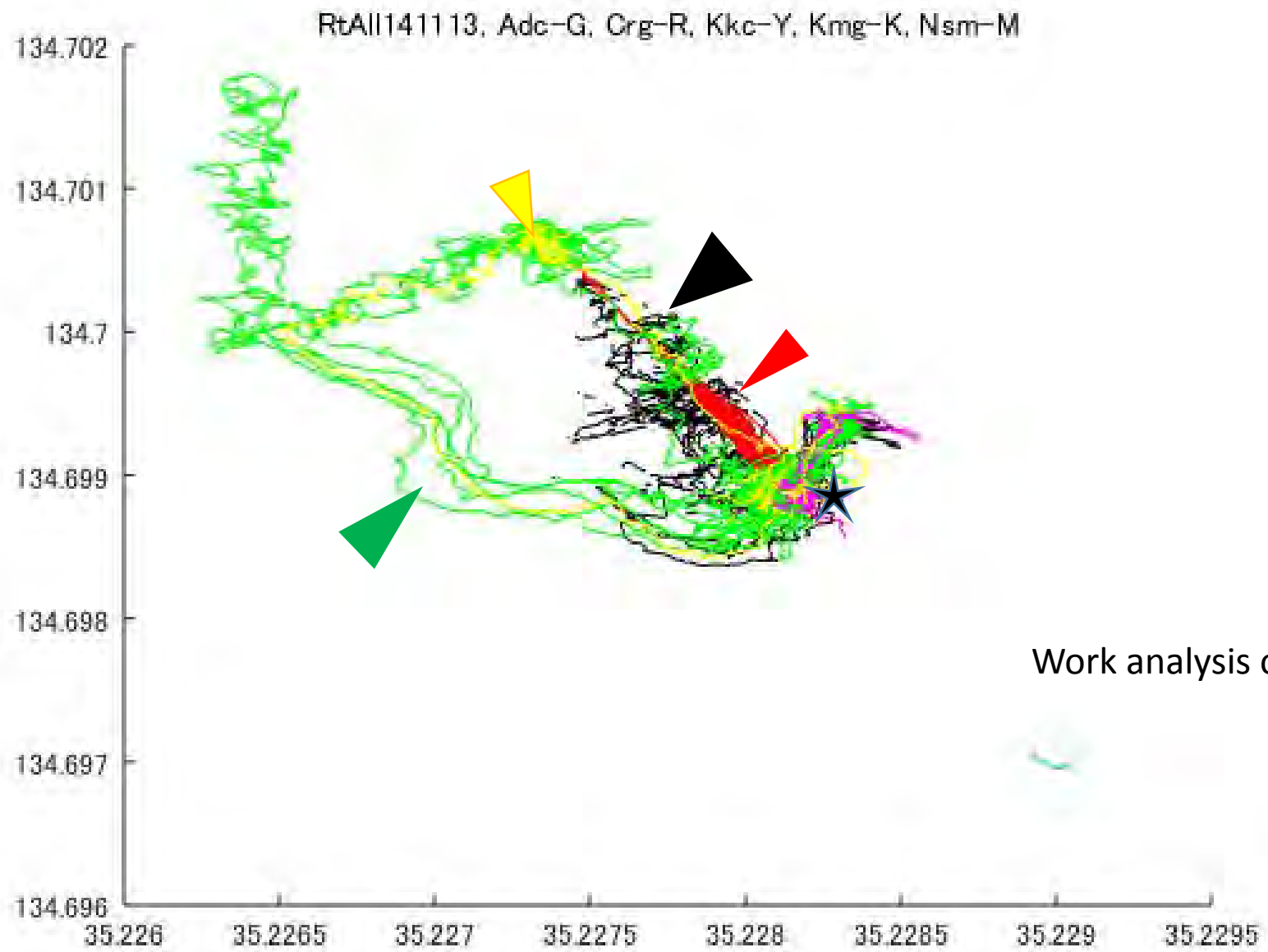


Work point distance for tasks

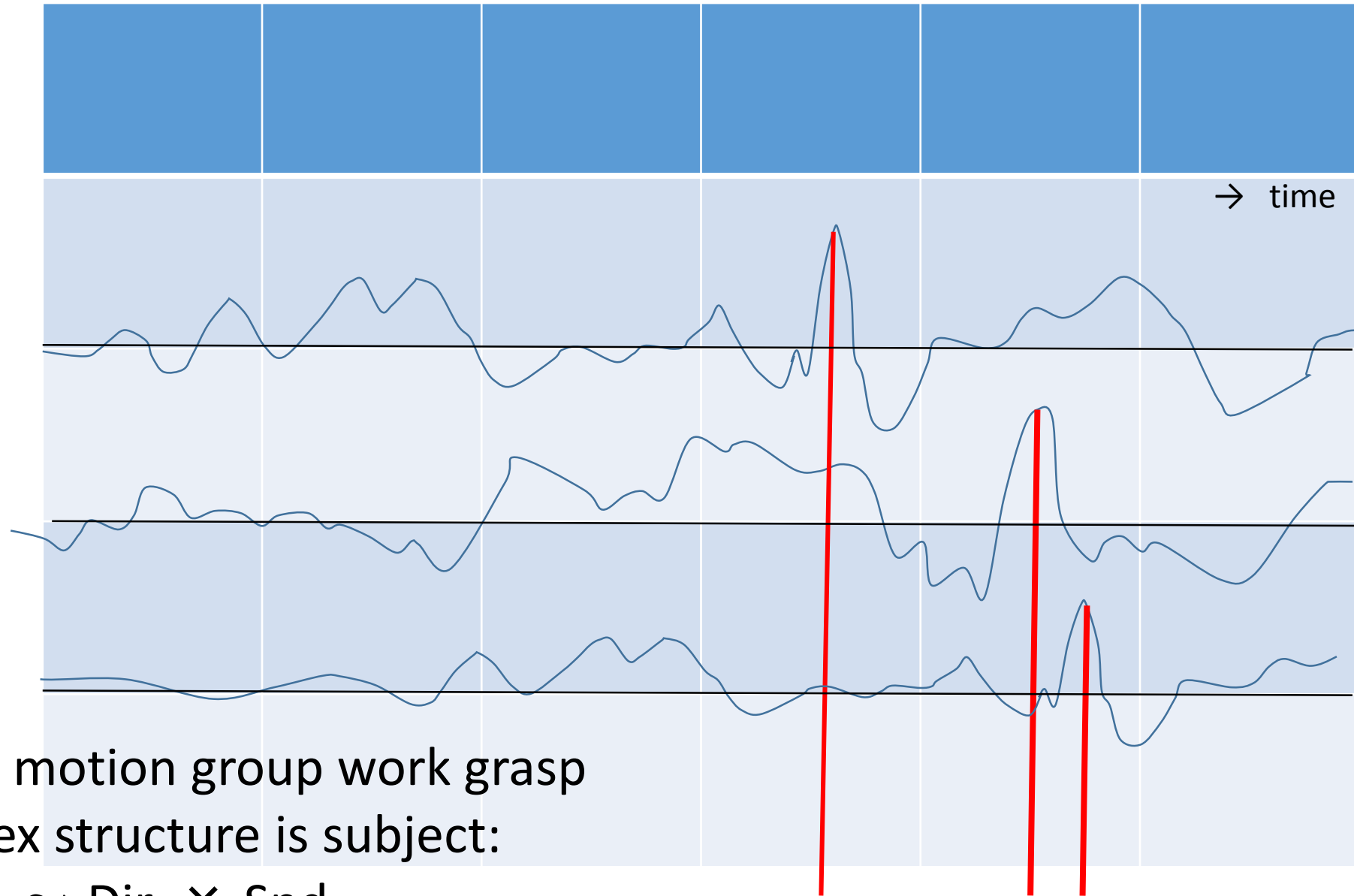


RtAll141113, Adc-G, Crg-R, Kkc-Y, Kmg-K, Nsm-M





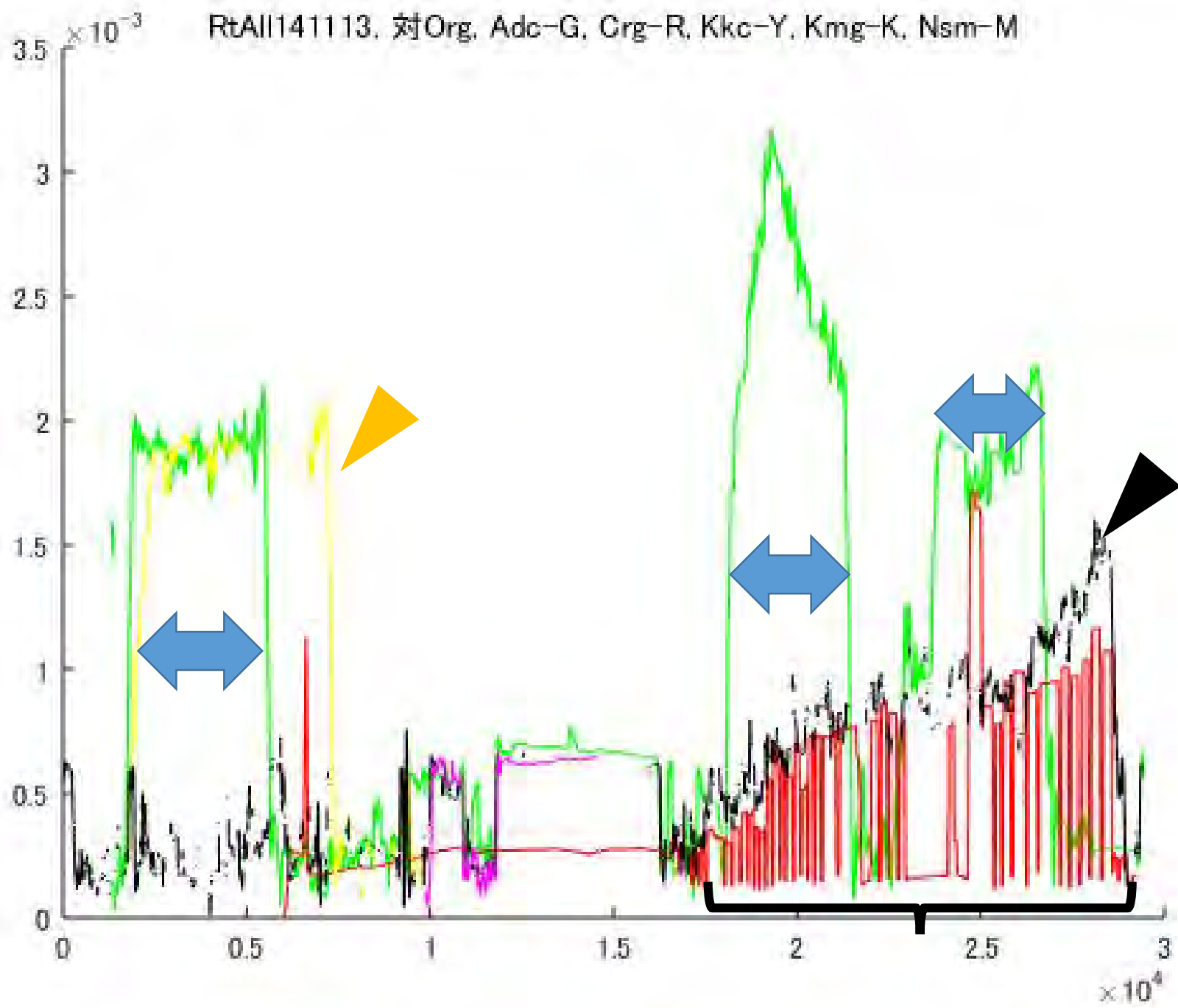
Work analysis on Simultainous



Wave motion group work grasp

- Index structure is subject:

~ Dir. × Spd.



Numerical Analysis

- Productivity
 - Yarding times (distance)
 - 29 times/afternoon \rightarrow 50m³ \rightarrow 10+m³/man \cdot day
 - Labor hours for sort/process of work
 - 0.6 + 0.2 man \cdot day for next line layout setting
 - 0.4 + 0.8 + 1.0 + 0.2 man \cdot day for yarding/processing
- +

Conclusion

- Operation acquisition and control
- Time series grasp
 - Location, process sequence
 - Team work, process timing
 - Time series model acquisition and evaluation
- Operation log
 - Improvement
 - Advice/support
 - Work safety
 - Mobile phone App
 - Operation DataBase