ERTMS and train simulation

KAJT 2019

Tomas Rosberg

Pre-study completed December 2018

- Study the field of ERTMS simulation – overall objective
- Research area defined.
- Litterature study performed
- Project reference group started
- P.HD project defined in the area ERTMS simulation
- Marcus Bohlin (Adj. Prof) and Birgitta Thorslund (Research Leader) KTH/VTI supervisors
- Trafikverket (Capacity center, ERTMS project, Trafikledning)

Overview – what is this about?

Simulates Train traffic

RAILSYS

->Missing driver behavior model!

Simulates Signal system & train

VTI
TRAIN SIMULATOR

->Vehicle model has limitations!

Research question (nr 1)

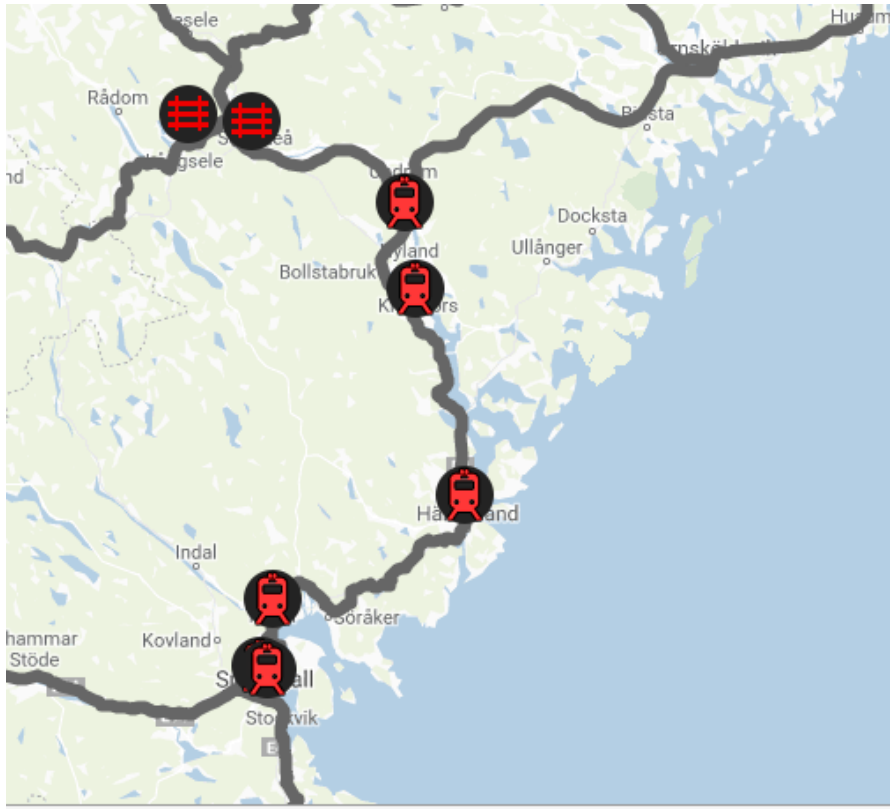
Validation of two different security systems (ATC & ERTMS) in 3 different traffic environments

Real tracks/trains – RailSys - VTI train simulator

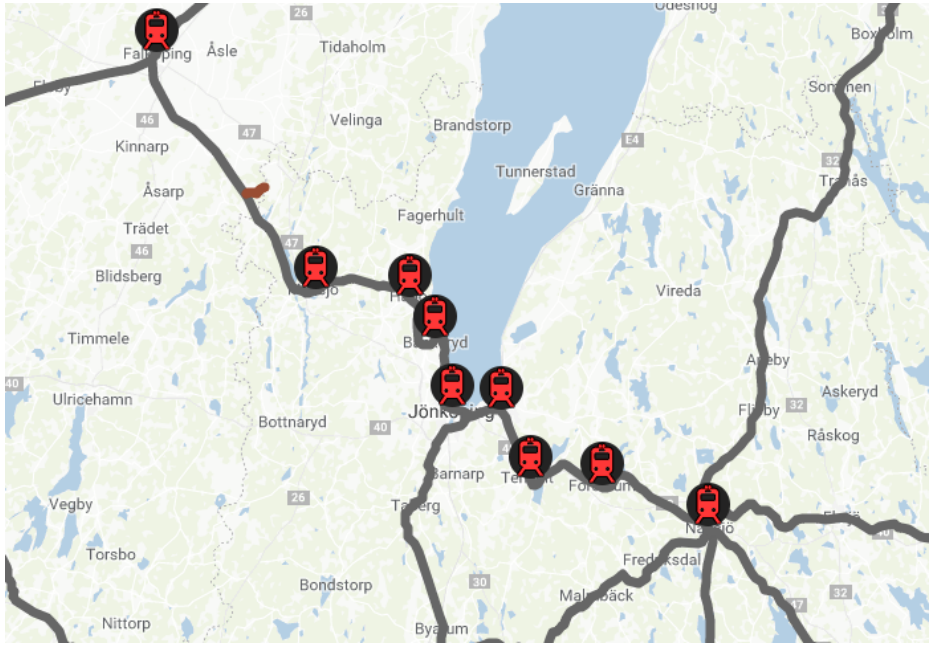
- ATC, Jönköpingsbanan. Single track.
- ERMTS, Ådalsbanan. Single track.
- Bombardier Regina and TRAXX/RD2
- Differences in VTI/simulator/RailSys/real traffic?
- Parameters of interest:
  - Running times
  - Driving behaviour – braking/acceleration/foresight
  - How do the driver follow the braking P-curve (permitted curve)?
  - Overspeed (ATC/ERTMS)

Tracks, signals and vechicle data

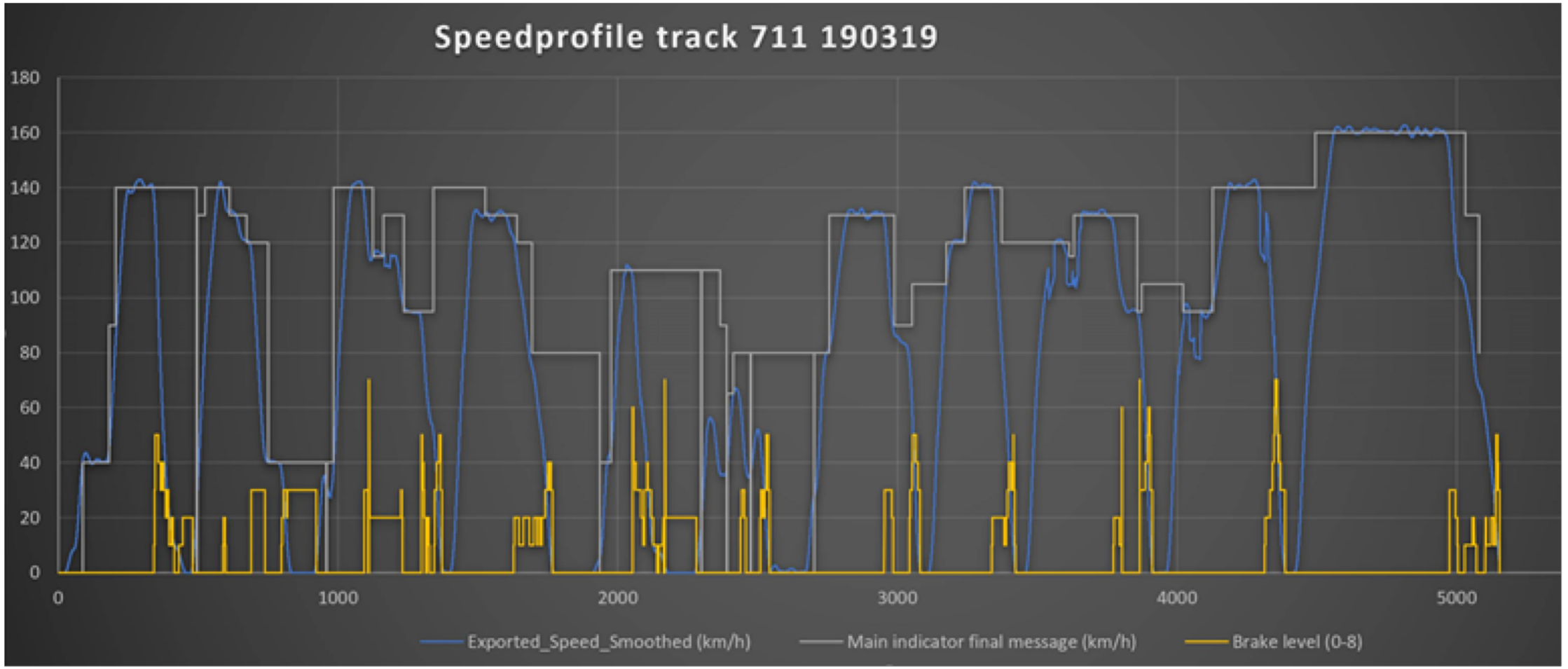
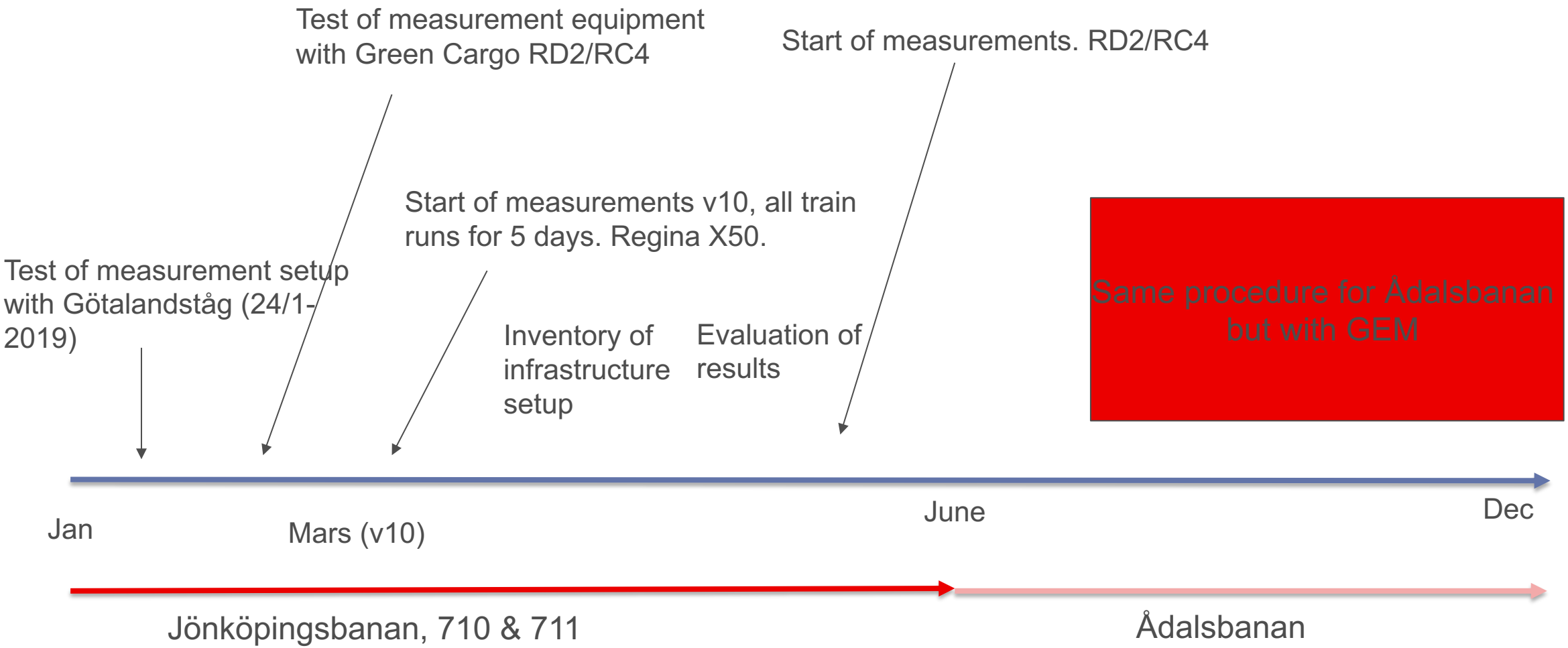
Ådalsbanan – ERTMS



Jönköpingsbanan – ATC/STM



First measurement period performed (Jönköpingsbanan)



Next step – timeline 2019